

PORCUPINE MOUNTAINS LIFT STATION NO. 7

PUMPS

ENGINEER: ROBERTS, BARTOW & ASSOCIATES, INC.

CONTRACTOR: DEVERE CONSTRUCTION

EQUIPMENT FURNISHED BY

MAY 17, 1991  
KENNEDY #716-10303

**ABS PUMPS INC.  
KENNEDY INDUSTRIES INC.**  
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ELECTRIC EQUIPMENT PUMPS TO HAVE 30 FT. CABLE. ONE (1) MDI, ONE (1) DUPLEX  
CONTROL PANEL - DRAWINGS TO FOLLOW.

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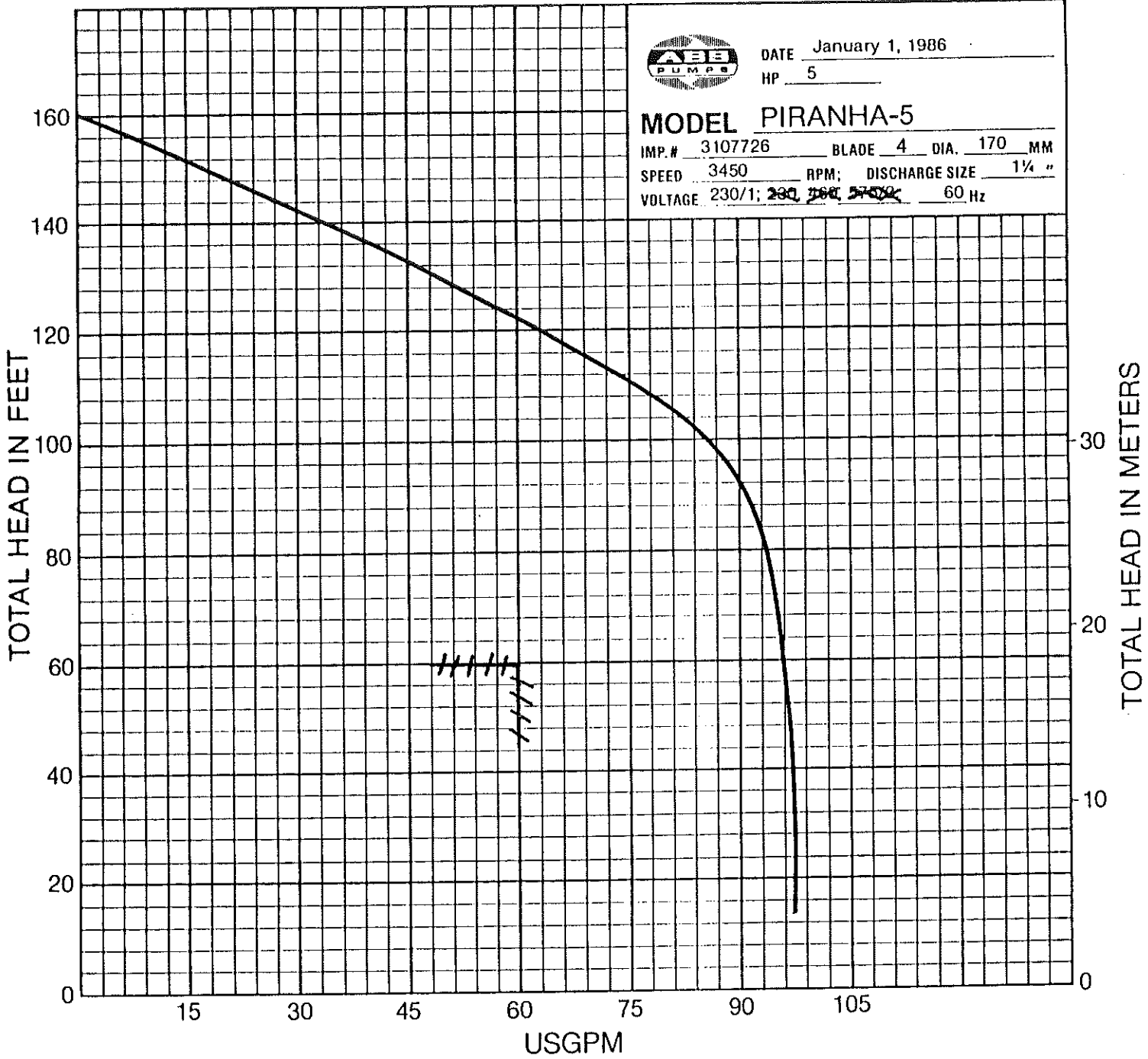
CERTIFIED BY TERRY L. DUPERON



