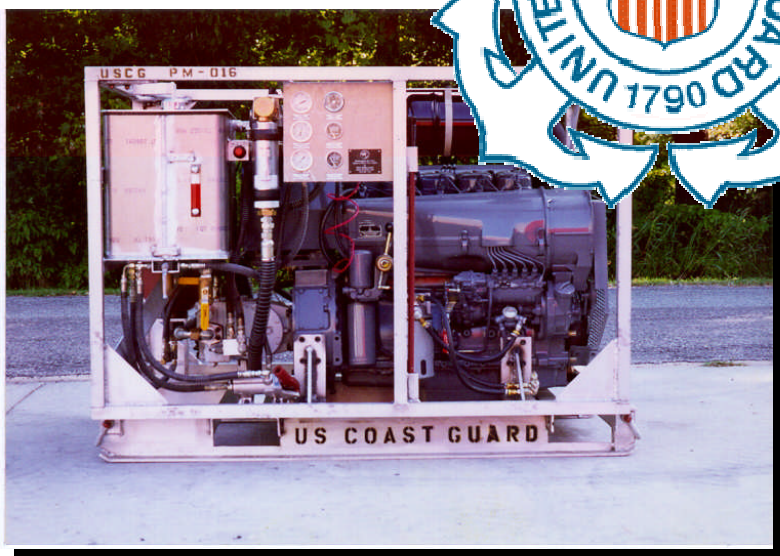
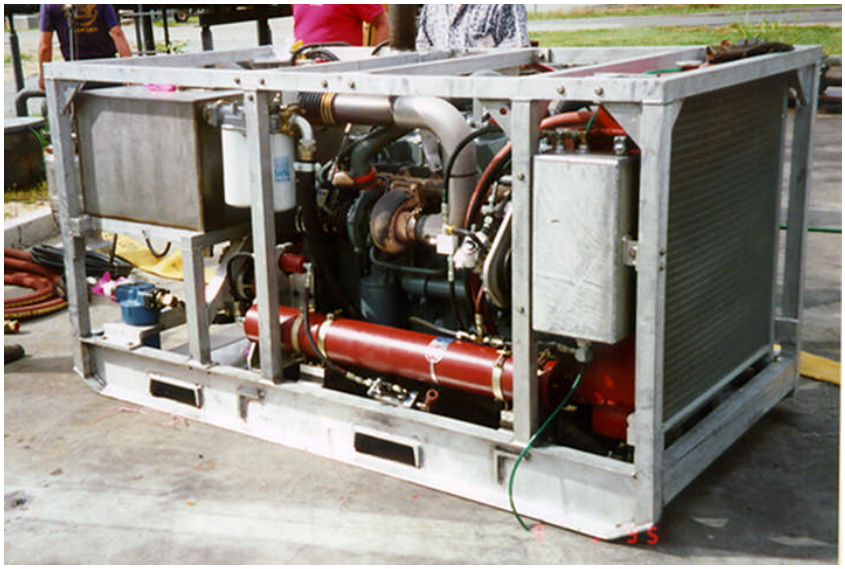
UNITED STATES COAST GUARD

U.S. COAST GUARD PRE-POSITIONED RESPONSE EQUIPMENT MANUAL



UNITED STATES COAST GUARD
U.S. COAST GUARD PRE-POSITIONED RESPONSE EQUIPMENT MAINTENANCE MANUAL

VOLUME II SPILL RESPONSE SYSTEMS SUPPORT EQUIPMENT



NATIONAL STRIKE FORCE
1461 NORTH ROAD STREET
ELIZABETH CITY, NORTH CAROLINA 27909

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COMMUNICATIONS & COMPUTER EQUIPMENT

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Support Equipment

Diesel High Volume Pumping Unit (HVPU)

HIGHSTAR PRIME MOVER

DESCRIPTION

The HVPU Highstar Prime Mover is a portable, self-contained, skid-mounted assembly designed to provide hydraulic fluid up to 71 gpm at 4000 psi. The power source is a turbocharged, water-cooled, 6-cylinder heavy-duty diesel engine. The hydraulic pump is an open loop, variable displacement, pressure compensated pump with full flow charge pump connected to the engine with a double pump gear drive assembly. The HVPU supplies hydraulic fluid power to the submersible Desmi DS-250 or DOP-250 pumps or the centrifugal CCN-150 pumps for salvage and lightering operations. It comes with 2 support boxes containing hydraulic and discharge hoses and spare parts.

SPECIFICATIONS

Spare Diesel Engine	
Manufacturer	Detroit Diesel Corp.
Type	Inline 4-cycle
Model	Series 40-8.7 LT
Horse power	225
Max. rpm	2200
Idle rpm	Low 800 $\pm$ 25
	High 2375 $\pm$ 50
No. cylinders	6

PHYSICAL CHARACTERISTICS

HVPU		Support Boxes	
Measurement	**Unit**	**Measurement**	**Unit**
Length	91.0”	Length	48”
Width	46.5”	Width	45”
Height	48.0” (with exhaust stack in stored position)	Height	48”
Weight	3850 lbs		

Diesel High Volume Pumping Unit (HVPU)

HIGHSTAR PRIME MOVER

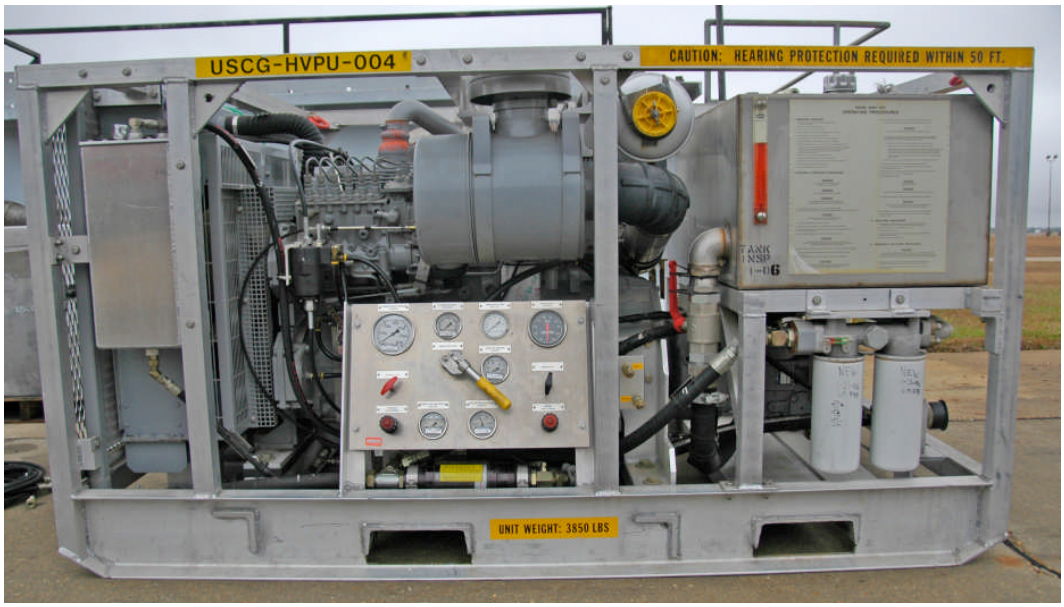

Figure II-01 HVPU Highstar Prime Mover

Highstar Hydraulic Power Unit Inventory

System S/N: Location: Date:

Description	Vendor	Part Number	Qty	Actual	Missing
Container #1	Ropak		1		
Hydraulic Hose Assy, 1-1/4" x 50'			8		
Fuel Hose		GH793-4	2		
Whip Hose Assy. Male			1		
Whip Hose Assy. Female			1		
Container # 2	Ropak		1		
Discharge Hose, 6" x 50'	Titan	SS242	4		
Plastic Tote Container for Spare Parts	Rubbermaid		1		
Coolant Filter	Detroit	1819109C1	1		
Oil Filter	Detroit	1818452C1	1		
Fuel Filter	Detroit	1809789C1	1		
Pre Fuel Filter	Detroit	1817677C91	1		
Air Filter	Nelson	70070-N	1		
Medium Pressure Hydraulic Filter	Fleetguard	6588	2		
Hydraulic Return Filter	Fairy Arlon	FA511-10	2		
High Pressure Hydraulic Element	Fairy Arlon	370-L-210A	1		
Fan Belt	Dayco	5060705	1		
Start System Charge Pump Fan Belt	Thermoid	B-26	1		
Qd Repair Kit, -10	AQ	FF082-10S	2		
QD Repair Kit Male -16	Snaptite	71-3N-16-SPK	1		
QD Repair Kit Female, -16	Snaptite	71-3C-16-SPK	1		
Operations Manual			1		

MAINTENANCE REQUIREMENT CARD (MRC)		
SYSTEM USCG Pre-Position Oil Recovery Equipment	EQUIPMENT Power Unit, Hydraulic Diesel HVPU	MRC TYPE Periodic
SKILL LEVELS MK1 MK2	MAN-HOURS 20 4	PERIODICITY Annual TOTAL MAN HOURS 24

REFERENCES:

1. Commercial Off-the-shelf (COTS) Operator's Manual for Salvage Hydraulic Power Unit (HPU)
2. Detroit Diesel, Series 40, Engine Operator's Guide.
3. Sauer Sundstrand, Series 90, Axial Piston Pumps and Motors Service Manual.
4. Amot Controls, Model 4110, Over speed Sensing Valve.
5. Amot Controls, Model 2800, Safety Control.
6. Amot Controls, Model 4261, Intake Air Shutoff Valve Maintenance.
7. NSTM S9086-S4-STM-010/CH-556.

MAINTENANCE REQUIREMENT DESCRIPTION:

1. Inspect, adjust, repair or replace, test, clean, and preserve equipment as specified in the procedures outlined below.
2. Perform operational test.

SAFETY PRECAUTIONS:

1. Refer to Material Safety Data Sheets (MSDS).
2. Comply with standard safety precautions.
3. Comply with safety precautions/warnings on unit and in technical/owner's manuals.
4. Do not disconnect any high pressure hoses until hydraulic pressure is completely exhausted.
5. Before servicing the hydrostarter system, relieve pressure at the bleeder screw on the hand pump.
6. Hearing protection required.
7. Do not operate engine in a confined space without adequate ventilation.
8. Do not use staring fluid when attempting to start engine.
9. Ensure protective clothing and eye protection are worn during pressure washing.
10. Do not handle exhaust stack until cooled.
11. Do not over lubricate cam socket. Over lubrication can prevent the pump handle from entering the socket properly, causing personal injury or damage to the cam socket.

