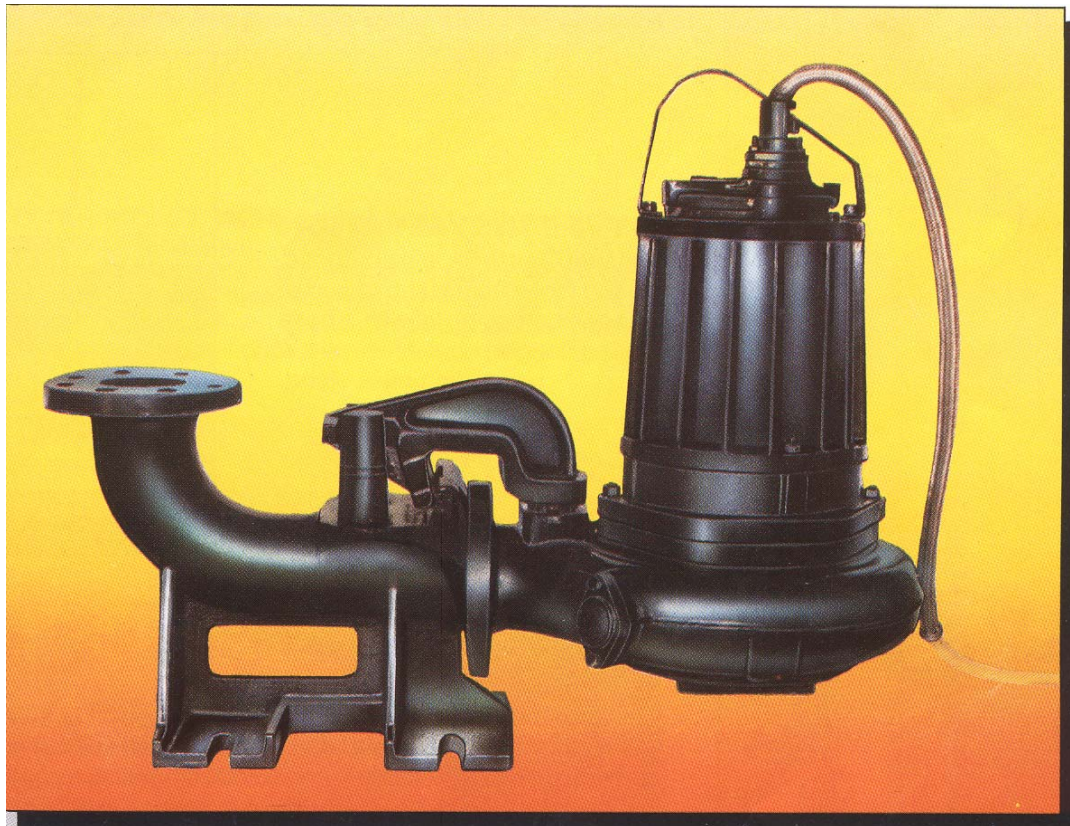




MODELS: MS 475, 480, 481, 482, 483 & 484

**OPERATING INSTRUCTIONS, INSTALLATION & MAINTENANCE
MANUAL INCLUDING SPARE PARTS LIST**



Mody Pumps Inc.

2166 Zeus Court

Bakersfield, CA 93308

Tel.: (661) 392-7600 FAX.: (661) 392-7601

E-Mail: sales@modypump.com

<http://www.modypump.com>



LIFE IS PRECIOUS - THINK SAFETY

1. Most accidents can be avoided by using COMMON SENSE.
2. Please read the operation and maintenance instruction manual supplied with the pump. If you did not receive one, please call your local distributor before pump installation.
3. Do not wear loose apparel that may become entangled in the impeller or other moving parts.
4. Always use appropriate safety equipment, such as safety glasses, when working on the pump or piping.
5. Pumps build up heat and pressure during operation-allow time for pumps to cool before handling or servicing.
6. Only qualified service personnel should install, operate and repair pump.
7. Keep clear of suction and discharge openings. DO NOT insert fingers in pump with power connected.
8. Do not pump flammable or hazardous materials (gasoline, acids, alkalis, etc.)
9. Do not block or restrict discharge hose, as it may whip or burst catastrophically under pressure.
10. Make sure lifting handles/hooks are securely fastened each time before lifting.
11. Do not lift pump by the power cord under any circumstances.
12. Do not exceed manufacturer's recommendation for optimum performance, as this could cause the motor/pump to overheat and lead to premature wear or failure.
13. Secure the pump in its operating position so it does not tip over, fall or slide.
14. Keep away from impeller when power is connected.
15. Submersible Pumps are not approved for use in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pumped fluid is common.
16. Do not operate pump without adequate protection and safety devices in place.
17. Always replace safety devices that have been removed during service or repair.
18. To reduce risk of electrical shock, pump must be properly grounded in accordance with the National Electric Code and all applicable state and local codes and ordinances.
19. To reduce risk of electrical shock, always disconnect the pump from the power source before handling or servicing.
20. Any wiring of pumps should be performed by a qualified electrician.
21. Never operate a pump with a power cord that has frayed or brittle insulation.
22. Cable should be protected at all times to avoid punctures, cuts, and abrasions - inspect frequently.
23. Never handle connected - "hot" power cords with wet hands.
24. Never operate a pump with a plug-in type power cord without a ground fault circuit interrupter, adequate overload and short circuit protection.

IMPORTANT !!! Mody Pumps Inc. is not responsible for losses, injury, or death resulting from a failure to observe these safety precautions, misuse or abuse of pumps or equipment.

GENERAL INFORMATION.

THE "MS" SERIES OF MODY'S SUBMERSIBLE SEWAGE PUMPS ARE PRIMARILY DESIGNED FOR HANDLING SEWAGE, SLUDGE, SLURRIES, WASTEWATER AND LIQUID MANURE. THEY CAN ALSO BE USED FOR HANDLING STORMWATER DRAINAGE WITH HIGH SOLIDS CONTENT.

THE SERVICE LIFE OF A SUBMERSIBLE PUMP PRIMARILY HINGES ON TWO ASPECTS: THE DEPENDABILITY OF THE SEALING SYSTEM AND THE WEAR RESISTANCE OF THE PUMP ITSELF.

THE "MS" SERIES OF PUMPS ARE AVAILABLE WITH A WIDE RANGE OF IMPELLERS TO SUIT PRACTICALLY EVERY PUMPING DUTY WITH HIGH EFFICIENCIES. THE MS 480 SERIES HAS TWO MODELS AS UNDER :

1. MS 481 SINGLE CHANNEL IMPELLER WITH 75MM/3" SOLID HANDLING CAPACITY.
2. MS 482 SINGLE CHANNEL IMPELLER WITH 100MM/4" SOLID HANDLING CAPACITY.

THE SINGLE CHANNEL IMPELLERS ARE IN CAST IRON CONSTRUCTION. THE PUMP VOLUTES ARE ALSO IN CAST IRON WITH SMOOTH PROFILED GEOMETRY FOR CLOG FREE OPERATION AND HIGH EFFICIENCIES. ALL VOLUTES ARE FITTED WITH REPLACEABLE WEAR RINGS.

IT IS IN THE INTEREST OF THE USER THAT HE/SHE GO THROUGH THIS MANUAL IN DETAIL PRIOR TO USING THE PUMP.

TECHNICAL DESCRIPTION.

THE PUMPSET IS IN A MODULAR CONSTRUCTION ENSURING EASY AND SIMPLE SERVICEABILITY. THE MAJOR DESIGN FEATURES ARE AS UNDER:

A] THERMAL PROTECTION : SEE UNDER "MOTOR PROTECTION" .

B] THE MOTOR: A RUGGED ALUMINUM DIE CAST ROTOR, DYNAMICALLY BALANCED TO GRADE 2.5 ACCURACY OF ISO 942. A STAINLESS STEEL SHAFT RUNNING IN TWO DEEP GROOVE BALL BEARINGS. INSULATION CLASS "F" (155 DEGREES CELSIUS). END WINDINGS DULY EPOXY COATED TO PREVENT DETERIORATION OF INSULATION EVEN IN EXTREMELY HUMID CONDITIONS. WINDING WIRE IS DUAL COATED SUITABLE FOR "H" CLASS INSULATION.

C] THE SEAL CHAMBER: THE HEART OF THE "MODY" PUMP. DUAL MECHANICAL SEALS, TUNGSTEN CARBIDE V/S TUNGSTEN CARBIDE SEAL FACES. SECONDARY SEALS OF NITRILE RUBBER AND METAL PARTS IN STAINLESS STEEL, RUNNING IN AN OIL BATH. THE SEALS HAVE BEEN SPECIFICALLY DESIGNED WITH EXTREMELY SHORT WORKING LENGTHS KEEPING IMPELLER OVERHANG TO THE MINIMUM. THIS ENSURES EXTENDED SEAL AND BEARING LIFE.

D] BEARINGS: DOUBLE ROW ANGULAR CONTACT LOWER BEARING, WITH SINGLE ROW DEEP GROOVE UPPER BALL BEARING GREASED FOR LIFE WITH A SPECIAL HIGH TEMPERATURE BEARING GREASE REQUIRING NO PERIODIC MAINTENANCE WHATSOEVER.

E] THE HYDRAULIC ELEMENTS: SINGLE CHANNEL IMPELLERS WITH LARGE SOLID HANDLING CAPACITY. SMOOTH PROFILED VOLUTES FOR HIGH EFFICIENCIES.

F] CABLE GLAND ASSEMBLY: THE PUMP IS SUPPLIED WITH 50' CABLE AS STANDARD. THE CABLE IS AWG #10 SOOW 4 CORE WITH AN OPTION AVAILABLE FOR 7 CORE WHEN THERMAL OVERLOADS AND SEAL PROBE SENSOR ARE REQUIRED. (MODYCAB 8-4/16-3) THE CABLE IS TERMINATED IN THE PUMP AT THE CABLE GLAND. THE GLAND ASSEMBLY SEALS THE CABLE ON THE OUTSIDE SHEATH. A WATER DAM ARRANGEMENT IS ALSO PROVIDED WHICH SEALS THE INDIVIDUAL CORES OF THE CABLE. THIS FEATURE IS UNIQUE AND IS ESSENTIAL TO PREVENT WATER SEEPING THROUGH THE CORES OF THE CABLE INTO THE TERMINAL CHAMBER IN THE EVENT OF A CUT CABLE. THE CABLE IS ALSO SHEATHED FOR THE 1ST ONE METRE LENGTH BY MEANS OF A CABLE GRIP MADE OF STAINLESS STEEL. THIS IS ESSENTIAL TO ENSURE THAT THERE IS NO UNDUE STRAIN ON THE CABLE IF THE PUMP IS PULLED OR LOWERED INADVERTENTLY BY MEANS OF THE CABLE. COMPLETE DETAILS OF THE CABLE GLAND ASSEMBLY ARE SHOWN IN THE DRAWING. AN OPTIONAL TRAILING CABLE CAN ALSO BE PROVIDED FOR SEAL PROBE AND THERMALS.

G] ELECTRICAL INFORMATION : MOTORS ARE DESIGNED TO OPERATE ON SINGLE VOLTAGE AND FREQUENCY. MAXIMUM DEVIATION IN VOLTAGE ALLOWED IS -/+ 6% AND FREQUENCY -/+ 3%. CHECK NAME PLATE FOR OPERATING VOLTAGE AND FREQUENCY. 230/460V DUAL WIRED MOTORS STANDARD IN NORTH AMERICA.

