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S0300-BV-CAT-010

0910-LP-722-6800 **VOLUME 1**

U.S. NAVY
EMERGENCY SHIP SALVAGE MATERIAL CATALOG

SALVAGE EQUIPMENT



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A	13 June 03	Deleted System Number DS0500 – Towing Vessel Fire/Flood Alarm System Updated and reformatted System Number S05100 – Beach Gear Ground Leg System Updated and reformatted System Number S12300 – 30-kW Diesel Generator Updated and reformatted System Number S12400 – 20-kW Diesel Generator Updated and reformatted System Number S18200 – 3-Inch Trash Pumping System	
B	28 May 04	Updated and reformatted TOC and Index Updated and reformatted TOC and Index Updated Chapter 1 Updated Foreword Added System DS0600 – Primary Towing Bridle Assembly System (Generic) Added System DS0605 – Secondary Towing Bridle Assembly System (Generic) Updated and reformatted System S01100 – 175-Cfm Portable Air Compressor System Updated and reformatted System S01200 – 600-Cfm Portable Air Compressor System Updated and reformatted System S01300 – Submarine Salvage High Pressure Air Compressor System Deleted System S03100 – Spare Anchor System Updated and reformatted System S05100 – Beach Gear System Deleted System S05400 – 1 5/8-Inch by 300-Ft Wire Rope System Deleted System S05500 – 1 5/8-Inch by 600-Ft Wire Rope System** Deleted System S05600 – 1 5/8-Inch by 2000-Ft Wire Rope System Deleted System S06000 – 5/8-Inch Carpenter Stopper System	

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Change No.	Date	Title and/or Brief Description	Signature of Validating Officer
B	28 May 04	Deleted System S06100 – 7/8-Inch Carpenter Stopper System Deleted System S06200 – 1 1/4-Inch Carpenter Stopper System Deleted System S06300 – 1 5/8-Inch Carpenter Stopper System Deleted System S06400 – 2-Inch Carpenter Stopper System Deleted System S06500 – 2 1/4-Inch Carpenter Stopper System Deleted System S06600 – 2 1/2-Inch Carpenter Stopper System Updated and reformatted System S07100 – Portable Deck Capstan System Deleted System S08100 – 2 1/4-Inch Chain Updated and reformatted System S12200 – 5-kW Diesel Generator System Updated System S12400 – 20-kW Diesel Generator System Updated and reformatted System S14100 – Light Tower System, with 5-kW Diesel Generator Deleted System S14200 – Light Tower System w/o Diesel Generator Updated and reformatted System S15100 – Lighting Kit System (120-Volt) Deleted System S16100 – Model 6 Hydraulic Power Unit System Updated and reformatted System S17100 – Hydraulic Cable Puller System Updated and reformatted System S18000 – 6-Inch Submersible Salvage Pumping System Updated and reformatted System S18100 – 350-Gpm, 3-Inch Diesel Pumping System Updated System S18200 – 3-Inch Diesel Trash Pumping System and corrected page numbers Updated and reformatted System S18300 – 1500-Gpm, 6-Inch Diesel Pumping System Updated and reformatted System S18400 – 3000-Gpm, 10-Inch Diesel Pumping System	

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B	28 May 04	Updated and reformatted System S18600 – 1 1/2-Inch Submersible Pumping System Updated and reformatted System S18700 – 4-Inch Electric Submersible Pumping System Updated and reformatted System S18800 – 4-Inch Hydraulic Submersible Pumping System Updated and reformatted System S18900 – 6-Inch Hydraulic Submersible Pumping System Deleted System S20100 – Salvage Air Hose System Updated and reformatted System S21100 – Salvage Pontoons Updated and reformatted System S24100 – Tension Meter Updated and reformatted System S31000 – Oxygen-Acetylene Cutting & Welding Kit	
Adv C	14 Jan 05	Updated and reformatted System S21100 – Salvage Pontoons	
C	31 Jan 06	Updated and reformatted TOC and Index Updated and reformatted System DS0600 – Primary Towing Bridle Assembly System (Generic) Updated and reformatted System DS0605 – Secondary Towing Bridle Assembly System (Generic) Updated and reformatted System S01100 – 175-Cfm Portable Air Compressor System Updated and reformatted System S01300 – Submarine Salvage High Pressure Air Compressor System Updated and reformatted System S05100 – Beach Gear System Updated and reformatted System S21100 – Salvage Pontoons Updated and reformatted System S26100 – Underwater Cutting Kit	LLS

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Change No.	Date	Title and/or Brief Description	Signature of Validating Officer
D	3/31/06	Updated and reformatted System S18000 – 6-Inch Submersible Salvage Pumping System Updated and reformatted System S18200 – 3-Inch Diesel Trash Pumping System Updated and reformatted System S18300 – 1500-Gpm, 6-Inch Diesel Pumping System Updated and reformatted System S18500 – 2 1/2-Inch Jetting Pump System Updated and reformatted System S18800 – 6-Inch Hydraulic Submersible Pumping System Added System S22100 – Spooling System Updated and reformatted System 24100 – Tension Meter Updated and reformatted System S29100 – 400-Amp Diesel Welder System Deleted System S29200 – Welding Kit, 400-Amp Welder	LLS
E	30 Jun 06	Updated and reformatted System DS0121 – 60-Kip Flyaway Deep Ocean Salvage System (FADOSS) Updated and reformatted System DS0200 – Four-Point Mooring System Updated and reformatted System S19100 – Reverse Osmosis Water Purification System Updated and reformatted System S30100 – 8-Ton Diesel Winch System Updated and reformatted System S31000 – Oxygen-Acetylene Cutting & Welding Kit	LLS

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NAVSEA TECHNICAL MANUAL CERTIFICATION SHEET

NAVSEA 9086/11 (8/88)

TM Identification Number	Publication Date
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TM Specification.

Title: U.S. NAVY EMERGENCY SHIP SALVAGE MATERIAL CATALOG: SALVAGE EQUIPMENT

FOR CHANGES AND REVISIONS: (Indicate "NA" if item not applicable)

Purpose of Change/Revision:
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TM/Change/Revision Numbers Superseded: Change D
TMDER/ACN Numbers Incorporated: NA
Ship or Equipment Alteration/Field Change (FC)/Engineering Change (EC) Numbers Incorporated: NA

CERTIFICATION STATEMENT

This is to certify that responsible NAVSEA activities have reviewed the basic technical manual ( ), revision ( ), or change (X) for acquisition compliance, technical coverage, and printing quality. This form is for internal NAVSEA management use only, and does not imply contractual approval or acceptance of the technical manual by the Government, nor relieve the contractor of any responsibility for delivering the technical manual in accordance with the contract requirements.

NAVSEA SIGNATURES

Activity Acquisition	Name	Signature	Organization	Code	Date
Technical	Joe Stahovec		NAVSEA	00C24	6/30/06
Printing Release					

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SYNOPSIS OF CHANGE: Generally describe each significant technical addition, deletion, and change. Use additional pages as necessary.

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REMARKS:
NONE

CERTIFICATION: DATE: 1 April 1999

It is hereby certified that NAVSEA S0300-BV-CAT-010, to be certified under contract number N00024-01-D-4018, has been approved by the approval authority shown above.

NWS Cheatham Annex
C Street, Warehouse 12
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FOREWORD

The ESSM Salvage Catalog is the basic reference for all major items of ESSM salvage equipment. Each system page describes the purpose and major uses of the system in general, and lists the equipment or components that comprise that system. The individual component data pages include descriptions, photographs, physical characteristics, as well as information on ancillary equipment and references for each major ESSM-numbered piece of equipment.

Suggestions for future improvements to the technical content are encouraged. SUPSALV is continually working to upgrade the Navy's salvage related response capability. Comments on this document may be submitted to the following address:

Naval Sea Systems Command
1333 Isaac Hull Ave. SE
Washington Navy Yard, DC 20376

Telephone: (202) 781-1070
Fax: (202) 781-4855

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CHAPTER 1

EMERGENCY SHIP SALVAGE MATERIAL

SECTION 1.1

ESSM SYSTEM DESCRIPTION

1.1.1 PURPOSE AND FUNCTION

The Emergency Ship Salvage Material (ESSM) System is a combination of bases and complexes that provide ship salvage, pollution control, and underwater ship husbandry equipment on an emergency basis. Bases are located within the Continental United States (CONUS) and provide a complete inventory of ESSM equipment; complexes are located outside CONUS and carry limited amounts of ship salvage and pollution control material.

1.1.2 BASES

There are two ESSM bases located within the Continental United States. Both bases carry essentially the same allowance of material, which includes a complete inventory of ship salvage, pollution control, and underwater ship husbandry equipment. All material is stored and maintained in ready-for-issue condition by a commercially contracted manager and support personnel. The Supervisor of Salvage (00C) controls all issuance of ESSM base material. CONUS base locations are:

Virginia

ESSM Base
Cheatham Annex, Warehouse 12
Williamsburg, VA 23185
Telephone: (757) 637-9000
Fax: (757) 637-9089
DSN: 953-7402

California

ESSM Base
NBVC, Patterson Road, Bldg. 1163
Port Hueneme, CA 93043
Telephone: (805) 982-4463/2165/2232/2164
Fax: (805) 982-4459
DSN: 551-4463

1.1.3 COMPLEXES

Presently, there are six ESSM complexes located outside the Continental United States:

Alaska

ESSM Base SUPSALV
Bldg. 800, 1st and Warehouse
Fort Richardson, AK 99505
Telephone: (907) 384-2963
(907) 384-2968
Fax: (907) 384-2969

Hawaii

ESSM Base
Bldg. 54, Bishop Point
Pearl Harbor, HI 96860
Telephone: (808) 423-7100
(808) 423-7055
Fax: (808) 423-6535

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1.1.3 COMPLEXES - Continued

Italy

ESSM Complex
M/F Commanding Officer
UIC WSCM99, Depot Warehouse 3
Via Aurelia, Leghorne Army Depot
Livorno, Italy 56018
Telephone: 011-39-50-547233/547893
Fax: 011-39-50-547868
DSN: 663-7233

Bahrain

ESSM Complex
Attn: SRU Bahrain
Banz Warehouse, #1 Juffair Ave.
Manama, Bahrain
Telephone: 011-973-724441
011-973-724442
011-973-724443
011-973-724445
Fax: 011-973-724447
DSN: 318-439-724442

Singapore

ESSM Complex
PSA Sembawang Terminal, Bldg. 7-A
Singapore 759657
Telephone: 011-65-6750-2626
Fax: 011-65-6750-2450

Japan

ESSM Complex
Attn: U.S. Naval Repair Facility
Tategami-Cho Bldg 141
Sasebo Naval Base
Sasebo, Japan
Telephone: 011-81-956-24-6111
ext. 3265/3212
Fax: 011-81-956-24-7723

These complexes are established to provide an ESSM presence in overseas areas. Their inventories include limited quantities of ship salvage material and pollution control equipment, and are intended for short-term emergency use. This material is stored in ready-for-issue condition and in a low level of preservation. Equipment is not afforded the caretaker status associated with ESSM bases in CONUS. The Supervisor of Salvage (00C) controls all issuance of ESSM complex material.

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SECTION 1.2

SYSTEM ADMINISTRATION

1.2.1 SCOPE

This section describes responsibilities for the administration of the total ESSM System.

1.2.2 SYSTEM ADMINISTRATION

The focal point for all matters pertaining to the ESSM System is the office of the Supervisor of Salvage (00C) within the Naval Sea Systems Command (NAVSEA).

Department of the Navy
Naval Sea Systems Command (SEA-00C)
1333 Isaac Hull Ave.
Washington Navy Yard, DC 20376-1070
Telephone: (202) 781-1070
Fax: (202) 781-4855
DSN: 326-1070
NAVSEA Duty Officer: (202) 781-3889

The SUPSALV Operations Branch serves as a clearing point for all ESSM inquiries and requests. Determination of what assistance is required rests with their evaluation of a given situation. Assistance may be provided through recommendations or the actual provision of specific ESSM items, based on cumulative case experience. Final determination and issuing authority for ESSM requests remain with the Supervisor of Salvage or his designated deputy.

1.2.2.1 ESSM MANAGER. A commercially contracted ESSM Warehousing Manager is directly responsible to the Supervisor of Salvage for provision of the following ESSM support services:

a. Full-time manning and management of ESSM bases.

b. Periodic maintenance and inventory of equipment stored at ESSM complexes.

c. Maintaining all ESSM System equipment for immediate deployment and operation.

d. Providing operators for pollution control equipment when it is deployed.

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SECTION 1.3

SYSTEM OPERATION

1.3.1 SCOPE

This section describes specific procedures, responsibilities, and fiscal requirements for activities desiring to utilize the ESSM System.

1.3.2 SYSTEM OPERATION

1.3.2.1 GENERAL: Materials in ESSM bases and ESSM complexes are contingent items for emergency use only, as required by the requesting activity. The materials are not intended for stock replenishment of salvage ships and stations for their routine operations. Prerequisites for obtaining ESSM equipment differ with equipment categories and requesting activities. Equipment categories are:

- Ship Salvage Material
- Pollution Control Material
- Underwater Ship Husbandry Material (UWSH)

Technical representatives are available to accompany ship salvage and underwater ship husbandry materials; contractor operators are provided with pollution control equipment. The following paragraphs of this section identify the variable requesting and funding criteria for ESSM.

1.3.3 REQUESTING ACTIVITY CATEGORIES

Commercial: Pollution control assistance to commercial interests in U.S. waters is provided through, and in support of, the U.S. Coast Guard and other federal agencies. The provision of Navy salvage assistance to commercial ships is determined by the Secretary of the Navy. However, ship salvage and underwater ship husbandry materials are made available to commercial contractors through direct leasing agreements with the Supervisor of Salvage. These agreements must be preceded by certification that no similar commercial assets are available.

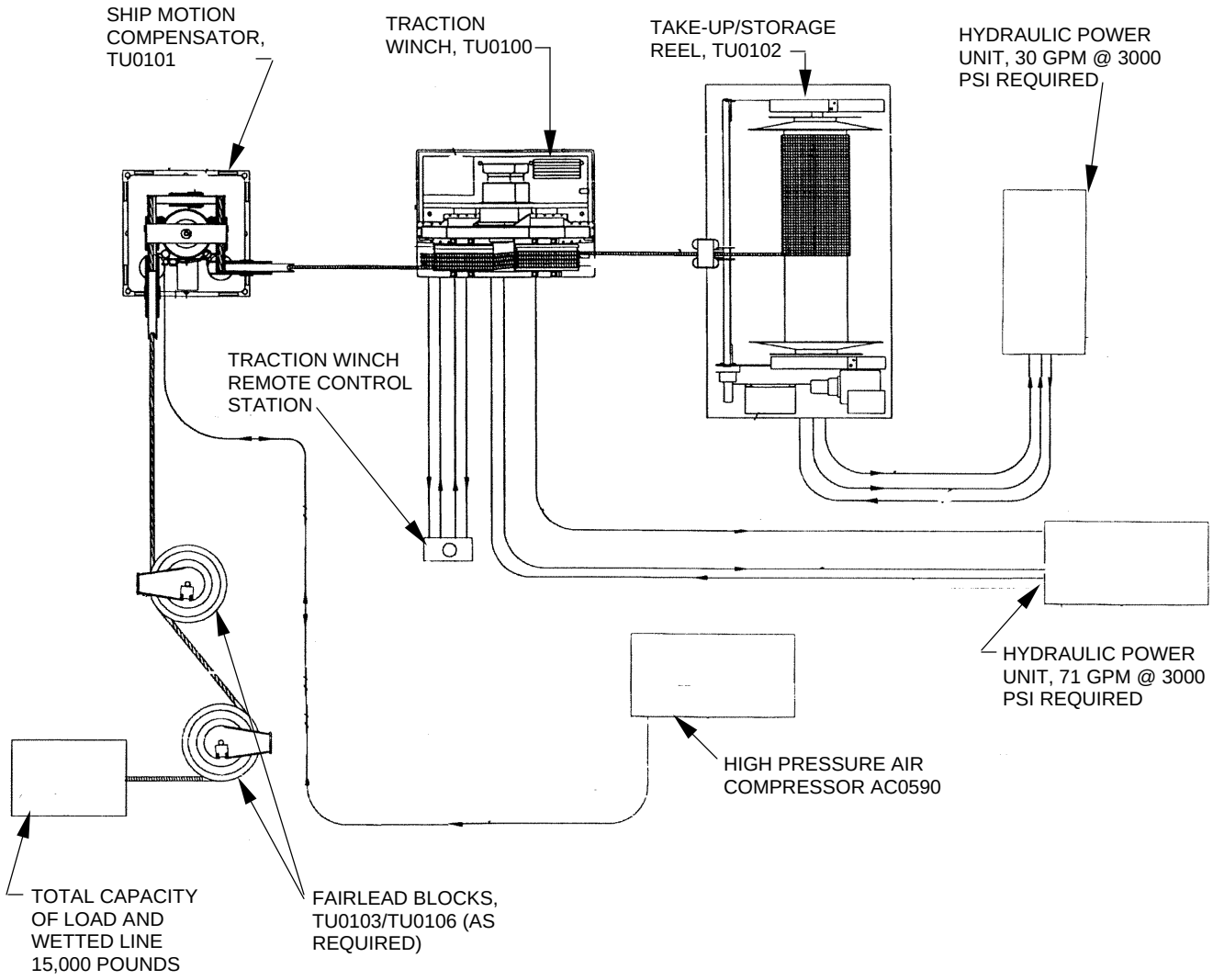
1.3.4 THE ESSM CATALOG

This catalog has been compiled to offer a quick and detailed reference on all major items of Emergency Ship Salvage Material. The catalog is divided into three separate volumes, with each volume representing each major equipment category, as follows: Volume 1, Salvage Equipment; Volume 2, Pollution Equipment; and Volume 3, Underwater Ship Husbandry Equipment. Each volume is divided into tabs representing each system for stated category of equipment. The system descriptions contain information on individual components of each system that include photographs, physical characteristics and specifications, and information regarding ancillary equipment.

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15-KIP FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS) (1ST GENERATION) DS0100

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Note: Aramid fiber line of 1 or 1 1/2-inch diameters is available in lengths of up to 24,000 feet. Request line separately.

Overview of 1st Generation 15-Kip FADOSS DS0100

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FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS), 15-KIP (1ST GENERATION) — SYSTEM NUMBER DS0100

SYSTEM DESCRIPTION

The 15-Kip Flyaway Deep Ocean Salvage System (FADOSS) DS0100 is a portable, ship motion-compensated lift system designed to provide reliable deep ocean lifting capability of up to 15,000 pounds for the recovery of large, bulky, and heavy sunken objects, such as aircraft and small vessels. The most important component of the system is the ship motion compensator (SMC), which offsets the ship's heave motion to prevent high-snap tension from occurring in the lift line. The FADOSS has been used in ocean salvage and recovery, but other potential uses of this system include ship towing, mooring, and ocean mining.

The FADOSS contains the following separate components: traction winch, ship motion compensator (SMC), take-up/storage reel, fairlead blocks, and air compressor. Hydraulic power units are required, the capacities of which will depend on the onsite system configuration. The user may supply hydraulic power unit(s) or they may be requested separately from the ESSM Facility.

Line is available in 1 or 1 1/2-inch diameters and in various lengths depending on the job requirements. Order the line separately.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Air Compressor, 15 cfm @ 3000 psi, Diesel, Model 10T2:	AC0590	1
Spare Parts Kit, for AC0590 Air Compressor	AC0592	1
2. Traction Winch (1st Generation):	TU0100	1*
Roundsling Bridle, Polyester, 4-Leg, 6' w/ Cloth D-Ring	SL0390	1
3. Hydraulic Hose Reel Assembly, Traction Winch	TU0123	1*
4. Ship Motion Compensator (1st Generation):	TU0101	1
Roundsling Bridle, Polyester, 4-Leg, 4' w/ Cloth D-Ring	SL0400	1
5. Take-up/Storage Reel, 15-Kip FADOSS (1st Generation):	TU0102	1
Roundsling Bridle, Polyester, 4-Leg, 16' w/ 1 3/4" Link	SL0391	1
6. Hydraulic Hose Reel Assembly, Take-up/Storage Reel,	TU0126	1
7. Block, Fairlead, 32"	TU0103	TBD**
8. Ancillary Set, 15- Kip FADOSS (1st Generation)	TU0105	1
9. Block, Fairlead, 22"	TU0106	TBD**

* The user may supply required HPU(s) or one may be requested from the ESSM Facility.
** The number of fairlead blocks required will depend on the machinery layout on the host vessel.

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15-Cfm Diesel Air Compressor AC0590

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AIR COMPRESSOR, 15 CFM @ 3000 PSI, DIESEL, MODEL 10T2 **ESSM NUMBER AC0590**

DESCRIPTION

The 15-Cfm Diesel Air Compressor AC0590 is a multistage, low volume, high pressure air compressor driven by a 23-horsepower, four-cylinder diesel engine. The air compressor can deliver up to 15 cfm at a pressure of 3000 psi. The engine and compressor are housed in a skid-mounted frame with forklift slots for handling the unit.

SPECIFICATIONS

Compressor Assembly

Manufacturer	Ingersoll-Rand
Model	10T2
Capacity	15 cfm
Operating pressure	3000 psi
Stages	5

Engine

Manufacturer	Onan
Model	DJC-MS/2450
Cylinders	4
Speed	2400 rpm
Horsepower	23 @ 2400 rpm
Starting	Electric, 12-volt
Fuel	Diesel
Fuel source	External tank
Fuel consumption	1.5 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 10 in.
Width	3 ft, 6 in.
Height	4 ft, 1 in.
Cube	83 cu ft
Weight	2500 lb

REFERENCES

1. NAVSEA Technical Manual SS500-AC-MMC-010/MK32 Mod 0.

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Spare Parts Kit AC0592

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SPARE PARTS KIT, FOR AC0590 AIR COMPRESSOR — ESSM NUMBER AC0592

DESCRIPTION

The Spare Parts Kit AC0592 contains items necessary to support the operation and maintenance of one Air Compressor AC0590.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 27” x 19” x 12”, w/lid:	1
Filter, engine air	1
Filter, fuel (primary)	1
Filter, fuel (secondary)	1
Filter, oil	1
Inventory, laminated	1
Manual, AC0590 Air Compressor	1
Manual, Air Compressor Parts Listing	1
Manual, Air Compressor	1
V-belt, fan (matched set of 3 belts)	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 3 in.
Width	1 ft, 2 in.
Height	1ft, 0 in.
Cube	4 cu ft
Weight	25 lb

REFERENCES

None

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15-Kip FADOSS Traction Winch TU0100



15-Kip Traction Winch Drums

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TRACTION WINCH, 15-KIP FADOSS (1ST GENERATION) ESSM NUMBER TU0100

DESCRIPTION

The 15-Kip FADOSS Traction Winch TU0100 is a hydraulically driven horizontal capstan with two identical multi-grooved drums. The drums have five grooves each with a pitch diameter of 28 inches. The motors are connected in parallel hydraulically and mechanically to assure turning at the same rate. The winch is capable of maintaining a line tension of 15,000 or 7,500 pounds while hauling in/paying out line at a rate of 120 or 240 fpm, respectively. The unit can be operated by local control or with an electric remote control. The winch is mounted on a steel base plate with forklift slots and surrounded by a steel frame with a lifting sling attached for ease in maneuvering. A sacrificial base is bolted to the winch base assembly to allow welding the unit to a steel deck to prevent movement during operations. The Traction Winch requires a hydraulic power source of 71 gpm @ 2500 to 3000 psi.

SPECIFICATIONS

Traction Winch Assembly

Manufacturer	Western Instrument
Model	15K Winch
Capacity:	15,000 lb tension @120 fpm; 7,500 lb tension @ 240 fpm
Oper. pressure:	
Rated	2500 psi
Maximum	4640 psi

Motor

Manufacturer	Haggslund/Denison
Type	Viking
Part no.	UK4306800A01N0100
Displacement	414 cu in./rev.
Speed:	
Rated	90 rpm
Maximum	170 rpm

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	7 ft, 1 in.
Width	5 ft, 0 in.
Height	5 ft, 2 in.
Cube	183 cu ft
Weight	10,540 lb

REFERENCES

1. 15-Kip FADOSS Traction Winch, Operations/Maintenance Manual, S/N 8708.

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4-Leg Polyester Roundsling Bridle SL0390

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 6', W/ CLOTH D-RING **ESSM NUMBER SL0390**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0390 is designed specifically for handling the 15-Kip FADOSS Traction Winch TU0100 in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the lifting points of the winch.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	Q0-EE90 x 6'	1" screw pin
Capacity	29,000 lb @ 60°	16 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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15-Kip FADOSS Traction Winch Hydraulic Hose Reel TU0123

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HYDRAULIC HOSE REEL ASSEMBLY, TRACTION WINCH 15-KIP FADOSS **ESSM NUMBER TU0123**

DESCRIPTION

The 15-Kip FADOSS Traction Winch Hydraulic Hose Reel TU0123 contains hoses used to transmit hydraulic pressure from the HPU to the Traction Winch TU0120. The hose reel assembly contains two 25-foot lengths of l-inch hose for case drains and four 25-foot lengths of 1 1/2-inch hose for supply and return. The hose assemblies have both male and female Snap-tite quick disconnect fittings. The hose reel assembly is mounted on a steel frame with forklift slots.

SPECIFICATIONS

Hose Reel Assembly

Manufacturer	Intercontinental
Model	91088-9l-6B

Hose Assembly, 1 1/2” x 25’ (4)

Hose	1 1/2” hose - Aeroquip FC273-24
Fittings	1 1/2” coupler, quick disconnect - Snap-tite 71-1C32-24EF; 1 1/2” nipple, quick disconnect - Snap-tite 71N32-24EF

Hose Assembly, 1” x 25’ (2)

Hose	1” hose - Aeroquip 2781-16
Fittings	1” coupler, quick disconnect - Snap-tite VPHCI6-l6-EM; 1” nipple, quick disconnect - Snap-tite VPHNI6-l6-EM

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 3 in.
Width	4 ft, 5 in.
Height	5 ft, 6 in.
Cube	128 cu ft
Weight	2400 lb

REFERENCES

1. 15-Kip FADOSS Hose Reel Manual, GPC 91088-9l-6B 92104/92105.

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15-Kip FADOSS Ship Motion Compensator (SMC) TU0101

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SHIP MOTION COMPENSATOR, 15-KIP FADOSS (1ST GENERATION) **ESSM NUMBER TU0101**

DESCRIPTION

The 15-Kip FADOSS Ship Motion Compensator (SMC) TU0101 is an air-over-oil, hydraulic ram cylinder with a rated operating pressure of 2000 psi. The SMC compensates for the ship's motion by extending or retracting the hydraulic ram to maintain a constant tension on the lift line. This prevents or greatly reduces high-snap loads on the lift line during the lifting operation. The 15,000-pound capacity SMC uses a 60,000-pound ram tensioner with a four-part rigging system to allow for extended line travel during operation.

Operation of the SMC is controlled by high pressure air which is connected to valves located on the side of the SMC. Air is normally supplied at up to 2000 psi from the system high pressure air compressor. A manually operated locking valve on the base of the SMC allows the operating cylinder to be locked or to move freely. The SMC is mounted on a steel base with forklift slots, and surrounded by a steel frame. The frame has four lifting points that are used with a lifting sling to facilitate handling in an under-the-hook configuration. A sacrificial base is bolted to the SMC frame assembly to allow welding the unit to a steel deck to prevent movement during operations.

SPECIFICATIONS

Manufacturer	RETSCO
Model	60K Tensioner
Capacity	15,000 lb tension w/4-part rigging system
Oper. press. (rated)	2000 psi
No. of sheaves	5

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 5 in.
Width	4 ft, 5 in.
Height	8 ft, 7 in.
Cube	168 cu ft
Weight	7112 lb (w/ baseplate)

REFERENCES

1. 15-Kip FADOSS Ship Motion Compensator, Operations/Maintenance Manual, S/N D-022347REY-A.

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4-Leg Polyester Roundsling Bridle SL0400

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 4', W/ CLOTH D-RING **ESSM NUMBER SL0400**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0400 is designed specifically for handling the 15-Kip FADOSS Ship Motion Compensator TU0101 in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the lifting points of the SMC.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	EN60 X 4'	1/2" screw pin
Capacity	10,600 lb @ 60°	2 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	15 lb

REFERENCES

None

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15-Kip FADOSS Take-up/Storage Reel TU0102



Take-up/Storage Reel Controls

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TAKE-UP/STORAGE REEL, 15-KIP FADOSS (1ST GENERATION) **ESSM NUMBER TU0102**

DESCRIPTION

The 15-Kip FADOSS Take-up/Storage Reel TU0102 is a hydraulically driven unit that, during operation, applies a tension of 500 lb to the system lifting line. The Take-up/Storage Reel has two internal hydraulic motors; one to drive the storage reel and a second to drive the level wind system. The speed of the level wind self-adjusts for the storage reel's speed and line size to evenly lay the line onto the storage reel. In the tension mode, the drum turns at a rate equal to that of the 15-Kip FADOSS Traction Winch TU0100. The drum can hold either 11,500 feet of 1-inch line or 8,000 feet of 1 1/2-inch line. The unit is mounted on a steel base plate with forklift slots and surrounded by a steel frame. The frame has four lifting points that are used with a lifting sling to facilitate handling in an under-the-hook configuration. The Take-up/Storage Reel requires a hydraulic fluid power source of 30 gpm @ 2500 to 3000 psi for operation.

SPECIFICATIONS

Take-up/Storage Reel Assembly

Manufacturer	Intercontinental
Model	91088-91-4B

Reeling Device

Manufacturer	Buzz Bascom & Assoc.
Drum capacity	11,500' of 1" line 8000' of 1 1/2" line
Oper. press. (rated)	3000 psi

Hydraulic Motor (Drum)

Manufacturer	Rineer
Part no.	15-61-015-31
Displacement	15 cu in./rev.
Flow (max.)	24 gpm
Pressure (rated)	3000 psi

Hydraulic Motor (Level Wind)

Manufacturer	Char-Lynn
Model	104-1022
Displacement	6.2 cu in./rev.
Flow (max.)	6 gpm
Pressure (rated)	3000 psi

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	13 ft, 7 in.	13 ft, 7 in.
Width	7 ft, 4 in.	7 ft, 4 in.
Height	6 ft, 3 in.	8 ft, 0 in.
Cube	596 cu ft	796 cu ft
Weight	9500 lb (w/o line)	9500 lb (w/o line)

REFERENCES

1. 15-Kip FADOSS Take-up/Storage Reel, Operations/Maintenance Manual, S/N 004004.

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4-Leg Polyester Roundsling Bridle SL0391

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 16', W/ 1 3/4" LINK **ESSM NUMBER SL0391**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0391 is designed specifically for handling the 15-Kip FADOSS Take-up/Storage Reel Hydraulic Hose Reel in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the lifting points of the SMC.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	EN60 X 4'	1/2" screw pin
Capacity	10,600 lb @ 60°	2 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	15 lb

REFERENCES

None

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15-Kip FADOSS Take-up/Storage Reel Hydraulic Hose Reel Assembly TU0126

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HYDRAULIC HOSE REEL ASSEMBLY, TAKE-UP/ STORAGE REEL, 15-KIP FADOSS **ESSM NUMBER TU0126**

DESCRIPTION

The 15-Kip FADOSS Take-up/Storage Reel Hydraulic Hose Reel Assembly TU0126 contains hoses used to transmit hydraulic pressure from the HPU to the Take-up/Storage Reel TU0102. The hose reel contains two 25-foot lengths of l-inch hose for case drains and four 25-foot lengths of l-inch hose for supply and return. The hose assemblies have both male and female Snap-tite quick disconnects. The hose reel is mounted on a steel frame with forklift slots to facilitate handling.

SPECIFICATIONS

Hose Reel Assembly

Manufacturer	Intercontinental
Model	91088-9l-6B

Hose Assembly, Case Drain (2)

Hose	1” hose - Aeroquip 2781-16
Fittings	1” coupler, quick disconnect - Snap-tite VPHCl6-l6-EM; 1” nipple, quick disconnect - Snap-tite VPHNl6-l6-EM

Hose Assembly, Hydraulic (4)

Hose	1” hose - Aeroquip FC273-16
Fittings	1” coupler, quick disconnect - Snap-tite 7l-2C16-20EF; 1” nipple, quick disconnect - Snap-tite 71-2N16-20EF

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 3 in.
Width	4 ft, 5 in.
Height	5 ft, 6 in.
Cube	128 cu ft
Weight	2000 lb

REFERENCES

1. 15-Kip FADOSS Hose Reel Manual, GPC 91088-9l-6B 92104/92105.

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15-Kip 32” Fairlead Block TU0103

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BLOCK, FAIRLEAD, 32”, 15-KIP FADOSS **ESSM NUMBER TU0103**

DESCRIPTION

The 15-Kip 32” Fairlead Block TU0103 is used with the 15-Kip FADOSS to direct the lift line between the major components of the system. The traction winch, reeling device, ship motion compensator, and lifting point may not have their line entrances and exits physically in line with each other due to the available space on the ship’s deck. The blocks redirect the lift line from one component to the next to allow for flexibility in arranging the FADOSS equipment on the ship’s deck. Three fairlead blocks are required for the 15-Kip FADOSS.

SPECIFICATIONS

Manufacturer	Timco
Reference no.	01703, pattern no. 90728
Sheave material	Nylon
Sheave dimensions:	
Outside dia.	32”
Tread dia.	27”
Pitch dia.	28 1/2”
Groove radius	5/8”
Hub width	3 3/8”
Sheave width	3”
Bore	2 1/2”

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 8 in.
Width	10 in.
Height	3 ft, 6 in.
Cube	8 cu ft
Weight	240 lb

REFERENCES

None

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15-Kip FADOSS Ancillary Set TU0l05

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ANCILLARY SET, 15-KIP FADOSS (1ST GENERATION) ESSM NUMBER TU0105

DESCRIPTION

The 15-Kip FADOSS Ancillary Set TU0l05 contains lubricating oils, air and hydraulic hoses, filters, operating manuals, hand tools, and consumables necessary to maintain one 15-Kip FADOSS while the system is deployed in the field.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	Qty
Container, wire mesh basket, 48” x 40” x 37”:	1
Can, engine oil storage, 5-gallon	1
Can, Rando 46 hydraulic oil storage, 5-gallon	3
Can, Quintolubric oil storage, 5-gallon	1
Oil, Rarus 427, 5-gal. can	1
Hose, hydraulic, 25’	2
Hose, high pressure air, 50’	1
Container, spare parts kit (24-gallon container):	1
Adapter, hydraulic, female 71-1C32 to male 71-3N16	1
Adapter, hydraulic, male 71N32-24EF to female 71-3C16	1
Adapter, hydraulic, 5601-6-6S to HHC-8 female	1
Adapter, hydraulic, male 71-3S16 to female 5601-16	1
Adapter, hydraulic, 71-C16-20FV-SL to 5601-16	1
Adapter, ORSLORS	2
Funnel w/screen	1
Funnel, plastic	1
Kit, female QD repair, 71-3C16-SPKV	1
Kit, male QD repair, 71-3N16-SPKV	1
O-ring, Buna-H	1
Plug, bleeder	1
Duct tape	1
Technical manual, 15-Kip Traction Winch (1st Generation)	1
Wrench, adjustable, 8”	1
Wrench, adjustable, 12”	1
Wrench, combination, 1 1/2”	1
Inventory, laminated	1

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ANCILLARY SET, 15-KIP FADOSS (1ST GENERATION) **ESSM NUMBER TU0105**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 0 in.
Width	3 ft, 4 in.
Height	3 ft, 1 in.
Cube	41 cu ft
Weight	309 lb

REFERENCES

None

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15-Kip FADOSS 22-Inch Fairlead Block TU0106

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BLOCK, FAIRLEAD, 22", 15-KIP FADOSS **ESSM NUMBER TU0106**

DESCRIPTION

The 15-Kip FADOSS 22-Inch Fairlead Block TU0106 is used to align the reeling device, traction winch, ship motion compensator, and lifting point. These components may not be physically in line with each other due to the available space on the ship's deck. The blocks redirect the lift line to the next component to allow for a more flexible arrangement of FADOSS equipment on the ship's deck. One fairlead block is provided for the 15-Kip FADOSS.

SPECIFICATIONS

Manufacturer	McKissick
Reference No.	F-452-22"
Working load limit	30 tons
Sheave dimensions:	
Outside diameter	22"
Pin diameter	2 3/4"
Sheave width	3 3/4"

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 0 in.
Width	8 in.
Height	2 ft, 10 in.
Cube	4 cu ft
Weight	240 lb

REFERENCES

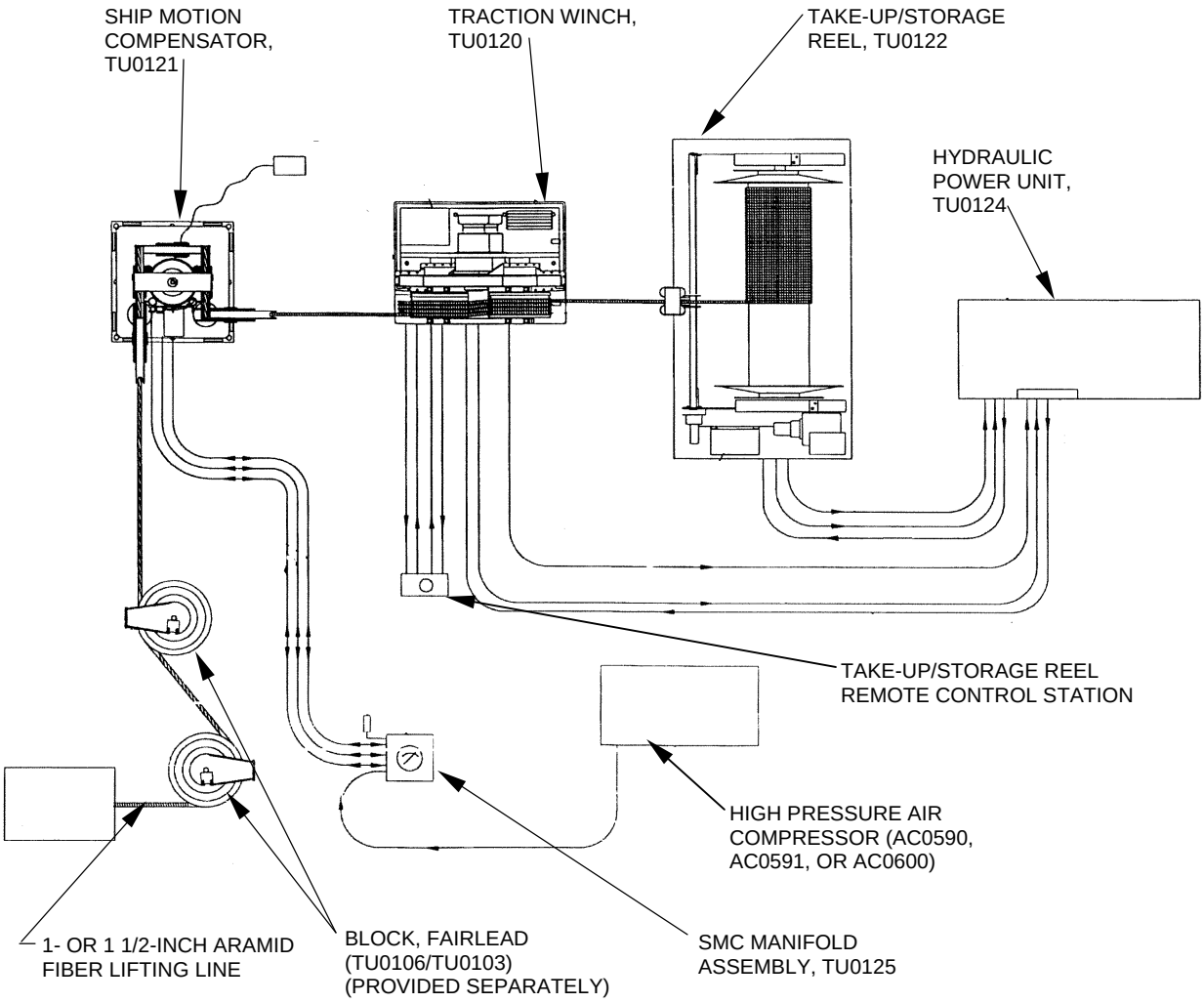
None

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15-KIP FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS) (2ND GENERATION) DS0101

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Overview of 2nd Generation 15-Kip FADOSS DS0101

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FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS), 15-KIP (2ND GENERATION) — SYSTEM NUMBER DS0101

SYSTEM DESCRIPTION

The 2nd Generation 15-Kip Flyaway Deep Ocean Salvage System (FADOSS) DS0101 is a portable, ship motion-compensated lift system designed to provide reliable, deep ocean lifting capability of up to 15,000 pounds for the recovery of large, bulky, and heavy sunken objects, such as aircraft and small vessels. The most important component of the system is the ship motion compensator (SMC), which offsets the ship's heave motion to prevent high-snap tension from occurring in the lift line. The FADOSS has been used in ocean salvage and recovery, but other potential uses of this system include ship towing, mooring, and ocean mining.

The FADOSS contains the following separate components: a hydraulic power unit, traction winch, ship motion compensator (SMC), SMC manifold box assembly, take-up/storage reel, fairlead blocks, air compressor, line tension monitoring system, hydraulic hose reels with hoses, and ancillary kit. Spare parts kits for the major components are also included.

The line, which is obtained separately, is available in 1- or 1 1/2-inch diameters, and in various lengths depending the on the job requirements.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Air Compressor, 15 cfm @ 5000 psi, Diesel:	AC0600	1*
Spare Parts Kit, for AC0600 Air Compressor	AC0601	1
2. Fairlead Block, 32", 15-Kip FADOSS	TU0103	TBD**
3. Line Tension Monitoring System	TU0104	1
4. Fairlead Block, 22"	TU0106	TBD**
5. Traction Winch (2nd Generation):	TU0120	1
Roundsling Bridle, Polyester, 4-Leg, 5' 4", w/ Master Link	SL0395	1
6. Ship Motion Compensator (2nd Generation):	TU0121	1
Roundsling Bridle, Polyester, 4-Leg, 5', w/ Master Link	SL0396	1
7. Take-up/Storage Reel (2nd Generation):	TU0122	1
Roundsling Bridle, Polyester, 4-Leg, 11', w/ Master Link	SL0397	1
8. Hydraulic Hose Reel Assembly, Traction Winch	TU0123	1
9. Power Unit, Hydraulic, Mod 15, Diesel, 70/20 gpm @ 5100 psi:	TU0124	1
Roundsling Bridle, Polyester, 4-Leg, 7', w/Master Link	SL0398	1
10. Manifold Box Assembly, SMC	TU0125	1
11. Hydraulic Hose Reel Assembly, Take-up/Storage Reel,	TU0126	1

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FYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS), 30-KIP **SYSTEM NUMBER DS0110**

Item	ESSM Number	Qty
12. Ancillary Set (2nd Generation)	TU0130	1

Notes:

* The air compressor included with the system will depend on inventory availability and onsite requirements; Air Compressors AC0590, AC0591, and AC0600 are functionally equivalent. The appropriate Spare Parts Kit (AC0592, AC0593, or AC0601) will be sent to support the delivered air compressor.

** The number of Fairlead Blocks required will depend on system layout on the host vessel.

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15-Cfm Diesel Air Compressor AC0600

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AIR COMPRESSOR, 15 CFM @ 5000 PSI, DIESEL **ESSM NUMBER AC0600**

DESCRIPTION

The 15-Cfm Diesel Air Compressor AC0600 is a multistage, low volume, high pressure air compressor driven by a 13-horsepower, four-cylinder diesel engine. The air compressor can deliver up to 15 cfm at a pressure of 5000 psi. The engine and compressor are housed in a skid-mounted frame with forklift slots for handling the unit.

SPECIFICATIONS

Compressor Assembly

Manufacturer	Stark Manufacturing
Model	The Invincible
Capacity	15 cfm
Operating pressure	5000 psi
Stages	5
Speed (max.)	3200 rpm

Engine

Manufacturer	Kubota
Model	V1100-B
Cylinders	4
Speed	1800 rpm
Horsepower	13 @ 1800 rpm
Starting	Electric, 12-volt
Fuel source	Internal 4.2-gal. tank
Fuel	Diesel
Fuel consumption	0.5 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 10 in.
Width	2 ft, 10 in.
Height	3 ft, 3 in.
Cube	54 cu ft
Weight	1748 lb

REFERENCES

1. The Invincible Operator’s Manual, Stark Manufacturing, Inc.

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Spare Parts Kit AC0601

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SPARE PARTS KIT, FOR AC0600 AIR COMPRESSOR ESSM NUMBER AC0601

DESCRIPTION

The Spare Parts Kit AC0601 contains items necessary to support the operation and maintenance of the Air Compressor AC0600.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 18” x 11” x 9”:	1
Belt, fan, 3/8” x 34”	1
Desiccant	1
Disc, shear	1
Filter, engine air	1
Filter, compressor air	1
Filter, engine oil	1
Filter, fuel	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	1 ft, 6 in.
Width	11 in.
Height	9 in.
Cube	1.5 cu ft
Weight	7 lb

REFERENCES

None

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32-Inch Fairlead Block TU0103

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FAIRLEAD BLOCK, 32”, 15-KIP FADOSS **ESSM NUMBER TU0103**

DESCRIPTION

The 32-Inch Fairlead Block TU0103 is used with the 15-Kip FADOSS to direct the lift line among the major components of the system. The traction winch, reeling device, ship motion compensator, and lifting point may not have their line entrances and exits physically aligned with each other due to the available space on the ship’s deck. The blocks redirect the lift line from one component to the next and allow for flexibility in arranging the FADOSS equipment on the ship’s deck. Generally three fairlead blocks are required for the 15-Kip FADOSS, although, depending on the ship’s layout, more may be required.

SPECIFICATIONS

Manufacturer	Timco
Reference no.	01703, pattern no. 90728
Sheave material	Nylon
Sheave dimensions:	
Outside diameter	32”
Tread diameter	27”
Pitch diameter	28 1/4”
Groove radius	5/8”
Hub width	3 3/8”
Sheave width	3”
Bore	2 1/2”

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 8 in.
Width	10 in.
Height	3 ft, 6 in.
Cube	8 cu ft
Weight	240 lb

REFERENCES

None

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15-Kip FADOSS Line Tension Monitoring System TU0104

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LINE TENSION MONITORING SYSTEM, 15-KIP FADOSS **ESSM NUMBER TU0l04**

DESCRIPTION

The Line Tension Monitoring System TU0104 is a rugged and reliable monitoring system that can handle the harsh conditions encountered during salvage scenarios. The tension monitoring system consists of a digital indicator with a large, sunlight-readable liquid crystal display, power supply/charger, and load pin.

The power supply converts ac power into regulated dc voltages. The digital indicator reads the tension of the load pin, located in the axle of the fixed sheave on the SMC, in pounds-force. The digital indicator has peak hold and high/low silent alarms.

SPECIFICATIONS

Digital Indicator

Manufacturer	Metrox Inc.
Model	M1951-3.5D
DC power	24 V dc
Display size	3/4” high digits

Power Supply/Charger

Manufacturer	Metrox Inc.
Part no.	10G4-51
AC voltage	II5/230 V ac

Load Pin

Manufacturer	Metrox Inc.
Dwg/Part no.	LP-30K-l954-00
Capacity	30,000 lb
Overload	150% w/o damage; 300% w/o failure
Output	2 mV/V
Temperature range:	
Operating	30 to 130°F
Storage	-40 to 180°F

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LINE TENSION MONITORING SYSTEM, 15-KIP FADOSS ESSM NUMBER TU0l04

PHYSICAL CHARACTERISTICS

	(Individual Operating Dimensions)			(Total)
	Digital Display	Power Supply	Load Pin	Shipping
Length	1 ft, 2 in.	1 ft, 1 in.	NA	4 ft, 0 in.
Width	10 in.	10 in.	NA	2 ft, 2 in.
Height	6 in.	5 in.	8 in.	1 ft, 2 in.
Cube	0.49 cu ft	0.38 cu ft	0.0076 cu in.	10 cu ft
Diameter	NA	NA	2.558 in.	NA
Weight	11 lb	14 lb	8 lb	130 lb

REFERENCES

1. Power Supply Subassembly Owner’s Manual, Metrox part number 1052-58.
2. Signal Conditioner-Analog to Digital Converter Owner’s Manual, Metrox part number 1052-48.
3. Display Subassembly Owner’s Manual, Metrox part number 1052-38.
4. Operation/Maintenance Manual, Model 1052-70, Setpoint Option, Metrox part number 1052-78.
5. Digital Indicator Owner’s Manual, Manual #1004-08.

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22-Inch Fairlead Block TU0106

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FAIRLEAD BLOCK, 22”, 15-KIP FADOSS **ESSM NUMBER TU0106**

DESCRIPTION

The 22-Inch Fairlead Block TU0106 is used with the 15-Kip FADOSS to align the reeling device, traction winch, ship motion compensator, and lifting point. These components may not be physically in line with each other due to the available space on the ship’s deck. The blocks redirect the lift line to the next component and allow for a more flexible arrangement of FADOSS equipment on the ship’s deck. One 22-inch fairlead block is provided for the 15-Kip FADOSS.

SPECIFICATIONS

Manufacturer	McKissick
Reference No.	F-452-22
Sheave dimensions:	
Outside diameter	22”
Pin diameter	2 3/4”
Sheave width	3 3/4”
Working load limit	30 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 0 in.
Width	8 in.
Height	2 ft, 10 in.
Cube	4 cu ft
Weight	240 lb

REFERENCES

None

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15-Kip FADOSS Traction Winch (2nd Generation) TU0120



Traction Winch Drums

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TRACTION WINCH, 15-KIP FADOSS (2ND GENERATION) ESSM NUMBER TU0120

DESCRIPTION

The 15-Kip FADOSS Traction Winch (2nd Generation) TU0120 is a hydraulically driven horizontal capstan with two identical multi-grooved drums. The drums have five grooves each with a pitch diameter of 30 inches. The motors are connected in parallel hydraulically and mechanically to assure turning at the same rate. The winch is capable of maintaining a line tension of 15,000 or 7500 pounds while hauling in/paying out line at a rate of 120 or 240 fpm, respectively. The unit can be operated by either local or hydraulic remote control. The winch is mounted on a steel base with forklift slots, and surrounded by a steel frame. The frame has four lifting points that are used with a 4-leg lifting sling (SL0395) to handle the winch in an under-the-hook configuration. A sacrificial base plate is bolted to the winch base assembly to allow welding the unit to a steel deck to prevent movement during operations.

SPECIFICATIONS

Traction Winch Assembly

Manufacturer	Intercontinental Engineering
Model	91088-9l-1B
Capacity	15,000 lb @ 120 fpm; 7500 lb @240 fpm
Oper. press. (rated)	3000 psi @ 70 gpm

Motor

Manufacturer	Poclain
Model	MS25
Displacement	122/61 cu in.
Pressure (maximum)	6500 psi
Rpm (maximum)	140

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	7 ft, 0 in.
Width	5 ft, 0 in.
Height	5 ft, 7 in.
Cube	195.5 cu ft
Weight	11,400 lb

REFERENCES

1. 15-Kip FADOSS Traction Winch Manual, GPC91088-9l-1B 92107.

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4-Leg Polyester Roundsling Bridle SL0395

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 5’ 4”, W/ MASTER LINK **ESSM NUMBER SL0395**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0395 is designed specifically for handling the 15-Kip Traction Winch TU0100 in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the four lifting points of the winch.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	Q0-EE120 x 5’ 4”	5/8” screw pin
Capacity	73,400 lb @ 60°	6.5 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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15-Kip FADOSS Ship Motion Compensator TU0121

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SHIP MOTION COMPENSATOR, 15-KIP FADOSS (2ND GENERATION) — ESSM NUMBER TU0121

DESCRIPTION

The Ship Motion Compensator (SMC) TU0121 is an air-over-oil, hydraulically driven ram cylinder with an operating pressure of 2000 psi. The SMC compensates for the ship's motion by extending or retracting the hydraulic ram to maintain constant tension on the lift line. This prevents or greatly reduces high-snap loads on the lift line during the lifting operation. The 15,000-pound capacity SMC uses a 60,000-pound ram tensioner with a four-part rigging system to allow for extended line travel while operating.

Operation of the SMC is controlled from the Manifold Box Assembly TU0125, which receives high pressure air directly from the system air compressor. A locking valve allows the spacesaver cylinder to be locked in position or to move freely. A load pin, which is a component of the Line Tension Monitoring System TU0l04 and is mounted in the axle of the fixed sheave, measures the line tension of the lifting load. The SMC is mounted on a steel base with forklift slots, and surrounded by a steel frame. The frame has four lifting points that are used with the lifting sling (SL0396) to facilitate handling in an under-the-hook configuration. A sacrificial base is bolted to the SMC base assembly to allow welding the unit to a steel deck to prevent movement during operations.

SPECIFICATIONS

Manufacturer	RETSCO
Model	60K Tensioner
Capacity	15,000-lb tension w/4-part rigging system
Op. press. (rated)	2000 psi
No. of sheaves	5

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 5 in.
Width	4 ft, 5 in.
Height	8 ft, 7 in.
Cube	168 cu ft
Weight	7184 lb (w/sacrificial base)

REFERENCES

1. 15-Kip FADOSS Ship Motion Compensator, Operations/Maintenance Manual, S/N 005586.

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4-Leg Polyester Roundsling Bridle SL0396

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 5', W/ MASTER LINK **ESSM NUMBER SL0396**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0396 is designed specifically for handling the 15-Kip FADOSS Ship Motion Compensator TU0121 in an under-the-hook configuration using a crane. It is equipped with four bolt-type shackles and is shipped attached to the four lifting points of the SMC.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	QEE-60 x 5'	5/8" bolt-type
Capacity	29,000 lb @ 60°	6.5 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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15-Kip FADOSS Take-up/Storage Reel (2nd Generation) TU0122



Take-up/Storage Reel Controls

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TAKE-UP/STORAGE REEL, 15-KIP FADOSS (2ND GENERATION) **ESSM NUMBER TU0122**

DESCRIPTION

The 15-Kip FADOSS Take-up/Storage Reel (2nd Generation) TU0122 is a hydraulically operated unit used to supply and store line for the traction winch. The take-up/storage reel drum and level wind speed and direction are controlled at a local control station. The level wind's speed self-adjusts for drum speed and line size. When in tension mode, the storage reel maintains a tension of 500 lb at the input drum of the traction winch and supplies the lift line to the winch at the same speed as the winch drum rotation. The storage reel can hold up to 20,000 feet of l-inch line or 9000 feet of 1 1/2-inch line. The take-up/storage reel is mounted on a steel base with forklift slots, and surrounded by a steel frame. The frame has four lifting points that are used with the lifting sling (SL0397) to facilitate handling in an under-the-hook configuration. A sacrificial base is bolted to the storage reel base assembly to allow welding the unit to a steel deck to prevent movement during operations.

SPECIFICATIONS

Take-up/Storage Reel Assembly

Manufacturer	Intercontinental
Model	91088-91-4B

Reeling Device

Manufacturer	Intercontinental
Model	Msl8
Drum capacity	20,000' of l" line 9000' of 1 1/2" line

Motor, Primary Drum

Manufacturer	Poclain
Hydraulic flow	14 gpm @ 3000 psi
Hydraulic pressure	1460 psi

Motor Level Wind

Manufacturer	Poclain
Displacement	5 cu in.
Flow rate	3.2 gpm @ 1500 psi

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	13 ft, 4 in.
Width	8 ft, 0 in.
Height	7 ft, 7 in.
Cube	809 cu ft
Weight	12,000 lb

REFERENCES

1. 15-Kip FADOSS Take-up/Storage Reel Manual, GPC 91088-91-4B 92106.

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4-Leg Polyester Roundsling Bridle SL0397

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 11', W/ MASTER LINK **ESSM NUMBER SL0397**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0397 is designed specifically for handling the 15-Kip Take-up/Storage Reel TU0122 in an under-the-hook configuration using a crane. It is equipped with four bolt-type shackles and is shipped attached to the four lifting points of the take-up/storage reel.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	Q0-EE120 x 11'	1" bolt-type
Capacity	73,400 lb @ 60°	17 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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15-Kip FADOSS Traction Winch Hydraulic Hose Reel TU0123

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HYDRAULIC HOSE REEL ASSEMBLY, TRACTION WINCH, 15-KIP FADOSS — ESSM NUMBER TU0123

DESCRIPTION

The 15-Kip FADOSS Traction Winch Hydraulic Hose Reel TU0123 contains hoses used to transmit hydraulic pressure from the HPU to the Traction Winch TU0120. The hose reel assembly contains two 25-foot lengths of l-inch hose for case drains and four 25-foot lengths of 1 1/2-inch hose for supply and return. The hose assemblies have both male and female Snap-tite quick disconnect fittings. The hose reel assembly is mounted on a steel frame with forklift slots.

SPECIFICATIONS

Hose Reel Assembly

Manufacturer	Intercontinental
Model	91088-9l-6B

Hose Assembly, 1 1/2” x 25’ (4)

Hose	1 1/2” hose - Aeroquip FC273-24
Fittings	1 1/2” coupler, quick disconnect - Snap-tite 71-1C32-24EF; 1 1/2” nipple, quick disconnect - Snap-tite 71N32-24EF

Hose Assembly, 1” x 25’ (2)

Hose	1” hose - Aeroquip 2781-16
Fittings	1” coupler, quick disconnect - Snap-tite VPHCI6-l6-EM; 1” nipple, quick disconnect - Snap-tite VPHNI6-l6-EM

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 3 in.
Width	4 ft, 5 in.
Height	5 ft, 6 in.
Cube	128 cu ft
Weight	2400 lb

REFERENCES

1. 15-Kip FADOSS Hose Reel Manual, GPC 91088-9l-6B 92104/92105.

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15-Kip FADOSS Hydraulic Power Unit TU0124

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POWER UNIT, HYDRAULIC, MOD 15, DIESEL, 70/20 GPM @ 5100 PSI **ESSM NUMBER TU0124**

DESCRIPTION

The 15-Kip FADOSS Hydraulic Power Unit TU0124 is a diesel-driven unit. The unit has two discharge ports, one 1 1/2-inch discharge port and one l-inch discharge port that are capable of delivering hydraulic fluid up to 70 and 20 gpm, respectively, at a normal operating pressure of 3500 psi and an engine speed of 1800 rpm. The flow rate and output pressure for both discharge ports, can be regulated at the local control panel. The unit also has two return ports, 1 1/2-inch and l-inch, as well as two l-inch case drain ports.

The engine and pump are mounted on a steel base with forklift slots. The frame has four lifting points that are used with the lifting sling (SL0398) to facilitate handling in an under-the-hook configuration. A sacrificial base is bolted to the HPU base assembly to allow welding the unit to a steel deck to prevent movement during operations.

SPECIFICATIONS

HPU Assembly

Manufacturer	Intercontinental
Model	91088-91-3B

Engine

Manufacturer	Detroit Diesel-Allison
Series	6V-92
Horsepower	225 @ 1800 rpm
Rpm (operating)	1800
(maximum)	2100
Starting	Hydrostart
Fuel	Diesel
Fuel consumption	11.25 gph
Fuel source	Internal tank or fuel pickup tube

Pump (main)

Manufacturer	Rex Roth
Capacity	70 gpm @ 3500 psi
Type	Variable displacement, pressure-compensated
Oper. press. (max.)	3500 psi
Rpm (maximum)	1800 rpm (continuous)
Flow (maximum)	85 gpm @ 2800 psi

Pump (auxiliary)

Manufacturer	Rex Roth
Type	Variable displacement, pressure-compensated
Oper. press. (max.)	3500 psi
Rpm (maximum)	1800 rpm (continuous)
Flow (maximum)	33 gpm @ 2200 psi

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POWER UNIT, HYDRAULIC, MOD 15, DIESEL, 70/20 GPM @ 5100 PSI **ESSM NUMBER TU0124**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	8 ft, 0 in.
Width	5 ft, 0 in.
Height	5 ft, 6 in.
Cube	220 cu ft
Weight	10,500 lb

REFERENCES

1. 15-Kip FADOSS Hydraulic Power Unit Manual, GPC 91088-91-3B 91108.

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4-Leg Polyester Roundsling Bridle SL0398

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 7', W/ MASTER LINK **ESSM NUMBER SL0398**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0398 is designed specifically for handling the 15-Kip FADOSS Hydraulic Power Unit TU0124 in an under-the-hook configuration using a crane. It is equipped with four bolt-type shackles and is shipped attached to the four lifting points of the HPU.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	Q0-EE9D x 7'	3/4" bolt-type
Capacity	29,000 lb @ 60°	8.5 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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SMC Manifold Box Assembly TU0125

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MANIFOLD BOX ASSEMBLY, SMC, 15-KIP FADOSS **ESSM NUMBER TU0l25**

DESCRIPTION

The SMC Manifold Box Assembly TU0125 is a compact, portable manifold assembly used to control the operation of the SMC from a remote location. This allows the operator to be clear of the SMC and lift line while the 15-Kip FADOSS is in operation. The assembly contains pressure gauges for monitoring system pressure and tension, a pressure relief valve, a pressure reducing valve, an accumulator control valve, a bleed valve, muffler, inlet, outlet, and actuator control ports, shut-off valves, and a spare parts box.

SPECIFICATION

Manufacturer	ESSM Facility
Operating pressure:	
Rated	2000 psi
Maximum	2500 psi

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 8 in.
Width	2 ft, 1 in.
Height	1 ft, 7 in.
Cube	9 cu ft
Weight	130 lb

REFERENCES

None

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15-Kip FADOSS Take-up/Storage Reel Hydraulic Hose Reel Assembly TU0126

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HYDRAULIC HOSE REEL ASSEMBLY, TAKE-UP/, STORAGE REEL, 15-KIP FADOSS **ESSM NUMBER TU0126**

DESCRIPTION

The 15-Kip FADOSS Take-up/Storage Reel Hydraulic Hose Reel Assembly TU0126 contains hoses used to transmit hydraulic pressure from the HPU to the Take-up/Storage Reel TU0122. The hose reel contains two 25-foot lengths of l-inch hose for case drains and four 25-foot lengths of l-inch hose for supply and return. The hose assemblies have both male and female Snap-tite quick disconnects. The hose reel is mounted on a steel frame with forklift slots to facilitate handling.

SPECIFICATIONS

Hose Reel Assembly

Manufacturer	Intercontinental
Model	91088-9l-6B

HoseAssembly, Hydraulic (4)

Hose	1” hose - Aeroquip FC273-16
Fittings	1” coupler, quick disconnect - Snap-tite 7l-2C16-20EF; 1” nipple, quick disconnect - Snap-tite 71-2N16-20EF

HoseAssembly, Case Drain (2)

Hose	1” hose - Aeroquip 2781-16
Fittings	1” coupler, quick disconnect - Snap-tite VPHCl6-l6-EM; 1” nipple, quick disconnect - Snap-tite VPHNl6-l6-EM

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 3 in.
Width	4 ft, 5 in.
Height	5 ft, 6 in.
Cube	128 cu ft
Weight	2000 lb

REFERENCES

1. 15-Kip FADOSS Hose Reel Manual, GPC 91088-9l-6B 92104/92105.

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15-Kip FADOSS Ancillary Set TU0l30

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ANCILLARY SET, 15-KIP FADOSS (2ND GENERATION) ESSM NUMBER TU0130

DESCRIPTION

The 15-Kip FADOSS Ancillary Set TU0l30 contains the SMC Manifold Box Assembly TU0l25, and lubricating oils, air hoses, filters, operating manuals, hand tools, and consumables to configure and maintain one 15-Kip FADOSS for operations. The wire mesh basket is equipped with a one-piece hinged lid to secure components during shipping.

SPECIFICATIONS

The ancillary set contains the following:

Item	ESSM Number	Qty
Container, wire mesh basket, 48” x 40” x 37”:		1
SMC Manifold Box Assembly	TU0125	1
Oil, engine, 5 gal.		1
Oil, 5 gal. (Quintolubric)		1
Oil, compressor lubricating		1
Oil, hydraulic, 5 gal.		2
Box, parts:		1
Bearing, single row ball		2
V-Belt		3
Connector, nipple		4
Filter, primary fuel		1
Filter, secondary fuel		1
Filter, hydraulic oil		4
Filter, oil		1
Hose, air, 50’ (1529-8)		1
Hose, air, 50’(2556-4)		1
Hose, air, 50’ (2556-6)		1
Inventory, laminated		1
Manual, Stark Air Compressor		1
Manual, 15-Kip FADOSS Hydraulic Power Unit		1
Manual, Spacemaker Tensioner		1
Manual, 15-Kip FADOSS Storage Reel		1

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ANCILLARY SET, 15-KIP FADOSS (2ND GENERATION) ESSM NUMBER TU0l30

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 0 in.
Width	3 ft, 4 in.
Height	3 ft, 1 in.
Cube	41 cu ft
Weight	708 lb

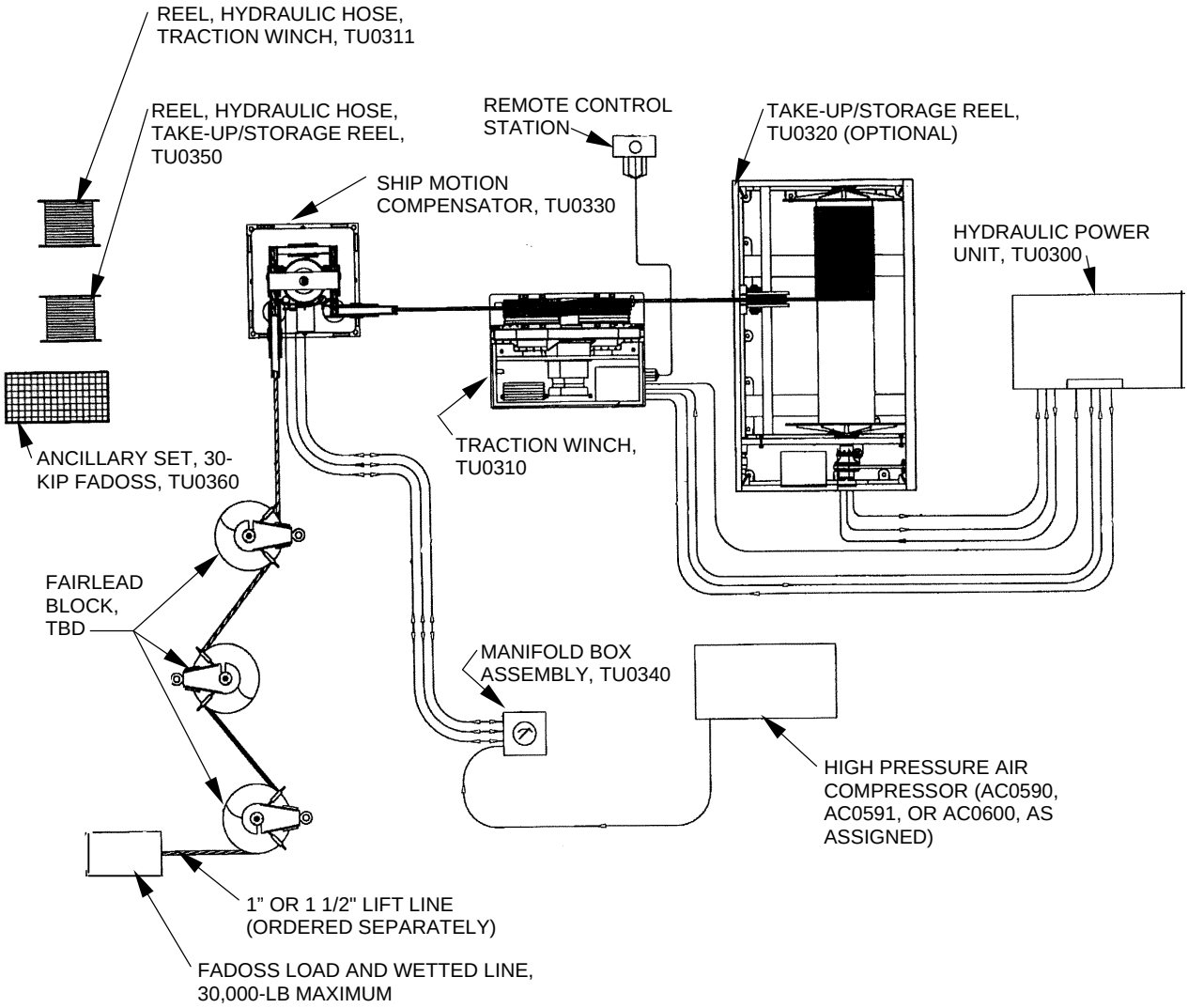
REFERENCES

None

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30-KIP FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS) DS0110

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Overview of 30-Kip FADOSS DS0110

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FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS), 30-KIP — SYSTEM NUMBER DS0110

SYSTEM DESCRIPTION

The 30-Kip Flyaway Deep Ocean Salvage System (FADOSS) DS0110 is a portable, ship motion-compensated lift system designed to provide reliable deep ocean lifting capability of up to 30,000 pounds for the recovery of large, bulky, and heavy sunken objects, such as aircraft and small vessels. The most important component of the system is the ship motion compensator (SMC), which offsets the ship's heave motion to prevent high-snap tension from occurring in the lift line. The FADOSS has been used in ocean salvage and recovery, but other potential uses of this system include ship towing, mooring, and ocean mining.

The 30-Kip FADOSS consists of the following separate components: SMC, SMC manifold box assembly, air compressor, hydraulic power unit, traction winch, hydraulic hose storage reels, fairlead blocks, and an ancillary set. An optional take-up/storage reel is available to store and pay out line during operation of the system.

Depending on the on-site salvage requirements, the line (which is obtained separately) is available in 1- or 1 1/2-inch diameters and in various lengths.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Air Compressor, 15 cfm @ 5000 psi, Diesel:	AC0600	1*
Spare Parts Kit, for AC0600 Air Compressor	AC0601	1
2. Power Unit, Hydraulic, Mod 30, 88 gpm @ 4000 psi:	TU0300	1
Roundsling Bridle, Polyester, 4-Leg, 6', w/ Cloth D-Ring	SL0404	1
3. Traction Winch, 30-Kip FADOSS:	TU0310	1
Roundsling Bridle, Polyester, 4-Leg, 8', w/ 1" Oblong Ring	SL0403	1
4. Reel, Hydraulic Hose, Traction Winch, 30-Kip FADOSS (Primary)	TU0311	1
5. Take-up/Storage Reel, 30-Kip FADOSS (Optional)	TU0320	1
6. Ship Motion Compensator, 30-Kip FADOSS (Primary):	TU0330	1
Roundsling Bridle, Polyester, 4-Leg, 5', w/ Web D-ring	SL0405	1
7. Manifold Box Assembly, 30-Kip FADOSS	TU0340	1
8. Reel, Hydraulic Hose, Take-up/Storage, 30-Kip FADOSS	TU0350	1**
9. Ancillary Set, 30-Kip FADOSS	TU0360	1
10. Block, Fairlead, 52-Inch, 32-Inch or 22-Inch Diameter	TBD	3***

NOTES:

* The air compressor included with the system will depend on inventory availability and onsite requirements; Air Compressors AC0590, AC0591, and AC0600 are functionally equivalent. The appropriate Spare Parts Kit (AC0592, AC0593, or AC0601) will be sent to support the delivered air compressor.

** Required only if Take-up/Storage Reel is requested.

*** The quantity and size of fairlead blocks required will depend on component layout on the host vessel.

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15-Cfm Diesel Air Compressor AC0600

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AIR COMPRESSOR, 15 CFM @ 5000 PSI, DIESEL **ESSM NUMBER AC0600**

DESCRIPTION

The 15-Cfm Diesel Air Compressor AC0600 is a multistage, low volume, high pressure air compressor driven by a 13-horsepower, four-cylinder diesel engine. The air compressor can deliver up to 15 cfm at a pressure of 5000 psi. The engine and compressor are housed in a skid-mounted frame with forklift slots for handling the unit.

SPECIFICATIONS

Compressor Assembly

Manufacturer	Stark Manufacturing
Model	The Invincible
Capacity	15 cfm
Operating pressure	5000 psi
Stages	5
Speed (max.)	3200 rpm

Engine

Manufacturer	Kubota
Model	V1100-B
Cylinders	4
Speed	1800 rpm
Horsepower	13 @ 1800 rpm
Starting	Electric, 12-volt
Fuel	Diesel
Fuel source	Internal 4.2-gal. tank
Fuel consumption	0.5 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 10 in.
Width	2 ft, 10 in.
Height	3 ft, 3 in.
Cube	54 cu ft
Weight	1748 lb

REFERENCES

1. The Invincible Operator’s Manual, Stark Manufacturing, Inc.

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Spare Parts Kit AC0601

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SPARE PARTS KIT, FOR AC0600 AIR COMPRESSOR ESSM NUMBER AC0601

DESCRIPTION

The Spare Parts Kit AC0601 contains items necessary to support the operation and maintenance of one Air Compressor AC0600.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 18” x 11” x 9”:	1
Desiccant	1
Disc, shear	1
Filter, engine air	1
Filter, air	1
Filter, engine oil	1
Filter, fuel	1
Filter, oil	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	1 ft, 6 in.
Width	11 in.
Height	9 in.
Cube	1.5 cu ft
Weight	7 lb

REFERENCES

None

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30-Kip FADOSS Hydraulic Power Unit TU0300

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POWER UNIT, HYDRAULIC, MOD 30, DIESEL, 88 GPM @ 4000 PSI **ESSM NUMBER TU0300**

DESCRIPTION

The 30-Kip FADOSS Hydraulic Power Unit TU0300 is a diesel driven unit with dual hydraulic pumps. The unit has one 1 1/2-inch discharge port (88 gpm @ 3500 psi) and one l-inch discharge port (22 gpm @ 3500 psi). Normal operating speed of the unit is 1800 rpm. Other ports include two returns (1 1/2-inch and l-inch), two l-inch case drains, and one 1/4-inch pilot valve drain return. The flow rate and output pressure for both pumps can be regulated at the local control panel. The capacity of the hydraulic fluid reservoir is 150 gallons. The engine and pump are mounted on a steel base with forklift slots and surrounded by a steel frame. The frame has lifting points to attach a 4-leg lifting sling for handling the HPU in an under-the-hook configuration. A sacrificial base is bolted to the frame assembly to allow welding it to a steel deck to prevent movement during operations.

SPECIFICATIONS

Hydraulic Power Unit Assembly

Manufacturer	Intercontinental Mfg.
Model	93086

Engine

Manufacturer	Detroit Diesel
Series	6V-92
Hp	280 @ 1800 rpm
Rpm: Operating	1800
Maximum	2100
Starting	Hydrostart
Fuel	Diesel
Fuel source	Internal 60-gal. tank
Fuel consumption	11.25 gph

Pump (auxiliary)

Manufacturer	Rex Roth
Capacity	22 gpm @ 3500 psi
Type	Variable displacement, pressure-compensated
Oper. pressure (max.)	3500 psi
Rpm (maximum)	1800 rpm (continuous)
Flow (maximum)	33 gpm @ 2200 psi

Pump (main)

Manufacturer	Rex Roth
Capacity	88 gpm @ 3500 psi
Type	Variable displacement, pressure-compensated
Oper. press. (max.)	3500 psi
Flow (maximum)	96 gpm @ 3600 psi

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POWER UNIT, HYDRAULIC, MOD 30, DIESEL, 88 GPM @ 4000 PSI **ESSM NUMBER TU0300**

PHYSICAL CHARACTERISTICS

	Operating/Shipping	
	w/base	w/o base
Length	8 ft, 1 in.	8 ft, 0 in.
Width	6 ft, 0 in.	6 ft, 3 in.
Height	7 ft, 6 in.	6 ft, 3 in.
Cube	352 cu ft	338 cu ft.
Weight	12,220 lb	10,320 lb

NOTE: Weight of the sacrificial base is 1900 lb.

REFERENCES

1. 30-Kip FADOSS Hydraulic Power Unit Manual, GPC 920255A-93-3b, Intercon 93086.

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4-Leg Polyester Roundsling Bridle SL0404

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 6', W/ CLOTH D-RING **ESSM NUMBER SL0404**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0404 is designed specifically for handling the 30-Kip FADOSS Hydraulic Power Unit TU0300 in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the lifting points of the HPU.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	Q0-EE/120 x 6'	3/4" screw pin
Capacity	29,000 lb @ 60°	6 1/2 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

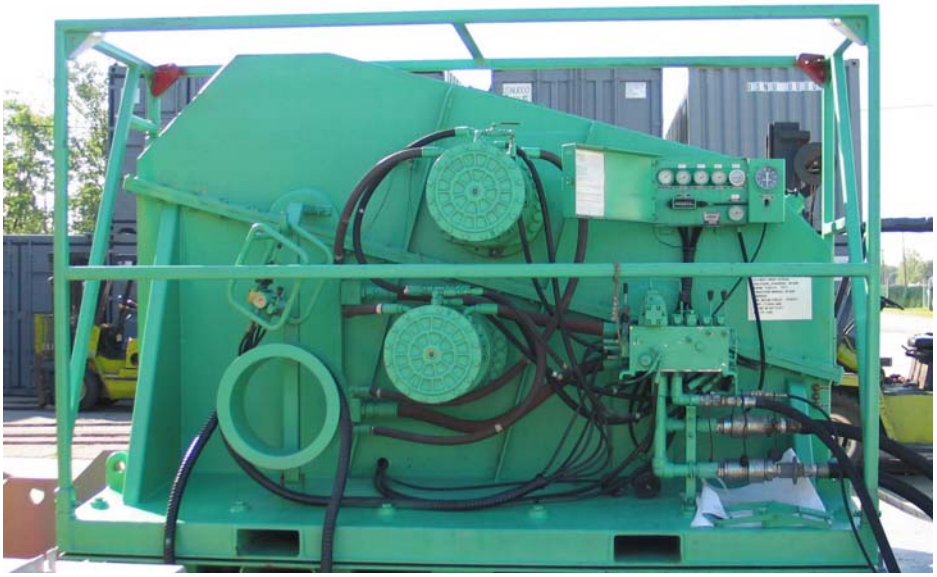
REFERENCES

None

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30-Kip FADOSS Traction Winch TU0310



30-Kip FADOSS Traction Winch, Hydraulic Motors

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TRACTION WINCH, 30-KIP FADOSS **ESSM NUMBER TU0310**

DESCRIPTION

The 30-Kip FADOSS Traction Winch TU0310 is a hydraulically driven horizontal capstan with two identical multi-grooved drums. The drums have five grooves each with a pitch diameter of 40 inches. The drive motors are connected in parallel hydraulically and mechanically to ensure that the drums turn at the same speed. The winch is capable of maintaining a line tension of 40,000 or 20,000 pounds while hauling in or paying out line at a rate of 120 or 240 fpm, respectively. The unit can be operated by either local or hydraulic remote control. The winch is mounted on a steel base with forklift slots and surrounded by a steel frame. The frame has lifting points for attaching a 4-leg lifting sling (SL0403) used for handling the winch in an under-the-hook configuration. A sacrificial base plate is bolted to the winch base assembly to allow welding it to a steel deck to prevent movement during operations.

