



**MODELS: G 502 T, G 504 T**

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



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**ISO 9001 Certified**



## 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.

## INTRODUCTION

THE "mody" MOTOR DRIVEN PORTABLE SUBMERSIBLE PUMPS HAVE BEEN DEVELOPED DUE TO A LONG FELT NEED OF HAVING A TRULY MAINTENANCE FREE PUMPSET FOR VARIOUS APPLICATIONS. THE PUMP IS A LIGHTWEIGHT, COMPACT UNIT ENABLING IT TO BE USED IN MOST SEA-CRAFT AND DIFFICULT LAND INSTALLATIONS. THE UNIT CONSISTS OF A VERTICAL CENTRIFUGAL PUMP WITH AN IN-BUILT SQUIRREL CAGE, INDUCTION ELECTRIC MOTOR WHICH IS AVAILABLE FOR VARIOUS ELECTRIC SUPPLY CONFIGURATIONS. THE PUMPED WATER IS USED AS A COOLING MEDIUM WHICH COOLS THE ELECTRIC MOTOR. THE PUMPSET CAN ALSO BE USED IN ANY POSITION THUS MAKING IT IDEAL FOR DEWATERING IN DIFFICULT LOCATIONS.

**THE SERVICE LIFE OF A SUBMERSIBLE PUMP DEPENDS MAINLY ON TWO THINGS: THE DEPENDABILITY OF THE SEALING SYSTEM AND THE WEAR RESISTANCE OF THE PUMP WEAR PARTS.**

ALL "mody" SUBMERSIBLE SUMP PUMPS INCORPORATE A UNIQUE SEALING SYSTEM. THE CONSTRUCTION CONSISTS OF TWO MECHANICAL SEALS, ARRANGED IN TANDEM, IMMERSSED IN AN OIL BATH. THE COMPLETE PACKAGE IS A PRESSURE COMPENSATED SEALING DEVICE WHICH ENSURES A MINIMAL PRESSURE DIFFERENTIAL ACROSS THE SEAL FACES, IRRESPECTIVE OF THE DEPTH SETTING OF THE PUMP OR THE HEAD AGAINST WHICH THE PUMP IS OPERATING.

IN "mody" SUBMERSIBLE SUMP PUMPS, ALL WEAR PARTS ARE RUBBER LINED/COVERED AND ARE READILY REPLACEABLE AS NEEDED. BOTH WEAR AND ELECTRICITY CONSUMPTION ARE STILL FURTHER REDUCED WHEN THE PUMPS ARE FITTED WITH BUILT-IN LEVEL CONTROLS FOR AUTOMATIC STARTING AND STOPPING. **IT IS HOWEVER RECOMMENDED THAT IRRESPECTIVE OF TYPE OF PUMP, ADEQUATE MOTOR PROTECTION SWITCHGEAR SHOULD BE USED AT THE INSTALLATION. WE STRONGLY RECOMMEND THE USE OF SUITABLE CONTROL PANELS WHICH ARE AVAILABLE FROM US INCORPORATING ALL REQUIRED PROTECTION DEVICES.**

IT IS IN THE INTEREST OF THE USER THAT HE GO THROUGH THIS MANUAL IN DETAIL PRIOR TO USING THE PUMP. THE MANUAL WILL HELP HIM UNDERSTAND THE CONSTRUCTIONAL FEATURES AND TO OBTAIN TROUBLE FREE SERVICE FROM THE PUMP.

## PURPOSE:

THE PUMP HAS BASICALLY BEEN DESIGNED AS A DEWATERING UNIT TO PUMP OUT FLOODED INSTALLATIONS OR ANY CONDITIONS THAT NEED DEWATERING OF UNWANTED FLUIDS. THE PUMP HAS BEEN DESIGNED TO HANDLE WATER CONTAMINATED WITH OIL AS WELL AS ABRASIVE PARTICLES NORMALLY ASSOCIATED WITH RAW WATER. THE MAXIMUM SIZE OF PARTICLES THAT CAN BE HANDLED IS APPROX. 0.4". **THE MAXIMUM SPECIFIC GRAVITY OF THE PUMPED FLUID SHOULD NOT EXCEED 1.1.**

## **OVERALL DIMENSIONS AND WEIGHT.**

### **G 502T & G 504T**

OVERALL HEIGHT	23" (APPROX.)
MAX. DIAMETER	10.75"
MAX. WEIGHT (EXCL. CABLE)	110 lbs.

## **MAINTENANCE SERVICES REQUIRED.**

THE FOLLOWING CHECKS TO BE DONE AT INTERVALS INDICATED BELOW:

1. CONDITION OF SEALS TO BE CHECKED AT EVERY 2500 HRS. OF OPERATION BY ASCERTAINING THE CONDITION OF OIL IN THE SEAL CHAMBER.
2. MONTHLY RUNNING OF PUMP FOR AT LEAST 5/10 MINUTES AND CHECKING OF AMPERES DRAWN AND INSULATION RESISTANCE. (MIN. INSULATION RESISTANCE 1 MEG. OHM. AND MAX. CURRENT DRAWN AS PER NAME PLATE)