TOOLS, PARTS, MATERIALS, TEST EQUIPMENT:

1. Tool set, standard mechanics.
2. Tool set, metric.
3. Eye protection.
4. Protective washdown clothing.
5. Jerry can with clean diesel fuel.
6. Clean lint free rags.

TOOLS, PARTS, MATERIALS, TEST EQUIPMENT CONTINUED:

7. Oil sorbent pads.
8. Cleaner.degreaser.
9. Coolant system flush.
10. Anti-freeze.
11. Anti-freeze tester.
12. Gear oil, 80-90W.
13. Filtration system, 10 micron.
14. Clean empty container.
15. Strap wrench.
16. Hydraulic hose tester.
17. Lubricant, Break-Free.
18. Rubber, synthetic, solid 1/8".
19. Fuel filter.
20. Adhesive.
21. Grease gun.
22. Diesel supply & return hoses.
23. Pressure washer.
24. Flowmeter/flowblock with hoses.
25. Engine oil, 15W40.
26. Air filter.
27. Jerry can w/mix of 50% diesel fuel & 50% preservative oil.
28. General purpose grease.
29. Hydraulic oil, Mobil DTE 15M.
30. Pneumatic hand tester.
31. Hydraulic filters.
32. Oil filter.
33. Coolant/conditioner filter.

PRE-OPERATIONAL PROCEDURES.

1. Inspect unit for structural damage and missing parts. Repair or replace as necessary.
2. Check for damaged, missing or loose fasteners. Repair, replace, or torque to standard specifications as necessary.
3. Inspect pipe, hoses, tubing, and rubber-like components for deterioration, cracks, nicks, cuts, abrasions, leaks, deformities, wear, and tightness. Repair, replace, and tighten as necessary.

NOTE: WHEN REMOVING BELT GUARDS, DO NOT LOSE SPACERS.

4. Inspect belts for cracks, tears, wear, glazing, and adjustment. Replace as necessary. Proper deflection adjustment should be from 1/2 to 3/4" at center of belt between pulleys. Adjust as necessary.

WARNING: DO NOT DISCONNECT ANY HIGH PRESSURE HYDRAULIC HOSES UNTIL HYDRAULIC PRESSURE IS COMPLETELY EXHAUSTED.

WARNING: BEFORE SERVICING HYDROSTARTER SYSTEM, RELIEVE PRESSURE AT THE BLEEDER SCREW ON THE HAND PUMP.

5. Verify, Inspect, and/or test hydraulic hose assemblies that have operating pressures of 600 psi or greater. Refer to the Hydraulic Hose Test procedures.
6. Inspect control cables and linkages for free and proper operation, wear, deterioration, and adjustments. Repair, replace, or adjust as necessary. Lubricate as required, or adjust as necessary. Lubricate as required with Break-Free CLP lubricant.
7. Annually or upon return from loan, remove starter. Clean and inspect bendix. Lightly coat bendix with general-purpose grease.
9. Check engine lube oil level. If below normal, add SAE 15W40. Obtain oil sample and verify oil contains no water.

PRE-OPERATIONAL PROCEDURES CONTINUED:

10. Every 100 hours of operation or upon return from loan, change fuel filter and clean fuel strainer.
11. Every 500 hours of operation or upon return from loan, perform the following dry type air cleaner maintenance.
    A. Inspect engine air cleaner and housing for dirt, obstructions, deterioration, and leakage in the system.
    B. Inspect engine air filter element, replace as required.
12. Perform the following cooling system maintenance.
    A. Every 1000 hours of operation or five years, flush cooling system with cooling system flush.
    B. Change coolant filter/conditioner element every 24 months and when flushing system.
    C. Check coolant level. If necessary, bring coolant up to level by adding a moisture of 50% water and anti-freeze.
    D. Using the anti-freeze tester, test and record anti-freeze protection. If reading is not at least -20 deg F, increase protection by adding anti-freeze. Test protection level again.
13. Calibrate gauges.
14. Inspect hydraulic oil cooler for damage; bent/or dirty fins. Repair and/or clean as necessary.
15. Perform the following hydraulic pump gear drive maintenance.
    A. Inspect oil for traces of dirt, discoloration, or strong odor. Replace as necessary.

CAUTION: DO NOT OVERFILL. THIS WILL RESULT IN OVERHEATING AND POSSIBLE MALFUNCTION OF THE UNIT.

    B. Check oil level. If below level, add gear oil 80W90, as necessary.
    C. Every 100 hours of operation or upon return from loan, drain and change oil. Inspect magnetic drain plug for metal particles.
16. Perform the following hydrostarter system maintenance.

CAUTION: WHEN THE HYDROSTARTER SYSTEM IS PRESSURIZED, DO NOT ADD FLUID TO RESERVOIR. IF OVER-FILLED, FLUID WILL BE BLOWN OUT OF SYSTEM WHEN HYDROSTARTER IS ACTIVATED.

A. Relieve hydrostart pressure.
B. Inspect fluid condition, level, and tank breather. If necessary add hydraulic oil, Mobil DTE 15M.
C. Every three years drain hydrostart fluid. Clean tank, screen and refill.

17. Every 100 hours of operation, three years, or upon return from loan, perform the following hydraulic system maintenance.
A. Obtain an oil sample from tank drain valve after removing approximately one gallon of oil from tank.

PRE-OPERATIONAL PROCEDURE CONTINUED:

B. Place a drain trough or connect hose to main reservoir tank drain valve. Open valve and drain tank. If oil is contaminated, drain complete system and properly dispose of all contaminated oil. If inspection indicates little signs of contamination, save oil, filter, and reuse.
C. Remove plug with magnetic rod from top of tank. Inspect for metal particles.
D. Remove tank access cover, leaving gasket on top of tank; inspect interior of tank for metal particle, sediment, and water.
E. Remove suction strainer, inspect and clean.
F. Clean interior of tank using lint-free rags.
G. Reinstall suction strainer and plug with magnetic rod.
H. Inspect hydraulic tank access cover gasket. If loose, wrinkled, or other than a solid piece of rubber, replace with 1/8" solid, synthetic rubber.

NOTE: DO NOT OVER-TORQUE BOLTS WHEN SECURING TANK TOP.

I. Reinstall tank access cover.
J. Install new hydraulic charge, return, and high pressure filters.
K. Using the filtration system, refill reservoir with hydraulic oil removed in step 17b, if not contaminated. If contaminated, replace with Mobil DTE 15M hydraulic oil, also using the filtration system to refill the reservoir.
L. Check hydraulic oil level on reservoir sight glass. Bring to normal level as required.

18. Using the pneumatic hand tester, check operation of the Amot low oil pressure control. Control should trip at 10 psi, + or - 1. Adjust as necessary.
19. Check operation of emergency shutdown handle and intake air shutoff valve. Ensure valve closes when handle is pulled. Adjust activating cable as necessary. Reopen valve upon completion of maintenance.
20. Remove plug or cap, if applicable, from muffler.
21. Install exhaust stack.
22. Connect fuel hoses to supply and return valves or quick-disconnects on unit and fuel source, as applicable.
23. Ensure hydraulic pump supply valve on outlet of main hydraulic reservoir is open.
24. Remove filler/breather cap with screen from top of hydraulic reservoir.
25. Connect suction hose from filtration system to reservoir drain ball valve.
26. Insert discharge wand assembly into filler/breather cap opening. Ensure discharge wand is in the upper half of tank.

NOTE: ENSURE FLOWMETER/FLOWBLOCK HAS BEEN CALIBRATED AND TEST HOSES HYDROTESTED BEFORE PERFORMING OPERATIONAL PROCEDURE.

27. Connect flowmeter/flowblock and test hoses to hydraulic system supply and return quick-disconnects.
28. Ensure starting system charge pressure is 3000 psi. If necessary increase. Open valve on hand pump. Insert pump handle and increase pressure to 3000 psi. Close valve and remove pump handle.
29. Set the Amot low oil pressure control reset lever to the RUN position. Lift the reset latch to the HORIZONTAL position.
30. Verify the hydraulic flow control is fully in.
31. Verify the engine speed control is fully in.

OPERATING PROCEDURES:

WARNING: HEARING PROTECTION REQUIRED.

WARNING: DO NOT OPERATE IN A CONFINED SPACE WITHOUT ADEQUATE VENTILATION.

WARNING: DO NOT USE STARTING FLUID WHEN ATTEMPTING TO START ENGINE.

1. Start engine IAW posted instructions or operators manual.
2. Check oil pressure. Minimum 20 psi at 1200 rpm.
3. Inspect for fluid leaks and excessive vibration.
4. Operate engine at 1200 rpm with no load for approximately 15 minutes to warm up engine.
5. Check coolant temperature. Normal range is 160 deg. To 210 deg.
6. Check crankcase breather for air flow.
7. Check hydrostarter system pressure gauge to ensure pressure has built up since starting engine.

CAUTION: WARM HYDRAULIC OIL UP TO 75 deg. F BEFORE OPERATING PUMP AT HIGH PRESSURE.

CAUTION: DO NOT ALLOW HYDRAULIC OIL TO REACH 160 deg. F OR RAPID OIL DETERIORATION WILL OCCUR.

8. Increase engine speed to a maximum of 2100 RPM.
9. Check hydraulic charge pump pressure. Range is 200 to 350 psi.

CAUTION: DO NOT EXCEED MAXIMUM PRESSURE LIMITER SETTING OF 1400 PSI.

10. Verify pressure limiter setting of the primary hydraulic pump. Adjust as necessary, according to operating procedures on unit.
11. Check return hydraulic pressure. Range is 40 psi to 90 psi.

CAUTION: DO NOT EXCEED MAXIMUM HYDRAULIC PRESSURE OF 4000 PSI AND FLOW OF 71 GPM.

12. Turn hydraulic flow control counterclockwise until desired flow is obtained.

OPERATING PROCEDURES:

CAUTION: DO NOT ALLOW HYDRAULIC OIL TO REACH 160 deg. F OR RAPID OIL DETERIORATION WILL OCCUR.

13. Operate for ten minutes at full load of 4000 psi with a flow of 71 gpm and engine speed of 2100 rpm on flowmeter/flowblock.
14. Simultaneously turn hydraulic flow control and engine speed control clockwise to reduce flow to zero and engine speed to 1200 rpm.
15. Verify filtration system discharge hose is still in position in hydraulic reservoir. Open reservoir drain valve and recirculate hydraulic oil for a minimum of one hour.
16. Preserve engine by quickly removing fuel pickup tube from diesel fuel supply and place in container with 50% preservative oil and 50% diesel fuel. Continue operating engine for five minutes.
17. Stop engine in accordance with posted operating instructions.