SPECIFICATIONS

Traction Winch Assembly		Motor	
Manufacturer	Intercontinental Engineering Mfg.	Manufacturer	Poclain
		Model	MS25
Model	93085	Rpm (maximum)	140
Capacity	40,000 lb @ 120 fpm; 20,000 lb @ 240 fpm	Displacement	122/61 cu in.
		Pressure (maximum)	6500 psi
Oper. pressure (rated)	3000 psi @ 70 gpm		

PHYSICAL CHARACTERISTICS

	Operating/Shipping	
	w/base	w/o base
Length	10 ft, 8 in.	10 ft, 8 in.
Width	5 ft, 5 in.	5 ft, 5 in.
Height	7 ft, 7 in.	6 ft, 11 in.
Cube	433 cu ft	421 cu ft
Weight	17,100 lb	15,200 lb

NOTE: Weight of the sacrificial base is 1900 lb.

REFERENCES

1. 30-Kip FADOSS Traction Winch Manual, GPC 920255A-93-2b, Intercon 93085.

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4-Leg Polyester Roundsling Bridle SL0403

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 8', W/ 1" OBLONG RING **ESSM NUMBER SL0403**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0403 is designed specifically for handling the 30-Kip FADOSS Traction Winch TU0310 in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the lifting points of the winch.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	Q0-EE-180 x 8'	5/8" screw pin
Capacity	17,000 lb @ 60°	3 1/4 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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30-Kip FADOSS Traction Winch Hydraulic Hose Reel Assembly TU0311



Hose Reel Assembly TU0311 (Hoses)

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REEL, HYDRAULIC HOSE, TRACTION WINCH, 30-KIP **ESSM NUMBER TU0311**

DESCRIPTION

The 30-Kip FADOSS Traction Winch Hydraulic Hose Reel Assembly TU0311 contains supply and return hoses used to transmit hydraulic fluid between the Traction Winch TU0310 and the HPU TU0300. The hose reel assembly contains four 25-foot lengths of 1 1/2-inch hose for supply and return, two 25-foot lengths of 1-inch hose for case drains, and two 25-foot lengths of 1/4-inch hose for lower pressure control. The hose assemblies have both male and female Snap-tite quick disconnect fittings. The hose reel assembly is mounted on a steel frame with forklift slots for ease in maneuvering. The hoses are shipped charged with Rando 46 hydraulic fluid to limit system losses while assembling the units. Hose Reel TU0311 is functionally equivalent to TU0312.

SPECIFICATIONS

Hose Reel Assembly

Manufacturer	Commercial
Model	Drawing No. 93082F001

1 1/2” Hose Assembly (4)

Hose	1 1/2” hose - Aeroquip FC273-24
Fittings	1 1/2" coupler, quick disconnect - Snap-tite 71-1C32-24EF; 1 1/2" nipple, quick disconnect - Snap-tite 71N32-24EF
NAVSEA Drawing	92104C016

1” Hose Assembly (2)

Hose	1” hose - Aeroquip 2781-16
Fittings	1” coupler, quick disconnect - Snap-tite VPHCI6-l6-EM; 1” nipple, quick disconnect - Snap-tite VPHNI6-l6-EM
NAVSEA Drawing	92104C018

1/4” Hose Assembly (2)

Hose	1/4" hose - Aeroquip 2781-4
Fittings	3/8” coupler, quick disconnect - Snap-tite 71-1C6-6EF; 3/8” nipple, quick disconnect - Snap-tite 71-1N6-64EF
NAVSEA Drawing	93082C011

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REEL, HYDRAULIC HOSE, TRACTION WINCH, 30-KIP (2ND SET) **ESSM NUMBER TU0311**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 4 in.
Width	4 ft, 0 in.
Height	5 ft, 6 in.
Cube	126 cu ft
Weight	2240 lb

REFERENCES

1. Hose Storage Reel Assembly, NAVSEA Drawing No. 93082F001.
2. 1 1/2-inch I.D. Pressure Hose Assembly, NAVSEA Drawing No. 92104C016.
3. 1-inch I.D. Drain Hose Assembly, NAVSEA Drawing No. 92104C018.
4. 1/4-inch I.D. Control Hose Assembly, NAVSEA Drawing No. 93082C011.

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30-Kip FADOSS Ship Motion Compensator TU0330

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SHIP MOTION COMPENSATOR, 30-KIP FADOSS **ESSM NUMBER TU0330**

DESCRIPTION

The 30-Kip FADOSS Ship Motion Compensator TU0330 is an air-over-oil, hydraulically driven ram cylinder with an operating pressure of 2000 psi. The SMC compensates for the ship's motion by extending or retracting the hydraulic ram to maintain a constant tension on the lift line. This prevents or greatly reduces high-snap loads on the lift line during the lifting operation. The SMC uses a 120,000-pound ram tensioner with a four-part rigging system, which reduces the operable load to 30,000 pounds, allowing for more line travel while operating under heavy sea conditions. Operation of the SMC is controlled from the Manifold Box Assembly TU0340, which receives high pressure air directly from the Air Compressor (AC0590, AC0591, or AC0600, as assigned). A locking valve allows the ram cylinder to be locked in position or to move freely. The SMC is mounted on a steel base with forklift slots, and surrounded by a steel frame with a four-point lifting bridle to facilitate handling. A sacrificial base is bolted to the SMC frame assembly to allow welding it to a steel deck to prevent movement during operations. This unit is functionally equivalent to TU0331, but is considered the primary component.

SPECIFICATIONS

Manufacturer		RETSCO
Model		120K 02
Capacity		30,000 lb tension w/4-part rigging system
Op. press.:	Rated	2000 psi
	Maximum	2137 psi
Number of sheaves		5

PHYSICAL CHARACTERISTICS

	Operating/Shipping	
	w/base	w/o base
Length	5 ft, 3 in.	5 ft, 3 in.
Width	5 ft, 4 in.	5 ft, 4 in.
Height	9 ft, 6 in.	8 ft, 0 in.
Cube	242 cu ft	224 cu ft
Weight	11,472 lb	10,154 lb

NOTE: Weight of the sacrificial base is 1318 lb.

REFERENCES

1. 30-Kip Fly Away Deep Ocean Salvage System (FADOSS), Technical Manual, Description, Operation, Maintenance, and Parts Breakdown.

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4-Leg Polyester Roundsling Bridle SL0405

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 5', W/ WEB D-RING **ESSM NUMBER SL0405**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0405 is designed specifically for handling the 30-Kip FADOSS Ship Motion Compensator TU0330 in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the lifting points of the SMC.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	QOE-EE/90	3/4" screw pin
Capacity	29,100 lb SWL	6 1/2 tons WLL

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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SMC Manifold Box Assembly TU0340

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MANIFOLD BOX ASSEMBLY, 30-KIP FADOSS — ESSM NUMBER TU0340

DESCRIPTION

The SMC Manifold Box Assembly TU0340 is a compact, portable manifold assembly used to control the operation of either 30-Kip FADOSS SMC (TU0330 or TU0331) from a remote location. This allows the operator to remain clear of the SMC and lift lines while the 30-Kip FADOSS is in operation. The assembly contains pressure gauges for monitoring system pressure, a pressure relief valve; a pressure reducing valve; an accumulator control valve (which is used for locking the SMC ram); a bleed valve, muffler, inlet, outlet, and actuator control ports; shutoff valves; and a spare parts box.

SPECIFICATIONS

Manufacturer	Fabricated by GPC, Williamsburg, VA
Operational pressure:	
Rated	2000 psi
Maximum	2137 psi

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 8 in.
Width	2 ft, 1 in.
Height	1 ft, 7 in.
Cube	9 cu ft
Weight	136 lb

REFERENCES

None

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30-Kip FADOSS Take-up/Storage Reel TU0320

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TAKE-UP/STORAGE REEL, 30-KIP FADOSS **ESSM NUMBER TU0320**

DESCRIPTION

The 30-Kip FADOSS Take-up/Storage Reel TU0320 is a hydraulically operated line storage unit used for taking up and paying out the lift line for the traction winch while maintaining a 500-pound tension at the Traction Winch input drum. The Take-up/Storage Reel is controlled from a local control station that regulates the direction and speed of the drum. A level wind mechanism controls the layering of the lift line on the drum and uses hydraulic actuators located next to the level wind's sheaves to compensate for the speed of the drum and the amount of line as it is reeled on and off the drum. During system operation the storage drum turns to supply or retrieve line at a speed equal to the line speed of the Traction Winch TU0310. The storage reel can hold up to 20,000 feet of l-inch line or 9000 feet of 1 1/2-inch line.

The take-up/storage reel is mounted on a steel base with forklift slots, and surrounded by a steel frame with four lifting points. A sacrificial base is bolted to the storage reel frame assembly to allow welding it to a steel deck to prevent movement during operations.

SPECIFICATIONS

Reeling Device Assembly

Manufacturer	Intercontinental Manufacturing
Model	30K-TS-Reel
Size	93084
Drum capacity	20,000' of l" line 9000' of 1 1/2" line

Primary Motor

Manufacturer	Poclain
Model	MS-8-121-Fl8-13210-00-MR
Ports	SAE flanged and metric connections

Level Wind Motor

Manufacturer	TRW, Ross Gear Division
Series	MB
Displacement	4.9 cu in.
Pressure:	
Continuous	3000 psi
Intermittent	4000 psi
Flow:	
Continuous	12 gpm
Intermittent	15 gpm
Speed:	
Continuous	488 rpm
Intermittent	693 rpm

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TAKE-UP/STORAGE REEL, 30-KIP FADOSS **ESSM NUMBER TU0320**

PHYSICAL CHARACTERISTICS

	Operating/Shipping	
	w/base	w/o base
Length	20 ft, 0 in.	20 ft, 0 in.
Width	8 ft, 0 in.	8 ft, 0 in.
Height	8 ft, 0 in.	8 ft, 7 in.
Cube	1374 cu ft	1280 cu ft
Weight	18,140 lb	15,300 lb

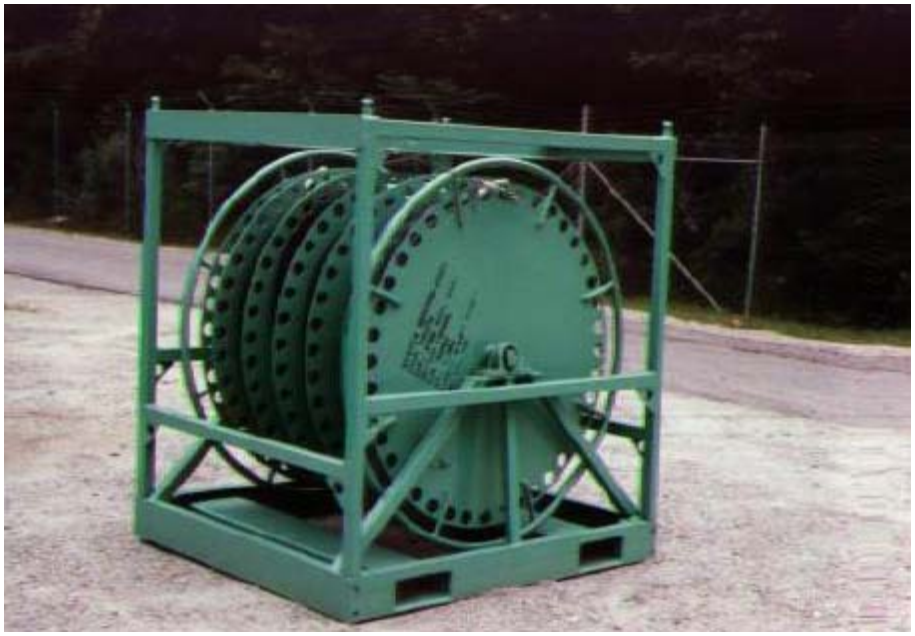
NOTE: Weight of the sacrificial base is 2840 lb.

REFERENCES

1. 30-Kip FADOSS Take-up/Storage Reel Manual, GPC 920255-93-4a.

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30-Kip FADOSS Take-up/Storage Reel Hydraulic Hose Reel TU0350

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REEL, HYDRAULIC HOSE, TAKE-UP/STORAGE, 30-KIP FADOSS **ESSM NUMBER TU0350**

DESCRIPTION

The 30-Kip FADOSS Take-up/Storage Reel Hydraulic Hose Reel TU0350 contains hoses used to transmit hydraulic fluid to and from the Take-up/Storage Reel TU0320 and the HPU TU0300. The hose reel contains two 25-foot lengths of l-inch hose for case drains and four 25-foot lengths of l-inch hose for supply and return. The hose assemblies have both male and female Snap-tite series 71 quick disconnect fittings. The hose reel is mounted on a steel frame with forklift slots for handling.

SPECIFICATIONS

1” Pressure Hose Assembly (4)

Hose	1” hose - Aeroquip FC273-16
Fittings	1 1/4" coupler, quick disconnect - Snap-tite VPHCI6-l6-EM; 1 1/2" nipple, quick disconnect - Snap-tite VPHNI6-l6-EM
NAVSEA Drawing	92104C017

1” Drain Hose Assembly (2)

Hose	1” hose - Aeroquip 2781-16
Fittings	1” coupler, quick disconnect - Snap-tite VPHCI6-l6-EM; 1” nipple, quick disconnect - Snap-tite VPHNI6-l6-EM
NAVSEA Drawing	92104C018

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 2 in.
Width	4 ft, 5 in.
Height	5 ft, 6 in.
Cube	126 cu ft
Weight	1900 lb

REFERENCES

1. Hose Storage Reel Assembly, Take-up/Storage Reel, NAVSEA Drawing No. 92105F001.
2. 1-Inch I.D. Pressure Hose Assembly, NAVSEA Drawing No. 92104C017.
3. 1-Inch I.D. Drain Hose Assembly, NAVSEA Drawing No. 92104C018.

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30-Kip FADOSS Ancillary Set TU0360

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ANCILLARY SET, 30-KIP FADOSS **ESSM NUMBER TU0360**

DESCRIPTION

The 30-Kip FADOSS Ancillary Set TU0360 contains the SMC Manifold Box Assembly TU0340, and lubricating oils, air hoses, filters, operating manuals, hand tools, and consumables to configure and maintain one 30-Kip FADOSS. The wire mesh container is equipped with a two-section hinged lid.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, wire mesh basket, 40” x 40” x 37”:		1
Assembly, SMC Manifold Box	TU0340	1
Hose, air, 50’ (1529-8)		1
Hose, air, 50’ (2556-4)		1
Hose, air, 50’ (2556-6)		1
Oil, 5 gal.		1
Oil, 5 gal. (Quintolubric)		1
Oil, compressor lubricating		1
Oil, hydraulic, 5 gal.		2
Box, parts:		1
Bearing, ball, single row		2
V-belt, engine		3
Connector, nipple		4
Filter, primary fuel		1
Filter, secondary fuel		1
Filter, hydraulic oil		4
Filter, oil		1
Inventory, laminated		1
Manuals, technical, various		5

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ANCILLARY SET, 30-KIP FADOSS **ESSM NUMBER TU0360**

PHYSICAL CHARACTERISTICS

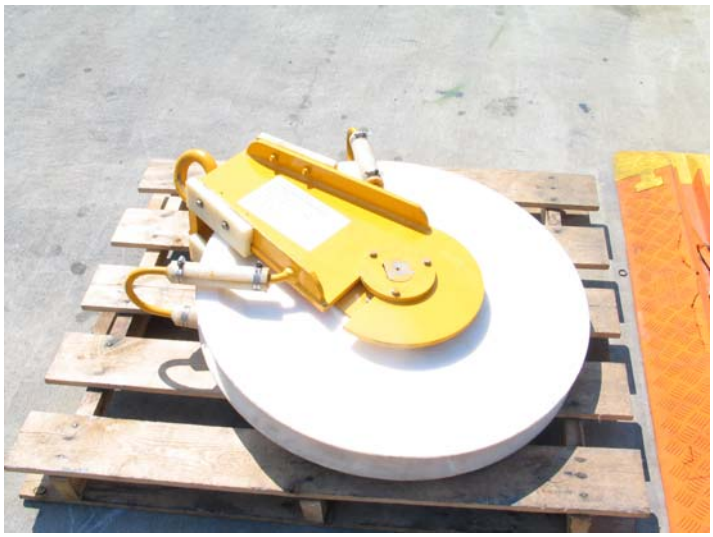
	Operating/Shipping
Length	4 ft, 0 in.
Width	3 ft, 4 in.
Height	3 ft, 1 in.
Cube	41 cu ft
Weight	708 lb

REFERENCES

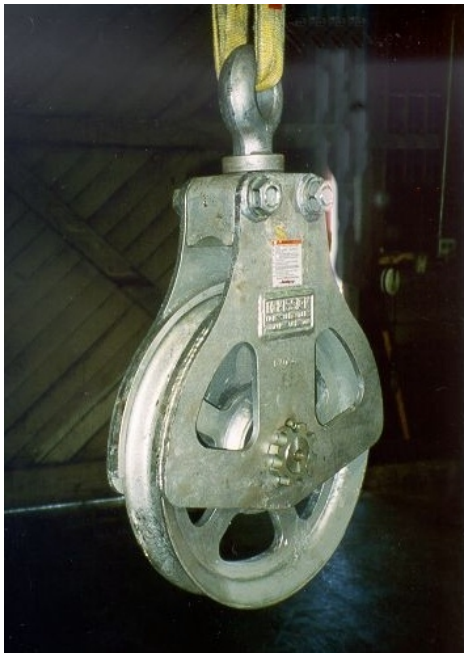
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32-Inch Fairlead Block TU0103



22-Inch Fairlead Block TU0106

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BLOCK, FAIRLEAD, 30-KIP FADOSS **ESSM NUMBER TBD**

DESCRIPTION

The 52-, 32-, or 22-Inch Fairlead Blocks (TU0218, TU0103, or TU0106) may be used with the 30-Kip FADOSS to align the reeling device, traction winch, ship motion compensator, and lifting point. These components may not be physically in line with each other due to the space available on the ship's deck. The blocks redirect the lift line to the next component to allow for a more flexible arrangement of FADOSS equipment on the ship's deck. Contact the SUPSALV Representative for the proper fairlead blocks for the intended application.

SPECIFICATIONS

	22-Inch Block	32-Inch Block	52-Inch Block
Manufacturer	McKissick	Timco	Timken
Reference no.	F-452-22	01703	NA
Bore	2 3/4”	2 1/2”	NA
Sheave material	Steel	Nylon	Steel
Sheave dimensions:			
Outside diameter	22”	32”	56”
Tread diameter	NA	27”	52”
Pitch diameter	NA	32”	46 1/2”
Groove radius	NA	5/8”	1 1/2”
Hub width	4 1/4”	3 3/8”	6”
Sheave width	3 3/4”	3”	4”

PHYSICAL CHARACTERISTICS

	22-Inch Block	32-Inch Block	52-Inch Block
Length	2 ft, 8 in.	2 ft, 8 in.	6 ft, 6 in.
Width	2 ft, 10 in.	3 ft, 6 in.	4 ft, 4 in.
Height	8 in.	10 in.	8 in.
Cube	4 cu ft	8 cu ft	19 cu ft
Weight	240 lb	240 lb	1650 lb

REFERENCES

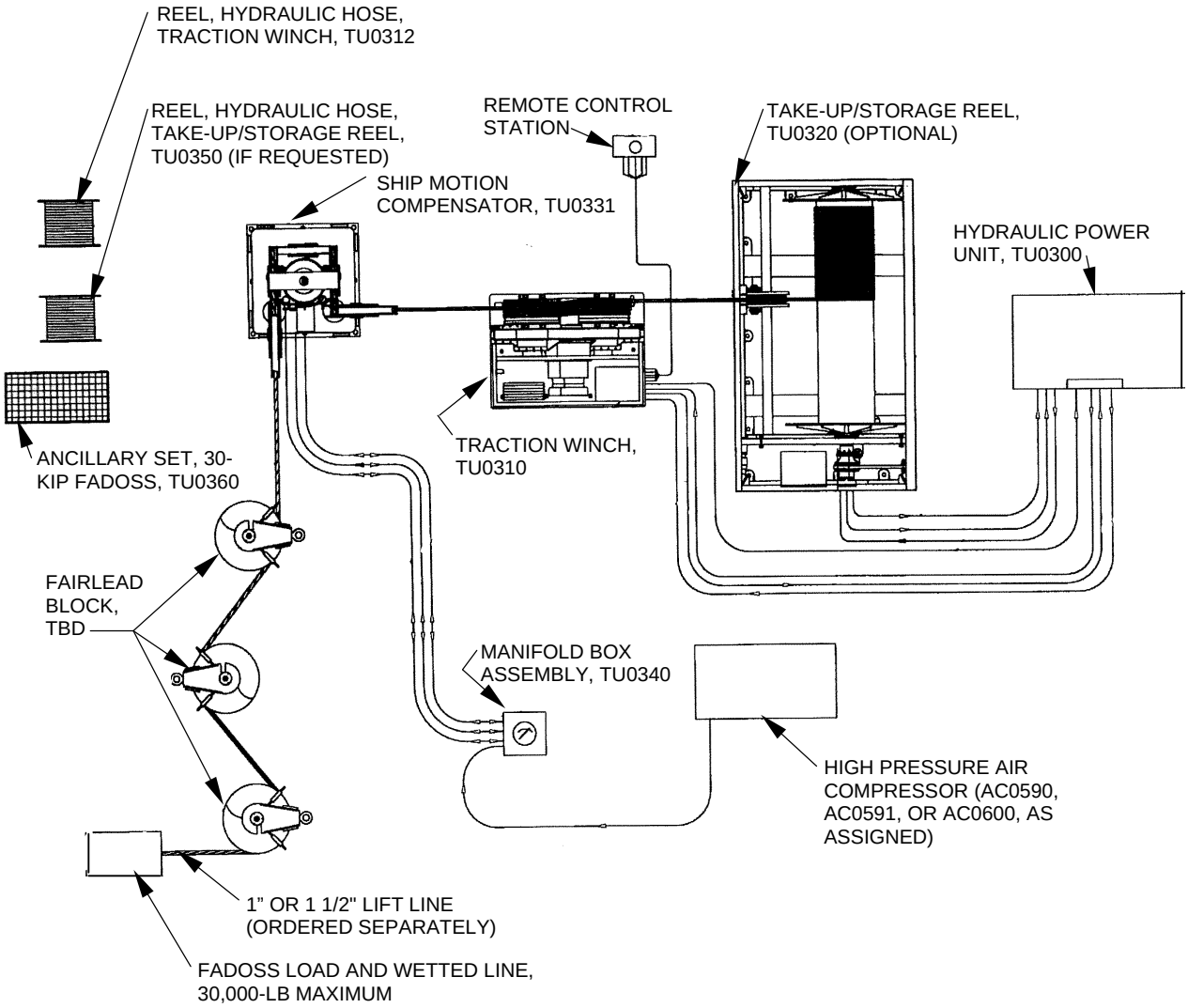
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30-KIP FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS) (2ND GENERATION) DS0111

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Overview of 30-Kip FADOSS (2nd Generation) DS0111

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FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS), 30-KIP (2ND GENERATION) **SYSTEM NUMBER DS0111**

SYSTEM DESCRIPTION

The 2nd Generation 30-Kip Flyaway Deep Ocean Salvage System (FADOSS) DS0111 is a portable, ship motion-compensated lift system designed to provide reliable deep ocean lifting capability of up to 30,000 pounds for the recovery of large, bulky, and heavy sunken objects, such as aircraft and small vessels. The most important component of the system is the ship motion compensator (SMC), which offsets the ship's heave motion to prevent high-snap tension from occurring in the lift line. The FADOSS has been used in ocean salvage and recovery, but other potential uses of this system include ship towing, mooring, and ocean mining.

The 30-Kip FADOSS consists of the following separate components: SMC, SMC manifold box assembly, air compressor, hydraulic power unit, traction winch, hydraulic hose storage reels, fairlead blocks, and an ancillary set. An optional take-up/storage reel is available to store and pay out line during operation of the system.

Depending on the onsite salvage requirements, the line (which is obtained separately) is available in 1- or 1 1/2-inch diameters and in various lengths.

SYSTEM COMPONENTS

Item		ESSM Number	Qty
1.	Air Compressor, 15 cfm @ 5000 psi, Diesel:	AC0600	1*
	Spare Parts Kit, for AC0600 Air Compressor	AC0601	1
2.	Power Unit, Hydraulic, Mod 30, 88 gpm @ 4000 psi:	TU0300	1
	Roundsling Bridle, Polyester, 4-Leg, 6', w/ Cloth D-Ring	SL0404	1
3.	Traction Winch, 30-Kip FADOSS:	TU0310	1
	Roundsling Bridle, Polyester, 4-Leg, 8', w/ 1" Oblong Ring	SL0403	1
4.	Reel, Hydraulic Hose, Traction Winch, 30-Kip FADOSS, (2nd Set)	TU0312	
5.	Ship Motion Compensator, 30-Kip FADOSS (2nd Set)	TU0331	
	Roundsling Bridle, Polyester, 4-Leg, 5', w/ Web D-Ring	SL0402	1
6.	Manifold Box Assembly, 30-Kip FADOSS	TU0340	1
7.	Ancillary Set, 30-Kip FADOSS	TU0360	1
8.	Block, Fairlead, 52-Inch, 32-Inch or 22-Inch Diameter	TBD	3**

NOTES:

* The air compressor included with the system will depend on inventory availability and onsite requirements; Air Compressors AC0590, AC0591, and AC0600 are functionally equivalent. The appropriate Spare Parts Kit (AC0592, AC0593, or AC0601) will be sent to support the delivered air compressor.

* The quantity and size of fairlead blocks required will depend on component layout on the host vessel.

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15-Cfm Diesel Air Compressor AC0600

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AIR COMPRESSOR, 15 CFM @ 5000 PSI, DIESEL **ESSM NUMBER AC0600**

DESCRIPTION

The 15-Cfm Diesel Air Compressor AC0600 is a multistage, low volume, high pressure air compressor driven by a 13-horsepower, four-cylinder diesel engine. The air compressor can deliver up to 15 cfm at a pressure of 5000 psi. The engine and compressor are housed in a skid-mounted frame with forklift slots for handling the unit.

SPECIFICATIONS

Compressor Assembly

Manufacturer	Stark Manufacturing
Model	The Invincible
Capacity	15 cfm
Operating pressure	5000 psi
Stages	5
Speed (max.)	3200 rpm

Engine

Manufacturer	Kubota
Model	V1100-B
Cylinders	4
Speed	1800 rpm
Horsepower	13 @ 1800 rpm
Starting	Electric, 12-volt
Fuel	Diesel
Fuel source	Internal 4.2-gal. tank
Fuel consumption	0.5 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 10 in.
Width	2 ft, 10 in.
Height	3 ft, 3 in.
Cube	54 cu ft
Weight	1748 lb

REFERENCES

1. The Invincible Operator’s Manual, Stark Manufacturing, Inc.

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Spare Parts Kit AC0601

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SPARE PARTS KIT, FOR AC0600 AIR COMPRESSOR ESSM NUMBER AC0601

DESCRIPTION

The Spare Parts Kit AC0601 contains items necessary to support the operation and maintenance of one Air Compressor AC0600.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 18” x 11” x 9”:	1
Desiccant	1
Disc, shear	1
Filter, engine air	1
Filter, air	1
Filter, engine oil	1
Filter, fuel	1
Filter, oil	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	1 ft, 6 in.
Width	11 in.
Height	9 in.
Cube	1.5 cu ft
Weight	7 lb

REFERENCES

None

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30-Kip FADOSS Hydraulic Power Unit TU0300

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POWER UNIT, HYDRAULIC, MOD 30, DIESEL, 88 GPM @ 4000 PSI **ESSM NUMBER TU0300**

DESCRIPTION

The 30-Kip FADOSS Hydraulic Power Unit TU0300 is a diesel driven unit with dual hydraulic pumps. The unit has one 1 1/2-inch discharge port (88 gpm @ 3500 psi) and one l-inch discharge port (22 gpm @ 3500 psi). Normal operating speed of the unit is 1800 rpm. Other ports include two returns (1 1/2-inch and l-inch), two l-inch case drains, and one 1/4-inch pilot valve drain return. The flow rate and output pressure for both pumps can be regulated at the local control panel. The capacity of the hydraulic fluid reservoir is 150 gallons. The engine and pump are mounted on a steel base with forklift slots and surrounded by a steel frame. The frame has lifting points to attach a 4-leg lifting sling for handling the HPU in an under-the-hook configuration. A sacrificial base is bolted to the frame assembly to allow welding it to a steel deck to prevent movement during operations.

SPECIFICATIONS

Hydraulic Power Unit Assembly

Manufacturer	Intercontinental Mfg.
Model	93086

Engine

Manufacturer	Detroit Diesel
Series	6V-92
Hp	280 @ 1800 rpm
Rpm: Operating	1800
Maximum	2100
Starting	Hydrostart
Fuel	Diesel
Fuel source	Internal 60-gal. tank
Fuel consumption	11.25 gph

Pump (auxiliary)

Manufacturer	Rex Roth
Capacity	22 gpm @ 3500 psi
Type	Variable displacement, pressure-compensated
Oper. pressure (max.)	3500 psi
Rpm (maximum)	1800 rpm (continuous)
Flow (maximum)	33 gpm @ 2200 psi

Pump (main)

Manufacturer	Rex Roth
Capacity	88 gpm @ 3500 psi
Type	Variable displacement, pressure-compensated
Oper. press. (max.)	3500 psi
Flow (maximum)	96 gpm @ 3600 psi

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POWER UNIT, HYDRAULIC, MOD 30, DIESEL, 88 GPM @ 4000 PSI **ESSM NUMBER TU0300**

PHYSICAL CHARACTERISTICS

	Operating/Shipping	
	w/base	w/o base
Length	8 ft, 1 in.	8 ft, 0 in.
Width	6 ft, 0 in.	6 ft, 3 in.
Height	7 ft, 6 in.	6 ft, 3 in.
Cube	352 cu ft	338 cu ft
Weight	12,220 lb	10,320 lb

NOTE: Weight of the sacrificial base is 1900 lb.

REFERENCES

1. 30-Kip FADOSS Hydraulic Power Unit Manual, GPC 920255A-93-3b, Intercon 93086.

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4-Leg Polyester Roundsling Bridle SL0404

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 6', W/ CLOTH D-RING **ESSM NUMBER SL0404**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0404 is designed specifically for handling the 30-Kip FADOSS Hydraulic Power Unit TU0300 in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the lifting points of the HPU.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	Q0-EE/120 x 6'	3/4" screw pin
Capacity	29,000 lb @ 60°	6 1/2 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

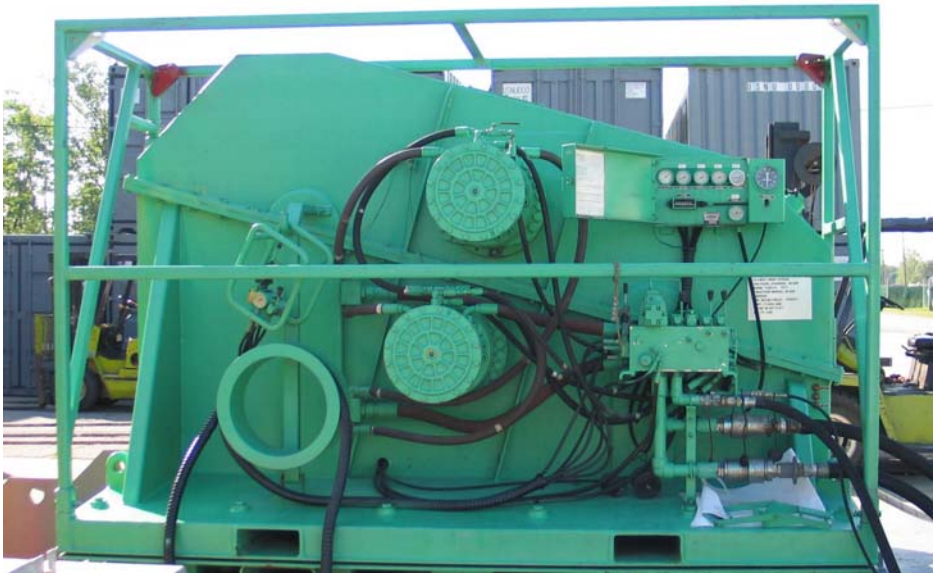
REFERENCES

None

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30-Kip FADOSS Traction Winch TU0310



30-Kip Traction Winch, Hydraulic Motors

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TRACTION WINCH, 30-KIP FADOSS **ESSM NUMBER TU0310**

DESCRIPTION

The 30-Kip FADOSS Traction Winch TU0310 is a hydraulically driven horizontal capstan with two identical multi-grooved drums. The drums have five grooves each with a pitch diameter of 40 inches. The drive motors are connected in parallel hydraulically and mechanically to ensure that the drums turn at the same speed. The winch is capable of maintaining a line tension of 40,000 or 20,000 pounds while hauling in or paying out line at a rate of 120 or 240 fpm, respectively. The unit can be operated by either local or hydraulic remote control. The winch is mounted on a steel base with forklift slots and surrounded by a steel frame. The frame has lifting points for attaching a 4-leg lifting sling (SL0403) used for handling the winch in an under-the-hook configuration. A sacrificial base plate is bolted to the winch base assembly to allow welding it to a steel deck to prevent movement during operations.

SPECIFICATIONS

Traction Winch Assembly		Motor	
Manufacturer	Intercontinental Engineering Mfg.	Manufacturer	Poclain
Model	93085	Model	MS25
Capacity	40,000 lb @ 120 fpm; 20,000 lb @ 240 fpm	Rpm (maximum)	140
		Displacement	122/61 cu in.
Oper. pressure (rated)	3000 psi @ 70 gpm	Pressure (maximum)	6500 psi

PHYSICAL CHARACTERISTICS

	Operating/Shipping	
	w/base	w/o base
Length	10 ft, 8 in.	10 ft, 8 in.
Width	5 ft, 5 in.	5 ft, 5 in.
Height	7 ft, 7 in.	6 ft, 11 in.
Cube	433 cu ft	421 cu ft
Weight	17,100 lb	15,200 lb

NOTE: Weight of the sacrificial base is 1900 lb.

REFERENCES

1. 30-Kip FADOSS Traction Winch Manual, GPC 920255A-93-2b, Intercon 93085.

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4-Leg Polyester Roundsling Bridle SL0403

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 8', W/ 1" OBLONG RING **ESSM NUMBER SL0403**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0403 is designed specifically for handling the 30-Kip FADOSS Traction Winch TU0310 in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the lifting points of the winch.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	Q0-EE-180 x 8'	5/8" screw pin
Capacity	17,000 lb @ 60°	3 1/4 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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30-Kip FADOSS Traction Winch Hydraulic Hose Reel Assembly TU0312



Hose Reel Assembly TU0312 (Hoses)

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REEL, HYDRAULIC HOSE, TRACTION WINCH, 30-KIP (2ND SET) **ESSM NUMBER TU0312**

DESCRIPTION

The 30-Kip FADOSS Traction Winch Hydraulic Hose Reel Assembly TU0312 contains supply and return hoses used to transmit hydraulic fluid between the Traction Winch TU0310 and the HPU TU0300. The hose reel assembly contains four 25-foot lengths of 1 1/2-inch hose for supply and return, two 25-foot lengths of 1-inch hose for case drains, and two 25-foot lengths of 1/4-inch hose for lower pressure control. The hose assemblies have both male and female Snap-tite quick disconnect fittings. The hose reel assembly is mounted on a steel frame with forklift slots for ease in maneuvering. The hoses are shipped charged with Rando 46 hydraulic fluid to limit system losses while assembling the units. Hose Reel TU0311 is functionally equivalent to TU0312.

SPECIFICATIONS

Hose Reel Assembly

Manufacturer	Commercial
Model	Drawing No. 93082F001

1 1/2” Hose Assembly (4)

Hose	1 1/2” hose - Aeroquip FC273-24
Fittings	1 1/2" coupler, quick disconnect - Snap-tite 71-1C32-24EF; 1 1/2" nipple, quick disconnect - Snap-tite 71N32-24EF
NAVSEA Drawing	92104C016

1” Hose Assembly (2)

Hose	1” hose - Aeroquip 2781-16
Fittings	1” coupler, quick disconnect - Snap-tite VPHCI6-l6-EM; 1” nipple, quick disconnect - Snap-tite VPHNI6-l6-EM
NAVSEA Drawing	92104C018

1/4” Hose Assembly (2)

Hose	1/4" hose - Aeroquip 2781-4
Fittings	3/8” coupler, quick disconnect - Snap-tite 71-1C6-6EF; 3/8” nipple, quick disconnect - Snap-tite 71-1N6-64EF
NAVSEA Drawing	93082C011

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REEL, HYDRAULIC HOSE, TRACTION WINCH, 30-KIP (2ND SET) **ESSM NUMBER TU0312**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 4 in.
Width	4 ft, 0 in.
Height	5 ft, 6 in.
Cube	126 cu ft
Weight	2240 lb

REFERENCES

1. Hose Storage Reel Assembly, NAVSEA Drawing No. 93082F001.
2. 1 1/2-inch I.D. Pressure Hose Assembly, NAVSEA Drawing No. 92104C016.
3. 1-inch I.D. Drain Hose Assembly, NAVSEA Drawing No. 92104C018.
4. 1/4-inch I.D. Control Hose Assembly, NAVSEA Drawing No. 93082C011.

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30-Kip FADOSS Ship Motion Compensator TU0331

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SHIP MOTION COMPENSATOR, 30-KIP FADOSS (2ND SET) **ESSM NUMBER TU0331**

DESCRIPTION

The 30-Kip FADOSS Ship Motion Compensator TU0331 is an air-over-oil, hydraulically driven ram cylinder with an operating pressure of 2000 psi. The SMC compensates for the ship's motion by extending or retracting the hydraulic ram to maintain a constant tension on the lift line. This prevents or greatly reduces high-snap loads on the lift line during the lifting operation. The SMC uses a 120,000-pound ram tensioner with a four-part rigging system, which reduces the operable load to 30,000 pounds, allowing for more line travel while operating under heavy sea conditions. Operation of the SMC is controlled from the Manifold Box Assembly TU0340, which receives high pressure air directly from the Air Compressor (AC0590, AC0591, or AC0600, as assigned). A locking valve allows the ram cylinder to be locked in position or to move freely. The SMC is mounted on a steel base with forklift slots, and surrounded by a steel frame with a four-point lifting bridle to facilitate handling. A sacrificial base is bolted to the SMC frame assembly to allow welding it to a steel deck to prevent movement during operations.

SPECIFICATIONS

Manufacturer	RETSCO
Model	120K 02
Capacity	30,000 lb tension w/4-part rigging system
Oper. press.: Rated	2000 psi
Maximum	2137 psi
Number of sheaves	5

PHYSICAL CHARACTERISTICS

	Operating/Shipping	
	w/base	w/o base
Length	5 ft, 3 in.	5 ft, 1 in.
Width	5 ft, 4 in.	5 ft, 1 in.
Height	9 ft, 6 in.	8 ft, 9 in.
Cube	242 cu ft	222 cu ft
Weight	10,618 lb	9,300 lb

NOTE: Weight of the sacrificial base is 1318 lb.

REFERENCES

1. 30-Kip Flyaway Deep Ocean Salvage System (FADOSS), Technical Manual, Description, Operation, Maintenance, and Parts Breakdown.

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4-Leg Polyester Roundsling Bridle SL0402

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 5', W/ WEB D-RING **ESSM NUMBER SL0402**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0402 is designed specifically for handling the 30-Kip FADOSS Ship Motion Compensator TU0331 in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the lifting points of the SMC.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	Lift-All	Commercial
Model	Q0-EE-50 x 5'	5/8" screw pin
Capacity	29,100 lb @ 60°	5 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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SMC Manifold Box Assembly TU0340

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MANIFOLD BOX ASSEMBLY, 30-KIP FADOSS **ESSM NUMBER TU0340**

DESCRIPTION

The SMC Manifold Box Assembly TU0340 is a compact, portable manifold assembly used to control the operation of either 30-Kip FADOSS SMC TU0330 or TU0331 from a remote location. This allows the operator to remain clear of the SMC and lift lines while the 30-Kip FADOSS is in operation. The assembly contains pressure gauges for monitoring system pressure, a pressure relief valve; a pressure reducing valve; an accumulator control valve (which is used for locking the SMC ram); a bleed valve, muffler, inlet, outlet, and actuator control ports; shutoff valves; and a spare parts box.

SPECIFICATIONS

Manufacturer	Fabricated by GPC, Williamsburg, VA
Operational pressure:	
Rated	2000 psi
Maximum	2137 psi

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 8 in.
Width	2 ft, 1 in.
Height	1 ft, 7 in.
Cube	9 cu ft
Weight	136 lb

REFERENCES

None

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30-Kip FADOSS Ancillary Set TU0360

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ANCILLARY SET, 30-KIP FADOSS **ESSM NUMBER TU0360**

DESCRIPTION

The 30-Kip FADOSS Ancillary Set TU0360 contains the SMC Manifold Box Assembly TU0340, and lubricating oils, air hoses, filters, operating manuals, hand tools, and consumables to configure and maintain one 30-Kip FADOSS. The wire mesh container is equipped with a two-section hinged lid.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, wire mesh basket, 40” x 40” x 37”:		1
Assembly, SMC Manifold Box	TU0340	1
Hose, air, 50’, (1529-8)		1
Hose, air, 50’, (2556-4)		1
Hose, air, 50’, (2556-6)		1
Oil, 5 gal.		1
Oil, 5 gal. (Quintolubric)		1
Oil, compressor lubricating		1
Oil, hydraulic, 5 gal.		2
Box, parts:		1
Bearing, ball, single row		2
V-belt, engine		3
Connector, nipple		4
Filter, primary fuel		1
Filter, secondary fuel		1
Filter, hydraulic oil		4
Filter, oil		1
Inventory, laminated		1
Manuals, technical, various		5

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ANCILLARY SET, 30-KIP FADOSS **ESSM NUMBER TU0360**

PHYSICAL CHARACTERISTICS

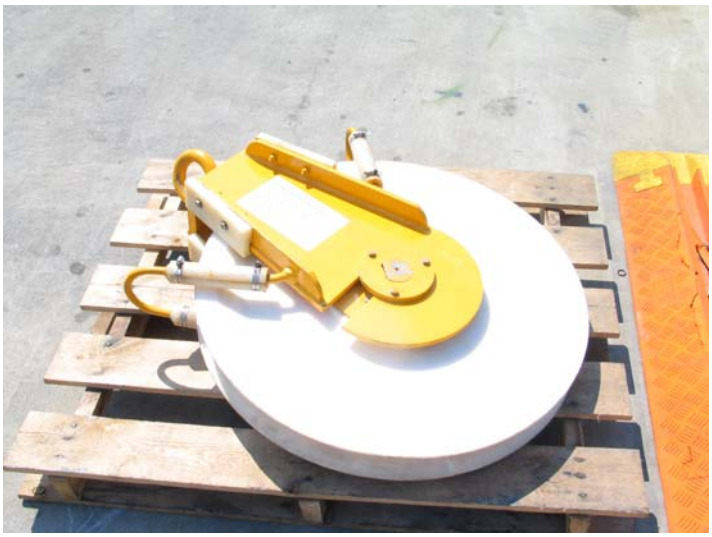
	Operating/Shipping
Length	4 ft, 0 in.
Width	3 ft, 4 in.
Height	3 ft, 1 in.
Cube	41 cu ft
Weight	708 lb

REFERENCES

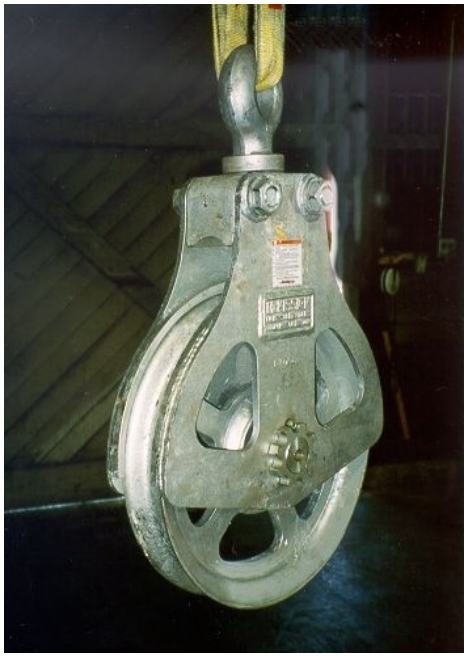
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32-Inch Fairlead Block TU0103



22-Inch Fairlead Block TU0106

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BLOCK, FAIRLEAD, 30-KIP FADOSS **ESSM NUMBER TBD**

DESCRIPTION

The 52-, 32-, or 22-Inch Fairlead Blocks (ESSM TU0218, TU0103, or TU0106) may be used with the 30-Kip FADOSS to align the reeling device, traction winch, ship motion compensator, and lifting point. These components may not be physically in line with each other due to the space available on the ship's deck. The blocks redirect the lift line to the next component to allow for a more flexible arrangement of FADOSS equipment on the ship's deck. Contact the SUPSALV Representative for the proper fairlead blocks for the intended application.

SPECIFICATIONS

	22-Inch Block	32-Inch Block	52-Inch Block
Manufacturer	McKissick	Timco	Timken
Reference no.	F-452-22	01703	NA
Bore	2 3/4”	2 1/2”	NA
Sheave material	Steel	Nylon	Steel
Sheave dimensions:			
Outside diameter	22”	32”	56”
Tread diameter	NA	27”	52”
Pitch diameter	NA	32”	46 1/2”
Groove radius	NA	5/8”	1 1/2”
Hub width	4 1/4”	3 3/8”	6”
Sheave width	3 3/4”	3”	4”

PHYSICAL CHARACTERISTICS

	22-Inch Block	32-Inch Block	52-Inch Block
Length	2 ft, 8 in.	2 ft, 8 in.	6 ft, 6 in.
Width	2 ft, 10 in.	3 ft, 6 in.	4 ft, 4 in.
Height	8 in.	10 in.	8 in.
Cube	4 cu ft	8 cu ft	19 cu ft
Weight	240 lb	240 lb	1650 lb

REFERENCES

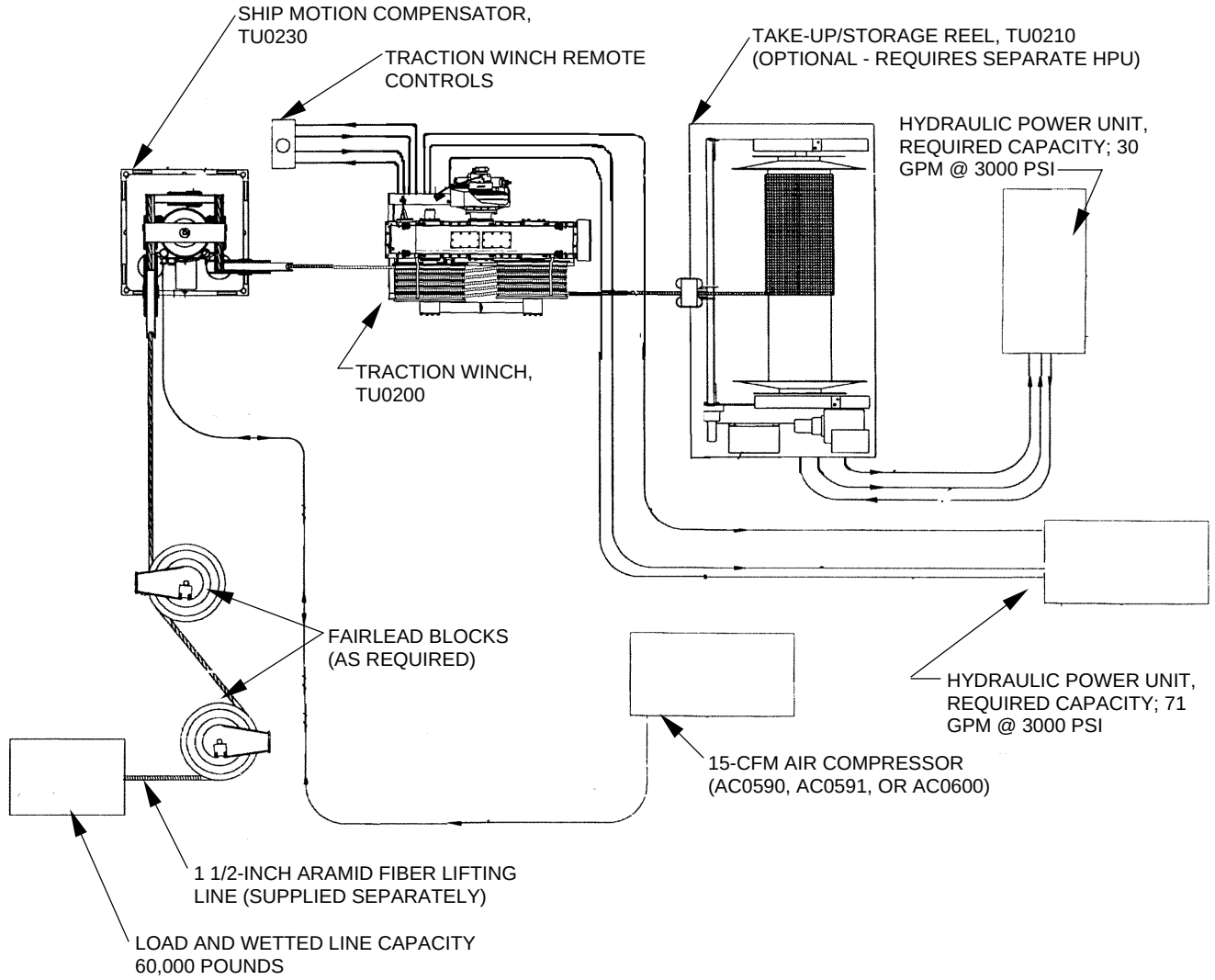
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60-KIP FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS) (1ST GENERATION) DS0120

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NOTE: 1 1/2-INCH ARAMID FIBER LINE IS AVAILABLE FOR OPERATION. LINE IS SUPPLIED SEPARATELY.

Overview of 1st Generation 60-Kip FADOSS DS0120

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FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS), 60-KIP (FIRST GENERATION) — SYSTEM NUMBER DS0l20

SYSTEM DESCRIPTION

The Flyaway Deep Ocean Salvage System (FADOSS) DS0l20 is a portable, ship lift system designed to provide reliable deep ocean lifting capacity of up to 60,000 pounds for the recovery of large, bulky, and heavy sunken objects such as aircraft or small vessels. The most important component of the system is the ship motion compensator (SMC), which offsets the ship's heave motion to prevent high-snap tension from occurring in the lift line. The FADOSS has been used in ocean salvage and recovery. Other potential uses of this system include ship towing, mooring, and ocean mining.

The FADOSS contains the following separate components: traction winch, ship motion compensator (SMC), take-up/storage reel, fairlead blocks, and air compressor. Hydraulic power units are required, the capacities of which will depend on the onsite system configuration. The user may supply hydraulic power units or they may be requested separately from the ESSM Facility.

Depending on the operational requirements, line is available in 1 1/2-inch diameter and various lengths, and is obtained separately.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Air Compressor, 15 cfm @ 5000 psi, Diesel:	AC0600	1*
Spare Parts Kit, for AC0600 Air Compressor	AC0601	1
2. Ship Motion Compensator, 60-Kip FADOSS:	TU0230	1
Roundsling, Polyester, 3-Strand, Multi-Braid, 16'	SL0013	1
3. Line Tension Monitoring System, 60-Kip FADOSS	TU0221	1
4. Traction Winch, 60-Kip FADOSS (1st Generation):	TU0205	1**
Wire Rope Bridle, 3-Leg, 1 1/4" x 8', 6x19 IWRC	SL0825	1
5. Take-Up/Storage Reel, 60-Kip FADOSS (2nd Generation)	TU0210	1***

* The air compressor included with the system will depend on inventory availability and onsite requirements; Air Compressors AC0590, AC0591, and AC0600 are functionally equivalent. The appropriate Spare Parts Kit (AC0592, AC0593, or AC0601) will be sent to support the delivered air compressor.

** The onsite operator may supply the hydraulic power source or an HPU (Mod 8, 71 gpm @ 4000 psi or Mod 30, 88 gpm @ 4000 psi) or one may be requested separately. Hydraulic hoses for the HPU and Traction Winch will be dependant on the HPU requested.

*** Optional with the 1st Generation FADOSS; will require a separate hydraulic power source of at least 30 gpm @ 3000 psi.

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15-Cfm Diesel Air Compressor AC0600

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AIR COMPRESSOR, 15 CFM @ 5000 PSI, DIESEL **ESSM NUMBER AC0600**

DESCRIPTION

The 15-Cfm Diesel Air Compressor AC0600 is a multistage, low volume, high pressure air compressor driven by a 13-horsepower, four-cylinder diesel engine. The air compressor can deliver up to 15 cfm at a pressure of 5000 psi. The engine and compressor are housed in a skid-mounted frame with forklift slots for handling the unit.

SPECIFICATIONS

Compressor Assembly

Manufacturer	Stark Manufacturing
Model	The Invincible
Capacity	15 cfm
Operating pressure	5000 psi
Stages	5
Speed (max.)	3200 rpm

Engine

Manufacturer	Kubota
Model	V1100-B
Cylinders	4
Speed	1800 rpm
Horsepower	13 @ 1800 rpm
Starting	Electric, 12-volt
Fuel	Diesel
Fuel source	Internal 4.2-gal. tank
Fuel consumption	0.5 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 10 in.
Width	2 ft, 10 in.
Height	3 ft, 3 in.
Cube	54 cu ft
Weight	1748 lb

REFERENCES

1. The Invincible Operator’s Manual, Stark Manufacturing, Inc.

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Spare Parts Kit AC0601

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SPARE PARTS KIT, FOR AC0600 AIR COMPRESSOR — ESSM NUMBER AC0601

DESCRIPTION

The Spare Parts Kit AC0601 contains items necessary to support the operation and maintenance of one Air Compressor AC0600.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 18” x 11” x 9”:	1
Desiccant	1
Disc, shear	1
Filter, engine air	1
Filter, air	1
Filter, engine oil	1
Filter, fuel	1
Filter, oil	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	1 ft, 6 in.
Width	11 in.
Height	9 in.
Cube	1.5 cu ft
Weight	7 lb

REFERENCES

None

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60-Kip Ship Motion Compensator (SMC) TU0230

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SHIP MOTION COMPENSATOR, 60-KIP FADOSS ESSM NUMBER TU0230

DESCRIPTION

The 60-Kip Ship Motion Compensator (SMC) TU0230 is an air-over-oil pressurized ram cylinder and sheave assembly with a rated operating air pressure of 2000 psi. The SMC compensates for the ship's movement by maintaining line tension at the sheaves as the vessel moves in response to wave and current action. As the ship moves, tension on the lift line would tend to change, but by extending or collapsing the ram, a steady line tension can be maintained. This prevents or greatly reduces snap-loading on the lift line. The SMC uses a 60,000-pound ram tensioner with a two-part rigging system, which allows for more line travel while operating under heavy sea conditions.

Operation of the SMC is controlled by high pressure air supplied from 15-Cfm Air Compressor AC0590, AC0591, or AC0600. A manual isolation valve is located in the air line to allow the flask to remain pressurized if the SMC has to be moved during operations.

A removable stand containing forklift slots is mounted on the side of the SMC and is used for transporting and storing the SMC in the horizontal position. Five lifting points are arranged on the unit to allow a crane to raise the SMC from the horizontal (shipping) to the vertical (operating) position.

SPECIFICATIONS

Manufacturer	Western Gear Corp.
Model	60k Tensioner
Capacity	60,000-lb tension w/2-part rigging system
Oper. press. (rated)	2000 psi
No. of sheaves	3

PHYSICAL CHARACTERISTICS

	Shipping	Operating
Length	22 ft, 0 in.	6 ft, 6 in.
Width	6 ft, 6 in.	6 ft, 6 in.
Height	6 ft, 6 in.	22 ft, 0 in.
Cube	930 cu ft	930 cu ft
Weight	21,270 lb	20,670 lb

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SHIP MOTION COMPENSATOR, 60-KIP FADOSS **ESSM NUMBER TU0230**

REFERENCES

1. Manual, Operation and Maintenance of Hydraulic Ram Tensioner, Western Gear Corp., NAVSHIPS 0978-036-7010.
2. At Sea Evaluation of a Ram Tensioner for Ocean Deployment and Recovery, NAVSEA Report 80-WA/OCE-5.

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3-Strand Multi-Braid Polyester Roundsling SL0013

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ROUNDSLING, POLYESTER, 3-STRAND MULTI-BRAID, 16' **ESSM NUMBER SL0013**

DESCRIPTION

The 3-Strand Multi-Braid Polyester Roundsling SL0013 is designed specifically for handling the 60-Kip Ship Motion Compensator TU0230 in an under-the-hook configuration using a crane. It is equipped with a 1 3/4-inch safety shackle and is shipped attached to the SMC lifting eye.

SPECIFICATIONS

	Roundsling Bridle	Shackle
Manufacturer	Lift-All	Commercial
Model	B5E90	1 3/4" safety shackle
Construction	Braided webbing	Alloy
Capacity	34,700 lb SWL	25 tons
End fittings	Sewn eyes	

PHYSICAL CHARACTERISTICS

	Shipping/Operating
Length	16 ft
Width	1 ft
Height	6 in.
Cube	8 cu ft
Weight	35 lb

REFERENCES

None

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Line Tension Monitoring System TU0221

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LINE TENSION MONITORING SYSTEM, 60-KIP FADOSS ESSM NUMBER TU0221

DESCRIPTION

The Line Tension Monitoring System TU0221 consists of a digital indicator with a large, sunlight-readable, liquid crystal display, a power supply/charger, and a load pin. The tension monitoring components are designed to withstand the harsh environmental conditions found on salvage sites. The monitoring system is powered by 120-volt ac power which is rectified into a regulated dc voltage.

The digital indicator reads the tension on the load pin, installed at the SMC, in pounds-force. The digital indicator has peak hold and high/low silent alarms.

SPECIFICATIONS

Digital Indicator

Manufacturer	Metrox Inc.
Model	M1951-3.5D
DC power	24 V dc

Power Supply/Charger

Manufacturer	Metrox Inc.
Part no.	10G4-51
AC voltage	115/230 V ac

Load Pin

Manufacturer	Metrox Inc.
Dwg/Part no.	LP-30K-l954-00
Capacity	120,000 lb
Overload	150% w/o damage; 300% w/o failure
Temp. range	30 to 130°F

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LINE TENSION MONITORING SYSTEM, 60-KIP FADOSS **ESSM NUMBER TU0221**

PHYSICAL CHARACTERISTICS

	Individual Operating Dimensions			Total
	Digital Display	Power Supply	Load Pin	Shipping
Length	1 ft, 2 in.	1 ft, 1 in.	NA	4 ft, 0 in.
Width	10 in.	10 in.	NA	2 ft, 2 in.
Height	6 in.	5 in.	8 in.	1 ft, 2 in.
Cube	0.49 cu ft	0.38 cu ft	0.0076 cu in.	10 cu ft
Diameter	NA	NA	2.558 in.	NA
Weight	11 lb	14 lb	8 lb	130 lb

REFERENCES

1. Power Supply Subassembly Owner's Manual, Metrox part number 1052-58.
2. Signal Conditioner-Analog to Digital Converter Owner's Manual, Metrox part number 1052-48.
3. Display Subassembly Owner's Manual, Metrox part number 1052-38.
4. Operation/Maintenance Manual, Model 1052-70, Setpoint Option, Metrox part number 1052-78.
5. Digital Indicator Owner's Manual, Manual #1004-08.

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60-Kip FADOSS Traction Winch Drums TU0205



Traction Winch Hydraulic Motors

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TRACTION WINCH, 60-KIP FADOSS (1ST GENERATION) ESSM NUMBER TU0205

DESCRIPTION

The 60-Kip FADOSS Traction Winch TU0205 is a hydraulically driven winch with two synchronous, multi-grooved drums. Each drum has five grooves. The winch is capable of maintaining a line tension of 70,000 or 54,000 pounds while hauling in/paying out line at a rate of 24 or 31 fpm, respectively. The unit can be operated by local control or with an electric remote control. The winch is mounted on a steel base plate with forklift slots and surrounded by a steel frame with a lifting sling attached to facilitate handling. A sacrificial base is bolted to the winch base assembly to allow welding the unit to a steel deck to prevent movement during operations. Using adapters found in the ancillary set, the Traction Winch may be powered by a Mod 8 HPU or by a Mod 30 HPU. The hoses supplied will be dependant on the HPU or hydraulic power source used.

SPECIFICATIONS

Traction Winch Assembly

Manufacturer	Intercontinental Mfg. Co.
Model	T-350-SR
Capacity	70,000 lb tension @ 24 fpm (full motor displacement); 54,000 lb tension @ 31 fpm (half motor displacement)
Actuator press. (max.)	1000 psi
Oper. press. (rated)	2500 psi @ 50 gpm

Motor

Manufacturer	Staffa
Model	DC-202
Brake release press.	400 psi
Static torque	10,200 lb-ft

Hoses Required

Hydraulic supply and return hoses	1 1/2” FC273-24 hose w/ 71-1C32-24EF female and 71N32-24EF male quick disconnect fittings
Hydraulic pilot valve hose	1/2” 2781-16 hose w/ 71-1C32-24EF female and 71N32-24EF male quick disconnect fittings
Case drain hose	1” 2781-8 hose w/ 5601-8-10S female and S692-8-10S male quick disconnect fittings

Hydraulic Flow Rate

Mod 8 HPU	71 gpm @ 4000 psi; requires hoses from Hose Reel PW0201 and adapters from 1” to 1 1/2” hydraulic fittings.
Mod 30 HPU	88 gpm @ 4000 psi; requires hoses from Hose Reel TU0311 or TU0312.

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TRACTION WINCH, 60-KIP FADOSS (1ST GENERATION) ESSM NUMBER TU0205

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	7 ft, 10 in.
Width	7 ft, 5 in.
Height	6 ft, 10 in.
Cube	397 cu ft
Weight	16,100 lb

REFERENCES

1. Intercontinental Parts and Instruction Book for Ram Tensioner Hydraulic Traction Winch.

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3-Leg Wire Rope Bridle SL0825

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WIRE ROPE BRIDLE, 3-LEG, 1 1/4” X 8’, 6 X 19 IWRC **ESSM NUMBER SL0825**

DESCRIPTION

The 3-Leg Wire Rope Bridle SL0825 is designed specifically for handling the 60-Kip Traction Winch TU0205 in an under-the-hook configuration using a crane. It is equipped with three screw pin shackles and is shipped attached to the Traction Winch lifting eyes.

SPECIFICATIONS

	Roundsling Bridle	Shackle (3)
Manufacturer	ESSM Facility	Commercial
Wire rope type	1 1/4”, 6 x 19 IWRC	1 1/4” screw pin
Capacity	13,840 lb SWL	18 tons
End fittings	Hard eyes	

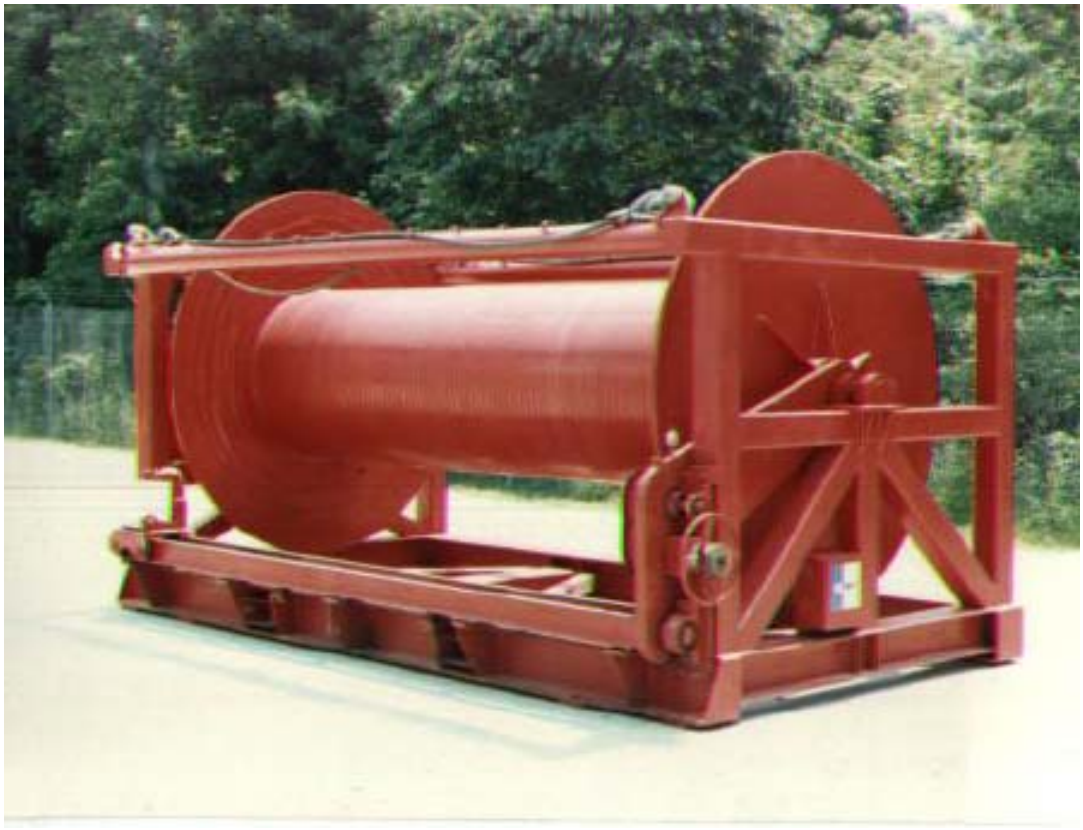
PHYSICAL CHARACTERISTICS

	Shipping/Operating
Length	8 ft, 0 in.
Width	1 ft, 0 in.
Height	6 in.
Cube	4 cu ft
Weight	70 lb

REFERENCES

None

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60-Kip FADOSS Take-up/Storage Reel TU0210

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TAKE-UP/STORAGE REEL, 60-KIP FADOSS (2ND GENERATION) **ESSM NUMBER TU0210**

DESCRIPTION

The 60-Kip FADOSS Take-up/Storage Reel TU0210 is a hydraulically driven reel used for taking up, paying out, and storing line. The reeling device can be controlled by a local or remote control station, which regulates the direction and speed of the drum and level wind. The level wind's speed can be changed by using different gear set combinations, which are determined by line diameter. The gear sets are included with the unit. The drum turns at a rate equal to that of the Traction Winch TU0100. The unit is mounted on a steel base plate containing two forklift slots and is surrounded by a steel frame with four lifting points for ease in maneuvering. The Take-up/Storage Reel is an optional component and requires a separate hydraulic power source when used with the 1st Generation FADOSS.

SPECIFICATIONS

Reeling Device Assembly

Manufacturer	Almon A. Johnson
Capacity	37,000' of 1 1/2" aramid fiber line
Speed	300 fpm

Motor

Manufacturer	Hagglund Viking
Type	UK4304700ADRN0100
Pressure (max.)	4700 psi
Rpm (maximum):	
Continuous	100
Intermittent	200
Free running	600

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	16 ft
Width	9 ft
Height	8 ft
Cube	1152 cu ft
Weight	16,500 lb (w/o line)

REFERENCES

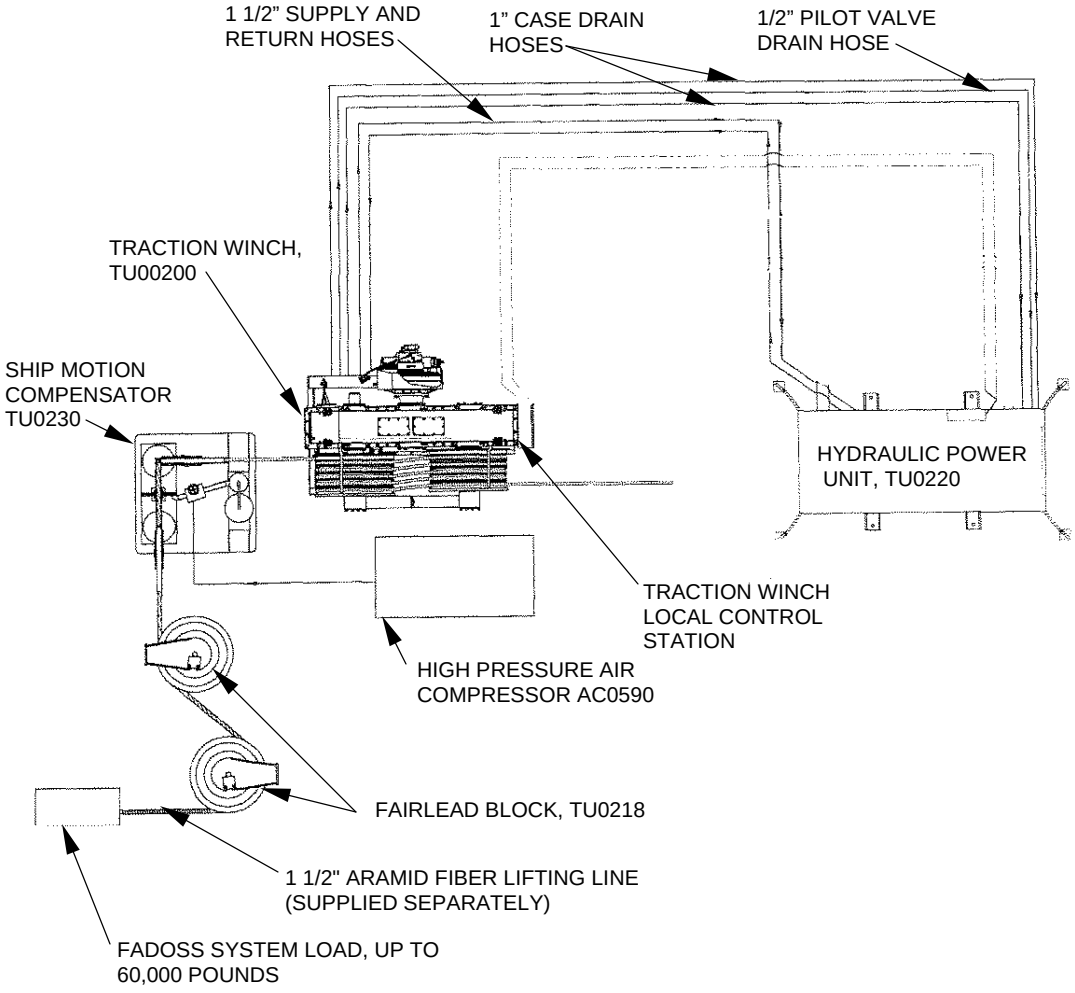
1. 60-Kip FADOSS Electrical Control Panel Operator's Aid and Troubleshooting Guide (provided with unit).

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60-KIP FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS) (2ND GENERATION) DS0121

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Overview of 2nd Generation 60-Kip FADOSS DS0121

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FLYAWAY DEEP OCEAN SALVAGE SYSTEM (FADOSS), 60-KIP (SECOND GENERATION) **SYSTEM NUMBER DS0l21**

SYSTEM DESCRIPTION

The Flyaway Deep Ocean Salvage System (FADOSS) DS0l21 is a portable, ship lift system designed to provide reliable deep ocean lift support of up to 60,000 pounds for the recovery of large, bulky, and heavy sunken objects, such as aircraft and small vessels. The most important component of the system is the ship motion compensator (SMC), which offsets the ship's heave motion to prevent high-snap tension from occurring in the lift line. The FADOSS has been used in ocean salvage and recovery. Other potential uses of this system include ship towing, mooring, and ocean mining.

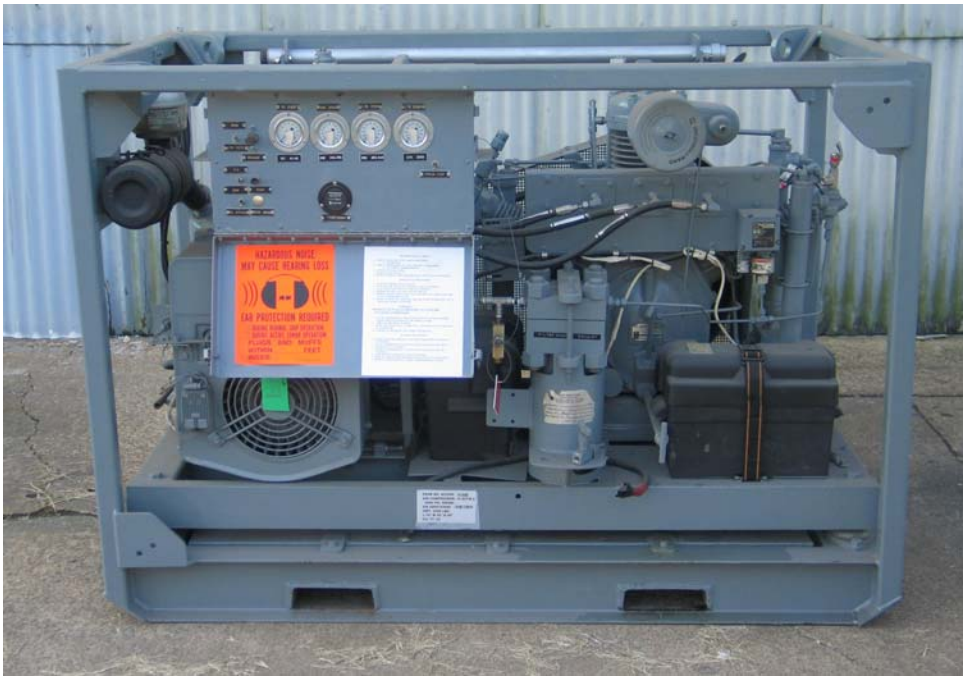
The FADOSS consists of the following separate components: air compressor, SMC, line tension monitoring system, traction winch, HPU, fairlead blocks, hydraulic hose reels with hoses, and ancillary kit.

Line is obtained separately, and is available in 1 1/2-inch diameter and various lengths, depending on the operational requirements,

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Air Compressor, 15 cfm @ 3000 psi, Diesel, Model 10T2:	AC0590	1
Spare Parts Kit, for AC0590 Air Compressor	AC0592	1
2. Ship Motion Compensator	TU0230	1
Roundsling, Polyester, 3-Strand Multi-Braid, 16'	SL0013	1
3. Traction Winch (2nd Generation):	TU0200	1
Roundsling Bridle, Polyester, 4-Leg, 8', w/ Lifting Grommet	SL0393	1
4. Hydraulic Hose Reel Assembly, Traction Winch	TU0215	2
5. Power Unit, Hydraulic, Mod 60, Diesel, 150 gpm @ 3000 psi:	TU0220	1
Roundsling Bridle, Polyester, 4-Leg, 11', w/ Lifting Grommet	SL0394	1
6. Block, Fairlead, 52"	TU0218	3
7. Line Tension Monitoring System	TU0221	1
8. Ancillary Set (2nd Generation)	TU0225	1

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15-Cfm Diesel Air Compressor AC0590

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AIR COMPRESSOR, 15 CFM @ 3000 PSI, DIESEL, MODEL 10T2 **ESSM NUMBER AC0590**

DESCRIPTION

The 15-Cfm Diesel Air Compressor AC0590 is a multistage, low volume, high pressure air compressor driven by a 23-horsepower, four-cylinder diesel engine. The air compressor can deliver up to 15 cfm at a pressure of 3000 psi. The engine and compressor are housed in a skid-mounted frame with forklift slots for handling the unit.

SPECIFICATIONS

Compressor Assembly

Manufacturer	Ingersoll-Rand
Model	10T2
Capacity	15 cfm
Operating pressure	3000 psi
Stages	5

Engine

Manufacturer	Onan
Model	DJC-MS/2450
Cylinders	4
Speed	2400 rpm
Horsepower	23 @ 2400 rpm
Starting	Electric, 12-volt
Fuel	Diesel
Fuel source	External tank
Fuel consumption	1.5 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 10 in.
Width	3 ft, 6 in.
Height	4 ft, 1 in.
Cube	83 cu ft
Weight	2500 lb

REFERENCES

1. NAVSEA Technical Manual SS500-AC-MMC-010/MK32 Mod 0

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Spare Parts Kit AC0592

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SPARE PARTS, KIT FOR AC0590 AIR COMPRESSOR ESSM NUMBER AC0592

DESCRIPTION

The Spare Parts Kit AC0592 contains items necessary to support the operation and maintenance of one Air Compressor AC0590.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 27” x 19” x 12”, w/lid:	1
Filter, engine air	1
Filter, fuel (primary)	1
Filter, fuel (secondary)	1
Filter, oil	1
Inventory, laminated	1
Manual, AC0590 Air Compressor	1
Manual, Air Compressor Parts Listing	1
Manual, Air Compressors	1
V-belt, fan (matched set of 3 belts)	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 3 in.
Width	1 ft, 2 in.
Height	1ft, 0 in.
Cube	4 cu ft
Weight	25 lb

REFERENCES

None

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60-Kip FADOSS Ship Motion Compensator (SMC) TU0230

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SHIP MOTION COMPENSATOR, 60-KIP FADOSS — ESSM NUMBER TU0230

DESCRIPTION

The 60-Kip FADOSS Ship Motion Compensator (SMC) TU0230 is an air-over-oil pressurized ram cylinder and sheave assembly with a rated operating air pressure of 2000 psi. The SMC compensates for the ship's movement by maintaining line tension at the sheaves as the vessel moves in response to wave and current action. As the ship moves, tension on the lift line would tend to change, but by extending or collapsing the ram, a steady line tension can be maintained. This prevents or greatly reduces snap-loading on the lift line. The SMC uses a 60,000-pound ram tensioner with a two-part rigging system, which allows for more line travel while operating under heavy sea conditions.

Operation of the SMC is controlled by high pressure air from Air Compressor AC0590, AC0591, or AC0600 directly connected to valves located on the side of the SMC. An isolation valve, operated by a manual lever, is located in the air line to the air flask to allow the flask to remain pressurized if the SMC has to be moved during operations. A manually/electrically operated compensation control valve, located between the accumulator and hydraulic cylinder, allows the ram cylinder to be locked in position or to move freely.

A removable stand mounted on the side of the SMC and containing forklift slots is used for transporting and storing the SMC in the horizontal position. Five lifting points allow the use of a crane to raise the SMC to the vertical operating position.