DATE January 1, 1986  
 HP 5

**MODEL PIRANHA-5**

IMP.# 3107726 BLADE 4 DIA. 170 MM  
 SPEED 3450 RPM; DISCHARGE SIZE 1 1/4 "  
 VOLTAGE 230/1; ~~200, 260, 370~~ 60 Hz



\* 60 GPM @ 60' TDH



APPLICATION DATA

MODEL	E2	E2.5	3	4	5			
SHUT OFF HEAD - FT.	95	121	99	115	167			

PUMP WEIGHT

STANDARD	71	73	121	142	159			

PHYSICAL DATA

POWER CABLE - TYPE	HO7RN, Ozoflex or Type SO	
CONTROL CABLE - TYPE	Included in power cable	
CABLE, STANDARD LENGTH	30'	
MATERIALS	MOTOR HOUSING	Cast Iron - ASTM A-48, Class 30
	PUMP CAP	Cast Iron - ASTM A-48, Class 30, Piranha E2, E2.5
	OIL CHAMBER	Cast Iron - ASTM A-48, Class 30
	VOLUTE	Cast Iron - ASTM A-48, Class 30
	IMPELLER	Cast Iron - ASTM A-48, Class 30; bronze, optional
	CUTTER DISC/Rotor	Chrome Molybdenum Cobalt Tool Steel-58-62 Rockwell C
	MOTOR SHAFT	420 SS
	EXTERNAL HARDWARE	304 SS
O-RINGS	Buna N	
MECHANICAL SEAL - TYPE	Lower - Silicone Carbide Upper - Buna N Lip Seal	
UPPER BEARING	Single Row	
LOWER BEARING	E2, E2.5 - Single Row; 3, 4, 5 - Double Row	
DISCHARGE SIZE	1½"	
IMPELLER TYPE	Open, Multivane	





**GENERAL**

Furnish and install 2 Model 5W-EX ABS PIRANHA Grinder Pump(s) to deliver 60 USGPM against a total head of 60 feet. The motor shall be 5 HP 3450 RPM connected for operation on a 230 volt 60 HZ 1 phase service. The motor shall be an integral part of the pumping unit. The pump discharge size shall be 1 1/4".

The grinder unit shall be capable of shearing and reducing to a fine slurry all material normally found in domestic and commercial sewage such as sanitary napkins, disposable diapers, cloth diapers, wash rags, wood, plastic, etc. The slurry shall be capable of freely passing through a 1 1/4" piping system including check and gate valves.

**GRINDER PUMP CONSTRUCTION**

The pump shall be of the centrifugal type with the rotating cutter mounted on the pump shaft directly against the impeller. The stationary cutter shall be mounted in an adjustable bottom plate. The bottom plate shall be cast with grooves threading outward from the center opening of the plate to the outer diameter. The impeller shall be a multiple vane centrifugal type. The cutter material shall be similar to an AISI 440C stainless steel with the addition of cobalt, vanadium, and molybdenum for superior abrasion resistance and a hardness of 58-62 Rockwell C.

The common pump and motor shaft shall be 420 stainless steel supported by a heavy duty lower double row ball bearing Piranha 3, 4 & 5, single row for Piranha E2, E2.5 and an upper sealed single row ball bearing, all models. The cutting elements and impeller shall be designed to keep the overhung load distance to a minimum. All fasteners shall be 304 stainless steel.