POST OPERATING PROCEDURES:

1. Disconnect test hose and flowmeter/flowblock.
2. Disconnect fuel hoses.
3. Remove filtration system suction and discharge hoses from hydraulic reservoir.
4. Obtain oil sample from reservoir from the filler/breather cap opening.
5. Reinstall filler/breather cap on reservoir.

WARNING: ENSURE PROTECTIVE CLOTHING AND EYE PROTECTION ARE WORN DURING PRESSURE WASHING.

NOTE: DURING WASHDOWN, AVOID SPRAYING WATER INTO ENGINE AIR CLEANER.

6. Wash unit using pressure washer and cleaner/degreaser Formula 100 or equiv.

WARNING: DO NOT HANDLE EXHAUST STACK UNTIL COOLED.

7. Remove exhaust stack and restow.
8. Grease all control linkages, cables and tach drive, as needed, using general-purpose grease.

WARNING: DO NOT OVER LUBRICATE CAM SOCKET. OVER LUBRICATION CAN PREVENT PUMP HANDLE FROM ENTERING THE SOCKET PROPERLY, CAUSING PERSONAL INJURY OR DAMAGE TO CAM SOCKET.

9. Lubricate hydrostarter system pump handle socket with general-purpose grease.
10. Check engine oil level, add if necessary.
11. Check hydraulic reservoir level and add oil if necessary.
12. Check hydrostart tank for correct oil level, add oil if necessary.
13. Inspect engine mounts and all mounting bolts for correct tightness.
14. Wipe all exposed surfaces with Fluid Film silicone spray
15. Inspect stenciling, decals, operational instructions, and placards to ensure properly affixed and correct.
16. Install cover on unit and stow.

SYSTEM SPECIFIC PERIODIC CHECK SHEET

Power Unit, Hydraulic Diesel, 65 GPM (HVPU) PM No: _____

Date:

Serial No:

Semi Annual: ( )
Annual : (X)
Other : ( )

Charge No:

Special Instructions: _____

Start Time:_____ Stop Time:_____ Total Run Time:_____

RFI ( ) NRFI ( )

Reason for NRFI: _____

ALL TESTS AND INSPECTIONS TO BE PERFORMED IN ACCORDANCE WITH MRC

PRE-OPERATIONAL PROCEDURES:	SAT	UNSAT	N/A
1. Inspect unit.	_____	_____	_____
2. Check fasteners.	_____	_____	_____
3. Inspect pipe, hoses, tubing, and rubber like components.	_____	_____	_____
4. Inspect belts.	_____	_____	_____
5. Verify, inspect, and/or test hydraulic hoses.	_____	_____	_____
6. Inspect control cables and linkages.	_____	_____	_____
7. Clean, inspect, and lubricate starter bendix.	_____	_____	_____
8. Check engine oil level.	_____	_____	_____
9. Change engine oil and oil filter.	_____	_____	_____
10. Change fuel filter and clean fuel strainer.	_____	_____	_____
11. Perform dry type air cleaner maintenance.			
A. Inspect engine air cleaner and housing.	_____	_____	_____
B. Inspect engine air filter element.	_____	_____	_____
12. Perform cooling system maintenance.			
A. Flush cooling system.	_____	_____	_____
B. Change coolant filter/conditioner element.	_____	_____	_____
C. Check coolant level.	_____	_____	_____
D. Test and record anti-freeze protection _____ F.	_____	_____	_____

PRE-OPERATIONAL PROCEDURE CONTINUED

13. Calibrate gauges.	_____	_____	_____
14. Inspect hydraulic oil cooler.	_____	_____	_____
15. Perform hydraulic pump gear drive maintenance.			
A. Inspect oil.	_____	_____	_____
B. Check oil level.	_____	_____	_____
C. Drain and change oil.	_____	_____	_____
16. Perform hydrostarter system maintenance.			
A. Relieve hydrostart pressure.	_____	_____	_____
B. Inspect fluid condition, level, and tank breather.	_____	_____	_____
C. Clean tank, screen, and refill.	_____	_____	_____
17. Perform hydraulic system maintenance.			
A. Obtain an oil sample.	_____	_____	_____
B. Drain tank.	_____	_____	_____
C. Inspect magnetic rod.	_____	_____	_____
D. Inspect interior of tank.	_____	_____	_____
E. Inspect and clean suction strainer.	_____	_____	_____
F. Clean interior of tank.	_____	_____	_____
G. Reinstall suction strainer and magnetic rod.	_____	_____	_____
H. Inspect tank access cover gasket.	_____	_____	_____
I. Reinstall tank access cover.	_____	_____	_____
J. Install new hydraulic charge, return, and high pressure filters.	_____	_____	_____
K. Refill tank.	_____	_____	_____
L. Check hydraulic oil level in sight glass.	_____	_____	_____
18. Check operation of the Amot low pressure control.	_____	_____	_____
19. Check operation of emergency shutdown handle and intake air shutoff valve.	_____	_____	_____
20. Remove plug and cap from muffler.	_____	_____	_____
21. Install exhaust stack.	_____	_____	_____
22. Connect fuel hoses.	_____	_____	_____
23. Ensure hydraulic pump supply valve is open.	_____	_____	_____
24. Remove filler/breather cap from hydraulic reservoir.	_____	_____	_____
25. Connect suction hose from filtration system to reservoir.	_____	_____	_____
26. Insert discharge wand assembly from filtration system into reservoir.	_____	_____	_____
27. Connect flowmeter/flowblock and test hoses.	_____	_____	_____
28. Ensure starting system charge pressure is 3000 psi.	_____	_____	_____
29. Set Amot low oil pressure control reset lever and reset latch.	_____	_____	_____
30. Verify hydraulic flow control is fully in.	_____	_____	_____
31. Verify engine speed control is fully in.	_____	_____	_____

OPERATIONAL PROCEDURE:

1. Start engine.	_____	_____	_____
2. Check oil pressure.	_____	_____	_____
3. Inspect for fluid leaks and excessive vibrations.	_____	_____	_____
4. Operate engine at 1200 rpm and no load.	_____	_____	_____
5. Check coolant temperature _____ deg. F.	_____	_____	_____
6. Check crankcase breather.	_____	_____	_____
7. Check hydrostarter system pressure.	_____	_____	_____
8. Increase engine speed to 2100 rpm.	_____	_____	_____
9. Check hydraulic charge pump pressure _____psi.	_____	_____	_____
10. Verify pressure limiter setting of primary hydraulic pump _____ psi.	_____	_____	_____
11. Check return hydraulic pressure _____ psi.	_____	_____	_____
12. Turn hydraulic flow control counterclockwise to obtain desired flow.	_____	_____	_____
13. Operate ten minutes at full load on flowmeter/ flowblock.	_____	_____	_____
14. Reduce hydraulic flow to zero and engine speed to 1200 rpm.	_____	_____	_____
15. Recirculate hydraulic oil using filtration system.	_____	_____	_____
16. Preserve engine.	_____	_____	_____
17. Stop engine.	_____	_____	_____

POST-OPERATING PROCEDURE:

1. Disconnect test hoses and flowmeter/flowblock.	_____	_____	_____
2. Disconnect fuel hoses.	_____	_____	_____
3. Remove filtration system suction and discharge hoses.	_____	_____	_____
4. Obtain oil sample from reservoir.	_____	_____	_____
5. Reinstall filler/breather cap.	_____	_____	_____
6. Wash unit.	_____	_____	_____
7. Remove exhaust stack and restow.	_____	_____	_____
8. Grease control linkages, cables, and tach drive.	_____	_____	_____
9. Lubricate hydrostarter system pump handle socket.	_____	_____	_____
10. Check engine oil level.	_____	_____	_____
11. Check hydraulic oil level.	_____	_____	_____
12. Check hydrostart tank oil level.	_____	_____	_____
13. Inspect engine mounts and all mounting bolts.	_____	_____	_____
14. Wipe exposed surfaces with Fluid Film silicone spray.	_____	_____	_____
15. Inspect stenciling, decals, operational instructions and placards.	_____	_____	_____
16. Install cover on unit.	_____	_____	_____

Description of repairs accomplished under PM and/or remarks pertaining to items, condition, or future requirements:

Qty	Part Number	Item	Cost
Consumables:			

Employee Number	Total Man-Hours

Total Man Hour Cost _____

Total Material Cost _____

Total Cost _____

Authorized By:_____

I Certify PM Performed IAW Appropriate MRC:_____

I certify calibration was performed (if required) using the measurement standard indicated and in accordance with calibration procedures:

_____

Canflex Sea Slug Fluid Containment Bladder (FCB)

CANFLEX SEA SLUG FCB-100

DESCRIPTION

The Canflex Sea Slug Fluid Containment Bladder (FCB) is used for storage and transportation of recovered fluid during oil spill recovery operations. The FCB is a flexible, closed tube tapered at each end with a cast aluminum fitting assembly designed to distribute the towing load to the container fabric. The FCB comes with all fittings and gear for filling and towing operations at sea and can additionally be used for fluid storage on land.

The Sea Slugs are constructed using high strength PVC coated polyester material with a closed-cell foam floatation. The sea slug has a stainless steel towing gear, with marine grade aluminum fittings. To protect the FCB from damage due to inadvertent grounding, the bottom half is fitted with a sealed in place with a second skin which is sealed in place.

There are three 4" and 6" NPT connections on the top centerline of the Sea Slug, where caps and ball valves are supplied for attachment. Any of these connections can be used for product filling, off-loading or decanting. There is also a 16 -1/4" ID top center connection where suction hoses or pumps can be inserted. Each end of the bladder also has a connection for filling or off-loading. The front of the FCB has a smaller bladder used for buoyancy via a filling connection. The rear of the FCB has a flange for either the Dracone off-loading pumping system or an inline pump setup.

Each Sea Slug has ancillary equipment to include: navigation lights, towing hardware, lifting kit, fill and off-loading hoses with adapters and a removable flexible PVC liner for the aluminum storage container with fluid drain fillings.