DESIGN PARAMETERS :

- LOWEST LIQUID LEVEL SHOULD BE 0.2 MTRS (8") ABOVE PUMP CASING.
- THE MAXIMUM SUBMERGENCE RECCOMENDED IS 15 METRES.(50')
- THE SPECIFIC GRAVITY OF THE PUMPED FLUID SHOULD NOT EXCEED 1.1.
- MAXIMUM FLUID TEMPERATURE IS 40 DEG. CELSUIS.
- pH OF THE PUMPED FLUID : 6 - 11

INSTALLATION.

PUMPS ARE AVAILABLE FOR THREE TYPES OF INSTALLATION:

P TYPE INSTALLATION: SEMI PERMANENT/WET. PUMPS ARE LOWERED DOWN GUIDE BARS TO AUTOMATICALLY CONNECT TO DISCHARGE PIPING. PLEASE SEE ILLUSTRATION AT END OF MANUAL FOR DETAIL DIMENSIONS AND INSTALLATION.

S TYPE INSTALLATION: PORTABLE/WET. VERSATILE, MULTIPURPOSE, EASY TO INSTALL AND MOVE FROM SUMP TO SUMP. PUMP IS AVAILABLE WITH HOSE/FLANGE TYPE OUTLET CONNECTION AND INDEPENDENT BASE STAND. SEE ILLUSTRATION AT END OF MANUAL.

D TYPE INSTALLATION: THIS IS A DRY WELL INSTALLATION OR IN LINE PUMPING SYSTEMS. FLANGED CONNECTION TO FIXED SUCTION AND DELIVERY PIPELINES. SUITABLE FOR HORIZONTAL OR VERTICAL MOUNTING FOR DRY INSTALLATIONS. POWER LIMITATIONS EXIST FOR CERTAIN MODELS AND EXTERNAL COOLING MAY BE NECESSARY. PLEASE CONTACT FACTORY/SALES IF PUMP IS TO BE USED WITH THIS TYPE OF INSTALLATION.

- CHECK THAT THE SITE VOLTAGE CORRESPONDS WITH THAT OF THE PUMP.
- CHECK THAT FUSES ARE INTACT.
- USE SHORTEST POSSIBLE HOSE OF RECOMMENDED DIMENSION. AVOID SHARP BENDS, CREASES AND CONTRACTIONS. FOR P TYPE AND D TYPE INSTALLATIONS ENSURE ALL ACCESSORIES ARE AVAILABLE BEFORE STARTING INSTALLATION.
- NEVER LIFT OR PULL THE PUMP BY MEANS OF THE CABLE. SUSPEND THE PUMP BY A ROPE/CHAIN OR PREFERABLY PLACE IT ON A SOLID BASE. FOR P TYPE INSTALLATIONS THE REQUISITE CHAIN & TACKLE EQUIPMENT MUST BE AVAILABLE. PLEASE READ OUR PUBLICATION REGARDING "P" TYPE INSTALLATION.
- WIRE THE PUMP TO THE MAINS CORRECTLY. ALWAYS USE A STARTER OR A PANEL BOARD. SEE INSTRUCTIONS UNDER "MOTOR PROTECTION" BELOW.
- WHEN THE PUMP IS ENERGIZED IT WILL KICK, WHICH IS OPPOSITE TO THE DIRECTION OF ROTATION OF THE IMPELLER. SHIFT TWO PHASES IN THE POWER CONNECTION IF THE KICK IS IN THE WRONG DIRECTION. THE CORRECT DIRECTION IS INDICATED ON THE PUMP COVER AT THE TOP OF THE PUMP.
- CHECK LEVEL AND CONDITION OF THE OIL AT SERVICE EVERY SIX MONTHS. IF THE OIL IS EMULSIFIED BY WATER THE SEALS MUST BE REMOVED FROM THE ROTOR SHAFT FOR FURTHER ACTION. THE SHAFT SEAL SHOULD BE CHECKED FOR WEAR EVERY 2500 HRS. OF OPERATION. IF SEAL FACES SHOW ANY SIGNS OF WEAR, THEY SHOULD BE REPLACED.

HRC FUSE RECOMMENDED

MAINS VOLTAGE AT SITE	MS 480	MS 481	MS 482
220 VOLTS 3 PHASE	35 AMPS	40 AMPS	40 AMPS
380 VOLTS 3 PHASE	20 AMPS	25 AMPS	25 AMPS
415 VOLTS 3 PHASE	20 AMPS	25 AMPS	25 AMPS
460 VOLTS 3 PHASE	20 AMPS	25 AMPS	25 AMPS
575 VOLTS 3 PHASE	15 AMPS	20 AMPS	20 AMPS

TROUBLE GUIDE	CAUSE	REMEDY
<u>PUMP DOES NOT START</u>	1.FUSES BLOWN.	1.REPLACE FUSES
	2.CABLE DAMAGED	2.SHORTEN/REPLACE CABLE
	3.NO POWER.	3.CHECK POWER SUPPLY
	4.BLOCKED IMPELLER.	4.CLEAN BOTTOM PARTS.
	5.STATOR WINDING BURNT.	5.REPLACE STATOR.
<u>PUMP STARTS BUT STOPS.</u>	1.BLOCKED IMPELLER.	1.CLEAN BOTTOM PARTS.
	2.IMPELLER ROT.WRONG	2.SHIFT TWO PHASE CONN.
	3.CONNECTED FOR WRONG VOLTAGE.	3.CHECK & RECONNECT.
	4.VOLTAGE TOO LOW/HIGH.	4.APPROACH POWER CO.
	5.LIQUID DENSITY HIGH	5.HIGHER HP REQUIRED.
	6.BI-METAL TRIPS.	6.CHECK CURRENT.
<u>PUMP GIVES TOO LITTLE WATER.</u>	1.IMPELLER ROT.BACKWARD.	1.SHIFT TWO PHASE CONN.
	2.PUMP WORN DOWN.	2.REPLACE IMPELLER.
	3.LONG HOSE AND DIAMETER TOO SMALL.	3.CHECK PRESSURE LOSSES
	4.PRESSURE HEAD TOO HIGH	4.INSTALL BIGGER PUMP.
	5.WEARING RING WORN OUT.	5.REPLACE WEAR RING.

MOTOR PROTECTION

IT IS ESSENTIAL THAT THE PUMP BE USED WITH A STARTER AND PREFERABLY A CONTROL PANEL. PANEL BOARDS INCORPORATING ALL PROTECTIVE DEVICES ARE READILY AVAILABLE, CONTACT SALES. THE FULL LOAD AMPERE RATINGS OF THE TWO MODELS ARE AS PER TABLE BELOW. THE OVERLOAD RELAY IN THE STARTER SHOULD CHOSEN ACCORDINGLY AND AMPERES SET AT THE FULL LOAD SETTING FOR THE PARTICULAR MODEL OF THE PUMP. (DETAILS BELOW ARE FOR 230/460 VOLT PUMPS. CHECK FULL LOAD AMPERES FOR DIFFERENT VOLTAGES ON PUMP NAME PLATE)

<u>MODEL</u>	<u>FULL LOAD AMPERES.</u>
MS 480	11.5 AMPS @ 460V, 23 AMPS @ 220V, 9.2 AMPS @ 575 VOLTS
MS 481	14 AMPS @ 460V, 28 AMPS @ 230V, 11.2 AMPS @ 575 VOLTS
MS 482	14 AMPS @ 460V, 28 AMPS @ 230V, 11.2 AMPS @ 575 VOLTS

POWER CABLE OPTIONS

A) FOUR CORE CABLE

THE PUMP IS SUPPLIED WITH A FOUR CORE CABLE AND THE FUNCTION OF THE SAME IS AS UNDER:

- RED/YELLOW(WHITE)/BLUE(BLACK) ARE THE POWER CORES.
- GREEN CORE IS FOR EARTHING.

B) SIX CORE CABLE

THE PUMP IS SUPPLIED WITH A SIX CORE CABLE AND THE FUNCTION OF THE SAME IS AS UNDER:

- RED/YELLOW(WHITE)/BLUE(BLACK) ARE THE POWER CORES.
- GREEN CORE IS FOR EARTHING.
- ORANGE AND BLUE ARE FOR THERMALS

THREE THERMAL SWITCHES ARE EMBEDDED IN THE MOTOR WINDING OF WHICH TWO ARE CONNECTED IN SERIES. THESE ARE CONNECTED TO THE WHITE CORES OF THE CABLE. THE WHITE CORES OF THE CABLE ARE TO BE CONNECTED IN SERIES WITH THE CONTACTOR COIL OF THE STARTER. THIS IS MOST IMPORTANT.

IN THE EVENT OF OVERHEATING OF THE STATOR WINDING FOR ANY REASON, THE EMBEDDED THERMAL SWITCHES WILL OPEN, CAUSING THE STARTER COIL TO DROP OUT AND ISOLATE THE PUMP UNIT FROM THE MAINS. THESE SWITCHES DO NOT PROVIDE ANY PROTECTION IN THE CASE OF A SHORT CIRCUIT, AND ADEQUATE H.R.C. FUSES SHOULD BE USED FOR SHORT CIRCUIT PROTECTION.

C) MODY CAB SEVEN CORE CABLE

THE PUMP IS SUPPLIED WITH A SEVEN CORE CABLE AND THE FUNCTION OF THE SAME IS AS UNDER:

- RED/WHITE/BLACK ARE THE POWER CORES.
- GREEN CORE IS FOR EARTHING.
- TWO # 16 AWG WHITE CORES ARE FOR THERMALS
- ONE # 16 AWG BLACK CORE IS THE SEAL PROBE SENSOR

THE SEAL PROBE SENSOR NEEDS TO BE WIRED TO AN ABB LLC4 LIQUID LEVEL PROBE SENSOR THAT DETECTS MINUTE AMOUNTS OF FLUID IN THE OIL CHAMBER INSIDE THE CONTROL PANEL. SEE FOLLOWING DIAGRAM.

GENERAL OVERHAUL AND OIL CHECK. (THIS APPLIES TO BOTH MODELS)

TO CARRY OUT A GENERAL OVERHAUL, IT IS ESSENTIAL THAT A COMPLETE SET OF TOOLS BE AVAILABLE AS PER TOOL KIT LIST. (LIST IS AVAILABLE AT THE END OF THE MANUAL). IT IS NOT POSSIBLE TO CONDUCT THE OVERHAUL WITHOUT THE REQUISITE TOOLS.