**Shaft Seals:** Each pump shall be equipped with two seals. The lower seal (pump side) shall be of the mechanical type with silicone carbide faces. The upper seal shall be a lip type seal mounted at a slight angle to the shaft.

**Seal Failure Warning System:** The seals shall be separated by an oil chamber. An electronic probe shall be provided in the oil chamber to detect the leakage of water into the chamber. A solid-state device mounted in the pump control panel or in a separate enclosure shall send a low voltage, low amperage signal to the probe. If water enters the oil chamber the probe shall activate a warning light in the control panel.

**MOTOR CONSTRUCTION**

The motor shall be of the submersible type rated for 5 HP at 3450 RPM. The full load current shall not exceed 28 amps at 230 volts. Single phase motors shall be of the capacitor start capacitor run type for high starting torque.

The motor shall be airfilled and shall have Class "F" insulation. Bimetallic thermal switches shall be imbedded in each phase of the winding to sense high temperature. The rating of the switch shall be 140°C ±5°C. The control current shall be connected through the bimetallic switches so that the motor is shut down should a high temperature condition exist. The switches shall be self-resetting when the motor cools.



Michigan Department Of Natural Resource Parks Division  
Sewage Pump Station Modifications

Account #607-75-2450-400

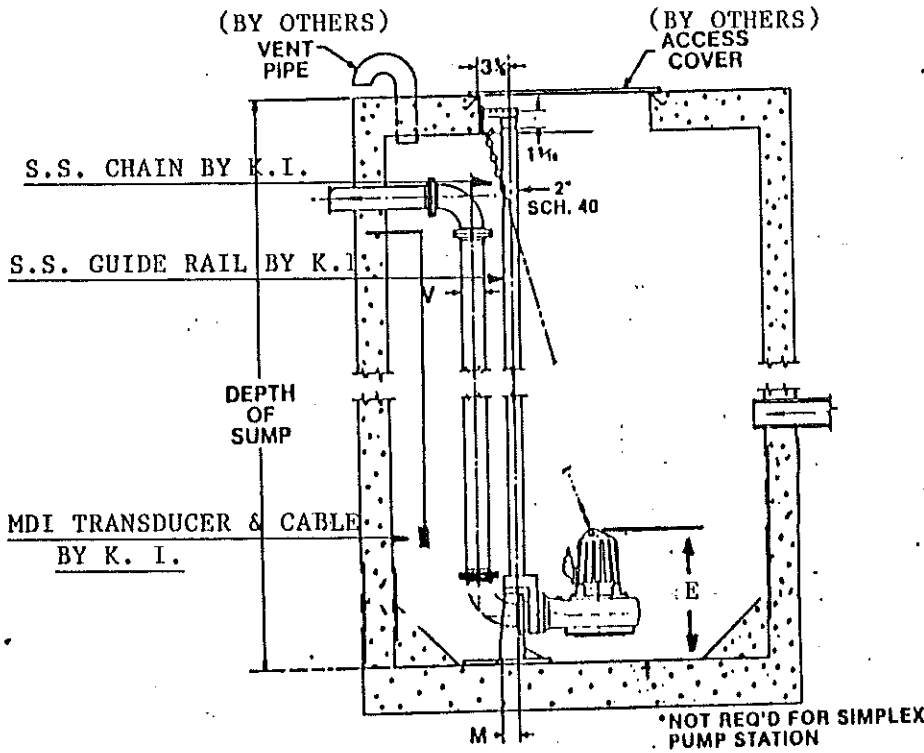
Lift Station #	Location	Sump Depth	Sump Dia.	Height of Pump (From floor to top of pump)	Pump Discharge Size
One	Baraga	16'	6'0"	30.75"	4.0"
Two	Indian Lake	19'1"	6'0"	23.38"	3.0"
Three	Lake Gogebic	12'5"	6'0"	45.00"	4.0"
Four	McClain	7'5"	6'0"	23.38"	3.0"
Five	McClain	6'68"	4'0"	20.56"	1.25"
Six	Muskallonge	13'2"	6'0"	23.38"	3.0"
Seven	Porcupine Mts. Visitors Center	12'18"	6'0"	23.56"	1.25"
Eight	Porcupine Mts. Union Bay New P.S.	11'6"	6'0"	30.75"	4.0"
Nine	Porcupine Mts. Union Bay	11'7"	4'x5.4'	23.38"	3.0"
Eleven	Tahquanemon Falls	11'7"	6'0"	23.38"	3.0"
Twelve	Van Ripper	15'1"	6'0"	23.50"	4.0"