SPECIFICATIONS

Manufacturer	Canflex USA Inc.
Type	FCB 100
Capacity	10,000 gallons
Material	High strength PVC coated polyester
Max, towing speed	8 knots
Max, operating speed	5 knots
Draft	8'9" (fresh water)
Floatation	2 closed- cell foam panels

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	40'
Diameter	7.5' (when full)
Weight - in Cargo Net	1800 lbs
Weight – w/ container	2300lbs

CANFLEX SEA SLUG FCB-100

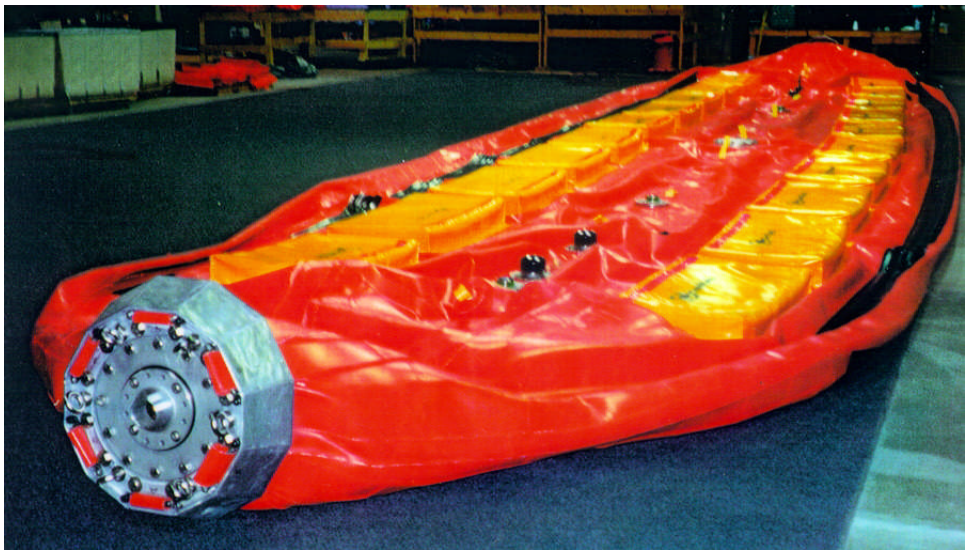

Figure II-02 Canflex Sea Slug

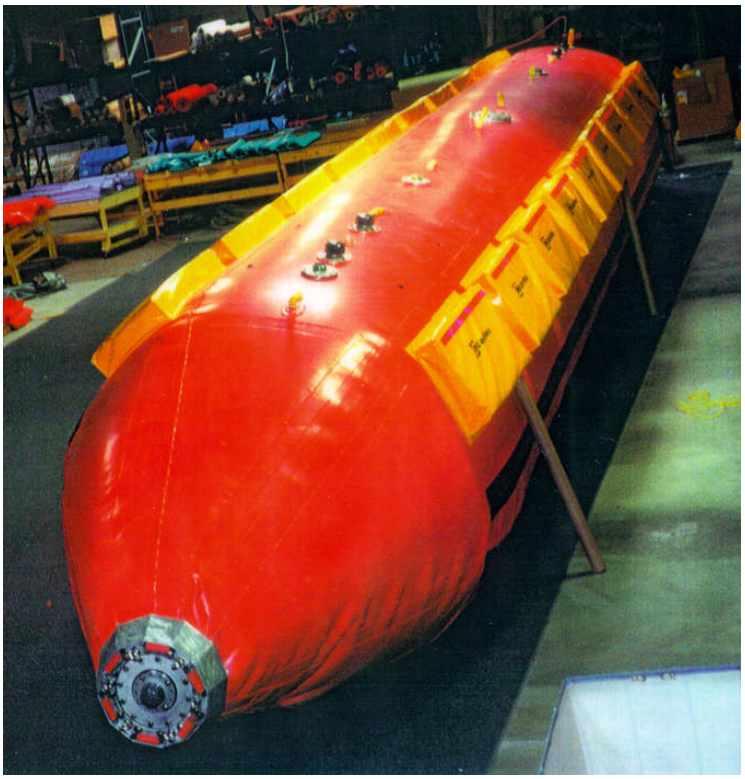

Figure II-03 Canflex Sea Slug, Inflated, Showing End Fitting & Flotation Panels

SEA SLUG INVENTORY

System S/N: Location: Date:

Description	Vendor	Part Number	Qty	Actual	Missing
Container			1		
Cargo Net			1		
Sea Slug	Camflex		1		
Towing Line 100 ft			3		
Towing Bridle			1		
Non Collapsible Hose 2" x 50'			1		
Layflat Hose 6" x 25'			1		
Drouge			1		
Navigation Light			1		
Container Liner			1		
Drain Plug			1		
Bungee Cord 10"			12		
Bungee Cord 31"			4		
Camlok Cap 6"			1		
Camlok Adapter w/4" Cap			1		
Blower	Weedeater	Model RB-90	1		
Buoy			1		
PVC Ball Valve 2"			1		
PVC Ball Valve 4"			1		
Decant Hose 19'			1		
Operation Manual			1		
Inventory Sheet			1		
Repair Kit			1		
Cement			1		
Patching Material (Orange)			1		
Utility Knife			1		

MAINTENANCE REQUIREMENT CARD (MRC)		
SYSTEM	EQUIPMENT	MRC TYPE
USCG Pre-Position Oil Recovery Equipment	Sea Slug, Canflex 12,500 Gal	5 year/after use
SKILL LEVELS	MAN-HOURS	PERIODICITY
MK1 BM1	2	5 year/after use
MK2/3 BM2 BM3	2 2	TOTAL MAN HOURS 6

REFERENCES:

1. USCG Contract No. DTCG23-94-C-EC4159.

MAINTENANCE REQUIREMENT DESCRIPTION:

1. Inspect, adjust, repair, test, and preserve equipment as specified in the procedures outlined below.

SAFETY PRECAUTIONS:

1. Refer to Material Safety Data Sheets (MSDS)
2. Comply with standard safety precautions.
3. Comply with safety precautions/warnings on unit.
4. Hearing protection required.
5. Exercise extreme caution while filling sea slug with pressurized air. Over-pressurizing sea slug can cause damage to the sea slug structure which could result in serious injury or death to personnel. Constantly monitor sea slug during inflation and shut down air supply if signs of deterioration occur.
6. Do not remove 6" plastic cap to aid in deflation of sea slug while sea slug is pressurized. Air pressure in sea slug could blow loose cap off at high velocity causing injury to personnel.

TOOLS, PARTS, MATERIALS, TEST EQUIPMENT:

1. Tool set, standard mechanics.
2. Pressure gauge (0 to 10 psi).
3. Bench test fixture, relief valve.
4. Low pressure air supply, 125 psi or less.
5. Air pressure regulator w/gauge.
6. Detergent.
7. Spray bottle w/soap & water.
8. Hearing protection.
9. Fluid Film silicone spray.
10. Wire brush.
11. Leaf blower.
12. Fresh water source.

PREVENTIVE MAINTENANCE PROCEDURE:

1. Verify sea slug inventory.
2. Inspect sea slug fabric and hardware for damage and corrosion. Ensure that all bolts are tightened.
3. Inspect hatch gasket.
4. Perform preventive maintenance on relief valves as follows;
   A. During 5-year PM, clean and lubricate relief valves using Fluid Film silicone spray. Ensure that relief valves are not seized up and the caps open and close easily. Take care not to alter relief pressure settings by inadvertently turning caps on relief valves.
   B. If used in spill, remove relief valves from sea slug and perform the following:
      1) Clean and lubricate relief valves and hardware with wire brush and Fluid Film silicone spray. Ensure that relief valves are not seized up and caps open and close freely.
      2) Reinstall relief valves in sea slug with new flange gaskets. Take care not to alter relief pressure settings by inadvertently turning caps on relief valves.
5. Clean and lubricate hardware on sea slugs.
6. Remove and inspect 4" plastic cap on end of sea slug. Ensure that gasket is installed. Reinstall cap and secure.

NOTE: ENSURE THAT THE COMPRESSED AIR SUPPLY/INFLATION ASSEMBLY IS EQUIPPED WITH A SUITABLE MATING FITTING AND AN AIR PRESSURE REGULATOR.

7. With air supply secured, connect air supply/inflation assembly to sea slug fill port. Set air pressure regulator to 1.5 psi.

WARNING: HEARING AND EYE PROTECTION REQUIRED.

WARNING: EXERCISE EXTREME CAUTION WHILE FILLING SEA SLUG WITH PRESSURIZED AIR. OVER-PRESSURIZING SEA SLUG CAN CAUSE DAMAGE TO THE SLUG STRUCTURE WHICH COULD RESULT IN SERIOUS INJURY OR DEATH TO PERSONNEL. CONSTANTLY MONITOR SEA SLUG DURING INFLATION AND SHUT DOWN AIR SUPPLY IF SIGNS OF DETERIORATION OCCUR.

8. Inflate sea slug and test side relief valves as follows:
   A. Open service air supply and begin inflating sea slug.
   B. When the sea slug is approximately 75% full or air pressure reaches approximately 1.0 psi, throttle air supply pressure down.

CAUTION: DO NOT ALLOW SEA SLUG AIR PRESSURE TO EXCEED 1.5 PSI.

   C. Continue inflating sea slug until air pressure gauge reads 1.0 psi and side relief valves open. (DO NOT EXCEED 1.5 psi).
   D. Secure air supply.

PREVENTIVE MAINTENANCE PROCEDURE CONTINUED:

WARNING: DO NOT REMOVE 6" PLASTIC CAP TO AID IN DEFLATION OS SEA SLUG WHILE PRESSURIZED. AIR PRESSURE IN SEA SLUG COULD BLOW LOOSE CAP OFF AT HIGH VELOCITY, CAUSING INJURY TO PERSONNEL.

9. If used in oil spill, perform the following:
   A. Clean and wash down any dirt, grease, or oil from sea slug using detergent and fresh water.
   B. Check lift bag fabric, seams, relief valve bolt flanges, and end cap, etc. for major air leaks by spraying with soap and water solution. If leakage is noted, ensure that all threaded connections are tight prior to repairing.
   C. Mark any leakage on sea slug itself and make suitable repairs. Recheck for leaks on repairs.
   D. Rinse off soap/water solution.
   E. Check sea slug for long term air leakage as follows: record air pressure. Leave sea slug inflated for one hour; recheck and record air pressure. The adjustment for change in air leakage pressure loss should be no more than 10% over a period of one hour. Any adjustment over 10% is unacceptable.
10. Check all parts of sea slug for cracks, tears, punctures, abrasions, distortions, or other signs of damage.
11. Deflate sea slug via the fill port. Once air pressure gauge reads approximately 0 psi, remove 4" plastic cap from end of sea slug to allow sea slug to totally deflate and release trapped air.
12. Repair sea slug cracks, punctures, as necessary. If repairs are made, follow steps 8-11 again.
13. Preserve sea slug hardware with Fluid Film silicone spray.
14. Lubricate 4" plastic cap threads and o-ring with Fluid Film silicone spray. Reinstall cap and secure.
15. Remove air pressure gauge from relief valve and evacuate any remaining air in sea slug.
16. Ensure that sea slug's serial numbers are readable.
17. Fold sea slug by bringing each outer side in toward middle, then roll sea slug. Lift sea slug, using net provided, into storage container and secure sides and top of container.