DIS-ASSEMBLY (REFER DRG.NO.MS/801/803 SHEET 1 & 2) AT END OF MANUAL)

- IT IS MANDATORY THAT ALL "O" RINGS BE REPLACED WHENEVER A PUMP IS OVERHAULED OR DISMANTLED. UNDER NO CIRCUMSTANCES SHOULD OLD "O" RINGS BE USED, EVEN IF THEY SEEM O.K. BE CAREFUL NOT TO SCRATCH SEALING SURFACES. ALWAYS GREASE NEW "O" RINGS BEFORE INSTALLATION.
- ALWAYS ISOLATE THE UNIT FROM ELECTRICAL POWER BEFORE ATTEMPTING ANY OVERHAUL.
- THE TRANSPORTABLE VERSION IS SUPPLIED WITH A PUMP BASE. REMOVE BASE BEFORE ANY FURTHER DIS - ASSEMBLY. THE PERMANENT INSTALLATION VERSION IS SUPPLIED WITH A SLIDING BRACKET FIXED ON THE VOLUTE OF THE PUMP.
- LAY THE PUMP ON ITS SIDE ON A BENCH OR OVER TWO SUPPORTS. TURN THE PUMP SO THAT THE OIL ORIFICE FACES DOWNWARDS. USING AN ALLEN KEY UNSCREW OIL PLUG (36) TO DRAIN OIL FROM THE SEAL CHAMBER. IT IS EASIER TO DRAIN THE OIL IF THE OTHER OIL HOLE CAP SCREW IS ALSO REMOVED. **BE CAREFUL.** IF THE SEAL HAS LEAKED, THE OIL CASING MAY BE UNDER PRESSURE. HOLD A RAG OVER THE OIL PLUG TO PREVENT SPLATTER.
- UNSCREW NUTS (33) AND REMOVE PUMP VOLUTE (19) FROM SEAL HOUSING (17). REMOVE CAP SCREW (25) AND SPRING WASHER (24). REMOVE LOCK WASHER (23) AND SLIDE IMPELLER OF THE MOTOR SHAFT. IF THE IMPELLER IS SLIGHTLY TIGHT USE A WOODEN MALLET TO TAP THE SAME OFF THE SHAFT. REMOVE KEY (28) AND KEEP ASIDE CAREFULLY.
- THE LOWER MECHANICAL SEAL IS LOCKED ON THE SHAFT BY MEANS OF A LOCKING RING (30). THIS RING CAN ONLY BE REMOVED/INSTALLED BY MEANS OF A SPECIAL TOOL SUPPLIED ON REQUEST. (A PICTORIAL REPRESENTATION OF THE INSTALLATION / REMOVAL METHOD IS APPENDED AT THE END OF THE MANUAL.SEE FIG. 1.) READ THE INSTRUCTIONS SUPPLIED WITH THE TOOL CAREFULLY AND REMOVE THE LOCKING RING FROM THE SHAFT. THE MECH. SEAL ASSEMBLY CAN NOW BE REMOVED FROM THE SHAFT BY HAND. BE VERY CAREFUL WITH THE SEALING SURFACES SO THAT THEY DO NOT SUFFER DAMAGE OR GET SCRATCHED IN ANY WAY. LEAVE THE SEAL SEAT IN THE SEAL HOUSING.
- UNSCREW NUTS (4) HOLDING THE SEAL HOUSING AGAINST THE STATOR CASING AND REMOVE SEAL HOUSING. USE A WOODEN MALLET TO TAP OFF THE SAME. THE UPPER MECH. SEAL IS NOW IN VIEW. REMOVE THE SEAL IN EXACTLY THE SAME MANNER AS THE LOWER MECH. SEAL.
- UNSCREW HEX HD BOLTS (38) HOLDING THE LOWER BEARING BRACKET AGAINST THE STATOR CASING. THE COMPLETE ROTOR ASSEMBLY WITH LOWER BEARING BRACKET AND LOWER BEARINGS CAN BE PULLED OUT FROM THE STATOR ASSEMBLY. THE LOWER BEARING BRACKET CAN BE REMOVED FROM THE ROTOR BY REMOVING THE BEARING COVER. THE BEARING CAN NOW BE EXAMINED.

- UNSCREW NUTS (4) HOLDING THE PUMP COVER AND PRY OUT THE SAME. REMOVE THE WIRE CONNECTORS (45 & 46) TO SEPARATE THE POWER CABLE FROM THE MOTOR LEADS. THE WIRE CONNECTORS CAN BE UNSCREWED COUNTER CLOCKWISE TO RELEASE THE SAME. UNSCREW NUT FOR GROMMET (50) AND REMOVE RUBBER GROMMET (49). REMOVE BOLT (47) AND PRY OUT UPPER BEARING BRACKET (8).
- THE STATOR IS NOW AVAILABLE FOR ELECTRICAL CHECKS, IF ANY ARE REQUIRED. WE RECOMMEND MEASURING LINE TO LINE RESISTANCE BETWEEN THE THREE POWER LEGS, A MEGGING TEST AND IF AVAILABLE A HIGH POT.

RE- ASSEMBLY OF THE PUMPSET.

THE PUMP CAN BE RE- ASSEMBLED BY REVERSING THE ABOVE PROCEDURE. PLEASE HOWEVER NOTE THE FOLLOWING:

- ALWAYS REPLACE ELASTOMER ELEMENTS.
- REPLACE LOCK WASHER DURING RE -ASSEMBLY.
- CAREFULLY READ THE SEAL ASSEMBLY INSTALLATION INSTRUCTIONS PAGE.

OIL SPECIFICATIONS

- A) EXXON UNIVOLT 61
- B) SHELL TELLUS 29.
- C) CHEVRON SUPERLA FDA APPROVED # 10

PLEASE NOTE THE SEAL CHAMBER CONTAINS APPROX. 2.5 LITRES OF OIL.

SEAL ASSEMBLY INSTALLATION INSTRUCTIONS.

PLEASE HANDLE THE ROTATING/STATIONARY TUNGSTEN CARBIDE SEAL FACES GENTLY

THE INNER AND OUTER SEAL ARE IDENTICAL. THE ROTATING ELEMENT IS SUPPLIED IN A CARTRIDGE FORM PRE-ASSEMBLED. THE STATIONARY ELEMENT IS PRESSED BY HAND INTO THE CAVITIES OF THE LOWER BEARING BRACKET AND THE SEAL HOUSING. ENSURE THAT THE SEAL SEAT SITS SQUARE IN THE HOUSING AND THE LOCKING PIN IS ENGAGED.

TO MOUNT THE ROTATING ELEMENT GREASE THE SHAFT WITH O RING LUBE PROVIDED IN YOUR SEAL KIT AND SLIDE THE ROTATING ASSEMBLY CARTRIDGE OVER THE SHAFT. MAKE SURE THE ROTATING SEAL FACE IS SQUARE WHEN IT COMES IN CONTACT WITH THE STATIONARY SEAT.

GENTLY TIGHTEN THE SET SCREWS USING THE ALLEN KEY PROVIDED EVENLY. ONCE ALL SCREWS ARE LOCKED ON TO THE SHAFT PULL OUT THE RETAINING CLIPS ON THE ROTATING ASSEMBLY. THIS WILL ALLOW THE ROTATING ASSEMBLY TO ACTIVELY ENGAGE THE STATIONARY SEAT AND THE SHAFT.

FOLLOW THE SAME PROCEDURE FOR THE OUTER SEAL.

PRESSURE CHECK THE OIL CHAMBER WITH APPROXIAMTELY 5 PSI OF AIR THROUGH THE OIL PLUGS AND ROTATE SHAFT GENTLY TO MAKE SURE NO LEAKS ARE PRESENT.

RECOMMENDED SPARES FOR TWO YEARS OPERATION

<u>SR. NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
1	535-017-00	MECHANICAL SEAL	2
2	375-008-66	“O” RING SET	1
3	260-015-66	CABLE GROMMET	1
4	260-031-66	CABLE LEAD GROMMET	1
5	020-011-07	UPPER BEARING	1
6	020-015-07	LOWER BEARING	1
7	300-107-01	IMPELLER (MS 481)* NEW	1
8	300-120-01	IMPELLER (MS 480)	1
9	300-094-01	IMPELLER (MS 482)*	1
10	720-012-80	WEAR RING (MS 480, 481)* NEW	1
11	720-007-80	WEAR RING (MS 482)*	1

*** PLEASE SPECIFY IMPELLER & WEAR-RING PART NUMBERS CORRECTLY**



Pump Monitor Relay



UL FILE #E101681

OPERATION

MADE IN THE U.S.A.

The MPMR provides Motor Over Temperature and Seal Leakage alarm for Mody Submersible Pumps.

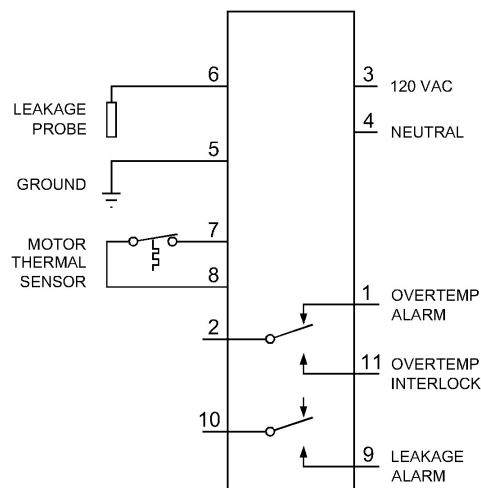
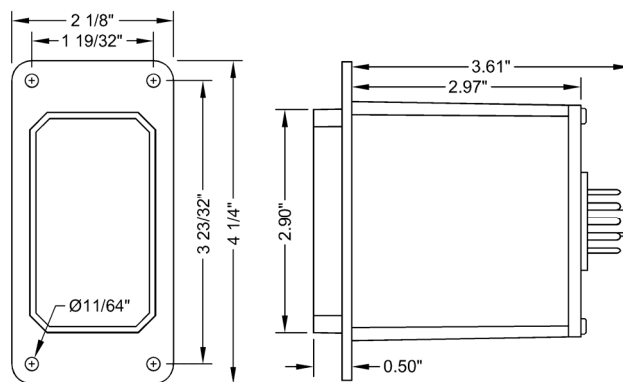
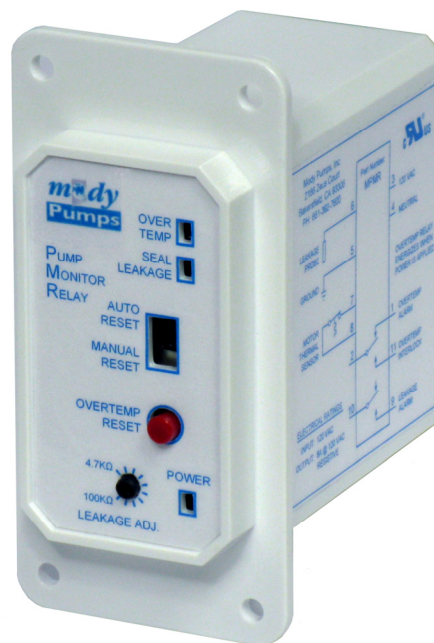
Motor Over Temperature Alarm - The unit applies a low voltage DC signal to the Motor Thermal Sensor to check its status. If the unit detects that the Motor Thermal Sensor contacts are closed (normal condition), the Overtemp indication remains off, and the Overtemp Relay is energized closing the contacts between terminals 2 and 11.

If the Motor Thermal Sensor contacts open (Over Temperature condition), the Overtemp Indication is turned on and the Overtemp Alarm Relay is de-energized opening the contacts between terminals 2 and 11 and closing the contacts between terminals 2 and 1.

When the High Motor Temperature condition has cleared, the unit will reset based on the position of Alarm Reset Mode Select Switch (Auto or Manual). When in the Auto position, the Overtemp Alarm resets automatically. If the switch is in the Manual position, the Overtemp Reset Push-button must be pushed for approximately 1.5 seconds to clear the alarm.

Seal Leakage Alarm - The unit applies a low voltage AC signal to the Leakage Probe to detect moisture in the pump motor. A Seal Leakage condition is considered present when the amount of moisture in the motor causes the resistance between the Leakage Probe and the motor housing to drop below the setting on the potentiometer. When this occurs the unit turns on the Leakage Indication and energizes the Leakage Alarm Relay closing the contacts between terminals 9 and 10.