SPECIFICATIONS

Ship Motion Compensator

Manufacturer	Western Gear Corp.
Model	60K Tensioner
Capacity	60,000-lb tension w/2-part rigging system
Operating press. (rated)	2000 psi
No.of sheaves	3

PHYSICAL CHARACTERISTICS

	Shipping	Operating
Length	22 ft, 0 in.	6 ft, 6 in.
Width	6 ft, 6 in.	6 ft, 6 in.
Height	6 ft, 6 in.	22 ft, 0 in.
Cube	930 cu ft	930 cu ft
Weight	21,270 lb	20,670 lb

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SHIP MOTION COMPENSATOR, 60-KIP FADOSS **ESSM NUMBER TU0230**

REFERENCES

1. Manual, Operation and Maintenance of Hydraulic Ram Tensioner, Western Gear Corp., NAVSHIPS 0978-036-7010 (provided with the unit).
2. At-Sea Evaluation of a Ram Tensioner for Ocean Deployment and Recovery, NAVSEA Report 80-WA/OCE-5.

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3-Strand Multi-Braid Polyester Roundsling SL0013

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ROUNDSLING, POLYESTER, 3-STRAND MULTI-BRAID, 16' **ESSM NUMBER SL0013**

DESCRIPTION

The 3-Strand Multi-Braid Polyester Roundsling SL0013 is designed specifically for handling the 60-Kip Ship Motion Compensator TU0230 in an under-the-hook configuration using a crane. It is equipped with a 1 3/4-inch safety shackle and is shipped attached to the SMC lifting eye.

SPECIFICATIONS

	Roundsling Bridle	Shackle
Manufacturer	Lift-All	Commercial
Model	B5E90	1 3/4"
Construction	Braided webbing	Alloy safety shackle
Capacity	34,700 lb SWL	25 tons
End fittings	Sewn eyes	

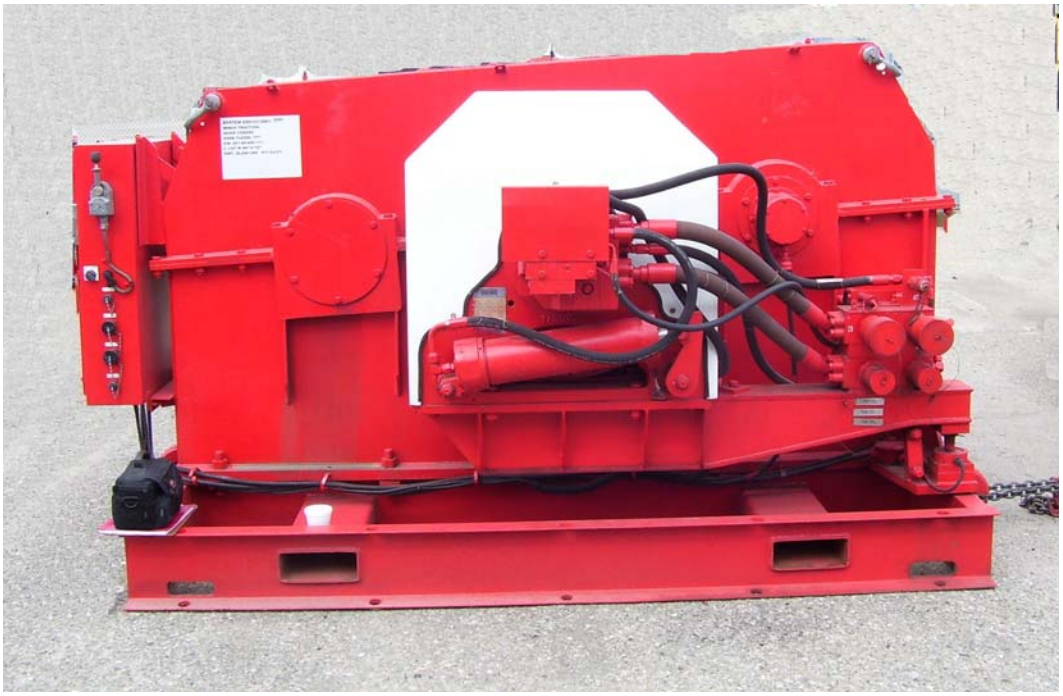
PHYSICAL CHARACTERISTICS

	Shipping/Operating
Length	16 ft
Width	1 ft
Height	6 in.
Cube	8 cu ft
Weight	35 lb

REFERENCES

None

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60-Kip FADOSS Traction Winch Hydraulic Motors



60-Kip FADOSS Traction Winch Drums

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TRACTION WINCH, 60-KIP FADOSS (2ND GENERATION) ESSM NUMBER TU0200

DESCRIPTION

The 60-Kip FADOSS Traction Winch TU0200 is a hydraulically operated winch. The winch uses one hydraulic motor to turn two identical five-grooved drums, which are connected in parallel hydraulically and mechanically to assure that they turn at the same rate. The winch is capable of maintaining a line tension of 60,000 or 5000 pounds while hauling in/paying out line at a rate of 100 or 300 fpm, respectively. The unit can be operated by either local or hydraulic remote control. The unit includes forklift slots in the steel base plate, and has a single point lifting sling attached for ease in maneuvering.

SPECIFICATIONS

Traction Winch Assembly

Manufacturer	Almon A. Johnson
Model	Series 401
Capacity:	
High speed	300 fpm @ 50,000-lb force
Low speed	100 fpm @ 60,000-lb force
Drums	2
Grooves per drum	5

Motor

Manufacturer	Hagglund Viking
Type	UK 16300 89LN 0200
Displacement	16,340 cm^3/r
Pressure (max.)	3,675 psi
Speed (rpm):	
Continuous (max.)	250
Intermittent (max.)	100
Maximum	600

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	11 ft, 3 in.
Width	7 ft, 2 in.
Height	6 ft, 0 in.
Cube	484 cu ft
Weight	19,960 lb

REFERENCES

1. 60-Kip FADOSS Electrical Control Panel Operator's Aid and Troubleshooting Guide (provided with unit).

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4-Leg Polyester Roundsling Bridle SL0393

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 8', W/ LIFTING GROMMET **ESSM NUMBER SL0393**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0393 is designed specifically for handling the 60-Kip FADOSS Traction Winch TU0200 in an under-the-hook configuration using a crane. It is equipped with four 1-inch safety shackles and is shipped attached to the Traction Winch TU0200 lifting eyes.

SPECIFICATIONS

	Roundsling Bridle	Shackle
Manufacturer	Heco Slings	Commercial
Model	QOSENT8/SP8 x 8'	1" alloy safety shackle
Capacity (each leg)	21,400 lb	21 tons WLL
Capacity (sling assembly)	34,700 lb SWL	
Sling type	Endless sling	

PHYSICAL CHARACTERISTICS

	Shipping/Operating
Length	8 ft
Width	1 ft
Height	6 in.
Cube	8 cu ft
Weight	35 lb

REFERENCES

None

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60-Kip FADOSS Traction Winch Hydraulic Hose Reel Assembly TU0215

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HYDRAULIC HOSE REEL ASSEMBLY, TRACTION WINCH 60-KIP FADOSS **ESSM NUMBER TU0215**

DESCRIPTION

The 60-Kip FADOSS Traction Winch Hydraulic Hose Reel Assembly TU0215 contains hoses used to transmit hydraulic pressure from the HPU to the Traction Winch TU0200. The hose reel assembly contains four 25-foot lengths of 2-inch hose for supply and return, one 25-foot length of l-inch hose for case drains, and one 40-foot length of 1/2-inch hose for the pilot valve drain. The hose assemblies have both male and female Snap-tite quick disconnect fittings. The hose reel spool is mounted on a steel, stackable frame with forklift slots and four lifting points for transporting and ease in handling. The hoses are charged with Rando 46 hydraulic fluid to prevent or limit losses when assembling the system.

SPECIFICATIONS

Pressure Supply and Return Hose (4)

Hose	2” hose - Aeroquip FC273-24 25
Fittings	2” coupler, quick disconnect - Snap-tite 71-1C32-24EF; 2” nipple, quick disconnect - Snap-tite 71-N32-24EF

Case Drain Hose

Hose	1” hose - Aeroquip 2781-16 25
Fittings	1” coupler, quick disconnect - Snap-tite VPHCI6-l6-EM; 1” nipple, quick disconnect - Snap-tite VPHNI6-l6EM

Pilot Drain Hose

Hose	1/2” hose - Aeroquip 2781-8 40
Fittings	1/2” male, quick disconnect - Snap-tite 5602-8-10S; 1/2” female, quick disconnect - Snap-tite 5601-8-10S

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 5 in.
Width	5 ft, 2 in.
Height	5 ft, 6 in.
Cube	126 cu ft
Weight	2168 lb

REFERENCES

None

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52-Inch Fairlead Block TU0218

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BLOCK, FAIRLEAD, 52”, 60-KIP FADOSS **ESSM NUMBER TU0218**

DESCRIPTION

The 52-Inch Fairlead Block TU0218 (three are required) is used with the 60-Kip FADOSS to align the reeling device, traction winch, ship motion compensator, and lifting point. These components may not be physically in line with each other due to the available space on the ship’s deck. The blocks redirect the lift line to the next component to allow for a more flexible arrangement of FADOSS equipment on the ship’s deck.

SPECIFICATIONS

Sheave

Material	Steel
Diameter	52”
Pitch diameter	46 1/2"

Bearing

Manufacturer	Timken
Cone	NA48685
Cup	48620D

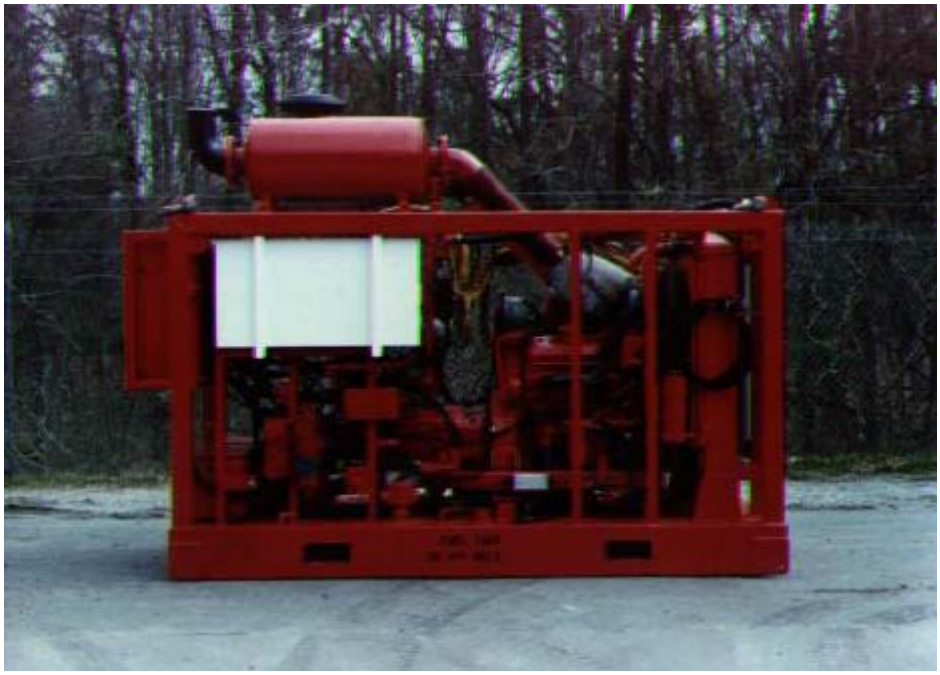
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 6 in.
Width	4 ft, 4 in.
Height	8 in.
Cube	19 cu ft
Weight	1650 lb

REFERENCES

None

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60-Kip FADOSS Hydraulic Power Unit (HPU) TU0220

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POWER UNIT, HYDRAULIC, MOD 60, DIESEL, 150 GPM @ 3000 PSI **ESSM NUMBER TU0220**

DESCRIPTION

The 60-Kip FADOSS Hydraulic Power Unit (HPU) TU0220 is a diesel driven unit that supplies hydraulic power to two independent closed-loop circuits, one of which powers the Traction Winch TU0200, and the other the Take-up/Storage Reel TU0210. The traction winch circuit contains two 2-inch supply and two 2-inch return ports, one 1-inch case drain port, and one 1/2-inch pilot valve drain port. The take-up/storage reel circuit contains one 1-inch supply, return, and case drain port. The output pressure and flow rate are regulated by the traction winch and take-up/storage reel. The engine and pump are mounted on a steel base with forklift slots and surrounded by a steel frame with a single point lifting sling attached for ease in maneuvering.

SPECIFICATIONS

Engine

Manufacturer	Detroit Diesel-Allison
Series	6V-92TA
Horsepower	277 @ 1800 rpm
Rpm:	
Operating	1800
Max.	1975
Starting	Electric 24 V dc
Fuel	Diesel
Fuel source	60-gal. internal tank

Pump, Auxiliary

Manufacturer	Hagglund Viking
Model	P6P-3RIC-5A2-B
Operating press. (max.)	3000 psi

Pump, Main (2 installed)

Manufacturer	Hagglund Viking
Model	P24P-3RIC-5A4-B00-4C0
Operating press. (max.)	3000 psi
Flow rate	80 gpm @ 3000 psi

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POWER UNIT, HYDRAULIC, MOD 60, DIESEL, 150 GPM @ 3000 PSI **ESSM NUMBER TU0220**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	10 ft, 8 in.
Width	4 ft, 2 in.
Height	8 ft, 6 in.
Cube	393 cu ft
Weight	11,260 lb

REFERENCES

1. 60-Kip FADOSS Electrical Control Panel Operator’s Aid and Troubleshooting Guide.

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Line Tension Monitoring System TU0221

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LINE TENSION MONITORING SYSTEM, 60-KIP FADOSS **ESSM NUMBER TU0221**

DESCRIPTION

The Line Tension Monitoring System TU0221 is a rugged, accurate, reliable monitoring system that can handle the harsh conditions encountered during salvage scenarios.

The tension monitoring system consists of a digital indicator with a large, sunlight-readable liquid crystal display, power supply/charger, and load pin.

The power supply converts ac power into regulated dc voltages.

The digital indicator reads the tension on the load pin, installed at the SMC, in pounds-force. The digital indicator has peak hold and high/low silent alarms.

SPECIFICATIONS

Digital Indicator

Manufacturer	Metrox Inc.
Model	M1951-3.5D
DC power	24 V dc
Display size	3/4” high digits

Power Supply/Charger

Manufacturer	Metrox Inc.
Part no.	10G4-51
AC voltage	115/230 V ac

Load Pin

Manufacturer	Metrox Inc.
Dwg/Part no.	LP-30K-l954-00
Capacity	120,000 lb
Overload	150% w/o damage; 300% w/o failure
Output	2 mV/V
Excitation	10 V dc or 15 V ac max.
Temp. range:	
Operating	30 to 130°F
Storage	-40 to 180°F

REFERENCE

1. Model MI951-3.5D Ruggedized Digital Indicator Owner’s Manual, #1004-08.

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Ancillary Set TU0225

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ANCILLARY SET, 60-KIP FADOSS **ESSM NUMBER TU0225**

DESCRIPTION

The Ancillary Set TU0225 contains lubricating oils, filters, operating manuals, electrical and remote cables, and consumables to configure and maintain one 60-Kip FADOSS while the system is deployed.

SPECIFICATIONS

The ancillary set contains the following:

Item	Qty
Container, wire mesh basket, 72” x 48” x 34”:	1
Angle iron, 20” x 6” x 6” x 1/2”	10
Angle iron, 42” x 6” x 6” x 1/2”	1
Blocks, standoff	6
Box, parts:	1
Alternator	1
V-belt	2 sets
Cleaner, brake parts	1
Cleaner, QD electronic	1
Desiccant	4
Filter, fuel	1
Filter, primary fuel	1
Filter, secondary fuel	1
Filter, hydraulic oil	3
Filter, oil	1
Funnel, 1 quart	1
Fuses	4
Grease, general purpose	1
Gun, grease	1
Hose, air, 50 ft	2
Inventory, laminated	1
Manual, technical, various	6
Screen, hydraulic suction	2
Spout, flexible, pouring, jerry can (5-gal.)	1
Cables, electrical & remote control	1
Cord, electrical, 80 ft, w/male plugs	1
Cable, electrical, 110 ft	1
Remote control	2

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ANCILLARY SET, 60-KIP FADOSS **ESSM NUMBER TU0225**

SPECIFICATIONS - Continued

Item	Qty
Wire, alpha, 75 ft, w/straight cannon plug & 90° plug	4
Oil, 5 gal. (PE-30)	1
Oil, 5 gal. (Quintolubric)	1
Oil, compressor lubricating, 5 gal.	1
Oil, 1192 hydraulic, 10 gal.	2
Clips, holddown (take-up/storage reel)	10
Wedges (take-up/storage reel)	22
Clips, holddown (traction winch)	10
Wedges (traction winch)	28

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 0 in.
Width	4 ft, 0 in.
Height	2 ft, 10 in.
Cube	68 cu ft
Weight	1720 lb

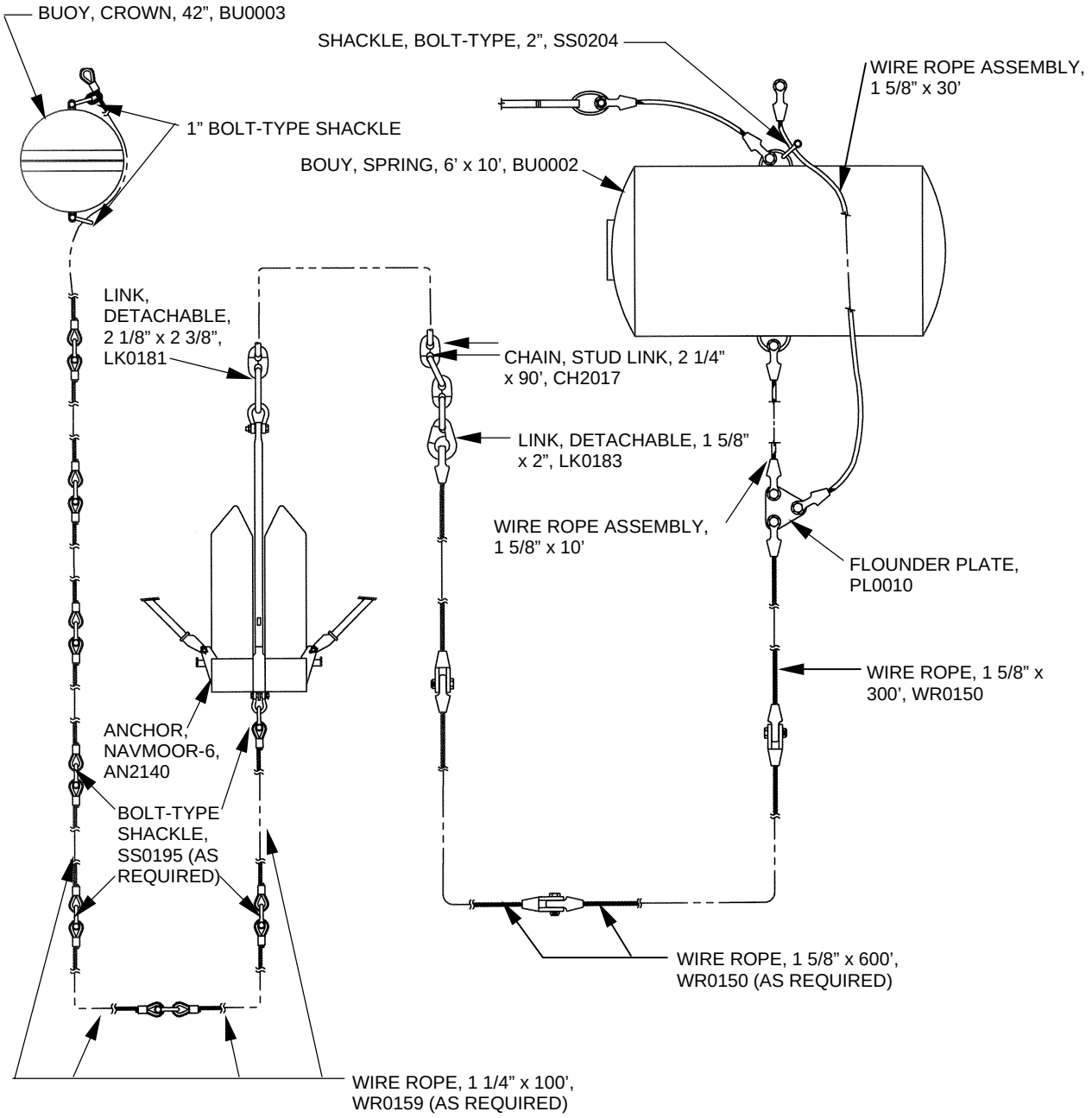
REFERENCES

None

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FOUR-POINT MOORING SYSTEM DS0200

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Overview of Four-Point Mooring System DS0200
(One leg shown)

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MOORING SYSTEM, FOUR-POINT **SYSTEM NUMBER DS0200**

SYSTEM DESCRIPTION

The Four-Point Mooring System DS0200 consists of components and hardware necessary to assemble four identical mooring legs. Each leg consists of an anchor, anchor chain, wire ropes, mooring buoy, crown buoy, and rigging hardware. In addition, the system contains two optional anchor billboards to secure the anchors during transit and to deploy them at the salvage site. The mooring system is designed to moor a T-ATF 166 Class, or equivalent ship, in up to 600 feet of water. The Beach Gear System S05100 is used in conjunction with the Four-Point Mooring System.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Anchor Billboard, 4-Point Mooring System (Optional)	AN0080	2*
2. Anchor, Navmoor-6	AN2l40	4
3. Buoy, Spring, 6’ Diameter x 10’ Long, Steel	BU0002	4
4. Buoy, Crown, 42” Diameter	BU0003	4
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6. Link, Detachable, Pear-Shaped, 2 1/8” - 2 3/8”	LK0181	4
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8. Plate, Flounder, 4-Point Mooring System	PL0010	4
9. Shackle, Bolt-Type, 1 3/8”	SS0195	32
10. Shackle, Bolt-Type, 2”	SS0204	8
11. Wire Rope, 1 5/8” x 300’	WR0150	4
12. Wire Rope, 1 5/8” x 600’	WR0151	4
13. Wire Rope, 1 1/4” x 100’ (four sections/reel)	WR0l59	8

*Note: The Anchor Billboards (item 1) are optional and may be requested by the user.

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4-Point Mooring System Anchor Billboard AN0080

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ANCHOR BILLBOARD, 4-POINT MOORING SYSTEM — ESSM NUMBER AN0080

DESCRIPTION

The 4-Point Mooring System Anchor Billboard AN0080 is an elevated structure designed to deploy an anchor from the deck of a vessel without requiring an anchor windlass. The billboard is installed at the rail of the host ship to hold the anchor securely during transit, and to release the anchor in a controlled, safe manner at the salvage site.

SPECIFICATIONS

Manufacturer	Commercial

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	13 ft, 4 in.
Width	6 ft, 3 in.
Height	11 ft, 6 in.
Cube	958 cu ft
Weight	2206 lb

REFERENCES

1. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-000-3010.

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Navmoor-6 Anchor AN2140

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ANCHOR, NAVMOOR-6 **ESSM NUMBER AN2140**

DESCRIPTION

The Navmoor-6 Anchor AN2140 is a high efficiency anchor used with the Four-Point Mooring System and the Beach Gear Ground Leg System. The Navmoor-6 is designed for high stress applications normally seen in salvage operations.

SPECIFICATIONS

Manufacturer	Commercial (U.S. Navy Design)
Custom Metal Fabricators Drawing	D-1269
Type	Navmoor-6 (7200 lb)

PHYSICAL CHARACTERISTICS

	Shipping	Operating
Length	12 ft, 11 in.	12 ft, 11 in.
Width	6 ft, 5 in.	13 ft, 5 in.
Height	3 ft, 8 in.	3 ft, 8 in.
Cube	335 cu ft	658 cu ft
Weight	7200 lb	7200 lb

REFERENCES

1. Navmoor-6 Salvage Anchor, 7200 lbs (wt), General Assembly, Customer Metal Fabrications, Inc., Dwg. D-1269.

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6-Foot Diameter Spring Buoy BU0002

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BUOY, SPRING, 6’ DIAMETER X 10’ LONG, STEEL — ESSM NUMBER BU0002

DESCRIPTION

The 6-Foot Diameter Spring Buoy BU0002 is a large can-type buoy capable of sustaining the line load of the beach gear pulling wire ropes. The spring buoy is used to stabilize the loads on the beach gear and mooring system wire ropes during anchoring and salvage operations.

SPECIFICATIONS

Manufacturer	Commercial
NAVSEA Drawing	6648787
Material	Steel
Buoyancy	14,725 lb
Weight	3820 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	6 ft, 0 in.
Length	10 ft, 0 in.
Cube	360 cu ft
Weight	3820 lb

REFERENCE

1. Spring Buoy, Ship Salvage, NAVSEA Dwg. 6648787.

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42-Inch Diameter Crown Buoy BU0003

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BUOY, CROWN, 42” DIAMETER **ESSM NUMBER BU0003**

DESCRIPTION

The Crown Buoy BU0003 is a 42-inch diameter, steel, spherical buoy used to mark the location of the anchor and its retrieving wire rope.

SPECIFICATIONS

Manufacturer	Commercial
Material	Steel
Buoyancy	927 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	42”
Cube	22 cu ft
Weight	150 lb

REFERENCES

None

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2 1/4-Inch x 90-Foot Stud Link Chain CH2017



2 1/4-Inch x 90-Foot Stud Link Chain CH 2017 and Shipping Container

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CHAIN, STUD LINK, 2 1/4” X 90’ **ESSM NUMBER CH2017**

DESCRIPTION

The 2 1/4-Inch x 90-Foot Stud Link Chain CH2017 is a standard shot (90 feet) of anchor chain. It may be used for mooring, towing, and other applications that require a strong yet flexible attachment between two points.

SPECIFICATIONS

Manufacturer	Commercial
Link size	2 1/4”
Length	90’
Proof strength	492,000 lb
Breaking strength	744,000 lb

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 6 in.
Cube	54.25 cu ft
Weight	4460 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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2 1/8-Inch - 2 3/8-Inch Pear-Shaped Detachable Link LK0181

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LINK, DETACHABLE, PEAR-SHAPED, 2 1/8" - 2 3/8" **ESSM NUMBER LK0181**

DESCRIPTION

The 2 1/8-Inch - 2 3/8-Inch Pear-Shaped Detachable Link LK0181 is used to connect 2 1/4-inch chain to an anchor. The link is equipped with a hairpin locking device to prevent inadvertent disassembly during use.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Part number	82021-06010
Size	2 1/8" x 2 3/8"
Proof strength	447,000 lb
Breaking strength	675,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	1 ft, 1 in.
Height	4 in.
Cube	1 cu ft
Weight	107 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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1 5/8-Inch - 2-Inch Pear-Shaped Detachable Link LK0183

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LINK, DETACHABLE, PEAR-SHAPED, 1 5/8”- 2” **ESSM NUMBER LK0183**

DESCRIPTION

The 1 5/8-Inch - 2-Inch Pear-Shaped Detachable Link LK0183 is used to connect anchor chain to a closed socket on 1 5/8-inch wire rope. The link is equipped with a hair pin locking device to prevent inadvertent disassembly during use.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Part number	82021-05010
Size	1 5/8" x 2"
Proof Strength	322,000 lb
Breaking Strength	488,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 3 in.
Width	11 in.
Height	3 in.
Cube	1 cu ft
Weight	60 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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4-Point Mooring System Flounder Plate PL0010

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PLATE, FLOUNDER, 4-POINT MOORING SYSTEM **ESSM NUMBER PL0010**

DESCRIPTION

The 4-Point Mooring System Flounder Plate PL0010 is a plate-steel connecting device. The flounder plate is used in the mooring system to connect the spring buoy to the anchoring cable, thus allowing for retrieval and disconnecting the spring buoy at the end of operations.

SPECIFICATIONS

Manufacturer	Commercial
NAVSEA Dwg	6648809
Capacity	50 tons
Proof strength	100 tons
Breaking strength	150 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Width	1 ft, 7 in.
Thickness	2 in.
Cube	1 cu ft
Weight	90 lb

REFERENCES

1. Ground Leg System, NAVSEA Dwg. 6648809.

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1 3/8-Inch Bolt-Type Safety Shackle SS0195

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SHACKLE, BOLT TYPE, 1 3/8”, 24 TONS **ESSM NUMBER SS0195**

DESCRIPTION

SS0195 is a 1 3/8-Inch Bolt-Type Safety Shackle.

SPECIFICATIONS

Manufacturer	Commercial
Size	1 3/8"
Working Load Limit (WLL)	24 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	10 in.
Width	8 in.
Height	3 in.
Cube	1 cu ft
Weight	13 lb

REFERENCES

None

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2-Inch, 50-Ton Bolt-Type Safety Shackle SS0204

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SHACKLE, ALLOY, BOLT TYPE, 2", 50-TON **ESSM NUMBER SS0204**

DESCRIPTION

SS0204 is a 2-Inch, 50-Ton Bolt-Type Safety Shackle.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	2" shackle pin
Model	G-2340
Working Load Limit (WLL)	50 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 2 in.
Width	10 in.
Height	1 ft. 0 in.
Cube	1.5 cu ft
Weight	72 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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1 5/8-Inch x 300-Foot Wire Rope WR0150

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WIRE ROPE, 1 5/8” X 300' **ESSM NUMBER WR0150**

DESCRIPTION

The 1 5/8-Inch x 300-Foot Wire Rope WR0150 is used in situations that require a high strength, flexible connection for towing, mooring or other applications. Each length of wire rope has a spelter socket on each end; one closed, the other open. The wire rope is stored on a steel reel.

SPECIFICATIONS

Manufacturer	Commercial
Length	300’
Diameter	1 5/8”
Construction	6x19 or 7x37 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Open socket one end, closed socket one end
Wire coating	Galvanized
Breaking strength	230,000 lb
Safe working load	115,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 9 in.
Cube	60 cu ft
Weight	2328 lb

REFERENCES

1. 1 5/8” Open Socket and Bolt Assembly, NAVSEA Dwg. 7022667.
2. Wire Rope and Strand, Federal Specification RR-W-410.

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1 5/8-Inch x 600-Foot Wire Rope WR0151

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WIRE ROPE, 1 5/8” X 600’ **ESSM NUMBER WR0151**

DESCRIPTION

The 1 5/8-Inch x 600-Foot Wire Rope WR0151 is used in situations that require a high strength, flexible connection for towing, mooring and other applications. Each length of wire rope has a spelter socket on each end; one closed, the other open. The wire rope is stored on a steel reel.

SPECIFICATIONS

Manufacturer	Commercial
Length	600’
Diameter	1 5/8”
Construction	6x19 or 7x37 wire rope
Cable lay	Right hand
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Open socket one end, closed socket one end
Wire coating	Galvanized
Breaking strength	230,000 lb
Safe working load	115,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 9 in.
Cube	60 cu ft
Weight	3370 lb

REFERENCES

1. Ground Leg System, NAVSEA Dwg. 6648809.
2. Wire Rope and Strand, Federal Specification RR-W-410.

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1 1/4-Inch x 100-Foot Wire Rope WR0159

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WIRE ROPE, 1 1/4” X 100” **ESSM NUMBER WR0159**

DESCRIPTION

The 1 1/4-Inch x 100-Foot Wire Rope WR0159 is used for towing, mooring, attachment of crown buoys, as a retrieval wire, and in other applications that require a high strength, flexible connection. Each wire rope reel contains four 100-foot lengths of 1 1/4-inch wire rope.

SPECIFICATIONS

Manufacturer	Commercial
Length	100’; 4 lengths per reel
Diameter	1 1/4”
Construction	6x19 or 7x37 wire rope
Cable lay	Right hand
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Hard eyes each end
Wire coating	Galvanized
Breaking strength	138,800 lb
Safe working load	69,400 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 9 in.
Cube	60 cu ft
Weight	2080 lb

REFERENCES

1. Ground Leg System, NAVSEA Dwg. 6648809.
2. Wire Rope and Strand, Federal Specification RR-W-410.

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SYNTHETIC LINE SYSTEM DS0300

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Synthetic Line

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SYNTHETIC LINE SYSTEM **SYSTEM NUMBER DS0300**

SYSTEM DESCRIPTION

The Synthetic Line System consists of numerous lines with physical/performance characteristics that can be applied to various lifting, mooring, rigging, or other applications during salvage operations. The synthetic lines are made of several materials and constructions, each of which has unique characteristics of strength, weight, stretch, chafe resistance, and flexibility. The line type and size needed for the assigned salvage task is determined by the onsite supervisor to satisfy the many constraints of the salvage scenario (depth of water, mass of object, recovery equipment used, etc.). The line fiber material may be aramid, nylon, or polyester, and the construction may be 3-strand, single or double braid. When line is requested for shipment to a salvage site, a rigging kit (applicable to the strength and type of line required) is included in the shipment.

SYSTEM COMPONENTS

Lines are available in continuous lengths of up to 24,000 feet, depending on the line diameter and material and can be obtained with soft or hard eyes, thimbles, links, or other end fittings, as determined by the onsite requirements..

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Representative Aramid Fiber Line

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ARAMID FIBER LINE, VARIOUS SIZES **VARIOUS ESSM NUMBERS**

DESCRIPTION

Aramid fiber (e.g., Kevlar) line is a high-strength, low-stretch, multi-fiber line. The strength members of the line are contained within an outer braided cover. The line is used for lifting heavy loads in deepwater salvage applications because of its high strength-to-weight ratio. The line has limited resistance to abrasion. Care must be taken when designing the salvage system in sizing and aligning blocks, sheaves, and lifting components. Aramid fiber line can be obtained in diameters of 3/8, 3/4, 1, 1 1/2 and 2 inches, and in lengths of up to 24,000 feet, with soft or hard eyes, thimbles, links, or other end fittings, as determined by onsite requirements.

SPECIFICATIONS

Diameter (in.)	Circumference (in.)	Overall Construction	Weight per 100 ft (lb)	Breaking Strength (lb)	Working Load Limit (lb)
3/8	1 1/8	1 x 36 Wire-lay w/ braided jacket	63	14,400	1196 – 2880
3/4	2 1/4	1 x 36 Wire-lay w/ braided jacket	180	34,200	2834 – 6840
1	3	1 x 36 Wire-lay w/ braided jacket	360	46,800	3880 – 9360
1 1/2	4 1/2	1 x 36 Wire-lay w/ braided jacket	625	94,500	7844 – 18900
2	6	1 x 36 Wire-lay w/ braided jacket	990	154,800	12848 – 30960

NOTE: Breaking strength and working load limit are from the Salvage Engineer's Handbook; refer to manufacturer for allowable safe working loads for particular line and application.

PHYSICAL CHARACTERISTICS

Aramid fiber line is shipped on a wooden or metal reel, as requested. The shipping weight and volume will be determined by the diameter and length of the line and the reel required to store it.

REFERENCES

1. U.S. Navy Salvage Engineer's Handbook, Volume 1 (Salvage Engineering) S0300-A8-HBK-010.
2. Fiber Ropes: General Standard, Cordage Institute Standard CI 1201-96, September, 1996.

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Representative Nylon 3-Strand Line



Representative Nylon Double Braid Line

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NYLON FIBER LINE, VARIOUS SIZES **VARIOUS ESSM NUMBERS**

DESCRIPTION

Nylon fiber lines offer excellent energy absorption for peak dynamic loads during towing or mooring operations. Nylon line should be considered for use as towing lines, mooring lines, anchor lines, and buoy mooring line. Double braid nylon lines can be readily spliced and are 25-30% stronger than twisted or plaited ropes, have no wet strength loss, will not knot or hockle, and have excellent energy absorption. When designing the salvage system, care must be taken in load analysis and sizing the line to prevent the hazards associated with "snap back" in the event of the line parting under heavy load. Nylon line is available in double braid construction in circumferences of 3 1/2, 4 1/2, 6, 7, and 8 inches; and 3-strand in 7" circumference, in lengths of up to 6,000 feet, with soft eyes, hard eyes, thimbles, links, or other fittings, as determined by onsite requirements.

SPECIFICATIONS

Circumference (in.)	Diameter (in.)	Overall Construction	Weight per 100 ft (lb)	Breaking Strength (lb)	Working Load Limit (lb)
7	2 1/4	3-Strand	127	107,100	8,925 – 21,420
3 1/2	1 1/8	Double braid	34	31,500	2,625 – 6,300
4 1/2	1 1/2	Double braid	60	55,000	4,583 – 11,000
6	2	Double braid	106	96,900	8,075 – 19380
7	2 1/4	Double braid	173	141,000	11,650 – 21,175
8	2 5/8	Double braid	181	163,800	13,600 – 32,760

NOTE: Breaking strength and working load limit are from the Cordage Institute Standard; refer to manufacturer for allowable safe working loads for particular line and application.

PHYSICAL CHARACTERISTICS

Nylon line is shipped on a wooden or metal reel, or coiled, as requested. The shipping weight and volume will be determined by the diameter and length of the line and the reel or container required to store it.

REFERENCES

1. U.S. Navy Salvage Engineer's Handbook, Volume 1 (Salvage Engineering) S0300-A8-HBK-010.
2. Fiber Ropes: General Standard, Cordage Institute Standard CI 1201-96, September, 1996.

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Representative Polyester Double Braid Line

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POLYESTER FIBER LINE, VARIOUS SIZES **VARIOUS ESSM NUMBERS**

DESCRIPTION

Polyester lines provide the best combination of high strength and abrasion resistance of any of the synthetic fibers. STABLE braid line has the lowest stretch standard of any double braid rope available, good abrasion resistance wet or dry, a high strength-to-weight ratio, and high flexibility. Double braid polyester line is easy to handle, torque free, and has minimal UV degradation. Recommended uses for stable braid-type lines are as tug headlines, winch lines, ship mooring lines, and stringing lines. Polyester line is available in double braid construction in circumferences of 4 1/2, 6, 7, and 8 1/2 inches. The line is available in lengths of up to 6,000 feet, with soft or hard eyes, thimbles, links, or other fittings, as determined by the onsite requirements.

SPECIFICATIONS

Circumference (in.)	Diameter (in.)	Overall Construction	Weight per 100 ft (lb)	Breaking Strength (lb)	Working Load Limit (lb)
4 1/2	1 1/2	Double Braid	60	55,000	4,583 – 11,000
6	2 1/8	Double Braid	120	108,900	9,075 – 21,780
7	2 1/4	Double Braid	152	137,200	9,861 – 22,313
8 1/2	2 3/4	Double Braid	217	193,800	16,150 – 38,780

NOTE: Breaking strength and working load limit are from the Cordage Institute standard; refer to manufacturer for allowable safe working loads for particular line and application.

PHYSICAL CHARACTERISTICS

Polyester fiber line is shipped on a wooden or metal reel, or coiled, as requested. The shipping weight and volume will be determined by the diameter and length of the line and the reel or container required to store it.

REFERENCES

1. U.S. Navy Salvage Engineer’s Handbook, Volume 1 (Salvage Engineering) S0300-A8-HBK-010.
2. Fiber Ropes: General Standard, Cordage Institute Standard CI 1201-96, September, 1996.

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TOW HAWSER SYSTEM DS0400

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Tow Hawsers and Hardware

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TOW HAWSER SYSTEM **SYSTEM NUMBER DS0400**

SYSTEM DESCRIPTION

The Tow Hawser System DS0400 consists of single and double braid polyester line that is available in circumferences of 8, 10, or 14 inches, and in lengths of up to 2,400 feet. The line is constructed with strength members contained within a braided jacket. It is abrasion-resistant and has very little stretch. The line can be used for towing a raft, barge, or other vessel. Each line is constructed with a 3-foot soft eye splice at each end that is used with a Nylite shackle. Alternately, the line can be requested with other end fittings as determined by the specific towing application.

SYSTEM COMPONENTS

The Tow Hawser System consists of polyester lines in sizes of 8, 10, or 14 inches, and in lengths of up to 2,400 feet. Contact the NAVSEA Representative to order tow hawsers suitable for onsite requirements.

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8-Inch Double Braid Tow Hawser



14-Inch Double Braid Tow Hawser

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TOW HAWSERS, VARIOUS SIZES **VARIOUS ESSM NUMBERS**

DESCRIPTION

Tow Hawsers are single braid or double braid large diameter lines that provide high-strength, low-stretch, flexible elements for towing, mooring, or other applications. The strength members of the line are contained within an outer braided jacket. When designing a towing system, care must be taken to determine the horsepower of the towing vessel and size of the towed vessel to prevent parting of the line during towing. Tow hawsers can be obtained in circumferences of 8, 10, and 14 inches, and in lengths of up to 2,400 feet, with soft eyes or other end fittings, as determined by onsite requirements.

SPECIFICATIONS

Circumference (in.)	Diameter (in.)	Overall Construction	Weight per 100 ft. (lb)	Breaking Strength (lb)	Working Load Limit (lb)
8	2 5/8	Single Braid	207	163,800	13,650 – 32,760
8	2 5/8	Double Braid	220	177,300	14,775 – 35,460
10	3 1/2	Single Braid	329	256,500	21,375 – 51,300
10	3 1/2	Double Braid	419	324,900	27,025 – 64,980
14	4 1/2	Single Braid	631	486,000	40,500 – 97,200
14	4 1/2	Double Braid	682	510,300	42,525 – 102,060

NOTE: Breaking strength and working load limit are from the Cordage Institute Standard; refer to manufacturer for allowable safe working loads for particular line and application.

PHYSICAL CHARACTERISTICS

Tow Hawsers are shipped on a wooden or metal reel, crated, or coiled, as requested. The weight and volume will be determined by the diameter and length of the line and the reel or container required to ship it.

REFERENCES

1. U.S. Navy Salvage Engineer’s Handbook, Volume 1 (Salvage Engineering) S0300-A8-HBK-010.
2. Fiber Ropes: General Standard, Cordage Institute Standard CI 1201-96, September, 1996.

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Representative Nylite Fitting

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NYLITE FITTING, VARIOUS SIZES **VARIOUS ESSM NUMBERS**

DESCRIPTION

Nylite Fittings are placed in a tow hawser's soft eye and used for attachment of the tow hawser to the towed vessel. The fitting has a composite material sheave that is placed over the towing shackle's pin to increase its effective diameter. This reduces stress to the tow hawser eye. A protective cover is installed over the sheave to limit abrasion and other damage to the end of the hawser at the eye splice.

SPECIFICATIONS

Sheave Circumference (in.)	Hawser Circumference (in.)	Overall Construction	Weight (lb)	Shackle Type	SWL (tons)
9	8 or 10	Nylite/ Nylon composite	90	Bolt-type safety shackle	35
15	14	Nylite/ Nylon composite	145	Bolt-type safety shackle	60

PHYSICAL CHARACTERISTICS

Nylite Fittings, if requested, are shipped with the tow hawser. If required, one fitting is included with each tow hawser. The weight and volume will be determined by the size of the fitting.

REFERENCES

None

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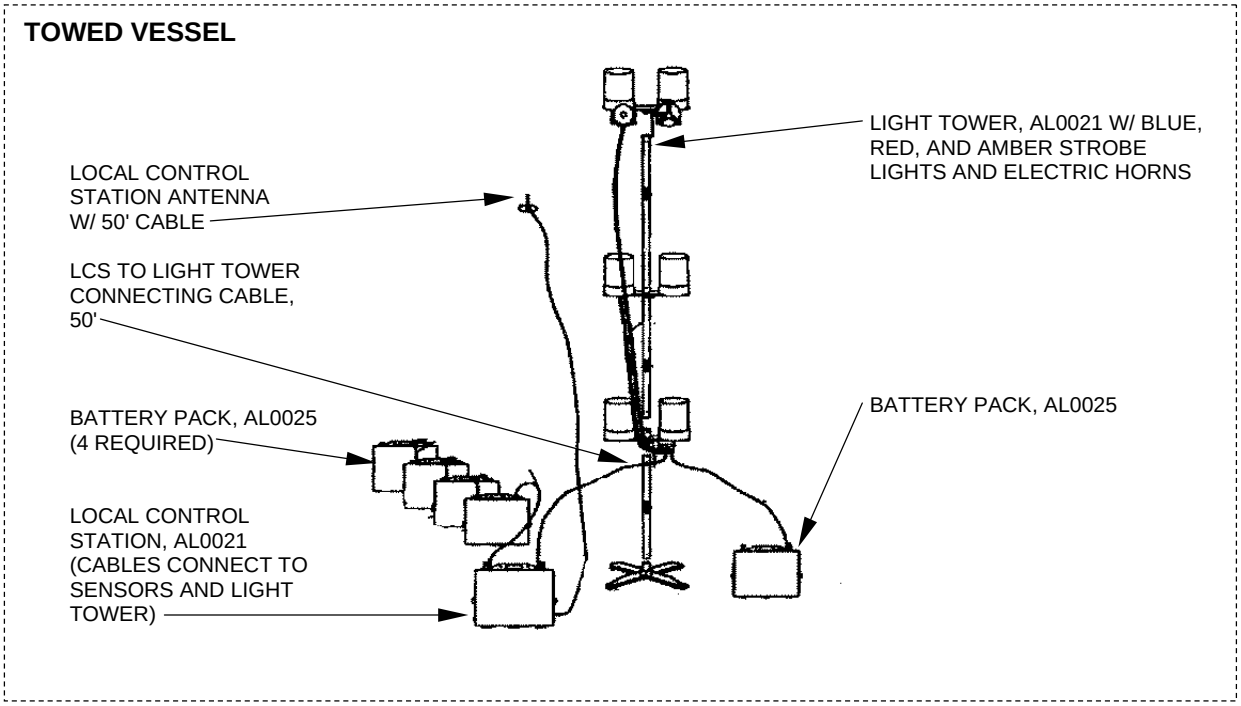
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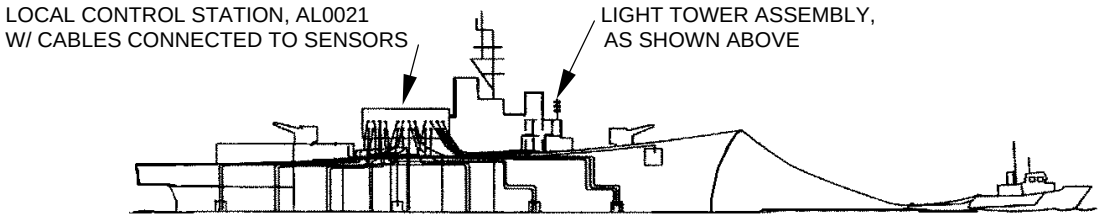
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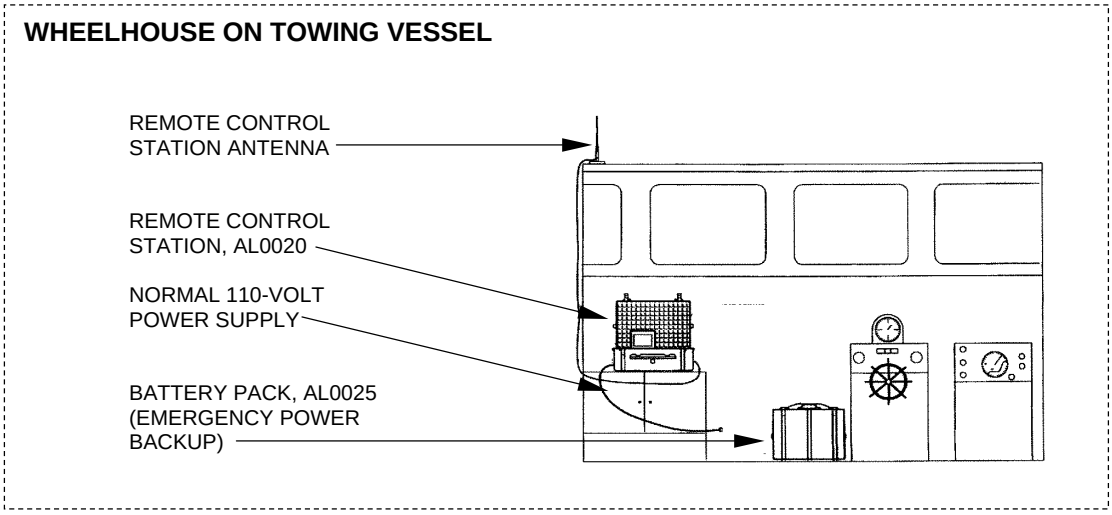
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TOWING VESSEL FIRE/FLOODING ALARM SYSTEM DS0501

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Overview of Towing Vessel Fire/Flooding Alarm System DS0501

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TOWING VESSEL FIRE/FLOODING ALARM SYSTEM SYSTEM NUMBER DS0501

SYSTEM DESCRIPTION

The Towing Vessel Fire/Flooding Alarm System DS0501 is designed for towing operations using tugs or salvage ships. The system consists of two major subsystems, the Local Control Station (LCS) on the towed vessel and the Remote Control Station (RCS) on the towing vessel.

The LCS monitors the sensors in up to 8 compartments aboard the towed vessel. Each compartment may have any combination of low or high water level and heat sensors. In addition, the system sensors may be distributed to provide sensor coverage for multiple towed vessels. All sensors (24 total; 16 water level and 8 heat detectors) are connected by coaxial cables (up to 15,500' provided with each system) to the LCS. The LCS is connected to a Light Tower to provide an audible and visual indication of the alarm condition on the towed vessel. The LCS and Light Tower are powered by battery packs. In addition, a radio transmits system status and alarm signals to the RCS.

The RCS consists of a laptop computer, printer, alarm panel, radio receiver, and an internal battery with charger. Data received at the RCS is stored on the computer hard drive and can be reviewed or printed at any time during operation of the system. Normal 120-volt ac power is supplied from the towing vessel; however, power may be provided to the RCS from its internal battery or the emergency battery pack.

During operation, the system monitors water levels and ambient temperatures. When a sensor detects an alarm condition, a signal is sent to the LCS, activating the appropriate light bar and the light bar horn. Simultaneously, a radio signal is transmitted to the RCS. An audible alarm on the RCS panel sounds and a visual display indicates which sensor has detected an alarm condition.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Remote Control Station, Tow Alarm System	AL0020	1
2. Local Control Station, Tow Alarm System	AL0021	1
3. Light Tower, Tow Alarm System:	AL0022	
Tower case 1 of 2		1
Tower case 2 of 2		1
4. Flood/Heat Detector Sensors, Tow Alarm System	AL0023	1
5. Sensor Cables, Long, Tow Alarm System	AL0024	4
6. Sensor Cables, Short, Tow Alarm System	AL0029	1
7. Battery Pack, Tow Alarm System	AL0025	8
8. Battery Charger, Tow Alarm System	AL0026	2
9. Accessory Case, Tow Alarm System	AL0027	1
10. Shipping Container, Tow Alarm System:	AL0018	4*

* Shipping containers are optional and are issued at the customer's request. Depending on the size of the towed vessel and system configuration, fewer containers may be necessary.

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Remote Control Station (RCS) AL0020

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REMOTE CONTROL STATION, TOW ALARM SYSTEM ESSM NUMBER AL0020

DESCRIPTION

The Tow Alarm System Remote Control Station (RCS) AL0020 contains a laptop computer, a printer, a radio, and an internal battery with charger. The RCS is normally powered from the towing vessel's 120-volt power; however, dc power may be provided from the internal battery or a Battery Pack AL0025. The computer can be programmed to automatically transmit, by radio, a query signal to the Local Control Station (LCS) on the towed vessel at intervals (polling rate) of 1, 5, 15, 30, or 60 minutes for fault detection and system integrity checks. Manual checks can be conducted at any time. All data is automatically stored on the computer hard drive and can be reviewed or printed at any time during operation of the system.

SPECIFICATIONS

The Tow Alarm Remote Control Station contains the following:

Item	Qty
Shipping container 37" x 27" x 18" (modified Pelican case)	1
Computer, Dell, 486 laptop	1
Power supply,110-volt ac; 12-volt internal rechargeable battery (sealed 12-volt, 12-amp-hour capacity) with charger, or 12-volt battery pack (emergency)	1
Printer, Kodak, model Diconix inkjet	1
Radio, Maxon transceiver	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 1 in.
Width	2 ft, 4 in.
Height	1 ft, 6 in.
Cube	11 cu ft
Weight	110 lb

REFERENCES

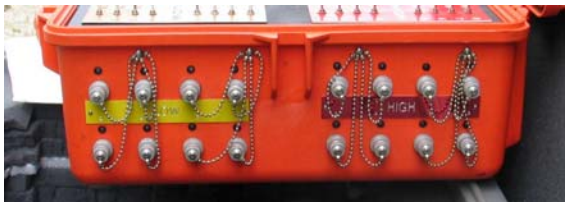
1. Commercial Off-The-Shelf Manual and Supplemental Data, Towing Vessel Fire/Flooding Alarm System, Contract Number GPC 930285A-96-1.

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Local Control Station (LCS) AL0021





Local Control Station Sensor Connections



Local Control Station Operator’s Panel

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LOCAL CONTROL STATION, TOW ALARM SYSTEM ESSM NUMBER AL0021

DESCRIPTION

The Tow Alarm System Local Control Station (LCS) AL0021 consists of a radio receiver/transmitter and antenna. When a sensor detects an alarmed condition (flood or fire), a signal is sent to the LCS, which directs the signal through the control cable to the appropriate light tier and electric horns. Simultaneously, the signal is transmitted by radio frequency to the Remote Control System (RCS) AL0020 on the towing vessel. The Local Control station requires four Battery Packs, AL0025 for operation.

SPECIFICATIONS

The Tow Alarm Local Control Station contains the following:

Item	Qty
Shipping container 38" x 27" x 18" (modified Pelican case)	1
Local Control Stations electronics package, Robotics Guard	1
Radio, Maxon, transceiver, 5 watt, 463.500 MHz	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 2 in.
Width	2 ft, 4 in.
Height	1 ft, 6 in.
Cube	11 cu ft
Weight	78 lb

REFERENCES

1. Commercial Off-The-Shelf Manual and Supplemental Data, Towing Vessel Fire/Flooding Alarm System, Contract Number GPC 930285A-96-1.

Note: Manual is supplied with unit.

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Light Tower AL0022





Light Tower Containers 1 and 2

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LIGHT TOWER, TOW ALARM SYSTEM — ESSM NUMBER AL0022

DESCRIPTION

The Tow Alarm System Light Tower AL0022 contains red, blue, and amber strobe lights and a framework to mount the lights (using magnets within the feet of the tower) on the towed vessel. In addition, an audible alarm (pair of 24-volt electric horns) is contained within the light tower framework. The light tower requires a separate battery pack for operation.

SPECIFICATIONS

The Light Tower is shipped in two containers:

Tower Case 1 of 2

Item	Qty
Shipping container, Pelican 1550 series, 31” x 28” x 33”:	1
Assembly, Robotic Guard, blue strobe light and horn	1
Reel, cable storage:	1
Cable, light tower to LCS, 50'	1
Cable, battery connecting, 6’	2
Extension poles, for light tower	3

Tower Case 2 of 2

Item	Qty
Shipping container, Pelican 1550 series 36” x 27” x 18”:	1
Assembly, Robotic Guard, red strobe light	1
Assembly, Robotic Guard, amber strobe light	1
Base, light tower	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping	
	Tower Case 1 of 2	Tower Case 2 of 2
Length	2 ft, 7 in.	3 ft, 0 in.
Width	2 ft, 4 in.	2 ft, 3 in.
Height	2 ft, 9 in.	1 ft, 6 in.
Cube	12 cu ft	10 cu ft
Weight	100 lb	114 lb

REFERENCES

1. Commercial Off-The-Shelf Manual and Supplemental Data, Towing Vessel Fire/Flooding Alarm System, Contract Number GPC 930285A-96-1.

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Flooding and Heat Sensors AL0023



Heat and Flood Sensors

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FLOOD/HEAT SENSORS, TOW ALARM SYSTEM ESSM NUMBER AL0023

DESCRIPTION

The Tow Alarm System Flooding and Heat Sensors AL0023 consists of sensors to detect water level and high ambient temperature in the monitored compartment. The system contains 16 water level sensors that may be set to detect either a low or high water level (alarm level is set by the position of the sensor within the monitored space) and 8 heat sensors (pre-set to 140°F). Each sensor is mounted on a magnetic base to allow easy attachment to a structural member or the deck of the towed vessel.

SPECIFICATION

The Flood/Heat Sensors contain the following:

Item	Qty
Shipping container, Pelican 1550 Series, 20” x 17” x 9”:	1
Sensor, float, Robotic Guard, model P51D	16
Sensor, heat, Robotic Guard, model F140	8

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Width	1 ft, 5 in.
Height	9 in.
Cube	2 cu ft
Weight	30 lb

REFERENCES

1. Commercial Off-The-Shelf Manual and Supplemental Data, Towing Vessel Fire/Flooding Alarm System, Contract Number GPC 930285A-96-1.

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Long Sensor Cables AL0024

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SENSOR CABLES, LONG, TOW ALARM SYSTEM ESSM NUMBER AL0024

DESCRIPTION

The Tow Alarm System Long Sensor Cables AL0024 consists of four containers that store the long cables required to connect the sensors to the Local Control Station. The coaxial cables (250 feet each) have connectors at each end to attach the sensor to the Local Control Station. The cables are stored on plastic reels for ease of handling on site during deployment and retrieval.

SPECIFICATIONS

Each of the four containers comprising the Tow Alarm System Long Sensor Cables AL0024 contains the following:

Item	Qty
Shipping container, Pelican 1550 series, 32” x 17” x 15”:	1
Reel, cable storage:	6
Cable, coaxial, 250’	2 per reel

Note: Each of the four containers has a total of 3,000 feet of coaxial sensor cable for a total of 12,000 feet of coaxial cable in one complete AL0024.

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 8 in.
Width	1 ft, 5 in.
Height	1 ft, 3 in.
Cube	5 cu ft
Weight	86 lb

REFERENCES

1. Commercial Off-The-Shelf Manual and Supplemental Data, Towing Vessel Fire/Flooding Alarm System, Contract Number GPC 930285A-96-1.

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Short Sensor Cables AL0029

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SENSOR CABLES, SHORT, TOW ALARM SYSTEM ESSM NUMBER AL0029

DESCRIPTION

The Tow Alarm System Short Sensor Cables AL0029 consists of one container that stores the short cables required to connect the sensors to the Local Control Station. In addition, one reel containing 2 long cables (250 feet each) is also stored in the container. The short coaxial cables (100 feet each) have connectors at each end to attach the sensor to the Local Control Station. Six short cables are stored on each plastic reel for ease of handling on site during deployment and retrieval.

SPECIFICATIONS

The Tow Alarm System Short Sensor Cables AL0029 consists of the following:

Item	Qty
Shipping container, Pelican 1550 series, 32” x 17” x 15”:	1
Reel, short cable storage:	5
Cable, coaxial, 100’	6 per reel
Reel, long cable storage:	1
Cable, coaxial, 250’	2 per reel

Note: The Short Sensor Cable container contains 3,000 feet of 100-foot cables and 500 feet of 250-foot cables.

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 8 in.
Width	1 ft, 5 in.
Height	1 ft, 3 in.
Cube	5 cu ft
Weight	98 lb

REFERENCES

1. Commercial Off-The-Shelf Manual and Supplemental Data, Towing Vessel Fire/Flooding Alarm System, Contract Number GPC 930285A-96-1.

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Battery Pack AL0025

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BATTERY PACK, TOW ALARM SYSTEM **ESSM NUMBER AL0025**

DESCRIPTION

The Tow Alarm System Battery Pack AL0025 consists of a shipping container with two 12-volt, gelled electrolyte batteries and a connecting cable. The batteries are wired in series to provide a 24-volt power source for the system components. Each battery is rated at 60 amp-hours to give the battery pack a total capacity of 120 amp-hours The container is designed with external connectors to allow operation of the battery while the case is closed. Eight battery packs are required per system.

SPECIFICATIONS

The Battery Pack consists of the following:

Item		Qty
Shipping container 23" x 19" x 9" (modified Pelican case)		1
Battery:		2
Manufacturer	Power Sonic	
Model	PS1260-12	
Capacity	60 amp-hr	
Type	Rechargeable, sealed, 12-V gelled cell	
Quantity	One battery per pack	
Cable, connecting, 3'	2-conductor battery connecting cable	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 7 in.
Height	9 in.
Cube	2 cu ft
Weight	102 lb

REFERENCES

1. Commercial Off-The-Shelf Manual and Supplemental Data, Towing Vessel Fire/Flooding Alarm System, Contract Number GPC 930285A-96-1.

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Tow Alarm System Battery Charger AL0026

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BATTERY CHARGER, TOW ALARM SYSTEM — ESSM NUMBER AL0026

DESCRIPTION

The Tow Alarm System Battery Charger AL0026 consists of two battery chargers and a connector cable in a shipping/storage container.

SPECIFICATIONS

The Battery Charger consists of the following:

Item		Qty
Shipping container 23" x 19" x 9" (modified Pelican case)		1
Charger, battery:		2
Manufacturer	Schumacher	
Model	SE-70M	
Mode	Automatic/manual	
Amperage	10	
Input voltage	110 V ac	
Output voltage	24 V dc	

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 7 in.
Height	9 in.
Cube	2 cu ft
Weight	42 lb

REFERENCES

1. Commercial Off-The-Shelf Manual and Supplemental Data, Towing Vessel Fire/Flooding Alarm System, Contract Number GPC 930285A-96-1.

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Accessory Case AL0027

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ACCESSORY CASE, TOW ALARM SYSTEM — ESSM NUMBER AL0027

DESCRIPTION

The Tow Alarm System Accessory Case AL0027 contains spare parts to maintain the Tow Alarm System.

SPECIFICATIONS

The Tow Alarm System Accessory Case contains the following:

Item	Qty
Shipping container, 23” x 22” x 9”:	1
Fuse, 2-amp, fast acting, long	1
Fuse, 2-amp, fast acting, short	1
Fuse, 25-amp, plug-in blade type	1
Horn, electric, 24-volt dc, 3.0-amp	1
Light assembly, w/ lens	1
Light, astro flash (strobe light bulb)	2
Multimeter	1
Radio receiver/transmitter	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 10 in.
Height	9 in.
Cube	2 cu ft
Weight	20 lb

REFERENCES

1. Commercial Off-The-Shelf Manual and Supplemental Data, Towing Vessel Fire/Flooding Alarm System, Contract Number GPC 930285A-96-1.

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Tow Alarm System Shipping Container AL0018

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SHIPPING CONTAINER, TOW ALARM SYSTEM ESSM NUMBER AL0018

DESCRIPTION

The Tow Alarm System Shipping Containers are wire mesh baskets, 62” x 36” x 41”. The shipping weight of AL0018 will vary with its contents. Four baskets are required to ship one complete Towing Vessel Fire/Flooding Alarm System DS0501. The containers are optional and the system components may, at the customer's discretion, be shipped in the wire mesh baskets or strapped to pallets.

PHYSICAL CHARACTERISTICS

Each of the four containers has the following dimensions:

	Operating/Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	53 cu ft
Weight	478 lb (empty)

REFERENCE

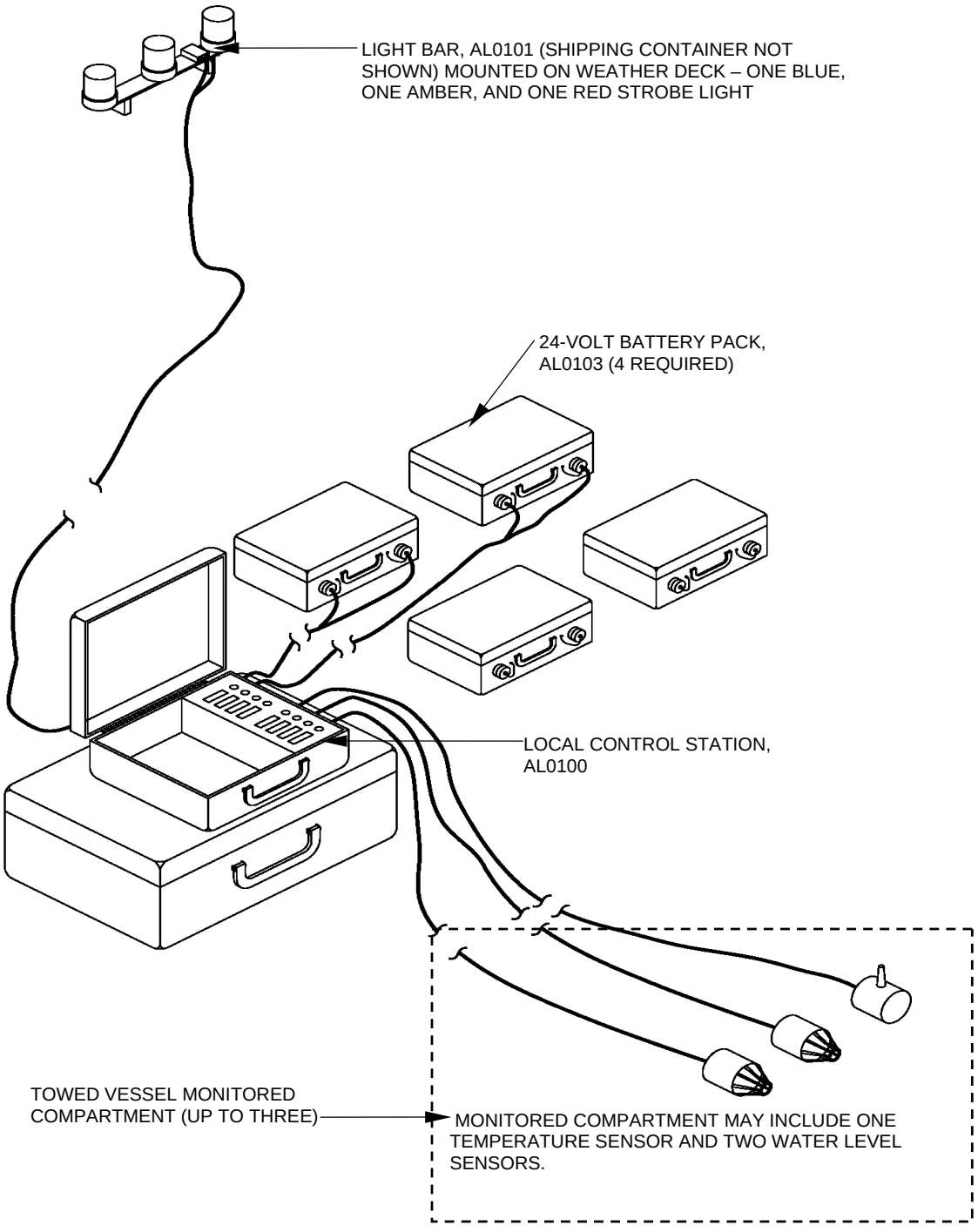
1. Mesh Container, Standard, Heavy Duty, 3-Wire Construction, Outer Basket Assemblies and Details, NAVSEA Dwg 712460-303-1, Wire.

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EMERGENCY TOW ALARM SYSTEM DS0510

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NOTE: Ancillary Set, AL0102 not shown.

Overview of Emergency Tow Alarm System DS0510

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EMERGENCY TOW ALARM SYSTEM **SYSTEM NUMBER DS0510**

DESCRIPTION

The Emergency Tow Alarm System DS0510 is designed for emergency towing operations with either Navy or commercial tugs or salvage ships. The system is positioned on the towed vessel to provide a reliable and portable means to monitor and detect fire and flooding conditions and to signal that information to the operators on the towing vessel.

The Emergency Tow Alarm System can monitor from 1 to 3 compartments of the towed vessel. Each monitored compartment may have any combination of float-actuated low and high water level sensors and a heat detector. All sensors and detectors (8 total, including 6 water level, and 2 heat detectors) are connected by coaxial cable to the Local Control Station (LCS). The LCS is connected to a Light Bar, which provides a visual indication of high temperature or water level in a monitored compartment on the towed vessel. The LCS and Light Bar are powered by battery packs.

In operation, the sensors monitor water levels and air temperatures within the towed vessel. The sensor actuates when it detects a change in ambient conditions denoting a hazardous condition and then sends an electrical alarm signal via coaxial cable to the LCS, which in turn directs the signal to the appropriate light bar visual display element.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Local Control Station and Sensors	AL0100	1
2. Light Bar	AL0101	1
3. Ancillary Set, for Emergency Tow Alarm System	AL0102	1
4. Battery Pack	AL0103	4

Note: Total length of coaxial cable is 2400', 800' of which is stored in AL0100 and the remaining 1600' in AL0102.

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Local Control Station and Sensors AL0100



Heat and Water Level Sensors

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LOCAL CONTROL STATION AND SENSORS — ESSM NUMBER AL0100

DESCRIPTION

The Local Control Station and Sensors AL0100 consists of heat detecting and water level monitoring sensors which are installed in compartments, using magnetic bases, within the vessel under tow. The sensors monitor either air temperature within the monitored compartment (141°F sensor trip point), or high/low water level (based upon the sensor location within the compartment). When a high temperature or water level condition is sensed, the LCS sends an electrical signal to the Light Tower for visual display. The components are shipped in a pelican case with external wiring connections to allow for easy installation.

The Local Control Station generates the following light alarm signals:

Visible Alarm:	Indication:
• Flashing red, 5-minute on/5-minute off cycle.....	LCS battery low.
• Flashing red, continuous.....	High water switch activated in a monitored compartment.
• Flashing amber, continuous.....	Low water switch activated in a monitored compartment.
• Flashing blue, continuous	High temperature switch activated in a monitored compartment.
• All lights flashing.....	LCS failure.

SPECIFICATIONS

The Local Control Station and Sensors contains the following:

Item	Qty
Case, shipping and storage, 32” x 21” x 12”:	1
Sensor, float, P51D	6
Sensor, heat, F-160	2
Reel, sensor cable storage:	2
Cable, sensor, 200’	2 per reel
Case, local control station, 19” x 16” x 7”:	1
Operations Manual, Towed Vessel Basic Fire/Flood Alarm Systems	1
Inventory, laminated	1

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LOCAL CONTROL STATION AND SENSORS **ESSM NUMBER AL0100**

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 8 in.
Width	1 ft, 9 in.
Height	1 ft, 0 in.
Cube	5 cu ft
Weight	60 lb

REFERENCES

1. Robotic Guard Systems Operations Manual, Towed Vessel Basic Fire/Flood Alarm System, 1998.

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Light Bar AL0101

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LIGHT BAR **ESSM NUMBER AL0101**

DESCRIPTION

The Light Bar AL0101 is a rigid fixture designed to hold the red, blue, and amber strobe lights with their electrical connections. The amber light illuminates to denote that a low water sensor has been activated; a red light indicates that a high level switch has activated or that a low battery condition exists. When flashing, the blue light indicates that a high temperature switch has activated (141°F). If all three lights flash simultaneously, either there is a failure at the LCS or the cables are incorrectly connected. The Light Bar is designed to attach to any 2" diameter or smaller railing aboard the towed vessel.

SPECIFICATIONS

The Light Bar consists of the following:

Item	Qty
Container, shipping, 32” x 21” x 12”:	1
Assembly, light bar	1
Cable ties (bag of 50)	1
Cable, connector, 25’	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 8 in.
Width	1 ft, 9 in.
Height	1 ft, 0 in.
Cube	5 cu ft
Weight	46 lb

REFERENCES

1. Robotic Guard Systems Operations Manual, Towed Vessel Basic Fire/Flood Alarm System, 1998.

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Ancillary Set AL0102

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ANCILLARY SET, FOR EMERGENCY TOW ALARM SYSTEM **ESSM NUMBER AL0102**

DESCRIPTION

The Emergency Tow Alarm System Ancillary Set AL0102 contains four reels each containing two 200-foot coaxial cables designed to connect the sensors, local control station, and light bar. The Ancillary Set also contains a battery charger with its connecting cable.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	Qty
Container, shipping, 32” x 21” x 12”:	1
Reel, sensor cable storage:	4
Cable, sensor, 200’	2 per reel
Charger, battery, 12-volt	1
Cable, connector, battery charging	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 8 in.
Width	1 ft, 9 in.
Height	1 ft, 0 in.
Cube	5 cu ft
Weight	80 lb

REFERENCES

1. Robotic Guard Systems Operations Manual, Towed Vessel Basic Fire/Flood Alarm System, 1998.

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Battery Pack AL0103

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BATTERY PACK **ESSM NUMBER AL0103**

DESCRIPTION

The Battery Pack AL0103 consists of a shipping container with two 12-volt gelled electrolyte batteries and a connecting cable. Each battery is 12-volt with a 32-amp-hour capacity (64 amp hours total). The batteries are wired in series to provide a 24-volt power source for the system components. The output of the battery pack is equipped with a 15-amp fuse to protect the connected component. Each battery, when fully charged, will operate the LCS for approximately 60 days and the Light Tower for approximately 20 hours. The container is designed with external connectors to allow operation of the battery while the case is closed. Four Battery Packs are required for system operation.

SPECIFICATIONS

Each Battery Pack consists of the following:

Item	Qty
Shipping container, 23” x 22” x 9”:	1
Battery, 12-volt, 32-amp-hour, gelled electrolyte	2
Cable, battery connector	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 10 in.
Height	9 in.
Cube	2.7 cu ft
Weight	58 lb

REFERENCES

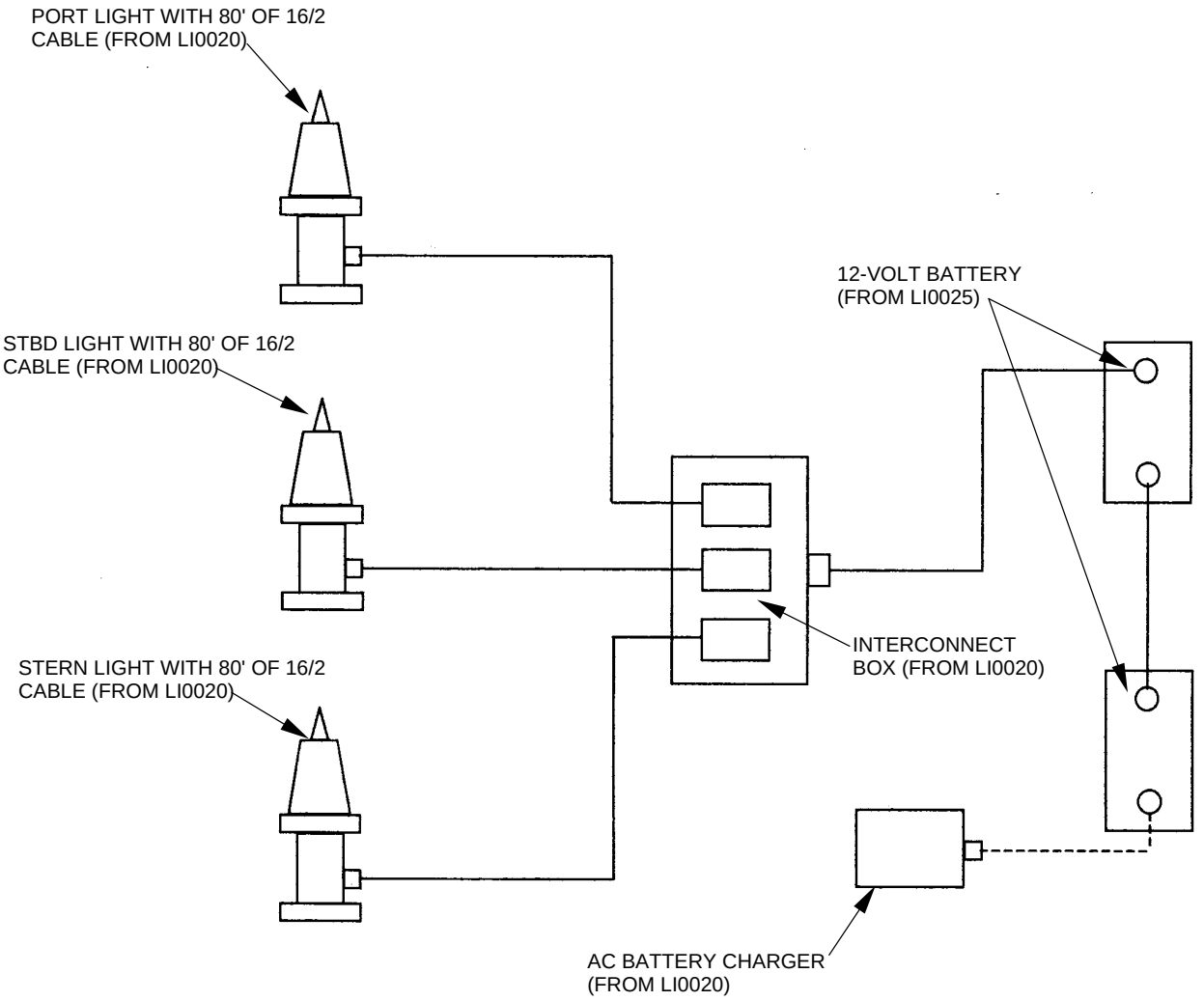
1. Robotic Guard Systems Operations Manual, Towed Vessel Basic Fire/Flood Alarm System, 1998.

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TOWING NAVIGATION LIGHT SYSTEM DS0520

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Overview of Towing Navigation Light System DS0520

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TOWING NAVIGATION LIGHT SYSTEM SYSTEM NUMBER DS0520

SYSTEM DESCRIPTION

The Towing Navigation Light System DS0520 is designed to provide navigation lights for placement on a towed vessel. The light system consists of red, green, and white navigational lights, battery packs, and a 110-volt charger assembly. The system is configured to provide a minimum of 15 days of continuous lighting between battery charges

SYSTEM COMPONENTS

Item	ESSM Number	Qty
Light Kit, Navigation, Portable	LI0020	1
Battery, 12-Volt, for Navigation Light System	LI0025	2

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Portable Navigation Light Kit LI0020

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LIGHT KIT, NAVIGATION, PORTABLE **ESSM NUMBER LI0020**

DESCRIPTION

The Portable Navigation Light Kit LI0020 contains lights, cables, and a connection box to provide Coast Guard-approved lights for display on a towed vessel. Each individual light is equipped with a red, green, or clear lens to provide the appropriate port, starboard, and stern running lights required for night display. Each navigation light contains a multi-socket, automated bulb changer to replace bulbs that burn out or otherwise fail during operation and is equipped with a photo cell that activates the light in periods of darkness. The kit also includes a battery charger to maintain the gelled cell batteries found in LI0025.