## **SAFETY PRECAUTIONS.**

1. ENSURE THAT THE INSULATION RESISTANCE OF THE MOTOR IS AT LEAST 1 MEG. OHM BEFORE ENERGIZING THE UNIT.
2. CHECK THAT THE AVAILABLE POWER SUPPLY (VOLTAGE, PHASE, FREQUENCY) MATCHES WITH THE DETAILS ON THE PUMP NAMEPLATE.
3. ENSURE THAT THE GROUND WIRE IN THE 4 CORE CABLE SUPPLIED WITH THE PUMP IS SECURELY EARTHED.
- 4 ENSURE HOSE CONNECTION IS CORRECTLY AND SECURELY FITTED
5. ENSURE DELIVERY HOSE IS FREE FROM KINKS AND SHARP BENDS.
6. **DO NOT LIFT OR PULL THE PUMP UNDER ANY CIRCUMSTANCES BY MEANS OF THE CABLE.** THE PUMP MUST BE LOWERED/LIFTED FROM THE SPACE TO BE PUMPED BY USING A LIFTING ROPE ATTACHED TO THE HANDLE/EYEBOLT PROVIDED IN THE PUMP.
7. AT THE STARTING MOMENT THE PUMP SHALL MAKE A KICK WHICH IS OPPOSITE TO THE DIRECTION OF ROTATION OF THE IMPELLER. ENSURE THE KICK IS IN THE CORRECT DIRECTION (SEE THE ARROW CAST ON THE CONTACTOR COVER OF THE PUMP). SHIFT ANY TWO PHASES IN THE MALE PLUG IF THE KICK IS WRONG.
8. DRY RUNNING OF THE PUMP IS NOT DESIRABLE. HOWEVER THE PUMP WILL NOT BE DAMAGED OR SUFFER ANY ILL EFFECTS IF IT IS RUN DRY FOR SHORT PERIODS (UPTO APPROX. 30 MINUTES).
9. THE MAXIMUM PUMP SUBMERGENCE RECOMMENDED IS 50 FEET.
10. **THE SPECIFIC GRAVITY OF PUMPED FLUID SHOULD NOT EXCEED 1.1 UNDER ANY CIRCUMSTANCES. PUMP IS DESIGNED TO OPERATE IN FLUIDS WITH pH from 5 - 8.**
11. **IF PUMP IS NOT USED AND LYING IN STORAGE FOR MORE THAN 30 DAYS PLEASE ENSURE THAT THE SEAL FACES ARE NOT GAUGE LOCKED - ROTATE THE IMPELLER/KICK START THE UNIT ONCE A MONTH. REFER TO INSTRUCTIONS ON DISASSEMBLY/REASSEMBLY OF MECH. SEALS IN THE EVENT THE FACES HAVE LOCKED.**

## MAINS VOLTAGE AT SITE

220 VOLTS / 3 PHASE  
380 VOLTS / 3 PHASE  
460 VOLTS / 3 PHASE

## HRC FUSE RECOMMENDED

20 AMPERES  
16 AMPERES  
15 AMPERES

## FAULT FINDING IN THE UNIT.

<u>TROUBLE GUIDE</u>	<u>CAUSE</u>	<u>REMEDY</u>
<u>PUMP DOES NOT START.</u>	1.FUSES BLOWN. 2.CABLE DAMAGED 3.NO POWER. 4.BLOCKED IMPELLER. 6.STATOR WINDING BURNT.	1.REPLACE FUSES 2.SHORTEN/REPLACE CABLE 3.CHECK POWER SUPPLY. 4.CLEAN BOTTOM PARTS. 6.REPLACE STATOR/REWIND
<u>PUMP STARTS BUT STOPS.</u>	1.BLOCKED IMPELLER. 2.IMPELLER ROT.WRONG 3.CONNECTED FOR WRONG VOLTAGE. 4.VOLTAGE LOW/HIGH 5.CLOGGED STRAINER 6.PUMP RUNNING DRY 7.WATER TOO WARM (ABOVE 60 DEGREES C)	1.CLEAN BOTTOM PARTS. 2.SHIFT TWO PHASE CONN. 3.CHECK & RECONNECT. 4.CONTACT POWER CO. 5.CLEAN STRAINER 6.SWITCH OFF POWER 7.SWITCH OFF POWER
<u>PUMP GIVES TOO LITTLE OUTPUT</u>	1.IMPELLER ROT.BACKWARD. 2.PUMP WORN DOWN. 3.LONG HOSE AND DIAMETER TOO SMALL. 4.PRESSURE HEAD TOO HIGH 5.DISCHARGE HOSE TORN 6.LEAKING/CRACKED OUTLET	1.SHIFT TWO PHASE CONN. 2.REPLACE WEAR PARTS 3.CHECK PRESSURE LOSSES 4.USE PUMPS IN TANDEM. 5.USE NEW HOSE 6.REPL.OUTLET/GASKET.

## TECHNICAL DESCRIPTION.

THE MODY SUBMERSIBLE PUMP IS IN ITSELF A COMPLETE PUMPING STATION. BESIDES A POWER SUPPLY AND A DISCHARGE HOSE NO EXTRA EQUIPMENT IS REQUIRED. THE COMPLETE PUMPSET IS IN A MODULAR CONSTRUCTION ENSURING GOOD AND SIMPLE SERVICEABILITY. THE MAJOR DESIGN FEATURES ARE AS UNDER:

## THE MOTOR

A RUGGED ALUMINUM DIE CAST/COPPER ROTOR DYNAMICALLY BALANCED TO GRADE 2.5 ACCURACY OF ISO 942.A STAINLESS STEEL SHAFT RUNNING IN TWO 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.

## **THE SEAL CHAMBER**

THE HEART OF THE MODY PUMP. DUAL MECHANICAL, TUNGSTEN CARBIDE V/S TUNGSTEN CARBIDE SEAL FACES (LOWER SEAL) AND TUNGSTEN CARBIDE V/S TUNGSTEN CARBIDE (UPPER SEAL), SECONDARY SEALS OF HNBR RUBBER AND METAL PARTS IN STAINLESS STEEL, RUNNING IN AN OIL BATH, ENCLOSED IN A PRESSURE COMPENSATING RUBBER OIL BAG - CREATES THE ULTIMATE SEAL SOLUTION. THE DESIGN OPTIMIZES SEAL LIFE AND ALLOWS FOR SIX MONTHLY (2500 HOURS) SERVICE INTERVALS.

## **BEARINGS.**

SINGLE ROW DEEP GROOVE BALL BEARINGS SEALED FOR LIFE WITH A SPECIAL HIGH TEMPERATURE BEARING GREASE REQUIRING NO PERIODIC MAINTENANCE WHATSOEVER.

## **THE HYDRAULIC ELEMENTS.**

THE STAINLESS STEEL IMPELLER RUNNING AGAINST A RUBBER LINED DIFFUSER AND WEAR PLATE, CONSTITUTE THE HYDRAULIC ELEMENTS OF THE PUMP. THE IMPELLER/DIFFUSER CAN BE ADJUSTED TO MAINTAIN MAXIMUM OUTPUT AFTER USAGE WITHOUT PARTS REPLACEMENT. IT IS IMPORTANT, HOWEVER, TO MAINTAIN CLEARANCES BETWEEN THE WEAR PARTS.