The alarm trip point may be set by the following procedure: Isolate the Leakage Probe from terminal 6. Connect a resistor, with the desired trip value, across terminals 5 and 6. Slowly adjust the potentiometer to the point where the alarm turns on. Remove the resistor and reconnect the Leakage Probe to terminal 6.



SPECIFICATIONS

Input Power:	120 VAC ±10%, 7.0 VA max
Output Rating:	8A Resistive @ 120VAC
Operating Temp:	-20°C to +65 °C
Storage Temp:	-45°C to +85 °C
Temp Sensor Voltage:	6.6 VDC ±10%
Leak Sensor Voltage:	4.7 VAC ±10%
Enclosure:	White Lexan, NEMA 1
Base:	Phenolic

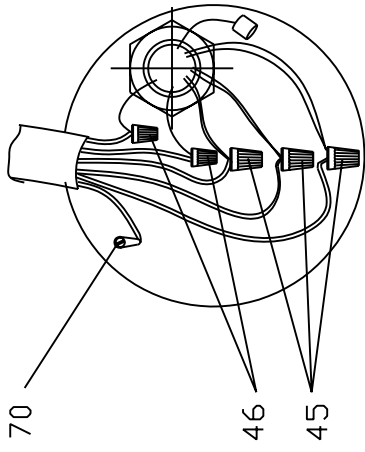
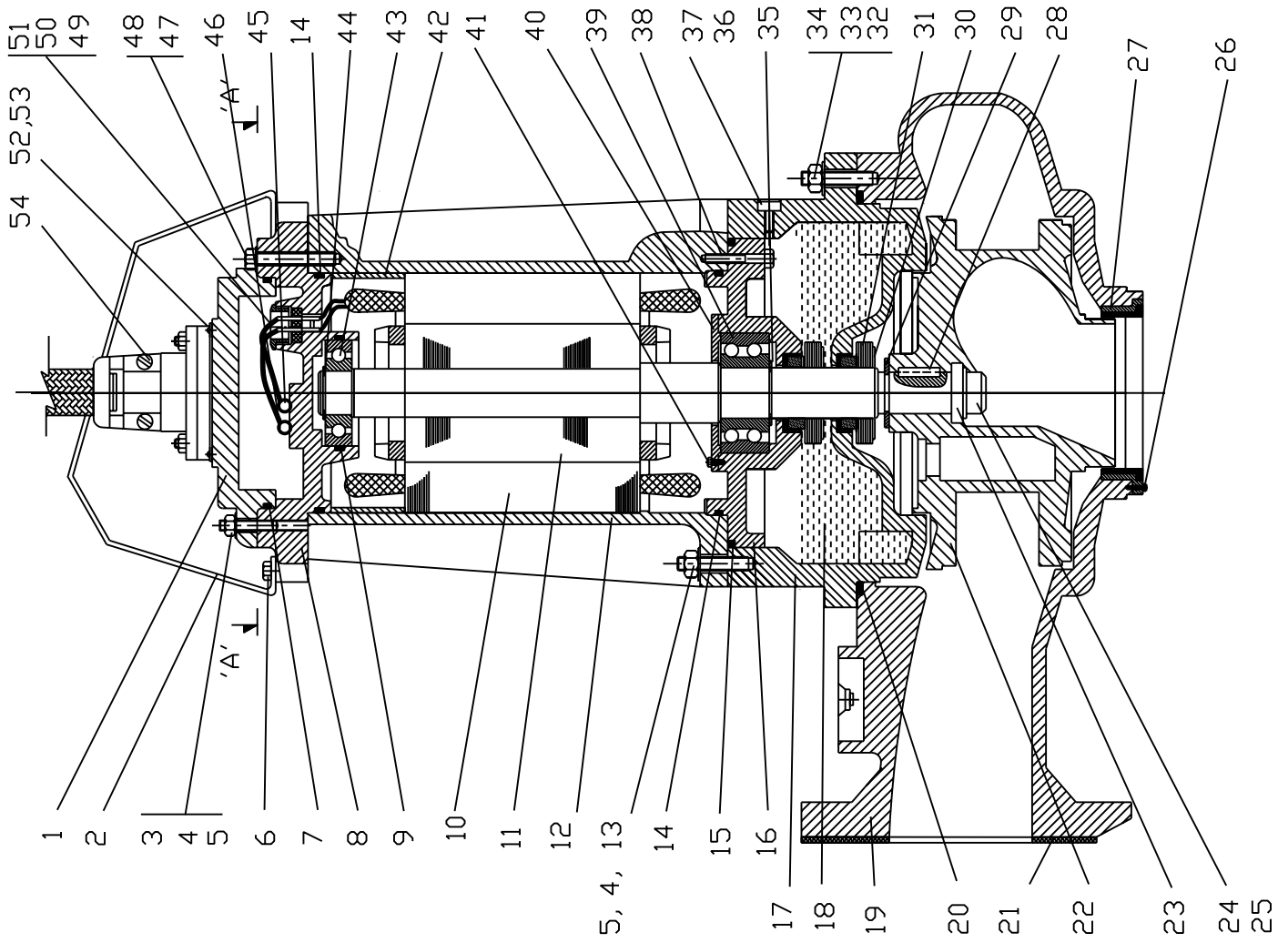
ORDERING INFORMATION

Part Number: 660-900-00

Mody Pumps, Inc. • 2166 Zeus Court, Bakersfield, CA 93308 USA

Tel. (661) 392-7600 Fax: 661-392-7601

www.modypump.com email: sales@modypump.com



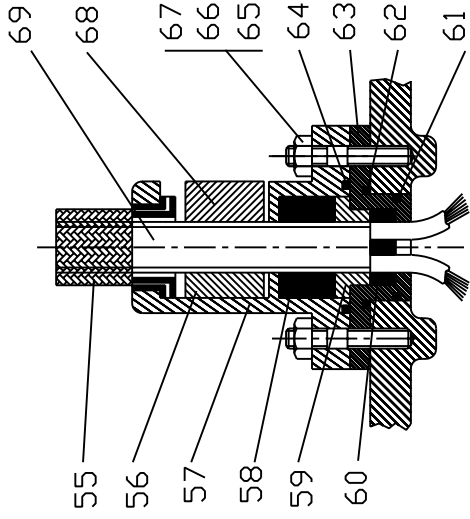
VIEW AT ARROW 'A-A'



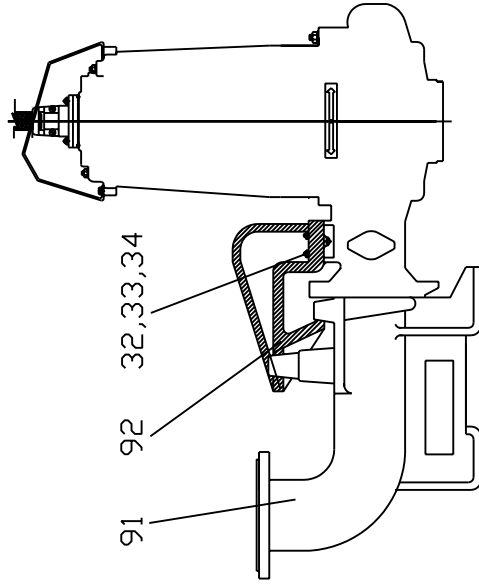
Mody Pumps Inc.
 2166 Zeus Court
 Bakersfield, CA 93308 USA
 Tel.: 661-392-7600 Fax: 661-392-7601
 www.modypump.com

DRN.	D.M.GUTAL	NAME	DATE
CHD.			24-6-2001
APPD.			

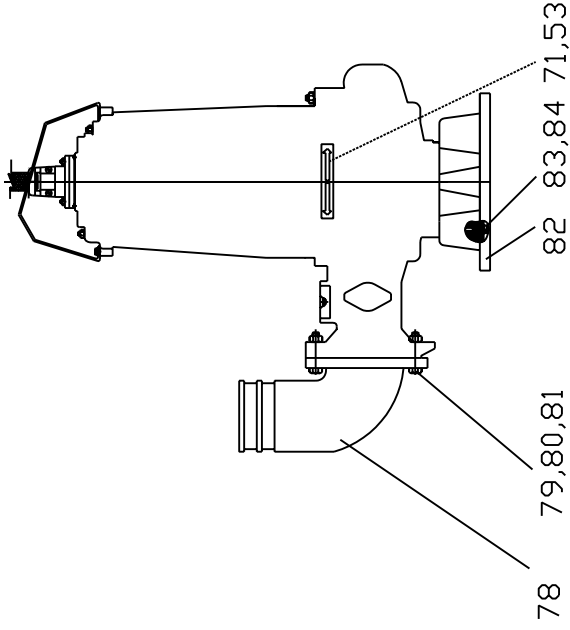
TITLE:	SECTIONAL ASSY. DRG. OF	DRAWING No.	VER.	REV.
	MODY SEWAGE PUMP	MS/801/00	1.1	05
TYPE	MS-481			



CABLE GLAND ASSY.



PERMANENT INSTALLATION (WT.:225 KG.)



TRANSPORTABLE VERSION (WT.:185 KG.)



Mody Pumps Inc.
2166 Zeus Court
Bakersfield, CA 93308 USA
Tel.: 661-392-7600 Fax: 661-392-7601
www.modypump.com

TYPE	TITLE:	DRN.	NAME	DATE
MS-481	SECTIONAL ASSY. DRG. OF	D.M.GUTAL	D.M.GUTAL	25-6-201
	MODY SEWAGE PUMP	CHD.		
		APPD.		
		DRAWING No.	VER. REV	
		MS/801/00	1.1	05

PUMP MODEL MS-481 VER 1.2

D.NO.	PART NO.	DESCRIPTION	QTY
1	105-009-01	PUMP COVER	1
2	270-008-21	HANDLE	1
3	650-024-21	STUD	4
4	370-008-21	HEX NUT	8
5	700-006-21	WASHER	6
6	045-019-21	HEX HD BOLT	2
7	380-026-66	"O" RING	1
8	035-033-01	UPPER BEARING BRACKET	1
9	380-813-66	"O" RING	1
10	619-039-00	BARE STATOR (230/460v)	1
11	480-052-00	ROTOR COMPLETE	1
12	625-027-01	STATOR CASING	1
13	650-020-21	STUD	4
14	380-054-66	"O" RING	2
15	380-059-66	"O" RING	1
16	035-034-01	LOWER BEARING BRACKET	1
17	545-012-01	SEAL HOUSING	1
18	395-005-93	OIL	2.5L
19	050-026-01	PUMP VOLUTE	1
20	380-037-66	"O" RING	1
21	220-017-68	GASKET	1
22a	300-107-01	IMPELLER 60HZ	1
22b	300-118-01	IMPELLER 60HZ (TRIMMED)	1
23	600-044-21	LOCKING SPACER	1
24	705-005-21	SPRING WASHER	1
25	520-006-21	CAP SCREW	1
26	045-022-21	HEX HD BOLT	4
27	720-012-80	WEAR RING	1
28	320-022-22	KEY	1
29	600-062-21	TRIMMING SPACER	AS REQD
30	550-022-08	LOCKING RING	2
31	535-017-00	MECHANICAL SEAL	2
32	650-044-21	STUD	10
33	370-009-21	HEX NUT	10
34	700-008-21	WASHER	10
35	080-008-08	CIRCLIP	1
36	520-002-21	OIL PLUG	3
37	380-001-66	"O" RING	3
38	045-010-21	HEX HD BOLT	4
39	020-015-07	LOWER BEARING	1
40	037-007-30	BEARING COVER	1
41	045-004-21	HEX HD BOLT	4
42	600-059-04	SPACER FOR STATOR	1
43	020-011-07	UPPER BEARING	1
44	080-006-08	CIRCLIP	1
45	365-027-00	WIRE NUT CONNECTOR	2
46	365-026-00	WIRE NUT CONNECTOR	3
47	045-029-21	HEX HD BOLT	4
48	700-006-21	WASHER	4
49	260-019-66	STATOR LEAD GROMMET	1