SPECIFICATIONS

Manufacturer	Automatic Power, Incorporated
Model	FA-249
Battery Charger	Schumacher Model H693

The Navigation Light Kit contains the following:

Item	Qty
Container, 39" x 25" x 22":	1
Battery charger, 12-volt	1
Light assembly, Red lens with 80' of cable	1
Light assembly, Green lens with 80' of cable	1
Light assembly, Clear lens with 80' of cable	1
Spare lamp assembly	4
Setup block diagram	1
Technical manual	1
Junction box, with 10' of cable	1
Inventory, laminated	1

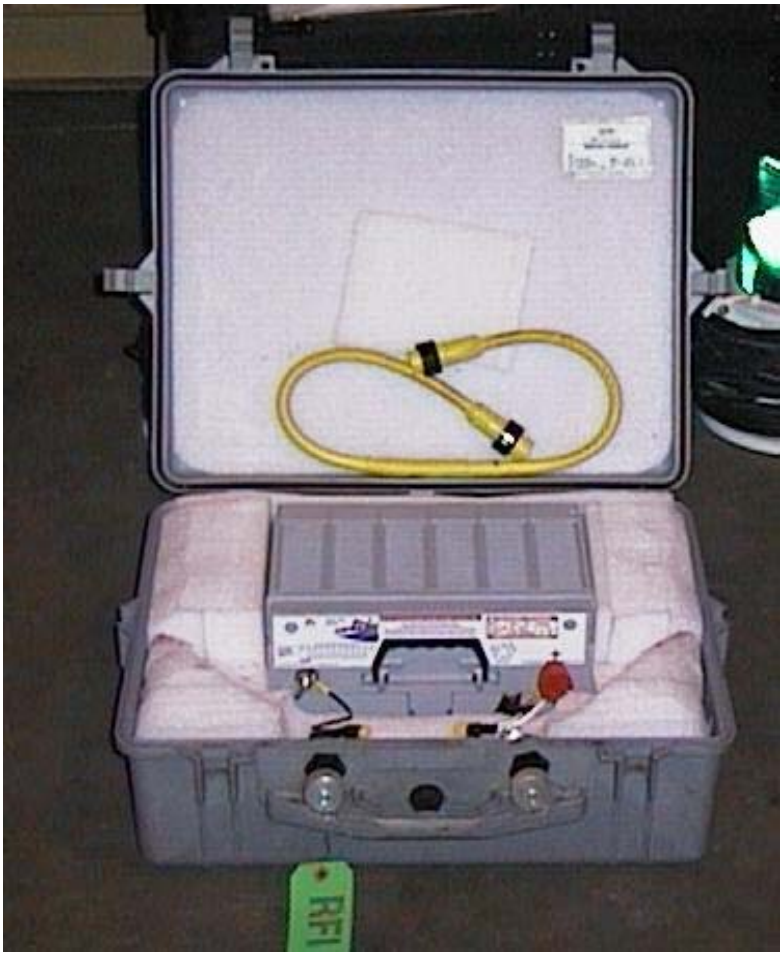
PHYSICAL CHARACTERISTICS

	Shipping
Length	3 ft, 3 in.
Width	2 ft, 1 in.
Height	1 ft, 10 in.
Cube	12 cu ft
Weight	114 lb

REFERENCES

1. Barge Light, Navigation Aids Operation Manual, Form No. 6310-0147, Automatic Power, Inc.

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12-Volt Navigation Light Battery LI0025

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BATTERY, 12-VOLT, FOR NAVIGATION LIGHT SYSTEM ESSM NUMBER LI0025

DESCRIPTION

The 12-Volt Battery for the Navigation Light System LI0025 is a sealed, gelled electrolyte, rechargeable battery. The battery is packaged and prewired in a sealable hard shipping and storage container. Two battery packs are included in the system. These are normally wired into the lighting system in parallel to provide a longer duration of effective lighting without recharging. The battery is recharged in its storage case by attaching the system's 12-volt battery charger. The battery is sized to provide a minimum of 15 days continuous lighting of the three navigation lights.

SPECIFICATIONS

Manufacturer	Automatic Power, Inc.
Model/Part number	Prevailer PV31
Voltage	12-volt
Battery type	Sealed gel cell

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 7 in.
Height	9 in.
Cube	2 cu ft
Weight	82 lb

REFERENCES

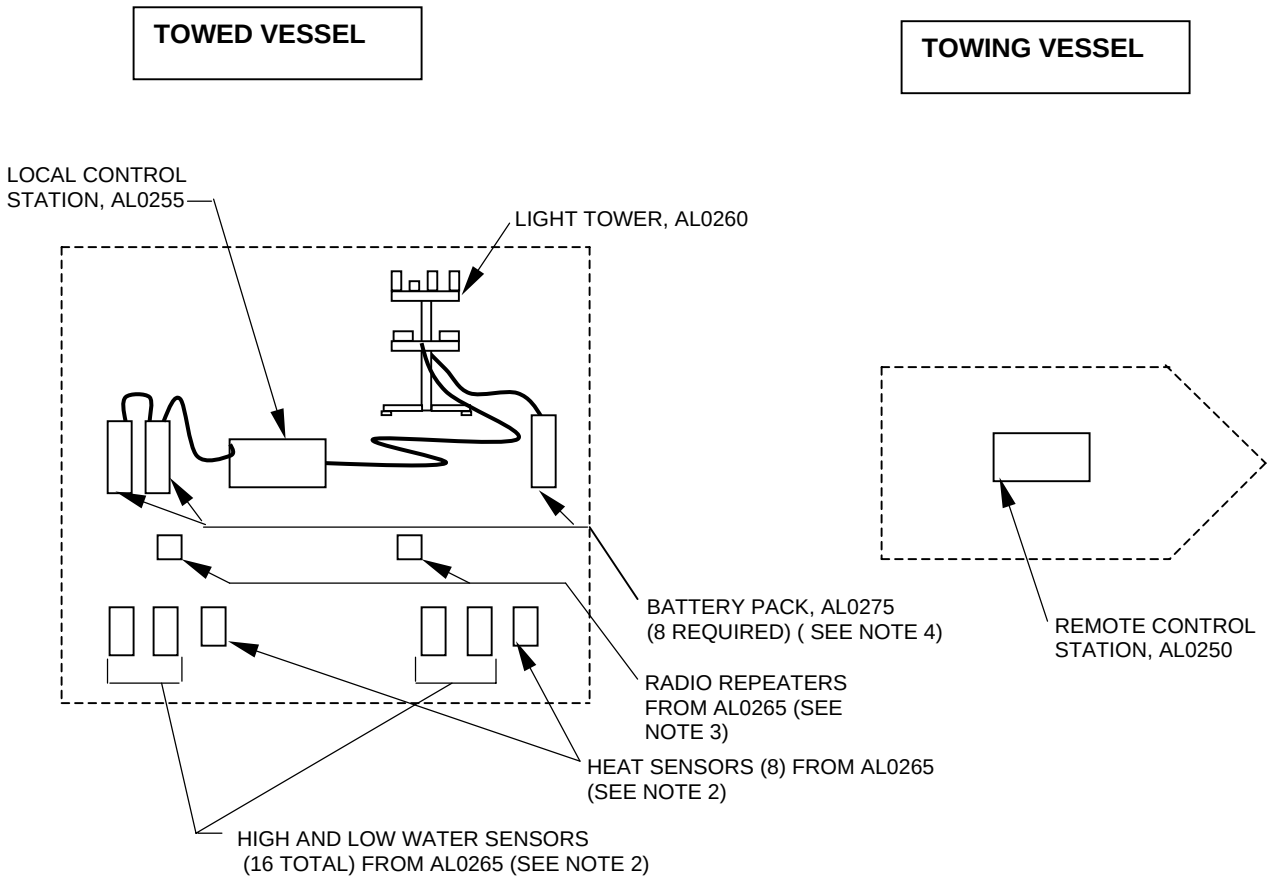
1. Barge Light, Navigation Aids Operation Manual, Form No. 6310-0147, Automatic Power, Inc.

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WIRELESS TOW ALARM SYSTEM DS0525

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NOTES:

1. Battery Charger AL0280 and Spare Parts Kit AL0270 not shown.
2. High and low water sensor alarm level is set by placement in monitored compartment. Up to 16 water level sensors may be placed throughout the towed vessel. Heat sensors measure air temperature in the monitored compartment.
3. Two radio repeaters are included in Sensors and Repeaters AL0265. These are used to boost the radio signal power of the heat and water level sensors. During operation the repeaters are placed on the towed vessel to optimize the signal strength to the LCS. Depending on the size and construction of the towed vessel the repeaters may not be required for system operation.
4. Battery Packs (AL0275) will be located as necessary to power the various components, each contains a connecting cable for attachment.

Overview of Wireless Tow Alarm System DS0525

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WIRELESS TOW ALARM SYSTEM **SYSTEM NUMBER DS0525**

SYSTEM DESCRIPTION

The Wireless Tow Alarm System DS0525 is designed for towing operations using tugs or salvage ships. The system consists of two major subsystems, the Local Control Station (LCS) on the towed vessel and the Remote Control Station (RCS) on the towing vessel.

The LCS monitors the sensors in compartments aboard the towed vessel. Each compartment may have any combination of low or high water level and heat sensors. All sensors (24 total; 16 water level and 8 heat detectors) are connected to the LCS by means of individual self-contained radio transmitters. This does away with the requirement to run cables from the sensors to the LCS. The LCS is connected via a 50-foot cable to the Light Tower to provide an audible and visual indication of the alarm condition on the towed vessel. The LCS and Light Tower are powered by battery packs. In addition, a radio transmits system status and alarm signals to the RCS.

The RCS consists of a laptop computer, printer, alarm panel, radio receiver, and an internal battery with charger. Data received at the RCS is stored in the CP2130 receiver (up to 95 events, i.e. an alarm or status check) and can be downloaded to the computer for view or printing. Normal 120-volt ac power is supplied from the towing vessel; however, temporary power may be provided to the RCS from its internal battery or the emergency battery pack. The RCS is an optional component. The system may be operated without the laptop and printer, in which case the only capabilities lost will be the option to print system updates and records. This information may be retrieved upon the system's return to the ESSM Facility.

During operation, the system monitors water levels and ambient temperatures. When a sensor detects an alarm condition, a signal is sent to the LCS, activating the appropriate light bar and the light bar horn. Simultaneously, a radio signal is transmitted to the RCS. An audible alarm on the keypad sounds and text display indicates which sensor has detected an alarm condition.

Eight Battery Packs AL0275 are included to power system components.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Remote Control Station, Wireless Tow Alarm System	AL0250	1
2. Local Control Station, Wireless Tow Alarm System	AL0255	1
3. Light Tower, Wireless Tow Alarm System	AL0260	1
4. Sensors and Repeaters, Wireless Tow Alarm System	AL0265	1
5. Spare Parts Kit, Wireless Tow Alarm System	AL0270	1
6. Battery Pack, Wireless Tow Alarm System	AL0275	8
7. Battery Charger, Wireless Tow Alarm System	AL0280	1

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Remote Control Station (RCS) AL0250

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REMOTE CONTROL STATION, WIRELESS TOW ALARM SYSTEM **ESSM NUMBER AL0250**

DESCRIPTION

The Wireless Tow Alarm System Remote Control Station (RCS) AL0250 contains a laptop computer, a printer, a radio, and an internal battery with charger. The RCS is normally powered from the towing vessel's 120-volt power; however, temporary dc power may be provided from the internal battery or a Battery Pack AL0285. The Remote Control Station receives signals from the repeater located onboard the towed vessel light tower. The RCS is an optional component and may, at the customer's request, be omitted.

SPECIFICATIONS

The Remote Control Station consists of the following:

Item	Qty
1. Modified Pelican container, 23" x 18" x 9"	1
Computer, Dell, 486 Latitude LX	1
Power supply: 110-volt ac; 12-volt internal rechargeable battery (sealed 12-volt, 12-amp-hour capacity) with charger, or 12-volt battery pack (emergency)	1
Printer, Canon bubble jet	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 7 in.
Height	9 in.
Cube	2 cu ft
Weight	60 lb

REFERENCES

1. Wireless Guardian Hybrid Security System Technical Manual, Inovonics LIT-CP-INSTALL.
2. Wireless Guardian Owner's Manual, Inovonics LITC2020UC 5-Jun-01.
3. GPC Wireless Tow Alarm Operations and Startup Guide.

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Local Control Station (LCS) AL0255

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LOCAL CONTROL STATION, WIRELESS TOW ALARM SYSTEM **ESSM NUMBER AL0255**

DESCRIPTION

The Wireless Tow Alarm System Local Control Station (LCS) AL0255 consists of a multi-channel radio receiver to monitor the sensors within the towed vessel. When a sensor detects an alarmed condition (flood or fire), a signal is sent to the LCS, which directs the signal through the control cable to the appropriate strobe light and electric siren. Simultaneously, the signal is transmitted by radio repeater located on the Light Tower to the Remote Control System (RCS) AL0250 on the towing vessel.

SPECIFICATIONS

The Local Control Station consists of the following:

Item	Qty
1. Modified Pelican container, 23" x 18" x 9"	1
Strap, ratchet, 1" x 10', 300 lb SWL	4
Receiver, 64-channel, Inovonics model FA464D	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 6 in.
Height	9 in.
Cube	2 cu ft
Weight	24 lb

REFERENCES

1. Wireless Guardian Hybrid Security System Technical Manual, Inovonics LIT-CP-INSTALL.
2. Wireless Guardian Owner's Manual, Inovonics LITC2020UC 5-Jun-01.
3. GPC Wireless Tow Alarm Operations and Startup Guide.

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Light Tower AL0260

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LIGHT TOWER, WIRELESS TOW ALARM SYSTEM ESSM NUMBER AL0260

DESCRIPTION

The Wireless Tow Alarm System Light Tower AL0260 contains a red, blue, and amber strobe light, and a radio repeater within a framework that mounts the components to the deck of the towed vessel (using magnets within the feet of the tower). In addition, an audible alarm (a 12-volt electric siren) is contained within the light tower framework. The light tower requires Battery Pack AL0275 for operation.

SPECIFICATIONS

The Light Tower consists of the following:

Item	Qty
Container, 36" x 27" x 19":	1
Cable assembly, 10", relay-to-repeater	1
Cable assembly, 6', relay-to-light bar	1
Cable assembly, 15', repeater power supply	1
Cable assembly, 26', repeater power supply	1
Cable assembly, 4-conductor, receiver-to-keypad	1
Extension, mast, 3'	2
Mast base, magnetic	1
Platform, relay and repeater	1
Platform, strobe lights and siren	1
Reel, cable storage	1
Cable assembly, 50', LCS-to-tower	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 0 in.
Width	2 ft, 3 in.
Height	1 ft, 7 in.
Cube	12 cu ft
Weight	132 lb

REFERENCES

1. Wireless Guardian Hybrid Security System Technical Manual, Inovonics LIT-CP-INSTALL.
2. Wireless Guardian Owner's Manual, Inovonics LITC2020UC 5-Jun-01.
3. GPC Wireless Tow Alarm Operations and Startup Guide.

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Wireless Tow Alarm System Flooding and Heat Sensors



Sensors and Repeaters AL0265

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SENSORS AND REPEATERS, WIRELESS TOW ALARM SYSTEM **ESSM NUMBER AL0265**

DESCRIPTION

The Wireless Tow Alarm System Sensors and Repeaters AL0265 consists of sensors to detect water level and high ambient temperature in the monitored compartment. The system contains 16 water level sensors that may be set to detect either a low or high water level (alarm level is set by the position of the sensor within the monitored space) and 8 heat sensors (pre-set to 140°F). Each sensor has a self-contained, battery-operated radio transmitter with a range of approximately 10,000 feet (line of sight) to transmit an alarm signal to the LCS. In addition, two radio repeaters are included to boost the signal strength of the alarm sensors. These repeaters may not be required for each application as the range of the alarm sensor radio will be dependant on the construction of the vessel, number of bulkheads between the sensor and LCS, and other factors that would add radio interference. When deployed, each sensor and repeater is attached to a bulkhead or structural member on the towed vessel using a magnetic base.

SPECIFICATION

The Sensors and Repeaters AL0265 consists of the following:

Item	Qty
Container, 31" x 28" x 23":	1
Battery, 3-volt, lithium	24
Sensor, heat, wireless	8
Sensor, water level, wireless	16
System panel (system box and keypad)	1
Repeater, wireless alarm sensors	2
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 7 in.
Width	2 ft, 4 in.
Height	1 ft, 11 in.
Cube	12 cu ft
Weight	106 lb

REFERENCES

1. GPC Wireless Tow Alarm Operations and Startup Guide.

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Spare Parts Kit AL0270

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SPARE PARTS KIT, WIRELESS TOW ALARM SYSTEM ESSM NUMBER AL0270

DESCRIPTION

The Wireless Tow Alarm System Spare Parts Kit AL0280 consists of materials to maintain one Tow Alarm System DS0525 while deployed.

SPECIFICATION

The Spare Parts Kit AL0270 contains the following:

Item	Qty
Shipping container, 23" x 19" x 9":	1
Assembly, strobe light, amber	1
Barrel assembly, heat sensor	1
Barrel assembly, temperature sensor	1
Bulb, strobe light	2
End plate assembly, lower, temperature sensor	1
End plate assembly, lower, water level sensor	1
End plate assembly, upper, sensor, universal	1
Float reed switch assembly	2
Float, water level sensor	2
Fuse, various amperages	10
Manual, Hybrid Security System	1
Manual, Inovonics Plus Downloader	1
Manual, Wireless Guardian Owner's	1
Manual, Operating Procedures	1
Multimeter, model DM5XL	1
Probe, temperature sensing	1
Timer, cube relay	1
Transmitter, sensor, universal	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 7 in.
Height	9 in.
Cube	2 cu ft
Weight	23 lb

REFERENCES

None

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Battery Pack AL0275

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BATTERY PACK, WIRELESS TOW ALARM SYSTEM **ESSM NUMBER AL0275**

DESCRIPTION

The Wireless Tow Alarm System Battery Pack AL0275 consists of a shipping container with a 12-volt, 75-amp-hour gelled electrolyte battery and a connecting cable. The container is designed with external connectors to allow operation of the battery while the case is closed.

SPECIFICATIONS

The Battery Pack consists of the following:

Item		Qty
Shipping container 23" x 19" x 9" (modified Pelican case)		1
Battery:		1
Manufacturer	Power Sonic	
Model	PS1275-12	
Capacity	75 amp-hr	
Type	Rechargeable, sealed, 12-V gelled cell	
Quantity	One battery per pack	
Cable, connecting, 3'	2-conductor battery connecting cable	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 7 in.
Height	9 in.
Cube	2 cu ft
Weight	74 lb

REFERENCES

1. Wireless Guardian Hybrid Security System Technical Manual, Inovonics LIT-CP-INSTALL.
2. Wireless Guardian Owner's Manual, Inovonics LITC2020UC 5-Jun-01.
3. GPC Wireless Tow Alarm Operations and Startup Guide.

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Battery Charger AL0280

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BATTERY CHARGER, WIRELESS TOW ALARM SYSTEM ESSM NUMBER AL0280

DESCRIPTION

The Wireless Tow Alarm System Battery Charger AL0280 consists of two battery chargers and a connector cable in a shipping/storage container.

SPECIFICATIONS

The Battery Charger consists of the following:

Item		Qty
Shipping container 23" x 19" x 9" (modified Pelican case)		1
Charger, battery:		2
Manufacturer	Schumacher	
Model	SE-70M	
Mode	Automatic/manual	
Amperage	10	
Input voltage	110 V ac	
Output voltage	12/24 V dc	
Cable assembly, battery connecting, 3'		1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 11 in.
Width	1 ft, 7 in.
Height	9 in.
Cube	2 cu ft
Weight	42 lb

REFERENCES

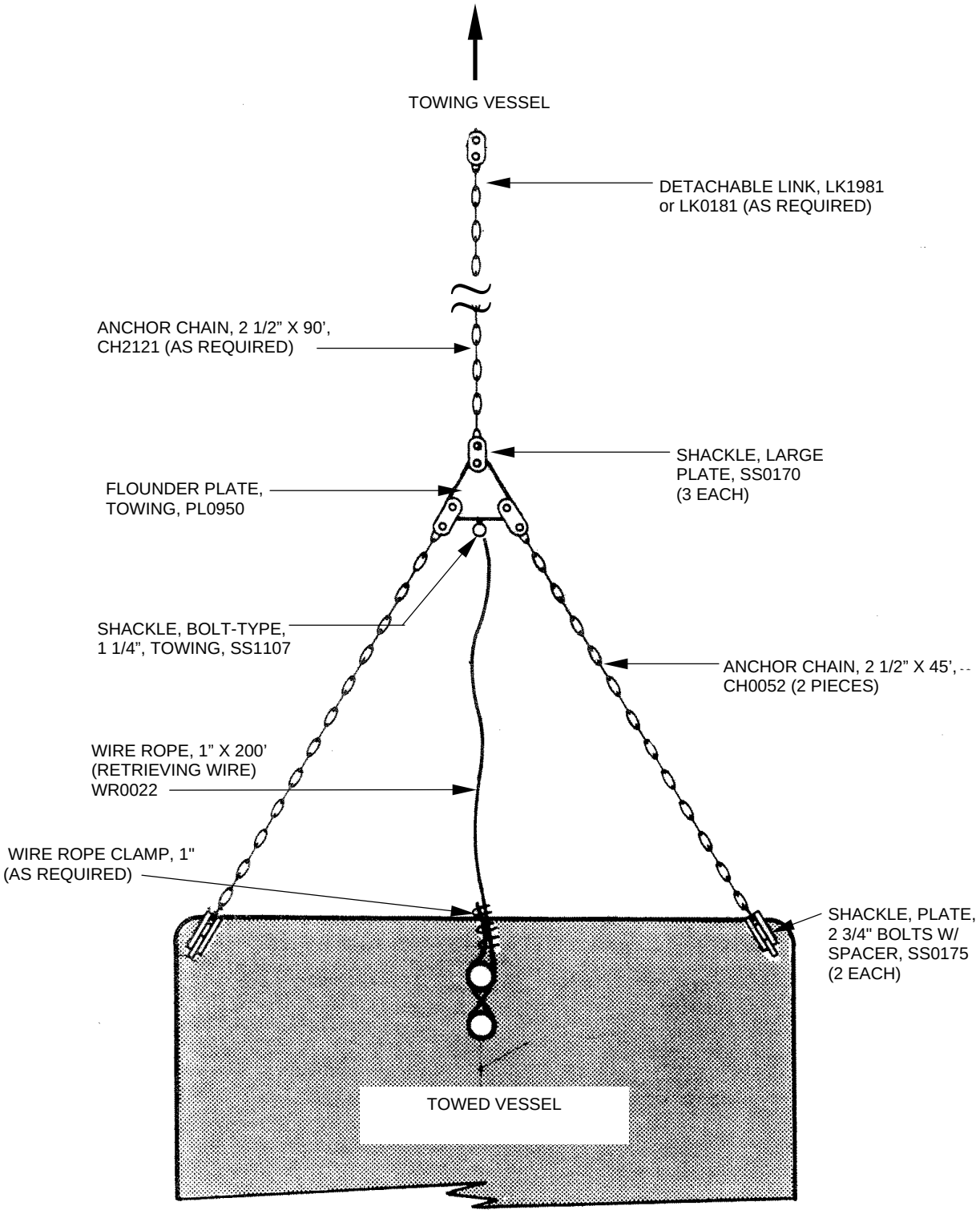
1. GPC Wireless Tow Alarm Operations and Startup Guide.

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PRIMARY TOWING BRIDLE ASSEMBLY SYSTEM (GENERIC) DS0600

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Overview of Primary Towing Bridle System DS0600

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PRIMARY TOWING BRIDLE ASSEMBLY SYSTEM (GENERIC) **SYSTEM NUMBER DS0600**

SYSTEM DESCRIPTION

The Primary Towing Bridle Assembly System (Generic) DS0600 consists of anchor chain, detachable links, flounder plate, shackles, wire rope, wire rope clamps, and wire mesh containers for shipping system components. The Primary Towing Bridle Assembly System contains the materials necessary to conduct towing on a wide range of vessels. The system is designed for maximum flexibility and thus contains components that may not be required for a specific towing application. This system may also be used in conjunction with the Secondary Towing Bridle Assembly System (Generic) DS0605 and the Emergency Towing Anchor Assembly System (Generic) DS0620.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Chain, Di-Lok, 2 1/2" x 45'	CH0052	1
2. Chain, Di-Lok, 2 1/2" x 90'	CH2121	4
3. Ancillary Set, Primary Towing Bridle Assembly	TB0020	1
Link, Detachable, Pear-Shaped, 2 1/8" - 2 3/8"	LK0181	3
Link, Detachable, 2 1/2"	LK1981	4
Plate, Flounder, Towing, with Retrieval Pad Eye	PL0950	1
Shackle, Large Plate, 2 1/4"/2 3/4" Bolts	SS0170	2
Shackle, Plate, 2 3/4" Bolts w/ Welded Spacer	SS0175	3
Shackle, Bolt-Type, 1 1/4", Towing	SS1107	3
Wire Rope, 1" x 200' (Retrieving Wire)	WR0022	1

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2 1/2" x 45' Di-Lok Chain CH0052



2 1/2" x 45' Di-Lok Chain

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CHAIN, DI-LOK, 2 1/2-INCH X 45-FOOT **ESSM NUMBER CH0052**

DESCRIPTION

The 2 1/2-Inch Di-Lok Chain CH0052 consists of two pieces of chain, each 45 feet in length. It is used in the Primary Towing Bridle Assembly System to connect the flounder plate to the towing points on the towed vessel. The chain (90 feet total) is shipped in a wire mesh basket equipped with forklift slots.

SPECIFICATIONS

Anchor chain

Manufacturer	Baldt Corporation
Model	Type I
Size	2 1/2"
Length (two required)	45'
Weight	2548 lb (each length)
Proof strength	492,000 lb
Breaking strength	744,000 lb

PHYSICAL CHARACTERISTICS

Shipping container

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	55 cu ft
Weight	5528 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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2 1/2" x 90' Di-Lok Chain CH2121



2 1/2" x 90' Di-Lok Chain

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CHAIN, DI-LOK, 2 1/2-INCH X 90-FOOT **ESSM NUMBER CH2121**

DESCRIPTION

The 2 1/2-Inch Di-Lok Chain CH2121 is a standard shot of anchor chain. It may be used for mooring, towing, and other applications that require a strong yet flexible attachment between two points.

SPECIFICATIONS

Anchor chain

Manufacturer	Baldt
Size	2 1/2"
Model	Type I
Length	15 fathoms (90')
Weight	5095 lb
Proof strength	442,000 lb
Breaking strength	669,000 lb

PHYSICAL CHARACTERISTICS

Shipping container

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	55 cu ft
Weight	5528 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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Primary Towing Bridle Ancillary Set TB0020

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ANCILLARY SET, PRIMARY TOWING BRIDLE ASSEMBLY SYSTEM — ESSM NUMBER TB0020

DESCRIPTION

The Primary Towing Bridle Ancillary Set TB0020 is a wire mesh container that contains the hardware necessary to assemble the Primary Towing Bridle Assembly System. The container is equipped with forklift slots and lifting eyes to facilitate handling.

SPECIFICATIONS

Item	ESSM Number	Qty
Link, Detachable, Pear-Shaped, 2 1/8" - 2 3/8"	LK0181	3
Link, Detachable, Connecting, 2 1/2"	LK1981	4
Plate, Flounder, Towing, w/ Retrieval Pad Eye	PL0950	1
Shackle, Large Plate, 2 1/4"/2 3/4" Bolts	SS0170	3
Shackle, Plate, 2 3/4" Bolts with Welded Spacer	SS0175	3
Parts box, plywood, 25" x 16" x 19":		1
Shackle, Bolt-Type, 1 1/4", Towing	SS1107	3
Buoy, inflatable, 12" diameter		4
Clamp, wire rope, 1"		40
Clamp, wire rope, 1/2"		50
Spare parts kit (ammo box):		1
Bolt, 1/4-20 x 1 3/4"		3
Bolt, 3/8-16 x 3 1/2"		8
Bolt, 3/8-16 x 5"		10
Bolt, 5/16-18 x 5"		6
Hairpins for detachable links		8
Lead plugs for detachable links		11
Nut, 1/4-20		6
Nut, 3/8-16		38
Nut, 5/16-18		12
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	55 cu ft
Weight	1868 lb

REFERENCES

None

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2 1/8" x 2 3/8" Pear-Shaped Detachable Link LK0181

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LINK, DETACHABLE, PEAR-SHAPED, 2 1/8" - 2 3/8" ESSM NUMBER LK0181

DESCRIPTION

The Pear-Shaped Detachable Link LK0181 is used to connect 2 1/4-inch chain to an anchor.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Part number	82021-06010
Size	2 1/8" x 2 3/8"
Proof strength	447,000 lb
Breaking strength	675,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	1 ft, 1 in.
Height	4 in.
Cube	1 cu ft
Weight	107 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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2 1/2" Detachable Link LK1981

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LINK, DETACHABLE, 2 1/2” **ESSM NUMBER LK1981**

DESCRIPTION

The 2 1/2-Inch Detachable Link LK1981 is used to connect lengths of 2 1/2-inch anchor chain. A hair pin and lead plug are included with the detachable link for securing the link taper pin in place.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Size	2 1/2"
Proof strength	447,000 lb
Breaking strength	675,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 3 in.
Width	10 in.
Height	4 in.
Cube	1 cu ft
Weight	71 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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Towing Flounder Plate PL0950



Towing Flounder Plate Rigged With Plate Shackles

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PLATE, FLOUNDER, TOWING, WITH RETRIEVAL PAD EYE ESSM NUMBER PL0950

DESCRIPTION

The Towing Flounder Plate PL0950 is a plate steel connecting device. The flounder plate is used in towing situations to connect a single towing cable or chains from the towing vessel to two towing cables or chains connected to the towed vessel. This allows for greater stability and directional control of the tow. The flounder plate is used in salvage systems DS0600 and DS0605.

SPECIFICATIONS

Manufacturer	Commercial
NAVSEA Dwg	7022632
Capacity	50 tons
Proof strength	100 tons
Breaking strength	150 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Width	1 ft, 7 in.
Thickness	2 in.
Cube	1 cu ft
Weight	168 lb

REFERENCES

1. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-000-3010.
2. NAVSEA Dwg. 7022632.

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Large Plate Shackle, 2 1/4"/2 3/4" Bolts SS0170

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SHACKLE, LARGE PLATE, 2 1/4"/2 1/2" BOLTS **ESSM NUMBER SS0170**

DESCRIPTION

The Large Plate Shackle SS0170 is a two-piece assembly constructed of plate steel. It is used to connect elements of chain or wire rope to other objects. The shackle bolts are secured using a 3/8-16 x 4" machine bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nuts to the bolts with cotter pins.

SPECIFICATIONS

Manufacturer	Commercial
NAVSEA Dwg	6648720
Capacity	50 tons
Proof strength	100 tons
Breaking strength	150 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Width	11 in.
Height	7 in.
Cube	1 cu ft
Weight	110 lb

REFERENCES

1. NAVSEA Dwg. 6648720.

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Plate Shackle, 2 3/4" Bolts with Welded Spacer SS0175

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SHACKLE, PLATE, 2 3/4" BOLTS WITH WELDED SPACER **ESSM NUMBER SS0175**

DESCRIPTION

The Plate Shackle with Welded Spacer SS0175 is a one-piece assembly constructed of plate steel. It is used to connect chain or wire rope to other objects. The shackle bolts are secured using a 3/8 -16 x 4" machine bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nuts to the bolts with cotter pins.

SPECIFICATIONS

Manufacturer	Commercial
NAVSEA Dwg	6648720
Size	2 3/4" bolts
Capacity	50 tons
Proof strength	100 tons
Breaking strength	150 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Width	7 in.
Height	11 in.
Cube	1 cu ft
Weight	120 lb

REFERENCES

1. NAVSEA Dwg. 6648720.

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1 1/4" Bolt-Type Shackle SS1107

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SHACKLE, BOLT-TYPE, 1 1/4", TOWING **ESSM NUMBER SS1107**

DESCRIPTION

The 1 1/4-Inch Bolt-Type Shackle is rated at 12 tons safe working load. The shackle bolt is secured using a 3/8 -16 x 4" machine bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nut to the bolt with a cotter pin.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	1 1/4" shackle pin
Capacity	12 tons SWL

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	9 in.
Width	8 in.
Height	2 in.
Cube	1 cu ft
Weight	11 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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1" x 200' Wire Rope WR0022

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WIRE ROPE, 1” X 200’ (RETRIEVING WIRE) **ESSM NUMBER WR0022**

DESCRIPTION

The 1-Inch Wire Rope (Retrieving Wire) WR0022 is a 200-foot wire rope with a closed socket on one end and a bitter end secured with wire rope clamps. The retrieving wire is attached to the lifting eye of the flounder plate to facilitate recovery of the towing assembly at the end of the towing operation or in the event of a component failure during the tow.

SPECIFICATIONS

Length	200'
Diameter	1"
Construction	6x37 wire rope
Core type	Fiber core
Material	Improved plow steel
End fittings	Closed socket one end and bitter end
Wire coating	Galvanized

PHYSICAL CHARACTERISTICS

	Shipping
Diameter	2 ft, 6 in.
Height	2 ft, 4 in.
Cube	6 cu ft
Weight	384 lb

REFERENCES

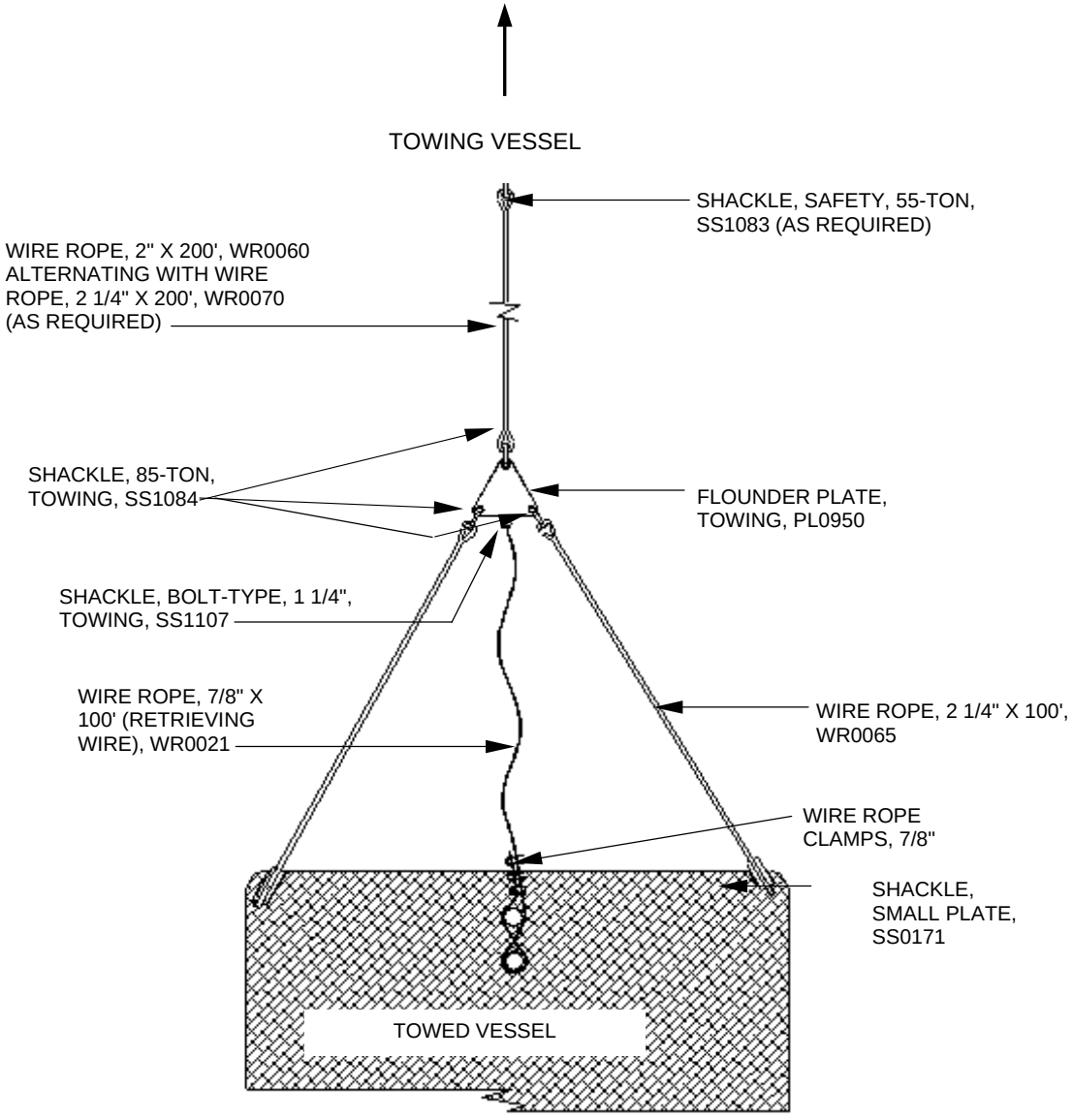
None

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SECONDARY TOWING BRIDLE ASSEMBLY SYSTEM (GENERIC) DS0605

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Overview of Secondary Towing Bridle Assembly DS0605

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SECONDARY TOWING BRIDLE ASSEMBLY SYSTEM (GENERIC) **SYSTEM NUMBER DS0605**

SYSTEM DESCRIPTION

The Secondary Towing Bridle Assembly System (Generic) DS0605 consists of a flounder plate, plate shackles, bolt-type shackles, wire ropes, and wire rope clamps. These materials may be used to back up the Primary Towing Bridle Assembly System DS0600, or to provide a secondary tow point for increased control of the towed vessel. The system is designed for maximum flexibility, and thus contains materials that may not be required for any one specific towing application. This system may also be used in conjunction with the Emergency Towing Anchor System (Generic) DS0620.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Wire Rope, 2" x 200' w/ Closed Sockets Each End	WR0060	2
2. Wire Rope, 2 1/4" x 100' w/ Hard Eyes Each End	WR0065	2
3. Wire Rope, 2 1/4" x 200' w/ Closed Sockets Each End	WR0070	2
4. Ancillary Set, Secondary Towing Bridle Assembly System:	TB0025	1
Plate, Flounder, Towing, w/ Retrieval Pad Eye	PL0950	1
Shackle, Small Plate, 2 1/4"/2 1/4" Bolts	SS0171	3
Shackle, Bolt-Type, 2 1/2", 55-Ton, Grade A, Towing	SS1083	4
Shackle, Bolt-Type, 2 1/2", 85-Ton, Grade B, Towing	SS1084	3
Shackle, Bolt-Type, 1 1/4", Towing	SS1107	1
Wire Rope, 7/8" x 100' (Retrieving Wire)	WR0021	1
Wire Rope, 1/2" x 800'	WR0190	1

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2" x 200' Wire Rope WR0060

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WIRE ROPE, 2” X 200’ WITH CLOSED SOCKETS EACH END **ESSM NUMBER WR0060**

DESCRIPTION

The 2-Inch Wire Rope WR0060 is used in situations that require a high strength, flexible connection for towing, mooring, and other applications. Each length of wire rope has a closed socket on each end. The wire rope is stored on a steel reel.

SPECIFICATIONS

Manufacturer	Commercial
Length	200’
Diameter	2”
Construction	6x19 or 7x37 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Closed socket on each end
Wire coating	Galvanized

PHYSICAL CHARACTERISTICS

	Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 10 in.
Cube	16 cu ft
Weight	2388 lb

REFERENCES

None

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2 1/4" x 100' Wire Rope WR0065

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WIRE ROPE, 2 1/4” X 100’ WITH HARD EYES EACH END **ESSM NUMBER WR0065**

DESCRIPTION

The 2 1/4-Inch Wire Rope WR0065 is used in situations that require a high strength, flexible connection for towing, mooring, and other applications. Each length of wire rope has a spliced hard eye on each end. The wire rope is stored on a steel reel.

SPECIFICATIONS

Manufacturer	Commercial
Length	100’
Diameter	2 1/4"
Construction	6x19 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Spliced with hard eyes each end
Wire coating	Galvanized

PHYSICAL DESCRIPTION

	Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 10 in.
Cube	16 cu ft
Weight	2492 lb

REFERENCES

None

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2 1/4" x 200' Wire Rope WR0070

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WIRE ROPE, 2 1/4” X 200’, CLOSED SOCKETS EACH END **ESSM NUMBER WR0070**

DESCRIPTION

The 2 1/4-Inch Wire Rope WR0070 is used in situations that require a high strength, flexible connection for towing, mooring, and other applications. Each length of wire rope has a closed socket on each end. The wire rope is stored on a steel reel.

SPECIFICATIONS

Manufacturer	Commercial
Length	200’
Diameter	2 1/4"
Construction	6x19 wire rope
Core type	Independent wire rope core
Material	Improved plow steel
End fittings	Closed socket each end
Wire coating	Galvanized

PHYSICAL DESCRIPTION

	Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 10 in.
Cube	16 cu ft
Weight	2692 lb

REFERENCES

None

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Secondary Towing Bridle Ancillary Set TB0025

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ANCILLARY SET, SECONDARY TOWING BRIDLE ASSEMBLY SYSTEM **ESSM NUMBER TB0025**

DESCRIPTION

The Secondary Towing Bridle Assembly System Ancillary Set TB0025 contains the hardware necessary to assemble the system. The container is equipped with forklift slots and lifting eyes to facilitate handling.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Wire Mesh Basket, 62" x 36" x 41":		1
Plate, Flounder, Towing, w/ Retrieving Pad Eye	PL0950	1
Shackle, Small Plate, 2 1/4"/2 1/4" Bolts	SS0171	3
Shackle, Bolt-Type, 2 1/2", 55-Ton, Grade A, Towing	SS1083	4
Shackle, Bolt-Type, 2 1/2", 85-Ton, Grade B, Towing	SS1084	3
Shackle, Bolt-Type, 1 1/4", Towing	SS1107	1
Wire Rope, 7/8" x 100' (Retrieving Wire)	WR0021	1
Wire Rope, 1/2" x 800'	WR0190	1
Box, plywood, 17" x 11" x 9":		1
Clamp, wire rope, 7/8"		24
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	55 cu ft
Weight	2194 lb

REFERENCES

None

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Towing Flounder Plate PL0950



Towing Flounder Plate Rigged With 85-Ton Shackles

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PLATE, FLOUNDER, TOWING, WITH RETRIEVAL EYE ESSM NUMBER PL0950

DESCRIPTION

The Towing Flounder Plate PL0950 is a plate steel connecting device. The flounder plate is used in towing situations to connect a single towing cable or chains from the towing vessel to two towing cables or chains connected to the towed vessel. The flounder plate has a retrieving eye on one surface to connect a wire rope that is used to recover the towing system components at the end of the operation or if damaged during the tow. The flounder plate is used in salvage systems DS0600 and DS0605.

SPECIFICATIONS

Manufacturer	Commercial
NAVSEA Dwg	7022632
Capacity	50 tons
Proof strength	100 tons
Breaking strength	150 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Width	1 ft, 7 in.
Thickness	2 in.
Cube	1 cu ft
Weight	168 lb

REFERENCES

1. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-000-3010.
2. NAVSEA Dwg. 7022632.

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Small Plate Shackle, 2 1/4"/2 1/4" Bolts SS0171

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SHACKLE, SMALL PLATE, 2 1/4"/2 1/4" BOLTS **ESSM NUMBER SS0171**

DESCRIPTION

The Small Plate Shackle SS0171 is a two-piece assembly constructed of plate steel. It is used to connect elements of chain or wire rope to other objects. The shackle bolts are secured using a 3/8-16 x 4" machine bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nut to the bolt with a cotter pin.

SPECIFICATIONS

Manufacturer	Commercial
NAVSEA Dwg.	6648721
Capacity	50 tons
Proof strength	100 tons
Breaking strength	150 tons

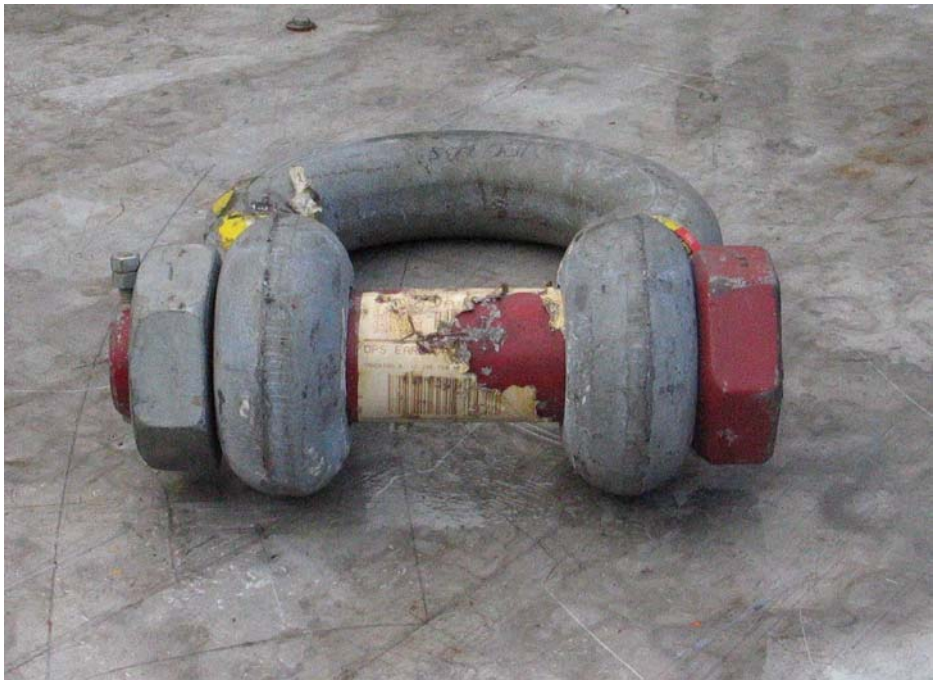
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Height	7 in.
Width	11 in.
Cube	1 cu ft
Weight	110 lb

REFERENCES

1. NAVSEA Dwg. 6648721.

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55-Ton Bolt-Type Shackle SS1083

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SHACKLE, BOLT-TYPE, 2 1/2”, 55-TON, GRADE A, TOWING ESSM NUMBER SS1083

DESCRIPTION

The 55-Ton Bolt-Type Shackle SS1083 is a 2 1/2” bolt-type safety shackle used to connect segments of wire ropes or a wire rope to a stationary element on a towing or towed vessel. The shackle bolt is secured using a 3/8-16 x 4" machine bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nut to the bolt with a cotter pin.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	2 1/2" shackle pin
Model	CC Safety Shackle
Capacity (SWL)	55 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	1 ft, 2 in.
Height	7 in.
Cube	1 cu ft
Weight	102 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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85-Ton Bolt-Type Shackle SS1084

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SHACKLE, BOLT-TYPE, 2 1/2”, 85-TON, GRADE B, TOWING ESSM NUMBER SS1084

DESCRIPTION

The 85-Ton Bolt-Type Shackle SS1084 is a 2 1/2” bolt-type safety shackle used to connect segments of wire ropes to the flounder plate, or to a stationary element on either a towing or towed vessel. The shackle bolt is secured using a 3/8-16 x 4" machine bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nut to the bolt with a cotter pin.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	2 1/2" shackle pin
Model	CE Safety Shackle
Capacity (SWL)	85 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	1 ft, 2 in.
Height	7 in.
Cube	1 cu ft
Weight	102 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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1 1/4" Bolt-Type Shackle SS1107

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SHACKLE, BOLT-TYPE, 1 1/4” **ESSM NUMBER SS1107**

DESCRIPTION

The 1 1/4-Inch Bolt-Type Shackle SS1107 is rated at 12 tons safe working load. The shackle bolt is secured using a 1/4-20 x 1 3/4" bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nut to the bolt with a cotter pin.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	1 1/4" shackle pin
Model	G-2130
Capacity (SWL)	12 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	9 in.
Width	8 in.
Height	2 in.
Cube	1 cu ft
Weight	11 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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7/8" x 100' Wire Rope WR0021

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WIRE ROPE, 7/8” X 100’ (RETRIEVING WIRE) **ESSM NUMBER WR0021**

DESCRIPTION

The 7/8-Inch Wire Rope (Retrieving Wire) WR0021 is a 100’ wire rope with a hard eye on one end and secured with wire rope clamps on the other. The retrieving wire is attached to the lifting eye of the flounder plate to facilitate recovery of the towing assembly at the end of the towing operation or in the event of a component failure during the tow.

SPECIFICATIONS

Manufacturer	Commercial
Length	100'
Diameter	7/8"
Construction	6x37 wire rope
Core type	Fiber core
Material	Improved plow steel
End fittings	Hard eye one end and bitter end
Wire coating	Galvanized

PHYSICAL CHARACTERISTICS

	Shipping
Diameter	2 ft, 6 in.
Height	2 ft, 4 in.
Cube	6 cu ft
Weight	292 lb

REFERENCE

None

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1/2" x 800' Wire Rope WR0190

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WIRE ROPE, 1/2” X 800’ **ESSM NUMBER WR0190**

DESCRIPTION

The 1/2-Inch x 800-Foot Wire Rope WR0190 is used as a general purpose wire rope during deployment of the Towing System. The wire rope and wooden reel is stored in the Ancillary Set TB0025.

SPECIFICATIONS

Manufacturer	Commercial
Length	800'
Diameter	1/2"
Construction	6x37 wire rope
Core type	Fiber core
Material	Improved plow steel
End fittings	Bitter ends
Wire coating	Galvanized

PHYSICAL CHARACTERISTICS

	Shipping
Diameter	2 ft, 6 in.
Height	2 ft, 4 in.
Cube	6 cu ft
Weight	275 lb

REFERENCE

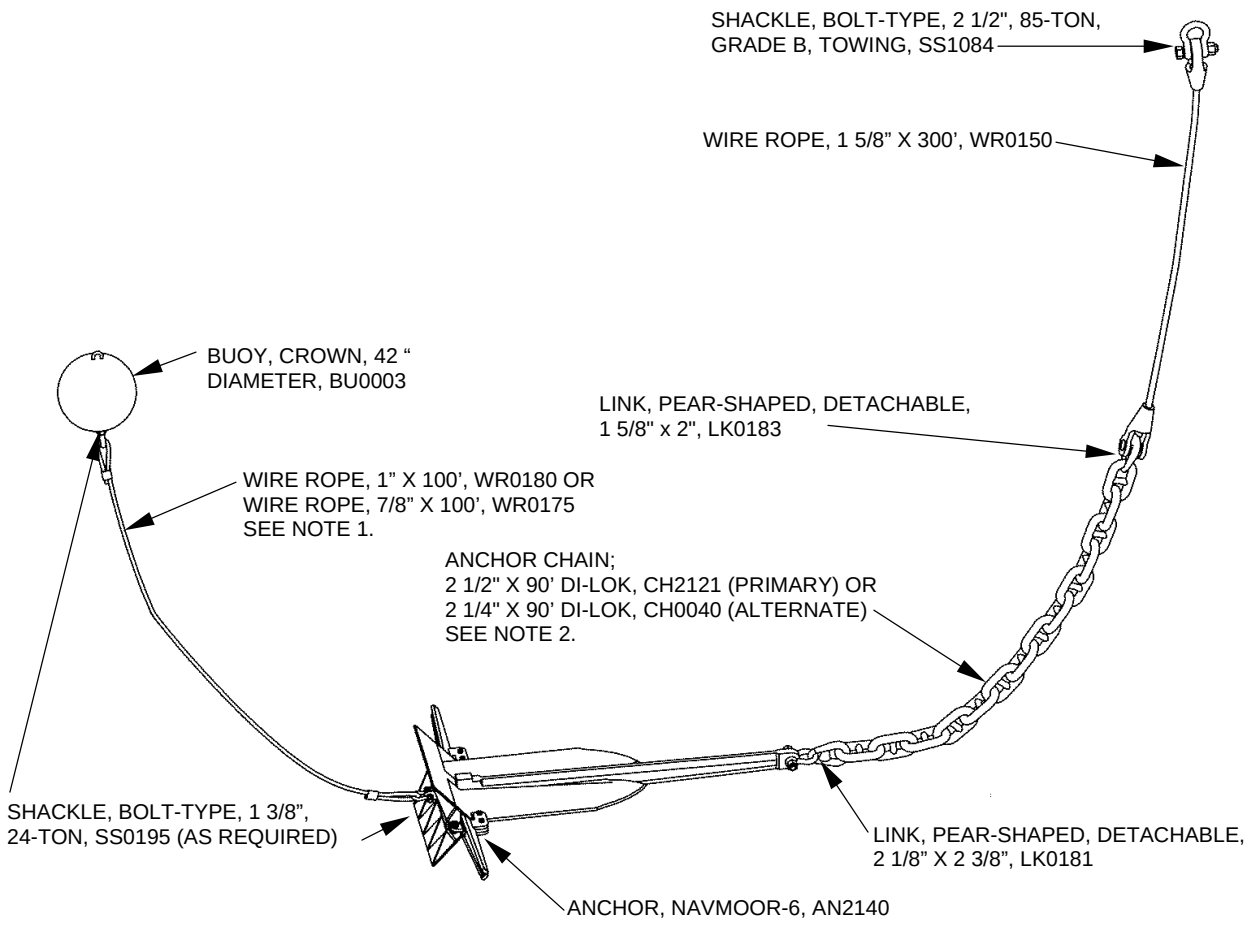
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EMERGENCY TOWING ANCHOR SYSTEM DS0620

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NOTE:
1. The crown buoy may be attached to the anchor using either WR0175 or WR0180 for water depths to 80 feet, or by connecting WR0175 and WR0180 for water depths to 180 feet.
2. The particular anchor chain provided will depend on the onsite requirements and inventory availability.

Overview of Emergency Towing Anchor System DS0620

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EMERGENCY TOWING ANCHOR SYSTEM **SYSTEM NUMBER DS0620**

SYSTEM DESCRIPTION

The Emergency Towing Anchor System DS0620 provides the components for emergency anchoring in water depths of up to 180 feet. This system is designed for maximum flexibility and thus contains materials that may not be required for any one specific towing application. The Emergency Towing Anchor System consists of an anchor, anchor chain, crown buoy, detachable links, shackles, securing line, and wire ropes. During transit and towing operation, the anchor and chain are secured at the rail or stern sheets of the towed vessel using 1-inch double braid line. The bitter end of the wire rope is secured to a fixed point (bitts, pad eye, or other attachment point) on the deck of the towed vessel; the remaining length of the wire rope is flaked out on deck to allow the anchor assembly to pay out during deployment. Quarter-inch double braid line is used as a quick release “break away” link for the anchor and chain. During deployment of the anchor, the 1-inch securing line is removed and the crown buoy is deployed. The 1/4-inch line is then cut, as necessary, to allow the anchor and chain to be deployed.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Anchor, Navmoor-6	AN2140	1
2. Anchor Chain		1*
Chain, Di-Lok, 2 1/4” x 90’ (Primary)	CH0040	
Chain, Di-Lok, 2 1/2” x 90’ (Alternate)	CH2121	
3. Wire Rope, 1 5/8” x 300’	WR0150	1
4. Ancillary Set, Emergency Towing Anchor System:	TB0030	1
Buoy, Crown, 42" Diameter	BU0003	1
Link, Detachable, Pear-Shaped, 2 1/8” - 2 3/8”	LK0181	1
Link, Detachable, Pear-Shaped, 1 5/8” - 2”	LK0183	1
Shackle, Bolt-Type, 1 3/8”, 24-Ton	SS0195	3
Shackle, Bolt-Type, 2 1/2", 85-Ton, Grade B, Towing	SS1084	1
Wire Rope, 1” x 100’ w/ Soft Eye Each End	WR0180	1**
Wire Rope, 7/8” x 100’ w/ Soft Eye Each End	WR0175	1**

* The particular anchor chain provided will depend on the onsite requirements and inventory availability.

** The crown buoy may be attached to the anchor using either WR0175 or WR0180 for water depths to 80 feet, or by connecting WR0175 and WR0180 for water depths to 180 feet.

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Navmoor-6 Anchor AN2140

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ANCHOR, NAVMOOR-6 **ESSM NUMBER AN2140**

DESCRIPTION

The Navmoor-6 Anchor AN2140 is a high efficiency anchor used with the Emergency Towing Anchor System DS0620, the Four-Point Mooring System DS0200, and the Salvage Beach Gear System S05100. The Navmoor-6 is designed for high stress applications normally seen in salvage operations.

SPECIFICATIONS

Manufacturer	Various, U.S. Navy Design
Type	Navmoor-6

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	12 ft, 11 in.
Width	6 ft, 5 in.
Height	3 ft, 8 in.
Cube	304 cu ft
Weight	7200 lb

REFERENCES

None

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2 1/4-Inch x 90-Foot Di-Lok Chain CH0040 in Shipping Container



2 1/4-Inch x 90-Foot Di-Lok Chain CH0040

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CHAIN, DI-LOK, 2 1/4” X 90’ **ESSM NUMBER CH0040**

DESCRIPTION

The 2 1/4-Inch x 90-Foot Di-Lok Chain CH0040 is a 90-foot shot of chain that is positioned between the anchor and the 1 5/8-inch wire rope. It is shipped in a wire mesh basket with forklift slots and lifting eyes to facilitate handling.

SPECIFICATIONS

Manufacturer	Baldt or commercial
Link size	2 1/4”
Length	1 shot (90’)
Proof test	403,600 lb
Breaking strength	610,000 lb

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 6 in.
Cube	55 cu ft
Weight	4460 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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2 1/2-Inch x 90-Foot Di-Lok Chain CH2121 in Shipping Container



2 1/2-Inch x 90-Foot Di-Lok Chain CH2121

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CHAIN, DI-LOK, 2 1/2" X 90' **ESSM NUMBER CH2121**

DESCRIPTION

The 2 1/2-Inch x 90-Foot Di-Lok Chain CH2121 is a 90-foot shot of chain. The 2 1/2-inch chain is an alternate, used in place of CH0040. The chain is shipped in a wire mesh basket with forklift slots and lifting eyes to facilitate handling.

SPECIFICATIONS

Manufacturer	Baldt or commercial
Link size	2 1/2”
Length	1 shot (90’)
Proof test	492,000 lb
Breaking strength	744,000 lb

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	55 cu ft
Weight	5528 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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1 5/8-Inch x 300-Foot Wire Rope WR0150

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WIRE ROPE, 1 5/8" X 300' **ESSM NUMBER WR0150**

DESCRIPTION

The 1 5/8-Inch x 300-Foot Wire Rope WR0150 is used in situations that require a high strength, flexible connection for towing, mooring, and other applications. Each length of wire rope has a closed socket on one end and an open socket on the other. The wire rope is stored on a steel reel.

SPECIFICATIONS

Manufacturer	Commercial
Length	300’
Diameter	1 5/8”
Construction	6x19 or 6x37 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Closed socket one end, open socket on other end
Wire coating	Galvanized

PHYSICAL CHARACTERISTICS

	Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 10 in.
Cube	16 cu ft
Weight	2105 lb

REFERENCES

1. RR-W-410, Federal Specification, Wire Rope and Strand.

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Emergency Towing Anchor System Ancillary Set TB0030

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ANCILLARY SET, EMERGENCY TOWING ANCHOR SYSTEM **ESSM NUMBER TB0030**

DESCRIPTION

The Emergency Towing Anchor System Ancillary Set TB0030 contains the materials required to configure one Emergency Towing System for onboard standby operation and deployment of the anchor from the towed vessel during an emergency. The Ancillary Set contains a crown buoy, wire ropes, detachable links, shackles, and double braid line. The container is equipped with forklift slots and lifting eyes to facilitate handling.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Wire mesh basket, 62” x 36” x 41”:		1
Buoy, Crown, 42" Diameter	BU0003	1
Wire Rope, 1” x 100’ w/ Soft Eye Each End	WR0180	1
Wire Rope, 7/8” x 100’ w/ Soft Eye Each End	WR0175	1
Link, Detachable, Pear-Shaped, 2 1/8” - 2 3/8”	LK0181	1
Link, Detachable, Pear-Shaped, 1 5/8” - 2”	LK0183	1
Shackle, Bolt-Type, 1 3/8”, 24-Ton	SS0195	3
Shackle, Bolt-Type, 2 1/2", 85-Ton, Grade B, Towing	SS1084	1
Line, 3-strand polypro, 1”, 5,900 lb SWL (500’ reel)		1
Line, 3-strand polypro, 1/4”, 368 lb SWL (500’ reel)		1
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	55 cu ft
Weight	1358 lb

REFERENCES

None

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42” Diameter Crown Buoy BU0003

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BUOY, CROWN, 42” DIAMETER **ESSM NUMBER BU0003**

DESCRIPTION

The Crown Buoy BU0003 is a 42-inch diameter, steel, spherical buoy used to mark the location of the anchor and its retrieving wire rope.

SPECIFICATIONS

Manufacturer	Commercial
Material	Steel
Buoyancy	927 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	42”
Cube	22 cu ft
Weight	150 lb

REFERENCES

None

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7/8-Inch x 100-Foot Wire Rope WR0175

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WIRE ROPE, 7/8" X 100' W/ SOFT EYE EACH END **ESSM NUMBER WR0175**

DESCRIPTION

The 7/8-Inch x 100-Foot Wire Rope WR0175 is a 100-foot wire rope with a soft eye on each end. The wire rope is used to mark the position of the anchor in water depths of up to 80 feet. In addition, it is used to recover the anchor by lifting it at the crown buoy attachment point on the anchor.

SPECIFICATIONS

Manufacturer	Commercial
Length	100’
Diameter	7/8”
Working Load Limit	15,200 lb
Construction	6x37 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Soft eye each end

PHYSICAL CHARACTERISTICS

	Shipping
Diameter	2 ft, 6 in.
Height	2 ft, 4 in.
Cube	4 cu ft
Weight	245 lb

REFERENCES

1. RR-W-410, Federal Specification, Wire Rope and Strand.

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1-Inch x 100-Foot Wire Rope WR0180

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WIRE ROPE, 1" X 100' W/ SOFT EYE EACH END **ESSM NUMBER WR0180**

DESCRIPTION

The 1-Inch x 100-Foot Wire Rope WR0180 is a 100-foot wire rope with a soft eye on each end. The wire rope, when used in conjunction with WR0175, is used to mark the position of the anchor in water depths of up to 180 feet. In addition, it is used to recover the anchor by lifting it at the crown buoy attachment point on the anchor.

SPECIFICATIONS

Manufacturer	Commercial
Length	100’
Diameter	1”
Working Load Limit	19,600 lb
Construction	6x19 or 6x37 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Soft eye each end

PHYSICAL CHARACTERISTICS

	Shipping
Diameter	3 ft, 6 in.
Height	6 in.
Cube	5.5 cu ft
Weight	125 lb

REFERENCES

1. RR-W-410, Federal Specification, Wire Rope and Strand.

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2 1/8-Inch x 2 3/8-Inch Pear-Shaped Detachable Link LK0181

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LINK, DETACHABLE, PEAR-SHAPED, 2 1/8"- 2 3/8" **ESSM NUMBER LK0181**

DESCRIPTION

The 2 1/8-Inch x 2 3/8-Inch Pear-Shaped Detachable Link LK0181 is used to connect 2 1/4-inch chain to an anchor. The link is equipped with a hair pin to prevent inadvertent disassembly during use.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Part number	82021-06010
Size	2 1/8" x 2 3/8"
Proof strength	447,000 lb
Breaking strength	675,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	1 ft, 1 in.
Height	4 in.
Cube	1 cu ft
Weight	107 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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1 5/8-Inch x 2-Inch Pear-Shaped Detachable Link LK0183

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LINK, DETACHABLE, PEAR-SHAPED, 1 5/8”- 2” **ESSM NUMBER LK0183**

DESCRIPTION

The 1 5/8-Inch x 2-Inch Pear-Shaped Detachable Link LK0183 is used to connect anchor chain to the closed socket on a 1 5/8-inch wire rope. The link is equipped with a hair pin to prevent inadvertent disassembly during use.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Part number	82021-05010
Size	1 5/8" x 2"
Proof strength	324,000 lb
Breaking strength	488,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 3 in.
Width	11 in.
Height	3 in.
Cube	1 cu ft
Weight	60 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chain.

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1 3/8-Inch Bolt-Type Shackle SS0195

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SHACKLE, BOLT-TYPE, 1 3/8”, 24 TONS **ESSM NUMBER SS0195**

DESCRIPTION

SS0195 is a 1 3/8-Inch Bolt-Type Safety Shackle. The shackle bolt is secured using a 5/16-18 x 3 1/2" machine bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nut to the bolt with a cotter pin.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	1 3/8"
Working load	48,000 lb
Proof load	96,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	10 in.
Width	8 in.
Height	3 in.
Cube	1 cu ft
Weight	13 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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85-Ton Bolt-Type Shackle SS1084

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SHACKLE, BOLT-TYPE, 2 1/2”, 85-TON, GRADE B, TOWING **ESSM NUMBER SS1084**

DESCRIPTION

SS1084 is a 2 1/2-inch bolt-type safety shackle with a SWL of 85 tons. It is used to connect segments of wire rope to a stationary element on the towed vessel. The shackle bolt is secured using a 3/8-16 x 4" machine bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nut to the bolt with a cotter pin.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	2 1/2" shackle pin
Model	CE Safety Shackle
Capacity (SWL)	85 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	1 ft, 2 in.
Height	7 in.
Cube	1 cu ft
Weight	102 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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175-CFM PORTABLE AIR COMPRESSOR SYSTEM S01100

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Overview of 175-Cfm Air Compressor System

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AIR COMPRESSOR SYSTEM, PORTABLE, 175 CFM, 100 PSI **SYSTEM NUMBER S01100**

SYSTEM DESCRIPTION

The 175-Cfm Portable Air Compressor System S01100 consists of a diesel driven, skid-mounted air compressor; an ancillary set; and a spare parts kit. The air compressor provides up to 175 cfm compressed air at 100 psi for salvage operations. The ancillary set includes hoses, a hose repair kit, a manifold, and fittings.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Air Compressor, 175 cfm @ 100 psi, Diesel	AC0330	1
2. Ancillary Set, for AC0330 Air Compressor	AC0331	1
3. Spare Parts Kit, for AC0330 Air Compressor	AC0332	1

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175-Cfm Air Compressor AC0330



175-Cfm Air Compressor Controls and Gauges

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AIR COMPRESSOR, 175 CFM @ 100 PSI, DIESEL **ESSM NUMBER AC0330**

DESCRIPTION

The 175-Cfm Air Compressor AC0330 is a rotary screw-type air compressor driven by a three- cylinder diesel engine. The air compressor is rated at 175 cfm @ 100 psi discharge pressure. The engine and compressor assembly is enclosed in a skid-mounted, sound-insulated, steel enclosure surrounded by a steel frame. The base plate for the air compressor contains forklift pockets to facilitate handling. The fuel source for the compressor is an internally mounted 25-gallon tank.

SPECIFICATIONS

Air Compressor Assembly

Manufacturer	Ingersoll-Rand
Model	P-175-W-JD-U-GPC

Air Compressor

Manufacturer	Ingersoll-Rand
Model	36005890
Type	Rotary screw
No. rotors	2
Capacity	175 cfm
Rated pressure	100 psi
Operating range	70 to 115 psi
Safety valve setpoint	150 psi
Disch. temp. range	180° to 200° F

Engine

Manufacturer	John Deere
Model	3179D
Starting system	12-volt
Speed	
Full load	2500 rpm
No load	1400 rpm
Unloader range	110 to 115 psi
Fuel	Diesel
Fuel source	Internal 25-gal. tank
Fuel consumption	2 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	7 ft, 4 in.
Width	3 ft, 9 in.
Height	4 ft, 8 in.
Cube	129 cu ft
Weight	2632 lb

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AIR COMPRESSOR, 175 CFM, @ 100 PSI, DIESEL **ESSM NUMBER AC0330**

REFERENCES

1. Technical Manual for Low-Pressure Air Compressor, Ingersoll-Rand Model P-175-W-JD-U- GPC, S6220-EA-MMO-010.
2. Operating, Maintenance, and Parts Manual, Ingersoll-Rand, P/N 35380302.

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Ancillary Set AC0331

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ANCILLARY SET, FOR AIR COMPRESSOR AC0330 ESSM NUMBER AC0331

DESCRIPTION

The Ancillary Set AC0331 contains a manifold, hoses, toolbox, tools, and a manifold/hose repair kit to support one 175-Cfm Diesel Air Compressor AC0330. The horseshoe-shaped manifold is configured with two inlets and six outlets, each with an isolation valve. The manifold/ hose repair kit contains parts required to service and maintain the hoses and manifold.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	Qty
Ancillary set container, 56” x 37” x 23”:	1
Hose, 3/4" x 10’	2
Hose, 3/4" x 50’	4
Manifold, air, horseshoe-shaped	1
Hose repair kit	1
Clamps, hose, stainless steel	10
Clip, safety (bag of 25)	1
Coupling, air hose w/NPT ends	2
Coupling, Air King, blank ends	2
Coupling, Air King, w/hose ends	2
Washer, coupling repair, Air King	10
Lanyard, nylon (bag of 25)	1
Mender, hose, two-clamp	4
Plug, pipe, 3/4"	4
Valve, ball, 3/4"	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	4 ft, 8 in.
Width	3 ft, 1 in.
Height	1 ft, 11 in.
Cube	28 cu ft
Weight	450 lb

REFERENCES

None

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Spare Parts Kit AC0332

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SPARE PARTS KIT, FOR AC0330 AIR COMPRESSOR **ESSM NUMBER AC0332**

DESCRIPTION

The Spare Parts Kit AC0332 contains the items necessary to support the operation and maintenance of one 175-Cfm Air Compressor AC0330.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 28” x 27” x 19”:	1
Filter, engine oil	1
Filter, engine fuel	1
Element, fuel filter bowl	1
V-belt, engine fan	1
V-belt, engine water pump	1
Desiccant pack	1
Element, compressor air filter	2
Filter, compressor oil	1
Element, compressor oil/air separator	1
Fuse, 15-amp (box of 5)	1
Manifold assembly, submarine air hose	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 4 in.
Width	2 ft, 3 in.
Height	1 ft, 7 in.
Cube	8 cu ft
Weight	44 lb

REFERENCES

None

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600-CFM PORTABLE AIR COMPRESSOR
SYSTEM S01200

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Overview of 600-Cfm Air Compressor System

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AIR COMPRESSOR SYSTEM, PORTABLE, 600 CFM @ 100 PSI, DIESEL **SYSTEM NUMBER S01200**

SYSTEM DESCRIPTION

The 600-Cfm Portable Air Compressor System S01200 consists of a diesel driven air compressor, an ancillary set, and a spare parts kit. Two air compressors with similar specifications are available to allow the end user to meet on-site pressure and air flow requirements at up to 600 cfm and 100 psi. The system provides low pressure/moderate volume auxiliary air for salvage operations. The ancillary set includes hoses, a hose repair kit, a distribution manifold, and various fittings.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Air Compressor System		1*
a. Air Compressor, 600 cfm @ 100 psi, Diesel	AC0301	1
Ancillary Set, for AC0301 Air Compressor	AC0302	1
Spare Parts Kit, for AC0301 Air Compressor	AC0303	1
b. Air Compressor, 600 cfm @ 100 psi, Diesel	AC0317	1
Ancillary Set, for AC0317 Air Compressor	AC0318	1
Spare Parts Kit, for AC0317 Air Compressor	AC0319	1

* The Air Compressor System will be provided as either AC0301 or AC0317 with one Ancillary Set and Spare Parts Kit based upon inventory availability.

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600-Cfm @ 100-Psi Air Compressor AC0301

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AIR COMPRESSOR, 600 CFM @ 100 PSI, DIESEL — ESSM NUMBER AC0301

DESCRIPTION

The 600-Cfm Air Compressor AC0301 is an enclosed, skid-mounted, diesel driven, two-stage, rotary-type air compressor. The air compressor is equipped with a lifting ring, located at the center of the compressor enclosure, to facilitate handling. The air compressor can deliver up to 600 cfm at an operating pressure of 100 psi. The air compressor discharge piping has one, 2", 2-lug coupling, and two, 1", 2-lug couplings that are attached to hoses to transmit air to the end users.

SPECIFICATIONS

Air Compressor Assembly

Manufacturer	Ingersoll-Rand
Model	DR-600

Compressor

Manufacturer	Ingersoll-Rand
Model	DR-600
Type	Rotary vane two-stage
Op. pressure (rated)	100 psi
Delivery (actual)	600 cfm
Air connectors	One 2", 2-lug and two 1", 2-lug air connectors

Engine

Manufacturer	Detroit Diesel
Model	100-5001
Series	6-71 Diesel
Speed:	
Full load	1800 rpm
No load	800 rpm
Starting system	Hydraulic
Fuel	Diesel
Fuel source	Internal 90-gal. tank
Fuel consumption	13.5 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	14 ft, 7 in.
Width	6 ft, 5 in.
Height	7 ft, 8 in.
Cube	717.4 cu ft
Weight	6680 lb

REFERENCES

1. Gyro-Flo Instruction and Parts List Manual for Portable Air Compressor.

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Ancillary Set AC0302

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ANCILLARY SET, FOR AC0301 AIR COMPRESSOR — ESSM NUMBER AC0302

DESCRIPTION

The Ancillary Set AC0302 contains a manifold, hoses, and couplings to support one 600-cfm Air Compressor AC0301. The manifold is configured to attach to the compressor discharge, with four outlets, each with an isolation valve. The Ancillary Set contains parts and materials required to service and maintain the hoses and manifold.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	Qty
Container, storage, 65” x 49” x 52”:	1
Hose, air, 1” x 25’, with 1" boss clamp each end	4
Hose, air, 1” x 50’, with 2" boss clamp each end	4
Hose, air, 2” x 25’, with 2" boss clamp each end	2
Hose, air, 2” x 50’, with 1" boss clamp each end	2
Assembly, manifold	1
Container, Hose Repair Kit, 24” x 20” x 11”:	1
Clamp, boss, 4-bolt, 1” (#156)	8
Clamp, boss, 4-bolt, 2” (#275)	8
Coupler, air, female to male, NPT	16
Coupler, air, hose end	4
Coupler, Surelock, 2-lug, 2” (SL200F)	4
Coupler, Surelock, 2-lug, 2” (SL200M)	4
Hose mender, 2”	2
Lanyard, nylon (bag of 25)	1
Clip, safety	1
Washer, 1”	1
Washer, 2”	8
Mender, hose, 1”	4
Inventory, laminated	1

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ANCILLARY SET, FOR AC0301 AIR COMPRESSOR **ESSM NUMBER AC0302**

PHYSICAL CHARACTERISTICS

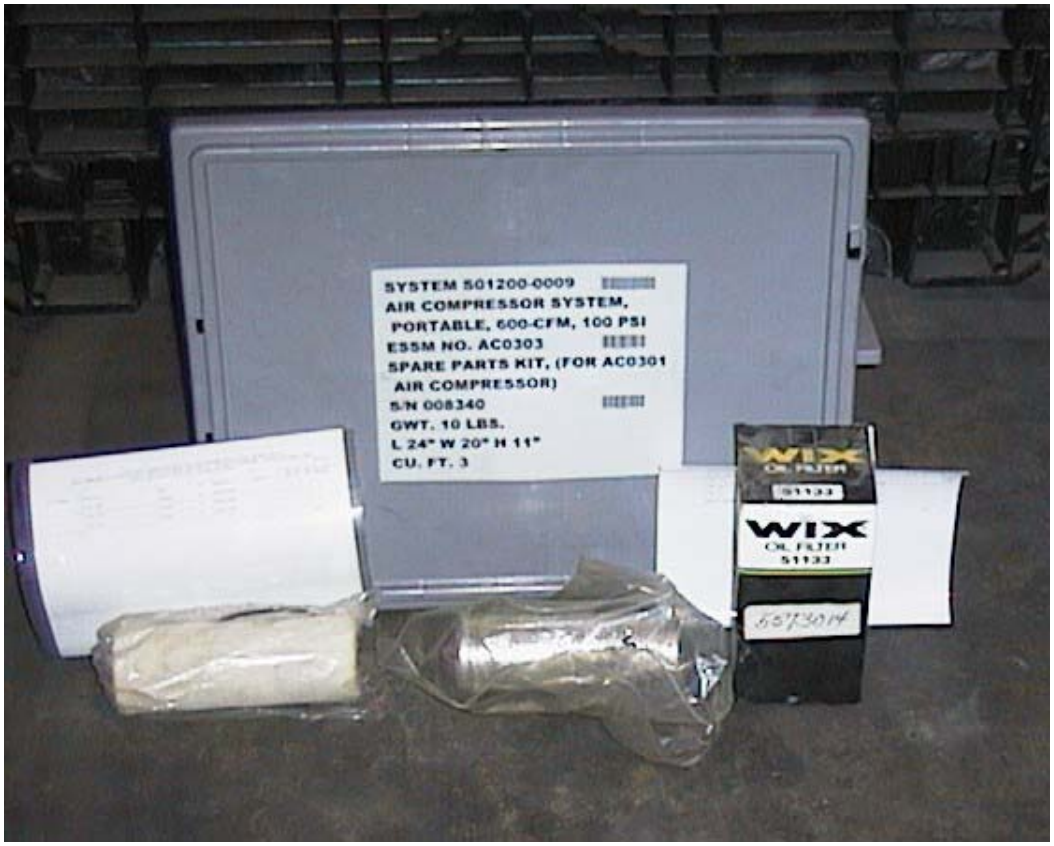
	Shipping
Length	5 ft, 5 in.
Width	4 ft, 1 in.
Height	4 ft, 4 in.
Cube	96 cu ft
Weight	908 lb

REFERENCES

None

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Spare Parts Kit AC0303

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SPARE PARTS KIT, FOR AC0301 AIR COMPRESSOR **ESSM NUMBER AC0303**

DESCRIPTION

The Spare Parts Kit AC0303 contains the items necessary to support the operation and maintenance of one 600-Cfm Air Compressor AC0301. The spare parts kit is stored and shipped in the Ancillary Set AC0302.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, Spare Parts Kit, 24” x 20” x 11”:	1
Filter, fuel, primary	1
Filter, fuel, secondary	1
Filter, engine oil	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 0 in.
Width	1 ft, 8 in.
Height	11 in.
Cube	3 cu ft
Weight	8 lb

REFERENCES

None

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600-Cfm @ 100-Psi Air Compressor AC0317

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AIR COMPRESSOR, 600 CFM @ 100 PSI, DIESEL **ESSM NUMBER AC0317**

DESCRIPTION

The 600-Cfm Air Compressor AC0317 is an enclosed, skid-mounted, diesel driven, single-stage, cyclonic-type air compressor. The air compressor is equipped with forklift slots in the compressor skid to facilitate handling. It can deliver up to 600 cfm at an operating pressure of 100 psi. The air compressor discharge piping has one 2", 2-lug coupling and three 1", 2-lug couplings that are attached to hoses to transmit air to the end users.