SYSTEM SPECIFIC PERIODIC CHECK SHEET

Sea Slug, 12,500 (SORS) PM No: _____

Date: Semi Annual: ( )
Annual : (X)
Serial No: Other : ( )

Charge No:

Special Instructions: _____

Start Time:_____ Stop Time:_____ Total Run Time:_____

RFI ( ) NRFI ( )

Reason for NRFI: _____

ALL TESTS AND INSPECTIONS TO BE PERFORMED IN ACCORDANCE WITH MRC

PREVENTIVE MAINTENANCE PROCEDURE:	SAT	UNSAT	N/A
1. Verify sea slug inventory.	_____	_____	_____
2. Wash off sea slug and accessories.	_____	_____	_____
3. Inspect sea slug fabric and hardware for damage.	_____	_____	_____
4. Check sea slug for cracks, tears, punctures, and other signs of damage; repair.	_____	_____	_____
5. Clean and lubricate hardware on sea slug.	_____	_____	_____
6. Preserve sea slug hardware.	_____	_____	_____
7. Remove and inspect 4" plastic cap on end of sea slug.	_____	_____	_____
8. Lubricate 4" plastic cap threads and o-ring; reinstall cap and secure.	_____	_____	_____
9. Ensure that serial numbers are readable.	_____	_____	_____
10. Fold sea slug; return sea slug to storage container.	_____	_____	_____

Description of repairs accomplished under PM and/or remarks pertaining to items, condition, or future requirements: _____

Qty	Part Number	Item	Cost
Consumables:			

Employee Number	Total Man-Hours

Total Man Hour Cost _____

Total Material Cost _____

Total Cost _____

Authorized By:_____

I Certify PM Performed IAW Appropriate MRC:_____

I certify calibration was performed (if required) using the measurement standard indicated and in accordance with calibration procedures:

_____

M-15

DESCRIPTION

The following non-submersible pumps are designed to be operated from a vessel's deck or from a pier. They require both a suction and discharge hose and each has its own capabilities dependent upon its design and specifications. These pumps are used whenever the need for a light weight pump arises or when limited deck space is available. They were also designed to pump off railroad tank cars, tank trucks, and small vessels. Non-submersible pumps are primarily designed to move light petroleum products, water, and chemicals, depending on the pump.

The following non-submersible pumps are in the NSF inventory:

Master, Diesel, 2-inch
Multiquip, Diesel, 3-inch
Wilden, M-15, 3-inch
Wilden, M-8, 2-inch
Honda,WA-20x, 2-inch

The Wilden M-15, three-inch (pneumatic) pump is self-priming up to 20 feet and can pump abrasives and high viscous oils and fluids at temperatures up to 300°F. The compressor required to run the M15 can be acquired locally on scene or the Ingersoll-Rand, 160 CFM.

SPECIFICATIONS

Housing	Aluminum
Max. pump rate	230 GPM
Max lift	25 ft
Max pressure	110 PSI, max CFM 70

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	1.5'
Width	1.7'
Height	2.8'
Weight	120 lbs

M-15

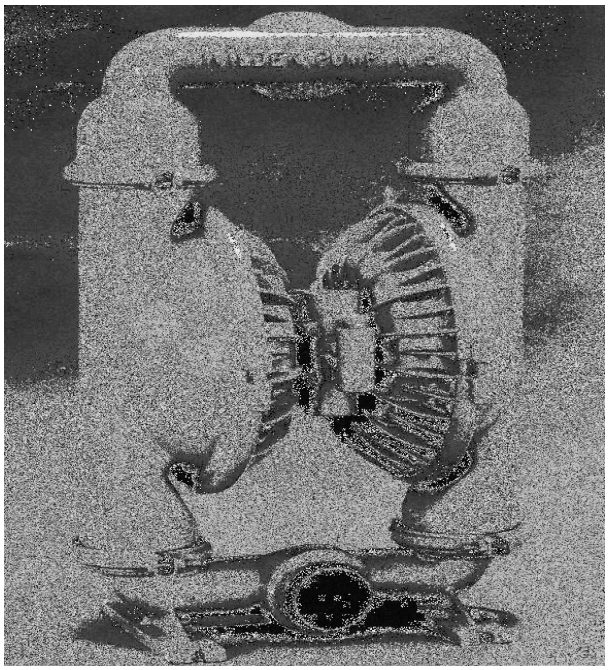

Figure II-04 Non-Submersible Pump M-15, 3-inch

M-8

DESCRIPTION

Wilden M-8, two-inch (pneumatic) diaphragm pump is packaged with a two-inch discharge hose and fittings and is made of corrosive-resistant polypropylene for chemical resistance. The M-8 can pump abrasives, corrosives, high viscosity oils and fluids with temperatures up to 300° F. The compressor required to run the M-8 can be acquired locally on scene or the Ingersol-Rand, 160 CFM.

SPECIFICATIONS

Max. pump rate 155 GPM
Max. lift 25 ft.
Max. pressure 110 PSI, max CFM 70

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	1.1’
Width	1.3’
Height	2.2’
Weight	75 lbs

M-8

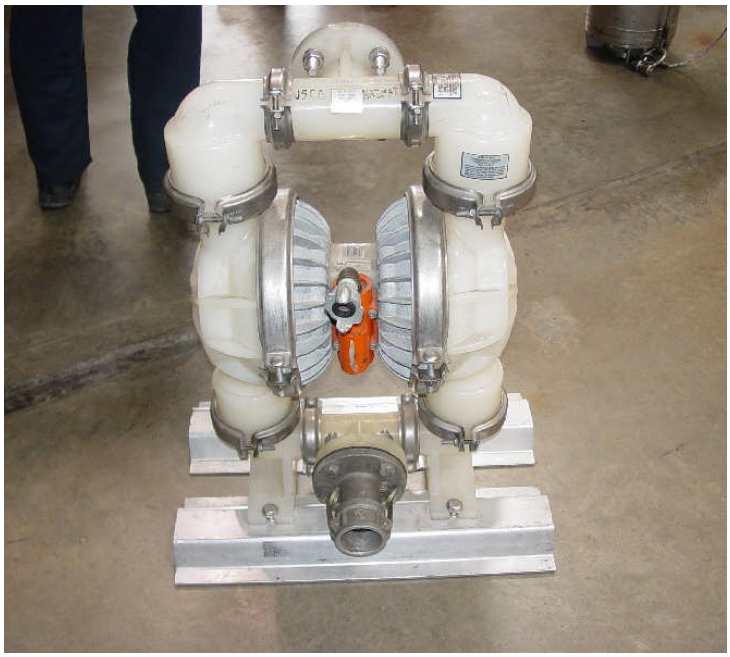

Figure II-05 Non-Submersible Pump, Wilden M-8, 2-Inch

BAUER CAPITANO

DESCRIPTION

The CAPITANO is a reliable partner in tough conditions, available with a huge variety of optional features. Due to the heavy-duty metal skid, the CAPITANO can be equipped with a Carrying Trolley. Designed with a standard forced feed lubrication for extreme inclinations, the CAPITANO is supplied with 1 filling device, consisting of a 1m hose plus 200- or 300bar filling valve with gauge.

The integrated Oil/Water-Separator together with the original Bauer TRIPLEX-P21 Cartridge Filter System ensures purest breathing air, according to DIN EN 12021 (formerly DIN 3188) in your bottles.

SPECIFICATIONS

- BAUER P0 Breathing Air Purification System
- Final Pressure Switch (/DV-E)
- Stainless Steel Intercoolers and Aftercooler
- Inlet Filter with Flexible Intake Hose on all DV Engine Drive
- Vibration Isolators
- High Temperature Switch (/DV-E and /DV-G)
- Motor Starter with NEMA 12/13 Enclosure (E/DV)
- YANMAR Diesel Engine (D/DV) 4.5 gal
- 5 Foot Fill Hose Assembly with SCUBA Yoke, Bleed Valve and Pressure Gauge
- 5000 PSI
- 5 CFM

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	4.3’
Width	2.6’
Height	2.5’
Weight	538 lbs

Figure II-06 Air Compressor, Bauer Capitano

BAUER MARINER

DESCRIPTION

The Bauer Mariner compressor systems uses one of our performance proven three stage pressure lubricated compressors with capacities of 6.0 to 8.4 scfm charge rate and delivery pressures up to 5000 PSIG. The three stage, heavy duty portable model is diesel engine drive. The compressor has gauges on each stage, oil pressure gauge, priority valve, deluxe filtration system with a mechanical separator and the Bauer 27 inch drop in cartridge.

SPECIFICATIONS

Max. pressure 5000 PSI
Capacity Diesel, 5 gal
Air flow 7 CFM

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	4.2’
Width	1.8’
Height	2.6’
Weight	320 lbs

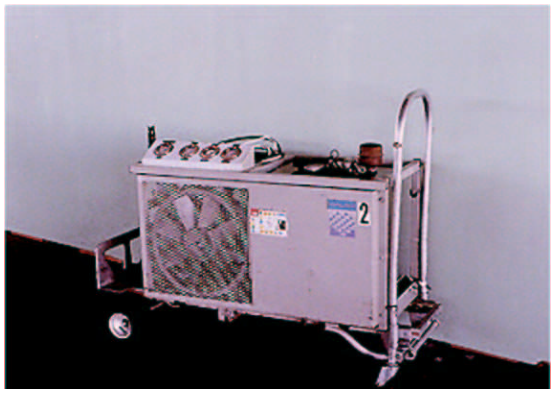

Figure II-07 Air Compressor, Bauer Mariner

INGERSOLL RAND

DESCRIPTION

Ingersoll Rand Diesel tow-behind air compressor features a compact and lightweight design with excellent highway towing stability. The compressor has a 4 Cylinder Deutz Diesel Engine. Integrated automatic safety shutdown feature. Powder-coat finish of metal enclosure provides excellent resistance to corrosion and abrasion. Quick and easy access to reduce maintenance time. Simple key start sequence.

SPECIFICATIONS

Max. Pressure	100 PSI
Capacity	Diesel, 24 gal
Air Flow	160 CFM

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	12’
Width	6.3’
Height	4.8’
Weight	2535 lbs

Figure II-08 Air Compressor, Ingersoll Rand

SANBORN

DESCRIPTION

The Sanborn Magna Force is a wheelbarrow style gas powered compressor. It is a Single Stage Belt Drive Air Compressor with a 5 or 5.5 HP Briggs or Honda engine.

SPECIFICATIONS

Max Pressure	100 PSI
Capacity	Gasoline, 0.5 gal
Air Flow	6 CFM

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	3.8’
Width	1.6’
Height	2.5’
Weight	135 lbs

Figure II-09 Air Compressor, Sanborn Magna Force

HOMELITE

DESCRIPTION

Homelite is an electric single stage portable air compressor.