## **CABLE GLAND ASSEMBLY.(REFER DRG.)**

THE PUMP IS SUPPLIED WITH 50 FEET CABLE AS STANDARD. THE CABLE IS A 4 CORE EPR SHEATHED AND INSULATED CABLE CONFORMING TO INTERNATIONAL STANDARDS. THE CABLE IS WATERPROOF AND CAN BE COMPLETELY SUBMERGED IN WATER. THE CABLE IS TERMINATED IN THE PUMP AT THE CABLE GLAND. THE GLAND ASSEMBLY SEALS THE CABLE ON THE OUTSIDE SHEATH AS WELL AS A WATER DAM ARRANGEMENT IS 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 CONTACTOR CHAMBER IN THE EVENT OF A CUT CABLE. THE CABLE IS ALSO SHEATHED FOR THE FIRST ONE METER 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.

## **GALVANIC CORROSION PROTECTION (FOR SEA-WATER DUTY PUMPS ONLY)**

THE PARTS OF THE "MODY" SUBMERSIBLE PUMP THAT ARE IN CONTACT WITH SEA- WATER ARE PRIMARILY OF STAINLESS STEEL AND ALUMINUM. AS SEA-WATER IS AN ELECTROLYTE THE PROBLEM OF GALVANIC CORROSION EXISTS DUE TO THE DIFFERENT ELECTRIC POTENTIALS OF THE MATERIALS IN FLOWING SEA-WATER. TO PREVENT THIS, THE PUMPS ARE EQUIPPED WITH ZINC ANODES FIXED ON THE OUTER CASING AND DIFFUSER. ZINC, BEING THIS LESS "NOBLE" METAL (MORE NEGATIVE POTENTIAL) GETS CORRODED THUS PREVENTING CORROSION OF ALUMINUM AND STEEL. IT IS HOWEVER NECESSARY TO INSPECT THE CONDITION OF THE REPLACEABLE ANODES PERIODICALLY AND REPLACE WHENEVER NECESSARY. (INSPECTION ONCE IN A YEAR IS ENOUGH.)

## **NON REPAIRABLE ITEMS**

1. ALL "O" RINGS TO BE REPLACED WHENEVER PARTS ARE DISMANTLED.
2. SEAL ELASTOMER PARTS SHOULD NEVER BE RE-USED AFTER DIS-ASSEMBLY.
3. DO NOT REFILL BEARING GREASE. ALWAYS REPLACE COMPLETE NEW BEARING WITH SPECIAL HIGH TEMPERATURE GREASE.

## **ELECTRICAL INFORMATION.**

MOTORS ARE DESIGNED TO OPERATE ON SINGLE VOLTAGE AND FREQUENCY. MAX. DEVIATION IN VOLTAGE ALLOWED IS + - 6 % AND FREQUENCY +- 3% .CHECK NAME PLATE FOR OPERATING VOLTAGE AND FREQUENCY.

## **DISMANTLING AND OVERHAULING.**

### **GENERAL OVERHAUL AND OIL CHECK.(REF. DRGS. # DW/130/00 SHEETS 1 & 2)**

1. ALWAYS REPLACE O-RINGS WITH NEW ONES WHENEVER DISMANTLING AND RE-ASSEMBLING A PUMP. NEVER RE-USE OLD O-RINGS.

2. REMOVE BASE PLATE(21), STRAINER(20), NUT(18), AND DIFFUSER(19/40). THE DRAWING SHOWS THESE DETAILS. CHECK BY HAND THAT THE ROTOR SHAFT IS NOT BLOCKED.

3. PLACE THE PUMP ON THE BOTTOM STUDS(17). TAP THE OUTER CASING(10) WITH NYLON TIPPED HAMMERS TILL IT LOOSENS FROM THE TOP BRACKET(6). SEPARATE THE OUTER CASING FROM THE TOP BRACKET BY EMPLOYING TWO SCREW DRIVERS AS LEVERS AND PUSH THE OUTER CASING DOWNWARDS TILL IT STANDS ON THE FLOOR. LIFT THE UNIT BY THE TIE BOLTS(3) CLEAR OFF THE OUTER CASING.

4. THE SEAL CHAMBER CONTAINS APPROX. 1.5 LITERS OF OIL. THE LEVEL AND CONDITION OF THE OIL SHOULD BE CHECKED EVERY SIX MONTHS. UNSCREW THE OIL PLUGS(66) AND POUR OUT SOME OIL. NOTE THAT THE OIL GETS A SLIGHTLY DARKER SHADE, BUT THIS IS NORMAL AND IS NO CAUSE FOR WORRY. IF THE OIL IS EMULSIFIED BY WATER, THE SEALS HAVE WORN OUT AND MUST BE REMOVED FROM THE ROTOR FOR FURTHER ACTION.

5. LAY DOWN THE PUMP AND REMOVE THE REMAINING PARTS. UNSCREW NUTS(23) AND REMOVE LOCK WASHER(24) (USE IMPELLER SPANNER(T7004) TO HOLD IMPELLER WHILE UNSCREWING NUTS) AND SLIDE OFF IMPELLER(26) FROM SHAFT. THEN REMOVE TRIMMING SPACERS(27) AND SAND GUARD(59). UNSCREW THE FOUR CHEESE HEAD SCREWS (72) AND REMOVE THE SAND GUARD (69) FROM THE SEAL HOUSING (28).

6. UNSCREW NUTS(18) AND FOUR STUDS(17) AND REMOVE WEAR PLATE(29). THIS CAN BE EASILY DONE BY INSERTING TWO SCREWDRIVERS BETWEEN WEAR PLATE AND LOWER BRACKET(15) AND PRYING THE WEAR PLATE LOOSE. ALL THE PUMP PARTS HAVE BEEN DISMANTLED. REPLACE WORN PARTS.

