

2. SPECIFICATIONS

General

Overall length (with ladder)	80'
Overall width (with side tanks)	18'-3"
Hull depth	5'
Mean draft (with fuel)	34"
Spud length (each)	40'
Spud weight (each)	3,000 lb
Approximate dredge weight - dry	120,000 lb

Operating Conditions

Digging depth	
• Minimum	5'
• Maximum	30'
Maximum cut of dredge (single cut)	
• @ Minimum digging depth	113' wide
• @ Maximum digging depth	98' wide

Hull

Three (3) piece sectional hull,	
Side sections (2)	55' x 4'-10 1/2" x 5'
Center section (1)	35' x 8'-6" x 5'
O.A. dimensions	55' x 18'-3" x 5'

Prime Mover

CATERPILLAR

Engine make:	Caterpillar 3412DITA
Rated horsepower:	750 HP @ 2100 RPM
Serial Number	9PW00838
Arrangement Number	153-9109

Main Engine Reduction Gear

Manufacturer	Twin Disc
Model	MG-5202
Ratio	3.48:1
Serial number	3AP753

Filter

Cutter Module



Cutter Motor:	Parker
Model	M365-I67646
Cutter Reduction Gear	Reggiana Riduttori
Model	2700TFS
Ratio	69.66:1
No.	B6450

Module Specifications

Cutting force	10,662 lb
Operating torque	202,580 lb
Cutting force per linear inch	280 lb
Cutter diameter	38" ID
Shaft diameter	5"
Cutter rating	90 HP
Cutter speed variable	0-28 RPM

Swing Winches



Line pull	12,000 lb
Line speed (1st layer)	75 ft/min
Wire size	5/8"
Drum capacity	320'
Model (Port)	H12-5-97-7
Serial Number (Port)	73180
Model (Starboard)	H12-4-97-7
Serial Number	73181

Ladder Winch



Line pull	8,000 lb
Line speed	116 ft/min
Wire size	9/16"
Model	M8-3-30-2
Serial Number (Port)	72553

Spud Winches (2)



Line pull	5,000 lb
Line speed	100 ft/min
Wire size	9/16"
Model	RMLF 095

Spuds

Type	Square Steel Tube
Size	16" x 16"
Wall thickness	5/16"
Length	40' , 44'

Dredge Pump

Manufacturer	METSO materials
Series	Form 36 LH3V36
Serial Number	100212121
Suction	14"
Discharge	12"
Impeller diameter	36"
Material - Hi-chrome	

CAPACITIES

Fuel	1,800 gal
Hydraulic <i>FILTER</i>	300 gal

CONTROL SYSTEM



Expandable programmable logic controller (PLC) facilitates dredge operation, alarms, logging and custom settings. Rugged solid-state circuits provide reliable trouble free operation. Onboard dredge diagnostics and setup screens provide fast trouble shooting and custom operating parameters.

HYDRAULIC SYSTEM



HYDRAULICS

The dredge hydraulic system consists of three open loop gear pump circuits that consist of the following:

Reservoir including washable suction strainer with magnets, replaceable return filter with dirt indicator, vented fill cap, level gage with probe thermometer, low fluid level switch, suction valves, and anti-wear hydraulic oil.

Cutterhead circuit consisting of a gear pump, a pressure gage, an electro-proportional directional control valve with integral relief valve, and gear motor.

Ladder and spud circuit consisting of a gear pump, a pressure gage, four electro-proportional directional control valves, with integral relief valve, a ladder winch, two spud winches, two relief valves to control free-fall.

Swing circuit consisting of a gear pump, a pressure gage, two electro-proportional directional control valves, with integral relief valve, two swing winches, and two pressure reducing valves and a pilot build up valve.

CUSTOM HYDRAULIC MANIFOLD SYSTEMS

The custom hydraulic manifold systems represent the optimal in reliability and performance. These manifolds (part numbers HD-78, HD-478, HD-479, HD-556, HD-557) use a combination of industry proven components to integrate entire hydraulic systems. Each manifold assembly consists of the aluminum manifold, a system relief valve, one or more electric proportional needle valves, one or more pressure compensated sensing elements, and an electrically controlled directional valve. All of these manifolds include an inlet port "P", an outlet port "T", a regulated port to extend the valve "REG", an inlet pressure gage port "GP", a regulated pressure gage port "RP", and at least one forward and reverse work port "A" and "B". Manifold blocks HD-78, HD-478, and HD-556 are single bank assemblies (one bi-directional function) and HD-479 and HD-557 are four bank assemblies. The four bank assemblies can also include an integral brake release valve that operates at the inlet pressure. Additional ports labeled "BRAKE" and "DRAIN" are used with the brake release valve. Models HD-78 and HD-478 can regulate up to 18 GPM at 3000 psi, models HD-479 and HD-556 can regulate up to 45 GPM at 3000 psi and HD-557 can regulate up to 90 GPM at 3000 psi.

The operation of the manifold is simple. Oil from a hydraulic pump enters the inlet port and is metered across needle valves. The pressure compensated sensing elements pulse from open to close to maintain a constant pressure drop across the needle valves. This insures that a constant flow of oil is available to the directional valves and regulated port regardless of the upstream or downstream oil pressure. Excess oil is diverted to the outlet port. The directional valves control which port, A or B, will get the high pressure oil and which port will exhaust to the outlet. The system relief valve protects against high loads or a valve malfunction. It should be noted that the manifold would not function properly unless both a speed and direction has be selected. Simply put, the needle valve operates like an automobile throttle controlling the speed and the directional valve operates like an automobile transmission controlling the direction of travel.

Additional hydraulic components may be sandwiched between the manifold and directional valves to enhance the performance of certain functions.

Since these manifold valves are of modular construction, troubleshooting is fast and easy. Most commonly, malfunctions occur not because of because of incorrect control input not component failure.

ELECTRICAL SPECIFICATION

The controls in the lever room, and lights in the enclosures, operate on 24VDC service that is supplied from the diesel engines' electrical circuit. The PLC also operates on the same the 24 VDC source. The electric circuits have fuses and switches for the different circuits. The Caterpillar Diesel engine has a 24VDC starter and control circuit. See the Caterpillar Operating and Maintenance Manual for more details about the engine electrical systems.