SPECIFICATIONS

Max. Pressure	100 PSI
Air Flow	6 CFM
Power source	Electric motor
Volts/amps	120/15
Horsepower	1.5
Compressor	Single stage
Lubrication	Splash
Tank pressure gauge	Yes
Regulator pressure gauge	Yes
Control system	Auto start/stop, continuous run optional

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	3.8’
Width	1.6’
Height	2.5’
Weight	125 lbs

Figure II-10 Air Compressor, Homelite

GENERIC 6.5kW

DESCRIPTION

Engine-generators generally include a fuel tank, an engine speed regulator and a generator voltage regulator, cooling and exhaust systems, and lubrication system. Units larger than about 1 kW rating have a battery and electric starter; very large units may start with compressed air. Standby power generating units often include an automatic starting system and a transfer switch to disconnect the load from the utility power source and connect it to the generator.

Generators are used to supply electrical power in places where utility (central station) power is not available, or where power is needed only temporarily. Small generators are sometimes used to supply power tools. Trailer-mounted generators supply power for temporary installations of lighting, sound amplification systems, etc.

SPECIFICATIONS

Voltage 120/240
Power 6.5 kW

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	3.9’
Width	2.2’
Height	2.4’
Weight	186 lbs

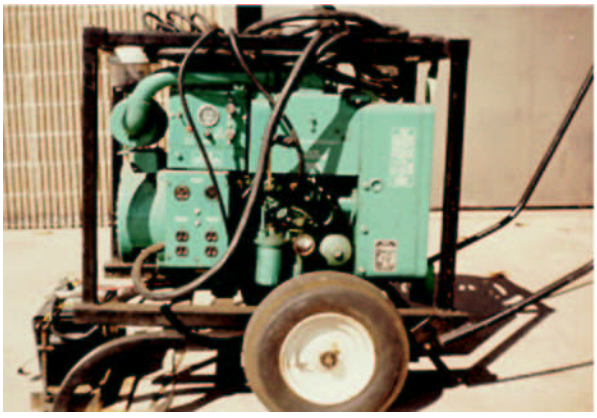

Figure II-11 Generator, 6.5 kW

GEN-PRO 10.5kW

DESCRIPTION

The Gen-Pro 10.5kW generator consists of a gasoline engine that drives a brushless generator. It is used to provide general emergency back-up power. The Gen-Pro is a compact, lightweight, and easily transportable electric power source. An exclusive feature of the generator is a power assist system which uses a power capacitor and a winding design to ensure minimum power fluctuations, excellent voltage regulation, and superior load starting power.

SPECIFICATIONS

Voltage 120/240
Power 10.5 kW
Fuel gasoline, 2.5 gal

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	3.5’
Width	2.6’
Height	2.4’
Weight	300 lbs

Figure II-12 Generator,10.5 kW, Gen-Pro

HONDA 5.5kW

DESCRIPTION

Honda generators come standard with a variety of features including simultaneous AC/DC use, fuel meter, large fuel tank capacity, electric start capability with auto choke and fuel solenoid for remote starting capability. Generators are powered by commercial grade Honda OHV engines for quiet, durable and efficient power and have Voltage Regulation for continuous stable power. All Honda generators are EPA and CARB compliant.

SPECIFICATIONS

Voltage 120/240
Power 5.5 kW
Fuel Gasoline, 4.5 gal

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	4.8’
Width	2.2’
Height	2.6’
Weight	393 lbs

Figure II-13 Generator, 5.5 kW, Honda

HONDA 4.5kW

DESCRIPTION

The Honda 4.5 kW generator is an electric start self-regulated generator powered by an air-cooled gasoline engine.

SPECIFICATIONS

Voltage	120/240
Power	4.5 kW
Fuel	gasoline, 1.9 gal

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	2.2’
Width	1.8’
Height	2.5’
Weight	268 lbs

Figure II-14 Generator, 4.5 kW, Honda

HONDA EX 1000 1.0kW

DESCRIPTION

The Honda EX 1000 1.0 kW generator consists of a pull start generator with frequency control and an oil alert. It is a very light and extremely compact gasoline-driven generator.

SPECIFICATIONS

Voltage 120
Power 1 kW
Fuel gasoline, 0.5 quart cap

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	19.6”
Width	13.6”
Height	17.6”
Weight	57.5 lbs

Figure II-15 Generator, 1.0 kW

HONDA EB 11000 10.5kW

DESCRIPTION

The Honda EB 11000 10.5 kw is an electric start or pull start generator.

SPECIFICATIONS

Voltage	120/240
Power	1 0.5 kW
Fuel	gasoline
Fuel Cap	10 Gal

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	53”
Width	34”
Height	32”
Weight	530 lbs

Figure II-16 HONDA EB 11000 10.5kW

LIGHTING TOWERS

DESCRIPTION

The portable lighting equipment is generator-powered or capable of connecting to commercially supplied power. The four, 1000-watt, quartz iodine floodlights produce enough light to illuminate a 1.5 acre area. It has a manual telescoping mast that, when fully extended, will reach 16 feet.

SPECIFICATIONS

1000 watt telescoping 16’ mast

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	3’
Width	2’
Height	2’

Figure II-17 Lighting Tower

32 - FOOT MUNSON

DESCRIPTION

The 32-foot Munson utility boat has a square bow, a drop ramp door, a wheel house, a tow bit, a removable J-davit, complete hydraulics package, and a full array of electronics. The boat can operate in seas up to six feet, transport up to 16 people at one time, and is powered by twin/ counter-rotating 225 or 250 horsepower engines for increased maneuverability. It is transport-able over the road or by C-5 aircraft.

SPECIFICATIONS

Beam	10.5’
Draft	2.5’
Freeboard	3.7’
Engine	(two) 225 hp or 250 hp
Fuel	gasoline, 140 gallon capacity
Load Capacity	16 people

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	32.5’
Weight	8850 lbs w/o trailer

Fi

23 - FOOT SEA ARK/MUNSON

DESCRIPTION

The 23.3' Munson utility boat is an aluminum hulled vessel. It can be used to deploy harbor boom, transfer personnel, and conduct other logistical tasks. It is powered by two 130 horse-power outboard engines and is mounted on its own road-ready trailer for transport over the road or by C-130.

SPECIFICATIONS

Beam	8.0'
Draft	1.2'
Freeboard	2.5'
Engine	(two) 130 hp
Fuel	gasoline, 70 gallon
Load Capacity	12 people

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	23.3'
Weight	3000 lbs w/o trailer 7830 lbs w/trailer

Figure II-19 Utility Boat, 23' Sea Ark/Munson

17 - FOOT RIGID HULL INFLATABLE (RHIB)

DESCRIPTION

The 17 foot RHIB has a fiberglass keel and deck. It can be used to deploy harbor boom, transfer personnel, and conduct other logistical tasks. It is powered by two 90 horsepower outboard engines and is mounted on its own road-ready trailer for transport over the road or by C-130.

SPECIFICATIONS

Beam	7.9’
Draft	16”
Engine	(two) 90 hp
Fuel	gasoline, 15 gallon capacity
Load Capacity	8 people, 890 lbs

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	17.4’
Weight	1700 lbs w/o trailer 2300 lbs w/trailer

Figure II-20 Utility Boat, 17’ Rigid Hull Inflatable (RHIB)

15 - 17-FOOT INFLATABLE (AVON)

DESCRIPTION

The Avon inflatable boats are maintained to maneuver along the shore, shuttle personnel and light equipment, and assist in equipment deployment. These boats are easily transported, very durable, and normally transported deflated.

SPECIFICATIONS

Beam	6.5’
Draft	24”
Load capacity	8 - 10 people
Engine	30 hp
Fuel	gasoline, 12 gallon capacity

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	14.7’ - 17.8’
Weight	199 lbs

Figure II-21 Utility Boat, 15-17’ Inflatable (AVON)

18 foot JON BOAT

DESCRIPTION

The Jon boat is an aluminum hulled vessel. The boat can be used to deploy harbor boom, transfer personnel and conduct other logistical tasks. It is powered by one 50 horsepower outboard engine and is mounted on its own road-ready trailer for transport over the road or by C-130.

SPECIFICATIONS

Beam	5.3’
Draft	18”
Engine	50hp
Fuel	gasoline, Twin 6 gallon capacity
Load Capacity	4 people

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	18.4’
Weight	1300 lbs w/o trailer

Figure II-22 Utility Boat, Jon Boat 18’

14 foot JON BOAT

DESCRIPTION

The Jon boat is an aluminum hulled vessel. The boat can be used to deploy harbor boom, transfer personnel and conduct other logistical tasks. It is powered by one 50 horsepower outboard engine and is mounted on its own road-ready trailer for transport over the road or by C-130. Two 14' aluminum Jon boats are stacked on a 2-axle trailer for rapid deployment in shallow water or flood responses. They are powered by a 15 hp Honda outboards.

SPECIFICATIONS

Beam 54"
Draft 16"
Engine 15 hp
Fuel gasoline, Twin 6 gallon capacity
Load Capacity 3 people, or 405 lbs

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	14'
Weight Capacity	625 lbs

Figure II-23 Utility Boat, Jon Boat 14'

NATIONAL STRIKE FORCE BOAT TYPES AND OPERATING PARAMETERS

Note: all NSF small boats will ONLY be operated within the prescribed limits of each boat type and no boat shall be operated in breaking waves or surf conditions.

Length	Type	Sea Conditions	Max Winds	Range off Shore
32 Foot	UTM	6 Foot	27 knots	20 NM
24 Foot	UTL	3 Foot	16 knots	10 NM
18 Foot	SKF	2 Foot	15 knots	3 NM
17 Foot	UTL	4 Foot	30 knots	5 NM
14/15 Foot	SKF	1 Foot	15 knots	1 NM

All Terrain Vehicles (ATV) - TRAILER

DESCRIPTION

These are four wheel drive, light terrain vehicles. The strike teams have different makes/models of ATV in their inventories to perform a variety of functions from personnel transport to carrying equipment. The vehicles are for OFF ROAD USE ONLY and are ideal for beach surveys. Load capacity, including rider and gear, is 380 lbs. Front cargo rack maximum capacity is 66 lbs. Rear cargo rack maximum capacity is 132 lbs.

The ATV has the capability of (four) forward gears and (one) reverse gear. They can tow a light trailer utilizing a 1-7/8" trailer hitch ball. It can be operated at night due to installed lighting system. Protective clothing and helmets must be worn during operation.