7. THE OIL DIAPHRAGM(56) IS NOW IN VIEW. UNSCREW BOTH THE OIL PLUGS(66) AND DRAIN OUT THE OIL FROM THE OIL CHAMBER. LOOSEN SCREWS AND NUTS(33/54) FROM THE BIG OIL CLAMP(55) AND REMOVE CLAMP. TURN OIL DIAPHRAGM INSIDE OUT AND REMOVE SMALL OIL CLAMP IN THE SAME FASHION. REMOVE OIL DIAPHRAGM. SLIDE OFF OUTER RETAINING SPRING(61) FROM ROTOR SHAFT AND REMOVE LOWER MECHANICAL SEAL FROM ROTOR SHAFT. BE VERY CAREFUL IN HANDLING THE TUNGSTEN CARBIDE SEAL FACE. LEAVE STATIONARY TUNGSTEN CARBIDE SEAT IN THE SEAL HOUSING(28). UNSCREW FOUR NUTS(65) AND PULL OUT SEAL HOUSING(28). THE STATIONARY TUNGSTEN CARBIDE SEAL FACE WILL COME OUT WITH THE SEAL HOUSING. HANDLE THE FACE CAREFULLY. THE UPPER MECHANICAL SEAL IS NOW IN VIEW. REMOVE THE UPPER SEAL IN THE SAME WAY AS THE LOWER SEAL.

8. REMOVE THE FOUR NOS. DEEP SEATED CAP SCREWS(16) THAT HOLD THE LOWER BEARING BRACKET AGAINST THE INNER CASING. BY MEANS OF TWO NOS. SCREW DRIVERS REMOVE THE LOWER BEARING BRACKET FROM THE INNER CASING(12). THE COMPLETE ROTOR(11) WITH BEARING(68), BEARING COVER AND TUNGSTEN CARBIDE SEAT WILL COME OUT WITH THE LOWER BEARING BRACKET. REMOVE BOLTS(70) AND REMOVE BEARING COVER. PULL OUT ROTOR WITH BEARING FROM LOWER BEARING BRACKET. (IF THIS IS DIFFICULT USE A HAND PRESS TO REMOVE ROTOR FROM BEARING BRACKET. ENSURE NO DAMAGE TO THE STATIONARY TC SEAT IN BEARING BRACKET). THE TC SEAT WITH CUP SEAL HOLDER CAN NOW BE PUSHED OUT FROM THE BEARING SIDE BY GENTLY TAPPING THE SAME. (USE FINGERS OR A NYLON TIPPED LIGHT HAMMER ONLY).

9. CHECK BOTH UPPER AND LOWER BEARINGS(9 & 68) FOR ANY RADIAL OR AXIAL PLAY OR ANY ABNORMAL NOISE WHILE SPINNING THE SAME. CHECK FOR ANY LEAKAGE OF GREASE THROUGH THE SHIELD OF THE BEARING. IF BEARING SEEMS WORN OUT OR ANY GREASE LEAKAGE IS OBSERVED, REPLACE BEARING.(DO NOT USE ANY STANDARD BEARING PROCURED FROM THE MARKET. THE PUMPS USE A SPECIAL BEARING WHICH IS PRE-FILLED WITH A SPECIAL HIGH TEMPERATURE GREASE WHICH ARE AVAILABLE FROM US READILY). THE TOP BRACKET(6) IS HELD IN POSITION BY FOUR BOLTS(4) ON THE INNER CASING. UNSCREW THE BOLTS AND REMOVE THE INNER CASING WITH THE HELP OF PULLER FOR STATOR(T8003).ALTERNATIVELY TWO SCREW DRIVERS MAY BE USED TO PRY THE TOP BRACKET FROM THE STATOR.

10. THE STATOR IS SHRINK-FITTED IN THE INNER CASING AND IS SUPPLIED WITH THE O-RINGS(14) AS ONE UNIT. THE STATOR CAN NOW BE CHECKED FOR ANY ELECTRICAL FAULTS.

### **RE-ASSEMBLY OF THE PUMPSET.**

THE PUMP CAN BE RE-ASSEMBLED AS PER PROCEDURE GIVEN BELOW. PLEASE HOWEVER NOTE THE FOLLOWING:

- A) ALWAYS REPLACE NEW O-RINGS AND DISCARD OLD ONES.
- B) REPLACE NEW LOCK WASHER WHEN RE-ASSEMBLING.

1. THE CHECKED/REPAIRED STATOR IS KEPT UPRIGHT AND THE TOP BRACKET IS GUIDED THROUGH THE FOUR BOLTS(4).

2. SLIDE BEARING COVER(13) ON ROTOR SHAFT.

3. FIT BEARINGS (IF REMOVED OR REPLACED) ON ROTOR SHAFT (USE EITHER A HAND PRESS OR SHRINK THE SAME -- DO NOT HAMMER THE BEARINGS ON THE SHAFT-- YOU MAY BEND THE SHAFT AND ALSO DAMAGE THE BEARINGS) AND FIT CIRCLIPS ON TOP AND BOTTOM GROOVES ON SHAFT.(IF THE BEARINGS ARE SHRINK FITTED ON THE SHAFT, HEAT THE BEARINGS IN OIL TO A MAXIMUM TEMPERATURE OF 120 DEGREES CELSIUS AS A HIGHER TEMPERATURE WILL LIQUEFY THE GREASE IN THE BEARING AND RENDER THE SAME UNUSABLE).

4. SLIDE LOWER BEARING BRACKET(15) ON TO LOWER BEARING AND ALIGN FOUR NOS. HOLES ON BEARING COVER WITH THE TAPPED HOLES ON LOWER BEARING BRACKET. FIT THE BOLTS(70) AND TIGHTEN BEARING COVER.

5. FIT COMPLETE ROTOR ASSEMBLY IN STATOR HOUSING GUIDING UPPER BEARING IN TOP BRACKET BEARING SEAT. TIGHTEN FOUR CAP SCREWS(16). FIT UPPER TC SEAT IN LOWER BEARING BRACKET (LIGHTLY OIL THE RUBBER SEAT CUP --ENSURE THE SEAT SITS SQUARE IN THE BRACKET) AND SLIDE ON UPPER SEAL ASSEMBLY ON ROTOR SHAFT.(USE SEAL ASSEMBLY MANDREL(T9006) TO ASSIST IN SLIDING BELLOWS ON TO THE SHAFT).LIGHTLY OIL THE ROTOR SHAFT BEFORE PUSHING BELLOWS ON SHAFT. USE EXTREME CARE SO THAT THE SEAL FACES ARE NOT DAMAGED. SLIDE ON RETAINER SPRING(61) AND FIT IN GROOVE ON SHAFT.