SPECIFICATIONS

Air Compressor Assembly

Manufacturer	Ingersoll-Rand
Model	HP-600

Compressor

Manufacturer	Ingersoll-Rand
Model	HP-600B-W-GM
Type	Single-stage cyclonical
Op. pressure (rated)	150 psi
Delivery (actual)	600 cfm @100 psi

Engine

Manufacturer	Detroit Diesel
Model	7063-7000
Series	6-53 Diesel
Speed:	
Full load	2200 rpm
No load	1200 rpm
Starting system	Hydraulic
Fuel	Diesel
Fuel source	Internal 120-gal. tank
Fuel consumption	12.5 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	16 ft, 8 in.
Width	8 ft
Height	7 ft, 9 in.
Cube	1033 cu ft
Weight	14,420 lb

REFERENCES

1. Operation and Maintenance Manual for Spiro-Flo 600-cfm Air Compressor.

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Ancillary Set AC0318

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ANCILLARY SET, FOR AC0317 AIR COMPRESSOR — ESSM NUMBER AC0318

DESCRIPTION

The Ancillary Set AC0318 contains a manifold, hoses, and couplings to support one 600-Cfm Air Compressor AC0317. The manifold is configured to attach to the compressor discharge with four outlets, each with an isolation valve. The Ancillary Set contains parts required to service and maintain the hoses and manifold.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	Qty
Container, Storage, 65” x 49” x 52”:	1
Hose, air, 1” x 25’, with 1" boss clamp each end	4
Hose, air, 1” x 50’, with 2" boss clamp each end	4
Hose, air, 2” x 25’, with 2" boss clamp each end	2
Hose, air, 2” x 50’, with 1" boss clamp each end	2
Assembly, manifold	1
Container, Hose Repair Kit, 24” x 20” x 10”:	1
Clamp, boss, 4-bolt (#15)	8
Clamp, boss, 4-bolt (#275)	8
Coupler, air, hose end	4
Coupler, Surelock, 2-lug (SL200F)	4
Mender, hose, 1”	4
Mender, hose, 2”	2
Lanyard, nylon (bag of 25)	1
Clip, safety	1
Washer, 1”	1
Washer, 2”	8
Inventory, laminated	1

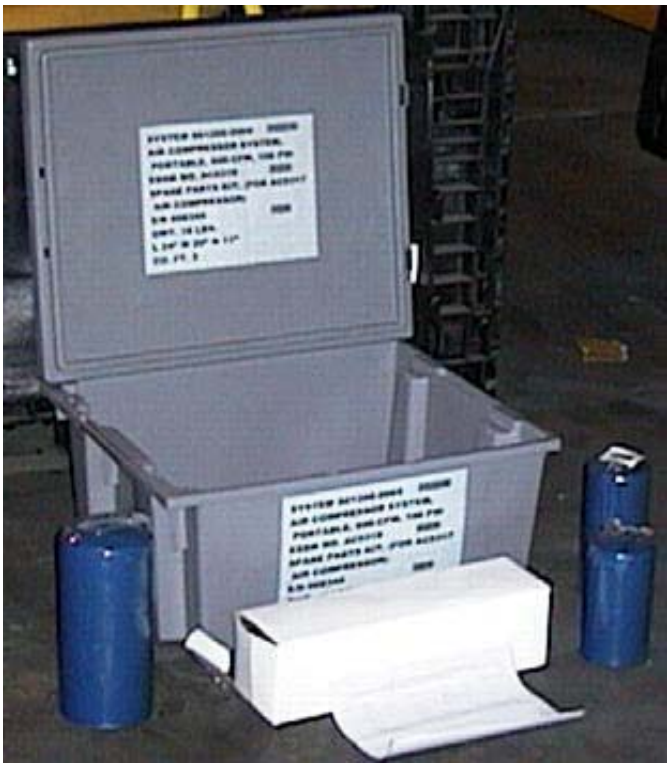
PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 5 in.
Width	4 ft, 1 in.
Height	4 ft, 4 in.
Cube	96 cu ft
Weight	912 lb

REFERENCES

None

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Spare Parts Kit AC0319

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SPARE PARTS KIT, FOR AC0317 AIR COMPRESSOR **ESSM NUMBER AC0319**

DESCRIPTION

The Spare Parts Kit AC0319 contains the items necessary to support the operation and maintenance of one 600-Cfm Air Compressor AC0317. The spare parts kit is stored and shipped inside the Ancillary Set AC0318 container.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, Spare Parts Kit, 24” x 20” x 10”:	1
Filter, fuel, primary	1
Filter, fuel, secondary	1
Filter, engine oil	1
Filter, coolant	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 0 in.
Width	1 ft, 8 in.
Height	10 in.
Volume	3 cu ft
Weight	18 lb

REFERENCES

None

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SUBMARINE SALVAGE HIGH PRESSURE AIR COMPRESSOR SYSTEM S01300

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Overview of Submarine Salvage Air Compressor System S01300

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AIR COMPRESSOR SYSTEM, HIGH PRESSURE, SUBMARINE SALVAGE **SYSTEM NUMBER S01300**

SYSTEM DESCRIPTION

The Submarine Salvage High Pressure Air Compressor System S01300 is a portable unit used to provide high pressure compressed air to dewater sunken vessels in up to 1000 feet of sea water. The system consists of an 1150-cfm @ 300/500-psi, skid-mounted, diesel driven air compressor and ancillary equipment which is stored in vans. The ancillary equipment consists of salvage air hoses, a fuel tank, an air delivery manifold, Roylyn air couplings, various fittings, gauges, tools, and a spare parts kit.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Air Compressor, 1150 cfm @ 300/500 psi:	AC0245	1
Spare Parts Kit for Air Compressor AC0245	AC0246	1
Roundsling Bridle, Polyester, 4-Leg (2-13’, 2-15’)	SL0401	1
2. Van, Ancillary for AC0245:	VA0245	1
Reel, Sub Salv Hose Assembly	RL0600	9
Fitting, 1 1/2" Swivel, Dixon (not shown)	FI0010	1/reel
Hose, 1 1/2" x 100', 500-psi, Synflex (Sub Salv) (not shown)	HS1984	3/reel
Hose, 1 1/2" x 200', 500-psi, Synflex (Sub Salv) (not shown)	HS1985	1/reel
Tool, Cap Removal, Submarine Salvage	TL1985	2
Quick Release Coupling Assembly	CU1982	2
Wrench for Salvage Deck Fitting	TL1983	2
Roundsling, Polyester, 16’	SL0012	4
3. Van, Air Compressor, Submarine Salvage (Hose Reels):	VA0246	1
Reel, Submarine Salvage Hose Assembly	RL0600	12
Fitting, 1 1/2" Swivel, Dixon (not shown)	FI0010	1/reel
Hose, 1 1/2" x 100', 500-psi, Synflex (Sub Salv) (not shown)	HS1984	3/reel
Hose, 1 1/2" x 200', 500-psi, Synflex (Sub Salv) (not shown)	HS1985	1/reel
Quick Release Coupling Assembly	CU1982	2
Roundsling, Polyester, 16’	SL0012	4
4. Fuel Tank, Diesel, 350-Gallon	TK0040	1

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Submarine Salvage Air Compressor AC0245

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AIR COMPRESSOR, 1150 CFM, 300/500 PSI, DIESEL (SUBMARINE SALVAGE) **ESSM NUMBER AC0245**

DESCRIPTION

The Submarine Salvage Air Compressor AC0245 is a diesel driven, two-stage, oil-flooded, rotary screw air compressor capable of delivering up to 1150 cfm at 300 or 500 psi. The air compressor and engine assembly is skid-mounted and enclosed in a steel frame equipped with forklift slots and lifting rings to facilitate handling.

SPECIFICATIONS

Compressor Assembly

Manufacturer	Hurricane Compressors
Model	10081

Compressor

Manufacturer	Sullair
Model	1150/300/500
Type	Rotary screw
Rated capacity	1150 cfm
Operating pressure	300/500 psi

Engine

Manufacturer	Caterpillar
Model	CAT 3456E
Rated speed	1800 rpm
Idle speed	1400 rpm
Horsepower	607
Starting system	24 V dc
Fuel	Diesel
Fuel source	External fuel tank
Fuel consumption	12.5 gph

SPECIFICATIONS

	Operating/Shipping
Length	14 ft, 1 in.
Width	7 ft, 4 in.
Height	7 ft, 6 in.
Cube	775 cu ft
Weight	16,300 lb

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AIR COMPRESSOR, 1150 CFM, 300/500 PSI, DIESEL (SUBMARINE SALVAGE) **ESSM NUMBER AC0245**

REFERENCES

1. Caterpillar Operation and Maintenance Manual, 3406E and 3456 Industrial Engines, SEBU6959-02.
2. Caterpillar Parts Manual, 3456 Industrial Engine, SEBP2839-01.
3. Hurricane Compressors, Rotary Screw Air Compressor, 1150 CFM/300/500 PSIG Submarine Salvage, Operation and Maintenance Manual, Model #10081.

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Spare Parts Kit AC0246

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SPARE PARTS KIT, FOR AC0245 **ESSM NUMBER AC0246**

DESCRIPTION

The Spare Parts Kit AC0246 contains the items necessary to support the operation and maintenance of one Submarine Salvage Air Compressor AC0245.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts, 24” x 16” x 13”:	1
Belt, alternator	1
Belt, water pump	1
Element, fuel-water separator	1
Element, high pressure filter, 2”	1
Element, Sullair moisture separator	1
Filter, fuel, primary	1
Filter, fuel, secondary	1
Filter, engine oil	1
Fuse, 10-amp	3
Fuse, 15-amp	3
Light bulb, incandescent	10
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 0 in.
Width	1 ft, 4 in.
Height	1 ft, 1 in.
Volume	2.8 cu ft
Weight	28 lb

REFERENCES

None

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Roundsling Bridle SL0401

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG (2-13', 2-15') — ESSM NUMBER SL0401

DESCRIPTION

The Polyester Roundsling Bridle SL0401 is designed specifically for handling the Submarine Salvage Air Compressor AC0245 in an under-the-hook configuration using a crane. The lifting assembly has unequal length legs to keep the compressor level during lifting. The bridle is equipped with four screw pin shackles and is shipped with the air compressor. .

SPECIFICATIONS

Sling		Shackle	
Manufacturer	Flexilift	Manufacturer	Commercial
Model	FC1550	Shackle type	Screw pin shackle
Vertical SWL	36,700 lb	Size	1 1/4"
Leg length	2 legs, 13' long 2 legs, 15' long	Working load limit	18 tons
Central lifting ring	1 3/4" oblong		

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length (operating)	14 ft, 0 in.
Cube (coiled for shipping)	4 cu ft
Weight	84 lb

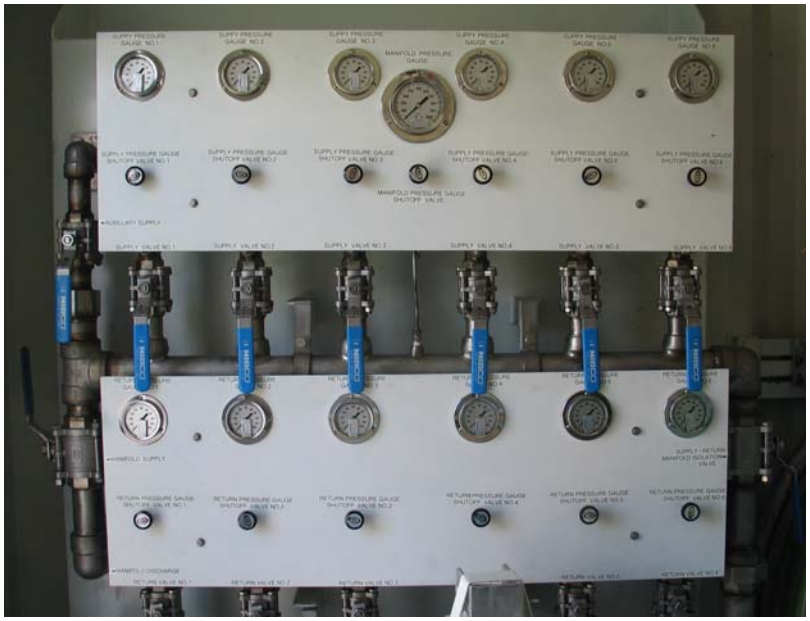
REFERENCES

1. Lift-All 1998 Catalog.

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Submarine Salvage Air Compressor System Van VA0245



High Pressure Submarine Salvage Air Manifold

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VAN, AIR COMPRESSOR SYSTEM, SUBMARINE SALVAGE, ANCILLARY FOR AC0245 **ESSM NUMBER VA0245**

DESCRIPTION

The Air Compressor System Van VA0245 is used for storing and shipping the ancillary equipment for the Air Compressor System S01300 when the 1150-Cfm Air Compressor (AC0245) is the designated air compressor. The van contains a high pressure air manifold to control the supply and return air to the vessel being salvaged and the tools required to maintain and operate the Air Compressor System.

SPECIFICATIONS

The following items are also stored in the van:

Item	ESSM Number	Qty
Reel, Submarine Salvage Hose Assembly	RL0600	9
Hose, 1 1/2" x 100', 500-psi, Synflex	HS1984	3/reel
Hose, 1 1/2" x 200', 500-psi, Synflex	HS1985	1/reel
Quick Release Coupling Assembly	CU1982	2
Tool, Cap Removal, Submarine Salvage	TL1983	2
Wrench for Salvage Deck Fitting	TL1985	2
Roundsling, Polyester, 16’	SL0012	4
Block, contacts (KA1, KA2, and KA3)		1
Element, coolant cartridge		1
Element, Sullair moisture separator		1
Element, primary and safety air cleaner		2
Relay, manual reset		1
Repair kit, back pressure regulator and blowdown valve		1
Repair kit, differential pressure regulating valve		1
Repair kit, solenoid valve		1
Repair kit, separator element		1
Repair kit, shaft seal		1
Repair kit, thermostatic valve		1
Switch, time delay		1
Inventory, laminated		1

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VAN, AIR COMPRESSOR SYSTEM, SUBMARINE SALVAGE, ANCILLARY FOR AC0245 **ESSM NUMBER VA0245**

PHYSICAL CHARACTERISTICS

	Operating/Shipping	Operating/Shipping (S/N 9010795 only)
Length	20 ft, 0 in.	20 ft, 0 in.
Width	8 ft, 0 in.	8 ft, 0 in.
Height	8 ft, 0 in.	8 ft, 6 in.
Cube	1360 cu ft	1280 cu ft
Weight	12,460 lb	11,620 lb

REFERENCES

None

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Submarine Salvage Hose Assembly Reel RL0600

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REEL, SUBMARINE SALVAGE HOSE ASSEMBLY — ESSM NUMBER RL0600

DESCRIPTION

The Hose Assembly Reel RL0600 contains 1 1/2-inch Synflex salvage air hose assemblies. Each hose reel is configured to hold one 200-foot and three 100-foot air hoses with end and swivel fittings. Hose reel assemblies are stored in the Air Compressor System Ancillary Vans VA0245 (9 reels), and the Hose Reel Van VA0246 (12 reels).

SPECIFICATIONS

Item	ESSM Number	Qty
Reel, Submarine Salvage Hose Assembly	RL0600	1
Hose, 1 1/2" x 200', 500 psi, Synflex, Submarine Salvage	HS1985	1
Hose, 1 1/2" x 100', 500 psi, Synflex, Submarine Salvage	HS1984	3
Fitting, 1 1/2” Swivel, Dixon	FI0010	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	4 ft, 5 in.
Width	2 ft, 3 in.
Weight	494 lb
Cube	47 cu ft

REFERENCES

None

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Quick Release Coupling CU1982

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QUICK RELEASE COUPLING ASSEMBLY **ESSM NUMBER CU1982**

DESCRIPTION

The Quick Release Coupling CU1982 is used to connect one end of a salvage air hose to a submarine salvage air fitting.

SPECIFICATIONS

Hose size	1 1/2"
Hose fitting size	1 1/4"
Connection	National Pipe (NP) mechanical seal

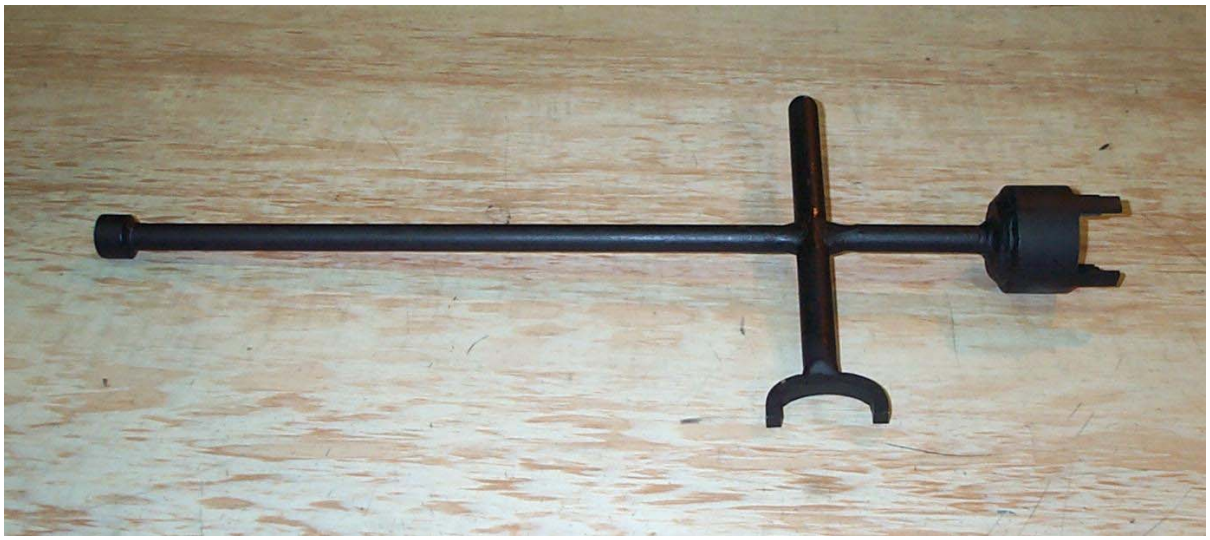
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 in.
Width	7 in. (includes two ears, 180° apart)
Height	3 in.
Cube	1 cu ft
Weight	4 lb

REFERENCES

None

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Salvage Deck Fitting Wrench TL1983

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WRENCH FOR SALVAGE DECK FITTING **ESSM NUMBER TL1983**

DESCRIPTION

The Salvage Deck Fitting Wrench TL1985 is used to provide access to the submarine hull-mounted salvage air fitting during connection of the salvage air hose. It is designed as a combination tool to allow the diver to remove the salvage air connection cap, connect the salvage air hose, and operate the salvage air hull inlet valve. Two salvage deck fitting wrenches are stored in each of the Submarine Salvage Support Vans (VA0245 and VA0246).

SPECIFICATIONS

None

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 4 in.
Width	12 in.
Height	4 in.
Cube	1 cu ft
Weight	7 lb

REFERENCES

1. U.S. Navy Ship Salvage Manual, Volume II, Submarine Salvage, NAVSHIPS 0994-000-3020.

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Submarine Roylyn Cap Removal Tool TL1985

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TOOL, CAP REMOVAL, SUBMARINE SALVAGE — ESSM NUMBER TL1985

DESCRIPTION

The Roylyn Cap Removal Tool TL1983 is used to operate the submarine hull-mounted salvage air fitting valves to allow supply of high pressure air to the high and low salvage deck connections during submarine salvage operations. Two cap removal tools are stored in each of the Submarine Salvage Support Vans (VA0245 andVA0246).

SPECIFICATIONS

Manufacturer	Roylyn
Part Number	0160-0003

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Height	7 in.
Width	8 in. (includes two ears, 180° apart)
Diameter (wrench body)	3 in.
Cube	1 cu ft
Weight	5 lb

REFERENCES

1. U.S. Navy Ship Salvage Manual, Volume II, Submarine Salvage, NAVSHIPS 0994-000-3020.

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Submarine Salvage Air Compressor System Van VA0246

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VAN, AIR COMPRESSOR SYSTEM, SUBMARINE SALVAGE (HOSE REELS) **ESSM NUMBER VA0246**

DESCRIPTION

The Submarine Salvage Air Compressor System Van VA0246 is used for storing and shipping the salvage air hoses on storage reels required for use with the salvage air compressors.

SPECIFICATIONS

The following items are also stored in the van:

Item	ESSM Number	Qty
Reel, Sub Salv Hose Assembly	RL0600	12
Hose, 1 1/2" x 100', 500-psi, Synflex	HS1984	3/reel
Hose, 1 1/2" x 200', 500-psi, Synflex	HS1985	1/reel
Roundsling, Polyester, 16’	SL0012	4

PHYSICAL CHARACTERISTICS

	Operating/Shipping	Operating/Shipping (S/N 7175517 only)
Length	20 ft, 0 in.	20 ft, 0 in.
Width	8 ft, 0 in.	8 ft, 0 in.
Height	8 ft, 0 in.	8 ft, 6 in.
Cube	1360 cu ft	1280 cu ft
Weight	11,560 lb	11,560 lb

REFERENCES

None

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16’ Polyester Roundslings SL0012

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ROUNDSLING, POLYESTER, 16' **ESSM NUMBER SL0012**

DESCRIPTION

The 16' Polyester Roundsling SL0012 is an endless synthetic sling made from a skein (continuous loop or hank) of polyester yarn covered by a double-wall tubular jacket. Each sling is supplied with a 1" screw pin-type shackle. Four 16' Polyester Roundslings are used for lifting the van to which they are assigned.

SPECIFICATIONS

Sling		Shackle	
Manufacturer	Lift-All	Manufacturer	Crosby
Model	EN240	Part number	G-209-A
Vertical SWL	21,200 lb	Size	1 in.
Choker SWL	17,000 lb	Working load limit	25,000 lb
Basket SWL	42,400 lb		
Overall length	16 ft, 0 in.		

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length (operating)	16 ft, 0 in.
Cube (coiled for shipping)	4 cu ft
Weight	18 lb

REFERENCES

1. Lift-All 1998 Catalog.

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350-Gallon Diesel Fuel Tank TK0040

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TANK, DIESEL FUEL, 350-GALLON **ESSM NUMBER TK0040**

DESCRIPTION

The 350-Gallon Diesel Fuel Tank TK0040 is a portable, stainless steel container used to provide No. 2 diesel fuel to high flow components such as air compressors and fire fighting systems. The tank is equipped with four lifting pad eyes at the top and forklift slots at the base to facilitate handling. A tank opening with a cap is provided for filling and for attachment of a fuel pickup and return assembly. A ball valve, located on the bottom of the tank, is used to drain fuel from the tank.

SPECIFICATIONS

Manufacturer	Hoover Materials Handling Group
Design pressure	9.5 psi
Material	Stainless steel
Capacity	350 gallons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 2 in.
Width	3 ft, 6 in.
Height	4 ft, 6 in.
Cube	69 cu ft
Weight (empty)	473 lb
Weight (full)	3033 lb

REFERENCES

None

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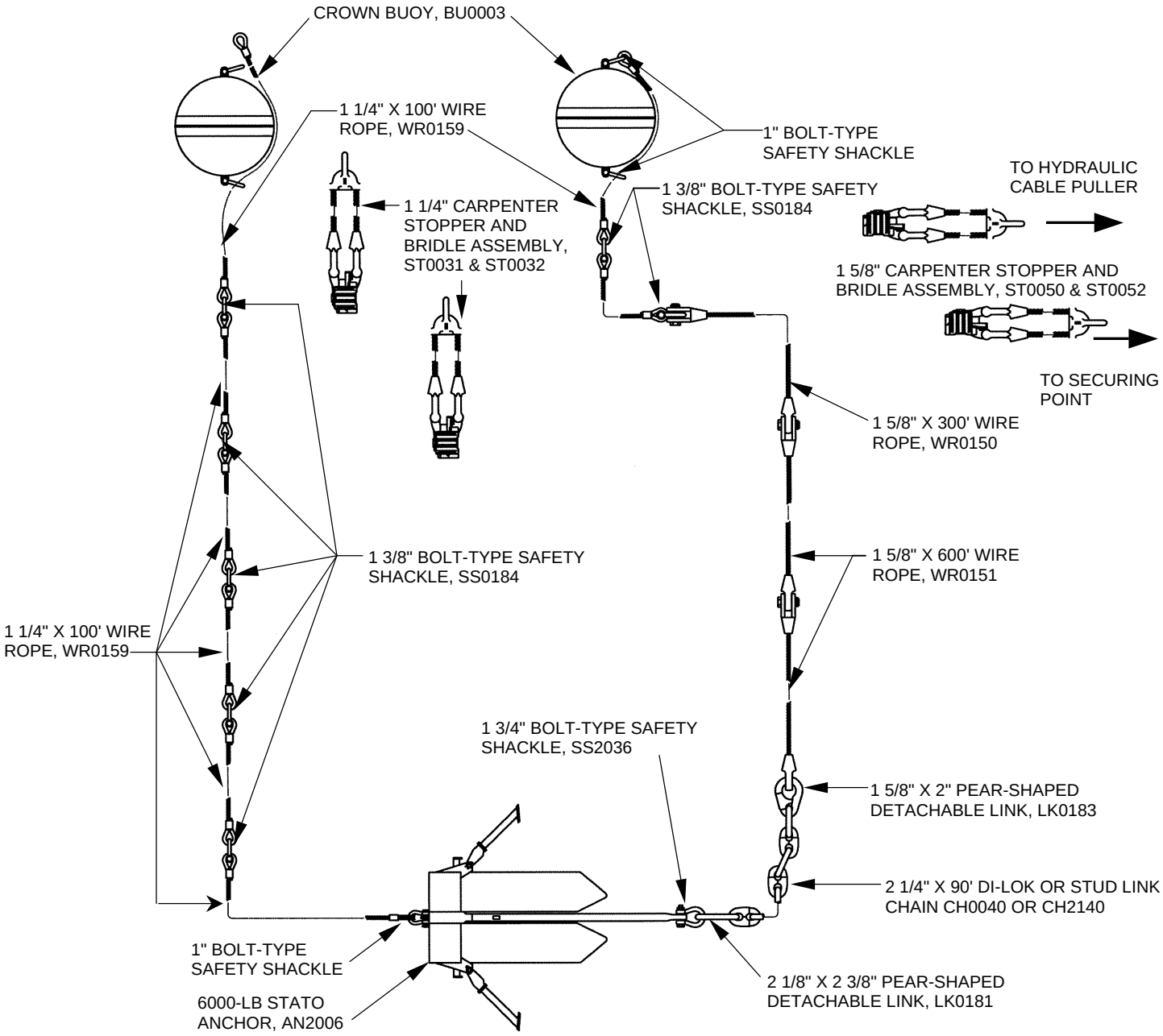
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BEACH GEAR SYSTEM S05100

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Beach Gear System S05100 Overview

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BEACH GEAR SYSTEM **SYSTEM NUMBER S05100**

SYSTEM DESCRIPTION

The Beach Gear System S05100 provides the anchoring point for use with the Hydraulic Cable Puller System S17100. The Beach Gear System consists of an anchor, buoys, anchor chain, wire rope, carpenter stoppers, rigging, and wire baskets for shipping. The holding power of the system depends upon the type of anchor supplied. This system is also used in conjunction with the 4-Point Mooring System DS0200.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Anchor*		1
a. Eells, 8000#, Wide Shank	AN0001	
b. Stato, 6000#, Folding Lightweight Stabilizers	AN2006	
c. Stato, 6000#, Folding Heavy Duty Stabilizers	AN2036	
2. Container, Beach Gear Ground Leg #1:	BG0100	1
Buoy, Crown, 42” diameter	BU0003	2
Link, Detachable, Pear-Shaped, 2 1/8” - 2 3/8 “	LK0181	1
Link, Detachable, Pear-Shaped, 1 5/8” - 2”	LK0183	1
Shackle, Bolt-Type, 1 3/8”, 13.5 Tons	SS0184	7
Shackle, Bolt-Type, 1 3/4”	SS2036	1
Stopper, Carpenter, 1 1/4”	ST0031	2
Bridle, Wire Rope, 1 1/4” Carpenter Stopper	ST0032	2
Stopper, Carpenter, 1 5/8”	ST0050	2
Bridle, Wire Rope, 1 5/8” Carpenter Stopper	ST0052	2
3. Container, Beach Gear Ground Leg #2*	BG0101	1
a. Chain, Di-Lok, 2 1/4” x 90” (Primary)	CH0040	
b. Chain, Stud Link, 2 1/4” x 90” (Alternate)	CH2140	
4. Wire Rope,1 5/8” x 300”	WR0150	1
5. Wire Rope, 1 5/8” x 600”	WR0151	2
6. Wire Rope, 1 1/4” x 100” (four sections per reel)	WR0159	2

*****The particular anchor and anchor chain provided for a task is based upon job requirements and inventory availability.

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8000-Lb Eells Anchor AN0001

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ANCHOR, EELLS, 8000# WIDE SHANK **ESSM NUMBER AN0001**

DESCRIPTION

The 8000-Lb Eells Anchor AN0001 is used for fleet mooring and with the Beach Gear System.

SPECIFICATIONS

Manufacturer	U.S. Navy Design
Type	Eells (8200-lb, Wide Shank)

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	10 ft, 10 in.
Width	6 ft, 4 in.
Height	3 ft, 6 in.
Cube	260 cu ft
Weight	8200 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chains.

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6000-Lb Stato Anchor with Folding Lightweight Stabilizers AN2006

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ANCHOR, STATO, 6000#, WITH FOLDING LIGHTWEIGHT STABILIZERS **ESSM NUMBER AN2006**

DESCRIPTION

The 6000-Lb Stato Anchor with Folding Lightweight Stabilizers AN2006 is a high efficiency anchor used for fleet moorings and with the Beach Gear Ground Leg System.

SPECIFICATIONS

Manufacturer	U.S. Navy Design
Drawing	5616223
Type	Stato (6000-lb)

PHYSICAL CHARACTERISTICS

	Shipping	Operating
Length	14 ft, 0 in.	14 ft, 0 in.
Width	6 ft, 10 in.	17 ft, 3 in.
Height	3 ft, 11 in.	3 ft, 11 in.
Cube	375 cu ft	965 cu ft
Weight	6200 lb	6200 lb

REFERENCES

1. NAVSEA Dwg. 5616223.

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6000-Lb Stato Anchor with Folding Heavy Duty Stabilizers AN2036

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ANCHOR, STATO, 6000# FOLDING HEAVY DUTY STABILIZERS **ESSM NUMBER AN2036**

DESCRIPTION

The 6000-Lb Stato Anchor with Folding Heavy Duty Stabilizers AN2036 is a high efficiency anchor used for fleet moorings and with the Beach Gear Ground Leg System.

SPECIFICATIONS

Manufacturer	U.S. Navy Design
Drawing	5616223
Type	6000-lb Stato

PHYSICAL CHARACTERISTICS

	Shipping	Operating
Length	14 ft, 0 in.	14 ft, 0 in.
Width	5 ft, 8 in.	17 ft, 6 in.
Height	3 ft, 11 in.	3 ft, 11 in.
Cube	311 cu ft	980 cu ft
Weight	6000 lb	6000 lb

REFERENCES

1. NAVSEA Dwg. 5616223.

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Beach Gear Ground Leg Container #1 BG0100

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CONTAINER, BEACH GEAR GROUND LEG #1 — ESSM NUMBER BG0100

DESCRIPTION

The Beach Gear Ground Leg Container #1 BG0100 is a hot-dipped, galvanized, wire mesh container used for the storage and shipping of the Beach Gear Ground Leg components.

SPECIFICATIONS

The following material is contained in the Beach Gear Ground Leg Container #1:

Item	ESSM Number	Qty
Buoy, Crown, 42” Diameter	BU0003	2
Link, Detachable, Pear-Shaped, 2 1/8” - 2 3/8”	LK0181	1
Link, Detachable, Pear-Shaped, 1 5/8” - 2”	LK0183	1
Stopper, Carpenter, 1 1/4"	ST0031	2
Bridle, Wire Rope, 1 1/4" Carpenter Stopper	ST0032	2
Stopper, Carpenter, 1 5/8”	ST0050	2
Bridle, Wire Rope, 1 5/8” Carpenter Stopper	ST0052	2
Shackle, Bolt-Type, 1 3/8”, 13.5 Tons	SS0184	7
Shackle, Bolt-Type, 1 3/4"	SS2036	1
Spare Parts Kit, 11” x 4” x 8”:		1
Shackle, Safety, 1"		4
Cotter pin, 1/4" x 2 1/4"		8
Cotter pin, 1/4" x 2"		5
Cotter pin, 5/16" x 3"		2
Cotter pin, 7/16" x 6"		3
Plug, lead, 1 5/8"		2
Plug, lead, 2 1/4"		2

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	53 cu ft
Empty Weight	420 lb
Shipping Weight	1916 lb

REFERENCES

None

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42” Diameter Crown Buoy BU0003

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BUOY, CROWN, 42” DIAMETER **ESSM NUMBER BU0003**

DESCRIPTION

The Crown Buoy BU0003 is a 42-inch diameter, steel, spherical buoy used to mark the location of the anchor and its retrieving wire rope.

SPECIFICATIONS

Manufacturer	Commercial
Material	Steel
Buoyancy	927 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	42”
Cube	22 cu ft
Weight	150 lb

REFERENCES

1. None

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2 1/8” x 2 3/8” Pear-Shaped Detachable Link LK0181

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LINK, DETACHABLE, PEAR-SHAPED, 2 1/8” - 2 3/8” ESSM NUMBER LK0181

DESCRIPTION

The Pear-Shaped Detachable Link LK0181 is used to connect 2 1/4-inch chain to an anchor.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Part number	82021-06010
Size	2 1/8" x 2 3/8"
Proof Strength	447,000 lb
Breaking Strength	675,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	1 ft, 1 in.
Height	4 in.
Cube	1 cu ft
Weight	107 lb

REFERENCES

1. Baldt Catalog #30 for Anchor and Chains.

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1 5/8” x 2” Pear-Shaped Detachable Link LK0183

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LINK, DETACHABLE, PEAR-SHAPED, 1 5/8” - 2” **ESSM NUMBER LK0183**

DESCRIPTION

The Pear-Shaped Detachable Link LK0183 is used to connect anchor chain to a closed socket on 1 5/8-inch wire rope.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Part number	82021-05010
Size	1 5/8" x 2"
Proof Strength	322,000 lb
Breaking Strength	488,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 3 in.
Width	11 in.
Height	3 in.
Cube	1 cu ft
Weight	60 lb

REFERENCES

1. Baldt Catalog #30 for Anchor and Chains.

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1 3/8” Bolt-Type Shackle SS0184

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SHACKLE, BOLT-TYPE, 1 3/8”, 13.5 TONS **ESSM NUMBER SS0184**

DESCRIPTION

SS0184 is a 1 3/8-inch bolt-type safety shackle.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	1 3/8"
Working load	27,000 lb
Proof load	59,400 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	10 in.
Width	8 in.
Height	3 in.
Cube	1 cu ft
Weight	13 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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1 3/4" Bolt-Type Shackle SS2036

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SHACKLE, BOLT-TYPE, 1 3/4” **ESSM NUMBER SS2036**

DESCRIPTION

SS2036 is a 1 3/4-inch bolt-type safety shackle.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	1 3/4"
Working load	50,000 lb
Proof load	110,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 0 in.
Width	10 in.
Height	4 in.
Cube	1 cu ft
Weight	30 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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1 1/4" Carpenter Stopper ST0031

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CARPENTER STOPPER, 1 1/4” **ESSM NUMBER ST0031**

DESCRIPTION

The 1 1/4-Inch Carpenter Stopper ST0031 is a portable device capable of gripping a 1 1/4-inch wire rope at any point along the wire. The stopper is designed to grip, hold, and pull the wire rope up to its breaking strength. Under normal circumstances the carpenter stopper is repeatedly engaged and loaded at up to 60% of the wire rope's breaking strength without damaging the wire rope or slipping. The carpenter stopper is secured to a pad eye or other restraining point with a wire rope bridle.

SPECIFICATIONS

Manufacturer	U.S. Navy Design
Drawing	6357435
Size	1 1/4"
Proof load	83,280 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 2 in.
Width	9 in.
Height	6 in.
Cube	1 cu ft
Weight	54 lb

REFERENCES

1. Operation and Maintenance Instruction, Carpenter Stopper, NAVSHIPS, 0994-LP-0004-8010.
2. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-000-3010.
3. NAVSEA Dwg. 6357435.

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1 1/4” Wire Rope Bridle ST0032

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BRIDLE, WIRE ROPE, 1 1/4” CARPENTER STOPPER **ESSM NUMBER ST0032**

DESCRIPTION

The Wire Rope Bridle ST0032 is used to secure the 1 1/4-Inch Carpenter Stopper to a pad eye or other restraining point.

SPECIFICATIONS

Manufacturer	U.S. Navy Design
Size	1 1/4" wire rope
Drawing	NAVSEA 6357439
End Connections	Open sockets each end

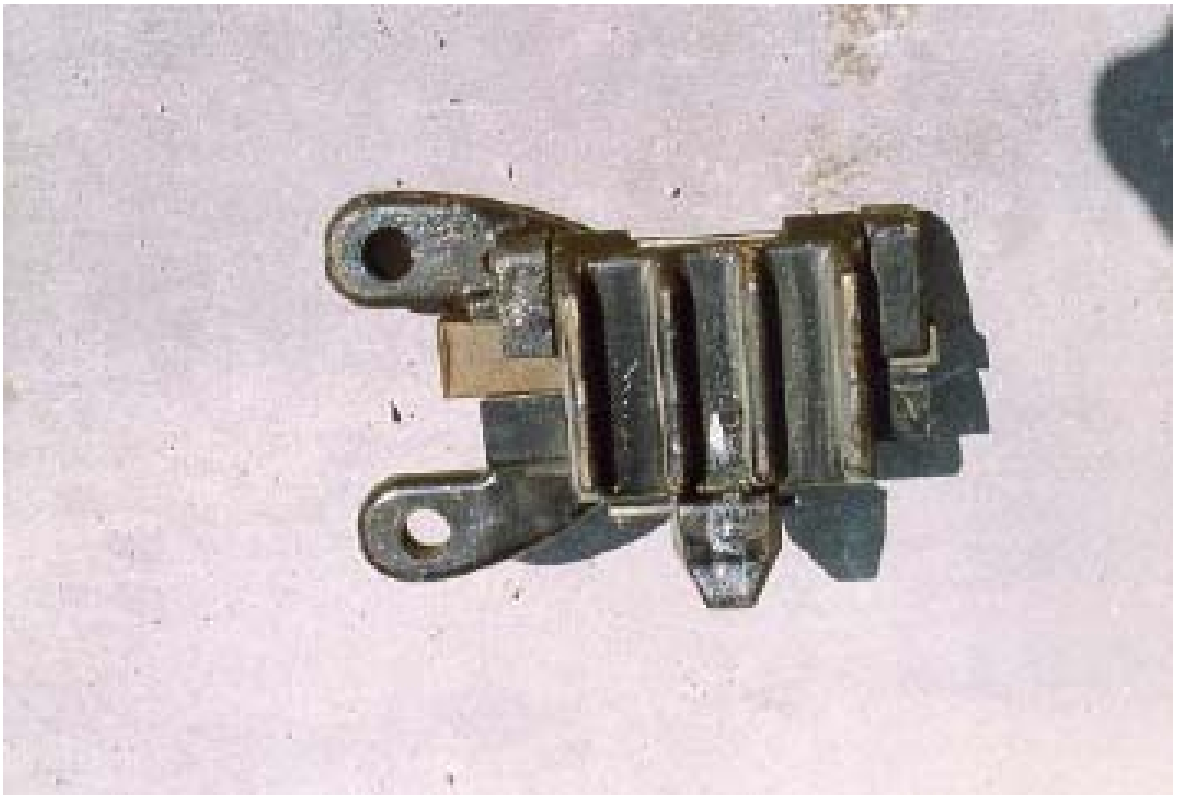
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 4 in.
Width	9 in.
Height	6 in.
Cube	1.5 cu ft
Weight	60 lb

REFERENCES

1. Operation and Maintenance Instruction, Carpenter Stopper, NAVSHIPS, 0994-LP-0004-8010.
2. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-000-3010.
3. NAVSEA Dwg. 6357439.

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1 5/8” Carpenter Stopper ST0050

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CARPENTER STOPPER, 1 5/8” **ESSM NUMBER ST0050**

DESCRIPTION

The 1 5/8-Inch Carpenter Stopper ST0050 is a portable device capable of gripping a 1 5/8-inch wire rope at any point along the wire. The stopper is designed to grip, hold, and pull the wire rope up to its breaking strength. Under normal circumstances the carpenter stopper is repeatedly engaged and loaded at up to 60% of the wire rope's breaking strength without damaging the wire rope or slipping. The carpenter stopper is secured to a pad eye or other restraining point with a wire rope bridle.

SPECIFICATIONS

Manufacturer	U.S. Navy Design
Size	1 5/8" wire rope
Drawing	NAVSEA 6525440
Proof Load	138,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 7 in.
Width	1 ft, 1 in.
Height	9 in.
Cube	1 cu ft
Weight	150 lb

REFERENCES

1. Operation and Maintenance Instruction, Carpenter Stopper, NAVSHIPS, 0994-LP-0004-8010.
2. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-000-3010.
3. NAVSEA Dwg. 6525440.

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1 5/8" Wire Rope Bridle ST0052

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BRIDLE, WIRE ROPE, 1 5/8” CARPENTER STOPPER **ESSM NUMBER ST0052**

DESCRIPTION

The Wire Rope Bridle ST0050 is used to secure the 1 5/8-Inch Carpenter Stopper to a pad eye or other restraining point.

SPECIFICATIONS

Manufacturer	U.S. Navy Design
Size	1 5/8" wire rope
Drawing	NAVSEA 6525444
End Connections	Open sockets each end

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 4 in.
Width	10 in.
Height	5 in.
Cube	1.5 cu ft
Weight	150 lb

REFERENCES

1. Operation and Maintenance Instruction, Carpenter Stopper, NAVSHIPS 0994-LP-0004-8010.
2. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-000-3010.
3. NAVSEA Dwg. 6525444.

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Beach Gear Ground Leg Container #2 BG0101



2 1/4" Di-Lok Chain CH0040



2 1/4" Stud Link Chain CH2140

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CONTAINER, BEACH GEAR GROUND LEG #2 **ESSM NUMBER BG0101**

DESCRIPTION

The Beach Gear Ground Leg Container #2 BG0101 is a hot-dipped, galvanized wire mesh container used for storage and shipping of the Beach Gear Ground Leg System mooring chain.

SPECIFICATIONS

The Beach Gear Ground Leg Container #2 contains one of the following anchor chains, based upon inventory availability:

	Chain, Di-Lok, 2 1/4" x 90'` CH0040	Chain, Stud Link, 2 1/4" x 90' CH2140
Manufacturer	Baldt or equivalent	Baldt or equivalent
Model	Type I	Type II
Size	2 1/4"	2 1/4"
Weight	4460 lb	4460 lb
Length	15 fathoms (90')	15 fathoms (90’)
Proof strength	403,600 lb	198,500 lb
Breaking strength	610,000 lb	284,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	53 cu ft
Empty Weight	420 lb
Shipping Weight	5034 lb

REFERENCES

1. Baldt Catalog #30 for Anchor and Chain.

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1 5/8" x 300' Wire Rope WR0150

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WIRE ROPE, 1 5/8” X 300' **ESSM NUMBER WR0150**

DESCRIPTION

The 1 5/8-Inch Wire Rope WR0150 is used in applications that require a high strength, flexible connection for towing, mooring and other applications. Each length of wire rope has a spelter socket on each end; one closed, the other open. The wire rope is stored on a steel reel.

SPECIFICATIONS

Length	300’
Diameter	1 5/8”
Construction	6x19 or 7x37 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Open socket one end, closed socket one end
Wire coating	Galvanized wire

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 9 in
Cube	60 cu ft
Weight	2328 lb

REFERENCES

1. NAVSEA Dwg. 7022667.

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1 5/8" x 600' Wire Rope WR0151

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WIRE ROPE, 1 5/8” X 600’ **ESSM NUMBER WR0151**

DESCRIPTION

The 1 5/8-Inch Wire Rope WR0151 is used in applications that require a high strength, flexible connection for towing, mooring and other applications. Each length of wire rope has a spelter socket on each end; one closed, the other open. The wire rope is stored on a steel reel.

SPECIFICATIONS

Length	600’
Diameter	1 5/8”
Construction	6x19 or 7x37 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Open socket one end, closed socket one end
Wire coating	Galvanized wire

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 9 in.
Cube	60 cu ft
Weight	3370 lb

REFERENCES

1. NAVSEA Dwg. 6648809.

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1 1/4" x 100' Wire Rope WR0159

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WIRE ROPE, 1 1/4” X 100’ **ESSM NUMBER WR0159**

DESCRIPTION

The 1 1/4-Inch Wire Rope WR0159 is used in applications that require a high strength, flexible connection for towing, mooring, attachment of crown buoys, as a retrieval wire, and in other applications. Each wire rope reel contains four 100-foot lengths of 1 1/4-inch wire rope.

SPECIFICATIONS

Length	100’, 4 sections per reel
Diameter	1 1/4"
Construction	6x19 or 7x37 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Hard eyes, each end
Wire coating	Galvanized wire

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	4 ft, 0 in.
Height	3 ft, 9 in.
Cube	60 cu ft
Weight	2080 lb

REFERENCES

1. NAVSEA Dwg. 6648809.

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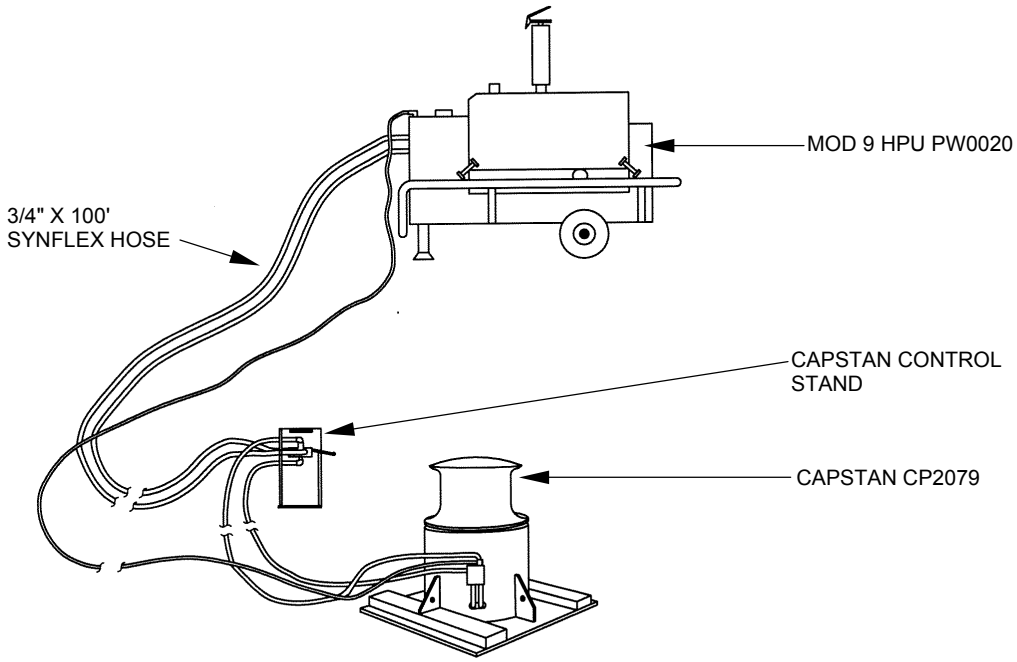
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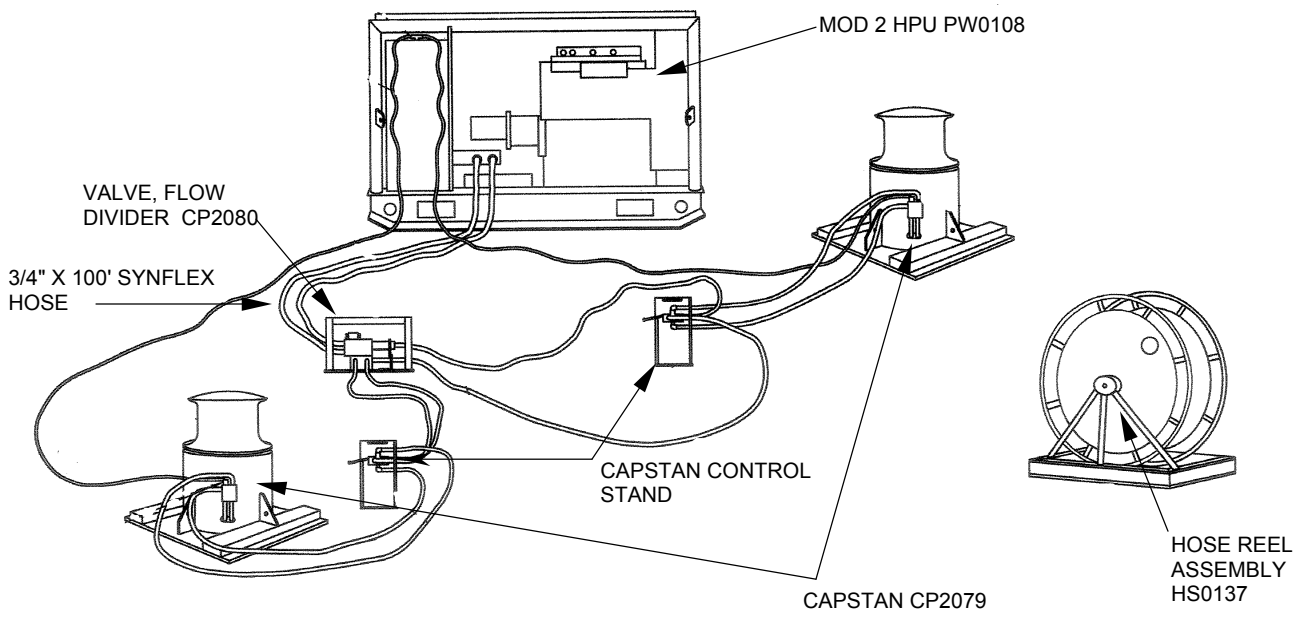
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PORTABLE DECK CAPSTAN SYSTEM S07100

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Capstan System S07100, in One-Capstan Configuration



Capstan System S07100, in Two-Capstan Configuration

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DECK CAPSTAN SYSTEM, PORTABLE — SYSTEM NUMBER S07100

SYSTEM DESCRIPTION

The Portable Deck Capstan System consists of a hydraulically driven capstan and a diesel-powered hydraulic power unit. The capstan has a maximum line pull of 6000 pounds and can withstand a maximum static pull of 31,000 pounds. It is used in any situation where line tension is required. The system can be ordered in two separate configurations, with either one or two capstans driven from a single hydraulic power unit. When two capstans are to be driven by a single HPU, the power unit required is PW0108.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Capstan, 18”, Portable, Hydraulic, 6000# Line Pull with Capstan Control Stand	CP2079	1
2. Valve, Flow Divider, Hydraulic, for CP2079	CP2080	1**
3. Containment Pool, Machinery, 5’ x 5’ x 12”, Cooley Urethane	CP3000	1
4. Hose Reel Assembly, Hydraulic, w/ 3/4" Synflex Hose (Optional)	HS0137	1**
5. Power Unit, Hydraulic		1*
a. Power Unit, Hydraulic, Mod 9, Diesel, 10 gpm @ 2000 psi	PW0020	
b. Power Unit, Hydraulic, Mod 2, Diesel, 15 gpm @ 2000 psi	PW0108**	
6. Hydraulic Power Unit Spare Parts Kit		1*
a. Spare Parts Kit, for Power Unit PW0020	PW0021	
b. Spare Parts Kit, for Power Unit PW0108	PW0110**	

* The capstan may be provided with various power units depending on inventory availability.

** Provided when the request includes two capstans that will be driven by one hydraulic power unit.

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18” Portable Hydraulic Capstan CP2079

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CAPSTAN, 18", PORTABLE, HYDRAULIC, 6000# LINE PULL **ESSM NUMBER CP2079**

DESCRIPTION

The Hydraulic Portable Capstan CP2079 has an 18-inch diameter vertical capstan head that can be rotated in either direction. Maximum hydraulic input is 2000 psi @ 8.5 gpm. The capstan base has forklift slots for handling during shipment and can be bolted to a sacrificial plate for welding to a deck. The capstan control stand contains valves to operate the capstan in the forward and reverse directions and is designed to allow the operator to remain an adequate distance from hazardous "snap back," yet still maintain continuous observation of the unit. The control stand is attached to the capstan for shipping and storage. The control stand is equipped with 35 feet of hydraulic supply, return, and case drain hoses connecting it to the capstan.

SPECIFICATIONS

Manufacturer	Superior-Lidgerwood-Mundy Corp.
Model	NSCH-10
Line pull	6000 lb @ 30 feet per minute
Static pull (maximum)	31,000 lb
Operating pressure	2000 psi @ 8.5 gpm (maximum)
Capstans	1
Size	18 in. diameter
Type	Vertical

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	4 ft, 0 in.	4 ft, 0 in.
Width	4 ft, 0 in.	4 ft, 0 in.
Height	3 ft, 8 in.	4 ft, 0 in.
Cube	59 cu ft	64 cu ft
Weight	2100 lb	2162 lb

REFERENCES

1. Technical Manual for Hydraulic Capstan System, ORD. 6-84-3.

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Directional Flow Control Valve CP2080

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VALVE, FLOW DIVIDER, HYDRAULIC, FOR CP2079 **ESSM NUMBER CP2080**

DESCRIPTION

The Directional Flow Control Valve CP2080 is a hydraulic valve assembly used to direct hydraulic flow and pressure from the hydraulic power unit to two 18" Portable Hydraulic Capstans (CP2079). This optional component allows for the operation of two capstans from a single HPU.

SPECIFICATIONS

Manufacturer	Fluid Control Incorporated
Type	Hydraulic service
Model	2V21-l8-6-6-40S
Working pressure	3000 psi
Flowmeter	Hedland, 0-15 gpm
Hose connections	Male and female Aeroquip -12 fittings

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Width	1 ft, 0 in.
Height	1 ft, 2 in.
Cube	2 cu ft
Weight	22 lb

REFERENCES

None

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Machinery Containment Pool CP3000
(Shipping Configuration)



Machinery Containment Pool CP3000
(In-Use Configuration)

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CONTAINMENT POOL, MACHINERY, 5' X 5' X 12" COOLEY URETHANE **ESSM NUMBER CP3000**

DESCRIPTION

The Machinery Containment Pool CP3000 is a 5' x 5' x 12" urethane berm. It is used to catch and contain any oil, fuel, hydraulic fluid, or contaminants leaked or spilled from diesel-powered or hydraulically driven components.

SPECIFICATIONS

Manufacturer	Basic Concepts
Fabric material	Cooley Urethane

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	5 ft, 0 in.	1 ft, 8 in.
Width	5 ft, 0 in.	1 ft, 8 in.
Height	1 ft, 0 in.	6 in.
Cube	25 cu ft	1.5 cu ft
Weight	34 lb	34 lb

REFERENCES

None

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Hydraulic Hose Reel Assembly HS0137

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HOSE REEL ASSEMBLY, HYDRAULIC, W/ 3/4" SYNFLEX HOSE **ESSM NUMBER HS0137**

DESCRIPTION

The Hydraulic Hose Reel Assembly HS0137 contains four, 3/4-inch inside diameter hoses reeled onto a mechanical hose reel in 100-foot-long sections. The hoses are equipped with quick disconnect fittings (Aeroquip, male and female -12 fittings) compatible with the Mod 2 (PW0108) and Mod 9 (PW0020) hydraulic power units. The 3/4" hoses are shipped full of Rando 46 hydraulic fluid to limit the loss of hydraulic fluid from the HPU fluid reservoir during startup operations.

SPECIFICATIONS

Manufacturer	Furon Synflex
Type	3R80-12
Inner diameter	3/4 in.
Min. bend radius	6.5 in.
Working pressure	2250 psi
Min. burst pressure	9000 psi
Weight per 100 feet	25.6 lb
Hose couplings	390 H-12

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 9 in.
Width	2 ft, 10 in.
Height	3 ft, 11 in.
Cube	41 cu ft
Weight	730 lb

REFERENCES

1. Synflex Hydraulic Hose, Specialty Hose, Tubing, and Accessories; Furon Synflex.

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Mod 9 Hydraulic Power Unit Front View



Mod 9 Hydraulic Power Unit Right Side View

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POWER UNIT, HYDRAULIC, MOD 9, DIESEL, 10 GPM @ 2000 PSI **ESSM NUMBER PW0020**

DESCRIPTION

The Mod 9 Hydraulic Power Unit (HPU) PW0020 is a portable, diesel driven unit that provides hydraulic fluid up to 10 gpm @ 2000 psi. An adjustable pressure relief valve controls the output pressure delivered to the supply circuit. The HPU is mounted on a wheeled frame and is enclosed in a protective steel housing with four sling points on the external steel tubing frame. Hydraulic connections are made via Aeroquip 5600, -12 series male and female quick disconnect fittings for the hydraulic supply and return, with a 3/8-inch case drain fitting. The unit is shipped with the exhaust muffler attached to the side of the HPU housing, and the muffler is installed prior to operation of the unit.

SPECIFICATIONS

Hydraulic Power Unit Assembly

Manufacturer	PortaCo
Model	D-17S10-15-W

Diesel Engine

Manufacturer	Deutz Ruggerini
Series	MD 191
RPM	2200
Horsepower	19 @ 3600 rpm
Starting	Electric, 12-volt
Fuel	Diesel
Fuel consumption	1 gph
Fuel source	Internal fuel tank, 4-gal., or external tank using installed fuel pickup

Hydraulic Pump

Manufacturer	Sauer-Sundstrand
Model	SNP 2/11
Type	Gear
Flow	10 gpm @ 2000 psi
Hyd. reservoir	5 gal.
Fluid type	Rando 46

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 5 in.
Width	2 ft, 7 in.
Height	2 ft, 7 in.
Cube	24 cu ft
Weight (dry)	472 lb

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POWER UNIT, HYDRAULIC, MOD 9, DIESEL, 10 GPM @ 2000 PSI **ESSM NUMBER PW0020**

REFERENCES

1. Operation, Maintenance, and Repair Manual for PortaCo Hydraulic Power Unit, Model D-17S10-15-W.
2. Deutz Ruggerini Use and Maintenance Manual, Engine Type MD150-151 and MD190-191.

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Mod 2 Hydraulic Power Unit PW0108

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POWER UNIT, HYDRAULIC, MOD 2, DIESEL, 15 GPM @ 2000 PSI **ESSM NUMBER PW0108**

DESCRIPTION

The Mod 2 Hydraulic Power Unit (HPU) PW0108 is a portable, diesel driven unit that provides hydraulic fluid up to 15 gpm @ 2000 psi. An adjustable pressure relief valve controls the output pressure delivered to the supply circuit. The HPU is mounted on a steel frame equipped with forklift slots and lifting points for handling the HPU during shipment and operation. Hydraulic connections are made via Aeroquip 5600, -12 series male and female quick disconnect fittings for the hydraulic supply and return, with a 3/8-inch case drain fitting. The unit is shipped with the exhaust muffler attached to the side of the HPU housing, and the muffler is installed prior to operation of the unit.

SPECIFICATIONS

Hydraulic Power Unit Assembly

Manufacturer	Commercial, Navy Design
Model	NAVSEA Model 2

Diesel Engine

Manufacturer	Onan
Series	DJC-MS/2450
RPM	2400
Horsepower	23.8 @ 2400 rpm
Starting	Electric, 12-volt
Fuel	Diesel
Fuel consumption	1.5 gph @ 2000 rpm
Fuel source	Internal tank, 20-gal.

Hydraulic Pump

Manufacturer	Vickers Inc.
Model	30-H-10
Type	Axial piston
Flow (maximum)	15 gpm @ 2000 psi
Hyd. reservoir	55 gal.
Hydraulic fluid	Rando 46

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 8 in.
Width	2 ft, 0 in.
Height	3 ft, 8 in.
Cube	42 cu ft
Weight (dry)	1762 lb

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POWER UNIT, HYDRAULIC, MOD 2, DIESEL, 15 GPM @ 2000 PSI **ESSM NUMBER PW0108**

REFERENCES

1. Diesel Hydraulic Power Unit, NAVSEA Model 2, Operation and Maintenance Instructions, S9233-A-3-MM0-01B-0910-LP-000-4092.

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Spare Parts Kit PW0021

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SPARE PARTS KIT, FOR POWER UNIT PW0020 **ESSM NUMBER PW0021**

DESCRIPTION

The Spare Parts Kit PW0021 contains items necessary to support the operation and maintenance of one Hydraulic Power Unit PW0020.

SPECIFICATIONS

The spare parts kit contains the following:

Item	Qty
Container, spare parts, 18” x 11” x 10”:	1
Filter, engine air	1
Filter, engine oil	1
Filter, engine fuel	1
Filter, hydraulic	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 7 in.
Width	11 in.
Height	10 in.
Cube	1 cu ft
Weight	6 lb

REFERENCES

None

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Spare Parts Kit PW0110

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SPARE PARTS KIT, FOR POWER UNIT PW0108 **ESSM NUMBER PW0110**

DESCRIPTION

The Spare Parts Kit PW0110 contains items necessary to support the operation and maintenance of one Hydraulic Power Unit PW0108.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts, 18” x 11” x 7”:	1
Bag, desiccant	1
Filter, engine air	1
Filter, engine fuel	1
Filter, engine fuel (secondary)	1
Filter, engine oil	1
Filter, hydraulic	1
Filter, hydraulic, high pressure	1
Fuse, AGC20 (box)	1
Gasket, fuel pump bowl	1
Operator's manual, Mod 2 HPU	1
Repair kit, quick disconnect	2
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 7 in.
Width	11 in.
Height	7 in.
Cube	1 cu ft
Weight	8 lb

REFERENCES

None

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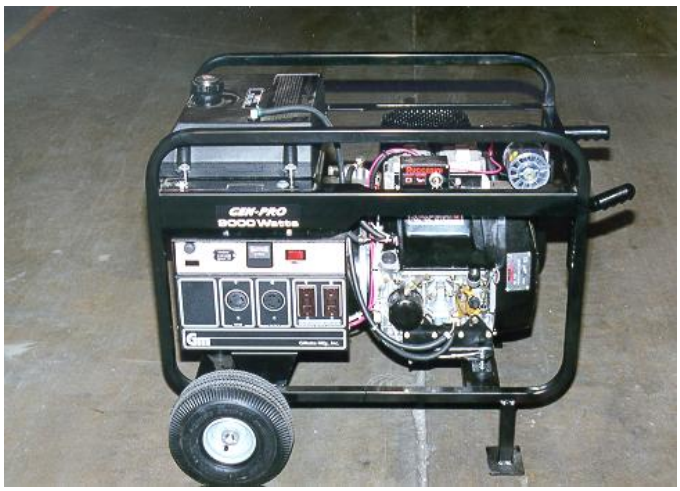
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5-kW DIESEL GENERATOR SYSTEM S12200

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5-kW Diesel Generator System Components (GE0401, GE0404, and GE0470)

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GENERATOR, 5-kW, DIESEL, 120/240-V AC, SINGLE PHASE **SYSTEM NUMBER S12200**

DESCRIPTION

The 5-kW Diesel Generator System S12200 consists of a portable, skid-mounted generator and a spare parts kit. The individual generators provide 120/240-volt, 60-cycle, single phase or 120/240-volt, three-phase ac power at 5 to 10 kW. The system contains three generators with similar characteristics that allow the end user flexibility to choose the most appropriate generator to meet the on-site equipment voltage, load, and phase requirements.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Generator, 5-kW		1
a. Generator, 5-kW, Diesel, 120/240-V ac, Single Phase	GE0401	
b. Generator, 5-kW, Diesel, 120/240-V ac, 1-Phase/3-Phase	GE0404	
c. Generator, 9-kW, Diesel, 240-V ac, 1-Phase	GE0470	
2. Spare Parts Kit		1
a. Spare Parts Kit, for Generator GE0401	GE0402	
b. Spare Parts Kit, for Generator GE0404	GE0405	
c. Spare Parts Kit, for Generator GE0470	GE0471	

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5-kW Diesel Generator GE0401

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GENERATOR, 5-kW, DIESEL, 120/240-V AC, SINGLE PHASE ESSM NUMBER GE0401

DESCRIPTION

The 5-kW Diesel Generator GE0401 is a self-contained unit mounted on a base plate that contains forklift slots and is surrounded by a protective steel frame. The ac generator is driven by an air cooled, four-cycle, two-cylinder diesel engine. The generator supplies 120-volt, single phase alternating current at power levels of up to 5 kW. Power is distributed through two 25-ampere breakers to four 120-volt, single phase, three-wire receptacles.

SPECIFICATIONS

Generator Assembly

Manufacturer	Onan
Model	DJB
Type	AC
Capacity	5 kW
Frequency	60 Hz @ 1800 rpm
Voltage	120 V ac

Engine

Manufacturer	Onan
Model	DJM60
No. cylinders	2
Horspower	8.6
Starting system	12 volts
Fuel	Diesel
Fuel consumption	0.66 gph
Fuel source	5-gal. jerry can

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 0 in.
Width	1 ft, 10 in.
Height	3 ft, 0 in.
Cube	16.5 cu ft
Weight	680 lb

REFERENCES

1. Technical Manual for 5-kW Generator Set; SUPSALV 001-071.
2. Technical Manual for Onan DJM60 Diesel Engine: SUPSALV 003-071.

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Spare Parts Kit GE0402

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SPARE PARTS KIT, FOR GENERATOR GE0401 **ESSM NUMBER GE0402**

DESCRIPTION

The Spare Parts Kit GE0402 contains items to support operation and maintenance of one Generator GE0401.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, shipping, 19” x 16” x 12”:	1
Cartridge, filter, oil	2
Filter, fuel	2
Element, air cleaner	2
Element, oil filter	2
Nozzle, fuel	2
Gaskets, filter, various	6
Gaskets, nozzle, various	4
Shield, nozzle	1
Manual, Service and Parts	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 9 in.
Width	1 ft, 4 in.
Height	1 ft, 0 in.
Cube	2.5 cu ft
Weight	18 lb

REFERENCES

None

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5-kW Diesel Generator GE0404

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GENERATOR, 5-kW, DIESEL, 120/240-V AC, 1-PHASE/3-PHASE **ESSM NUMBER GE0404**

DESCRIPTION

The 5-kW Diesel Generator GE0404 is mounted on a base plate that contains forklift slots and is surrounded by a protective steel frame. The ac generator is driven by an air cooled, four-cycle, two-cylinder, diesel engine. The generator can supply up to 5-kW alternating current power at 120-volt, single phase; 120/240-volt, single phase; or 120/208-volt, 3-phase. The 120-volt single phase electrical power is distributed via two 3-wire receptacles located on the front of the generator. All other electrical power is distributed through a terminal board with lugs located on the side of the generator.

SPECIFICATIONS

Generator Assembly		Engine	
Manufacturer	Onan	Manufacturer	Onan
Model	MEP-002A	Model	DJM60
Type	AC	No. cylinders	2
Capacity	5 kW	Horsepower	8.9
Frequency	60 Hz @ 1800 rpm	Starting system	24 volts
Voltage:	120-V ac, single phase	Fuel	Diesel
	120/240-V ac, single phase	Fuel consumption	0.85 gph
	120/208-V ac, 3-phase	Fuel source	6.75-gal. jerry can

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 4 in.
Width	2 ft, 8 in.
Height	3 ft, 3 in.
Cube	38 cu ft
Weight	1020 lb

REFERENCES

1. Technical Manual for 5-kW Generator, NAVFAC P-8-622-12.

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Spare Parts Kit GE0405

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SPARE PARTS KIT, FOR GENERATOR GE0404 **ESSM NUMBER GE0405**

DESCRIPTION

The Spare Parts Kit GE0405 contains items to support operation and maintenance of one GE0404 Generator assembly.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts, 19” x 16” x 12”:	1
Cartridge, fuel filter	2
Cartridge, oil filter	1
Element, air cleaner	1
Gasket, fuel filter	2
Gasket, pump cover	3
Gasket, valve bolt	3
Lamp, incandescent	2
Washer, fuel filter	2
Manual, operator’s maintenance	1
Inventory, laminated	1

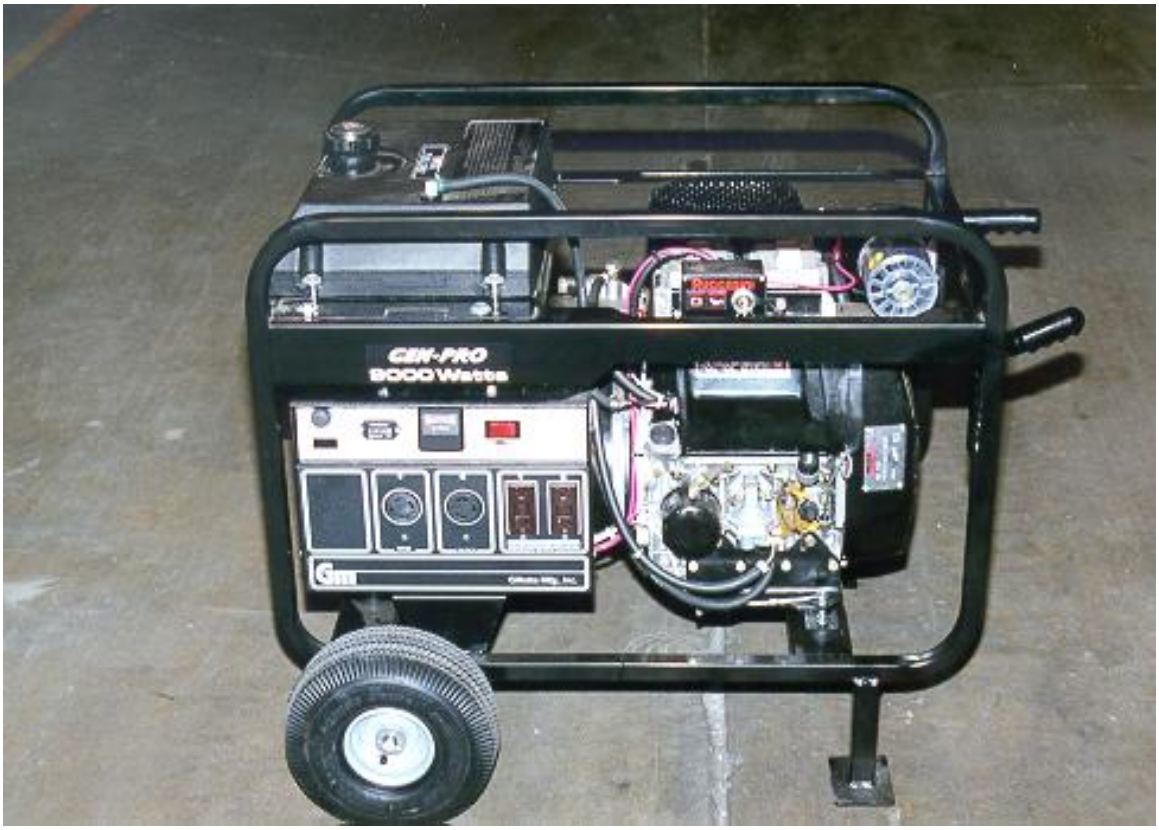
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 9 in.
Width	1 ft, 4 in.
Height	1 ft, 0 in.
Cube	2.5 cu ft
Weight	14 lb

REFERENCES

None

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9-kW Diesel Generator GE0470

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GENERATOR, 9-kW, DIESEL, 120/240-V AC, 1-PHASE **ESSM NUMBER GE0470**

DESCRIPTION

The 9-kW Diesel Generator GE0470 is a self-contained unit mounted on a base plate that is surrounded by a protective steel frame. Mounted on the base plate and frame are wheels and handles that allow for easy maneuverability. The unit is driven by an air cooled, four-cycle, two-cylinder diesel engine. The generator can supply up to 9-kW single phase ac power at 120 or 240 volts. The 120- and 240-volt single phase electrical power is distributed via one 4-prong, 120/240-volt twist-lock outlet; one 3 -prong, 120-volt, twist-lock outlet; and two 120-volt, duplex ground fault interrupter (GFI) outlets located on the front panel of the generator. The outlets are protected by two 35-ampere breakers, located above the outlet panel.

SPECIFICATIONS

Generator Assembly

Manufacturer	Gillette Manufacturing
Model	GPD-90E
Type	AC
Capacity	9 kW
Frequency	60 Hz @ 3600 rpm
Voltage:	120 V ac, single phase
	240 V ac, single phase
Amperage:	71 amps @ 120 volts
	35.5 amps @ 240 volts

Engine

Manufacturer	Deutz Ruggerini
Model	MD-151
No. cylinders	2
Horsepower	6.6
RPM	3600
Starting system	12 volts
Fuel	Diesel
Fuel consumption	1.2 gph
Fuel source	5-gal. internal tank

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 11 in.
Width	2 ft, 8 in.
Height	2 ft, 8 in.
Cube	21 cu ft
Weight	360 lb

REFERENCES

1. Owner’s Manual for Brushless Generators.

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Spare Parts Kit GE0471

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SPARE PARTS KIT, FOR GENERATOR GE0470 **ESSM NUMBER GE0471**

DESCRIPTION

The Spare Parts Kit GE0471 contains items to support operation and maintenance of one GE0470 Generator assembly while the unit is deployed.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, 18" x 11" x 7":	1
Desiccant, bag	1
Filter, air	1
Filter, oil (7717520)	2
Filter, oil (7717505)	1
Filter, fuel	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	11 in.
Height	7 in.
Cube	1 cu ft
Weight	5 lb

REFERENCES

None

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30-KW DIESEL GENERATOR SYSTEM S12300

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30-kW Diesel Generator System Components (GE410, GE0450, and GE0460)

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GENERATOR, 30-KW, DIESEL **SYSTEM NUMBER S12300**

SYSTEM DESCRIPTION

The 30-kW Diesel Generator System S12300 consists of a portable skid-mounted generator with associated spare parts kit. Three generators with similar specifications are available to allow the end user to meet the on-site equipment voltage, phase, and load capacity requirements. The individual generators can be configured to provide up to 30 kW continuous single or three-phase electrical power ranging from 120 to 440 volts ac.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Generator, 30-kW		1
a. Generator, 30-kW, Diesel, 440-V ac, 3-Ph	GE0410	
b. Generator, 30-kW, Diesel, 120/220/416-V ac	GE0450	
c. Generator, 30-kW, Diesel, 120/208/240/480-V ac, 1-Ph/3-Ph	GE0460	
2. Spare Parts Kit for:		1
a. Generator GE0410	GE0411	
b. Generator GE0450	GE0451	
c. Generator GE0460	GE0461	

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30-kW Diesel Generator GE0410

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GENERATOR, 30-KW, DIESEL, 440-V AC, 3-PHASE ESSM NUMBER GE0410

DESCRIPTION

The 30-kW Diesel Generator GE0410 is a fully enclosed, self-contained, portable unit. The generator is skid-mounted with integrally installed forklift slots and a lifting ring to facilitate handling. The brushless ac generator is driven by a two-cycle, three-cylinder diesel engine. The load capacity of the generator is 30 kW continuous with an intermittent, standby load of 40 kW at 0.8 power factor. The output voltage is 440 volts, 3-phase ac and includes a 5-kVA (4-kW) dry transformer supplying 120-V ac, single phase power for lighting or small motor operation. The single phase output circuit is protected by three 15-ampere circuit breakers.

SPECIFICATIONS

Generator

Manufacturer	Delco, General Motors
Model	E-5256M1
Type	AC
Load capacity	30 kW
Frequency	60 Hz @ 1800 rpm
Voltage	440, 3-phase 120, single phase

Engine

Manufacturer	Detroit Diesel
Model	5034-7101
No. cylinders	3
Starting system	Hydraulic
Fuel	Diesel
Fuel source	5-gal. fuel container w/pickup tube, hoses
Fuel consumption	4 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	7 ft, 3 in.
Width	3 ft, 3 in.
Height	4 ft, 11 in.
Cube	114 cu ft
Weight	3700 lb

REFERENCES

1. Service Manual for 30 - 40-kW Generating Set; NAVSHIPS 0961-LP-042-7010.
2. Technical Manual Series 2, 3, 4, & 6V-53, Industrial Engines and Power Units for U.S. Navy Salvage Equipment; NAVSHIPS 0941-LP-010-5010.

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Spare Parts Kit GE0411

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SPARE PARTS KIT FOR GE0410 **ESSM NUMBER GE0411**

DESCRIPTION

The Spare Parts Kit GE0411 contains the items necessary to support the maintenance of one GE0410 Generator.

SPECIFICATIONS

The Spare Parts Kit contains the following items:

Item	Qty
Container, Spare Parts, 36” x 28” x 14”	1
Belt set, various	2
Element, air cleaner (Duralife)	1
Element, fuel filter (various)	4
Element, oil filter	2
Injector, fuel, S-45	2
Inventory, laminated	1
Manual, Parts, 0941-LP-010-5010	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 0 in.
Width	2 ft, 4 in.
Height	1 ft, 2 in.
Cube	8 cu ft
Weight	56 lb

REFERENCES

None

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30-Kw Diesel Generator GE0450



GE0450 Electrical Connections

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GENERATOR, 30-KW, DIESEL, 120/240/416-V AC, 3-PHASE **ESSM NUMBER GE0450**

DESCRIPTION

The 30-kW Diesel Generator GE0450 is a fully enclosed, self-contained, portable unit. The generator is skid-mounted with forklift slots and lifting points to facilitate handling. The alternating current, brushless, rotating field synchronous generator is driven by a four-cylinder diesel engine. The generator can be configured to supply 240/416-volt, 3-phase electrical power continuously at 50 or 60 hertz to a load capacity of 30 kW and has a 115-volt, 15-amp utility outlet.

SPECIFICATIONS

Generator		Engine	
Manufacturer	Electric Machinery	Manufacturer	White Engine
Model	MEP-005A	Model	D298ER
Type	Rotating field, synchronous	Type	4-cycle
Load capacity:	25 kW @ 50 Hz;	No. cylinders	6
	30 kW @ 60 Hz	Starting system	Electric
Current rating:		Battery (2 in series)	24 volt
@ 50 Hz	86 amp @ 120/208 V ac;	Fuel	Diesel
	43 amp @ 220/416 V ac	Fuel source	26-gal. int. fuel tank
@ 60 Hz	104 amp @ 120/208 V ac;		w/pickup tube, hoses
	52 amp @ 240/416 V ac	Fuel consumption	3 gph
Power factor	0.8		
Duty class	Continuous		

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 8 in.
Width	3 ft, 0 in.
Height	4 ft, 7 in.
Cube	92 cu ft
Weight	2865 lb

REFERENCES

1. Operator and Organization Maintenance Manual, NAVFAC P-8-625-12.

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Spare Parts Kit GE0451

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SPARE PARTS KIT FOR GE0450 **ESSM NUMBER GE0451**

DESCRIPTION

The Spare Parts Kit GE0451 contains the items necessary to support the maintenance of one GE0450 Generator.