The Strike Teams have ATV trailers designed to carry two ATVs with an attached tool box for spare parts.

SPECIFICATIONS

Beam 5'
Single Axle
Wood Deck

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	14'
Weight	Approximately 300-500 pounds w/ trailer Approximately 1000-1500 pounds w/o trailer

Figure II-24 ATV Trailer

JOHN DEERE GATOR TRAIL HPX 4X4

DESCRIPTION

The GATOR TRAIL HPX 4X4 gasoline engine provides impressive power. The 4-bypass carburetor assures easier starting and excellent acceleration in all temperatures. An industry-exclusive hydroformed steel frame provides added strength, rigidity, and durability. Heavy-duty, 16-gauge-steel, 11.3 cu. ft. capacity cargo box hauls up to 1,000 lb. Two-speed continuously variable transmission allows for optimal towing, hauling, and pulling in low gear up to 12 mph and transport in high gear up to 25 mph. Long lasting hydraulic disc brakes feature a dual-circuit master cylinder and larger calipers for ultimate stopping power.

SPECIFICATIONS

Kawasaki FD620

Towing capacity	590 kg (1300 lbs)
Ground clearance	15.2 cm (6.0 in)

Engine

Four stroke, liquid cooled, gasoline, 20hp

Capacities

Fuel tank	20.0 L (5.25 gal)
Oil change w/ filter	1.3 L (1.37 qt)
AWD Differential	1.4 L (1.48 qt)
Transaxle	4.0 L (4.2 qt)
Cooling system	5.0 L (5.2 qt)

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	113.0”
Width	60.0”
Height	47.5”
Weight	1260 lbs

Figure II-25 John Deere Gator 4 X 4

SUZUKI LT - 4WD

DESCRIPTION

The Mid-size Suzuki LT utility provides the best value in this class vehicle. The LT is a dependable air/oil cooled, single cylinder, 4-valve, 4-stroke engine tuned for high torque output and quick acceleration. Gear-driven balancer shaft reduces vibration. High capacity oil-cooler ensures consistent engine operating temperature with a thermostat-controlled electric fan carburetor provides smooth throttle response and high fuel efficiency. The chassis features a compact instrument display including speedometer, odometer, tripmeter, and indicator lights for neutral, reverse and oil temperature

SPECIFICATIONS

Four-stroke, air cooled, OHC	
Wheelbase	1150 mm (45.3 in)
Engine	
Type	Four-stroke, air cooled, OHC
# of cylinders	1
Piston displacement	246 cc's (15 cu. in)
Capacities	
Fuel Tank, including	reserve 12.0 L (3.2 US gal) reserve 2.0 L (0.5 US gal)
Oil change w/ filter	3600 ml (3.8 US qt)
Differential gear oil	150 ml (5.06 US oz)

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	81.1”
Width	47.2”
Height	41.5”
Weight	520 lbs

Figure II-26 Suzuki ATV

OVER THE ROAD VEHICLES

DESCRIPTION

The Strike Teams maintain road ready vehicles for the transportation of personnel and equipment. Each team has tractor trailers, flatbed trucks, and all purpose vehicles (trucks and vans).

SPECIFICATIONS

Pickup Truck
1 ton
4 door crew cab
dual rear wheels with full size bed

Van
15 passenger
1 ton

Crane Truck
8 ton Knuckle Crane Stakebed

Semi-trailer Trucks
Each team has (two) to (three) semi-trailer trucks that can be used to pull the response equipment loads and MICP trailers.

PHYSICAL CHARACTERISTICS

N/A

Figure II-27 F350 Dooley

Figure II-28 15 Passenger Van

Figure II-29 5-10 Ton Trucks

Figure II-30 Tractor Truck

CHEMICAL RESPONSE TRAILER / AIR DEPLOYABLE UNIT

DESCRIPTION

1-3 days self–sustaining chemical response trailer houses all chemical response gear. Equipment includes chemical protective suits, self-contained breathing apparatus (SCBA) bottles and regulators, air-purifying respirator (APR) cartridges, drum handling equipment, tool kit, decon equipment, EMT kit equipment, (including coolers and tents) and administration supplies.

Reference: C-130 EMERGENCY RESPONSE EQUIPMENT LOADING GUIDE for Air Deployable Unit.

SPECIFICATIONS

Twin axel trailer
Drop-down ramp for easy unloading/loading

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	23.6’
Width	8.0’
Height	9.0’
Weight	Approx. 12,500 lbs

Figure II-31 Chemical Response Trailer

SOIL AND LIQUID SAMPLING EQUIPMENT

DESCRIPTION

The sampling equipment in the inventory is used to gather samples and provide “chain of custody” handling for sample delivery. Soil samples are obtained by either a hand operated auger bit or coring device. Liquid samples are obtained by a submersible sampler. The submersible sampler is dropped perpendicular to the liquid from pouring out once it has been collected. The liquid sampler is three feet long and made of clear chemical resistant plastic. The photo are examples of Coliwasa-tubes, Bacon bombs, and Drum thieves.

SPECIFICATIONS

N/A

PHYSICAL CHARACTERISTICS

N/A

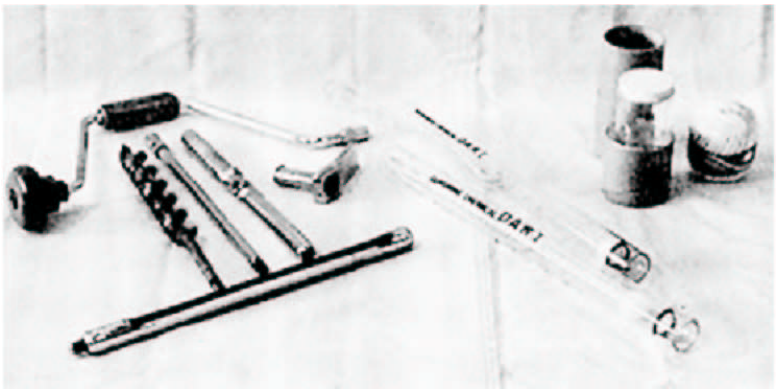

Figure II-32 Soil and Liquid Sampling Equipment

POLYCHLORINATED BIPHENYL TEST KIT (PCB)/HAZCAT KIT

DESCRIPTION

PCB/HAZCAT test kits are used to identify polychlorinated biphenyl contaminated oils.

SPECIFICATIONS

The kits come in two different concentration ranges: 0-50 and 0-500 parts per million.

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	20”
Width	10”
Height	12”
Weight	12 lbs

Figure II-33 HAZCAT Kit

EMERGENCY LEAK REPAIR: CHLORINE A KIT, CHLORINE B KIT AND CHLORINE C KIT

DESCRIPTION

The Chlorine A kit is used to secure leaks from damaged 100, 150 pound chlorine cylinders and SO2.

- The Chlorine B kit is used to secure chlorine leaks generated from the damaged valves of one ton chlorine containers.
- The Chlorine C kit is used to secure chlorine leaks generated from the damaged valves of chlorine tank trucks and rail cars.
- Chlorine Institute kits also used on Sulfuric acid leaks (W/special gaskets).

SPECIFICATIONS

N/A

PHYSICAL CHARACTERISTICS

N/A

Figure II-34 Emergency Leak Repair Equipment

VETTER SYSTEM

DESCRIPTION

The inflatable Vetter System has various components which are used to plug and patch pipes, sewer pipes, and large holes in non-pressurized containers. The Vetter Bag is a rubber bag (various sizes) and is inflated by air supply under pressure. The Vetter Bag will inflate to conform to the hole it is plugging.

SPECIFICATIONS

N/A

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	4’
Width	2’
Height	2’
Weight	150 lbs

Figure II-35 Vetter System

HAZARDOUS MATERIAL RESPONSE KIT

DESCRIPTION

The hazardous material response kit is an all purpose patching and plugging kit used to provide emergency repairs to damaged containers of various hazardous materials.

SPECIFICATIONS

N/A

PHYSICAL CHARACTERISTICS

N/A

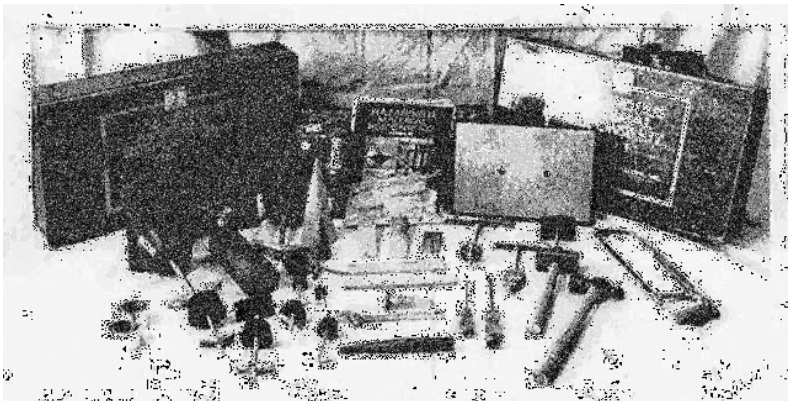

Figure II-36 Hazardous Material Response Kit

CONTAINMENT EQUIPMENT PLUGGING AND PATCHING
OVER PACK DRUMS

DESCRIPTION

An inventory of 85-gallon over pack drums are maintained for immediate service. Over packs are designed to enclose a 55-gallon drum.

SPECIFICATIONS

100% UV protected polyethylene.
Handles damage or leaking containers of hazardous materials.
Twist off covers.
Meet group 1 packaging standards and salvage drum regulations
for containing hazardous materials including acids and corrosives.

PHYSICAL CHARACTERISTICS

External Dimensions	
Measurement	**Unit**
Width	31“
Height	42”
Weight	50 lbs

Figure II-37 Over pack Drum

SALVAGE ASSESSMENT KIT

DESCRIPTION

The salvage assessment kit is designed for determining fluid levels of watertight compartments. The kit will also help determine separate fluid levels such as water in gasoline.

SPECIFICATIONS

Contents of the kit are as follows:

Lead line
Heaving Llne
D-Cell batteries
3 Cell flashlights
Water Finding paste
Gasoline Gauge paste
Hand cleaner
Oil water interface meter W/ Ter-mometer-75'
Sounding tape-50'
Sounding tape-25'
Metal clip board
Steno pads
U.S.N. Salvage Handbook
Green pocket memo books
Grease pencils
Black pens
Bundle rags
30' Hemp line
Non-sparkling tools
12' Adjustable crescent wrench
Channel locks
24 oz. Ball peen hammer
24" Pipe wrench

PHYSICAL CHARACTERISTIC

Measurement	Unit
Length	2'
Width	10"
Height	2'
Weight	45 lbs

Figure II-38 Salvage Assessment Kit

DECONTAMINATION

DESCRIPTION

Decontamination equipment, materials, and supplies are generally selected based on availability. Other considerations are ease of equipment decontamination or disposability. Most equipment and supplies can be easily procured. For example, soft-bristle scrub brushes or long-handle brushes are used to remove contaminants. Water in buckets or garden sprayers are used for rinsing. Large galvanized wash tubs or stock tanks can hold wash and rinse solutions. Childrens wading pools can also be used. Large plastic garbage cans or other similar containers lined with plastic bags store contaminated clothing and equipment. Contaminated liquids can be stored temporarily in metal or plastic cans or drums. Other gear includes paper or cloth towels for drying protective clothing and equipment.