6. PRESS HOME BY HAND LOWER SEAL TUNGSTEN CARBIDE SEAT INTO SEAL HOUSING(28). LIGHTLY OIL RUBBER SEAT CUP BEFORE PRESSING IN CAVITY. THE SEAT MUST SIT SQUARE IN THE HOUSING.

7. FIT SEAL HOUSING(28) INTO LOWER BRACKET AND TIGHTEN NUTS(65).

8. SLIDE ON LOWER SEAL ASSEMBLY ON SHAFT. APPLY LIGHT COAT OF OIL ON SHAFT BEFORE SLIDING BELLOWS ON THE SAME. (USE SAME SEAL MANDREL AS USED FOR THE UPPER SEAL TO SLIDE BELLOWS ON SHAFT).FIT RETAINER SPRING AS FOR THE UPPER SEAL ASSEMBLY

9. PRESS SAND GUARD(59) INTO SEAL HOUSING(USE A HAND PRESS OR USE A NYLON HAMMER)



10. TURN OIL BAG INSIDE OUT AND FIT OIL BAG "VEE" SECTION INTO GROOVE IN SEAL HOUSING(28).USING SMALL OIL BAG CLAMPS AND SCREWS & NUTS CLAMP THE OIL BAG TO THE SEAL HOLDER. TURN OIL BAG TO CLAMP THE LARGER SIDE "VEE" SECTION TO THE GROOVE IN THE LOWER BEARING BRACKET IN THE SAME WAY.

11. FIT ONE DRAIN PLUG WITH "O" RING IN LOWER BEARING BRACKET AND FILL OIL IN THE OIL BAG. PERIODICALLY PRESS THE OIL BAG TO LET AIR ESCAPE SO THAT FILLING IS PROPER AND NO AIR IS ENTRAPPED IN THE OIL BAG.(A SMALL AMOUNT OF AIR IN THE OIL BAG WILL NOT BE DETRIMENTAL IN ANY WAY).REPLACE PLUG WITH "O" RING.

12. SLIDE ON WEAR PLATE AGAINST LOWER BEARING BRACKET AND TIGHTEN THE SAME. FIT KEY(25) ON THE SHAFT AND SLIDE ON IMPELLER. CLEARANCES BETWEEN IMPELLER AND WEAR PLATE CAN BE ADJUSTED BY MEANS OF THE TRIMMING SPACERS(27).TIGHTEN NUT(23) AND SEE THAT ROTOR SHAFT IS FREE.

13. FIT OUTER CASING ON TOP BRACKET WITH "O" RING. FIT DIFFUSER AND ADJUST CLEARANCES. SLIDE ON DIFFUSER WASHERS(22) AND FIT DIFFUSER (19) AGAINST THE OUTER CASING(10). TIGHTEN BY MEANS OF NUTS(18). FIX STRAINER, BASE PLATE AND TIGHTEN NUTS(18)