PUMP MODEL MS-481 VER 1.2

D.NO.	PART NO.	DESCRIPTION	QTY
50	365-010-40	NUT FOR GROMMET	1
51	710-008-21	WASHER FOR LEAD GROMMET	1
52	350-020-21	NAME PLATE	1
53	465-006-11	RIVET	4
54	525-022-21	PH.PAN HD SCREW	2
55	660-093-00	CABLE GRIP (order with gland)	1
56	662-002-45	CABLE SUPPORT	1
57	660-093-00	CABLE GLAND (order with grip)	1
58a	260-015-66	CABLE GROMMET 4 CORE CABLE (460v)	1
58b	260-017-66	CABLE GROMMET 6 CORE CABLE (460v)	1
59	600-018-40	GLAND SPACER	1
60a	260-081-66	CABLE LEAD GROMMET 4 CORE CABLE	1
60b	260-042-66	CABLE LEAD GROMMET 6 CORE CABLE	1
61	380-010-66	"O" RING	1
62	380-007-66	"O" RING	1
63a	235-005-01	CABLE GLAND BASE 4 CORE CABLE	1
63b	235-009-21	CABLE GLAND BASE 6 CORE CABLE	1
64	380-005-66	"O" RING	1
65	650-013-21	STUD	2
66	370-006-21	HEX NUT	2
67	700-004-21	WASHER	2
68	085-022-21	CABLE CLAMP	1
69a	065-016-79	CABLE 4 CORE	50'
69b	065-025-79	CABLE 6 CORE	50'
69c	08-4/16-3	CABLE 7 CORE	50'
70	525-007-40	EARTHING SCREW	1
71	430-015-01	CAP FOR VOLUTE	1
72	220-027-66	GASKET	1
73	375-008-66	"O" RING SET	1

PORTABLE VERSION

78	405-043-01	OUTLET 4" (optional)	1
79	045-026-21	HEX HD BOLT	8
80	700-010-21	WASHER	16
81	370-015-21	HEX NUT	8
82	030-028-01	BASE	1
83	700-008-21	WASHER	4
84	045-037-21	HEX HD BOLT	4

PERMANENT INSTALLATION

91a	095-015-01	DISCHARGE CONN. ANSI	1
91b	095-013-01	DISCHARGE CONN. BS	1
92	095-014-01	SLIDING BRACKET	1

PUMP MODEL MS-480 VER 1.2

D.NO.	PART NO.	DESCRIPTION	QTY
1	105-009-01	PUMP COVER	1
2	270-008-21	HANDLE	1
3	650-024-21	STUD	4
4	370-008-21	HEX NUT	8
5	700-006-21	WASHER	6
6	045-019-21	HEX HD BOLT	2
7	380-026-66	"O" RING	1
8	035-033-01	UPPER BEARING BRACKET	1
9	380-813-66	"O" RING	1
10	619-056-00	BARE STATOR (230/460v)	1
11	480-075-00	ROTOR COMPLETE	1
12	625-027-01	STATOR CASING	1
13	650-020-21	STUD	4
14	380-054-66	"O" RING	2
15	380-059-66	"O" RING	1
16	035-034-01	LOWER BEARING BRACKET	1
17	545-012-01	SEAL HOUSING	1
18	395-005-93	OIL	2.5L
19	050-026-01	PUMP VOLUTE	1
20	380-037-66	"O" RING	1
21	220-017-68	GASKET	1
22	300-120-01	IMPELLER 60HZ	1
23	600-044-21	LOCKING SPACER	1
24	705-005-21	SPRING WASHER	1
25	520-009-21	CAP SCREW	1
26	045-022-21	HEX HD BOLT	4
27	720-012-80	WEAR RING	1
28	320-022-22	KEY	1
29	600-062-21	TRIMMING SPACER	AS REQD
30	550-022-08	LOCKING RING	2
31	535-017-00	MECHANICAL SEAL	2
32	650-044-21	STUD	10
33	370-009-21	HEX NUT	10
34	700-008-21	WASHER	10
35	080-008-08	CIRCLIP	1
36	520-002-21	OIL PLUG	3
37	380-001-66	"O" RING	3
38	045-010-21	HEX HD BOLT	4
39	020-015-07	LOWER BEARING	1
40	037-007-30	BEARING COVER	1
41	045-004-21	HEX HD BOLT	4
42	600-059-04	SPACER FOR STATOR	1
43	020-011-07	UPPER BEARING	1
44	080-006-08	CIRCLIP	1
45	365-027-00	WIRE NUT CONNECTOR	2
46	365-026-00	WIRE NUT CONNECTOR	3
47	045-029-21	HEX HD BOLT	4
48	700-006-21	WASHER	4
49	260-019-66	STATOR LEAD GROMMET	1

PUMP MODEL MS-475 VER 1.0

D.NO.	PART NO.	DESCRIPTION	QTY
1	105-009-01	PUMP COVER	1
2	270-008-21	HANDLE	1
3	650-024-21	STUD	4
4	370-008-21	HEX NUT	8
5	700-006-21	WASHER	6
6	045-019-21	HEX HD BOLT	2
7	380-026-66	"O" RING	1
8	035-033-01	UPPER BEARING BRACKET	1
9	380-813-66	"O" RING	1
10	619-056-00	BARE STATOR (230/460v)	1
11	480-075-00	ROTOR COMPLETE	1
12	625-027-01	STATOR CASING	1
13	650-020-21	STUD	4
14	380-054-66	"O" RING	2
15	380-059-66	"O" RING	1
16	035-034-01	LOWER BEARING BRACKET	1
17	545-012-01	SEAL HOUSING	1
18	395-005-93	OIL	2.5L
19	050-052-01	PUMP VOLUTE	1
20	380-037-66	"O" RING	1
21	220-017-68	GASKET	1
22	300-133-01	IMPELLER 60HZ	1
23	600-044-21	LOCKING SPACER	1
24	705-005-21	SPRING WASHER	1
25	520-009-21	CAP SCREW	1
26	045-022-21	HEX HD BOLT	4
27	720-007-80	WEAR RING	1
28	320-022-22	KEY	1
29	600-062-21	TRIMMING SPACER	AS REQD
30	550-022-08	LOCKING RING	2
31	535-017-00	MECHANICAL SEAL	2
32	650-044-21	STUD	10
33	370-009-21	HEX NUT	10
34	700-008-21	WASHER	10
35	080-008-08	CIRCLIP	1
36	520-002-21	OIL PLUG	3
37	380-001-66	"O" RING	3
38	045-010-21	HEX HD BOLT	4
39	020-015-07	LOWER BEARING	1
40	037-007-30	BEARING COVER	1
41	045-004-21	HEX HD BOLT	4
42	600-059-04	SPACER FOR STATOR	1
43	020-011-07	UPPER BEARING	1
44	080-006-08	CIRCLIP	1
45	365-027-00	WIRE NUT CONNECTOR	2
46	365-026-00	WIRE NUT CONNECTOR	3
47	045-029-21	HEX HD BOLT	4
48	700-006-21	WASHER	4
49	260-019-66	STATOR LEAD GROMMET	1

PUMP MODEL MS-475 VER 1.0

D.NO.	PART NO.	DESCRIPTION	QTY
50	365-010-40	NUT FOR GROMMET	1
51	710-008-21	WASHER FOR LEAD GROMMET	1
52	350-020-21	NAME PLATE	1
53	465-006-11	RIVET	4
54	525-022-21	PH.PAN HD SCREW	2
55	660-093-00	CABLE GRIP (order with gland)	1
56	662-002-45	CABLE SUPPORT	1
57	660-093-00	CABLE GLAND (order with grip)	1
58a	260-015-66	CABLE GROMMET 4 CORE CABLE (460v)	1
58b	260-017-66	CABLE GROMMET 6 CORE CABLE (460v)	1
59	600-018-40	GLAND SPACER	1
60a	260-081-66	CABLE LEAD GROMMET 4 CORE CABLE	1
60b	260-042-66	CABLE LEAD GROMMET 6 CORE CABLE	1
61	380-010-66	"O" RING	1
62	380-007-66	"O" RING	1
63a	235-005-01	CABLE GLAND BASE 4 CORE CABLE	1
63b	235-009-21	CABLE GLAND BASE 6 CORE CABLE	1
64	380-005-66	"O" RING	1
65	650-013-21	STUD	2
66	370-006-21	HEX NUT	2
67	700-004-21	WASHER	2
68	085-022-21	CABLE CLAMP	1
69a	065-016-79	CABLE 4 CORE	50'
69b	065-025-79	CABLE 6 CORE	50'
69c	08-4/16-3	CABLE 7 CORE	50'
70	525-007-40	EARTHING SCREW	1
71	430-015-01	CAP FOR VOLUTE	1
72	220-027-66	GASKET	1
73	375-008-66	"O" RING SET	1

PORTABLE VERSION

78	405-043-01	OUTLET 4" (optional)	1
79	045-026-21	HEX HD BOLT	8
80	700-010-21	WASHER	16
81	370-015-21	HEX NUT	8
82	030-018-01	BASE	1
83	700-008-21	WASHER	4
84	045-037-21	HEX HD BOLT	4

PERMANENT INSTALLATION

91a	095-015-01	DISCHARGE CONN. ANSI	1
91b	095-013-01	DISCHARGE CONN. BS	1
92	095-014-01	SLIDING BRACKET	1

PUMP MODEL MS-480 VER 1.2

D.NO.	PART NO.	DESCRIPTION	QTY
50	365-010-40	NUT FOR GROMMET	1
51	710-008-21	WASHER FOR LEAD GROMMET	1
52	350-020-21	NAME PLATE	1
53	465-006-11	RIVET	4
54	525-022-21	PH.PAN HD SCREW	2
55	660-093-00	CABLE GRIP (order with gland)	1
56	662-002-45	CABLE SUPPORT	1
57	660-093-00	CABLE GLAND (order with grip)	1
58a	260-015-66	CABLE GROMMET 4 CORE CABLE (460v)	1
58b	260-017-66	CABLE GROMMET 6 CORE CABLE (460v)	1
59	600-018-40	GLAND SPACER	1
60a	260-081-66	CABLE LEAD GROMMET 4 CORE CABLE	1
60b	260-042-66	CABLE LEAD GROMMET 6 CORE CABLE	1
61	380-010-66	"O" RING	1
62	380-007-66	"O" RING	1
63a	235-005-01	CABLE GLAND BASE 4 CORE CABLE	1
63b	235-009-21	CABLE GLAND BASE 6 CORE CABLE	1
64	380-005-66	"O" RING	1
65	650-013-21	STUD	2
66	370-006-21	HEX NUT	2
67	700-004-21	WASHER	2
68	085-022-21	CABLE CLAMP	1
69a	065-016-79	CABLE 4 CORE	50'
69b	065-025-79	CABLE 6 CORE	50'
69c	08-4/16-3	CABLE 7 CORE	50'
70	525-007-40	EARTHING SCREW	1
71	430-015-01	CAP FOR VOLUTE	1
72	220-027-66	GASKET	1
73	375-008-66	"O" RING SET	1