SPECIFICATIONS

N/A

PHYSICAL CHARACTERISTICS

N/A

Figure II-39 Decon Equipment

SPECIAL MONITORING OF APPLIED RESPONSE TECHNOLOGIES, SMART

DESCRIPTION

SMART establishes a monitoring system for rapid collection and reporting of real-time, scientifically based information, that can assist the FOSC or Unified Command with operational decision-making during in-situ burning or dispersant operations. SMART protocols recommend monitoring methods, equipment, personnel training, and command and control procedures that a balance the operational demand for rapid response and the FOSC or Unified Command's need for feedback from the field in order to make informed decisions.

SPECIFICATIONS

One Fluorometer
Master Model 625 Penn Reel Fathom
Shurflo Pro Blaster Pump
Five DataRAMs

PHYSICAL CHARACTERISTICS

N/A

Figure II-40 SMART Equipment Kit

SHORE LINE ASSESSMENT CLEAN-UP TEAM (SCAT) KIT

DESCRIPTION

The Scat Kit and its equipment will provide shoreline assessment and cleanup recommendations of an actual or potential oil spill or hazardous material release.

SPECIFICATIONS

SCAT Kits include:

3-Day Back Pack
Entrenching tool
GARMIN GPS 12
GPS Instruction
8x21mm compact binoculars
Calculator
100’ tape measure
Flashlight
Aluminum clipboard
Scat forms
Black pens
Black sharpie
Batteries for GPS/Flashlight
12” X 12” zip lock bags
Nitrile gloves
4x6 “Rite in the Rain” Notepad
Dispersant application observer job aid
Shoreline assessment manual
Shoreline assessment field book
Open water oil ID job aid
Shoreline assessment job aid
Handheld laser range finder
Anti-bacterial toweletts
XXXLG outer booties
Biodegradable tape rolls
Insect repellent
Bottle sun block SPF30
Digital camera
Plastic ruler, metric and standard

PHYSICAL CHARACTERISTICS

Measurement	Unit
Width	6”
Height	12”
Weight	10 - 12 lbs

Figure II-41 Scat Kit

Communications & Computer Equipment

Communications & Computer Equipment

SYSTEM DESCRIPTION

Each Strike Team maintains an inventory of communications and computer equipment sufficient for most response activities. Equipment includes VHF and UHF handheld radios, base stations, and repeaters with extra batteries and chargers. Cellular, digital, and satellite phones, along with portable fax machines and laptops are also a part of team inventory. For large scale response operations that would deplete individual Strike Team resources, a Memorandum of Understanding (MOU) has been established with another federal agency for access to additional communications equipment.

The National Strike Force (NSF) and the National Interagency Fire Center (NIFC) signed a MOU, which allows the Coast Guard, through the NSF, access to the largest communication radio support cache in the country. NIFC can supply the NSF with over 1000 King VHF hand held radios, over 500 King UHF hand held radios, and over 50 VHF and UHF repeater kits for use on any incident. For larger incidents, they can also supply air-to-ground communications kits, that are valuable for over flights when locating oil trajectories or SMART monitoring. One of the first pieces of equipment that would be ordered for a case would be a starter system, which is an ICS command logistics radio system. The total weight of a starter system is 975 pounds. This system would provide communications for command, tactical, logistical, and ground-to-air needs.

There are six command and seven logistics frequencies available through the MOU. The command frequencies are VHF frequencies which are used by field operations personnel. The logistics frequencies are UHF frequencies which are used by command post personnel.

Any Coast Guard Incident Commander, District, or Captain of the Port may request this support by calling the NSF team in their AOR.

MOTOROLA XTS 5000 DIGITAL PORTABLE RADIO

DESCRIPTION

The XTS 5000 Digital Radio is the toughest and most interoperable portable radio Motorola makes. It assures seamless, high quality communication in a robust design that stands up to the most demanding environments. Designed to deliver multiple frequency band solutions, it offers enhanced spectrum utilization and seamless integration in congested urban areas or dispersed rural regions.

The XTS 5000 portable radio is capable of following ASTRO 25 Digital Trunking, ASTRO Analog and Digital Trunking, and Analog and Digital Conventional.

With the MacroBlend housing material, it's designed to survive sever shock and vibration, exposure to damaging environments such as salt fog, UV radiation, dust and electrostatic.

SPECIFICATIONS

Channels: 16-48 channels; Model I, 850 channels; Model II & III
Power: 3W-700/800MHz, 6W-VHF, 1-5W-UHF, 2-5W-UHF
Battery Life (based on 5/5/90 duty cycle): 8 hours - Ultra High Capacity NiCD, 8 hours - Standard Ultra High Capacity NiMH, 8 hours - Lithium Ion, 8 hours - Ultra High Capacity NiCD Rugged
Keypad: Model I - No, Model II - Yes, limited, Model III - Yes, full
Display: Model I - No, Model II - Yes, 2 line icons plus 4 line 12 characters per line, Model III - Yes, 2 line icons plus 4 line 12 characters per line
Coverage: Programming Software allows adjustable power output for varying coverage
Mil Spec: 810 C, D, E and F, submersible (6ft for 2 hrs.) models available
Frequency: 700/800MHz, UHF Range I, UHF Range II, VHF

PHYSICAL CHARACTERISTICS

Measurement (with standard battery)	Unit
Height	12.72"
Width	2.44"
Length	1.83"
Weight	12.5 oz

Figure II-42 XTS 5000

COMMUNICATIONS KIT

DESCRIPTION

The Motorola Saber I is a 12-channel handheld radio. It represents the base model of the Saber line. The Saber II is a midrange option in the Motorola Saber series. The Saber I and II support three main bands. The Saber III series provides advanced receiver and transmitter design using state-of-the-art technologies.

The Saber III radio utilizes custom integrated circuits which enhance performance reliability, and reduce the unit's size. Digital frequency synthesis techniques provide up to 120 channels of transceiver capability on the Saber III. The Motorola MC68HC11 microcomputer is at the heart of the Saber III radio; it provides tremendous flexibility in channel management and signaling schemes. Programming, changing frequencies, re-tuning, and testing can be accomplished by a qualified technician without opening the unit. With the Mode-select operation feature popular auxiliary functions can be "slaved" to the channel selector switch.

SPECIFICATIONS

- Saber I, Saber II, Saber III, ASTRO Radio(s)
- VHF Antenna
- Battery
- Remote Speaker/Microphone
- Radio Holsters and Belts
- Phillips and flat head screw driver
- Frequency list
- Instruction Manuel

PHYSICAL CHARACTERISTICS

Measurement	Unit
Height	3'
Width	1'
Length	2'"
Weight (case 1 with Motorola Impress Charger)	25 lbs
Weight (case 2 with 12 Motorola batteries and 6 Motorola XTS 3000R radios)	30 lbs

Figure II-43 Communications Kit

IRIDIUM 9505A SATELLITE PHONE

DESCRIPTION

Handheld satellite phone that works anywhere in the world. Larger than a typical mobile phone, but still small enough to carry in a backpack. Very simple to use. Uses a familiar GSM dialing sequence. For outdoor use only.

SPECIFICATIONS

Power Source: Rechargeable Lithium-Ion Battery
Volume: Under 375cc (22.9 ci)
Talk Time: 3.2 hours
Standby Time: 30 hours
Operating range: -10 to +55°C

PHYSICAL CHARACTERISTICS

Measurement	Unit
Length	158 mm
Width	62 mm
Depth	59 mm
Weight	13.2 oz

Figure II-44 Iridium 9505A
Satellite Phone Satellite Phone

MOTOROLA KIT MODEL P2016A MOBILE BASE STATION

DESCRIPTION

This is a compact portable base station for operational use with VHF and UHF handheld radios. Radios are boosted to 40 Watt output for extended range.

SPECIFICATIONS

N/A

PHYSICAL CHARACTERISTICS

Measurement (with standard battery)	Unit
Height	1’
Length	2’
Weight	23 lbs

Figure II-45 Motorola Mobile Base Station

Communications & Computer Equipment

COMPUTER KIT

DESCRIPTION

The Computer Kit consists of a Dell laptop computer system that uses off-the-shelf software to assist team members responding to oil spills, releases of hazardous substances, natural disasters, or other crisis situations in identifying and managing resources and resource data used throughout spill clean up efforts.

The Dell Latitude D505 laptop is designed for users who require essential productivity and dependable quality. The notebook features Intel® Pentium® M or Celeron® M processors and choice of either a 15.0" or 14.1" Active Matrix (TFT) display. The D505 also offers Intel Centrino™ Mobile Technology, the 855GME chipset and Intel® Pro Wireless MiniPCI card. Located on the side of the unit, the modular bay's latch is designed for easy insertion and removal of the various D-Family module options. The D505's internal magnesium alloy frame helps to provide structural rigidity to protect what's inside your notebook. Every Dell Latitude D505 notebook features a wireless networking mini-PCI card, 56K2 V.92 capable modem and 10/100 wired network card.

The Dell Inspiron 8100 comes with Intel®'s Processor-M Chip, dual-optical bays, a high-resolution screen, and an IEEE 1394 port. The notebook offers an unusual flip-flopped drive bay configuration that increases it's flexibility.

The Inspiron 5100 comes with FireWire port, a 16MB or 32MB ATI Mobility Radeon 7500 AGP graphics card, and a Wi-Fi antenna. Equipped with Intel®'s 2.66-GHz Pentium 4 desktop processor, the Inspiron 5100 performs well. The unit has a 15-inch screen with a 1400 by 1050 resolution. All of the 5100's removable components – the battery pack, memory slots, and hard drive – are easy to access.

SPECIFICATIONS

- PC Laptop
- Portable Printer
- Street Atlas
- Wireless Network Capabilities
- Digital Camera

PHYSICAL CHARACTERISTICS

Measurement	Unit
Height	1.26"
Width	13.27""
Depth	9.37"
Weight	4.37 lbs

Figure II-50 Dell Laptop Computer