### **OIL SPECIFICATIONS**

- A) H.P. ENKLO OIL 46/48
- B) SHELL TELLUS 29.
- C) CHEVRON UNIVOLT 60/N61

### **PARTS CATALOG**

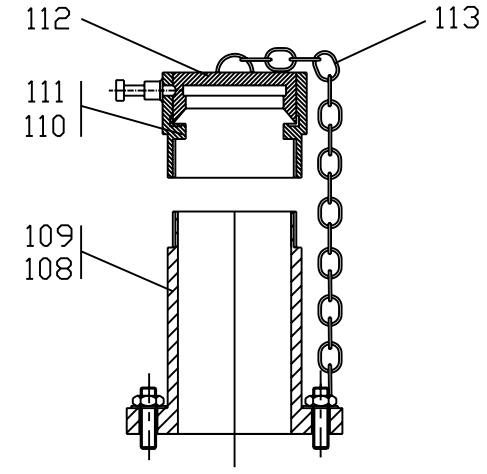
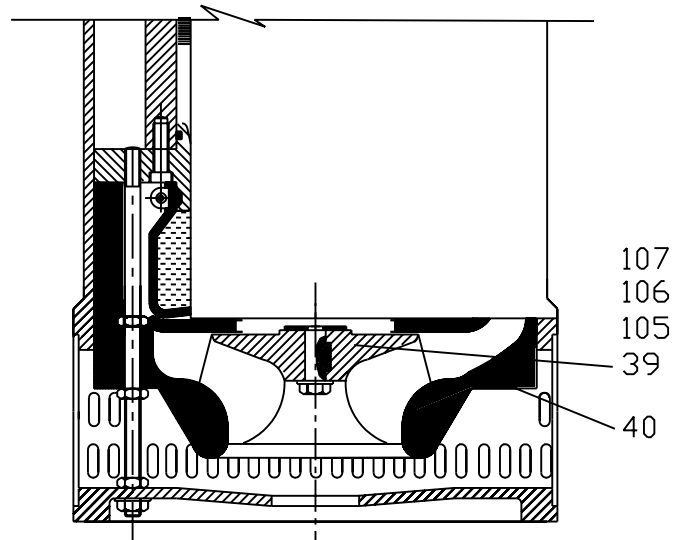
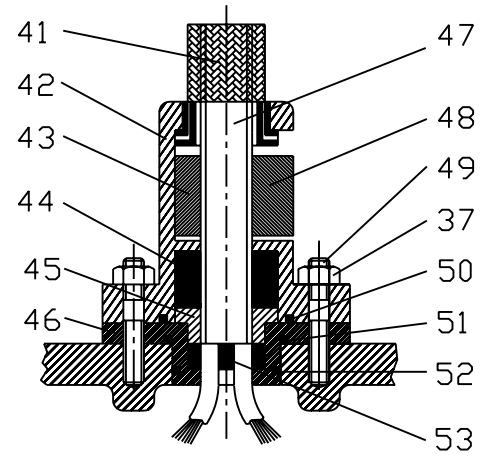
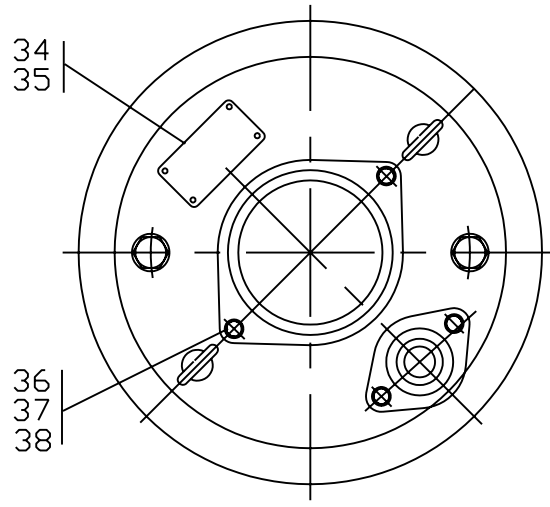
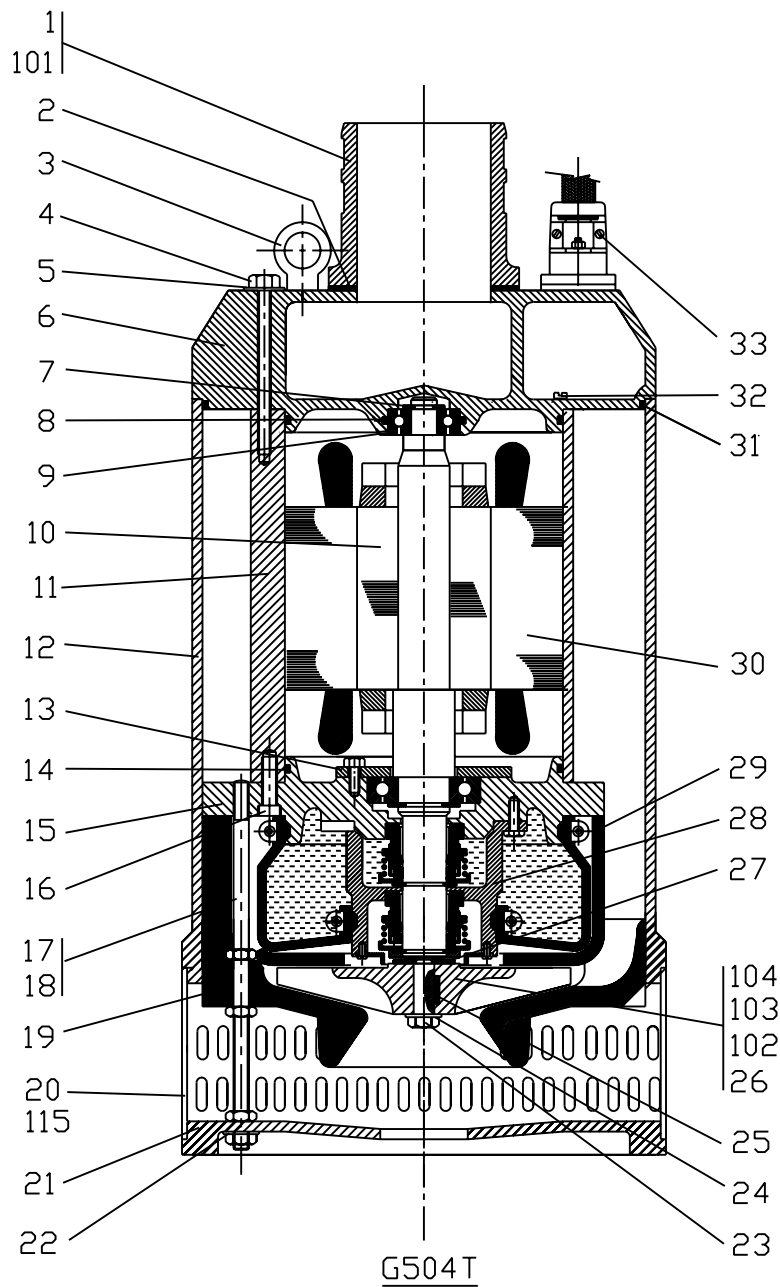
#### **1. COMPONENTS LIST : AS PER DRAWING NO. DW/130/00 (SHEET 1 & 2).**

### **DRAWINGS :**


- 1. SECTIONAL ASSEMBLY (DW/130/00) (SHEET 1)
- 2. SEALING ARRANGEMENT WITH MATERIAL PARTS LIST (DW/130/00) (SHEET 2)

**R: RECOMMENDED SPARES FOR TWO YEARS OPERATION**

<b><u>SR.NO</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>PART NO.</u></b>	<b><u>RECOMMENDED QTY.</u></b>
1.	MECHANICAL SEAL	535-022-00	1 NO.
2.	MECHANICAL SEAL	535-022-00	1 NO.
3.	"O" RING SET	375-003-66	2 SETS.
4.	CABLE GROMMET	260-013-66	2 NOS.
5.	CABLE LEAD GROMMET	260-014-66	2 NOS.
6.	UPPER BEARING	020-005-07	1 NO.
7.	LOWER BEARING	020-011-07	1 NO.
8.	STRAINER	640-012-11	1 NO.
9.	IMPELLER(G 502T, 60Hz)	300-033-22	1 NO.
10.	IMPELLER(G 504T, 60Hz)	300-031-22	1 NO.
11.	DIFFUSER(G 502T)	175-017-80	1 NO.
12.	DIFFUSER(G 504T)	175-016-80	1 NO.
13.	WEAR PLATE	715-004-80	1 NO.
14.	LOCK WASHER	695-004-21	2 NOS.