# PUMP STATION DIMENSIONS

SECT. 200

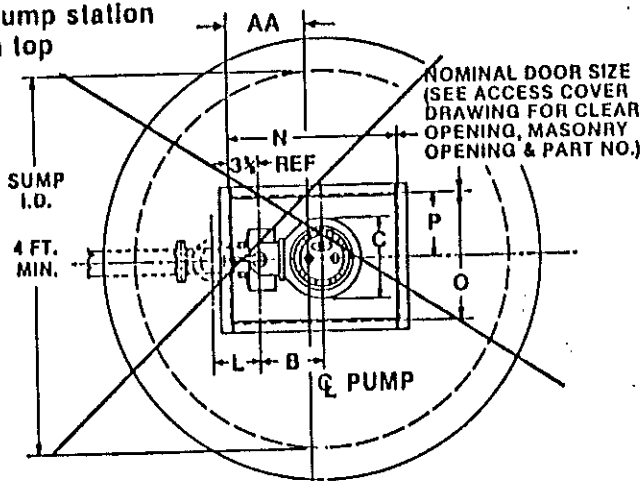
EXPLOSION PROOF

MODEL:



A	10.10	M	1.62
B	12.50	N	30.00
C		O	24.00
D	20.00	P	12.00
E	**	Q	3.00
F	***	R	14.50
G	8.00	S	24.00
H	6.50	T	48.00
I	1.00	U	30.00
J	21.25	V	4.00
K	4.75	AA	9.50
L	7.00	BB	11.50

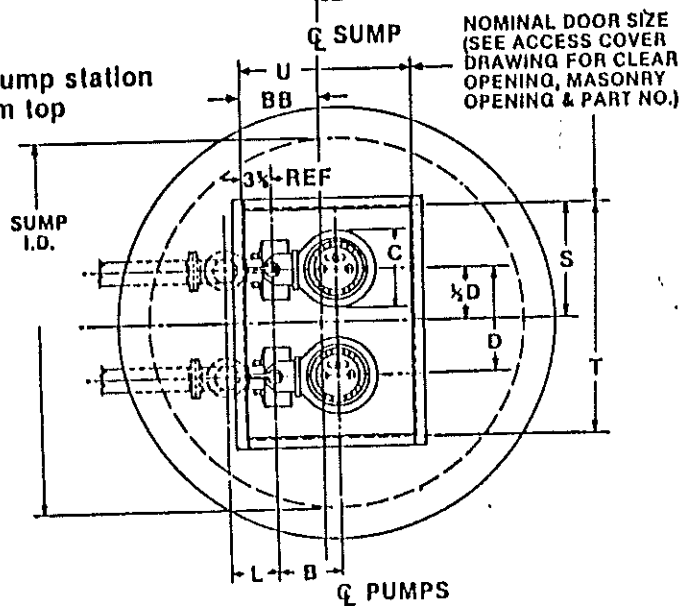
Simplex pump station  
View from top



PLAN VIEW  
LOCATION OF  
ANCHOR BOLTS  
SINGLE PUMP  
STATION

4 ANCHOR BOLTS  
x-11, PROJ. 1 1/2"

Duplex pump station  
View from top



PLAN VIEW  
LOCATION OF  
ANCHOR BOLTS  
DUAL PUMP  
STATION

(BY OTHERS)  
8 ANCHOR BOLTS  
x-11, PROJ. 1 1/2"

# MDI

## MODEL P2DHA

### DUPLEX PUMP, VALVE OR GATE CONTROL

#### WHAT YOU SHOULD KNOW ABOUT THE P2DHA

#### IT IS

##### FULL FUNCTION

Pump, gate, or valve control, automatic alternator and alarm actuation all in one unit from a single source.