PORTABLE VERSION

78	405-043-01	OUTLET 4" (optional)	1
79	045-026-21	HEX HD BOLT	8
80	700-010-21	WASHER	16
81	370-015-21	HEX NUT	8
82	030-028-01	BASE	1
83	700-008-21	WASHER	4
84	045-037-21	HEX HD BOLT	4

PERMANENT INSTALLATION

91a	095-015-01	DISCHARGE CONN. ANSI	1
91b	095-013-01	DISCHARGE CONN. BS	1
92	095-014-01	SLIDING BRACKET	1

PUMP MODEL MS-484 VER 1.0

D.NO.	PART NO.	DESCRIPTION	QTY
1	105-009-01	PUMP COVER	1
2	270-008-21	HANDLE	1
3	650-024-21	STUD	4
4	370-008-21	HEX NUT	8
5	700-006-21	WASHER	6
6	045-019-21	HEX HD BOLT	2
7	380-026-66	"O" RING	1
8	035-033-01	UPPER BEARING BRACKET	1
9	380-813-66	"O" RING	1
10	619-039-00	BARE STATOR (230/460v)	1
11	480-052-00	ROTOR COMPLETE	1
12	625-027-01	STATOR CASING	1
13	650-020-21	STUD	4
14	380-054-66	"O" RING	2
15	380-059-66	"O" RING	1
16	035-034-01	LOWER BEARING BRACKET	1
17	545-012-01	SEAL HOUSING	1
18	395-005-93	OIL	2.5L
19	050-052-01	PUMP VOLUTE	1
20	380-037-66	"O" RING	1
21	220-017-68	GASKET	1
22	300-121-01	IMPELLER 60HZ	1
23	600-044-21	LOCKING SPACER	1
24	705-005-21	SPRING WASHER	1
25	520-009-21	CAP SCREW	1
26	045-022-21	HEX HD BOLT	4
27	720-007-80	WEAR RING	1
28	320-022-22	KEY	1
29	600-062-21	TRIMMING SPACER	AS REQD
30	550-022-08	LOCKING RING	2
31	535-017-00	MECHANICAL SEAL	2
32	650-044-21	STUD	10
33	370-009-21	HEX NUT	10
34	700-008-21	WASHER	10
35	080-008-08	CIRCLIP	1
36	520-002-21	OIL PLUG	3
37	380-001-66	"O" RING	3
38	045-010-21	HEX HD BOLT	4
39	020-015-07	LOWER BEARING	1
40	037-007-30	BEARING COVER	1
41	045-004-21	HEX HD BOLT	4
42	600-059-04	SPACER FOR STATOR	1
43	020-011-07	UPPER BEARING	1
44	080-006-08	CIRCLIP	1
45	365-027-00	WIRE NUT CONNECTOR	2
46	365-026-00	WIRE NUT CONNECTOR	3
47	045-029-21	HEX HD BOLT	4
48	700-006-21	WASHER	4
49	260-019-66	STATOR LEAD GROMMET	1

PUMP MODEL MS-484 VER 1.0

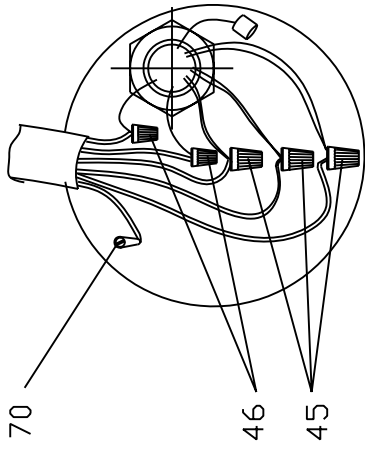
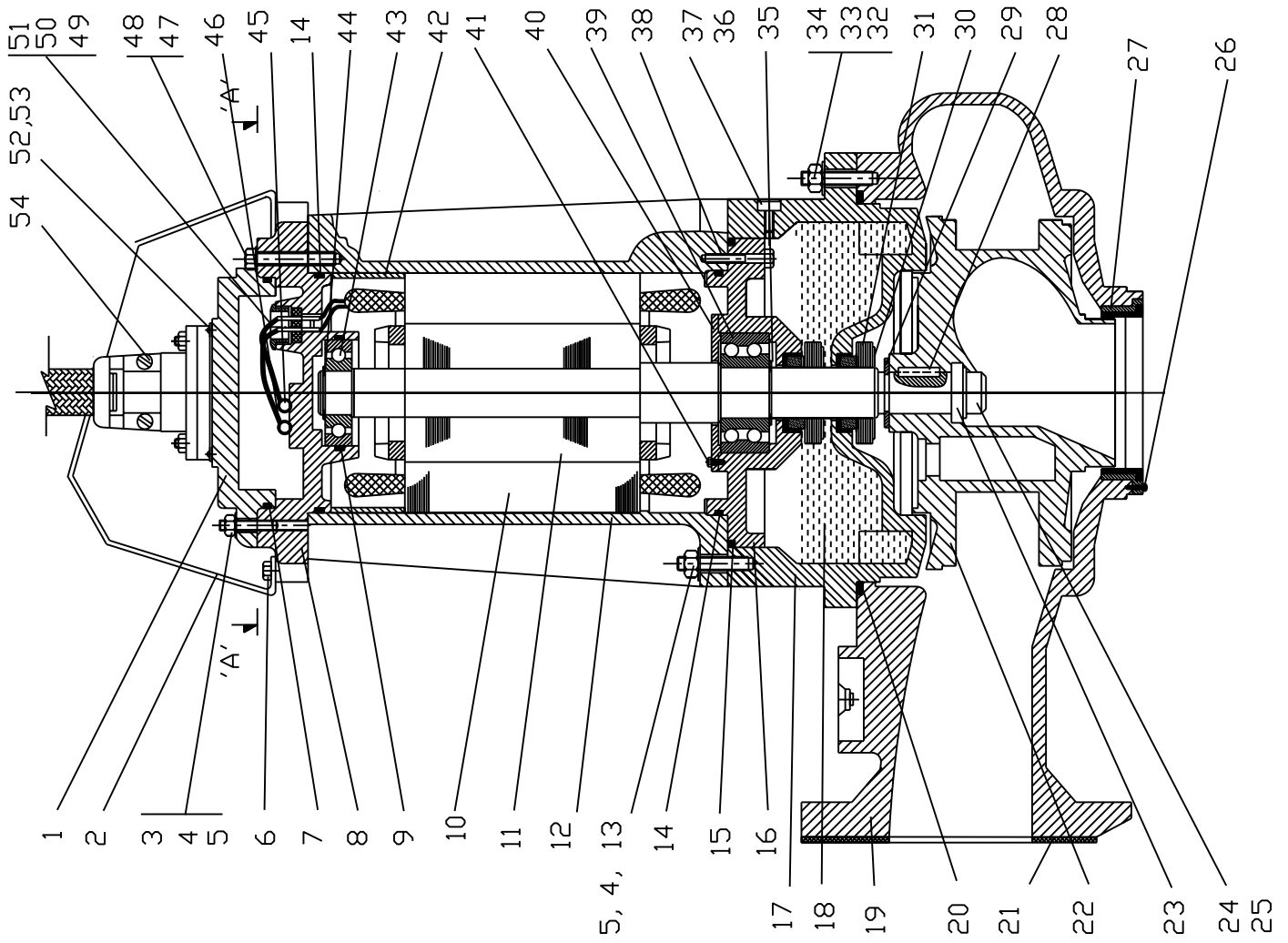
D.NO.	PART NO.	DESCRIPTION	QTY
50	365-010-40	NUT FOR GROMMET	1
51	710-008-21	WASHER FOR LEAD GROMMET	1
52	350-020-21	NAME PLATE	1
53	465-006-11	RIVET	4
54	525-022-21	PH.PAN HD SCREW	2
55	660-093-00	CABLE GRIP (order with gland)	1
56	662-002-45	CABLE SUPPORT	1
57	660-093-00	CABLE GLAND (order with grip)	1
58a	260-015-66	CABLE GROMMET 4 CORE CABLE (460v)	1
58b	260-017-66	CABLE GROMMET 6 CORE CABLE (460v)	1
59	600-018-40	GLAND SPACER	1
60a	260-081-66	CABLE LEAD GROMMET 4 CORE CABLE	1
60b	260-042-66	CABLE LEAD GROMMET 6 CORE CABLE	1
61	380-010-66	"O" RING	1
62	380-007-66	"O" RING	1
63a	235-005-01	CABLE GLAND BASE 4 CORE CABLE	1
63b	235-009-21	CABLE GLAND BASE 6 CORE CABLE	1
64	380-005-66	"O" RING	1
65	650-013-21	STUD	2
66	370-006-21	HEX NUT	2
67	700-004-21	WASHER	2
68	085-022-21	CABLE CLAMP	1
69a	065-016-79	CABLE 4 CORE	50'
69b	065-025-79	CABLE 6 CORE	50'
69c	08-4/16-3	CABLE 7 CORE	50'
70	525-007-40	EARTHING SCREW	1
71	430-015-01	CAP FOR VOLUTE	1
72	220-027-66	GASKET	1
73	375-008-66	"O" RING SET	1

PORTABLE VERSION

78	405-043-01	OUTLET 4" (optional)	1
79	045-026-21	HEX HD BOLT	8
80	700-010-21	WASHER	16
81	370-015-21	HEX NUT	8
82	030-018-01	BASE	1
83	700-008-21	WASHER	4
84	045-037-21	HEX HD BOLT	4

PERMANENT INSTALLATION

91a	095-015-01	DISCHARGE CONN. ANSI	1
91b	095-013-01	DISCHARGE CONN. BS	1
92	095-014-01	SLIDING BRACKET	1



VIEW AT ARROW 'A-A'

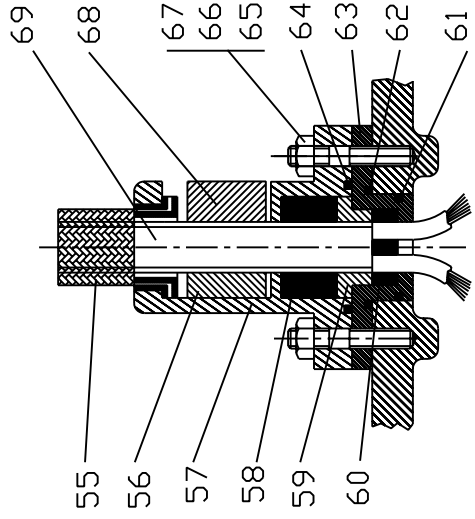


Moddy Pumps Inc.
 2166 Zeus Court
 Bakersfield, CA 93308 USA
 Tel.: 661-392-7600 Fax: 661-392-7601
 www.moddypump.com

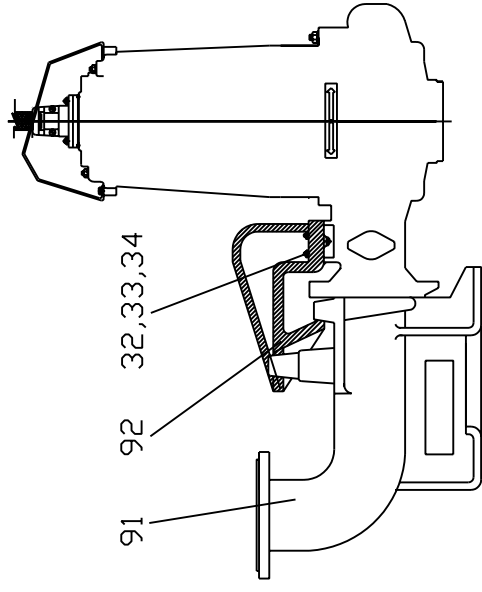
DRN.	D.M.GUTAL	NAME	DATE
CHD.			24-6-2001
APPD.			