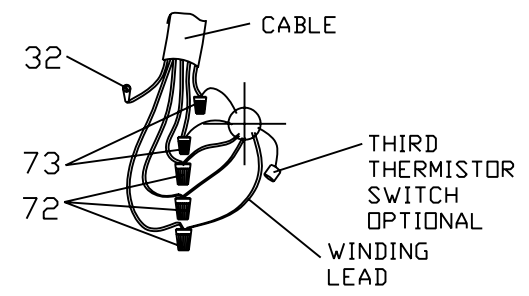
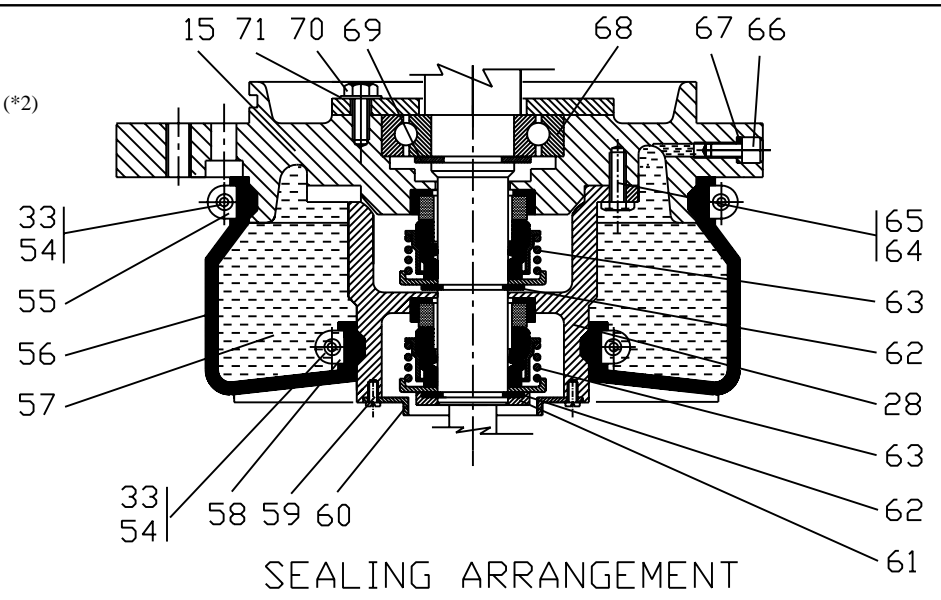
REV.No.	REVISION	DATE	APPD.

		Mody Pumps Inc. 2166 Zeus Court Bakersfield, CA 93308 USA Tel.: 661-392-7600 Fax: 661-392-7601 www.modypump.com		NAME	DATE
		DRN.	D.M.GUTAL	23-8-2000	
		CHD.			
TYPE	TITLE:	DRAWING No.	VER.	REV.	
G504T G502T	SECTIONAL ASSY. DRG. OF MODY SUBMERSIBLE PUMP	DW/130/00	1.3	06	
APPD.					


S.No.	CODE No.	DESCRIPTION	QTY.
1	405-048-21	OUTLET 4" NPT SS (502)	1
2	220-005-66	GASKET	1
3	270-005-14	LIFTING HOOK	2
4	045-018-21	HEX.HD.BOLT	4
5	700-006-21	WASHER	8
6	035-012-30	TOP BRACKET	1
7	080-004-08	CIRCLIP	1
8	380-013-66	'O' RING	1
9	020-005-07	UPPER BEARING	1
10	480-025-00	ROTOR COMPLETE	1
11	625-006-33	STATOR CASING	1
12	400-016-31	OUTER CASING	1
13	037-003-30	BEARING COVER	1
14	380-028-66	'O' RING	2
15	035-013-30	LOWER BEARING BRACKET	1
16	520-003-21	SOCKET HEAD SCREW	4
17	650-023-21	STUD	4
18	370-008-21	HEX.NUT	12
19	175-016-80	DIFFUSOR	1
20	640-012-11	STRAINER	1
21	030-006-30	BASE PLATE	1
22	705-001-21	SPRING WASHER	4
23	370-014-21	HEX.NUT	12
24	695-004-21	LOCK WASHER	1
25	320-006-21	KEY	1
26	300-030-22	IMPELLER, 50Hz (504T)	1
27	600-012-21	TRIMMING SPACER	3
28	545-008-45	SEAL HOUSING	1
29	715-004-80	WEAR PLATE	1
30	620-029-00	STATOR COMPLETE	1
31	380-036-66	'O' RING	1
32	525-007-40	EARTHING SCREW	1
33	525- -21	CH. HD. SCREW	6
34	350-008-21	NAME PLATE (OPN)	1
35	465-006-11	RIVE	4
36	650-012-21	STUD	4
37	370-006-21	HEX. NUT	4
38	700-004-21	WASHER	4
39	300-032-22	IMPELLER, 50Hz (502T)	1
40	175-017-80	DIFFUSOR (M502T)	1
41	227-005-21	CABLE GRIP	1
42	230-004-45	CABLE GLAND	1
43	662-002-45	CABLE SUPPORT	1
44	260-015-66	CABLE GROMMET	1
45	600-018-40	GLAND SPACER	1
46	235-009-49	CABLE GLAND BASE	1
47	065-015-79	1/4 SD CABLE	50'
48	085-009-49	CABLE CLAMP	1
49	650-013-21	STUD	4
50	380-010-66	'O' RING	1
51	380-007-66	'O' RING	1
52	380-005-66	'O' RING	1
53	260-014-66	CABLE LEAD GROMMET	1
54	370-002-21	HEX.NUT	8
55	085-008-21	OIL BAG CLAMP (BIG)	1SET

S.No.	CODE No.	DESCRIPTION	QTY.
56	150-004-66	OIL DIAPHRAGM	1
57	395-002-92	OIL	1.5L
58	085-007-21	OIL BAG CLAMP (SMALL)	1SET
59	525-018-21	CH. HD. SCREW	4
60	515-008-21	SAND GAURD	1
61	600-034-21	CAP FOR CIRCLIP	1
62	080-005-21	CIRCLIP	2
63	535-022-00	MECHANICAL SEAL	2
64	650-003-21	STUD	4
65	370-005-21	HEX. NUT	4
66	520-002-21	OIL PLUG	2
67	380-001-66	'O' RING	2
68	020-011-07	LOWER BEARING	2
69	080-006-08	CIRCLIP	1
70	045-004-21	HEX. HD. BOLT	4
71	700-002-21	WASHER	4
72	365-027-00	WIRE NUT CONNECTOR	3
73	365-025-00	WIRE NUT CONNECTOR	2