##### SIMPLE and INEXPENSIVE TO INSTALL

Field adjustable high and low levels, zero and span.

##### FULLY AUTOMATIC

Once installed the unit independently monitors level for pump-down operation.

##### MAINTENANCE FREE

Solid state design allows you to install, then forget about, the P2DHA. No compressors to monitor. No moving parts to wear, break or foul.

##### SMALL in SIZE

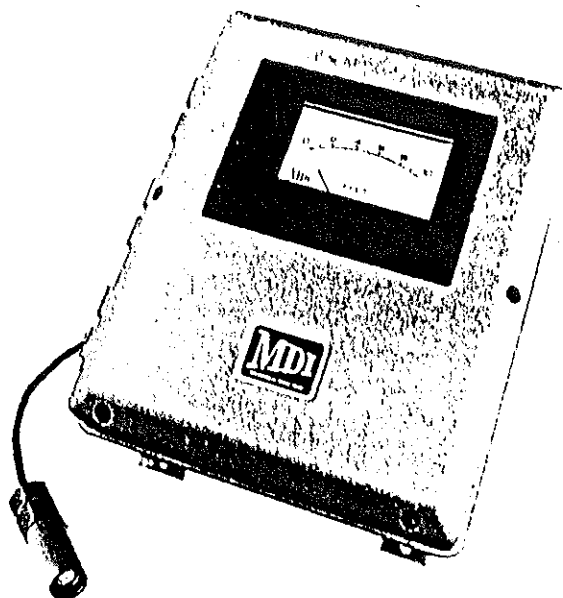
Complete unit, including enclosure, occupies less than 1/2 cubic foot.

##### ADVANCED in DESIGN

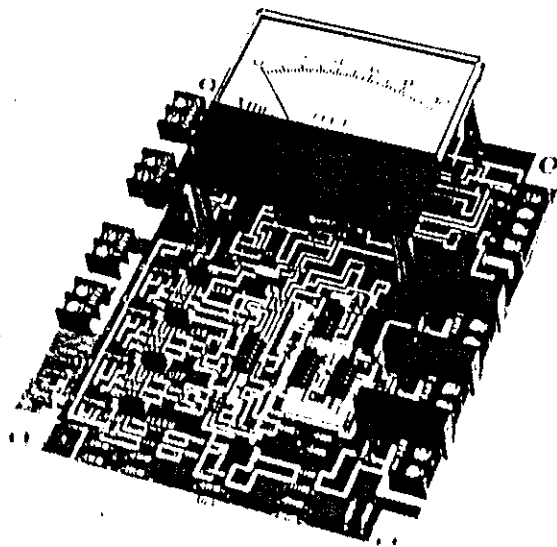
Short-circuit-proof power supply. Directly operates up to NEMA Size 4 magnetic starters.

#### GENERAL DESCRIPTION

**MODEL P2DHA SOLID STATE, FULL FUNCTION PUMP-DOWN DUPLEX PUMP, GATE or VALVE CONTROL COMES STANDARD with HIGH LEVEL ALARM, COMMON OFF POINT, VOLTAGE OUTPUT, ALTERNATION, ALTERNATION DISCONTINUATION and ANALOG INDICATOR. OPTIONS include START-UP TIME DELAY and PUSH-to-TEST features, as well as a NON-METALLIC ENCLOSURE.** It is a complete monitoring, indicating and controlling system which may be mounted on site, or remotely. Design simplicity provides straightforward operation and long term reliability resulting in the industry's best price/performance ratio.



PVC Transducer with affixed cable and enclosure option.



P2DHA solid state circuitry.