SPECIFICATIONS

The Spare Parts Kit contains the following items:

Item	Qty
Container, Spare Parts, 14” x 8” x 12”:	1
Filter, air	1
Filter, fuel	2
Filter, oil	1
Gasket, oil filter	1
Gasket, fuel filter	2
V-belt	1
Washer, filter, copper	3
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 2 in.
Width	8 in.
Height	1 ft, 0 in.
Cube	1 cu ft
Weight	8 lb

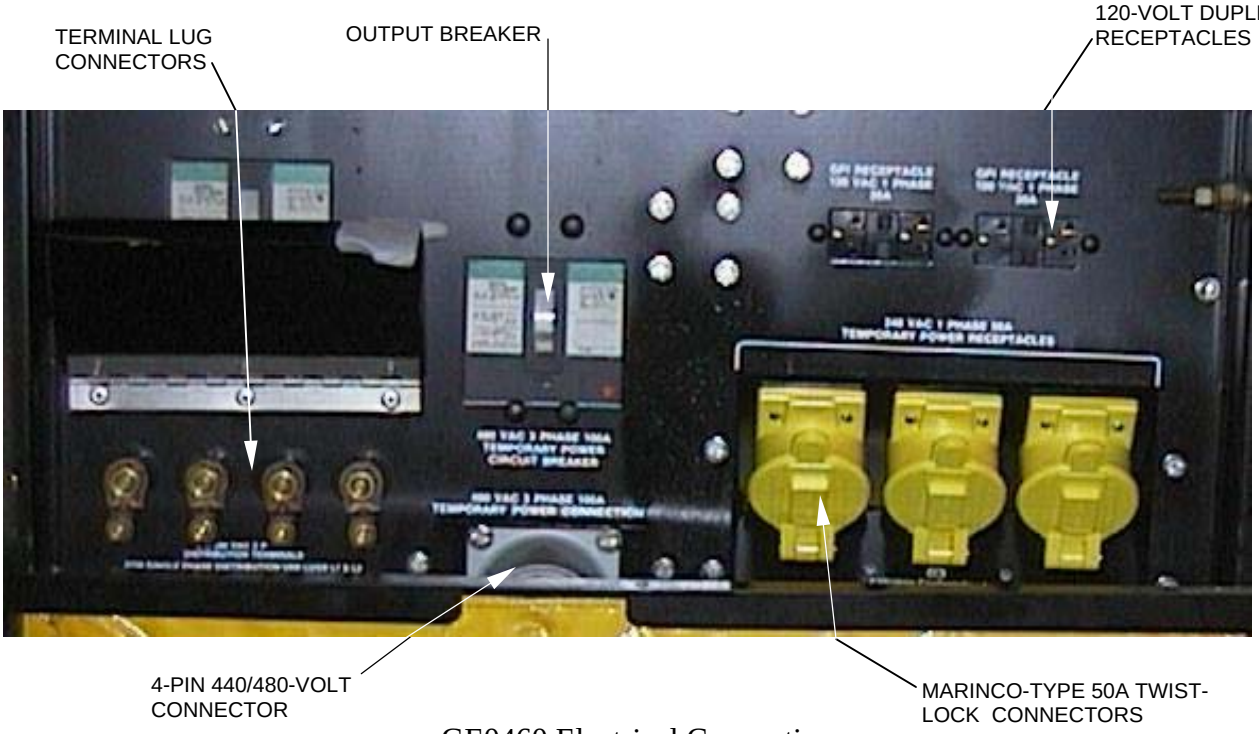
REFERENCES

None

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30-kW Diesel Generator GE0460



GE0460 Electrical Connections

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GENERATOR, 30-KW, DIESEL, 120/208/240/480-V AC, 1-PH/3-PH ESSM NUMBER GE0460 (MODEL CJ430SQ)

DESCRIPTION

The 30-kW Diesel Generator GE0460 is a fully enclosed, self-contained, portable, skid-mounted unit, equipped with forklift slots and integral tie-down and lift points to facilitate handling. The brushless ac generator with a permanent magnet exciter is capable of starting a 25-horsepower, 3-phase, 440-V ac motor with a nameplate rating of up to 38 amperes. Voltage can be set to 208/240 or 480 V ac by means of a two-position selector switch. The generator is designed to operate single or 3-phase motors, lighting, or other equipment. Power is distributed via four main 208/240- or 480-volt, 3-phase distribution terminals or receptacles; three 125/250-volt, single phase, twist-lock power receptacles; and two 120-volt single phase ground fault interrupter (GFI) receptacles. For cold weather operations a 120-volt power source may be required to operate a 1500-watt engine heating system.

SPECIFICATIONS

Manufacturer	Coleman Engineering
Model	CJ430SQ

Generator		Engine	
Manufacturer	Newage International	Manufacturer	John Deere
Model	UC1224D13	Model	4039D
Load capacity @60Hz	37 kW (3-phase) 21.6 kW (single-phase)	No. cylinders	4
		Starting system	12 V dc
Voltage: phase	208/240/480: 1-ph/3-ph; 120: 1-ph	Fuel	Diesel
		Fuel source	60-gal. fuel tank w/pickup tube, hoses
		Fuel consumption	3.23 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	7 ft, 6 in.
Width	3 ft, 9 in.
Height	4 ft, 6 in.
Cube	127 cu ft
Weight	3854 lb

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GENERATOR, 30-KW, DIESEL (MODEL CJ430SQ) ESSM NUMBER GE0460
120/208/240/480-V AC, 1-PH/3-PH

REFERENCES

1. Commercial Off-The-Shelf (COTS) Manual, Mobile Electrical Power Unit, 30-kW, GE0460, Description, Operation, Maintenance, and Illustrated Parts Breakdown (NAVSEA S6269-AZ-MMO-010).
   a. Operator's Manual, John Deere, OMRG18293.
   b. Component Technical Manual, John Deere, CTM8 (23 Feb 95).
   c. Installation, Service, and Maintenance Manual for AC Generators: UC1, UCM, and UCD 224 and 274, Newage International.
2. Parts Catalog, John Deere, PC2305 (April 1995).

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Spare Parts Kit GE0461

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SPARE PARTS KIT FOR GENERATOR GE0460 **ESSM NUMBER GE0461**

DESCRIPTION

The Spare Parts Kit GE0461 contains the items necessary to support the operation and maintenance of one GE0460 Generator.

SPECIFICATIONS

The Spare Parts Kit contains the following items:

Item	Qty
Container, Spare Parts, 14” x 8” x 12”	1
Element, filter, air	1
Element, filter, fuel	1
Element, filter, oil	1
V-belt	1
Fuel-water separator, Racor	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 2 in.
Width	8 in.
Height	1 ft, 0 in.
Cube	1 cu ft
Weight	8 lb

REFERENCES

None

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20-KW DIESEL GENERATOR SYSTEM S12400

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20-kW Diesel Generator System Components (GE0500, GE0501, and GE0503)

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GENERATOR, 20-KW, DIESEL, 120/240/480-V AC, 1-PHASE/3-PHASE **SYSTEM NUMBER S12400**

SYSTEM DESCRIPTION

The 20-kW Diesel Generator System consists of a portable, skid-mounted generator (GE0500 or GE0500A), a spare parts kit, and an optional trailer with a 41-gallon diesel fuel tank. The system provides 120-, 240-, or 480-volt ac, 60-cycle, 1-phase/3-phase electrical power. The optional wheeled trailer allows for towing behind small trucks or other similar vehicles for mobile power supply in an operational area.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Generator, 20-kW		1*
a. Generator, 20-kW Diesel, 480-V ac, 3-Phase, Skid-Mounted	GE0500	
b. Generator, 20-kW Diesel, 480-V ac, 3-Phase, Environmental Skid	GE0500A	
2. Spare Parts Kit, for GE0500/GE0500A	GE0501	1
3. Ancillary Set, for Generator GE0500/GE0500A	GE0503	1
4. Trailer with 41-Gallon Fuel Tank, for GE0500 (Optional)	GE0502	1

* The particular generator provided for a task is based upon job requirements and inventory availability.

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20-kW Diesel Generator GE0500



GE0500 Electrical Connections

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GENERATOR, 20-KW, DIESEL, 480-V AC, 3-PHASE SKID-MOUNTED **ESSM NUMBER GE0500**

DESCRIPTION

The 20-kW Diesel Generator GE0500 is a fully enclosed, weatherproof, lockable, self-contained, portable unit. The generator is skid-mounted, equipped with forklift slots, and has a single point lifting bail. The brushless ac generator is driven by a 4-cycle, 4-cylinder, diesel engine. The generator can be configured to provide 120-, 240-, or 480-volt, 60-cycle alternating current and has two 120-volt receptacles protected by a 20-amp circuit breaker. The unit has an internal 17.2-gallon fuel tank and can be mated to a trailer containing a 41-gallon fuel tank to provide 24 hours of continuous full-load operation.

SPECIFICATIONS

Generator Assembly

Manufacturer	MQ Power
Model	Whisperwatt
Sound level @ 20kW	66 dBA @ 23’ 76 dBA @ 5’

Generator

Manufacturer	MQ Power
Model	DCA-25SSIU
Type	AC
Capacity:	
Continuous	20 kW
Standby	22 kW
Frequency	60 Hz @ 1800 rpm
Voltage/Amperage:	
3-Phase	208, 220, 240 volts/60 amps; 416, 480 volts/30 amps
1-Phase	120, 127, 139 volts/55.5 amps; 240, 254, 277 volts/27.8 amps
Distribution:	
3-Phase	480/440 Terminal lugs 240-2 Marinco-type 50A
1-Phase	120-2 Duplex GFI receptacles, 20A

Engine

Manufacturer	Isuzu
Model	QD-60 (C 240)
No. cylinders	4
Rpm	1800
Horsepower	30.6
Starting	Battery
Fuel	Diesel
Fuel source	Internal 17.2-gal. tank; provisions are made to supply fuel from an alternate source.
Fuel consumption	1.75 gph

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GENERATOR, 20-KW, DIESEL, 480-V AC, 3-PHASE SKID-MOUNTED **ESSM NUMBER GE0500**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 6 in.
Width	2 ft, 8 in.
Height	3 ft, 11 in.
Cube	68 cu ft
Weight	1796 lb

REFERENCES

1. MQ Power Diesel Generator Instruction Manual, Model DCA-25SSIU and DCA-45SSIU II.
2. Instruction Manual, Isuzu Diesel, C240.
3. MQ Power DCA-25SSIU Parts List.

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20-kW Diesel Generator GE0500A



GE0500A Electrical Connections

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GENERATOR, 20-KW, DIESEL, 480-V AC, 3-PHASE ENVIRONMENTAL SKID **ESSM NUMBER GE0500A**

DESCRIPTION

The 20-kW Diesel Generator GE0500A is a fully enclosed, weatherproof, lockable, self-contained, portable unit. The generator is mounted on an environmental skid which is designed to contain any fuel, oil, or coolant spill up to 65 gallons. The skid is equipped with forklift slots, and has a single point lifting bail. The brushless ac generator is driven by a 4-cycle, 4-cylinder, diesel engine. The generator can be configured to provide 120-, 240-, or 480-volt, 60-cycle alternating current, and has two 120-volt receptacles protected by a 20-amp circuit breaker. The unit has an internal 41-gallon fuel tank.

SPECIFICATIONS

Generator Assembly

Manufacturer	MQ Power
Model	Whisperwatt
Sound level @ 20kW	66 dBA @ 23’ 76 dBA @ 5’

Generator

Manufacturer	MQ Power
Model	DCA-25SSIU
Type	AC
Capacity:	
Continuous	20 kW
Standby	22 kW
Frequency:	60 Hz @ 1800 rpm
3-Phase	208, 220, 240 volts/60 amps; 416, 480 volts/30 amps
1-Phase	120, 127, 139 volts/55.5 amps; 240, 254, 277 volts/27.8 amps
Distribution:	
3-Phase	480/440 Terminal lugs 240-2 Marinco-type 50A
1-Phase	120-2 Duplex GFI receptacles, 20A

Engine

Manufacturer	Isuzu
Model	QD-60 (C 240)
Cylinders	4
Rpm	1800
Horsepower	30.6
Starting	Battery
Fuel	Diesel
Fuel source	Internal 41-gal. tank
Fuel consumption	1.75 gph

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GENERATOR, 20-KW, DIESEL, 480-V AC, 3-PHASE ENVIRONMENTAL SKID **ESSM NUMBER GE0500A**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	7 ft, 0 in.
Width	2 ft, 6 in.
Height	4 ft, 8 in.
Cube	84 cu ft
Weight	2208 lb

REFERENCES

1. MQ Power Diesel Generator Instruction Manual, Model DCA-25SSIU and DCA-45SSIU II.
2. Instruction Manual, Isuzu Diesel, C240.
3. MQ Power DCA-25SSIU Parts List.

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Spare Parts Kit GE0501

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SPARE PARTS KIT, FOR GE0500/0500A **ESSM NUMBER GE0501**

DESCRIPTION

The Spare Parts Kit GE0501 contains items to support the operation and maintenance of one 20-kW Diesel Generator GE0500 or GE0500A. The Spare Parts Kit is shipped in the Ancillary Set GE0503.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts, 19” x 11” x 10”:	1
Belt, fan	1
Filter, air	1
Filter, fuel	1
Filter, fuel, in-line	1
Filter, oil	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 7 in.
Width	11 in.
Height	10 in.
Cube	1 cu ft
Weight	8 lb

REFERENCES

None

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Ancillary Set GE0503

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ANCILLARY SET, FOR GENERATOR GE0500/0500A **ESSM NUMBER GE0503**

DESCRIPTION

The Ancillary Set GE0503 contains electric cables, connectors, and the components required to support one 20-kW Diesel Generator GE0500 or GE0500A

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Shipping/storage container, 24" x 19" x 12":		1
Spare Parts Kit for GE0500/GE0500A	GE0501	1
Cable, electrical, 50' w/Marinco connectors		2
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 0 in.
Width	1 ft, 7 in.
Height	1 ft, 4 in.
Cube	3 cu ft
Weight	82 lb

REFERENCES

None

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Trailer GE0502

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TRAILER W/ 41-GALLON FUEL TANK, FOR GE0500 **ESSM NUMBER GE0502**

DESCRIPTION

The Trailer GE0502 is a light, mobile unit designed for use with Generator GE0500 or GE0500A. The trailer incorporates an integral 41-gallon fuel tank, and can be connected to the generator by fuel supply and return hoses installed in the generator fuel system. The fuel tank is sized to allow 24 hours of continuous operation of the generator at full load. The trailer is mounted on pneumatic tires and can be obtained with either a ball- or pintle-style trailer hitch. The trailer is equipped with standard running lights to allow over-the-road use.

SPECIFICATIONS

Manufacturer	MQ Power
Model	2700/1277
Capacity	2700 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	10 ft, 9 in.
Width	4 ft, 7 in.
Height	3 ft, 6 in.
Cube	173 cu ft
Weight (fuel tank empty)	570 lb
Weight (fuel tank full)	836 lb

REFERENCES

None

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HEAVY LIFT SYSTEM **SYSTEM NUMBER S13100**

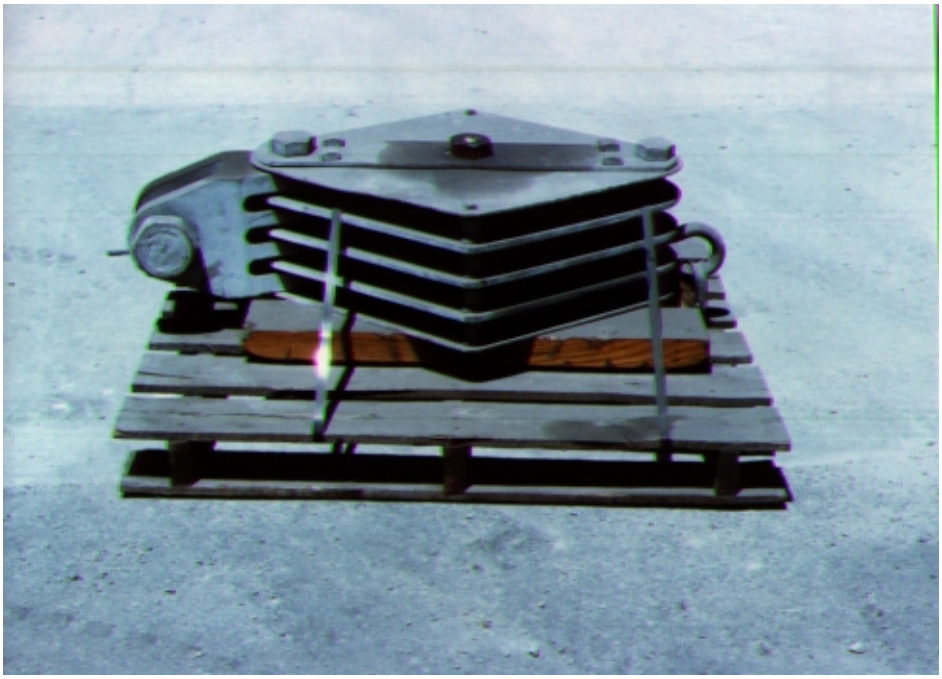
SYSTEM DESCRIPTION

The Heavy Lift System S13100 consists of lifting wire rope, flounder plates, chain, carpenter stoppers, and a tension meter. The lift system is primarily used with ARS Class salvage vessels for lifting objects off the ocean floor. The system can be used from any platform with wire rope rollers sized for the main lifting wire rope. The system uses the force multiplication of a four-sheave, 7/8-inch block purchase set to provide a maximum pulling force of 75 tons on the main lifting wire.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Block, running (set)	BK1015	1
2. Block, standing (set)	BK1029	1
3. Chain, 2 1/4-in. by 90 ft.	CH0040	2
4. Stopper, carpenter, 7/8 in.	ST0020	1
5. Stopper, carpenter, 2 1/2-in.	ST0081	2
6. Stopper, chain (set)	TBD	1
7. Rope, wire, 2 1/2-in. by 300 ft	TBD	2

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Running Block (set) BK1015

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BLOCK, RUNNING, 7/8-INCH WIRE ROPE **ESSM NUMBER BK1015**

DESCRIPTION

The 7/8-inch Running Block BK1015 is a four-sheave block that can move between the 7/8-inch wire rope and the lifting wire. When the 7/8-inch wire rope, that is reeved through the four sheaves of the running block, is being hauled in, the running block applies tension to the lifting wire to assist in lifting the object off the ocean floor.

SPECIFICATIONS

None

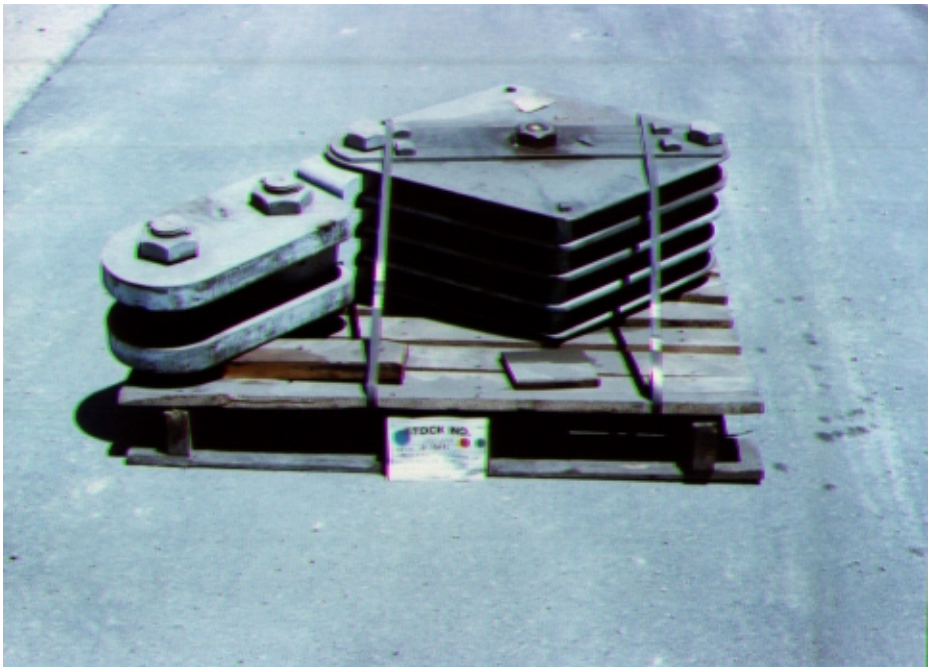
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 0 in.
Width	2 ft, 3 in.
Height	0 ft, 11 in.
Cube	8.5 cu ft
Weight	825 lb

REFERENCES

1. U.S. Navy Salvage Engineers Handbook, Volume l, S0300-A8-HBK-0I0
2. U.S. Navy Ship Salvage Manual, Volume l, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-LP-000-30l0

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Standing Block (set) BK1029

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BLOCK, STANDING, 7/8-INCH WIRE ROPE — ESSM NUMBER BKl029

DESCRIPTION

The 7/8-inch Standing Block BKl029 is a four-sheave block that is secured to a tension measuring instrument that, in turn, is attached to a rigid deck fitting. The standing block can be used with or without the tension measuring device. The 7/8-inch Wire Rope WR0l4l is reeved between the standing block and the running block.

SPECIFICATIONS

None

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 9 in.
Width	2 ft, 4 in.
Height	1 ft, 2 in.
Cube	10 cu ft
Weight	1000 lb

REFERENCES

1. U.S. Navy Salvage Engineers Handbook, Volume 1, S0300-A8-HBK-0l0
2. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-LP-000-3010

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2 1/4-in. by 90 ft Di-Lok Steel Chain CH0040

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CHAIN, DI-LOK STEEL, 2 1/4-INCH BY 90 FEET **ESSM NUMBER CH0040**

DESCRIPTION

The 90-foot long Di-Lok Steel Chain CH0040 is positioned between the anchor and the 1 5/8-inch wire rope.

SPECIFICATIONS

Link size	2 1/4-in.
Length	15 fathoms (90 ft)
Proof test	403,600 lb
Break test	610,000 lb

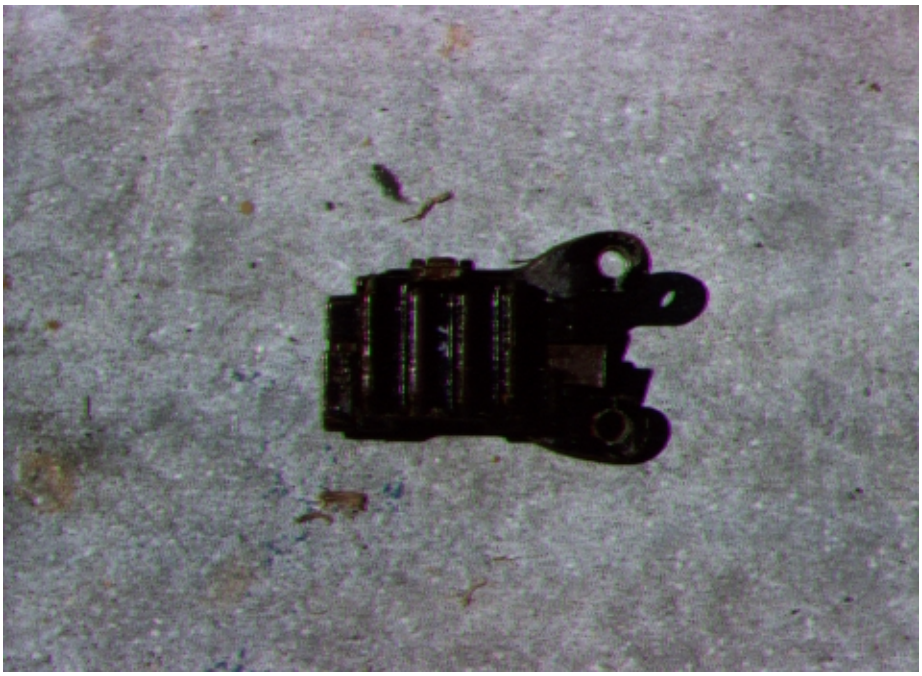
PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 6 in.
Cube	54.25 cu ft
Weight	4460 lb

REFERENCES

1. Baldt Catalog #30 for Anchors and Chains

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7/8-in. Carpenter Stopper ST0020

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STOPPER, CARPENTER, 7/8-INCH **ESSM NUMBER ST0020**

DESCRIPTION

The 7/8-inch Carpenter Stopper ST0020 represents the principal means of gripping and holding a wire rope that is under a load. The carpenter stopper is an intregal part of the heavy lift system. The carpenter stopper is capable of gripping wire rope to the breaking strength without the stopper being damaged. Under normal operating conditions, the carpenter stopper is repeatedly engaged and loaded up to 60 percent of the wire rope's breaking strength without causing damage to that wire rope. Although the construction and operating principle of the carpenter stopper are relatively simple, specific maintenance and operating techniques are mandatory to ensure a long and dependable service life.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Size	7/8-in.

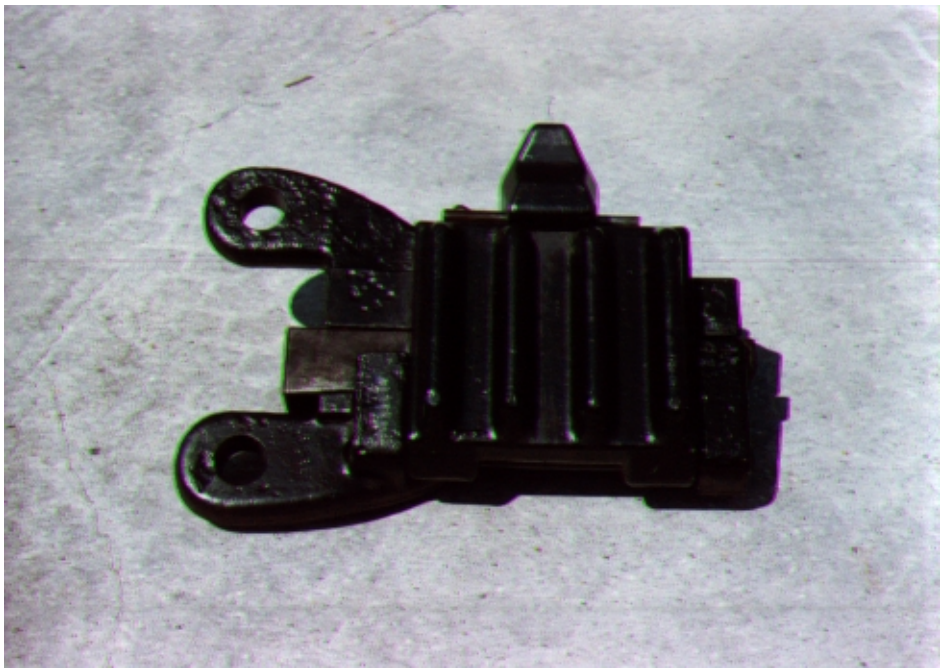
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 in.
Width	8 in.
Height	5 in.
Cube	1 cu ft
Weight	28 lb

REFERENCES

1. Operation and Maintenance Instruction, Carpenter Stopper, NAVSHIP 0994-LP-004-8010
2. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-LP-000-3010

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2 1/2-in. Carpenter Stopper ST0081

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STOPPER, CARPENTER, 2 1/2-INCH **ESSM NUMBER ST008l**

DESCRIPTION

The 2 1/2-inch Carpenter Stopper ST008l represents the principal means of gripping and holding wire rope that is under load. The stopper is capable of gripping wire rope to the breaking strength without the stopper being damaged. Under normal operating conditions, the carpenter stopper is repeatedly engaged and loaded up to 60 percent of the wire rope's breaking strength without causing damage to that wire rope. Although the construction and operating principle of the carpenter stopper are relatively simple, specific maintenance and operating techniques are mandatory to ensure a long and dependable service life.

SPECIFICATIONS

Manufacturer	Baldt Corporation
Size	2 1/2-in.

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 4 in.
Width	1 ft, 4 in.
Height	0 ft, 11 in.
Cube	3 cu ft
Weight	434 lb

REFERENCES

1. Operation and Maintenance Instruction, Carpenter Stopper, NAVSHIPS 0994-LP-004-8010
2. U.S. Navy Ship Salvage Manual, Volume l, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-LP-000-3010

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LIGHT TOWER SYSTEM, WITH 5-KW DIESEL GENERATOR S14100

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Overview of Light Tower System with 5-kW Diesel Generator S14100

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LIGHT TOWER SYSTEM, W/5-KW DIESEL GENERATOR SYSTEM NUMBER S14100

SYSTEM DESCRIPTION

The Light Tower System with 5-kW Diesel Generator S14100 consists of a 5-kW generator, tripods, an extendable mast (for mounting floodlights), floodlights, and a spare parts kit. In addition to providing a portable light source, the light tower system is designed to be a self-contained, portable source of 208-volt, 1- and 3-phase, and 120-volt, 1-phase, 60-cycle power. The system can be used in remote locations under all types of weather conditions.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Light Tower, Diesel	LT0430	1
2. Spare Parts Kit, for LT0430	LT0431	1

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5-kW Diesel Light Tower LT0430 (Tripods and Lights Stowed)

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LIGHT TOWER, DIESEL **ESSM NUMBER LT0430**

DESCRIPTION

The Light Tower LT0430 is a self-contained, diesel driven generator enclosed in a skid-mounted frame assembly. The Light Tower has an extendable mast and tripods, stored in a compartment below the generator, to mount eight 500-watt halogen light fixtures to supply lighting on a salvage work site. In addition, 8 spare bulbs are included in a storage container within the light tower assembly. The ac voltage output available includes 208-volt, 3-phase; 208-volt, 1-phase; and 120-volt, 1-phase electrical power.

SPECIFICATIONS

Generator Assembly

Manufacturer	Onan
Model	DJB
Type	AC
Capacity	5 kW
Frequency	60 Hz @ 1800 rpm
Voltage	208/120 volts

Engine

Manufacturer	Onan
Model	DJB
No. of cylinders	2
Horsepower	8.6
Starting	Electric 12 V dc
Fuel	Diesel
Fuel source	Integral, 8-gal.
Fuel consumption	0.66 gph

Lights

Wattage (each fixture)	500
Quantity	8

PHYSICAL CHARACTERISTICS

	Shipping	Operating
Length	6 ft, 5 in.	6 ft, 5 in.
Width	4 ft, 8 in.	4 ft, 8 in.
Height	4 ft, 9 in.	16 ft, 2 in.
Cube	142 cu ft	NA
Weight	2100 lb	2100 lb

REFERENCES

1. Parts and Service Manual for Model CWST 44069, NAVSHIPS 0994-003-8010.

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Spare Parts Kit LT0431

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SPARE PARTS KIT, FOR LT0430 **ESSM NUMBER LT043l**

DESCRIPTION

The Spare Parts Kit LT043l contains parts necessary to operate and maintain one Light Tower LT0430.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, shipping, 20" x 14" x 8", w/ lid:	1
Cartridge, fuel filter	2
Cleaner, air (Duralift)	1
Filter, fuel element	1
Element, oil filter	1
Fuse, 1-amp	2
Fuse, 4-amp	2
Gasket, various	6
Gasket, nozzle	4
Inventory, laminated	1
Manual, Service and Parts	1
Nozzle and holder	2
Shield, nozzle	4

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	1 ft, 0 in.
Height	9 in.
Cube	2.5 cu ft
Weight	10 lb

REFERENCES

None

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120-VOLT LIGHTING KIT SYSTEM S15100

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Overview of Lighting Kit System S15100

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LIGHTING KIT SYSTEM (120-VOLT) SYSTEM NUMBER S15100

SYSTEM DESCRIPTION

The Lighting Kit System S15100 is a portable lighting system consisting of extendable masts, 500-watt halogen floodlights, drop lights, extension cords, spare bulbs, and other miscellaneous items to support general lighting for salvage and oil pollution operations. The Lighting Kit System can use any 110-volt, single phase power source found at the salvage or pollution site.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Lighting Kit, 120-Volt	LI0440	1

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Lighting Kit LI0440

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LIGHTING KIT, 120-VOLT **ESSM NUMBER LI0440**

DESCRIPTION

The Lighting Kit LI0440 contains lighting equipment and spares to provide general purpose and emergency lighting for salvage and oil pollution operations.

SPECIFICATIONS

The Lighting Kit contains the following:

Item	Qty
Container, 60" x 36" x 36”:	1
Adapter, 125 male plug to Turnex L5-20R, 24"	1
Adapter, light tower to light kit, L5-15P to L5-20	1
Adapter, pigtail to Turnex L5-20R connector, 24"	1
Bulb, halogen, 500-watt	8
Bulb, 67-watt, incandescent (75-watt equivalent)	46
Cable tie, 11 1/2”	200
Cord, extension, 3-conductor, 120-V, w/ dual receptacles, 100'	5
Cord, extension, 3-conductor, 120-V, w/ dual receptacles, 50'	5
Droplight, 120-V, w/ male environmentally protected plug, 50'	5
Lighting string, w/ 120-V drop lights	5
Mast, tripod, to hold 2 floodlights	4
Tape, insulating, rubber (roll)	2
Tape, insulating, vinyl (roll)	2
Worklight, 500-watt, halogen, 120-volt	8
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	6 ft, 3 in.
Width	3 ft, 10 in.
Height	3 ft, 9 in.
Cube	90 cu ft
Weight	1045 lb

REFERENCES

None

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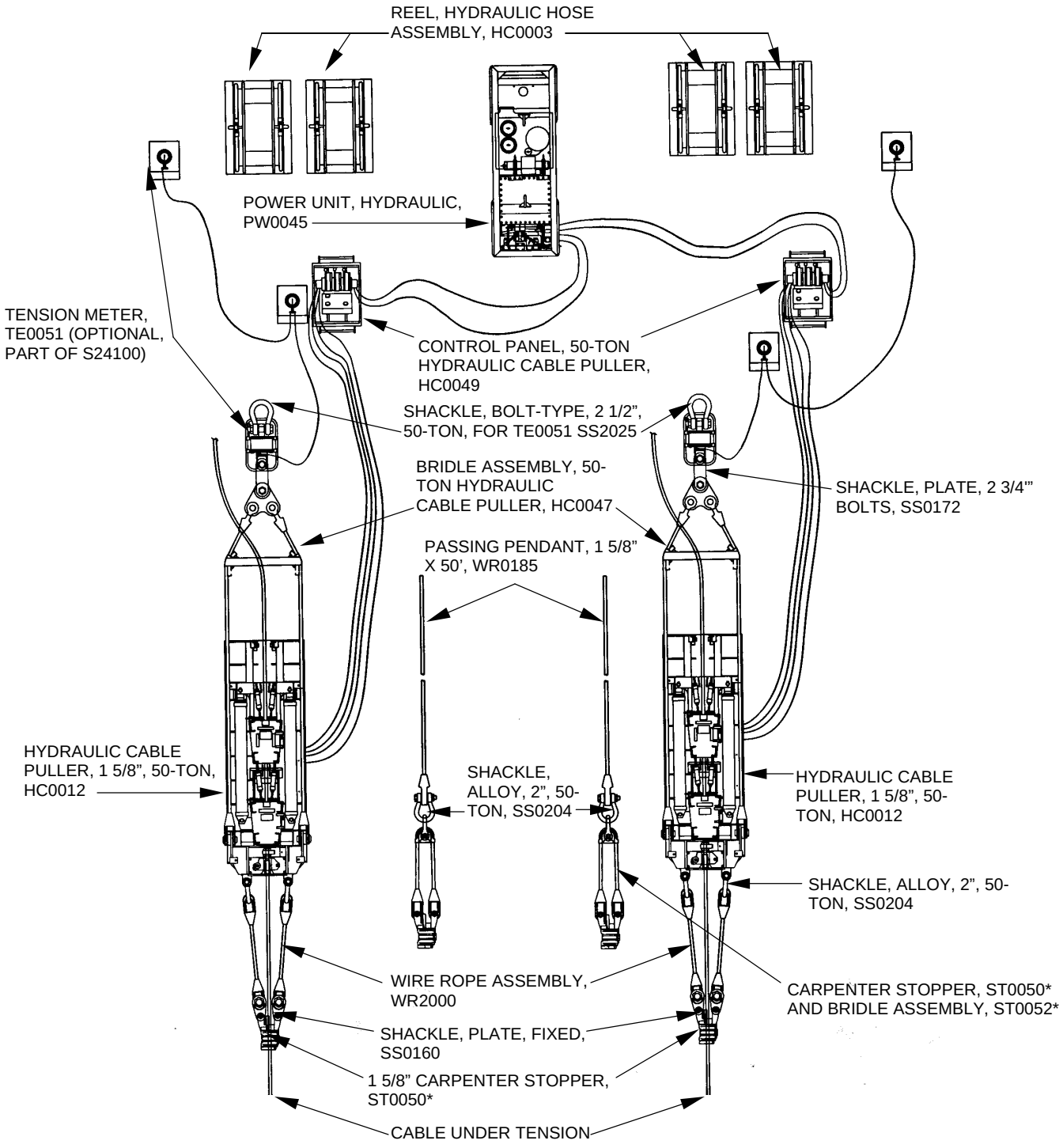
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HYDRAULIC CABLE PULLER SYSTEM S17100

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Overview of Hydraulic Cable Puller System S17100

* ST0050 and ST0052 are located in the Beach Gear System, S05100

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PULLER SYSTEM, CABLE, HYDRAULIC **SYSTEM NUMBER S17100**

SYSTEM DESCRIPTION

The Hydraulic Cable Puller System S17100 consists of two hydraulic cable pullers with control panels, one Mod 6 Hydraulic Power Unit, and the hoses and rigging equipment necessary for operation. An optional tension gauge system is available using either hydraulic or electronic strain gauges (see System S24100 for more information). The Cable Puller System is also used with the Beach Gear Ground Leg System S05100.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Reel, Hydraulic Hose Assembly	HC0003	4
2. Hydraulic Cable Puller, 1 5/8”, 50-Ton	HC0012	2
3. Ancillary Set for HC0012, 50-Ton Cable Puller:	HC0015	1
Spare Parts Kit, 50-Ton Hydraulic Cable Puller	HC0013	1
Bridle Assembly, 50-Ton Hydraulic Cable Puller	HC0047	2
Shackle, Fixed Plate, for Carpenter Stopper ST0050	SS0160	4
Shackle, Plate, 2 3/4"/2 3/4" Bolts	SS0172	4
Shackle, Alloy, Bolt-Type, 2”, 50-Ton	SS0204	6
Passing Pendant, 1 5/8” x 50’, w/ Closed Socket One End	WR0185	2
Wire Rope Assembly, 1 5/8” x 58”, Closed Sockets Each End	WR2000	4
4. Control Panel, 50-Ton Hydraulic Cable Puller	HC0049	2
5. Power Unit, Hydraulic, Mod 6, Diesel, 52 gpm @ 2500 psi	PW0045	1
6. Spare Parts Kit, for Power Unit PW0045	PW0046	1

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Hydraulic Hose Reel Assembly HC0003

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REEL, HYDRAULIC HOSE ASSEMBLY **ESSM NUMBER HC0003**

DESCRIPTION

The Hydraulic Hose Reel Assembly HC0003 consists of four 50-foot sections of 1-inch hose with quick disconnect fittings. These hoses are stored on the hose reel spool and are charged with system hydraulic fluid. The spool is mounted on a steel frame that has forklift slots and four top-mounted lifting points used for handling the hose reel during shipment and operation. The hoses are used to transmit hydraulic flow and pressure from the hydraulic power unit to hydraulically driven equipment.

SPECIFICATIONS

Hose	Aeroquip 1508-16, 4 sections (50 ft each)
Quick disconnect fittings	Aeroquip 5600-16-16S
Spool and frame	Single drum, steel, w/pillow block bearings

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 11 in.
Width	2 ft, 8 in.
Height	4 ft, 1 in.
Cube	42 cu ft
Weight	730 lb

REFERENCES

1. Operation and Maintenance Instructions for Hydraulic Cable Puller Systems, NAVSEA S9597-AB-MMO-010.

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1 5/8” Hydraulic Cable Puller HC0012

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HYDRAULIC CABLE PULLER, 1 5/8", 50-TON **ESSM NUMBER HC0012**

DESCRIPTION

The 50-Ton Hydraulic Cable Puller HC0012 is a linear winch that is designed to pull in or pay out 1 5/8-inch wire rope at tensions of up to 100,000 pounds. The puller consists of two hydraulically operated wire rope grips that grip or release the rope by closing and opening the wire rope grip jaws. The fixed grip is mounted on the puller frame and the hauling grip is mounted on the cable puller cross head. The cross head is moved by hydraulic cylinders which, when sequenced with the stationary and hauling grip, pull in or pay out the wire rope.

SPECIFICATIONS

Manufacturer	Tennessee Machine Works
Carriage stroke	3 ft, 8 in.
Length (extended)	11 ft, 9 in.
Pulling rate:	
Average	6.6 ft/min
Maximum – one stroke	10 ft/min
Payout (one stroke)	20 ft/min
Hydraulic requirements:	
Flow	26 gpm
Pressure	2500 psi
Load	100,000 lb
Wire rope size	1 5/8 in.

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	10 ft, 3 in.
Width	3 ft, 5 in.
Height	1 ft, 9 in.
Cube	62 cu ft
Weight	5500 lb

REFERENCES

1. Operation and Maintenance Instructions for Hydraulic Cable Puller Systems, NAVSEA S9597-AB-MMO-010.

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Ancillary Set HC0015

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ANCILLARY SET FOR HC0012, 50-TON CABLE PULLER ESSM NUMBER HC0015

DESCRIPTION

The Ancillary Set HC0015 contains the items necessary for cable puller operation.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, wire mesh basket, 62” x 36” x 41”:	1	
Bridle Assembly, 50-Ton Hydraulic Cable Puller	HC0047	2
Spare Parts Kit, 50-Ton Hydraulic Cable Puller	HC0013	1
Shackle, Fixed Plate, for Carpenter Stopper ST0050	SS0160	4
Shackle, Plate, 2 3/4"/2 3/4" Bolts	SS0172	4
Shackle, Alloy, Bolt-Type, 2”, 50-Ton	SS0204	6
Passing Pendant, 1 5/8" x 50' with Closed Socket One End	WR0185	2
Wire Rope Assembly, 1 5/8” x 58”, with Closed Sockets Each End	WR2000	4
Sledgehammer, 6-lb		1
Bolt, 3-4UNC, w/nut, cotter pin		4
Crowbar, 48”		2
Pliers, 16”		1
Inventory, laminated		1
Ammo box, 4” x 7” x 11”		1
Cotter pin, various		18

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 2 in.
Width	3 ft, 1 in.
Height	3 ft, 6 in.
Cube	56 cu ft
Weight	2703 lb

REFERENCES

None

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Spare Parts Kit HC0013

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SPARE PARTS KIT, 50-TON HYDRAULIC CABLE PULLER **ESSM NUMBER HC0013**

DESCRIPTION

The Spare Parts Kit HC0013 contains the items necessary to support the operation and maintenance of one Hydraulic Cable Puller HC0012.

SPECIFICTIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, Spare Parts Kit, 36” x 26” x 14”:	1
Drawing, system overview	1
Assembly, bushing, various	10
Dustcap	4
Clamp, hose	2
Coupling, quick disconnect, various	8
Cylinder, hydraulic	1
Assembly, charging, w/gauge	1
Hose, hydraulic, w/fittings, various	11
Technical Manual, NAVSEA S9597-AB-MMO-010	1
Valve, various	14
Pin, dust cover	1
Plug, female, dust cover	5
Plug, male, dust cover	2
O-ring, various	11
Seal kit, #765	2
Seal, tubing end	8
Pins, quick release, various	4

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 0 in.
Width	2 ft, 2 in.
Height	1 ft, 2 in.
Cube	10 cu ft
Weight	215 lb

REFERENCES

None

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Cable Puller Bridle Assembly HC0047

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BRIDLE ASSEMBLY, 50-TON HYDRAULIC CABLE PULLER **ESSM NUMBER HC0047**

DESCRIPTION

The Hydraulic Cable Puller Bridle Assembly HC0047 consists of a Flounder Plate (PL0940), two 1 5/8-inch wire rope legs, and a spreader bar. One end of each wire rope leg is connected to the forward end of the cable puller by an open socket and pin. The legs of the bridle are passed around the spreader bar and the other end of each leg is connected to the flounder plate to provide a single attachment point to a restraining pad eye to secure the Hydraulic Cable Puller.

SPECIFICATIONS

Bridle Assembly	NAVSEA Dwg. 5191920
Spreader Bar	NAVESA Dwg. 5191882
Plate, Flounder (PL0940)	NAVSEA Dwg. 5191909

PHYSICAL CHARACTERISTICS

	Shipping
Length	6 ft, 8 in.
Width	3 ft, 4 in.
Height	10 in.
Cube	20.5 cu ft
Weight	610 lb

REFERENCES

1. Operation and Maintenance Instructions for Hydraulic Cable Puller Systems, NAVSEA S9597-AB-MMO-010.

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Fixed Plate Shackle SS0160

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SHACKLE, FIXED PLATE, FOR CARPENTER STOPPER ST0050 **ESSM NUMBER SS0160**

DESCRIPTION

The Fixed Plate Shackle SS0160 is a two-piece assembly constructed of plate steel. It is used to connect the 1 5/8" x 58" Wire Rope Assemblies to the Carpenter Stoppers in the Hydraulic Cable Puller System. The Fixed Plate Shackles are shipped as part of the Ancillary Set HC0015.

SPECIFICATIONS

Manufacturer	Commercial
NAVSEA Dwg.	6777271-1
Capacity	50 tons
Proof strength	100 tons
Breaking strength	150 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1ft, 2 in.
Width	10 in.
Height	8 in.
Cube	1.5 cu ft
Weight	70 lb

REFERENCES

1. NAVSEA Dwg. 6777271-1.

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50-Ton Alloy Bolt-Type Shackle SS0204

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SHACKLE, ALLOY, BOLT TYPE, 2”, 50-TON **ESSM NUMBER SS0204**

DESCRIPTION

The 2-Inch Alloy, Bolt-Type Shackle SS0204 is rated at 50 tons safe working load. The shackle is used in two locations in the Hydraulic Cable Puller System; first to connect the 1 5/8” x 50’ Passing Pendant to the Carpenter Stopper Bridle, and second to connect each base leg of the 50-Ton Hydraulic Cable Puller to the 1 5/8” Carpenter Stopper via the 1 5/8” Wire Rope Assembly.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	2” shackle pin
Model	G-2340
Capacity (SWL)	50 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 2 in.
Width	10 in.
Height	1 ft
Cube	1.5 cu ft
Weight	72 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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50’ Passing Pendant WR0185

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PASSING PENDANT, 1 5/8” X 50’, WITH CLOSED SOCKET ONE END **ESSM NUMBER WR0185**

DESCRIPTION

The 50-Foot Passing Pendant WR0185 is used in the Hydraulic Cable Puller System as a strength member to grip and haul in or pay out cable. The bitter end of the passing pendant is gripped by the cable puller; the fitting end, attached to a 1 5/8” Carpenter Stopper, grips the tow or puller cable. The wire rope is stored in the Ancillary Set HC0015.

SPECIFICATIONS

Length	50’
Diameter	1 5/8”
Construction	6x19 or 7x37 wire rope
Core type	Independent wire rope core or fiber core
Material	Improved plow steel
End fittings	Closed socket one end
Wire coating	Galvanized

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	4 ft, 0 in.
Height	10 in.
Cube	6 cu ft
Weight	125 lb

REFERENCES

1. NAVSEA Dwg. 6777271-13.

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Wire Rope Assembly WR2000

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WIRE ROPE ASSEMBLY, 1 5/8” X 58”, CLOSED SOCKETS EACH END **ESSM NUMBER WR2000**

DESCRIPTION

The 1 5/8-Inch Wire Rope Assembly WR2000 is used in the Hydraulic Cable Puller System to connect the cable puller to the 1 5/8-Inch Carpenter Stopper ST0050. Each length of wire rope has a spelter closed socket on each end. The wire rope is stored in the Ancillary Set HC0015.

SPECIFICATIONS

Length	58”
Diameter	1 5/8”
Construction	7x37 wire rope
Core type	Independent wire rope core
Material	Improved plow steel
End fittings	Closed socket each end
Wire coating	Galvanized

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Diameter	7 in.
Length	4 ft, 10 in.
Cube	2 cu ft
Weight	85 lb

REFERENCES

1. NAVSEA Dwg. 6777271-2.

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Hydraulic Cable Puller Control Panel HC0049

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CONTROL PANEL, 50-TON HYDRAULIC CABLE PULLER **ESSM NUMBER HC0049**

DESCRIPTION

The 50-Ton Hydraulic Cable Puller Control Panel HC0049 consists of three hydraulic control valves, pressure gauges, an accumulator, hydraulic hoses, and other valves and piping necessary for controlling the hydraulic cable puller. Hydraulic hoses are provided for connection to the HPU and cable puller. The hydraulic controls are contained in an aluminum shipping and operating housing that is equipped with forklift slots for handling during shipment and operation.

SPECIFICATIONS

Manufacturer	Tennessee Machine Works
Accumulator:	
Capacity	1.5 gallons
Pre-charge pressure	1000 psi
Gauges	0-3000 psi
Hydraulic hoses (2)	1/2" x 50' with male and female quick disconnect fittings

PHYSICAL CHARACTERISTICS

	Shipping
Length	3 ft, 4 in.
Width	2 ft, 2 in.
Height	2 ft, 2 in.
Cube	16 cu ft
Weight	385 lb

REFERENCES

1. Operation and Maintenance Instructions for Hydraulic Cable Puller Systems, NAVSEA S9597-AB-MMO-010.

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Mod 6 Hydraulic Power Unit PW0045

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POWER UNIT, HYDRAULIC, MOD 6, DIESEL, 52 GPM @ 2500 PSI **ESSM NUMBER PW0045**

DESCRIPTION

The Mod 6 Hydraulic Power Unit (HPU) PW0045 is a portable, diesel driven unit that provides hydraulic flow through two independent circuits. Each circuit is controlled by an independent directional control valve. An adjustable pressure relief valve controls the output pressure delivered to each supply circuit. The total hydraulic output is 52 gpm at a pressure of 2500 psi.

The HPU is skid-mounted with forklift slots and enclosed in a protective frame with two lifting points. Hydraulic connections utilize 1-inch Aeroquip 5600 series quick disconnect fittings (two male for supply and two female for return).

SPECIFICATIONS

Hydraulic Power Unit Assembly

Manufacturer	Commercial, Navy Design
Drawing number	NAVSEA 5191947

Diesel Engine

Manufacturer	Detroit Diesel-Allison
Series	4-53
Rpm	2200
Hp	87 @ 2200 rpm
Starting	Hydraulic
Fuel	Diesel
Fuel source	20-gal. internal, with pickup tube
Fuel consumption	6 gph

Hydraulic Pump

Manufacturer	Commercial Shearing
Model	Two P30's, tandem
Part number	P30B-442-B1-OJ15-25-C-OJ15-1
Type	Gear
Oper. press. (max.)	2500 psi
Flow	26 gpm each @ 2200 rpm
Hyd. reservoir	50 gallons
Hydraulic fluid	Rando 46

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	8 ft, 0 in.
Width	2 ft, 10 in.
Height	4 ft, 10 in.
Cube	120 cu ft
Weight	4400 lb

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POWER UNIT, HYDRAULIC, MOD 6, DIESEL, 52 GPM @ 2500 PSI **ESSM NUMBER PW0045**

REFERENCES

1. Operation and Maintenance Instructions for the Hydraulic Power Unit, Model 6, NAVSEA Manual S9597-AB-OMP-010.

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Spare Parts Kit PW0046

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SPARE PARTS KIT, FOR POWER UNIT PW0045 **ESSM NUMBER PW0046**

DESCRIPTION

The Spare Parts Kit PW0046 contains the items necessary to support the operation and maintenance of one Hydraulic Power Unit PW0045.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, Spare Parts Kit, 21" x 16” x 12”:	1
Filter, hydraulic	2
Filter, fuel (BF-593)	2
Filter, fuel (BF-592)	2
Filter, engine oil	2
Gasket, thermostat	1
Injector, fuel	2
Manual, Operation and Maintenance, Mod 6 HPU	1
O-ring, Buna rubber	12
O-ring, Teflon	12
Thermostat	1
V-belt	1
V-belt set	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 9 in.
Width	1 ft, 4 in.
Height	1 ft, 0 in.
Cube	2.5 cu ft
Weight	28 lb

REFERENCES

None

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Plate Shackle, 2 3/4”/2 3/4” Bolts SS0172

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SHACKLE, PLATE, 2 3/4”/2 3/4” BOLTS **ESSM NUMBER SS0172**

DESCRIPTION

The Large Plate Shackle SS0170 is a two-piece assembly constructed of plate steel. It is used to connect elements of chain or wire rope to other objects. The shackle bolts are secured using a 3/8"-16 x 4" machine bolt with two nuts jammed together to prevent the nut from rotating on the bolt. This is done in place of securing the nuts to the bolts with cotter pins.

SPECIFICATIONS

Manufacturer	Commercial
NAVSEA Dwg.	7022668
Capacity	50 tons
Proof strength	100 tons
Breaking strength	150 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Width	11 in.
Height	7 in.
Cube	1 cu ft
Weight	110 lb

REFERENCES

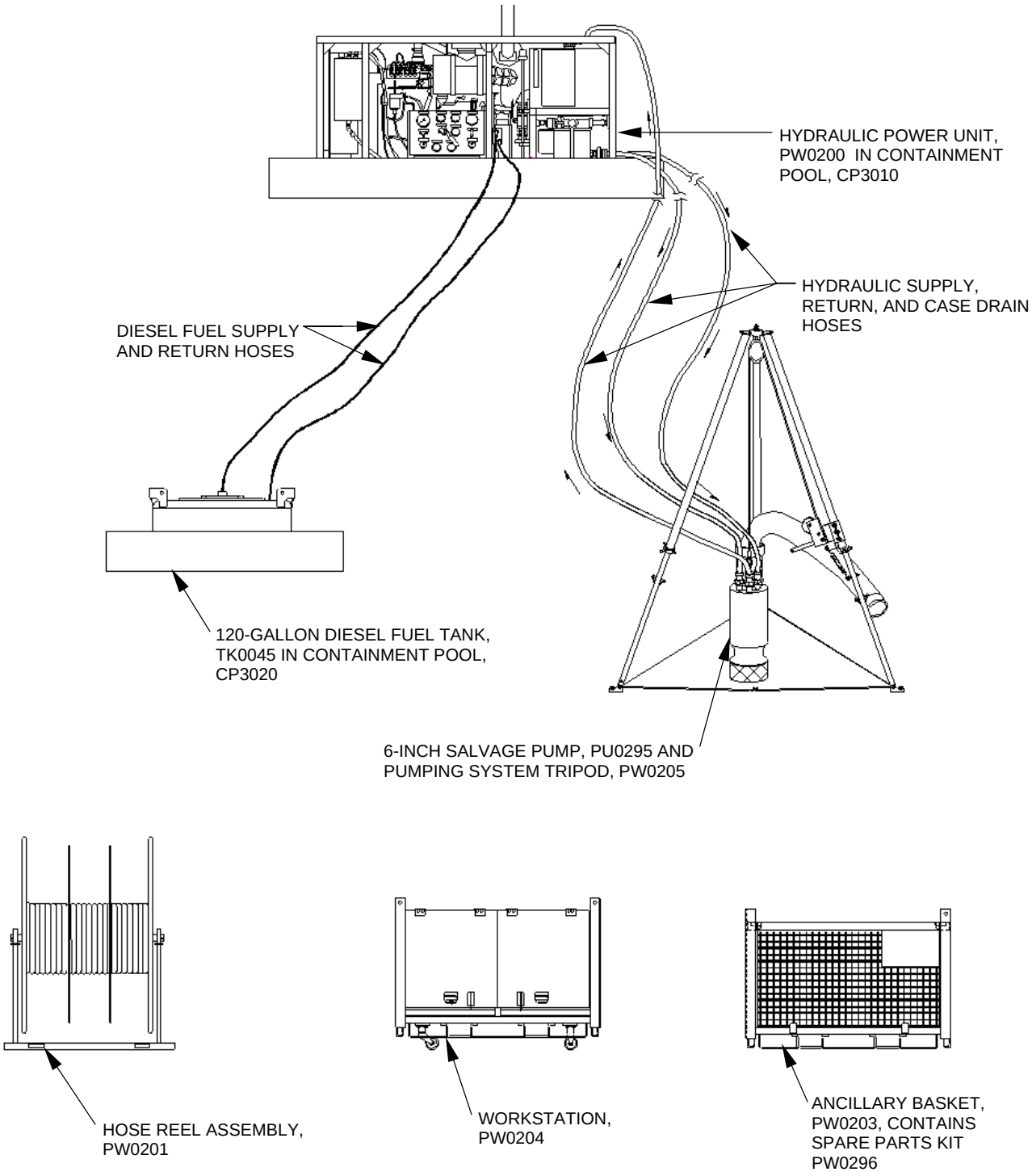
1. NAVSEA Dwg. 7022668.

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6-INCH SUBMERSIBLE SALVAGE PUMPING SYSTEM S18000

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Overview of 6-Inch Salvage Pumping System S18000

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SYSTEM DESCRIPTION

The 6-Inch Submersible Salvage Pumping System S18000 is a high-capacity pumping system used for dewatering, counterflooding, or other purposes requiring movement of water. The system consists of a 6-inch hydraulic submersible pump, hydraulic power unit, hose reel assembly, 120-gallon fuel storage tank, portable workstation, tripod, spare parts kit, and ancillary set.

NOTE: The system is NOT configured to pump petroleum products from a stranded vessel.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Power Unit, Hydraulic, Mod 8, Diesel, 71 gpm @ 4000 psi (Salvage)	PW0200A	1
Tripod (6” Submersible Salvage Pumping System)	PW0205	1
Roundsling Bridle, Polyester, 4-Leg, 6’	SL0385	1
2. Hydraulic Hose Reel Assembly for PW0200	PW0201	1
3. Ancillary Set (6” Submersible Salvage Pumping System)	PW0203	1
Containment Pool, Machinery, 10' x 6' x 12", Cooley Urethane	CP3010	1
Containment Pool, 6' x 4' x 12", Cooley Urethane	CP3020	1
Pump, Salvage, Submersible, Hydraulic, 6”	PU0295	1
Spare Parts Kit, For PU0295 Pump	PU0296	1
Tank, Diesel Fuel, 120-Gallon	TK0045	1
4. Workstation (6” Submersible Salvage Pumping System)	PW0204	1
5. Spare Parts Kit for Mod 8 HPU, PW0200	PW0206	1

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Mod 8 Hydraulic Power Unit PW0200A

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POWER UNIT, HYDRAULIC, MOD 8, DIESEL, 71GPM @ 4000 PSI (SALVAGE) **ESSM NUMBER PW0200A**

DESCRIPTION

The Salvage Mod 8 Diesel Hydraulic Power Unit PW0200A is a skid-mounted assembly that provides hydraulic fluid flow of up to 71 gpm at 4000 psi from a variable displacement, pressure compensated pump. The flow rate can be mechanically varied at the control panel. Maximum system pressure is adjustable at the pump.

SPECIFICIATIONS

Hydraulic Power Unit

Manufacturer	Highstar Industries
Model	82647

Engine

Manufacturer	Detroit Diesel
Model	Series 40, 8.7 LT
Type	In-line
No. of cylinders	6, in-line configuration
Combustion	4-cycle
Starting	Hydraulic
Horsepower	225 @ 2100 rpm
Fuel	Diesel
Fuel source	120-gal. external tank w/ pickup tube & hoses
Fuel consumption	11.8 gal./hr

Pump

Manufacturer	Sundstrand
Model	Series 90
Variable	Axial piston
Max. displacement	6.10 cu. in./rev
Hydraulic fluid	Rando 46
Hydraulic reservoir capacity	70 gallons
Hydraulic fluid output	71 gpm @ 4000 psi

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	7 ft, 7 in.
Width	3 ft, 11 in.
Height	4 ft, 0 in.
Cube	122 cu ft
Weight	3850 lb

REFERENCES

1. Commercial Off-the-Shelf (COTS) Manual, Hydraulic Power Unit (HPU) Model 82647, PW0200.

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Pumping System Tripod PW0205

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TRIPOD (6-INCH SUBMERSIBLE SALVAGE PUMPING SYSTEM) **ESSM NUMBER PW0205**

DESCRIPTION

The Tripod PW0205 is a 3-legged, adjustable stand that is used to position, suspend, and lower the six-inch submersible salvage pump through an opening into a tank, void, or other compartment to be dewatered. The winch cable is led through a block at the head of the tripod and hooked to the lifting sling of the pump. The pump is then raised or lowered by means of an attached, manually operated winch. The tripod legs shipped on top of the Hydraulic Power Unit PW0200A.

SPECIFICATIONS

Tripod		Winch	
Manufacturer	Wallace Products Corp.	Manufacturer	Dutton-Lainson Co.
Model	3-682	Model	DLB250 #675
Type	Aluminum, w/base pad kit	Type	Manual
Capacity	3 tons	Winch cable	5/16" x 50'

PHYSICAL CHARACTERISTICS

	Shipping	Operating	
		Minimum	Maximum
Length	8 ft, 2 in.		
Width	3 ft, 8 in.		
Overall height	10 in.	8 ft, 9 in.	12 ft, 9 in.
Cube	25 cu ft	NA	NA
Weight	192 lb	192 lb	192 lb
Height, eyebolt to floor		6 ft, 8 in.	10 ft, 3 in.
Dimension between legs		5 ft, 3 in.	9 ft, 3 in.

REFERENCES

None

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Roundsling Bridle SL0385

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ROUNDSLING BRIDLE, POLYESTER, 4-LEG, 6' **ESSM NUMBER SL0385**

DESCRIPTION

The 4-Leg Polyester Roundsling Bridle SL0385 is designed specifically for handling the Hydraulic Power Unit PW0200A in an under-the-hook configuration using a crane. It is equipped with four screw pin shackles and is shipped attached to the four lifting points of the hydraulic power unit.

SPECIFICATIONS

	Roundsling Bridle	Shackle (4)
Manufacturer	J. Henry Holland	Midland Forge
Model	EEURS2	M649G
Capacity	4,000 lb @ 45°	2-ton

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 8 in.
Width	6 in.
Height	6 in.
Cube	2 cu ft
Weight	14 lb

REFERENCES

None

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Hose Reel Assembly PW0201

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HYDRAULIC HOSE REEL ASSEMBLY FOR PW0200 ESSM NUMBER PW0201

DESCRIPTION

The Hydraulic Hose Reel Assembly PW0201 stores two supply, return, and case drain hydraulic hose assemblies. These are used in the operation of the 6-Inch Submersible Salvage Pump PU0295 by the Hydraulic Power Unit PW0200. The hoses are precharged with Rando 46 hydraulic fluid to limit fluid loss from the hydraulic power unit during system setup. Forklift slots are included in the base to facilitate handling.

SPECIFICATIONS

Hose Assemblies (2 lengths each):

Supply Hose	1 1/4" x 50' Aeroquip FC273-20, 5000 psi
QDs	1 1/4" Snap-tite, 71 series
Return Hose	1 1/4" x 50' Aeroquip FC273-20, 5000 psi
QDs	1 1/4" Snap-tite, 71 series
Case drain Hose	1/2" x 50' Aeroquip FC498-08, 400 psi
QDs	1/2" Snap-tite, PH series

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 4 in.
Width	4 ft, 1 in.
Height	5 ft, 7 in.
Cube	97 cu ft
Weight	2,205 lb

REFERENCES

None

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Ancillary Set PW0203

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ANCILLARY SET (6-INCH SUBMERSIBLE SALVAGE PUMPING SYSTEM) — ESSM NUMBER PW0203

DESCRIPTION

The Ancillary Set PW0203 contains items necessary to support one S18000 Salvage Pumping System. The ancillary set wire mesh basket accommodates the 6-Inch Submersible Salvage Pump PU0295 and is equipped with a plywood cover for storage of the empty 120-gallon fuel tank during shipping.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Wire mesh basket, 62” x 36” x 41”:		1
Containment Pool, Machinery, 10” x 6' x 12”, Cooley Urethane	CP3010	1
Containment Pool, 6' x 4' x 12", Cooley Urethane	CP3020	1
Pump, Salvage, Submersible, Hydraulic, 6”	PU0295	1
Spare Parts Kit, For PU0295 Pump	PU0296	1
Tank, Diesel Fuel, 120-Gallon	TK0045	1
Block, 3/8” with safety hook		1
Cable, lashing, 30’ 6” long		1
Handtruck, modified for PU0295 pump		1
Head, tripod		1
Hose, layflat, 6” x 50’		3
Jerry can, 5-gallon, with flexible spout		1
Tag line, 50’, with safety hook ends		2
Nut, hex, 1”-8 UNC with washers		2
Pad, absorbent (package)		1
Pin, assembly		3
Plug, 6” camlock		3
Winch, with cable		1
Turnbuckle, 5/8”		1
Inventory, laminated		1
Ammo box (small parts container):		1
Berm repair kit		1
Clip, wire rope		2
Diagram, spare parts location		1
Eyebolt, 3/4"-10 x 4 1/2"		1
Parts list, tripod		1
Pin, base plate		3
Pin repair kit, 1/4" diameter		3
Technical manual, tripod head winch		1
Base, tripod, with rubber pad		3
Winch safety stop assembly		3

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ANCILLARY SET (6-INCH SUBMERSIBLE SALVAGE PUMPING SYSTEM) **ESSM NUMBER PW0203**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 2 in.
Width	3 ft, 5 in.
Height	3 ft, 0 in.
Cube	53 cu ft
Weight	1670 lb

REFERENCES

None

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Machinery Containment Pool CP3010
(Shipping Configuration)



Machinery Containment Pool CP3010
(In-Use Configuration)

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CONTAINMENT POOL, MACHINERY, 10’ X 6’ X 12”, COOLEY URETHANE **ESSM NUMBER CP3010**

DESCRIPTION

The Machinery Containment Pool CP3010 is a 10’ x 6’ x 12” urethane berm. It is used to catch and contain any oil, fuel, hydraulic fluid, or contaminants leaking or spilled from diesel powered or hydraulically driven components.

SPECIFICATIONS

Manufacturer	Basic Concepts
Fabric material	Cooley Urethane
Capacity	447.5 gallons

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	10 ft, 0 in.	1 ft, 8 in.
Width	6 ft, 0 in.	1 ft, 8 in.
Height	1 ft, 0 in.	6 in.
Cube	60 cu ft	1.5 cu ft
Weight	48 lb	48 lb

REFERENCES

None

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Machinery Containment Pool CP3020
(Shipping Configuration)



Machinery Containment Pool CP3020
(In-Use Configuration)

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CONTAINMENT POOL, 6’ X 4’ X 12”, COOLEY URETHANE ESSM NUMBER CP3020

DESCRIPTION

The Machinery Containment Pool CP3020 is a 6’ x 4’ x 12” urethane berm. It is used to catch and contain any oil, fuel, hydraulic fluid, or contaminants leaking or spilled from diesel powered or hydraulically driven components.

SPECIFICATIONS

Manufacturer	Basic Concepts
Fabric material	Cooley Urethane
Part number	14683-1
Capacity	179 gallons

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	6 ft, 0 in.	1 ft, 8 in.
Width	4 ft, 0 in.	1 ft, 8 in.
Height	1 ft, 0 in.	6 in.
Cube	24 cu ft	1.5 cu ft
Weight	34 lb	34 lb

REFERENCES

None

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6” Hydraulic Submersible Salvage Pump PU0295

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PUMP, SALVAGE, SUBMERSIBLE, HYDRAULIC, 6” **ESSM NUMBER PU0295**

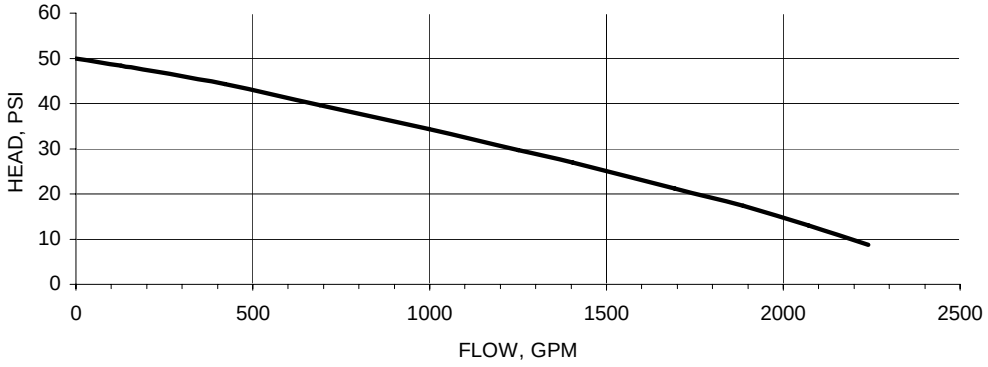
DESCRIPTION

The 6-Inch Hydraulic Submersible Salvage Pump PU0295 is a high-capacity, hydraulically driven, submersible, centrifugal pump with a shutoff head pressure of 48 psi and a maximum discharge flow of 2200 gpm. The pump, with hoses and fittings attached, is sized to fit through a standard 12 1/2-inch Butterworth-type opening. Carrying handles located at the top and bottom of the pump allow for positioning by personnel and serve as pad eyes for lifting slings. The pump can be transported manually by a specially modified handtruck. The pump is powered by the Hydraulic Power Unit PW0200A.

SPECIFICATIONS

Pump Assembly		Hydraulic Motor	
Manufacturer	Fischcon Trading & Engineering	Manufacturer	Eaton
Model	VDH1-150.215	Type	4631-015
Type	Centrifugal		
Suction dia.	6" male camlock		
Discharge dia.	6" male camlock		
Speed	Variable		
Output	2200 gpm		
Hyd. connections	Snap-tite, 71		
Supply	1 1/4" female		
Return	1 1/4" male		
Case drain	1/2" male		

PERFORMANCE CURVE



Performance Curve for PU0295

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PUMP, SALVAGE, SUBMERSIBLE, HYDRAULIC, 6” **ESSM NUMBER PU0295**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Height (with inlet screen)	3 ft, 3 in.
Diameter	1 ft, 0 in.
Cube	2.55 cu ft
Weight	268 lb

REFERENCES

None

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Spare Parts Kit PU0296

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SPARE PARTS KIT, FOR PU0295 PUMP **ESSM NUMBER PU0296**

DESCRIPTION

The Spare Parts Kit PU0296 contains the items necessary to support the operation and maintenance of one 6-Inch Hydraulic Pump PU0295.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 18" x 11” x 10”, w/lid:	1
Fitting, quick disconnect, female	1
Fitting, quick disconnect, male	1
Kit, repair, quick disconnect, female	1
Kit, repair, quick disconnect, male	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	11 in.
Height	10 in.
Cube	1.0 cu ft
Weight	8 lb

REFERENCES

None

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120-Gallon Diesel Fuel Tank TK0045

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TANK, DIESEL FUEL, 120-GALLON **ESSM NUMBER TK0045**

DESCRIPTION

The 120-Gallon Diesel Fuel Storage Tank TK0045 is a portable, stainless steel container used to provide No.2 diesel fuel to the diesel-driven HPU. Four pad eyes are located at the top of the tank for attachment of lifting slings, and there is sufficient clearance at the bottom for lifting forks. A tank opening with cap is provided for filling and for the insertion of a pickup/return fuel hose assembly. The fuel pickup tube and hoses are stored on the HPU. A manhole is provided for cleaning and inspecting the tank interior. A ball type valve, located on one side of the tank bottom, is used to drain fuel from the tank.

SPECIFICATIONS

Manufacturer	Hoover Group, Inc.
Design (pressure)	9.5 psi
Tank weight	300 lb
Gross weight	1255 lb
Volume capacity	120 gal.
Material	Stainless steel ASTM A-240

PHYSICAL CHARACTERISTICS

	Shipping
Length	4 ft, 2 in.
Width	3 ft, 8 in.
Height	2 ft, 3 in.
Cube	34 cu ft
Weight empty	300 lb

REFERENCES

None

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Workstation PW0204

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WORKSTATION (6” SUBMERSIBLE SALVAGE PUMPING SYSTEM) **ESSM NUMBER PW0204**

DESCRIPTION

The Workstation PW0204 contains tools and other material necessary for maintenance and repair of the HPU PW0200 or the 6" Submersible Salvage Pump PU0295. The Workstation is housed in a wire mesh basket with forklift slots in the base and removable casters. The wire mesh basket has two hinged sides; one hinged side folds upward to provide a working platform for a bench vise and a grinder, and the other folds upward to provide access to a four-drawer tool cabinet.

SPECIFICATIONS

Item	Qty
Wire mesh basket, 63" x 36" x 46":	1
Bench grinder, 6", 1/3 hp	1
Bench vise, 4"	1
Tool cabinet, 4-drawer, locking	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 3 in.
Width	3 ft, 0 in.
Height	3 ft, 10 in.
Cube	60 cu ft
Weight	848 lb

REFERENCES

None

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Spare Parts Kit PW0206

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SPARE PARTS KIT FOR HYDRAULIC POWER UNIT PW0200 **ESSM NUMBER PW0206**

DESCRIPTION

The Spare Parts Kit PW0206 contains the items necessary to support the operation and maintenance of one PW0200 Hydraulic Power Unit.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 27" x 19” x 17" (24-gallon)	1
Filter, air	1
Filter, engine coolant	1
Filter, engine oil	1
Filter, fuel	1
Filter, engine fuel prefilter	1
Filter, hydraulic, high pressure	1
Filter, hydraulic, medium pressure	2
Filter, hydraulic, system return	2
Plug, bleeder	1
Repair kit, quick disconnect (71-3C16-SPK)	2
Repair kit, quick disconnect (71-3N16-SPK)	2
V-belt, engine auxiliaries	1
V-belt, engine starting system	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 3 in.
Width	1 ft, 7 in.
Height	1 ft, 5 in.
Cube	5 cu ft
Weight	44 lb

REFERENCES

None

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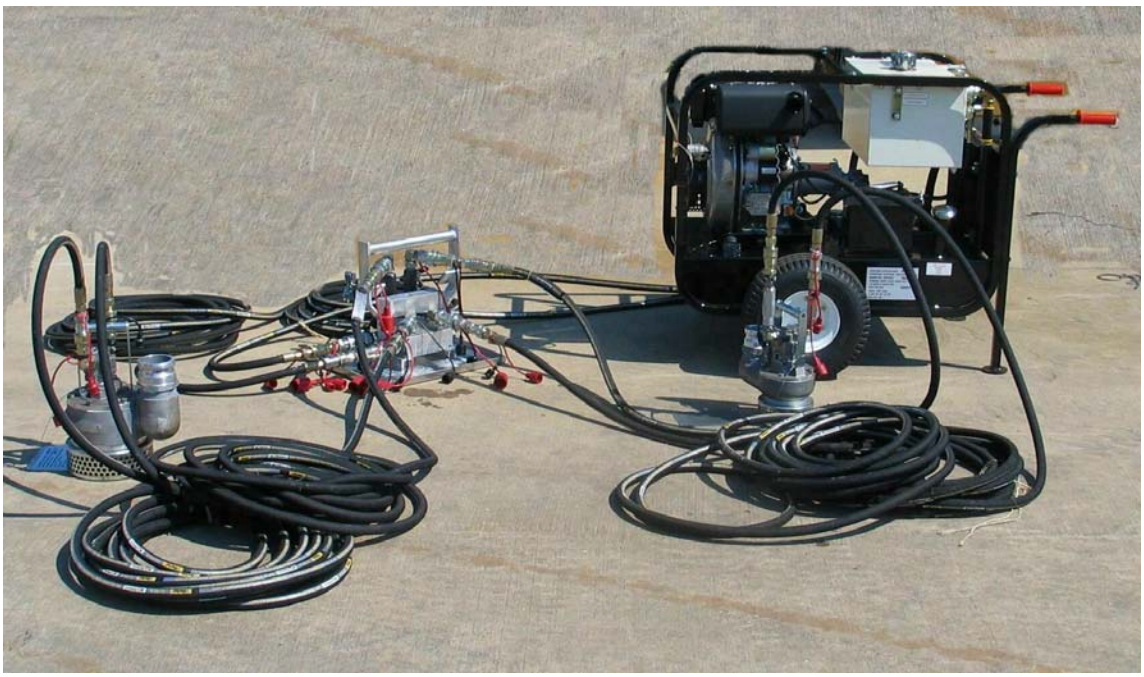
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350-GPM PUMPING SYSTEM S18100

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Configuration 1 – Diesel Driven Pump



Configuration 2 – Hydraulically Driven Pumps

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PUMPING SYSTEM, 350-GPM **SYSTEM NUMBER S18100**

SYSTEM DESCRIPTION

The 350-Gpm Pumping System S18100 consists of two separate system configurations that have the capabilities of pumping water at up to 350 gpm and 10 psi head pressure. The two configurations are functionally equivalent and are described below.

Configuration 1 consists of a portable, skid-mounted, diesel driven, centrifugal pump; a spare parts kit; and an ancillary set. The Diesel 3-Inch Centrifugal Pump (PU0201) is capable of pumping up to 300 gpm. The pumping system is used for dewatering stranded ships, counterflooding compartments, or other situations that require the pumping of water.

Configuration 2 consists of a lightweight hydraulic power unit, two hydraulically driven submersible pumps, a spare parts kit, flow control block and a containment pool. The 300-Gpm Utility Hydraulic Submersible Pump PU0350 is capable of pumping up to 300 gpm, and the 2-Inch Hydraulic Submersible Pump PU0830 is capable of pumping up to 175 gpm.

Contact the NAVSEA representative to determine which configuration of this pumping system best fits the on-site requirements.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
Configuration 1 – Diesel Driven Pump:		
1. Pump, Centrifugal, 3”, Diesel	PU0201	1
2. Spare Parts Kit, for PU0201 Pump	PU0202	1
3. Ancillary Set, for PU0201 Pump	PU0203	1
Configuration 2 – Hydraulically Driven Pumps:		
1. Ancillary Set, for Hydraulic Pumps S18100:	PW0062	1
Power Unit, Hydraulic, Model HT11DXR, 6 gpm @ 2100 psi	PW0060	1
Spare Parts Kit, for Power Unit PW0060	PW0061	1
Pump, Submersible, Hydraulic, Utility, 300-Gpm	PU0350	1
Pump, Submersible, 2" Hydraulic	PU0830	1
Flow Control Block, for PU0350 & PU0830	PU0833	1
Containment Pool, Machinery, 5’ x 5’ x 12”	CP3000	1

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Diesel 3-Inch Centrifugal Pump PU0201

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PUMP, CENTRIFUGAL, 3", DIESEL **ESSM NUMBER PU0201**

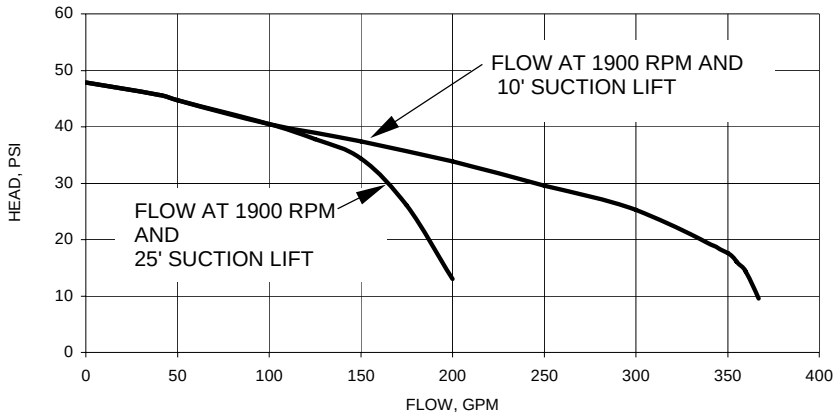
DESCRIPTION

The Diesel 3-Inch Centrifugal Pump PU0201 pumps 350 gpm of water at 18 psi (40-foot head). The pump and engine are skid-mounted and enclosed in a steel frame. The skid and frame incorporate forklift slots and a single lifting point for ease in positioning the unit. The pump has 3-inch suction and discharge ports.