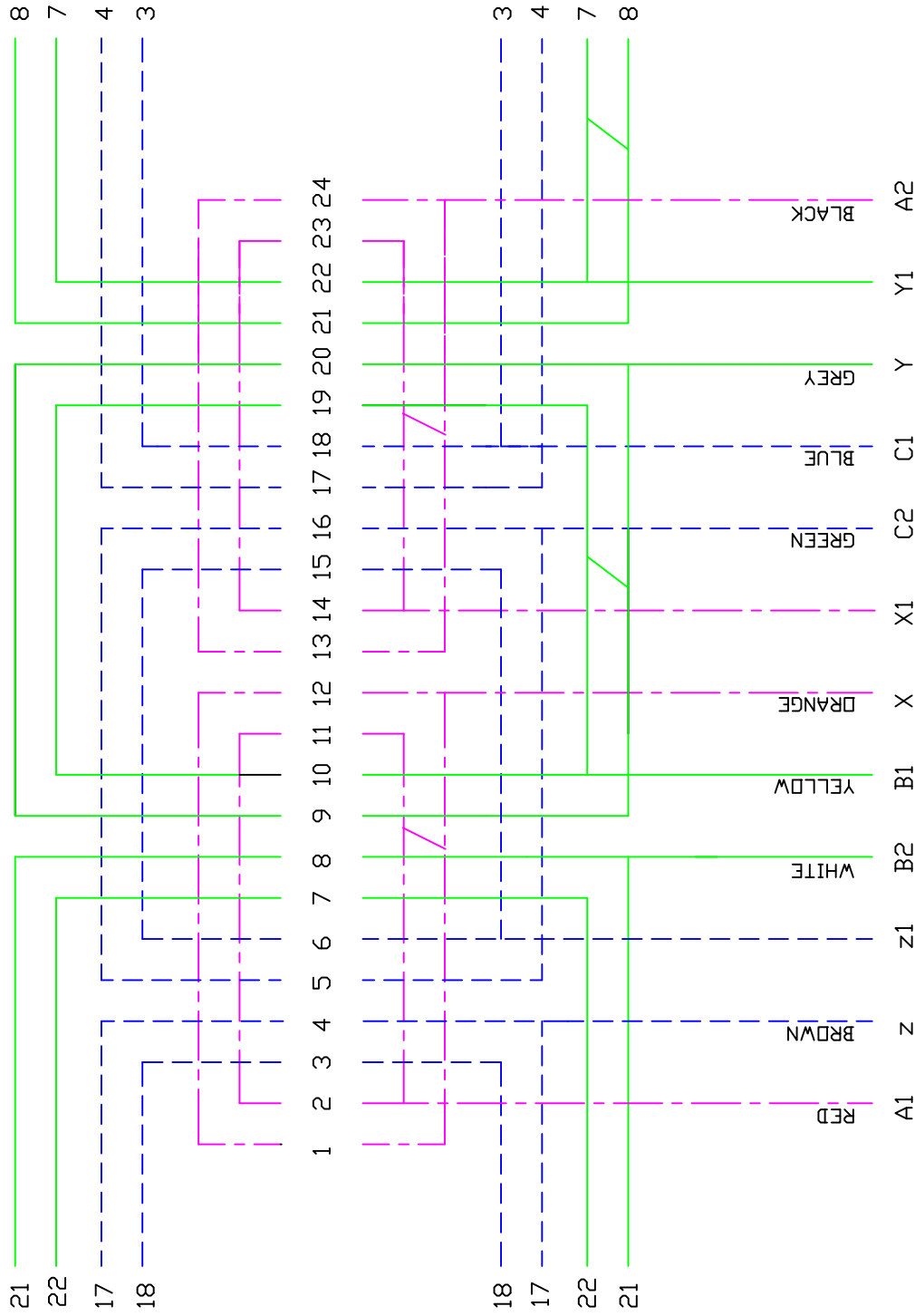
ALTERNATIVE/ADDITIONAL (*) PARTS			
S.No.	CODE No.	DESCRIPTION	QTY.
101	405-060-21	OUTLET 3" NPT SS (504)	1
102	300-031-22	IMPELLER, 60Hz (504T)	1
103	300-030-21	IMPELLER, 50Hz (504T)	1
104	300-031-21	IMPELLER, 60Hz (504T)	1
105	300-033-22	IMPELLER, 60Hz (502T)	1
106	300-032-21	IMPELLER, 50Hz (502T)	1
107	300-033-21	IMPELLER, 60Hz (502T)	1
108	430-002-45	BLANK CAP (2.5"MALE INST.)	1
109	430-003-45	BLANK CAP (3"MALE INST.)	1
110	075-001-21	CAP CHAIN	1
111	005-004-45	INST. COUPLING 2.5"	1
112	005-005-45	INST. COUPLING 3"	1
113	405-019-45	DISCHARGE OUTLET 2.5"	1
114	405-023-45	DISCHARGE OUTLET 3"	1
115	640-012-21	STRAINER	1
*	010-006-26	ZINC ANODE (BIG)	2
*	010-007-26	ZINC ANODE (SMALL)	2



**NOTE :**  
 -ITEMS ARE COMMON FOR ALL MODELS, UNLESS OTHERWISE SPECIFIED.  
 -ALTERNATIVE PARTS: THESE PARTS ARE FOR SPECIAL PUMPING DUTIES OR OUTLET CONNECTIONS(AT EXTRA COST) PLEASE  
 \*ADDITIONAL PARTS FOR SEA WATER SERVICE ONLY. SPECIFY WHEN ORDERING CONTACT SALES/ SERVICE FOR DETAILS. (AT EXTRA COST)

	Mody Pumps Inc. 2166 Zeus Court Bakersfield, CA 93308 USA Tel.: 661-392-7600 Fax: 661-392-7601 www.modypump.com		NAME	DATE	
	TYPE	TITLE:	DRN.	D.M.GUTAL	20-8-2000
	G504T G502T	MATERIAL PARTS LIST FOR MODY SUBMERSIBLE PUMP	APPD.		
		DRAWING No.	VER.	REV	
		DW/130/00	1.3	06	

# 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



# *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.