TITLE:	SECTIONAL ASSY. DRG. OF	VER.	REV.
	MODDY SEWAGE PUMP	MS/803/00	1.0 04

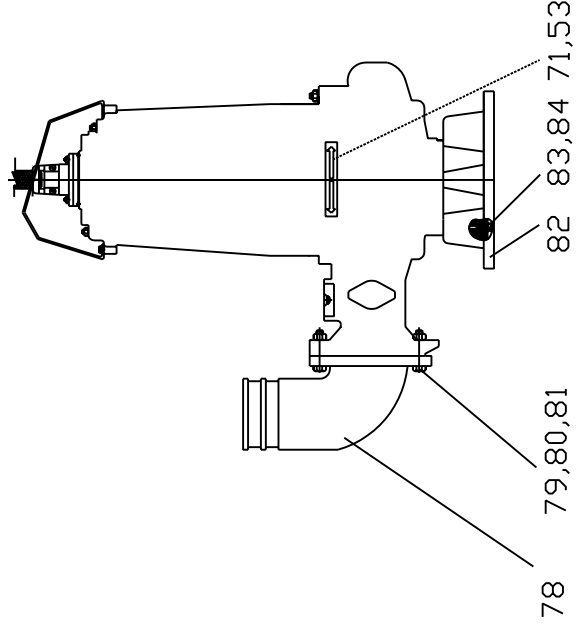
TYPE	DRAWING No.	VER.	REV.
MS-482	MS/803/00	1.0	04



CABLE GLAND ASSY.



PERMANENT INSTALLATION (WT.:240 KG.)



TRANSPORTABLE VERSION (WT.:200 KG.)

		Mody Pumps Inc. 2166 Zeus Court Bakersfield, CA 93308 USA Tel.: 661-392-7600 Fax: 661-392-7601 www.modypump.com		DRN.	NAME	DATE
TYPE		TITLE:		CHD.		
MS-482		SECTIONAL ASSY. DRG. OF		APPD.	DRAWING No.	VER. REV
		MODY SEWAGE PUMP			MS/803/00	1.0 04

PUMP MODEL MS - 482 VER 1.1

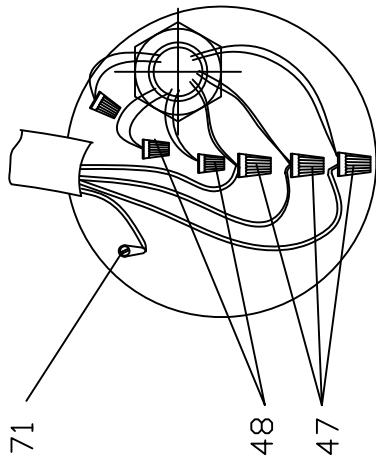
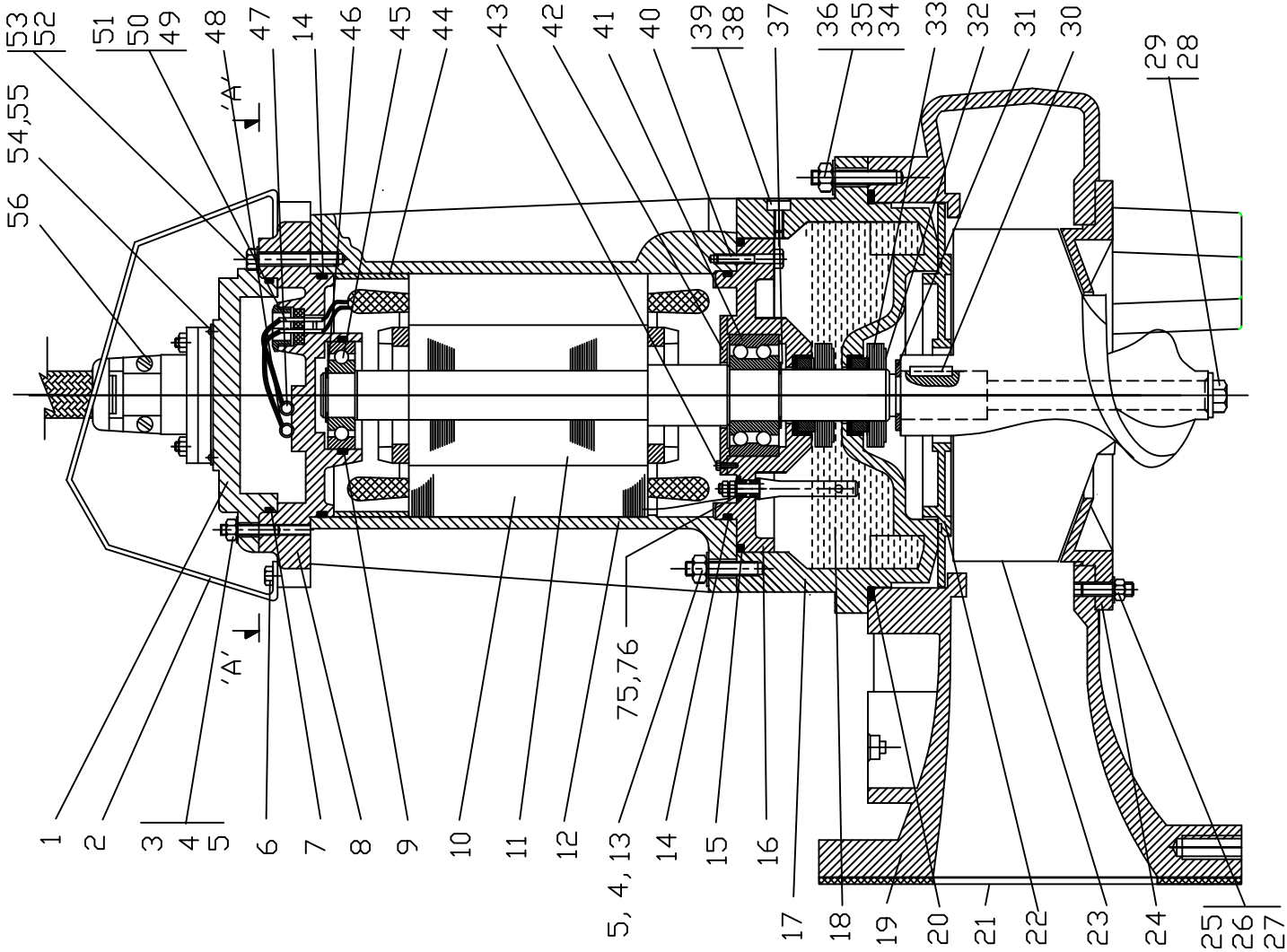
D.NO.	PART NO.	DESCRIPTION	QTY
1	105-009-01	PUMP COVER	1
2	270-008-21	HANDLE	1
3	650-024-21	STUD	4
4	370-008-21	HEX NUT	8
5	700-006-21	WASHER	6
6	045-019-21	HEX HD BOLT	2
7	380-026-66	"O" RING	1
8	035-033-01	UPPER BEARING BRACKET	1
9	380-813-66	"O" RING	1
10	619-039-00	BARE STATOR (230/460v)	1
11	480-052-00	ROTOR COMPLETE	1
12	625-027-01	STATOR CASING	1
13	650-020-21	STUD	4
14	380-054-66	"O" RING	2
15	380-059-66	"O" RING	1
16	035-034-01	LOWER BEARING BRACKET	1
17	545-012-01	SEAL HOUSING	1
18	395-005-93	OIL	2.5L
19	050-021-01	PUMP VOLUTE	1
20	380-037-66	"O" RING	1
21	220-023-68	GASKET	1
22	300-094-01	IMPELLER 60HZ	1
23	600-044-21	LOCKING SPACER	1
24	705-005-21	SPRING WASHER	1
25	520-009-21	CAP SCREW	1
26	045-022-21	HEX HD BOLT	4
27	720-007-80	WEAR RING	1
28	320-022-22	KEY	1
29	600-062-21	TRIMMING SPACER	AS REQD
30	550-022-08	LOCKING RING	2
31	535-017-00	MECHANICAL SEAL	2
32	650-044-21	STUD	10
33	370-009-21	HEX NUT	10
34	700-008-21	WASHER	10
35	080-008-08	CIRCLIP	1
36	520-002-21	OIL PLUG	3
37	380-001-66	"O" RING	3
38	045-010-21	HEX HD BOLT	4
39	020-015-07	LOWER BEARING	1
40	037-007-30	BEARING COVER	1
41	045-004-21	HEX HD BOLT	4
42	600-059-04	SPACER FOR STATOR	1
43	020-011-07	UPPER BEARING	1
44	080-006-08	CIRCLIP	1
45	365-027-00	WIRE NUT CONNECTOR	2
46	365-026-00	WIRE NUT CONNECTOR	3
47	045-029-21	HEX HD BOLT	4
48	700-006-21	WASHER	4
49	260-019-66	STATOR LEAD GROMMET	1

PUMP MODEL MS - 482 VER 1.1

D.NO.	PART NO.	DESCRIPTION	QTY
50	365-010-40	NUT FOR GROMMET	1
51	710-008-21	WASHER FOR LEAD GROMMET	1
52	350-020-21	NAME PLATE	1
53	465-006-11	RIVET	4
54	525-022-21	PH.PAN HD SCREW	2
55	660-093-00	CABLE GRIP (order with gland)	1
56	662-002-45	CABLE SUPPORT	1
57	660-093-00	CABLE GLAND (order with grip)	1
58a	260-015-66	CABLE GROMMET 4 CORE CABLE (460v)	1
58b	260-017-66	CABLE GROMMET 6 CORE CABLE (460v)	1
59	600-018-40	GLAND SPACER	1
60a	260-081-66	CABLE LEAD GROMMET 4 CORE CABLE	1
60b	260-042-66	CABLE LEAD GROMMET 6 CORE CABLE	1
61	380-010-66	"O" RING	1
62	380-007-66	"O" RING	1
63a	235-005-01	CABLE GLAND BASE 4 CORE CABLE	1
63b	235-009-21	CABLE GLAND BASE 6 CORE CABLE	1
64	380-005-66	"O" RING	1
65	650-013-21	STUD	2
66	370-006-21	HEX NUT	2
67	700-004-21	WASHER	2
68	085-022-21	CABLE CLAMP	1
69a	065-016-79	CABLE 4 CORE	50'
69b	065-025-79	CABLE 6 CORE	50'
69c	08-4/16-3	CABLE 7 CORE	50'
70	525-007-40	EARTHING SCREW	1
71	430-015-01	CAP FOR VOLUTE	1
72	220-027-66	GASKET	1
73	375-008-66	"O" RING SET	1

PORTABLE VERSION			
78	405-054-01	OUTLET 6' (optional)	1
79	045-026-21	HEX HD BOLT	8
80	700-010-21	WASHER	16
81	370-015-21	HEX NUT	8
82	030-018-01	BASE	1
83	700-009-21	WASHER	4
84	045-030-21	HEX HD BOLT	4