SPECIFICATIONS

Pump Assembly		Engine	
Manufacturer	Barnes Mfg.	Manufacturer	Onan
Model	NS21CCD	Model	DJM 60
Type	Centrifugal	No. of cylinders	2
Rotation	Clockwise, facing drive end	Cooling	Air-cooled
		Horsepower	9 @ 2000 rpm
Output @1900 rpm	350 gpm @ 18 psi (at 10' suction lift)	Starting	12 V dc
		Fuel	Diesel
Service	Water	Fuel source	5-gal. jerry can
Duty cycle	Continuous	Fuel consumption	0.66 gph
Inlet port	3" NPT		
Discharge port	3" NPT		

PERFORMANCE CURVE



Performance Curve for Diesel 3-Inch Centrifugal Pump PU0201

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PUMP, CENTRIFUGAL, 3", DIESEL **ESSM NUMBER PU0201**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 0 in.
Width	1 ft, 11 in.
Height	3 ft, 0 in.
Cube	17.25 cu ft
Weight	680 lb

REFERENCES

1. Service Manual for Pump Assembly Model NS21CCD, NAVSHIPS 0947-065-9010.

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Spare Parts Kit PU0202

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SPARE PARTS KIT, FOR PU0201 PUMP **ESSM NUMBER PU0202**

DESCRIPTION

The Spare Parts Kit PU0202 contains items to support the operation and maintenance of one Diesel 3-Inch Centrifugal Pump PU0201.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, shipping, 20" x 14" x 8" w/ lid:	1
Bearing	1
Filter, oil	2
Filter, fuel	2
Filter, air	2
Filter, oil	2
Fuse, 20-amp	2
Gasket, filter (149-0455)	2
Gasket, filter (149-0493)	2
Gasket, nozzle (110-0419)	2
Gasket, nozzle (147A43)	2
Gasket, pump body	1
Impeller, pump	1
Key, impeller	1
Lock ring	1
Lockwasher, impeller	1
Manual, pump service and parts	1
Nozzle, fuel	2
Nut, impeller	1
O-ring	1
Plate, wearing	1
Seal, shaft	1
Shield, nozzle	2
Shim, impeller, 0.005”	1
Shim, impeller, 0.010”	1
Shim, impeller, 0.030”	1
Inventory, laminated	1

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SPARE PARTS KIT, FOR PU0201 PUMP **ESSM NUMBER PU0202**

PHYSICAL CHARACTERISTICS

	Shipping
Length	1 ft, 6 in.
Width	1 ft, 0 in.
Height	1 ft, 0 in.
Cube	1.5 cu ft
Weight	68 lb

REFERENCES

None

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Ancillary Set PU0203

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ANCILLARY SET, FOR PU0201 PUMP **ESSM NUMBER PU0203**

DESCRIPTION

The Ancillary Set PU0203 contains hoses, a foot valve, and additional items necessary for operation of the Diesel 3-Inch Centrifugal Pump.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, wire mesh, 143" x 23" x 25":		1
Hose, 3" x 10', Rigid PVC, Royalflex w/ camlock fitting	HS0206	6
Bucket, bailing		1
Coupling, galvanized, 3" w/ NPT threads		1
Fitting, aluminum, camlock male to male pipe		2
Gasket, 3", camlock fitting		3
Nipple, pipe, galvanized, 3" x 3 1/2" long		1
Valve, foot, 3"		1
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Shipping
Length	11 ft, 11 in.
Width	1 ft, 11 in.
Height	1 ft, 10 in.
Cube	42 cu ft
Weight	758 lb

REFERENCES

None

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Hydraulic Pumps Ancillary Set PW0062

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ANCILLARY SET, FOR HYDRAULIC PUMPS, S18100 **ESSM NUMBER PW0062**

DESCRIPTION

The Hydraulic Pumps Ancillary Set PW0062 contains the necessary components to configure and support the operation of the Model HT11DXR Hydraulic Power Unit (HPU) PW0060, 300-Gpm Utility Hydraulic Submersible Pump PU0350, and 2-Inch Hydraulic Submersible Pump PU0830. The ancillary set container is designed with a removable side to allow loading and unloading the system components without lifting them over the wall of the container. Two equipment loading ramps are included to facilitate loading and unloading components.

SPECIFICATIONS

The ancillary set contains the following:

Item	ESSM Number	Qty
Container, shipping, 71” x 49” x 52”, w/lid:	PW0062	1
Power Unit, Hydraulic, Model HT11DXR, 6 gpm @ 2100 psi	PW0060	1
Spare Parts Kit, for Power Unit PW0060	PW0061	1
Pump, Submersible, Hydraulic, Utility, 300-Gpm	PU0350	1
Pump, Submersible, 2” Hydraulic	PU0830	1
Flow Control Block, for PU0350 & PU0830	PU0833	1
Containment Pool, Machinery, 5’ x 5’ x 12”, Cooley Urethane	CP3000	1
Hose, hydraulic, 1/2” x 50’ (supply and return)		4
Hose, hydraulic, 1/2” x 25’ (HPU to control valve)		2
Hose, pump discharge, 3” x 25’, w/camlock cap and plug		2
Hose, pump discharge, 2” x 25’, w/camlock cap and plug		2
Hose, layflat, 3” x 50’, w/camlock fittings		2
Hose, layflat, 2” x 50’, w/camlock fittings		2
Ramp, equipment loading		2
Container, hydraulic adapters, 18” x 11” x 7”, w/lid:		1
Coupling, camlock, 3” female to 3” female		1
Coupling, camlock, 2” female to 2” female		1
Adapter, camlock, 3” female to 2” male		1
Adapter, camlock, 3” female to 2” female		1
Adapter, camlock, 3” male to 2” female		1
Check valve, hydraulic (for PU0830)		1
Flow reducer, hydraulic (for PU0830)		1
Adapter, hydraulic, -10 female to -12 male		3
Adapter, hydraulic, -12 female to -10 male		3
Inventory, laminated		1

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ANCILLARY SET, FOR HYDRAULIC PUMPS S18100 **ESSM NUMBER PW0062**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft,11 in.
Width	4 ft, 1 in.
Height	4 ft, 5 in.
Cube	107 cu ft
Weight	1304 lb

REFERENCES

None

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Model HT11DXR Hydraulic Power Unit PW0060



Model HT11DXR Hydraulic Power Unit, Gauge and Cooler End

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POWER UNIT, HYDRAULIC, MODEL HT11DXR, 6 GPM @ 2100 PSI **ESSM NUMBER PW0060**

DESCRIPTION

The Model HT11DXR Hydraulic Power Unit (HPU) PW0060 is a portable, lightweight, diesel driven unit that provides hydraulic fluid at up to 6 gpm @ 2100 psi to power pumps or other hydraulically driven equipment. An adjustable pressure relief valve controls the output pressure delivered to the supply circuit. The HPU is housed in a wheeled frame and is enclosed in a protective steel housing with a single lifting point bracket. Hydraulic connections are made via 1/2-inch (-10 series) male and female quick disconnect fittings for the hydraulic supply and return, with a 3/8-inch (-8 series) case drain fitting. The HPU is stored and shipped in the system ancillary container (PW0062).

SPECIFICATIONS

Hydraulic Power Unit Assembly

Manufacturer	Hydra-Tech Pumps
Model	HT11DXR

Diesel Engine

Manufacturer	Yanmar
Series	L100A
Rpm	3600
Horsepower	11 @ 3500 rpm
Displacement	418 cc
Cooling	Air-cooled
Starting	12-volt
Fuel	Diesel
Fuel source	15-gal. fuel tank
Fuel consumption	0.5 gph

Hydraulic Pump

Manufacturer	Danfoss
Part number	9366
Type	Gear
Flow	6 gpm @ 2100 psi
Hyd. reservoir	8 gal.
Fluid type	Rando 46

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 2 in.
Width	3 ft, 10 in.
Height	3 ft, 2 in.
Cube	40 cu ft
Weight (dry)	452 lb

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POWER UNIT, HYDRAULIC, MODEL HT11DXR, 6 GPM @ 2100 PSI **ESSM NUMBER PW0060**

REFERENCES

1. Hydra-Tech Pumps, Inc. Operating Instructions, Maintenance Instructions, and Parts List for HT11DXR Power Unit.
2. Yanmar Air-Cooled Diesel Engine, Series L-E Operation Manual.

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Spare Parts Kit PW0061

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SPARE PARTS KIT, FOR POWER UNIT PW0060 **ESSM NUMBER PW0061**

DESCRIPTION

The Spare Parts Kit PW0061 contains items necessary to support the operation and maintenance of one Hydraulic Power Unit PW0060. The spare parts kit is stored and shipped in the system ancillary container (PW0062).

SPECIFICATIONS

The spare parts kit contains the following:

Item	Qty
Container, plastic, 18” x 11” x 7”:	1
Filter, engine air	1
Filter, engine oil	1
Filter, fuel	1
Filter, hydraulic oil	1
Technical Manual, HT11DXR HPU	1
Technical Manual, S2TC-C Pump	1
Technical Manual, S3TC Pump	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 7 in.
Width	11 in.
Height	10 in.
Cube	1 cu ft
Weight	6 lb

REFERENCES

None

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300-Gpm Utility Hydraulic Submersible Pump PU0350

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PUMP, SUBMERSIBLE, HYDRAULIC, UTILITY, 300-GPM **ESSM NUMBER PU0350**

DESCRIPTION

The 300-Gpm Utility Hydraulic Submersible Pump PU0350 is capable of pumping water at flow rates of up to 300 gpm at a discharge pressure of 10 psi. The pump is capable of pumping water with entrained solids of up to 3/4 inch in diameter and is fitted with a permanently mounted suction strainer to prevent ingestion of foreign material. Quick disconnect fittings are installed to allow for rapid hookup of the pump discharge and hydraulic hoses. The pump is stored and shipped in the system ancillary container (PW0062).

SPECIFICATIONS

Pump Assembly

Manufacturer	Hydra-Tech
Model	S3TC

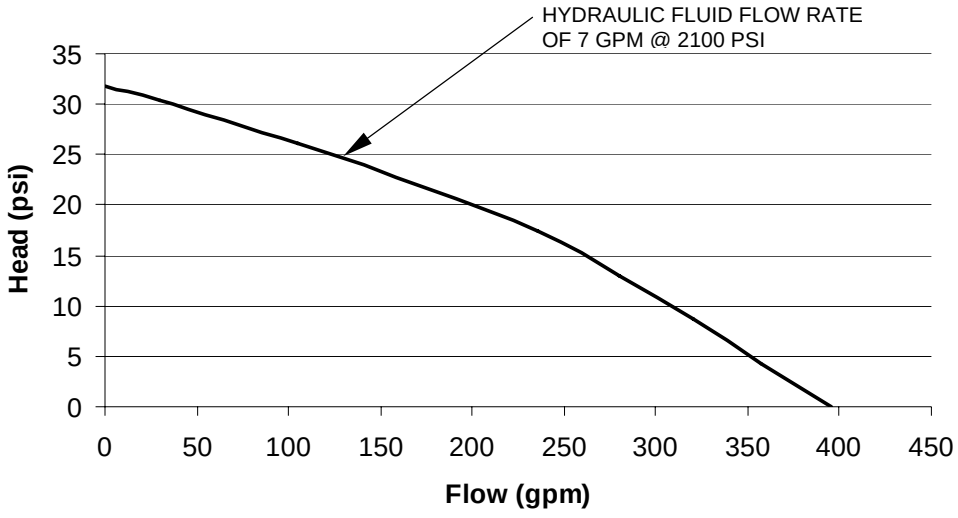
Pump

Manufacturer	Hydra-Tech
Model	S3TC
Type	Centrifugal
Discharge	3"
Output (maximum)	300 gpm @ 10 psi

Hydraulic Motor

Manufacturer	Danfoss
Part number	9324
Type	Gear
Operating pressure (max.)	2500 psi
Flow rate (maximum)	8 gpm

PERFORMANCE CURVE



Performance Curve for 300-Gpm Utility Hydraulic Submersible Pump PU0350

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PUMP, SUBMERSIBLE, HYDRAULIC, UTILITY, 300-GPM **ESSM NUMBER PU0350**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Height	1 ft, 2 in.
Diameter	1 ft, 0 in.
Cube	1.5 cu ft
Weight	28 lb

REFERENCES

1. Hydra-Tech Manual, Operation and Maintenance Instructions, with Illustrated Parts Breakdown, S3TC Pump.

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2-Inch Hydraulic Submersible Pump PU0830

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PUMP, SUBMERSIBLE, 2" HYDRAULIC **ESSM NUMBER PU0830**

DESCRIPTION

The 2-Inch Hydraulic Submersible Pump PU0830 is capable of pumping water containing some solids up to 1 inch in diameter. The pump is rated for continuous output of up to 175 gpm at 10 psi discharge pressure. Quick disconnect fittings are used to allow for rapid hookup of the discharge and hydraulic hoses. The 2-Inch Hydraulic Submersible Pump is a very portable and versatile all purpose pump that can be used for bilge pumping, and wastewater transfer. The pump is stored and shipped in the system ancillary container (PW0062).

SPECIFICATIONS

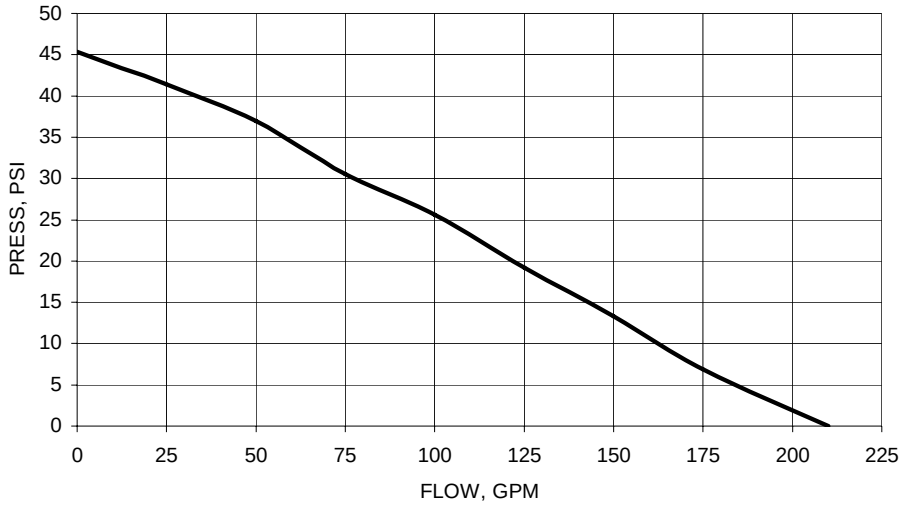
Pump Assembly

Manufacturer	Hydra-Tech
Model	S2TCAL-2
Type	Submersible
Discharge	2"
Output (max.)	210 gpm at 0 psi

Motor

Manufacturer	Rex Roth
Operating pressure (max.)	2500 psi
Flow rate (max.)	5 gpm

PERFORMANCE CURVE



Performance Curve for 2-Inch Hydraulic Submersible Pump PU0830

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PUMP, SUBMERSIBLE, 2" HYDRAULIC **ESSM NUMBER PU0830**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Height	1 ft, 9 in.
Width	10 in.
Length	6 in.
Cube	1 cu ft
Weight	16 lb

REFERENCES

1. Operation and Maintenance Instructions, with Illustrated Parts Breakdown, S2T-2 Submersible Pump.

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Flow Control Block PU0833 (for PU0350 & PU0830)

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FLOW CONTROL BLOCK, FOR PU0350 & PU0830 **ESSM NUMBER PU0833**

DESCRIPTION

The Flow Control Block PU0833 (for PU0350 and PU0830) is designed to control and distribute hydraulic fluid from one hydraulic power unit to a maximum of two hydraulic motors. The flow control block has a working hydraulic pressure of 2100 psig and a total flow of 10 gpm. The pump is stored and shipped in the system ancillary container (PW0062).

SPECIFICATIONS

Manufacturer	ESSM Facility
Dwg. Number	7022752
Type	Aluminum, twin circuit
Hydraulic fluid required	Any petroleum based hydraulic fluid
Working pressure	2100 psig
Hydraulic flow	25 gpm

PHYSICAL CHARACTERISTICS

	Operating
Length	1 ft, 3 in.
Width	1 ft, 0 in.
Height	1 ft, 3 in.
Cube	2 cu ft
Weight	32 lb

REFERENCES

1. 2" to 6" Hydraulic Pumping System Primary Flow Control Block for 2" Hydraulic Pump, NAVSEA Dwg. Number 7022752.

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5-Foot x 5-Foot x 12-Inch Machinery Containment Pool CP3000
(Shipping Configuration)



5-Foot x 5-Foot x 12-Inch Machinery Containment Pool CP3000
(In-Use Configuration)

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CONTAINMENT POOL, MACHINERY, 5’ X 5’ X 12” COOLEY URETHANE **ESSM NUMBER CP3000**

DESCRIPTION

The 5-Foot x 5-Foot x 12-Inch Machinery Containment Pool CP3000 is a urethane berm. It is used to catch and contain any oil, fuel, hydraulic fluid, or contaminants leaked or spilled from diesel-powered or hydraulically driven components.

SPECIFICATIONS

Manufacturer	Basic Concepts
Fabric material	Cooley Urethane

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	5 ft, 0 in.	1 ft, 8 in.
Width	5 ft, 0 in.	1 ft, 8 in.
Height	1 ft, 0 in.	6 in.
Cube	25 cu ft	1.5 cu ft
Weight	34 lb	34 lb

REFERENCES

None

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3-INCH DIESEL TRASH PUMPING SYSTEM S18200

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Overview of 3-Inch Diesel Trash Pumping System S18200

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PUMPING SYSTEM, TRASH, 3-INCH DIESEL **SYSTEM NUMBER S18200**

SYSTEM DESCRIPTION

The 3-Inch Diesel Trash Pumping System S18200 consists of a lightweight, diesel driven, centrifugal pump, a spare parts kit, and an ancillary set. The pump is capable of handling debris up to about 1 1/2 inches in diameter. A protective cage assembly surrounds the engine and pump, providing protection during shipping, use, and storage. The unit can be carried by two personnel and can be also be handled by a forklift. The ancillary set consists of suction and discharge hoses, various fittings, clamps, nipples, and additional items necessary to support system operation. The 3-Inch Trash Pump can be used for dewatering, counterflooding, or any other application where water must be pumped.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Pump, Centrifugal, 3”, Diesel, Portable, Trash	PU0330	1
2. Spare Parts Kit, for PU0330 Pump	PU0331	1
3. Ancillary Set, for 3” Trash Pump PU0330	PU0235	1

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3” Trash Pump PU0330

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PUMP, CENTRIFUGAL, 3", DIESEL, TRASH **ESSM NUMBER PU0330**

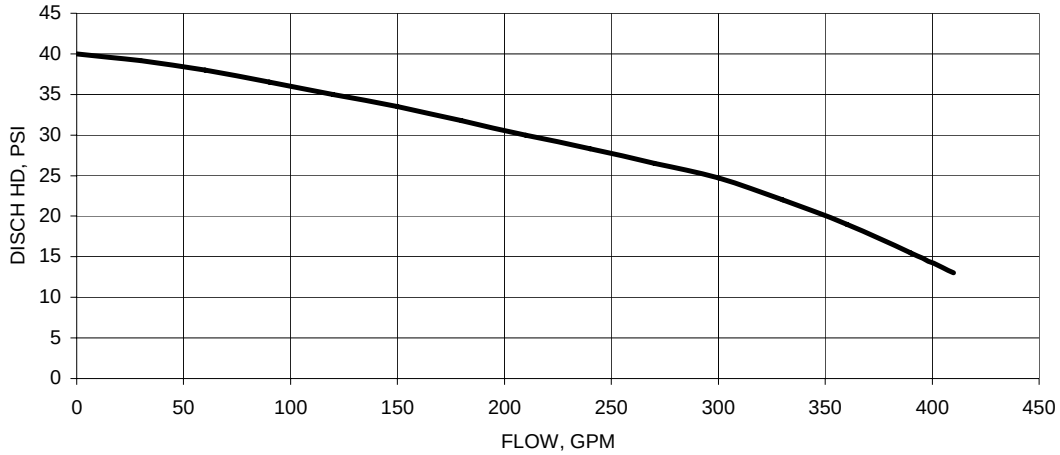
DESCRIPTION

The 3-Inch Trash Pump PU0330 is a portable, diesel driven, self-priming, centrifugal pump designed to pump sludge, water, and debris (up to 1 1/2-inch diameter) at a flow rate of 400 gpm. The engine and pump are mounted in a wheeled, protective cage that includes lifting handles. The maximum suction lift of the pump is approximately 25 feet above the water surface. The pump is shipped in the wire mesh container of the Ancillary Set PU0235.

SPECIFICATIONS

Pump Assembly		Engine	
Manufacturer	Diesel America West, Inc.	Manufacturer	Yanmar
Model	DPL70-3PT	Model	L 70 AE
Type	Centrifugal	No. of cylinders	1
Capacity	400 gpm @ 15 psi discharge head	RPM	3600
		Horsepower	6.7
Shutoff head	40 psi	Starting	Recoil starter
		Fuel	Diesel
		Fuel source	Internal fuel tank (.92-gal.)

PERFORMANCE CURVE



Performance Curve for 3" Trash Pump PU0330

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PUMP, CENTRIFUGAL, 3”, DIESEL, TRASH **ESSM NUMBER PU0330**

PHYSICAL CHARACTERISTICS

	Operating
Length	3 ft, 0 in.
Width	2 ft, 0 in.
Height	2 ft, 6 in.
Cube	11.5 cu ft
Weight	138 lb

REFERENCES

1. Technical Manual, 3" Diesel Trash Pump, DPL70-3PT, Diesel America West, Inc.

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Spare Parts Kit PU0331

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DESCRIPTION

The Spare Parts Kit PU0331 contains items to support the operation and maintenance of one 3-Inch Trash Pump PU0330. The spare parts kit is shipped in the wire mesh container of the Ancillary Set PU0235.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, plastic, 18" x 11" x 7":	1
Element, air cleaner	1
Filter, fuel	1
Filter, oil	1
Manual, Diesel Engine Operation	1
Manual, Trash Pump, Diesel	1
O-ring, pump body	1
Oiler, plastic	1
Screwdriver, reversible, Phillips and slotted	1
Valve, flapper	1
Wrench, open end, 10 x 12 mm	1
Wrench, open end, 14 x 17 mm	1
Inventory, laminated	1

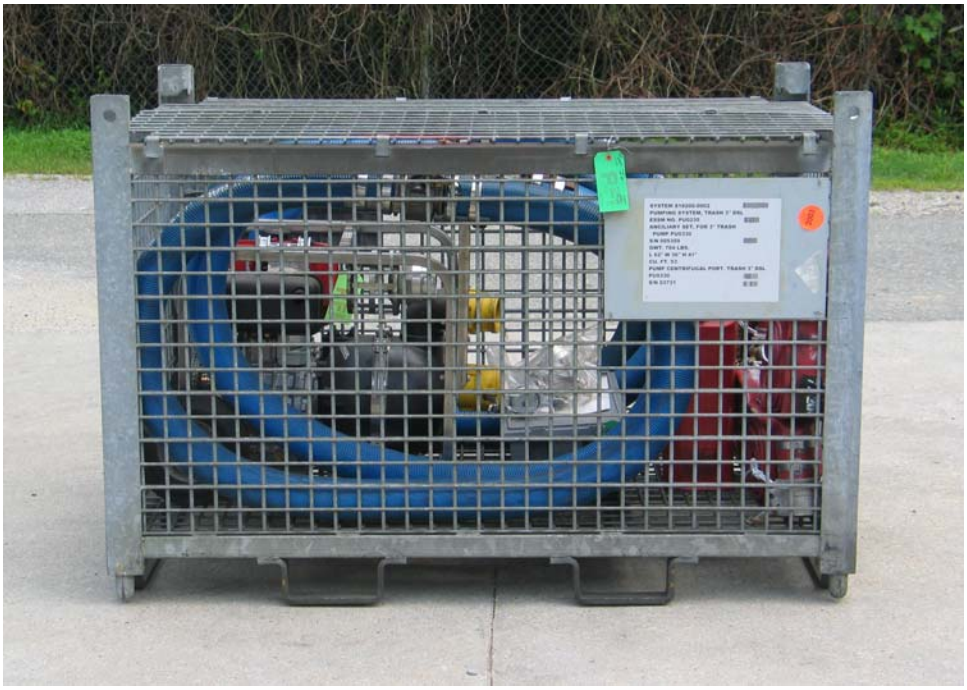
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	11 in.
Height	7 in.
Cube	1 cu ft
Weight	5 lb

REFERENCES

None

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Ancillary Set PU0235, Shipping Configuration



Ancillary Set PU0235

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ANCILLARY SET, FOR 3” TRASH PUMP PU0330 **ESSM NUMBER PU0235**

DESCRIPTION

The Ancillary Set PU0235 contains suction and discharge hoses, a strainer, fittings, and other items necessary for system operation.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, wire mesh basket, 62" x 36" x 41":		1
Pump, Centrifugal, 3”, Diesel Trash	PU0330	1
Spare Parts Kit, for PU0330 Pump	PU0331	1
Adapter, 3", female camlock to female NPT		1
Adapter, 3", male camlock to male NPT, aluminum		2
Clamp, hose, adjustable		10
Jerry can, 5-gal.		1
Gasket, 3" camlock hose fitting, rubber		10
Hose, 3" x 25' discharge (Spiraflex)		4
Hose, 3 " x 10' suction (Royalflex)		4
Inventory, laminated		1
Strainer, suction, 3" w/female NPT		1
Spout, flexible, for 5-gal. Jerry can		1

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	55 cu ft
Weight	784 lb

REFERENCES

None

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1500-GPM, 6-INCH DIESEL PUMPING SYSTEM S18300

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Overview of 6-Inch Diesel Pumping System S18300

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PUMPING SYSTEM, 1500-GPM, 6-INCH DIESEL **SYSTEM NUMBER S18300**

SYSTEM DESCRIPTION

The 6-Inch Diesel Pumping System S18300 consists of a portable, diesel driven, centrifugal pump, an ancillary set, and a spare parts kit. The ancillary set contains suction and discharge hoses, various hose fittings, a foot valve, and other items necessary for system operation. The pumping system is used to dewater stranded ships, counterflood compartments for stability and trim, and other water pumping applications.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Pump, Centrifugal, 6”, Diesel	PU0210	1
2. Spare Parts Kit, for PU0210 Pump	PU0211	1
3. Ancillary Set, for PU0210 Pump	PU0212	1

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6” Diesel Centrifugal Pump PU0210

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PUMP, CENTRIFUGAL, 6", DIESEL **ESSM NUMBER PU0210**

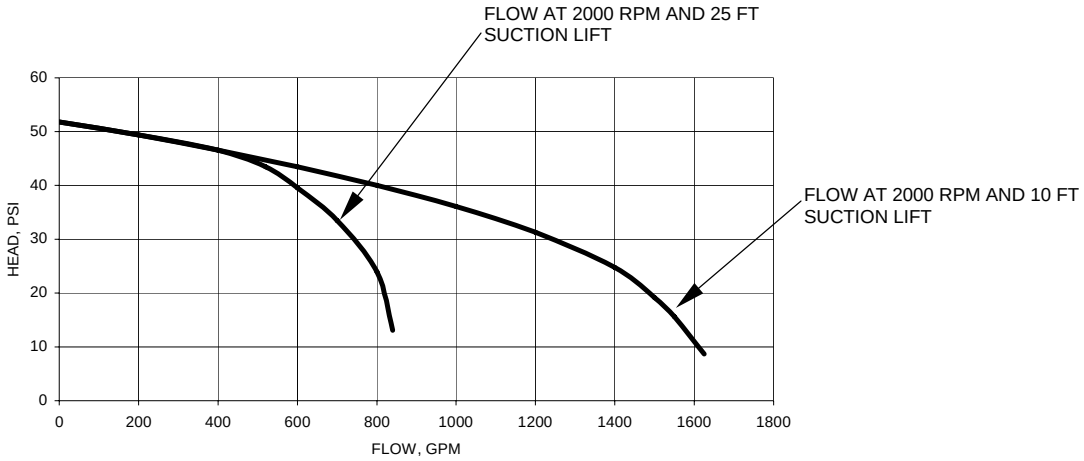
DESCRIPTION

The 6-Inch Centrifugal Pump PU0210 is a self-contained, diesel driven pump that is skid-mounted and surrounded by a steel frame. The steel frame contains forklift slots and a single lifting point to facilitate handling. The 6-inch pump can deliver up to 1540 gpm of water at 18 psi and has a shutoff head of 51 psi. The pump has 6-inch suction and discharge ports and can be used for dewatering ships, counter-flooding compartments for stability, or other water pumping applications.

SPECIFICATIONS

Pump Assembly		Engine	
Manufacturer	Barnes Mfg. Co.	Manufacturer	Detroit Diesel
Model	NS 100 CCD	Model	2-53
Type	Centrifugal	No. of cylinders	2
Rotation	Clockwise, facing drive end	Horsepower	37 @ 2200 rpm
		Type	Water-cooled
Service	Water	Starting	Hydraulic
Inlet	6" NPT	Fuel	Diesel
Discharge	6" NPT	Fuel source	5-gal. jerry can
Output	1540 gpm @ 18 psi	Fuel consumption	3 gph

PERFORMANCE CURVE



Performance Curve, 6" Diesel Pump PU0210

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PUMP, CENTRIFUGAL, 6", DIESEL **ESSM NUMBER PU0210**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 5 in.
Width	2 ft, 6 in.
Height	4 ft, 0 in.
Cube	54 cu ft
Weight	2360 lb

REFERENCES

1. Service Manual for Pump Assembly Model NS100CCD, NAVSHIPS 0947-070-8010.
2. Technical Manual Series 2, 3, 4, and 6V-53 Industrial Engines and Power Units for U.S. Navy Salvage Equipment, NAVSHIPS 0941-101-5010.

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Spare Parts Kit PU0211

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SPARE PARTS KIT, FOR PU0210 PUMP **ESSM NUMBER PU0211**

DESCRIPTION

The Spare Parts Kit PU0211 contains items to support the operation and maintenance of one 6-Inch Centrifugal Pump PU0210.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 28" x 18" x 15":	1
Bearing, ball (PN 28257)	1
Bearing, ball (PN 28258)	1
Belt set (PN 5137300)	1
Belt set (PN 5136878)	1
Element, air cleaner assembly	1
Element, fuel filter (PN 5574961) (two per pkg.)	1
Element, fuel filter (PN 5578188) (two per pkg.)	1
Element, oil filter (two per pkg.)	1
Gasket, volume	1
Impeller	1
Key, impeller	2
Nut, impeller	1
Shim, impeller, 0.010" and 0.030"	4
Injector, N-50	2
Inventory, laminated	1
Lock ring	2
Lockwasher	3
Nut, hex	3
O-ring, various	2
Plate, wear	1
Ring, slinger	1
Screw, full size	3
Seal, pump	1
Seal, shaft	1
Slinger	1
Manual, Pump Parts and Service	1

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SPARE PARTS KIT, FOR PU0210 PUMP **ESSM NUMBER PU0211**

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 4 in.
Width	1 ft, 6 in.
Height	1 ft, 3 in.
Cube	4.5 cu ft
Weight	52 lb

REFERENCES

None

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Ancillary Set PU0212

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ANCILLARY SET, FOR PU02l0 PUMP **ESSM NUMBER PU0212**

DESCRIPTION

The Ancillary Set PU02l2 contains items necessary to configure one 6-Inch Centrifugal Pump PU0210 for operation.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	Qty
Container, wire mesh basket, 151" x 31" x 30":	1
Adapter, 6" Roylyn fitting to 6" male camlock	1
Elbow, 90°, 6", female	1
Fitting, 6" Roylyn to 6" male camlock	3
Gasket, 6"	3
Hose, lightweight, 6" x 10', w/Roylyn fitting	6
Inventory, laminated	1
Nipple, 6" x 13", male both ends	1
Valve, foot, 6"	1
Wrench, 1 1/4", drop forge	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	12 ft, 7 in.
Width	2 ft, 7 in.
Height	2 ft, 6 in.
Cube	81 cu ft
Weight	1260 lb

REFERENCES

None

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3000-GPM, 10-INCH DIESEL PUMPING SYSTEM S18400

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10-Inch Diesel Pumping System S18400

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PUMPING SYSTEM, 3000-GPM, 10-INCH, DIESEL **SYSTEM NUMBER S18400**

SYSTEM DESCRIPTION

The 3000-Gpm, 10-Inch Diesel Pumping System S18400 consists of a portable, diesel driven, centrifugal pump, an ancillary set, and a spare parts kit. The ancillary set contains suction and discharge hose, various hose fittings, a foot valve, and other items necessary for system operation. The pumping system is designed to dewater stranded ships, counterflood compartments for stability and trim control, and perform other pumping applications.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Pump, Centrifugal, 10”, Diesel	PU0220	1
2. Spare Parts Kit, for PU0220 Pump	PU0221	1
3. Ancillary Set, for PU0220 Pump	PU0224	1

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10” Centrifugal Pump PU0220

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PUMP, CENTRIFUGAL, 10", DIESEL **ESSM NUMBER PU0220**

DESCRIPTION

The 10-Inch Centrifugal Pump PU0220 is a self-contained, diesel driven water pump, which is designed to pump 3000 gpm at a 30-foot head pressure. The pump and engine are skid-mounted and surrounded by a steel frame containing forklift slots and a single point lifting sling. The pump has 10-inch suction and discharge ports and is used for dewatering ships, counterflooding compartments for stability, or other water pumping applications.

SPECIFICATIONS

Pump Assembly

Manufacturer	Commercial, Navy Design
Model	NS200CCD

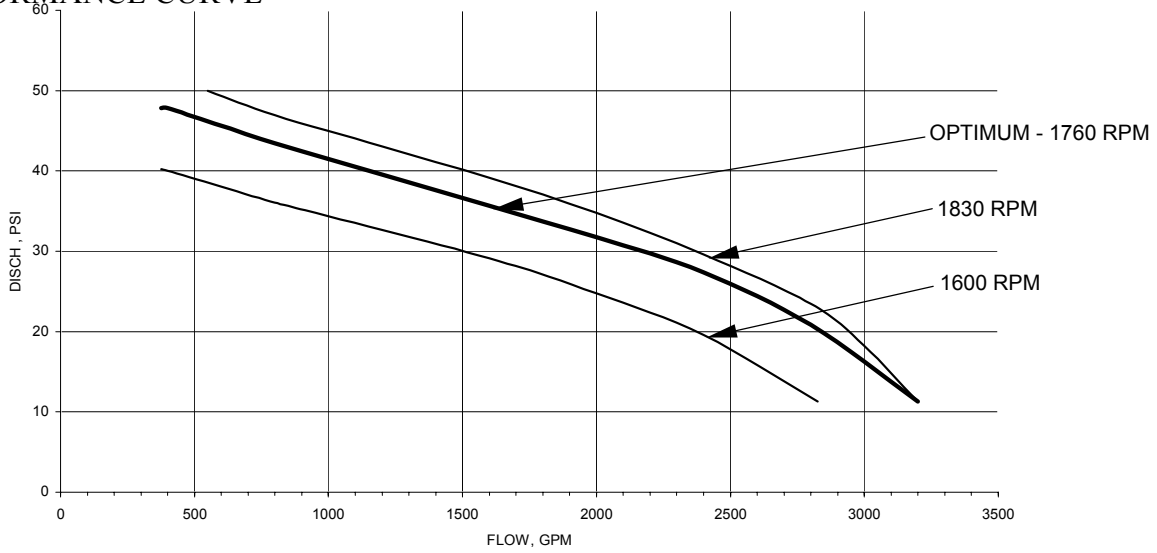
Pump

Manufacturer	Barnes Mfg. Co.
Model	NS200CCD
Type	Centrifugal
Rotation	Clockwise, facing drive end
Service	Water
Inlet	10"
Discharge	10"
Output at 1800 rpm	3000 gpm, 14 psi head

Engine

Manufacturer	Detroit Diesel-Allison
Model	5034-7101
No. of cylinders	3
Type	Water-cooled
Horsepower	60 @ 1800 rpm
Starting	Hydraulic
Fuel	Diesel
Fuel source	5-gal. jerry can
Fuel consumption	4 gph

PERFORMANCE CURVE



Performance Curve for PU0220 Pump at Indicated RPM and 10' Suction Lift

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PUMP, CENTRIFUGAL, 10", DIESEL **ESSM NUMBER PU0220**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 11 in.
Width	2 ft, 9 in.
Height	4 ft, 4 in.
Cube	82.5 cu ft
Weight	3200 lb

REFERENCES

1. Service Manual for Pump Assembly, Model NS200CCD, NAVSHIPS 0947-076-8010.
2. Technical Manual, Series 2, 3, 4, and 6V-53, Industrial Engines and Power Units for U.S. Navy Salvage Equipment, NAVSHIPS 0941-010-5010.

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Spare Parts Kit PU0221

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SPARE PARTS KIT, FOR PU0220 PUMP **ESSM NUMBER PU0221**

DESCRIPTION

The Spare Parts Kit PU022l contains items to support the operation and maintenance of one 10-Inch Centrifugal Pump PU0220.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, Spare Parts Kit, 24" x 18" x 15":	1
Bearing, ball	2
Belt set	2
Cleaner, air (Duralife)	1
Filter, fuel	4
Filter, oil	2
Impeller	1
Impeller nut assembly	1
Injector, N-50	3
Key, shaft	1
O-ring, various	3
Plate, wearing	1
Ring, wearing	1
Screw, F.H., w/ impeller kit	1
Assembly, shaft seal	1
Seal, grease	1
Shim, 0.010" and 0.031"	4
Slinger	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 0 in.
Width	1 ft, 6 in.
Height	1 ft, 3 in.
Cube	8.5 cu ft
Weight	68 lb

REFERENCES

None

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Ancillary Set PU0224 Container #1



Ancillary Set PU0224 Container #2

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ANCILLARY SET, FOR PU0220 PUMP — ESSM NUMBER PU0224

DESCRIPTION

The Ancillary Set PU0224 contains items necessary to configure one 10-Inch Centrifugal Pump PU0220 for operation.

SPECIFICATIONS

The Ancillary Set is shipped in two nested containers holding the following:

Item	ESSM Number	Qty
Container #1, 62” x 36” x 42”:		1
Manifold, 10" suction		1
a. Manifold, 10”, Flange to 3 – 6” Female, Camlock (primary)	PU0257	
b. Manifold, 10”, Flange to 6” Camlock Fitting (alternate)	PU0257	
Elbow, 10" x 90-Degree, ABC, For PU0220 Pump	PU0260	1
Adapter, Flange, 10”, AC	PU0263	1
Flange Set, 10”, ABC, For PU0220 Pump	PU0265	1
Adapter, male camlock to male NPT, 10”		1
Coupler, male NPT to female camlock to male NPT		1
Jerry can, 5-gallon		1
Gasket, 11” diameter x 1/4” thick		6
Gasket, camlock, 10”		1
Wrench, adjustable, 12”		1
Inventory, laminated		1
Container #2, 151” x 31” x 30”:		1
Foot valve/strainer, 6”		3
Gasket, camlock, 6”		6
Hose, 10" diameter		9
a. Hose, 10” x 20’, w/ Roylyn fittings (primary)		
b. Hose, 10” x 20’, w/ camlock fittings (alternate)		

PHYSICAL CHARACTERISTICS

	Operating/Shipping	
	Container #1	Container #2
Length	5 ft, 2 in.	12 ft, 7 in.
Width	3 ft, 0 in.	2 ft, 7 in.
Height	3 ft, 5 in.	2 ft, 6 in.
Cube	56 cu ft	81 cu ft
Weight	910 lb	1362 lb

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ANCILLARY SET, FOR PU0220 PUMP **ESSM NUMBER PU0224**

REFERENCES

None

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2 1/2-INCH JETTING PUMP SYSTEM S18500

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Overview of 2 1/2-Inch Jetting Pump System Using PU0229



Overview of 2 1/2-Inch Jetting Pump System Using PU0230

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PUMPING SYSTEM, JETTING, 2 1/2-INCH **SYSTEM NUMBER S18500**

SYSTEM DESCRIPTION

The 2 1/2-Inch Jetting Pump System S18500 consists of a skid-mounted, portable, diesel driven pump with an ancillary set and spare parts kit. Three pumps with similar specifications are available to allow the end user to meet on-site pressure and flow requirements. Each pump has an assigned ancillary set and spare parts kit containing a 2 1/2-inch diameter firehose, various fittings, a foot valve, and other items necessary for system operation. The system is used mainly for jetting, but also can be used for firefighting and limited dewatering.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Pumping System, Jetting, 2 1/2”		1*
a. 500 gpm @ 150 psi Jetting Pump System (1st Generation):		
Pump, Jetting, 500 gpm @ 150 psi (1st Generation)	PU0230	1
Spare Parts Kit, for PU0230 Pump	PU0231	1
Ancillary Set, for PU0230 Pump	PU0232	1
b. 500 gpm @ 150 psi Jetting Pump System (2nd Generation):		
Pump, Jetting, 500 gpm @ 150 psi (2nd Generation)	PU0228	1
Spare Parts Kit, for PU0228 Pump	PU0226	1
Ancillary Set, for PU0228 Pump	PU0227	1
c. 500 gpm @ 300 psi Jetting Pump System:		
Pump, Jetting, 500 gpm @ 300 psi, Diesel	PU0229	1
Spare Parts Kit, for PU0229 Pump	PU0242	1
Ancillary Set, for PU0229 Pump	PU0243	1

* Components shipped will depend on inventory availability and on-site requirements.

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500-Gpm @ 150-Psi Jetting Pump (1st Generation) PU0230

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PUMP, JETTING, 500 GPM @ 150 PSI (1ST GENERATION) ESSM NUMBER PU0230

DESCRIPTION

The 2 1/2-Inch Jetting Pump PU0230 is a skid-mounted, portable, diesel driven pump. The pump has a capacity of 500 gpm of water at 150 psi. It can be used for jetting, firefighting, and limited dewatering.

SPECIFICATIONS

Pump Assembly

Manufacturer	Ingersoll-Rand
Model	3GT28

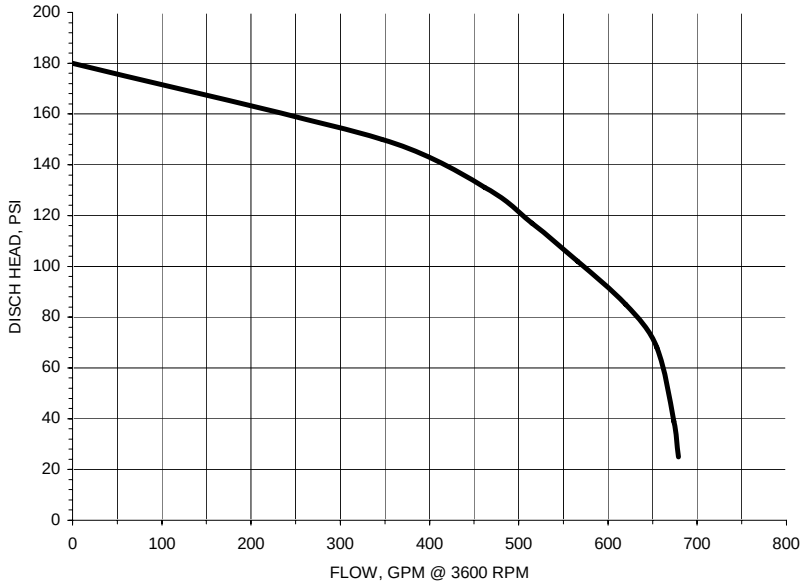
Pump

Manufacturer	Ingersoll-Rand
Type	Two-stage, centrifugal
Model	3GT28
Service	Water
Output @ 3080 rpm	500 gpm @ 150 psi
Inlet	6"
Discharge	2 1/2"

Engine

Manufacturer	Detroit Diesel-Allison
Model	5034-7101
Type	3-53
No. of cylinders	3
Horsepower	60 @1800 rpm
Starting	Hydraulic
Fuel	Diesel
Fuel source	5-gal. jerry can
Fuel consumption	4 gph

PERFORMANCE CURVE



Performance Curve for PU0230 Pump

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PUMP, JETTING, 500-GPM @ 150-PSI (1ST GENERATION) ESSM NUMBER PU0230

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	9 ft, 2 in.
Width	3 ft, 2 in.
Height	6 ft, 5 in.
Cube	186.5 cu ft
Weight	4450 lb

REFERENCES

1. Technical Manual, Series 2, 3, 4, and 6V-53 Industrial Engines and Power Units for U.S. Navy Salvage Equipment, NAVSEA 0941-010-5010.
2. Ingersoll-Rand Manual, Form 7616-H.

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Spare Parts Kit PU0231

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SPARE PARTS KIT, FOR PU0230 PUMP **ESSM NUMBER PU0231**

DESCRIPTION

The Spare Parts Kit PU0231 contains items to support the operation and maintenance of one 2 1/2-Inch Jetting Pump PU0230.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, 36" x 28" x 14":	1
Belt set (5137457)	1
Belt set (5136878)	1
Element, air	2
Element, fuel (C-1173PL)	2
Element, fuel (AC-TP533)	2
Filter, oil (AC-PF-147)	2
Injector, S-50	2
Manual, 7616-H	1
Manual, 7616-11	1
Manual, NAVSHIPS	1
Packing tool, flexible shaft	1
Packing, flexible graphite, 3/8" x 3/8" x 48"	1
Spring, separator	3
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 0 in.
Width	2 ft, 4 in.
Height	1 ft, 2 in.
Cube	8.5 cu ft
Weight	60 lb

REFERENCES

None

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Ancillary Set PU0232

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ANCILLARY SET, FOR PU0230 PUMP **ESSM NUMBER PU0232**

DESCRIPTION

The Ancillary Set PU0232 contains fire hoses, suction hoses, various size pipe fittings, a gate valve, a jetting nozzle, and additional items necessary to configure a 2 1/2-Inch Jetting Pump, either PU0229 or PU0230, for operation.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	Qty
Container, wire mesh basket, 151" x 31" x 30":	1
Bushing, 2 1/2" to 3" pipe	1
Gasket, 6" Roylyn fitting	3
Hose, fire, 2 1/2" x 50', NH threads	2
Hose, LWT, 6" x 10' w/Roylyn fittings	3
Inventory, laminated	1
Nipple, close, 2 1/2"	1
Nozzle, jetting	1
Roylyn fitting w/6" NPT adapter	2
Valve, foot, 6"	1
Valve, gate, 2 1/2"	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	12 ft, 7 in.
Width	2 ft, 7 in.
Height	2 ft, 6 in.
Cube	81 cu ft
Weight	1260 lb

REFERENCES

None

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500-Gpm @ 150-Psi Jetting Pump PU0228

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DESCRIPTION

The 2 1/2-Inch Jetting Pump PU0228 is a skid-mounted, portable, diesel driven pump and has a pumping capacity of 500 gpm at 150 psi. The pump can be used for washing and jetting around and under a grounded vessel, for firefighting, and for limited dewatering.

SPECIFICATIONS

Pump Assembly

Manufacturer	Goulds Pumps
Model	13316 4X6

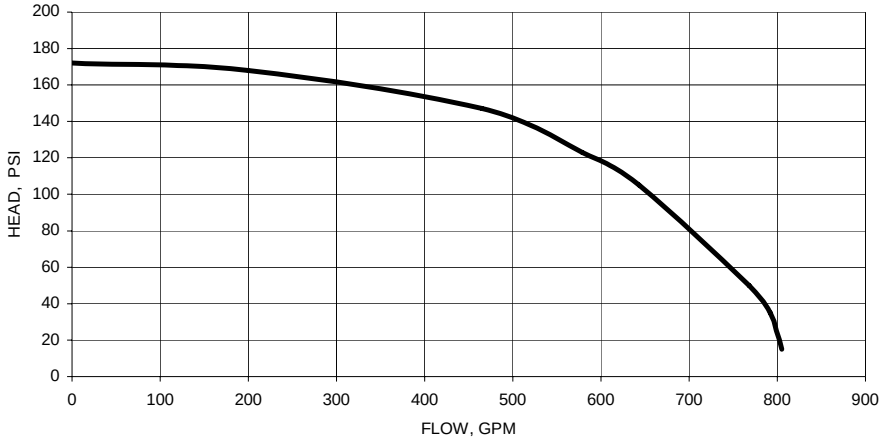
Pump

Manufacturer	Goulds Pumps
Allison Type	Two-stage centrifugal
Model	l 3316 4X6-11
Duty cycle	Continuous
Service	Water
Rated output	500 gpm @ 2350 rpm
Inlet port	6"
Discharge port	2 1/2"
Impeller	8"

Engine

Manufacturer	Detroit Diesel-
Type	3-53
Model	5034-7101
No. of cylinders	3
Horsepower	60
Starting	Hydraulic
Fuel	Diesel
Fuel source	5-gal. jerry can
Fuel consumption	4 gph

PERFORMANCE CURVE



Performance Curve for PU0228 Pump

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PUMP, JETTING, 500 GPM @ 150 PSI (2ND GENERATION) **ESSM NUMBER PU0228**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	9 ft, 2 in.
Width	3 ft, 4 in.
Height	6 ft, 6 in.
Cube	199 cu ft
Weight	4276 lb

REFERENCES

1. Technical Manual, Series 2, 3, 4, and 6V-53 Industrial and Power Units for U.S. Navy Salvage Equipment, NAVSEA 0941-010-5010.

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Spare Parts Kit PU0226

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SPARE PARTS KIT, FOR PU0228 PUMP **ESSM NUMBER PU0226**

DESCRIPTION

The Spare Parts Kit PU0226 contains items to support the operation and maintenance of one 2 1/2-Inch Jetting Pump PU0228.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, 36" x 28" x 14":	1
Belt set (5137457)	1
Belt set (5136878)	1
Element, air	1
Element, fuel (AC-PF-147)	1
Element, fuel (AC-TP533)	1
Injector, S-50	2
Manual, 7616-H	1
Manual, 7616-11	1
Manual, NAVSHIPS	1
Plate, clutch drive	1
Spring, separator	3
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 0 in.
Width	2 ft, 4 in.
Height	1 ft, 2 in.
Cube	8.5 cu ft
Weight	16 lb

REFERENCES

None

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Ancillary Set PU0227

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ANCILLARY SET, FOR PU0228 PUMP **ESSM NUMBER PU0227**

DESCRIPTION

The Ancillary Set PU0227 contains fire hoses, suction hoses, various size pipe fittings, a gate valve, a jetting nozzle, and additional items necessary to configure one 2 1/2-Inch Jetting Pump PU0228 for operation.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	Qty
Container, wire mesh basket, 151" x 31" x 30"	1
Bushing, 2 1/2" to 3" pipe	1
Gasket, 6", Roylyn fitting	3
Hose, fire, 2 1/2" x 50', NH threads	2
Hose, LWT, 6" x 10' w/ Roylyn fittings	3
Nipple, close, 2 1/2"	1
Nozzle, jetting	1
Roylyn fitting w/ 6" NPT adapter	2
Valve, foot, 6"	1
Valve, gate, 2 1/2"	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	12 ft, 7 in.
Width	2 ft, 7 in.
Height	2 ft, 6 in.
Cube	81 cu ft
Weight	1225 lb

REFERENCES

None

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500-Gpm @ 300-Psi Jetting Pump PU0229

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PUMP, JETTING, 500 GPM @ 300 PSI, DIESEL **ESSM NUMBER PU0229**

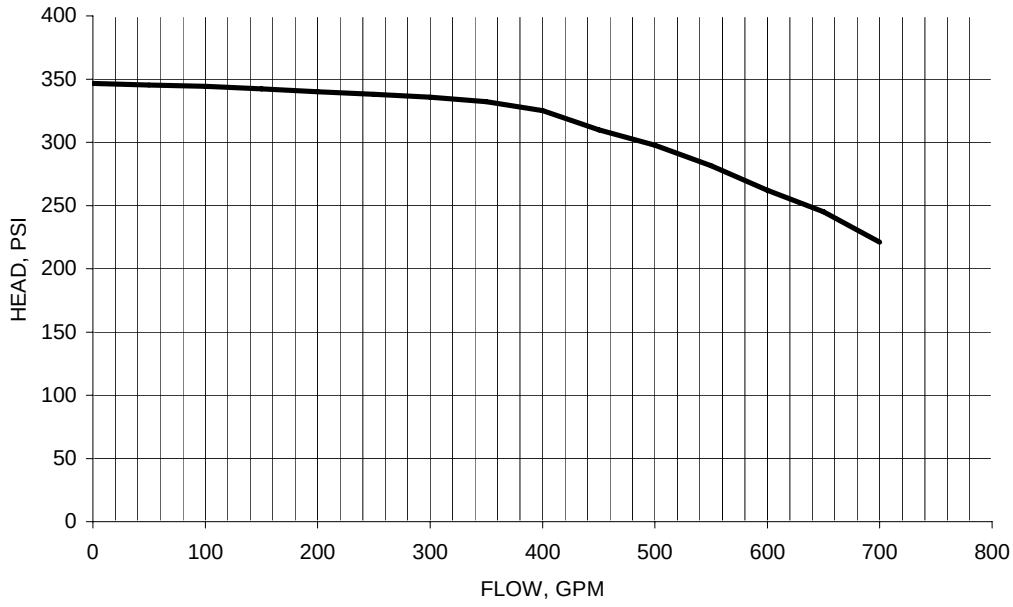
DESCRIPTION

The 2 1/2-Inch Jetting Pump PU0229 is a skid-mounted, portable, diesel driven pump, and has a capacity of 500 gpm at 300 psi. It can be used for jetting, firefighting, and limited dewatering.

SPECIFICATIONS

Pump Assembly		Engine	
Manufacturer	Worthington Corp.	Manufacturer	General Motors
Type	Two-stage, centrifugal	Type	6V-53
Model	3UNB-11	Model	5064-5200
Service	Water	No. of cylinders	6
Rated output at 3080 rpm	500 gpm	Starting	Hydraulic
Suction	6"	Fuel	Diesel
Discharge	2 1/2"	Fuel source	5-gal. jerry can
		Fuel consumption	12 gph

PERFORMANCE CURVE



Performance Curve for PU0229 Pump

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PUMP, JETTING, 500 GPM @ 300 PSI, DIESEL **ESSM NUMBER PU0229**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	10 ft, 0 in.
Width	4 ft, 2 in.
Height	5 ft, 5 in.
Cube	226 cu ft
Weight	4295 lb

REFERENCES

1. Instructions for Installation, Operation, and Maintenance for UNB Pumps, Worthington Corporation.
2. Technical Manual, Series 2, 3, 4, and 6V-53 Industrial Engines and Power Units for U.S. Navy Salvage Equipment, NAVSHIPS 0994-101-5010.

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Spare Parts Kit PU0242

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SPARE PARTS KIT, FOR PU0229 PUMP **ESSM NUMBER PU0242**

DESCRIPTION

The Spare Parts Kit PU0242 contains items to support the operation and maintenance of one 2 1/2-Inch Jetting Pump PU0229.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, 36" x 28" x 14":	1
V-belt set (5130948)	1
V-belt set (5100367)	1
Element, fuel (5574508)	1
Element, fuel (5574961)	1
Filter, engine oil (55773014)	1
Injector, N-50	2
Inventory, laminated	1
Manual, NAVSHIPS	1
Plate, drive clutch	1
Tool, packing removal	1
Packing, flexible graphite, 1/2” x 4 1/8’	1
Spring, clutch plate separator	3

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 8 in.
Width	1 ft, 4 in.
Height	11 in.
Cube	6.5 cu ft
Weight	14 lb

REFERENCES

None

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Ancillary Set PU0243

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ANCILLARY SET, FOR PU0229 PUMP **ESSM NUMBER PU0243**

DESCRIPTION

The Ancillary Set PU0243 contains fire hoses, suction hoses, various size pipe fittings, a gate valve, a jetting nozzle, and additional items necessary to configure one 2 1/2-Inch Jetting Pump PU0229 for operation.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	Qty
Container, wire mesh basket, 151" x 31" x 30":	1
Bushing, 2 1/2" to 3" pipe	1
Gasket, 6" Roylyn fitting	3
Hose, fire, 2 1/2" x 50', NH threads	2
Hose, LWT, 6" x 10' w /Roylyn fittings	3
Nipple, close, 2 1/2"	1
Nozzle, jetting	1
Roylyn fitting w/ 6" NPT adapter	2
Valve, foot, 6"	1
Valve, gate, 2 1/2"	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	12 ft, 7 in.
Width	2 ft, 7 in.
Height	2 ft, 6 in.
Cube	81 cu ft
Weight	1260 lb

REFERENCES

None

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1 1/2-INCH SUBMERSIBLE PUMPING SYSTEM S18600

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Overview of 1 1/2-Inch Submersible Electric Pumping System S18600

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PUMPING SYSTEM, SUBMERSIBLE, 1 1/2-INCH SYSTEM NUMBER S18600

SYSTEM DESCRIPTION

The 1 1/2-Inch Submersible Pumping System S18600 is primarily used as a stripping pump. The system consists of a lightweight, electrically driven, submersible pump with low profile strainer, a 1 1/2-inch diameter discharge hose, and electrical power cable, all of which is shipped in a single container. The 1 1/2-Inch Pumping System requires a 440-volt ac, 3-phase power source for operation.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Ancillary Set, for PU0250 Pump	PU0258	1
Pump, Submersible, 1 1/2-Inch, Electric, 440-V ac, 3-Phase	PU0250	1

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Ancillary Set PU0258

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ANCILLARY SET, FOR PU0250 PUMP — ESSM NUMBER PU0258

DESCRIPTION

The Ancillary Set PU0258 contains an electric pump, cable, switch, fire hose, and the components required to support the operation and maintenance of the 1 1/2" Electric Submersible Pump PU0250.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, 24" x 19" x 12”:		1
Pump, Submersible, 1 1/2”, Electric, 440-V ac, 3-Phase	PU0250	1
Carrying handle		1
Cable, extension, 40-amp, 450-V ac, 50’		1
Fire hose, 1 1/2” x 50’		1
Strainer, mushroom		1
Strainer, standard		1
Manual, Operating and Maintenance		1
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 0 in.
Width	1 ft, 7 in.
Height	1 ft, 4 in.
Cube	3 cu ft
Weight	82 lb

REFERENCES

None

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1 1/2” Electric Submersible Pump PU0250

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PUMP, SUBMERSIBLE, 1 1/2", ELECTRIC, 440-V AC, 3-PHASE **ESSM NUMBER PU0250**

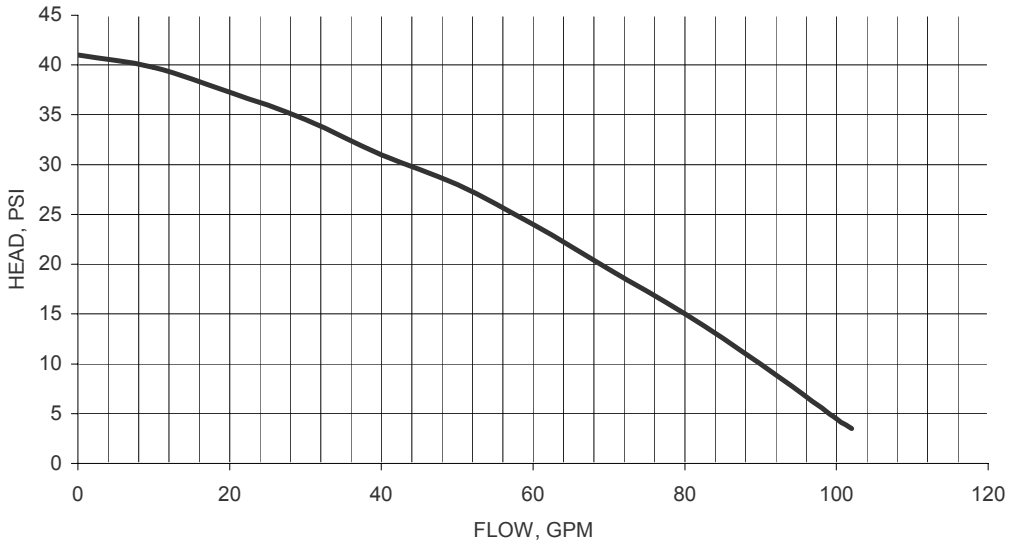
DESCRIPTION

The 1 1/2-Inch Submersible Pump PU0250 is a 440-volt, 3-phase electrically driven pump, which is used primarily as a stripping pump. The pump is shipped in the shipping/storage container of the Ancillary Set PU0258.

SPECIFICATIONS

Manufacturer	Prosser Industries
Model	1234B
Voltage	440 V ac
Frequency	60 Hz
Phase	3
Output (Maximum)	100 gpm @ 5 psi

PERFORMANCE CURVE



Performance Curve for PU0250 Pump

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PUMP, SUBMERSIBLE, 1 1/2", ELECTRIC, 440-V AC, 3-PHASE **ESSM NUMBER PU0250**

PHYSICAL CHARACTERISTICS

	Operating
Length	1 ft, 6 in.
Width	6 in.
Height	6 in.
Cube	.5 cu ft
Weight	32 lb

REFERENCES

1. Operating and Maintenance Instructions for Model 900 and 1200 Series Pumps, NAVSEA 0947-134-0010.

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4-INCH ELECTRIC SUBMERSIBLE PUMPING SYSTEM S18700

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Overview of 4-Inch Electric Submersible Pumping System S18700

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PUMPING SYSTEM, SUBMERSIBLE, 4-INCH ELECTRIC SYSTEM NUMBER S18700

DESCRIPTION

The 4-Inch Electric Submersible Pumping System S18700 is used for dewatering flooded compartments or any application requiring the pumping of water. The system consists of an electrically driven submersible pump, electrical cables, discharge hose, and ancillary equipment necessary for pump system setup and operation. The pumping system components including the 4-inch submersible pump are stored and shipped in the ancillary set. The pump is configured to operate with 440-volt, three-phase ac power, but can operate with 220-volt, three-phase ac power if converted in accordance with NAVSHIPS 0994-004-2010.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Ancillary Set, for PU0240 Pump	PU0241	1
Pump, Submersible, 4”, Electric, 220/440-V ac, 3-Phase	PU0240	1

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4” Electric Submersible Pump PU0240

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PUMP, SUBMERSIBLE, 4", ELECTRIC, 220/440-V AC, 3-PHASE **ESSM NUMBER PU0240**

DESCRIPTION

The 4-Inch Electric Submersible Pump PU0240 consists of a 25-hp submersible pump, electrical cable, adapters, a control box, an electrical switch, and circuit breakers. The pump is securely mounted on a portable skid. The pump is shipped as a component of the Ancillary Set PU0241.

SPECIFICATIONS

Manufacturer	Prosser Industries
Model	9-26034-161
Type	Submersible
Horsepower	25
Output (rated)	1100 gpm at 0 discharge head 250 gpm at 150-ft discharge head
Voltage (shipped)	440 V ac
(optional)	220 V ac
Frequency	60 Hz
Phase	3
Volts/amperes	440 volts, 3-phase/38 amps 220 volts, 3-phase/76 amps

PHYSICAL CHARACTERISTICS

	Operating
Length	5 ft, 7 in.
Width	1 ft, 8 in.
Height	1 ft, 9 in
Cube	17 cu ft
Weight	639 lb

REFERENCES

1. Ship Salvage-Submersible Pump Installation, Operation, Maintenance and Repair Instruction; NAVSHIPS 0994-004-2010.

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Ancillary Set PU0241



System Container S18700 (Ancillary Set PU0241)

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ANCILLARY SET, FOR PU0240 PUMP **ESSM NUMBER PU0241**

DESCRIPTION

The Ancillary Set PU0241 contains items to support the operation and maintenance of one 4-Inch Submersible Electric Pump PU0240.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Outer container, wire mesh, 72”x 29” x 52”:		1
Pump, Submersible, 4”, Electric, 220/440-V ac, 3-Phase	PU0240	1
Hose, lightweight layflat, 4” x 50’		2
Inner container, wire mesh, 65” x 25” x 19”:		1
Adapter, cable symbol 717		1
Adapter, extension, 8 AWG x 50’		1
Adapter, male to 4” female NPT		1
Adapter, screw lug cable		1
Cable, extension, 8 AWG x 100’		1
Sling, 4-point pickup, 3/8” x 57”x 48”		1
NAVSEA Technical Manual, 0994-004-2010		1
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Shipping
Length	6 ft, 0 in.
Width	2 ft, 5 in.
Height	4 ft, 5 in.
Cube	64 cu ft
Weight	1560 lb

REFERENCES

None

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4-INCH HYDRAULIC SUBMERSIBLE PUMPING SYSTEM S18800

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4-Inch Hydraulic Submersible Pumping System S18800
in Single Pump Configuration



4-Inch Hydraulic Submersible Pumping System S18800
in Double Pump Configuration

NOTE: Both Mod 6 or Mod 10 HPUs may be used in either single or double pump configuration.

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PUMPING SYSTEM, SUBMERSIBLE, 4-INCH HYDRAULIC **SYSTEM NUMBER S18800**

SYSTEM DESCRIPTION

The 4-Inch Hydraulic Submersible Pumping System S18800 consists of two configurations to allow flexibility for on-site pumping requirements: the Single Pump Configuration and the Double Pump Configuration. The Single Pump Configuration contains a 4-inch, hydraulically driven, submersible pump, an ancillary set, a hydraulic power unit with spare parts kit, and a hydraulic hose reel assembly with hoses. This system is capable of pumping up to 925 gpm to dewater or counterflood compartments for ballast and stability, or for any application where a lightweight submersible pump is needed. The Double Pump Configuration consists of two 4-inch, hydraulically driven, submersible pumps, an ancillary set, a hydraulic power unit with spare parts kit, and a hydraulic hose reel assembly with hoses. This system is capable of pumping up to 1850 gpm (in parallel operation) or 925 gpm (in series operation) and is used when a lightweight pumping system with an increased capacity or head pressure is required to dewater or counterflood compartments for ballast and stability.

SYSTEM COMPONENTS

Double Pump Configuration

Item	ESSM Number	Qty
1. Power Unit, Hydraulic, Mod 10, Diesel, 30 gpm @ 3000 psi	PW0030	1
Spare Parts Kit, for Power Unit PW0030	PW0031	1
2. Ancillary Set, for PU0208 Pump, Double Pump Configuration	PU0209	1
Pump, Submersible, 4”, Hydraulic	PU0208	2

Single Pump Configuration

Item	ESSM Number	Qty
1. Power Unit, Hydraulic, Mod 6, Diesel, 52 gpm @ 2500 psi	PW0045	1
Spare Parts Kit, for Power Unit PW0045	PW0046	1
2. Ancillary Set, for PU0208 Pump, Single Pump Configuration	PU0207	1
Pump, Submersible, 4”, Hydraulic	PU0208	1

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Mod 10 Hydraulic Power Unit PW0030



Mod 10 Hydraulic Power Unit Gauge Board

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POWER UNIT, HYDRAULIC, MOD 10, DIESEL, 30 GPM @ 3000 PSI **ESSM NUMBER PW0030**

DESCRIPTION

The Mod 10 Hydraulic Power Unit (HPU) PW0030 is a portable, diesel driven unit that provides hydraulic flow at up to 30 gpm @ 3000 psi. An adjustable pressure relief valve controls the output pressure delivered to the supply circuit.

The HPU is mounted on an enclosed skid with forklift slots and a protective frame with a five-position lifting point. The enclosure includes a storage area for the spare parts kit and contains the operator's manual. Hydraulic connections utilize 1-inch Aeroquip 5600 series quick disconnect fittings.

SPECIFICATIONS

Hydraulic Power Unit

Manufacturer	Portaco
Model	Predator Series 50-T

Diesel Engine

Manufacturer	Isuzu Motors Ltd.
Series	4JB1
Rpm	3000
Hp	67.7 @ 3000 rpm
Starting	12-volt
Fuel	Diesel
Fuel tank	10 gal.
Fuel consumption	6 gph

Hydraulic Pump

Type	Gear
Op. press. (max.)	3000 psi
Flow	30 gpm @ 3000 rpm
Hyd. reservoir	10 gal.

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	8 ft, 0 in.
Width	2 ft, 10 in.
Height	4 ft, 10 in.
Cube	120 cu ft
Weight	4400 lb

REFERENCES

1. Predator Series 50-T Hydraulic Power Unit Operation and Maintenance Manual.
2. Isuzu Engine Manual for 4JB-1 Series Engine.

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Spare Parts Kit PW0031

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SPARE PARTS KIT, FOR HYDRAULIC POWER UNIT PW0030 **ESSM NUMBER PW0031**

DESCRIPTION

The Spare Parts Kit PW0031 contains the items necessary to support the operation and maintenance of one Hydraulic Power Unit PW0030.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 18" x 11” x 10”:	1
Fan belt	1
Filter, air	1
Filter, engine fuel	1
Filter, engine oil	1
Filter, hydraulic oil	1
O-ring (22550-115)	5
O-ring (22550-211)	5
O-ring (2-126-N70)	5
Ring, Teflon (22021-6)	5
Ring, Teflon (22021-10)	5
Ring, Teflon (22021-16)	5
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 6 in.
Width	11 in.
Height	10 in.
Cube	2.0 cu ft
Weight	9 lb

REFERENCES

None

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Ancillary Set PU0209

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ANCILLARY SET, FOR PU0208 SUBMERSIBLE PUMP, DOUBLE PUMP CONFIGURATION **ESSM NUMBER PU0209**

DESCRIPTION

The Ancillary Set PU0209 contains items necessary to configure and operate the 4-Inch Hydraulic Submersible Pumping System S18800 in the single or double pump configuration.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, wire mesh basket, 62" x 36" x 41":		1
Pump, Submersible, 4” Hydraulic	PU0208	2
Bracket, double stack pump assembly		1
Cap, 4”, camlock fitting		3
Fitting, 4” female camlock to 4” male thread		1
Flow divider assembly, hydraulic		1
Hose assembly, 50’ hydraulic case drain		2
Hose assembly, 50’ supply and return		4
Hose, 50’ layflat, 4” diameter		3
Operator’s manual, U-102 Double Stack Pump		1
Plug, 4” camlock		3
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	53 cu ft
Weight	1364 lb

REFERENCES

None

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4” Hydraulic Submersible Pump in Single Pump Configuration



4” Hydraulic Submersible Pump in Double Pump (Series) Configuration

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PUMP, SUBMERSIBLE, 4" HYDRAULIC **ESSM NUMBER PU0208**

DESCRIPTION

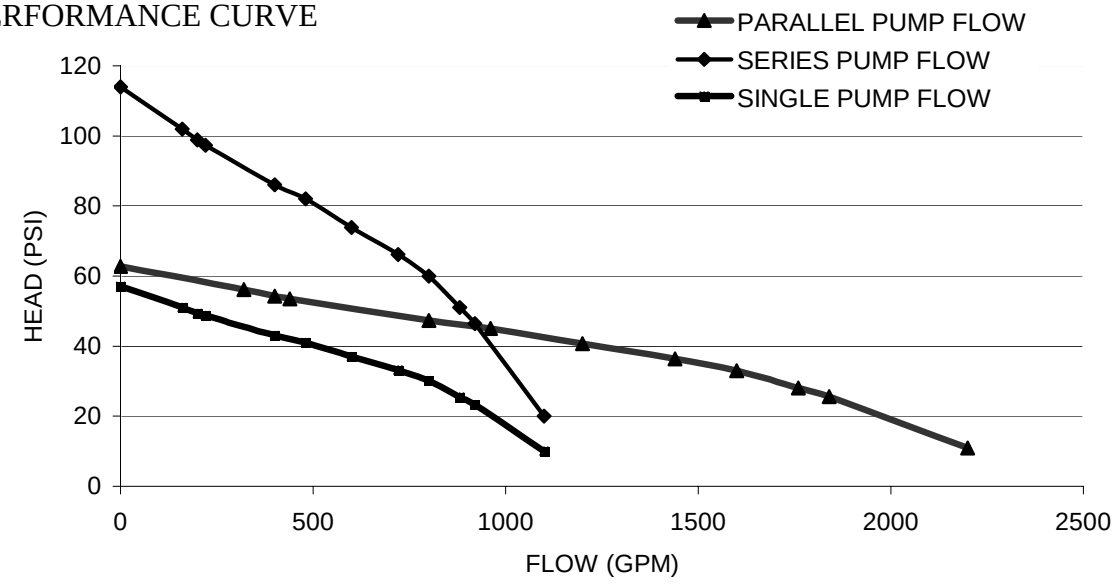
The 4-Inch Hydraulic Submersible Pump PU0208 is capable of pumping water containing solids up to 2 inches in diameter. The pump is rated for continuous output of up to 925 gpm at 25-psi discharge pressure. When connected in parallel the PU0208 is capable of pumping up to 1850 gpm. When connected in series the pump assembly pumps up to 925 gpm at up to approximately 50-psi head pressure. Quick disconnect fittings are utilized to allow for rapid hookup of the discharge hose and the supply and return hydraulic hoses. A 4-inch x 50-foot layflat discharge hose is supplied with the pump.

SPECIFICATIONS

Manufacturer	Marco Inc.

Pump		Motor	
Manufacturer	Marco Inc.	Manufacturer	Parker Hannifin
Model	U102	Model	M2A-254-16S
Type	Submersible	Operating pressure (max.)	2500 psi
Discharge	4"	Flow rate (maximum)	25 gpm
Output (maximum)	1100 gpm at 10 psi		

PERFORMANCE CURVE



Performance Curve for PU0208 Pump

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PUMP, SUBMERSIBLE, 4” HYDRAULIC **ESSM NUMBER PU0208**

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Height	1 ft, 10 in.
Diameter	1 ft, 7 in.
Cube	4.5 cu ft
Weight	95 lb

REFERENCES

1. Operation and Maintenance Instructions, with Illustrated Parts Breakdown, U102 Salvage Pump, NAVSEA S6225-F7-MMO-010.

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Mod 6 Hydraulic Power Unit PW0045

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POWER UNIT, HYDRAULIC, MOD 6, DIESEL, 52 GPM @ 2500 PSI **ESSM NUMBER PW0045**

DESCRIPTION

The Mod 6 Hydraulic Power Unit (HPU) PW0045 is a portable, diesel driven unit that provides hydraulic flow through two independent circuits. Each circuit is controlled by an independent directional control valve. An adjustable pressure relief valve controls the output pressure delivered to the supply circuit. The total hydraulic output is 52 gpm at a pressure of 2500 psi.

The HPU is skid-mounted with forklift slots and enclosed in a protective frame with two lifting points. Hydraulic connections utilize 1-inch Aeroquip 5600 series quick disconnect fittings (two male for supply and two female for return).

SPECIFICATIONS

Hydraulic Power Unit Assembly

Manufacturer	Commercial, Navy Design
Drawing number	5191947

Diesel Engine

Manufacturer	Detroit Diesel-Allison
Series	4-53
RPM	2200
HP	87 @ 2200 rpm
Starting	Hydraulic
Fuel	Diesel
Fuel source	20-gal. internal tank
Fuel consumption	6 gph.

Hydraulic Pump

Manufacturer	Commercial Shearing
Model	(2) P30's, tandem
Part number	P30B-442-B1-OJ15-25-C-OJ15-1
Type	Gear
Op. press. (max.)	2500 psi
Flow	26 gpm each @ 2200 rpm
Hyd. reservoir	50 gal.
Hydraulic fluid	Rando 46

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	8 ft, 0 in.
Width	2 ft, 10 in.
Height	4 ft, 10 in.
Cube	120 cu ft
Weight	4400 lb

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POWER UNIT, HYDRAULIC, MOD 6, DIESEL, 52 GPM @ 2500 PSI **ESSM NUMBER PW0045**

REFERENCES

1. Operation and Maintenance Instructions for the Hydraulic Power Unit, Model 6, NAVSEA Manual S9597-AB-OMP-010.

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Spare Parts Kit PW0046

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SPARE PARTS KIT, FOR HYDRAULIC POWER UNIT PW0045 **ESSM NUMBER PW0046**

DESCRIPTION

The Spare Parts Kit PW0046 contains the items necessary to support the operation and maintenance of one PW0045 Hydraulic Power Unit.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 21" x 16” x 12”:	1
Filter, hydraulic oil	2
Filter, fuel (BF-593)	2
Filter, fuel (BF-592)	2
Filter, engine oil	2
Gasket, thermostat	1
Injector, fuel	2
Manual, Operation and Maintenance, Model 6 HPU	1
O-ring, Buna rubber	12
O-ring, Teflon	12
Thermostat	1
V-belt	1
V-belt set	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 9 in.
Width	1 ft, 4 in.
Height	1 ft, 0 in.
Cube	2.5 cu ft
Weight	28 lb

REFERENCES

None

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Ancillary Set PU0207

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ANCILLARY SET, FOR PU0208 SUBMERSIBLE PUMP, SINGLE PUMP CONFIGURATION **ESSM NUMBER PU0207**

DESCRIPTION

The Ancillary Set PU0207 contains items necessary to configure and operate the 4-Inch Hydraulic Submersible Pumping System S18800 in the single pump configuration.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, wire mesh basket, 62" x 36" x 41":		1
Pump, Submersible, 4” Hydraulic	PU0208	1
Cap, 4”, camlock fitting		1
Fitting, 4” female camlock to 4” male thread		1
Hose assembly, 50’ hydraulic case drain		1
Hose assembly, 50’ supply and return		2
Hose, 50’ layflat, 4” diameter		1
Operator’s manual, U-102 Double Stack Pump		1
Plug, 4” camlock		1
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	53 cu ft
Weight	788 lb

REFERENCES

None

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6-INCH HYDRAULIC SUBMERSIBLE PUMPING SYSTEM S18900

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Overview of 6-Inch Hydraulic Submersible Pumping System S18900

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PUMPING SYSTEM, SUBMERSIBLE, 6-INCH HYDRAULIC **SYSTEM NUMBER S18900**

SYSTEM DESCRIPTION

The 6-Inch Hydraulic Submersible Pumping System S18900 consists of a 6-inch, hydraulically driven, submersible pump, control block, ancillary set, hydraulic power unit, hydraulic hose assemblies and reels, and a spare parts kit. It is a high capacity system used for dewatering, counterflooding, or any other water pumping applications.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Power Unit, Hydraulic, Mod 6, Diesel, 52 gpm @ 2500 psi	PW0045	1
2. Spare Parts Kit, for Power Unit PW0045	PW0046	1
3. Reel, Hydraulic Hose Assembly	HC0003	2
4. Ancillary Set, for PU0290 Pump	PU0291	1
Pump, Submersible, 6”, Hydraulic	PU0290	1
Hydraulic Flow Control Block, for PU0290 Pump	PU0292	1

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Mod 6 Hydraulic Power Unit PW0045

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POWER UNIT, HYDRAULIC, MOD 6, DIESEL, 52 GPM @ 2500 PSI **ESSM NUMBER PW0045**

DESCRIPTION

The Mod 6 Hydraulic Power Unit (HPU) PW0045 is a portable, diesel driven unit that provides hydraulic flow through two independent circuits. Each circuit is controlled by an independent directional control valve. An adjustable pressure relief valve controls the output pressure delivered to each supply circuit. The total hydraulic output is 52 gpm at a pressure of 2500 psi.