PERMANENT INSTALLATION			
91a	095-021-01	6" DISCHARGE CONN. ANSI	1
91b	095-017-01	6" DISCHARGE CONN. BS	1
92	095-014-01	SLIDING BRACKET	1



VIEW AT ARROW 'A-A'

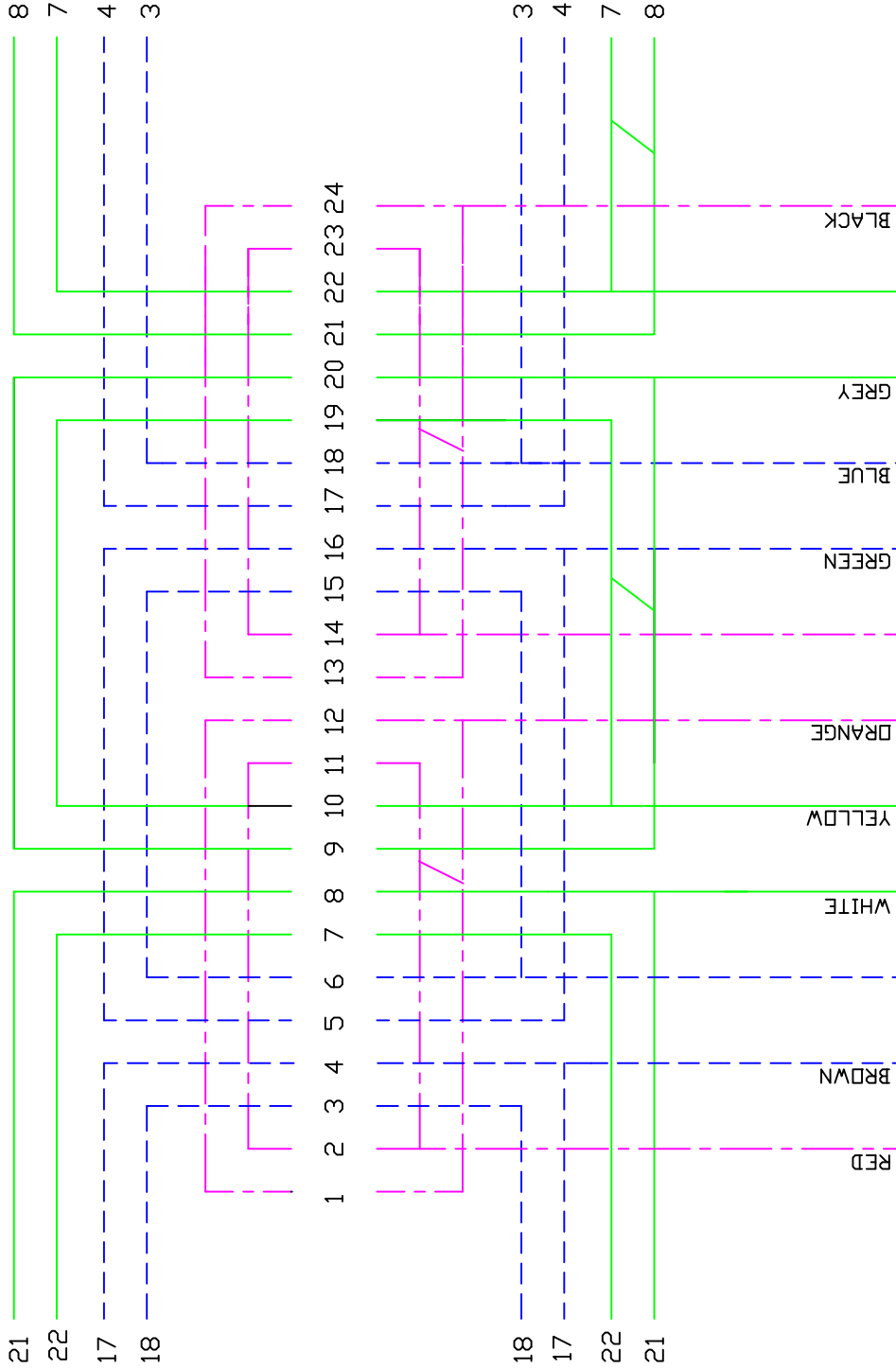


Mody Pumps Inc.
 2166 Zeus Court
 Bakersfield, CA 93308 USA
 Tel.: 661-392-7600 Fax: 661-392-7601
 www.modypump.com

TYPE: MS-483E
 TITLE: SECTIONAL ASSY. DRG. OF
 MODY SEWAGE PUMP

DRN.	NAME	DATE	DRAWING No.	VER.	REV.
CHD.	D.M.GUTAL	14-1-98	MS/806/00	1.1	01
APPD.					
					DT: 2-5-2005

MODY DUAL VOLTAGE, 3Ph-230/460v 9 LEAD WINDING DIAGRAM



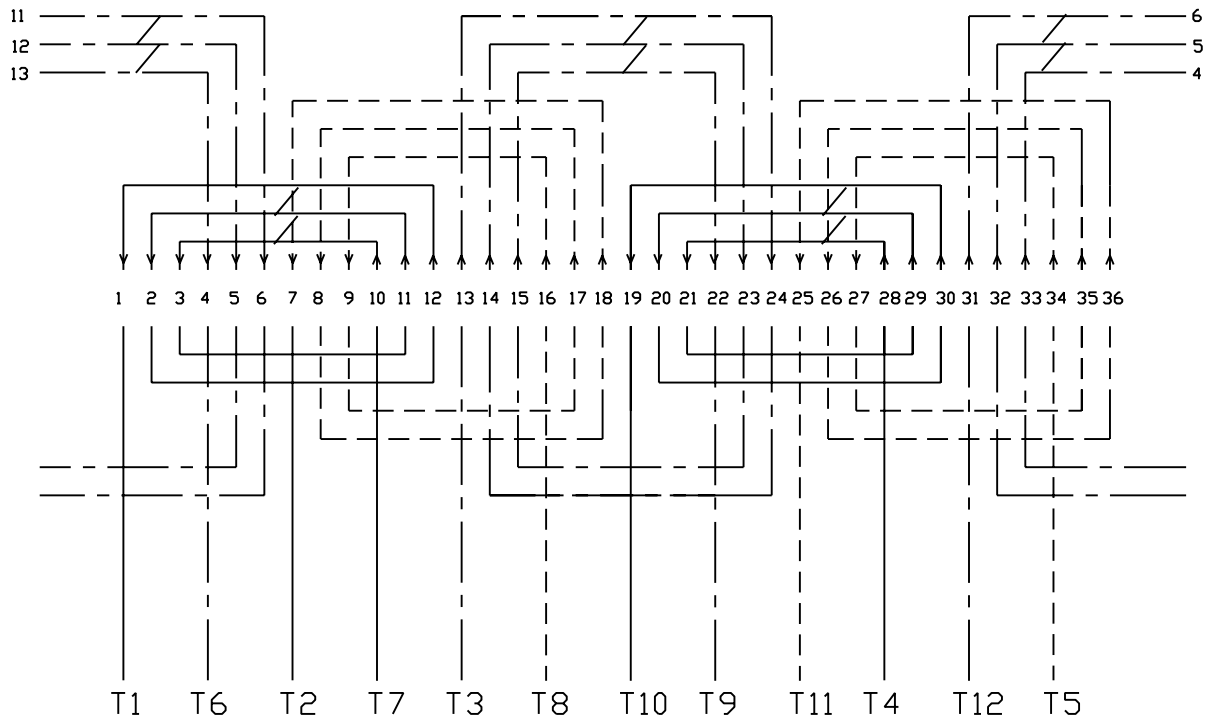
460 VOLT CONNECTION
 JOIN A2 X - BLACK AND ORANGE
 B2 Y - WHITE AND GREY
 C2 Z - GREEN AND BROWN
 POWER TO A1(RED), B1(YELLOW), C1(BLUE)

230 VOLT CONNECTION
 SHORT XYZ
 JOIN A1 A2 - RED AND BLACK-POWER
 B1 B2 - YELLOW AND WHITE-POWER
 C1 C2 - BLUE AND GREEN-POWER



POINTS X1 Y1 Z1 ARE PERMANENTLY SHORT CIRCUITED

WINDING DIAGRAM FOR 4 POLE DUAL VOLTAGE MOTOR SEWAGE PUMPS 1750 RPM (12 LEADS)



CONNECT AND SOLDER

T1	RED	T7	WHITE (RED)
T2	YELLOW	T8	WHITE (YELLOW)
T3	BLUE	T9	WHITE (BLUE)
T4	GREEN	T10	WHITE (GREEN)
T5	BLACK	T11	WHITE (BLACK)
T6	GREY	T12	WHITE (GREY)

460 VOLTS CONN.
JOIN PERMANENTLY

T7 & T10
T8 & T11
T9 & T12

LINE
L1 = T1 T6
L2 = T2 T4
L3 = T3 T5

230 VOLTS CONN.

L1 = T1 T6 T9 T10
L2 = T2 T4 T7 T11
L3 = T3 T5 T8 T12



LIMITED WARRANTY

We warrant to our immediate customer and to the ultimate consumer that products of our manufacture will be free of defects in material and workmanship under normal use and service for the following time periods, when installed and maintained in accordance with our instructions.

PUMPS: One (1) year from date of installation or (18) months from date of shipment, whichever occurs first. As used herein, "the ultimate consumer" is defined as the purchaser who first uses the product after its initial installation or, in the case for product designed for non-permanent installation, the first owner who uses the product. It is the purchaser's or any sub-vendor's obligation to make known to the ultimate consumer the terms and conditions of this warranty. This warranty gives you specific legal rights, and there may also be other rights which vary from state to state. In the event the product is covered by the Federal Consumer Product Warranties Law (1) the duration of any implied warranties associated with the product by virtue of said law is limited to the same duration as stated herein, (2) this warranty is a LIMITED WARRANTY, and (3) no claims of any nature whatsoever shall be made against us, until the ultimate consumer, his successor, or assigns, notifies us in writing of the defect, and delivers the product and/or defective part(s) freight prepaid to our facility or nearest authorized service station. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO ANY PRODUCT SHALL BE TO REPLACE OR REPAIR AT OUR ELECTION, FOB POINT OF MANUFACTURE OR AUTHORIZED REPAIR STATION, SUCH PRODUCTS AND/OR PARTS AS PROVEN DEFECTIVE. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE.**

Unless expressly stated otherwise, guarantees in the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on a product manufactured by *Mody*, if any, are subject to laboratory tests corrected for field performance. Any additional guarantees, in the nature of performance specifications must be in writing and such writing must be signed by our authorized representative. Due to inaccuracies in field testing if a conflict arises between the results of field testing conducted by or for user, and laboratory tests corrected for field performance, the latter shall control. Components or accessories supplied by us but manufactured by others are warranted only to the extent of and by the terms and conditions of the original manufacturer's warranty.

RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYSES AND EVALUATIONS WE CONDUCT, WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.

This warranty shall not apply when damage is caused by (a) improper installation, (b) improper voltage, (c) lightning, (d) sand or other abrasive materials, (e) scale or corrosion build-up due to excessive chemical content. Any modification of the equipment will also void the warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts. Neither will we accept charges incurred by others without our prior written approval. This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the application and use of the product. **UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, WHICH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL, AND/OR WORKMANSHIP AND/OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

No rights extended under this warranty shall be assigned to any person, whether by operation or otherwise, without our prior written approval.