The HPU is skid-mounted with forklift slots and enclosed in a protective frame with two lifting points. Hydraulic connections utilize 1-inch Aeroquip 5600 series quick disconnect fittings (two male for supply and two female for return).

SPECIFICATIONS

Hydraulic Power Unit Assembly

Manufacturer	Commercial, Navy Design
Drawing	5191947

Diesel Engine

Manufacturer	Detroit Diesel-Allison
Series	4-53
RPM	2200
HP	87 @ 2200 rpm
Starting	Hydraulic
Fuel	Diesel
Fuel source	20-gal. internal or auxiliary
Fuel consumption	6 gph

Hydraulic Pump

Manufacturer	Commercial Shearing
Model	(2) P30's, tandem
Part number	P30B-442-B1-OJ15-25-C-OJ15-1
Type	Gear
Oper. press. (max)	2500 psi
Flow	26 gpm each @ 2200 rpm
Hyd. reservoir	50 gal.
Hydraulic fluid	Rando 46

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	8 ft, 0 in.
Width	2 ft, 10 in.
Height	4 ft, 10 in.
Cube	110 cu ft
Weight	4400 lb

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POWER UNIT, HYDRAULIC, MOD 6, DIESEL, 52 GPM @ 2500 PSI **ESSM NUMBER PW0045**

REFERENCES

1. Operation and Maintenance Instructions for the Hydraulic Power Unit, Model 6, NAVSEA Manual S9597-AB-OMP-010.

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Spare Parts Kit PW0046

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SPARE PARTS KIT, FOR POWER UNIT PW0045 **ESSM NUMBER PW0046**

DESCRIPTION

The Spare Parts Kit PW0046 contains the items necessary to support the operation and maintenance of one PW0045 Hydraulic Power Unit.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts kit, 21” x 16” x 12”:	1
Filter, hydraulic	2
Filter, fuel (BF-593)	2
Filter, fuel (BF-592)	2
Filter, engine oil	2
Gasket, thermostat	1
Injector, fuel	2
Manual, Operation and Maintenance, Model 6 HPU	1
O-ring, Buna rubber	12
O-ring, Teflon	12
Thermostat	1
V-belt	1
V-belt set	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 9 in.
Width	1 ft, 4 in.
Height	1 ft, 0 in.
Cube	2.5 cu ft
Weight	28 lb

REFERENCES

None

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Hydraulic Hose Assembly Reel HC0003

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REEL, HYDRAULIC HOSE ASSEMBLY **ESSM NUMBER HC0003**

DESCRIPTION

The Hydraulic Hose Reel Assembly HC0003 consists of four 50-foot sections of 1-inch hose with quick disconnect fittings. These hoses are stored on the hose reel spool and are charged with system hydraulic fluid. The spool is mounted on a steel frame that has forklift slots and four top-mounted lifting points used for handling the hose reel during shipment and operation. The hoses are used to transmit hydraulic flow and pressure from the hydraulic power unit to hydraulically driven equipment.

SPECIFICATIONS

Hose Reel	Tennessee Machinery
Model	Dwg 5366829
Hose	Aeroquip 1508-16, 4 sections (50 ft each)
Quick disconnect fittings	Aeroquip 5600-16-16S
Spool and frame	Single drum, steel, w/pillow block bearings

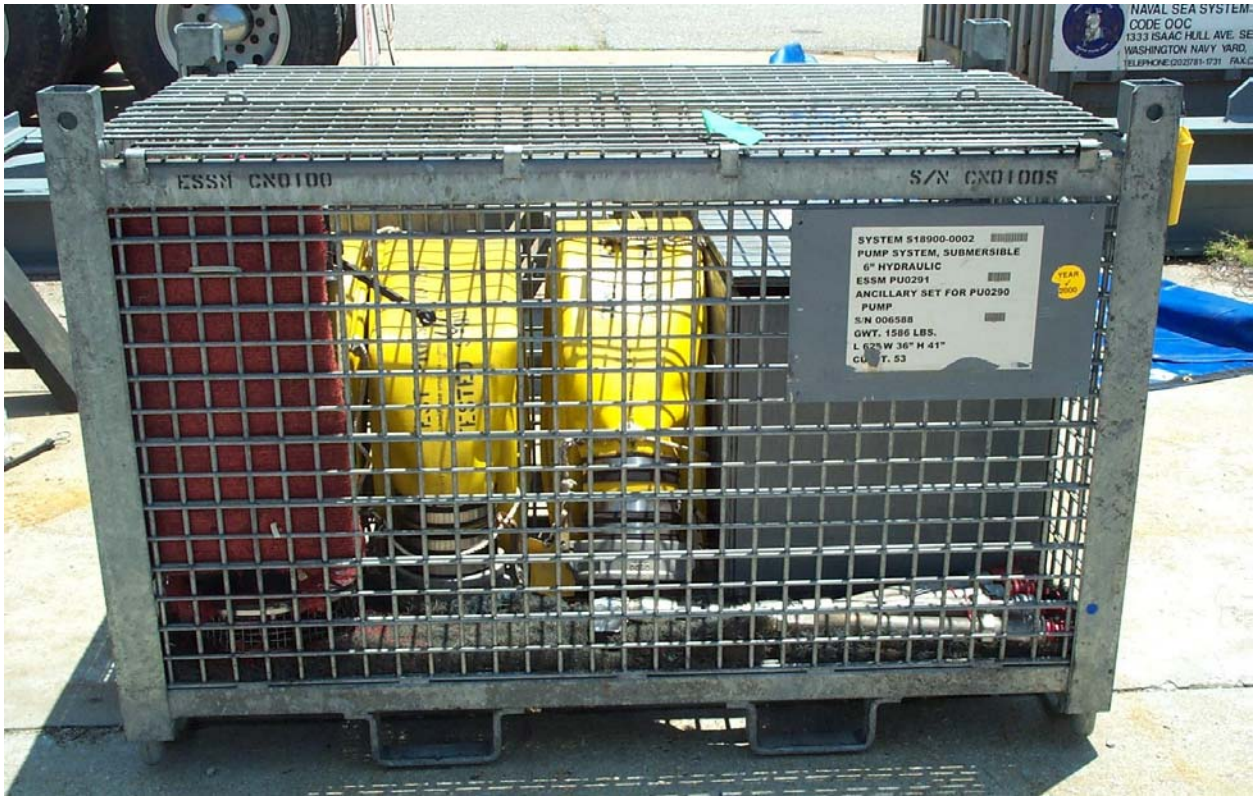
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 11 in.
Width	2 ft, 8 in.
Height	4 ft, 1 in.
Cube	42 cu ft
Weight	730 lb

REFERENCES

1. Operation and Maintenance Instructions for Hydraulic Cable Puller Systems, NAVSEA S9597-AB-MMO-010.

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Ancillary Set PU0291

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ANCILLARY SET, FOR PU0290 PUMP — ESSM NUMBER PU0291

DESCRIPTION

The Ancillary Set PU0291 contains items necessary to configure and operate the 6-Inch Hydraulic Submersible Pumping System S18900.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, wire mesh basket, 62” x 36” x 41”:		1
Hydraulic Flow Control Block, for PU0290 Pump	PU0292	1
Pump, Submersible, 6”, Hydraulic	PU0290	1
Connector, Y-fitting		2
Hose, layflat, 6” x 50’, male and female camlock fittings		3
Inventory, laminated		1
Manual, Operation and Maintenance		1
Sealer, thread		1
Sling, lifting, with 1/2” safety shackles		1
Inventory, laminated		1

PHYSICAL CHARACTERISTICS

	Shipping
Length	5 ft, 2 in.
Width	3 ft, 0 in.
Height	3 ft, 5 in.
Cube	53 cu ft
Weight	1586 lb

REFERENCES

None

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6” Hydraulic Submersible Pump PU0290

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PUMP, SUBMERSIBLE, 6", HYDRAULIC **ESSM NUMBER PU0290**

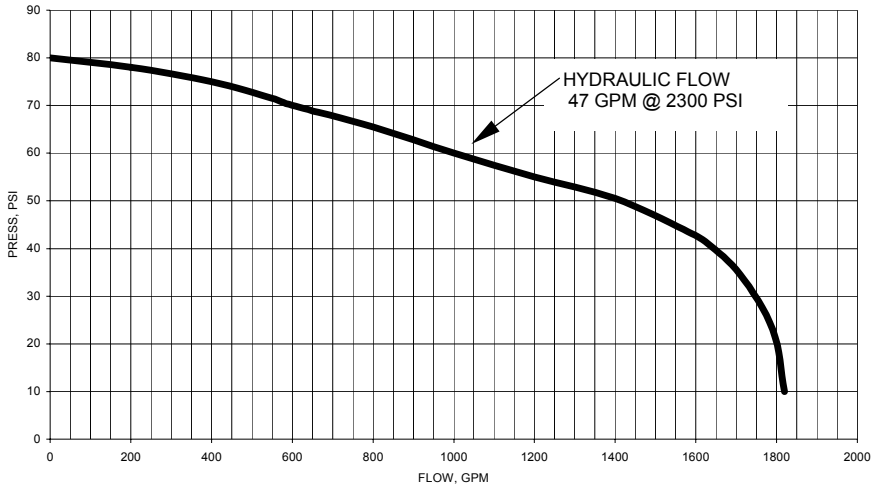
DESCRIPTION

The 6-Inch Hydraulic Submersible Pump PU0290 is a hydraulically powered, single stage, centrifugal pump rated at 1820 gpm flow and is used for dewatering, ballast transfer, and other water pumping applications. A sling is provided for lifting and lowering the pump. The pump is shipped as a component of the Ancillary Set PU0291.

SPECIFICATIONS

Manufacturer	Thune-Eureka/Marine Pollution Control, Inc.
Model	CCN-150-3C
Type	Hydraulic, single stage, centrifugal
Hydraulic fluid	Rando 46 or equivalent
Hydraulic pressure	2300 psi
Hydraulic fluid temp.	100 to 180° F
Hydraulic flow (max)	52 gpm
Back pressure (max)	200 psi
Hydraulic connections:	
HP Supply	Aeroquip 5601-16 quick disconnect
LP Return	Aeroquip 5602-16 quick disconnect
Water discharge connection	6" female camlock fitting
Rated output	1820 gpm @ 10 psi output head

PUMP PERFORMANCE CURVE



Performance Curve for PU0290 Pump

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PUMP, SUBMERSIBLE, 6", HYDRAULIC **ESSM NUMBER PU0290**

PHYSICAL CHARACTERISTICS

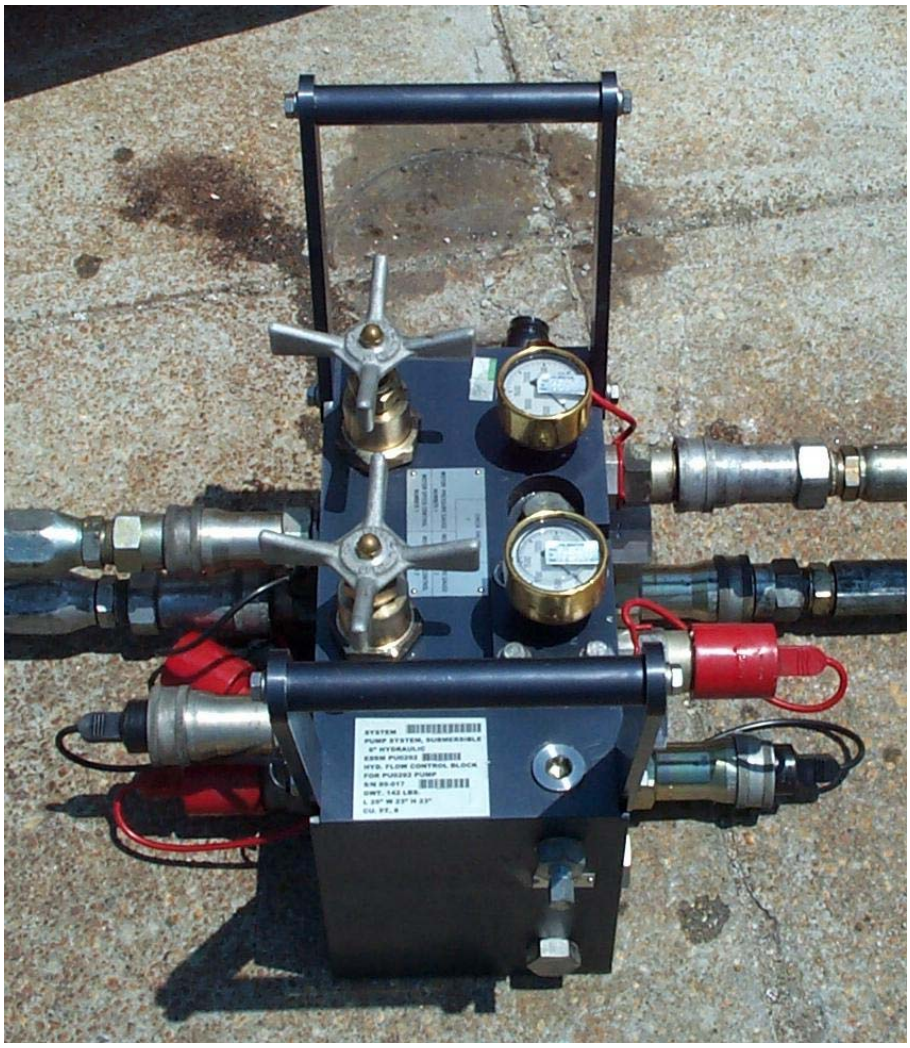
	Operating/Shipping
Height w/o hoses	2 ft, 5 in.
Diameter	1 ft, 0 in.
Cube	2.5 cu ft
Weight	200 lb

REFERENCES

1. Technical Manual for Submersible Pump CCN-150, NAVSEA S9593-BZ-OMP-010/3P215.
2. Technical Manual for Petroleum, Oil, Lubricant, or Water Offloading Pump System, NAVSEA S9593-BX-OMP-010.

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Hydraulic Flow Control Block PU0292

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HYDRAULIC FLOW CONTROL BLOCK, FOR PU0290 PUMP **ESSM NUMBER PU0292**

DESCRIPTION

The Hydraulic Flow Control Block PU0292 controls hydraulic fluid flow to the 6-Inch Hydraulic Submersible Pump PU0290. The flow control block is shipped as a component of the Ancillary Set PU0291.

SPECIFICATIONS

Manufacturer	Hydrasearch Co., Inc.
Model	15355
Working pressure	2500 psi
Hydraulic flow:	
Per circuit	26 gpm
Total	52 gpm

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 8 in.
Width	2 ft, 5 in.
Height	2 ft, 4 in.
Cube	15 cu ft
Weight	240 lb

REFERENCES

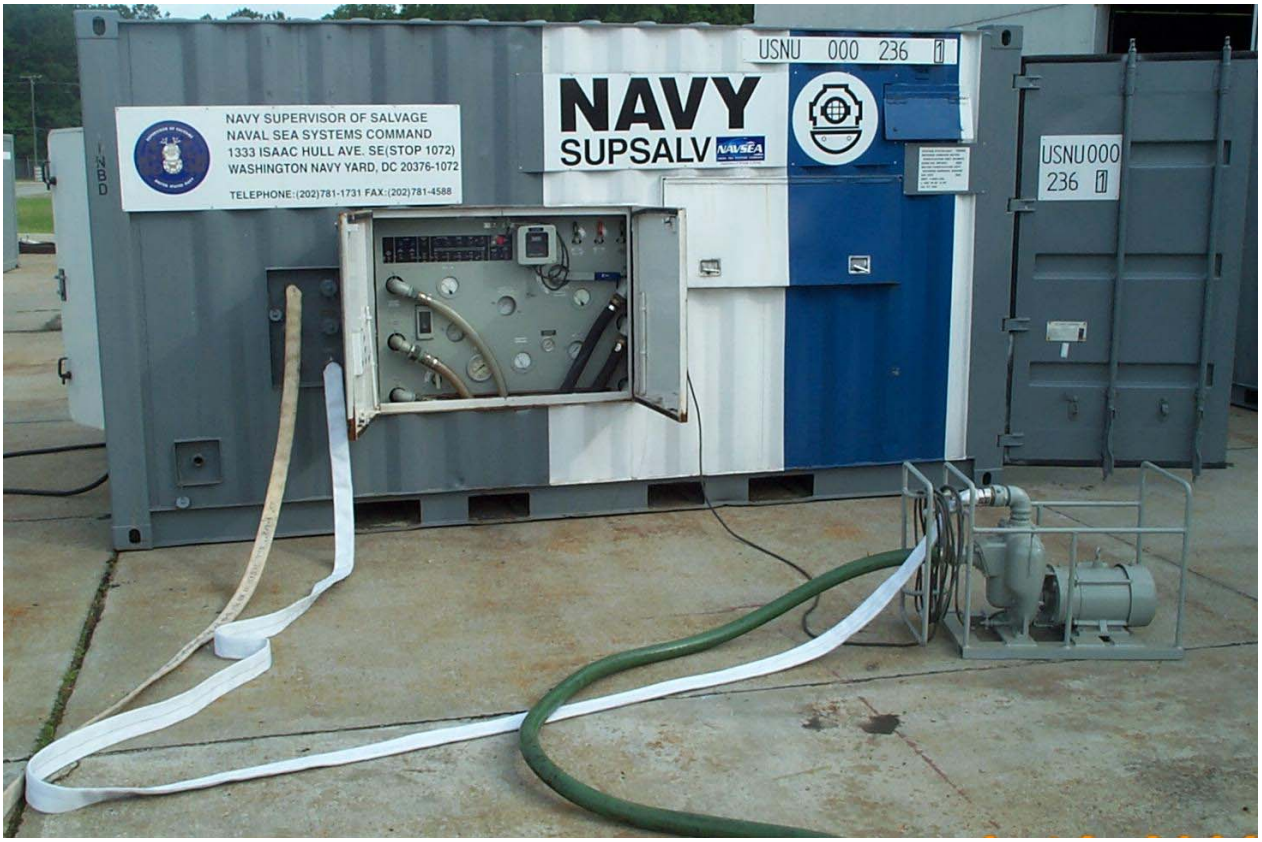
1. Technical Manual for Flow Control Block Model 15355, NAVSEA S9593-BY-OMP-010/32142.

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REVERSE OSMOSIS WATER PURIFICATION UNIT (ROWPU) S19100

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Reverse Osmosis Water Purification Unit S19100

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REVERSE OSMOSIS WATER PURIFICATION UNIT (ROWPU) **SYSTEM NUMBER S19100**

SYSTEM DESCRIPTION

The Reverse Osmosis Water Purification Unit (ROWPU) S19100 can produce potable water at up to 600 gph from a variety of water sources (including seawater) through the process of reverse osmosis. The ROWPU passes the input water through an osmotic membrane to function as a demineralizer and filter. The osmotic process is capable of removing virtually all (99%) of the dissolved and suspended solids, bacteria, organic compounds, and NBC (nuclear, biological, and chemical) agents to produce safe potable water.

The ROWPU consists of the water purification unit with chemical pre-treatment system, interconnecting hoses, a shipping container, reverse osmosis elements, water quality monitoring equipment, and a spare parts kit. The system also includes distribution pumps and a post-treatment chlorination system.

Electrical power must be supplied by the user.

NOTE: NBC contaminants in the water require special NBC filters. These are not provided as part of the system unless requested.

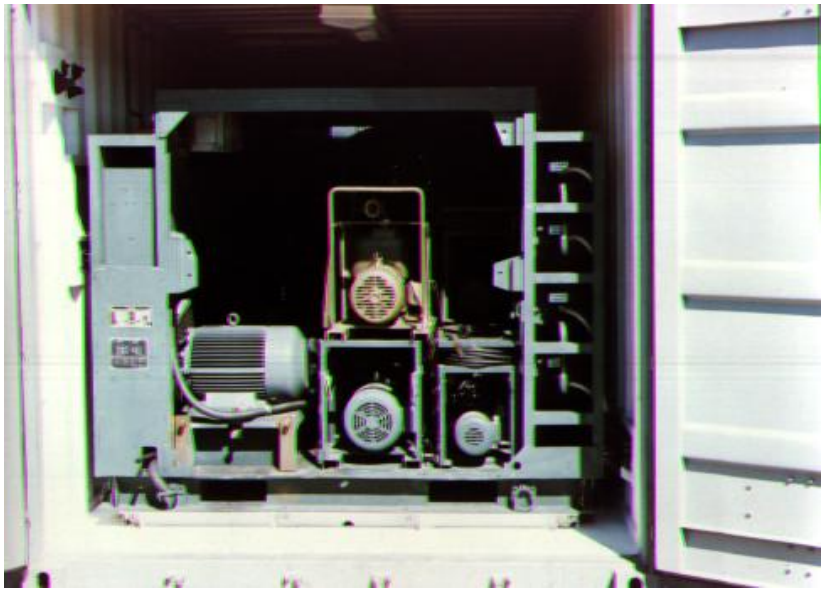
SYSTEM COMPONENTS

Item	ESSM Number	Qty
Water Purification Unit, Reverse Osmosis, Marine	WP0903	1

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Reverse Osmosis Water Purification Unit (ROWPU) WP0903



Reverse Osmosis Water Purification Unit (ROWPU) Components

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WATER PURIFICATION UNIT, REVERSE OSMOSIS, MARINE **ESSM NUMBER WP0903**

DESCRIPTION

The Reverse Osmosis Water Purification Unit WP0903 is a containerized system that processes seawater or brackish water through an osmotic membrane to produce potable water at the rate of approximately 600 gph. System components are compatible with the shipboard environment. The system consists of the water purification unit with chemical pre-treatment system, interconnecting hoses, shipping container, reverse osmosis elements, water quality monitoring equipment, and a spare parts kit. Distribution pumps and post-treatment chlorination system are provided with the unit. The unit requires 460-volt, 3-phase ac electrical power. A step-down transformer within the shipping container provides the necessary 120-volt, single phase, ac power required to operate the internal equipment.

SPECIFICATIONS

Manufacturer	Commercial, Marinized by ESSM Facility
Model	0996109001
Potable water output	600 gph
Power input requirements:	
Power	22 kW
Voltage	460 V ac, 3-phase
Current	104 amperes (max.)

The ROWPU Van contains tools, chemicals, and spare parts to support operation of the unit; the following items are included within the van:

Item	Qty
Hose assembly, 1 1/2" x 11', 1 1/2" NPSH w/ end swivels, clear	3
Hose assembly, 2" x 11', 1 1/2" NPSH w/ end swivels, 25' long	4
Hose assembly, 2" x 11', 1 1/2" NPSH fitting each end, green	6
Box 1 contains chemicals and adapters	1
Box 2 contains tools and miscellaneous items	1
Clothing, protective (set)	2
Element, reverse osmosis fluid system	8
Gloves, rubber, pair	4
Goggles, safety	2
Manual, Case Maintenance and Operations	1
Manual, Operation and Maintenance	1
Meter, total dissolved solids	1
Indicator, phase sequence	1
Tank, polyethylene, 55-gallon, w/ fittings	1

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WATER PURIFICATION UNIT, REVERSE OSMOSIS (ROWPU), MARINE **ESSM NUMBER WP0903**

Item (continued)	Qty
Pump, backwash	1
Pump, booster	1
Pump, distribution	1
Pump, lift	1
Pump, raw water	1
Regulator, pressure, water, w/ gauge	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	15 ft, 0 in.
Width	8 ft, 0 in.
Height	8 ft, 0 in.
Cube	960 cu ft
Weight	13,690 lb

REFERENCES

1. Water Purification Unit, Reverse Osmosis, Operator's Manual, U.S. Army (TM 5-4610-215-10).
2. Water Purification Unit, Reverse Osmosis, Intermediate Direct Support, and Intermediate General Support Maintenance Manual, U.S. Army (TM 5-4610-215-24/2).
3. Water Purification Unit, Reverse Osmosis, Operator's Manual, U.S. Marine Corps (TM 08580A-10/1).
4. Water Purification Unit, Reverse Osmosis, Intermediate Direct Support, and Intermediate General Support Maintenance Manual, U.S. Marine Corps (TM 08580B-24/3).

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SALVAGE LIFT BAG S21100

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Overview of Underwater Lift Bag PN0060



Overview of Underwater Lift Bag PN0062
(PN0063 Similar)

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SALVAGE LIFT BAG **SYSTEM NUMBER S21100**

SYSTEM DESCRIPTION

The Salvage Lift Bag S21100 provides lifting force for use in salvage situations. There are two configurations of this system. Configuration 1 contains an inflatable, closed, parachute-type bag with a 22,050-lb lift capacity. Configuration 2 contains an inflatable, open, parachute-type bag with a 22,000-lb lift capacity. In either configuration the lifting bag can be attached to a sunken object and filled with air to provide buoyancy. Lifting straps attached to the lifting bag are configured to provide a single attachment point. The assigned underwater lift bag is shipped in the ancillary set container that includes inflation hoses, spare parts, rope pendant, and lifting shackles.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
Configuration 1 (Closed Lift Bag)		
Ancillary Set, for PN0060 Underwater Lift Bag	PN0061	1
Underwater Lift Bag, 22,050 lb, Model DLE-10	PN0060*	1
Configuration 2 (Open Lift Bag)		
Ancillary Set, for PN0062/PN0063 UW Lift Bags	PN0064	1
Underwater Lift Bag, 22,000 lb, Model PF20000 (Primary)	PN0062*	1
Underwater Lift Bag, 22,000 lb, Model PL20000 (Alternate)	PN0063*	1

NOTE: The Salvage Lift Bag system does not include lifting bridles or other devices to connect the sunken object to the lift bag. These items may be available in the ESSM inventory, depending on the on-site requirements. Contact the NAVSEA Representative for material availability.

* The Underwater Lift Bag supplied will depend on inventory availability and on-site requirements. Lift Bags PN0060, PN0062, and PN0063 are functionally equivalent.

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Ancillary Set PN0061

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ANCILLARY SET, FOR PN0060 UNDERWATER LIFT BAG ESSM NUMBER PN0061

DESCRIPTION

The Ancillary Set PN0061 contains a pontoon, fittings, valves, rigging components, inflation/deflation instructions, and a lift bag inflation/deflation procedure in a storage container to configure one 22,050-lb Underwater Lift Bag PN0060 for operation.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Storage container, 49” x 41” x 42”:		1
Underwater Lift Bag, 22,050 lb, Model DLE-10	PN0060	1
Hose assembly, long whip, 20’		1
Hose assembly, short whip, 46”		1
Link, master, oblong, 1 1/4” x 11 1/4” (WLL = 35,160 lb)		1
Pendant w/thimbles, rope-lifting, 1 15/16” x 22’ (SWL = 25,000 lb)		1
Procedure, laminated, "Lift Bag Inflation/Deflation"		1
Shackle, anchor, screw pin, 12-ton, 1 1/4”		3
Inventory, laminated		1

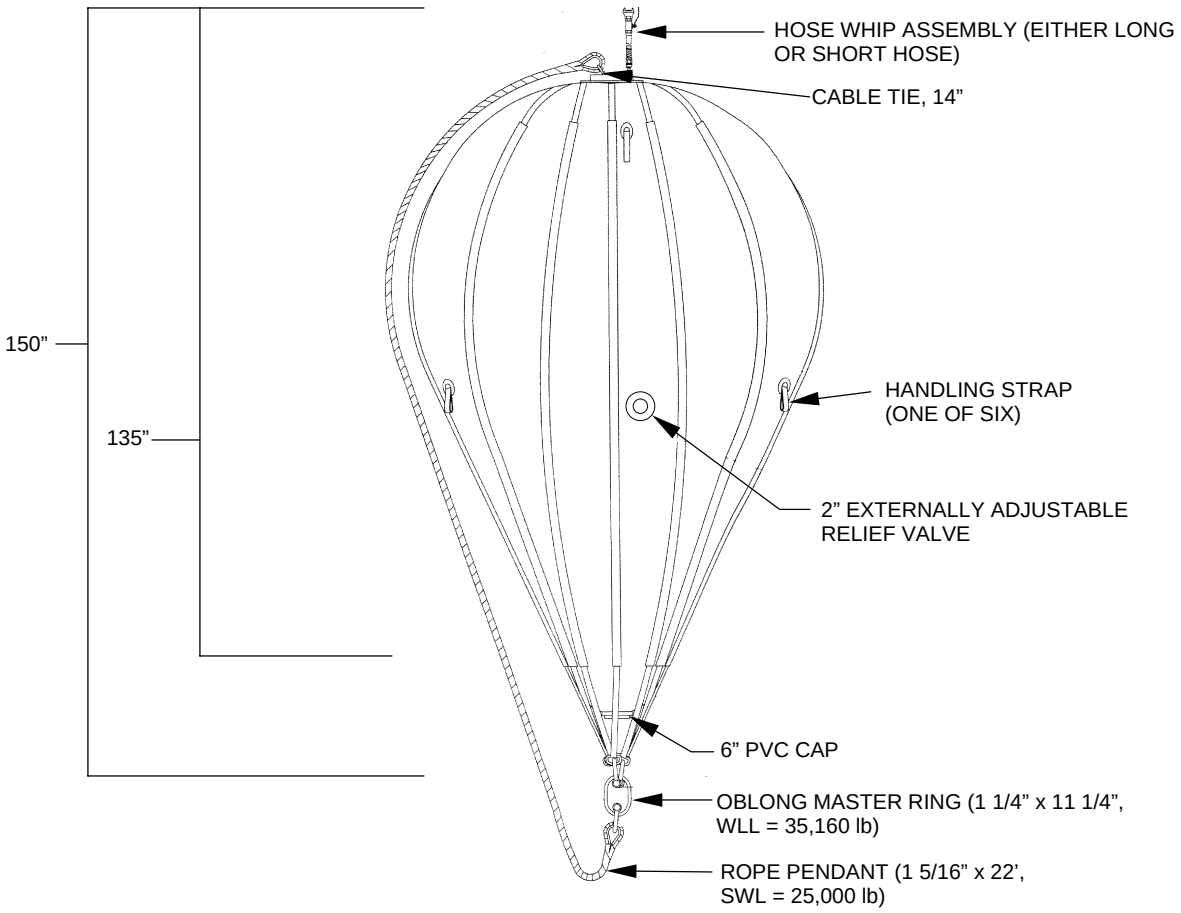
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 1 in.
Width	3 ft, 5 in.
Height	3 ft, 6 in.
Cube	45 cu ft
Weight	452 lb

REFERENCES

None

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22,050 lb Underwater Lift Bag PN0060



Rope-Lifting Pendant Showing Cable Tie Attachment

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UNDERWATER LIFT BAG, 22,050 LB, MODEL DLE-10 ESSM NUMBER PN0060

DESCRIPTION

The 22,050-Lb Underwater Lift Bag is an inflatable, parachute-shaped bag used for lifting heavy objects in the water. The maximum ascent rate under load for the lift bag is 66 ft/min. The total safe working load (SWL) for the lifting straps is 24,000 lb. The lift bag is stored and shipped in its Ancillary Set PN0061 container, along with its rigging and inflation equipment.

During lift operations, the rope-lifting pendant (sometimes referred to as the lazy pendant) is rigged from the lifting shackle to the top of the lift bag and secured with a cable tie. During underwater lifting the pendant is not under tension. When the object is brought to the surface, the cable tie is cut and the pendant's upper hard eye is attached to a crane's hook to allow the lifting pendant to take a strain on the lifted object. This allows the lift bag to be unrigged without losing control of the salvaged object.

SPECIFICATIONS

Manufacturer	Canflex
Model	DLE-10
Lifting capacity:	
Rated	22,050 lb
Tested	25,000 lb
Relief valve setting:	
Top	5.5 psig/ 7.5 psig (new bags purchased after 1991)
Side	3.0 psig

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	NA	4 ft, 1 in.
Width	NA	3 ft, 5 in.
Height	13 ft, 0 in.	3 ft, 6 in.
Diameter	8 ft, 6 in.	NA
Cube	354 cu ft	45 cu ft
Weight	220 lb	452 lb
Buoyancy	22,050 lb	NA

REFERENCES

1. NAVSEA Dwg. 6777279.

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Ancillary Set PN0064 for PN0062/PN0063 UW Lift Bags
(Shown With Lift Bag PN0063)

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ANCILLARY SET, FOR PN0062/PN0063 UW LIFT BAGS — ESSM NUMBER PN0064

DESCRIPTION

The Ancillary Set PN0064 contains an underwater lift bag (either PN0062 or PN0063), fittings, valves, rigging components, and drawings in a storage container to configure one 22,000-Lb Underwater Lift Bag for operation.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Storage container, 49” x 41” x 42”:		1
Underwater Lift Bag, 22,000 Lb, Model PF20000 (primary)	PN0062	1*
Underwater Lift Bag, 22,000 Lb, Model PL20000 (alternate)	PN0063	1*
Lazy pendant, 1 1/16" x 21', w/ hard eyes, SWL 23,000 lb		1
Cable tie, 11"		10
Hose assembly, 3/4" x 20', w/ quick disconnect fittings		1
Hose assembly, 3/4" x 4', w/ ball valve		1
Shackle, bolt-type, 1 1/4", 12-ton WLL		2
Inventory, laminated		1

* PN0062 and PN0063 are functionally equivalent. The item shipped will depend on inventory availability and on-site requirements.

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 1 in.
Width	3 ft, 5 in.
Height	3 ft, 6 in.
Cube	45 cu ft
Weight	389 lb

REFERENCES

None

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Note: The lazy pendant and 12-ton lifting shackles are stored in the Ancillary Set PN0064.

22,000-Lb Underwater Lift Bag PN0062 Rigged for Deployment



Lift Bag PN0062 Showing LP Air Fill Connection, Vent Valve, Gathering Strap, Shackle, Lazy Pendant, and Connecting Straps

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UNDERWATER LIFT BAG, 22,000 LB, MODEL PF20000 ESSM NUMBER PN0062

DESCRIPTION

The 22,000-Lb Underwater Lift Bag PN0062 is an inflatable, parachute-shaped bag used for lifting heavy objects in the water. This bag has an open bottom to allow the internal pressure within the bag to remain equalized with sea water pressure as the lift bag's buoyancy lifts the object from the sea floor. This precludes the possibility of overpressurizing the lift bag during ascent. The lift bag may be inflated either from the top-mounted LP air connection or through the open bottom. The lift bag may be deflated by "spilling" the lift air from the open bottom, or by opening the top-mounted vent valve. The total safe working load (SWL) for the lifting straps is 22,000 lb. PN0062 is functionally equivalent to Underwater Lift Bag PN0063. The lift bag is stored and shipped in its Ancillary Set PN0064 container, along with its rigging and inflation equipment.

During lift operations, the rope-lifting pendant (sometimes referred to as the lazy pendant) is rigged from the lifting shackle to the top of the lift bag and secured with a cable tie. During underwater lifting the pendant is not under tension. When the object is brought to the surface, the cable tie is cut and the pendant's upper hard eye is attached to a crane's hook to allow the lifting pendant to take a strain on the lifted object. This allows the lift bag to be unrigged without losing control of the salvaged object.

SPECIFICATIONS

Manufacturer	SUBSALVE
Model	PF20000
Lifting capacity	22,000 lb
Gathering strap shackle	7/8" screw pin shackle, 6-ton WLL
Lifting shackle (2)	1 1/4", 12-ton WLL

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	NA	4 ft, 1 in.
Width	NA	3 ft, 5 in.
Diameter	7 ft, 6 in.	NA
Height	15 ft, 0 in.	3 ft, 6 in.
Cube	380 cu ft	45 cu ft
Weight	160 lb	160 lb
Buoyancy	22,000 lb	NA

REFERENCES

None.

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Note: The lazy pendant and 12-ton lifting shackles are stored in the Ancillary Set PN0064.

22,000-Lb Underwater Lift Bag PN0063 Rigged for Deployment



Lift Bag PN0063 Showing LP Air Fill Connection, Vent Valve, Gathering Strap, Shackle, Lazy Pendant, and Connecting Straps

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UNDERWATER LIFT BAG, 22,000 LB, MODEL PL20000 ESSM NUMBER PN0063

DESCRIPTION

The 22,000-Lb Underwater Lift Bag PN0063 is an inflatable, parachute-shaped bag used for lifting heavy objects in the water. This bag has an open bottom to allow the internal pressure within the bag to remain equalized with sea water pressure as the lift bag's buoyancy lifts the object from the sea floor. This precludes the possibility of overpressurizing the lift bag during ascent. The lift bag may be inflated either from the top-mounted LP valve with an air whip or through the open bottom. The lift bag may be deflated by "spilling" the lift air from the open bottom, or by opening the top-mounted vent valve. The total safe working load (SWL) for the lifting straps is 22,000 lb. PN0063 is functionally equivalent to Underwater Lift Bag PN0062. The lift bag is stored and shipped in its Ancillary Set PN0064 container, along with its rigging and inflation equipment.

During lift operations, the rope-lifting pendant (sometimes referred to as the lazy pendant) is rigged from the lifting shackle to the top of the lift bag and secured with a cable tie. During underwater lifting the pendant is not under tension. When the object is brought to the surface, the cable tie is cut and the pendant's upper hard eye is attached to a crane's hook to allow the lifting pendant to take a strain on the lifted object. This allows the lift bag to be unrigged without losing control of the salvaged object.

SPECIFICATIONS

Manufacturer	Watson
Model	PL20000
Lifting capacity	22,000 lb
Gathering strap shackle	1" screw pin shackle, 6 1/2-ton WLL
Lifting shackle (2)	1 1/4", 12-ton WLL

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	NA	4 ft, 1 in.
Width	NA	3 ft, 5 in.
Diameter	7 ft, 9 in.	NA
Height	15 ft, 0 in.	3 ft, 6 in.
Cube	380 cu ft	45 cu ft
Weight	160 lb	160 lb
Buoyancy	22,000 lb	NA

REFERENCES

None.

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SPOOLING SYSTEM S22100

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Spooling System WR0001 Configuration



Spooling System WR0020 Configuration

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SPOOLING SYSTEM **SYSTEM NUMBER S22100**

DESCRIPTION

The Wire Rope Spooling System S22100 is available in two configurations. The first configuration uses a diesel driven wire rope spooling machine. The second configuration consists of a lightweight spooling reel. Either configuration is designed to be used with the following optional equipment: a reel roller platform, broken reel turntable, and/or a wire rope measuring meter to recover and spool wire rope of various diameters onto or off wire rope storage reels. The system is used to recover or transfer large quantities of wire rope or cordage at salvage sites. Contact the NAVSEA Representative to determine the wire rope reeling requirements and the proper configuration required to meet the onsite needs of the assigned operation.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1 Wire Rope Reeling Machine		1*
a. Wire Rope Reeling Machine, Reel Capacity 84” Diameter, 54” Wide	WR0001	
b. Reel Stand, Hydraulic, Self-Loading, 63” x 47” Capacity	WR0020	
2. Reel Roller Platform (Optional)	WR0002	1
3. Broken Reel Turntable (Optional)	WR0004	1
4. Wire Rope Measuring Meter (Optional)	WR0005	1

* Determined by the onsite needs of the assigned operation.

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Wire Rope Reeling Machine WR0001

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WIRE ROPE REELING MACHINE, REEL CAPACITY 84" DIAMETER, 52" WIDE **ESSM NUMBER WR0001**

DESCRIPTION

The Wire Rope Reeling Machine WR0001 is a single-drum cable puller powered by a Detroit Diesel 4-53 engine and a pressure-compensated hydrostatic transmission. The speed, torque, and direction of the cable reel is controlled from the operator's station at the forward end of the unit. This allows the operator a clear view of the cable reel, the cable source, and the surrounding site. The reeling machine is trailer-mounted and designed to transport up to 10,000 lb of cable.

SPECIFICATIONS

Wire Rope Spooler Assembly

Manufacturer	TSE International	Reel-O-Matic
Model	DPT-60	10,000-lb capacity

Engine

Manufacturer	Detroit Diesel
Series	4-53 Diesel Engine
Rpm	2200
Hp	87 @ 2200 rpm
Starting	Hydraulic
Fuel	Diesel
Fuel tank	Internal 28-gal. tank
Fuel consumption	6 gph

Spooler

Manufacturer	Various
Rated pull	6000 lb
Maximum reel diameter	84"
Maximum reel width	52"
Maximum weight:	
Over the road	10,000 lb
Stationary	26,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	18 ft, 6 in.
Width	8 ft, 2 in.
Height	9 ft, 6 in.
Cube	1777 cu ft
Weight	10,640 lb

REFERENCES

1. TSE Model DPT-60 Operating, Parts, and Maintenance Manual.

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Hydraulic Reel Stand WR0020

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REEL STAND, HYDRAULIC, SELF-LOADING, 63" X 47" CAPACITY **ESSM NUMBER WR0020**

DESCRIPTION

The Hydraulic Reel Stand WR0020 is a lightweight wire rope spooling machine. The reel stand requires a hydraulic power source of 5 gpm at 750 to 1500 psi to reel cable onto a storage reel. A friction brake is shipped with the unit to allow reeling wire from a storage reel without requiring a hydraulic power unit. A hydraulic power unit may be ordered separately or the user may provide the necessary hydraulic power source.

SPECIFICATIONS

Manufacturer	Timberland Equipment Ltd.
Model	RS70-SL Reelstand
Maximum reel size	98 1/2" diameter x 63" width
Minimum reel diameter	47"
Empty weight	350 lb
Maximum load weight	16,000 lb

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	6 ft, 2 in.	4 ft, 5 in.
Width	8 ft, 6 in.	4 ft, 6 in.
Height	6 ft	1 ft, 6 in.
Cube	316 cu ft	31 cu ft
Weight	1485 lb	1485 lb

REFERENCE

1. RS-70-SL Reelstand Operating Instructions and Parts Maintenance Information, Timberland Equipment Limited.

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Reel Roller Platform WR0002

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REEL ROLLER PLATFORM **ESSM NUMBER WR0002**

DESCRIPTION

The Reel Roller Platform WR0002 is a skid-mounted platform that supports a wire rope reel horizontally to allow the wire rope to be spooled off its storage reel and onto a wire rope reel mounted in the Wire Rope Reeling Machine or other component. The platform consists of one fixed and one adjustable roller to allow for placement of wire rope reels of up to 50” high and 72” in diameter. The wire rope reel freewheels on the rollers to pay out wire.

SPECIFICATIONS

Manufacturer	ESSM Facility

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 0 in.
Width	3 ft, 1 in.
Height	1 ft, 2 in.
Cube	15 cu ft
Weight	402 lb

REFERENCES

None

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Broken Reel Turntable WR0004

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BROKEN REEL TURNTABLE **ESSM NUMBER WR0004**

DESCRIPTION

The Broken Reel Turntable WR0004 is a skid-mounted platform that supports a wire rope reel vertically to allow the wire rope to be spooled off the storage reel and onto the reel mounted in the Wire Rope Reeling Machine or other reeling device. The reel consists of a 60” diameter freewheeling platform that is mounted on a skid with forklift slots. An installed brake allows the operator to control the tension on the cable being spooled from the storage reel.

SPECIFICATIONS

Manufacturer	Commercial

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	5 ft, 0 in.
Width	5 ft, 0 in.
Height	1 ft, 2 in.
Cube	25 cu ft
Weight	1166 lb

REFERENCES

None

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Wire Rope Measuring Meter WR0005

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WIRE ROPE MEASURING METER **ESSM NUMBER WR0005**

DESCRIPTION

The Wire Rope Measuring Meter WR0005 is device that uses installed rollers to indicate the amount (in feet) of wire rope or other cordage that is spooled onto or off a storage reel. The meter is mounted on an adjustable stand that allows for a straight line path for the wire while it is passing through the meter and onto the storage reel.

SPECIFICATIONS

Manufacturer ESSM Facility

PHYSICAL CHARACTERISTICS

	Operating	Shipping
Length	3 ft, 0 in.	6 ft, 6 in.
Width	3 ft, 0 in.	3 ft, 8 in.
Height	6 ft, 6 in.	2 ft, 10 in.
Cube	59 cu ft	65 cu ft
Weight	215 lb	255 lb

REFERENCES

None

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TENSION METER S24100

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Overview of 50-Ton Hydraulic Tension Meter



160K Clevis Pin Tension Link TE0056



200K Load Sensing Tension Link TE0054

Overview of Electronic Tension Meter

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TENSION METER **SYSTEM NUMBER S24100**

SYSTEM DESCRIPTION

The Tension Meter S24100 consists of tension measuring load cells, both electronic and hydraulic, which can be chosen to fill specific onsite and load range requirements. Contact the SUPSALV or NAVSEA Point of Contact when determining the specific load cell required for salvage, towing, or other similar task assignment. The individual load cells can read up to 200,000 pounds. The tension measuring system is primarily used with hydraulic pullers but may be used in other applications.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Tension Meter		1*
a. Ancillary Set, 50-Ton Hydraulic Tension Meter (Primary)	TE0050	1
Load Cell, Hydraulic, 50-Ton	TE0051	1
Readout Gauge, 50-Ton Hydraulic Load Cell	TE0052	2
Spare Parts Kit, 50-Ton Hydraulic Load Cell	TE0053	1
Shackle, Bolt-Type, 2 1/2", 50-Ton, for TE0051	SS2025	1
b. Tension Link, Load Sensing, 200K Capacity (Alternate)	TE0054	1
Load Indicator, Portable, for TE0054/TE0056	TE0055	1
c. Tension Link, Load Sensing, 160K, 2 1/2" Clevis Pin (Alternate)	TE0056	1
Load Indicator, Portable, for TE0054/TE0056	TE0055	1

* The Tension Meter System shipped will be determined by inventory availability and onsite load requirements.

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Ancillary Set TE0050

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ANCILLARY SET, 50-TON HYDRAULIC TENSION METER ESSM NUMBER TE0050

DESCRIPTION

The 50-Ton Hydraulic Tension Meter Ancillary Set TE0050 contains the materials to configure and maintain one 50-Ton Hydraulic Tension Meter System S24100.

SPECIFICATIONS

The Ancillary Set contains the following:

Item	ESSM Number	Qty
Container, wire mesh, 56” x 32” x 24”, w/ lid		1
Load Cell, Hydraulic, 50-Ton	TE0051	1
Readout Gauge, 50-Ton Hydraulic Load Cell	TE0052	2
Spare Parts Kit, 50-Ton Hydraulic Load Cell	TE0053	1
Shackle, Bolt-Type, 2 1/2”, 50-Ton, for TE0051	SS2025	1
Inventory, laminated		1
Manual, Tension Meter System		1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	4 ft, 8 in.
Width	2 ft, 8 in.
Height	2 ft, 0 in.
Cube	27 cu ft
Weight	838 lb

REFERENCES

1. Operation and Maintenance Manual for Hydraulic Tension Measuring System, ST990-AP-MMO-010.

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50-Ton Hydraulic Load Cell TE0051

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LOAD CELL, HYDRAULIC, 50-TON **ESSM NUMBER TE0051**

DESCRIPTION

The 50-Ton Hydraulic Load Cell TE0051 is a rugged, steel hydraulic cylinder that is connected in series with either the Hydraulic Puller System S17100, another tensioning device, or a towing bridle to measure the tension on the system. As a tensile load is applied, the hydraulic fluid within the cylinder is pressurized and the pressure is translated/read on the 50-Ton Readout Gauge TE0052, as pounds of tension. The load cell is attached to an immovable object using a bolt-type shackle (SS2025). The other end is attached using either another shackle or a plate shackle to the puller system or another tensioning system.

SPECIFICATIONS

Manufacturer	Hydrasearch Co., Inc.
Dwg. number	5871932
Tension range	0 to 200,000 lb
System fluid volume	1.0 gal.
Male quick disconnect	Parker Hannifin, 2K16C

PHYSICAL CHARACTERISTICS

Length	2 ft, 2 in.
Width	1 ft, 4 in.
Height	1 ft, 2 in.
Cube	3.0 cu ft
Weight	264 lb

REFERENCES

1. Operation and Maintenance Manual for Hydraulic Tension Measuring System, ST990-AP-MMO-010.

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50-Ton Hydraulic Load Cell Readout Gauge TE0052

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READOUT GAUGE, 50-TON HYDRAULIC LOAD CELL — ESSM NUMBER TE0052

DESCRIPTION

The 50-Ton Hydraulic Load Cell Readout Gauge TE0052 consists of a pressure gauge mounted in an aluminum case with 100 feet of hydraulic hose. The gauge measures the hydraulic pressure in the Load Cell TE0051 and converts the pressure to directly read the tension in the system in thousands of pounds. A male quick disconnect fitting installed on the gauge permits connection of the gauge to the hose running to the load cell. A second quick disconnect fitting allows the connection of a second readout gauge in series with the first.

SPECIFICATIONS

Manufacturer	Various (U.S. Navy design)
Range	0 to 200,000 lb
Fittings	Parker Hannifin quick disconnects

PHYSICAL CHARACTERISTICS

Length	1 ft, 4 in.
Width	1 ft, 4 in.
Height	1 ft, 0 in.
Cube	3.0 cu ft
Weight	52 lb

REFERENCES

1. Operation and Maintenance Manual for Hydraulic Tension Measuring System, ST990-AP-MMO-010.

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Spare Parts Kit TE0053

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SPARE PARTS KIT, 50-TON HYDRAULIC LOAD CELL ESSM NUMBER TE0053

DESCRIPTION

The 50-Ton Hydraulic Load Cell Spare Parts Kit TE0053 contains items to support the maintenance of one Hydraulic Load Cell TE0051 while the system is deployed.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Ammo box:	1
Fitting, QD, female end	2
Fitting, QD, male end	2
Inventory, laminated	1
Nipple, pipe	1
O-ring, blind eye	1
O-ring, flange	1
Plug, dust cap	2
Ring, rod bearing & wiper retainer	1
Seal, piston	1
Seal, rod	1
Socket, dust cap, brass	2
Wiper, shaft seal	1

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	11 in.
Width	4 in.
Height	7 in.
Cube	1 cu ft
Weight	5 lb

REFERENCES

1. Operation and Maintenance Manual for Hydraulic Tension Measuring System, ST990-AP-MMO-010.

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2 1/2" Bolt-Type Shackle SS2025

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SHACKLE, BOLT-TYPE, 2 1/2”, 50-TON FOR TE0051 **ESSM NUMBER SS2025**

DESCRIPTION

The 50-Ton Bolt-Type Shackle SS2025 is a 2 1/2-inch bolt-type safety shackle used to connect the 50-Ton Hydraulic Load Cell TE0051 in-line with a system component under tension.

SPECIFICATIONS

Manufacturer	Crosby or equivalent
Size	2 1/2" shackle pin
Model	CC Safety Shackle
Capacity (SWL)	50 tons

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	1 ft, 10 in.
Width	1 ft, 6 in.
Height	7 in.
Cube	1.2 cu ft
Weight	115 lb

REFERENCES

1. The Crosby Group, Inc., General Catalog, Blocks and Fittings for Wire Rope and Chain.

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200K Load Sensing Tension Link TE0054

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TENSION LINK, LOAD SENSING, 200K CAPACITY **ESSM NUMBER TE0054**

DESCRIPTION

The 200K Capacity Tension Link TE0054 is an electronic tension measuring device that uses an electronic sensor mounted within the link to indicate tensile force. The tension link is installed in-line in the tensioning system to monitor the force applied. The tension link is connected to a Portable Load Indicator TE0055 that is included in the shipping and storage container.

SPECIFICATIONS

Manufacturer	Strainsert
Model	TLLF-200
Maximum capacity	200,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 2 in.
Width	2 ft
Height	1 ft, 1 in.
Cube	4.7 cu ft
Weight	78 lb

REFERENCES

1. Strainsert PLNX-1 Operating Manual.

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160K Load Sensing Clevis Pin Tension Link TE0056



2 1/2-Inch Shackle with Clevis Pin Tension Link Installed

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TENSION LINK, LOAD SENSING, 160K, 2 1/2" CLEVIS PIN **ESSM NUMBER TE0056**

DESCRIPTION

The 160K Clevis Pin Tension Link TE0056 is an electronic tension measuring device that uses an electronic sensor mounted within the pin to indicate tensile force. The clevis pin replaces the 2 1/2" shackle pin in a tensioning system. The tension link is connected to a Portable Load Indicator TE0055 that is included in the shipping and storage container.

SPECIFICATIONS

Manufacturer	Strainsert
Model	RCP-2.750
Capacity	160,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	2 ft, 2 in.
Width	2 ft
Height	1 ft, 1 in.
Cube	4.7 cu ft
Weight	70 lb

REFERENCES

1. Strainsert PLNX-1 Operating Manual.

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Portable Load Indicator TE0055

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LOAD INDICATOR, PORTABLE, FOR TE0054/TE0056 ESSM NUMBER TE0055

DESCRIPTION

The Portable Load Indicator TE0055 is an electronic readout device used to display the tensile force sensed by either the 160K or 200K tension links (TE0054 or TE0056). The indicator has an internal battery or can be operated from a 110-volt ac power source. The load indicator is shipped in the tension link container.

SPECIFICATIONS

Manufacturer	Strainsert
Model	PLNX-1
Capacity	200,000 lb

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	10 in.
Width	6 ft
Height	8 in.
Cube	1 cu ft
Weight	4 lb

REFERENCES

1. Strainsert PLNX-1 Operating Manual.

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UNDERWATER CUTTING KIT S26100

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Underwater Cutting Kit S26100

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UNDERWATER CUTTING KIT **SYSTEM NUMBER S26100**

SYSTEM DESCRIPTION

The Underwater Cutting Kit System S26100 is used with a welding generator and compressed oxygen for underwater cutting. The kit contains an underwater cutting and welding torch with interchangeable collets, oxygen hoses, an oxygen regulator, welding cables, electrodes, various fittings, and a 400-amp safety switch enclosed in a watertight box.

The oxygen and the welding generator must be supplied by the user. A 400-amp, dc, diesel-powered welding system (S29100) is available from ESSM Facility.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Kit, Underwater Cutting, Oxygen/Arcair	KT0558	1

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Underwater Cutting Kit KT0558



Switchbox Interior Showing Manual Switch



Switchbox Connectors Showing Standard Series
Male and Female Cable Connectors

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KIT, UNDERWATER CUTTING, OXYGEN/ARCAIR — ESSM NUMBER KT0558

DESCRIPTION

The Underwater Cutting Kit KT0558 contains the items required to perform underwater oxygen/arcair cutting. The welding cables conduct electrical current from the welder to the Arcair torch via the manual welding switch. The cable connectors are designed to be watertight and used for underwater operation. During operation, current from the welding machine (supplied separately) is controlled from the surface, via the manual switch located within the switch box.

SPECIFICATIONS

The Underwater Cutting Kit contains the following:

Item	Qty
Container, aluminum, 49" x 37" x 28"	1
Cable, 2/0, welding, w/Standard molded female connector and lug, 50’	1
Cable, 2/0, welding, w/Standard molded male connector and lug, 50’	1
Cable, 2/0, welding, w/Standard molded male and female connectors, 50’	8
Cable, ground, 2/0 cable w/C-clamp and Standard molded male connector, 10'	1
Electrode, arc, 5/16” x 14” (50 per box)	3
Fitting, double male oxygen hose	4
Gloves, electrical safety, class 0 (pair) (in storage bag)	1
Hose, oxygen, 3/8” x 50’	4
Manual, Arcair Underwater Arc-Cutting	1
Manual, Arcair Underwater Products, Form No. 89-210-029	1
Technical Manual, Underwater Cutting and Welding, NAVSEA 0929-LP-000-8010	1
Manual, U.S. Navy Underwater Cutting & Welding, NAVSEA S0300-BB-MAN-010	1
Mat, rubber, insulating, 3' x 3', 30,000 volts	1
Pigtail, copper, 12”	4
Regulator, oxygen	1
Switchbox, 480 volts, 400 amps, w/4 Standard connectors	1
Tape, electrical, super 33T (roll)	3
Tape, electrical, vinyl	3
Tee, coupler	4
Tip, arcair, 3/16”, for torch	1
Tip, arcair, 5/16”, for torch	4
Tip, arcair, 5/32”, for torch	1
Torch, arcair, U/W, w/cable and Standard molded male connector	1
Wrench, 9-way	1
Inventory, laminated	1

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KIT, UNDERWATER CUTTING **ESSM NUMBER KT0558**

PHYSICAL CHARACTERISTICS

	Shipping
Length	4 ft, 1 in.
Width	3 ft, 1 in.
Height	2 ft, 4 in.
Cube	29 cu ft
Weight	570 lb

REFERENCES

1. Arcair Underwater Products, Form No. 89-210-029.
3. Underwater Cutting and Welding Technical Manual, NAVSEA 0929-LP-000-8010.
4. U.S. Navy Underwater Cutting & Welding Manual, NAVSEA S0300-BB-MAN-010.

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400-AMP DIESEL WELDER S29100

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400-Amp Diesel Welder System S29100

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WELDER, DIESEL, 400-AMP **SYSTEM NUMBER S29100**

SYSTEM DESCRIPTION

The 400-Amp Diesel Welder System consists of a skid-mounted, portable, diesel powered welding generator, welding cables, a stinger and ground clamp, welding safety equipment, and a spare parts kit. The system is used for arc welding and oxygen-arc cutting.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Welder, 400-Amp DC, Diesel	WL0470	1
2. Spare Parts Kit, for WL0470 Welder	WL0471	1
3. Welding Kit, for WL0470 Welder	WL0472	1

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400-Amp Diesel Welder WL0470

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WELDER, 400-AMP DC, DIESEL **ESSM NUMBER WL0470**

DESCRIPTION

The 400-Amp Welder WL0470 is a skid-mounted, portable, diesel powered welding generator used for arc welding and oxygen-arc cutting.

SPECIFICATIONS

Welding Machine Assembly

Manufacturer	Libby Welding Co.
Model	HDS-400

Exciter

Manufacturer	Lincoln Electric Co.
Size	3 kW

Generator

Manufacturer	Lincoln Electric Co.
Model	SAE400
Type	DC
Capacity	400 amps
Duty cycle	60 percent
Range (rated)	80-500 amps
Open circuit voltage (full excitation)	70-80 volts
Cooling	Air-cooled

Engine

Manufacturer	Detroit Diesel-Allison
Model	3-53
Type	Water-cooled
No. of cylinders	3
Horsepower	60 @ 1800 rpm
Starting	Hydraulic
Fuel	Diesel
Fuel source	5-gallon jerry can
Fuel consumption	4 gph

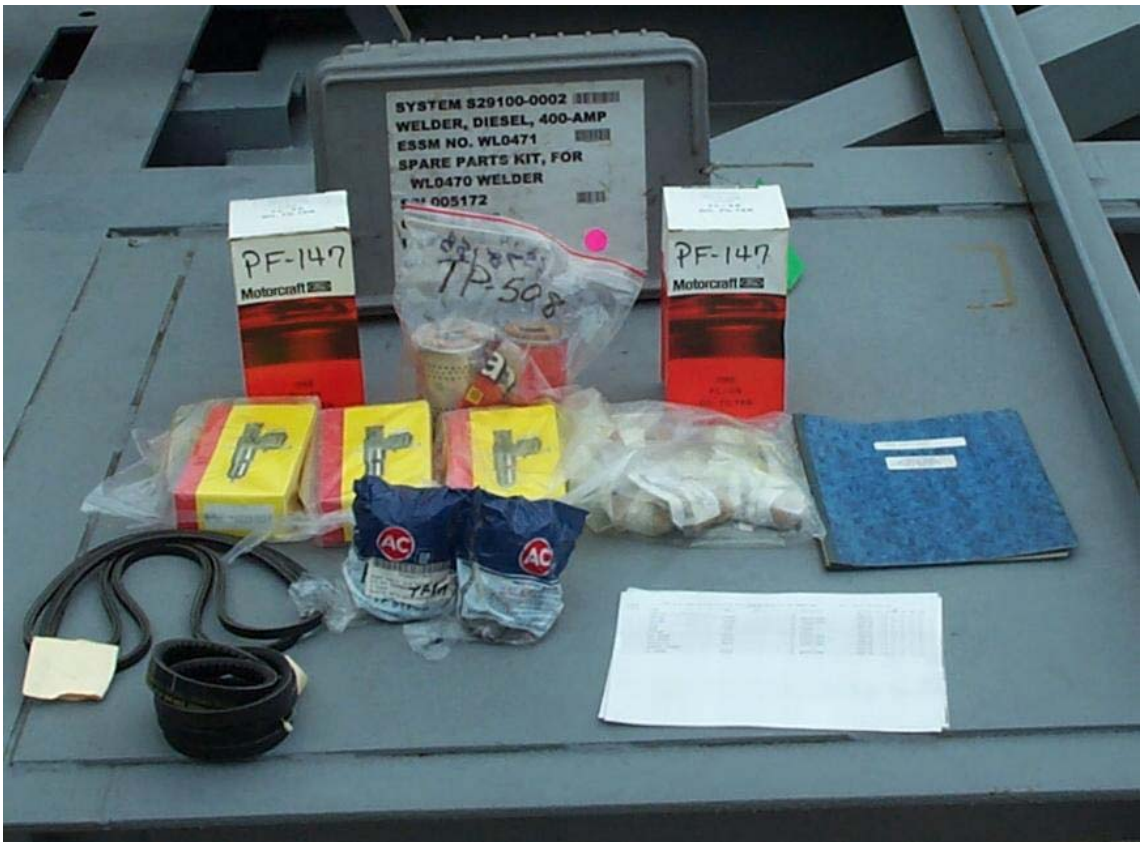
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	6 ft, 11 in.
Width	2 ft, 8 in.
Height	4 ft, 11 in.
Cube	91 cu ft
Weight	2894 lb

REFERENCES

1. Libby Welding Company Technical Manual, Instructions and Parts Breakdown, Arc Welding Machine, Diesel Engine Driven, Model HDS-400.

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Spare Parts Kit WL0471

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SPARE PARTS KIT, FOR WL0470 WELDER **ESSM NUMBER WL0471**

DESCRIPTION

The Spare Parts Kit WL0471 contains items necessary to maintain one WL0470 Welder.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts, 18” x 12” x 9” w/ lid:	1
Belt set, 5137457	1
Belt set, 5136878	1
Brushes, T-6085	8
Brushes, T-6968	2
Desiccant (8 units)	1
Element, filter, fuel, 5573263	2
Element, filter, fuel, 5578188	2
Element, filter, oil, 5574978	1
Injector, N-50	3
Manual, Parts and Service	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	1 ft, 6 in.
Width	1 ft, 0 in.
Height	9 in.
Cube	1 cu ft
Weight	14 lb

REFERENCES

None

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Welding Kit WL0472

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WELDING KIT, FOR WL0470 WELDER **ESSM NUMBER WL0472**

DESCRIPTION

The Welding Kit WL0472 contains the cables and other materials required to set up and perform routine welding using the Welder WL0470.

SPECIFICATIONS

The Welding Kit contains the following:

Item	Qty
Container, 28” x 27” x 19”:	1
Clamp, grounding, w/ 6’ cable	1
Cable, welding, 50’ w/ male and female twist-lock connectors	4
Gloves, welding (pair)	1
Hammer, slag	1
Hood, welding	1
Lens, welding (various densities)	8
Cable, pigtail adapter	2
Stinger, welding, w/ 6’ cable	1
Brush, wire, carbon steel	1
Wrench, 10-way	1
Inventory, laminated	1

PHYSICAL CHARACTERISTICS

	Shipping
Length	2 ft, 4 in.
Width	2 ft, 3 in.
Height	1 ft, 7 in.
Cube	8 cu ft
Weight	250 lb

REFERENCES

None

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8-TON DIESEL WINCH SYSTEM S30100

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8-Ton Diesel Winch System S30100

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WINCH, 8-TON DIESEL **SYSTEM NUMBER S30100**

SYSTEM DESCRIPTION

The 8-Ton Diesel Winch System S30100 consists of a general purpose, skid-mounted, double drum, diesel driven winch with a carpenter stopper, wire rope bridle, and wire rope necessary to transfer force from the winch to another object. The winch is secured in place by welding it to the deck of the host vessel. The winch system can be used for pulling operations, ship moorings, and other similar applications. It can provide a linear tension of up to eight tons.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
1. Winch, 8-Ton, Double Drum, Diesel	WN0010	1
2. Spare Parts Kit, for WN0010	WN0011	1
3. Stopper, Carpenter, 5/8”	ST0010	2
4. Bridle, Wire Rope, 5/8” Carpenter Stopper	ST0012	2
5. Wire Rope, 5/8” x 1200’	WR0141	1

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8-Ton Double Drum Diesel Winch WN0010

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WINCH, 8-TON, DOUBLE DRUM, DIESEL — ESSM NUMBER WN0010

DESCRIPTION

The 8-Ton Double Drum Diesel Winch WN0010 is a portable, general purpose, skid-mounted, double-drum unit that can be used for beach gear operations, four-point mooring, and similar applications. The winch can provide a pull of up to 16,000 pounds. The winch assembly is shipped on a pallet with forklift slots. The winch does not have the capability to pay out wire rope under load; rather, the wire must be payed out on the brake. A wing drum (gypsy head), not installed in the shipping configuration, is included with the winch and can be bolted to the forward drum shaft.

Note: The winch must be removed from the shipping pallet prior to welding it to the deck of the host vessel.

SPECIFICATIONS

Hoist	
Manufacturer	Clyde Iron Works
Type	2-Drum Frame-5
Capacity	8 short tons
Drums	2 plus wing drum

Engine	
Manufacturer	Onan
Model	DJM60
Type	Air-cooled
No. of cylinders	2
Hp @ 2400 rpm	14.6
Starting	Electric
Battery	72 amp-hrs
Fuel	Diesel
Fuel source	5-gal. jerry can
Fuel consumption	0.75 gph

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	8 ft, 2 in.
Width	5 ft, 0 in.
Height	5 ft, 1 in.
Cube	208 cu ft
Weight	7080 lb

REFERENCES

1. Clyde 8-Ton Winch, NAVSHIPS 0994-003-4010.

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Spare Parts Kit WN0011

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SPARE PARTS KIT, FOR WN0010 **ESSM NUMBER WN0011**

DESCRIPTION

The Spare Parts Kit WN0011 contains the items necessary to support the operation and maintenance of one 8-Ton Double Drum Diesel Winch.

SPECIFICATIONS

The Spare Parts Kit contains the following:

Item	Qty
Container, spare parts, 17” x 11” x 9”, w/lid:	1
Filter, cartridge, fuel	2
Filter, cartridge, fuel (secondary)	2
Disc, clutch	1
Desiccant (bag)	1
Element, air cleaner	1
Filter, engine oil	1
Filter, fuel (primary)	1
Filter, fuel (secondary)	1
Fuse, 20-amp	2
Gasket	1
Gasket, filter	1
Nozzle, fuel	1
Packing, preformed	1
Shield, fuel nozzle	1
Technical manual	1
Inventory, laminated	1

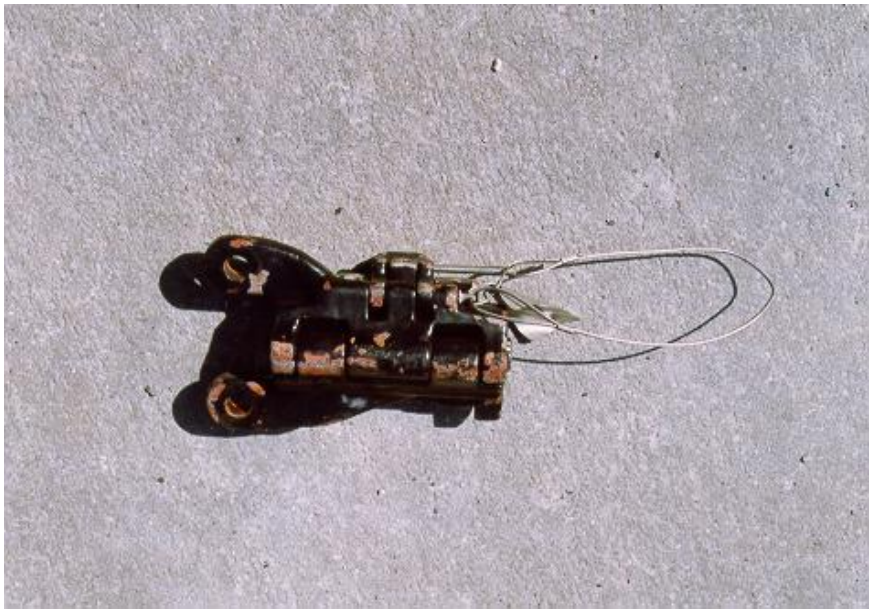
PHYSICAL CHARACTERISTICS

	Shipping
Length	1 ft, 5 in.
Width	1 ft, 0 in.
Height	9 in.
Volume	1 cu ft
Weight	14 lb

REFERENCES

None

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5/8-Inch Carpenter Stopper ST0010

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STOPPER, CARPENTER, 5/8-INCH **ESSM NUMBER ST0010**

DESCRIPTION

The 5/8-Inch Carpenter Stopper ST0010 is a portable device capable of gripping a 5/8-inch wire rope at any point along the wire. The stopper is designed to grip, hold, and pull the wire rope up to its breaking strength. Under normal circumstances the carpenter stopper is repeatedly engaged and loaded at up to 60% of the wire rope's breaking strength without damaging the wire rope or slipping. The Carpenter Stopper is secured to a pad eye or other restraining point with a wire rope bridle.

SPECIFICATIONS

Manufacturer	U.S. Navy Design
Drawing	6539368
Size	5/8”
Proof load	21,240 lb

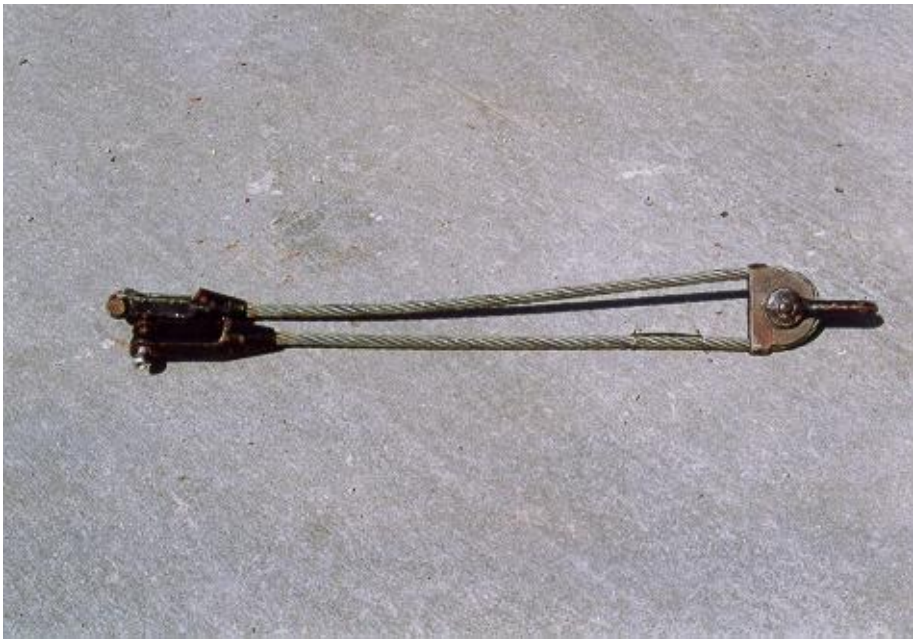
PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	8 in.
Width	6 in.
Height	4 in.
Cube	1 cu ft
Weight	12 lb

REFERENCES

1. Operation and Maintenance Instruction, Carpenter Stopper, NAVSHIPS 0994-LP-004-8010.
2. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-LP-000-3010.

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5/8-Inch Wire Rope Bridle ST0012

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BRIDLE, WIRE ROPE, 5/8-INCH CARPENTER STOPPER **ESSM NUMBER ST0012**

DESCRIPTION

The 5/8-Inch Wire Rope Bridle ST0012 is used to secure the 5/8-Inch Carpenter Stopper to a pad eye or other restraining point.

SPECIFICATIONS

Manufacturer	U.S. Navy Design
Size	5/8" wire rope
Drawing	6539368
End connections	Open sockets each end

PHYSICAL CHARACTERISTICS

	Operating/Shipping
Length	3 ft, 4 in.
Width	5 in.
Height	4 in.
Cube	1 cu ft
Weight	14 lb

REFERENCES

1. Operation and Maintenance Instruction, Carpenter Stopper, NAVSHIPS 0994-LP-004-B010.
2. U.S. Navy Ship Salvage Manual, Volume 1, Theory of Strandings and the Use of Beach Gear, NAVSHIPS 0994-LP-000-3010.

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5/8-Inch x 1200-Foot Wire Rope WR0141

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WIRE ROPE, 5/8-INCH X 1200-FOOT **ESSM NUMBER WR0141**

DESCRIPTION

The 5/8-Inch x 1200-Foot Wire Rope is used to connect the 8-Ton Double Drum Diesel Winch WN0010 to a barge, anchor, chain, or another cable to transfer force from the winch to a load. The cable is shipped and stored on a wooden reel.

SPECIFICATIONS

Manufacturer	Commercial
Size	5/8"
Grade	Extra improved plow steel
End connections	None
Lay	Right regular lay
Wire coating	Bright/uncoated
Wire type	6 x 36 fiber core
Breaking strength	47,300 lb

PHYSICAL CHARACTERISITICS

	Shipping
Diameter	2 ft, 4 in.
Height	1 ft, 8 in.
Cube	13 cu ft
Weight	900 lb

REFERENCES

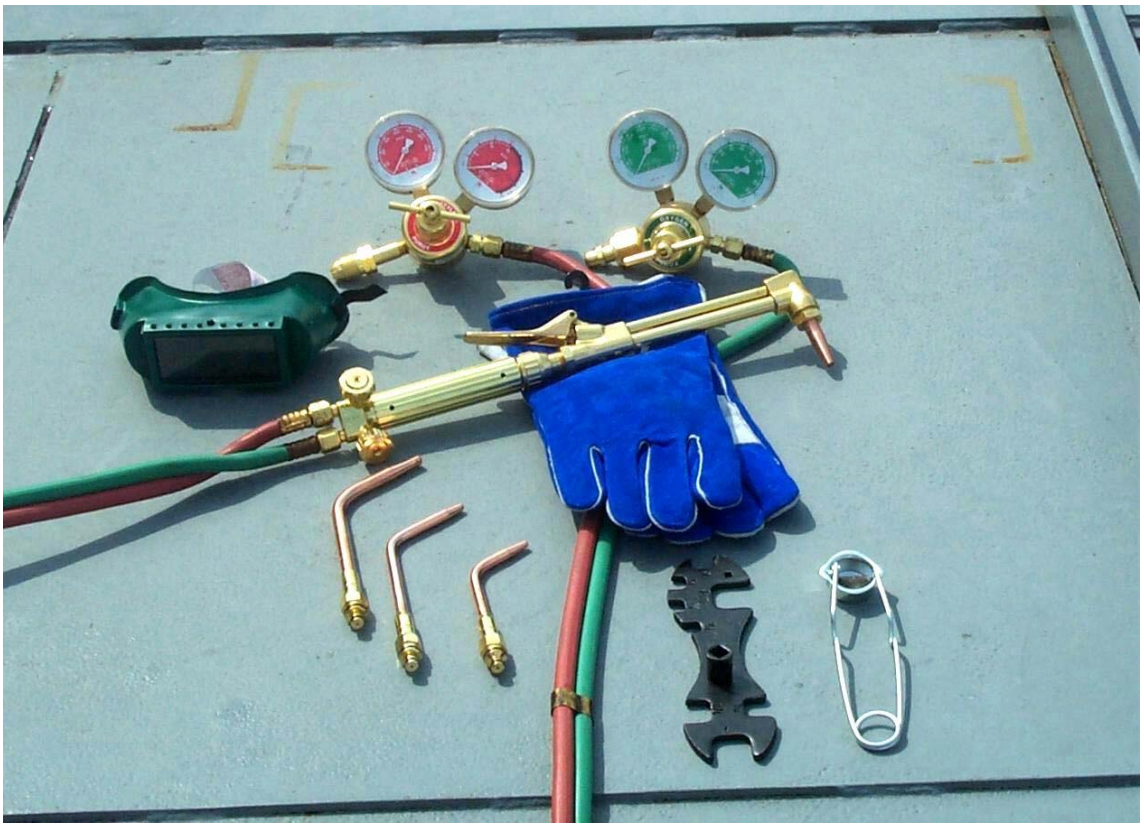
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OXYGEN-ACETYLENE CUTTING & WELDING KIT S31000

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Oxygen-Acetylene Cutting and Welding Kit S31000

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OXYGEN-ACETYLENE CUTTING & WELDING KIT SYSTEM NUMBER S31000

SYSTEM DESCRIPTION

The Oxygen-Acetylene Cutting and Welding Kit System S31000 contains the tools necessary to perform welding, as well as the cutting of mild steel up to a thickness of 1 1/2 inches. Gas bottles are not provided with the system.

SYSTEM COMPONENTS

Item	ESSM Number	Qty
Kit, Cutting /Welding, Oxygen-Acetylene	KT0557	1

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Oxygen-Acetylene Cutting and Welding Kit KT0557

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KIT, CUTTING/WELDING, OXYGEN-ACETYLENE ESSM NUMBER KT0557

DESCRIPTION

The Oxygen-Acetylene Cutting and Welding Kit KT0557 contains the tools necessary to perform welding, as well as the cutting of mild steel up to a thickness of 1 1/2 inches. Gas bottles are not provided with the system.

SPECIFICATIONS

The Oxygen-Acetylene Cutting and Welding Kit contains the following:

Item	Qty
Container, 30” x 20” x 16”:	1
Gloves, welding (pair)	1
Hose, oxygen-acetylene, 1/4” x 50’	1
Inventory, laminated	1
Welding torch kit	1
Adapter, bottle	1
Cleaner, tip	1
Flint (box)	1
Goggles	1
Head, cutting	1
Regulator, single stage acetylene	1
Regulator, oxygen	1
Striker	1
Tip, welding, #6	1
Tip, welding, #15	1
Tip, welding, #30	1
Wrench, 9-way	1
Welding torch, W-300	1
90° cutting attachment	1

PHYSICAL CHARACTERISTICS

	Shipping/Operating
Length	2 ft, 6 in.
Width	1 ft, 8 in.
Height	1 ft, 4 in.
Cube	6 cu ft
Weight	40 lb

REFERENCES

None

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