

OPERATING & INSTRUCTION MANUAL

NEPTUNE SERIES 7000 Mechanical “dia-PUMP” MODELS 7100 thru 7200



**204, Dekalb Pike,
Lansdale, PA 19446**

Lansdale, PA. 19446 • Tel.: 215-699-8700 • FAX: 215-699-0370

WARNING

LOCKOUTS ARE REQUIRED BEFORE
SERVICING THIS EQUIPMENT.

SAFETY INSTRUCTIONS:

Shut off/Lockout pump Power before Servicing.
Be certain pump isolation valves are
Closed and chemical is shut off.
Bleed pressure before servicing.

TABLE OF CONTENTS

SECTION	PARAGRAPH		PAGE
I		GENERAL DESCRIPTION	4
		LIMITED WARRANTY	5
		PARTS ORDERING INSTRUCTIONS	6
II		INSTALLATION INSTRUCTIONS	
	1	GENERAL	7
	2	SUCTION PIPING	8
	3	DISCHARGE PIPING	8
	4	INSTALLATION OUTDOORS	9
	5	STARTUP PROCEDURE	9
III		NORMAL MAINTENANCE	
	6	MAINTENANCE	10
		PARTS LIST	
		FOR 7100 SERIES PUMP	13
		FOR 7200 SERIES PUMP	13
IV	7	MOTOR OPERATING CONDITIONS	15
V		TROUBLE SHOOTING CHART	15
		DRAWINGS	
		BALLOONED DRAWING 7100 PUMP	12
		BALLOONED DRAWING 7200 PUMP	14
		BASIC DIMENSION OF 7100 SERIES PUMP	16
		BASIC DIMENSION OF 7200 SERIES PUMP	17

SECTION I

GENERAL DESCRIPTION

The Neptune Series 7000 Mechanical Diaphragm metering pump is a reliable metering pump of the Low-pressure diaphragm type. Under constant conditions of temperature, pressure, and capacity adjustment settings, a +/- 2% metered discharge volume is maintained. Rugged contoured composite diaphragm designed for high metering accuracy over a full 10:1 turndown range.

A plunger reciprocating at a set fixed stroke, actuates a flexible, chemically inert, Teflon faced diaphragm, to create pumping action. Screwing in and out a hand knob regulates the capacity of the pump. Screwing in (shortens the stroke length) reduces the volume and screwing out increases it. A percentage of flow is read on the scale.

Precision-engineered liquid ends meters mild solutions, aggressive chemicals, high viscosity polymers (up to 5000cP) and slurries (hydrated lime slurries up to 4 lbs of /gallon of water, activated carbon slurries up to 1 lbs /gallon of water)

Metering accuracy is maintained by the ball check valves at the suction and discharge of the pump. The use of screw in cartridge ball check valves eases maintenance.

Temperature limitations on the plastic heads are 36 – 125°F (2 - 52°C)

Mechanical diaphragm pumps are positive displacement reciprocating pumps. Each pump consists of a power end and a process end separated by mechanically operated Teflon faced diaphragm. Individual pumps will vary in appearance due to various liquid ends; however, the basic principles of operation remain the same.

PLEASE READ THE INSTRUCTION MANUAL COMPLETELY BEFORE INSTALLING THE PUMP

**SECTION I
NEPTUNE CHEMICAL PUMP COMPANY
LIMITED WARRANTY**

All Neptune Pumps are tested at the factory prior to shipment. Each part used in their construction has been carefully checked for workmanship.

If the pump is installed properly, Neptune Chemical Pump Company, Inc. warrants to the purchaser of this product for a period of twelve months from the date of first use or eighteen months from shipment, whichever occurs first, this product shall be free of defects in material and/or workmanship, as follows:

- 1 Neptune Chemical Pump Company, Inc. will replace, at no charge, any part that fails due to a defect in material and/or workmanship during the warranty period, FOB our factory, Lansdale, Pennsylvania. To obtain warranty service, you must forward the defective parts to the factory for examination, freight pre-paid.¹
- 1 This warranty period does not cover any product or product part, which has been subject to accident, misuse, abuse or negligence. Neptune Chemical Pump Company, Inc. shall only be liable under this warranty if the product is used in the manner intended by the manufacturer as specified in the written instructions furnished with this product.

Any express warranty not provided in this warranty document, and any remedy for breach of contract that, but for this provision, might arise by implication or operation of law, is hereby excluded and disclaimed. Under no circumstances shall Neptune Chemical Pump Company, Inc. be liable to purchaser or any other person for any charge for labor, repairs, or parts, performed or furnished by others, nor for any incidental consequential damages, whether arising out of breach of warranty, express or implied, a breach of contract or otherwise. Except to the extent prohibited by applicable law, any implied warranty of merchantability and fitness for a particular purpose are expressly limited in duration to the duration of this limited warranty.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long any implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may have other rights, which may vary from state to state.

IMPORTANT

SHOULD IT BE NECESSARY TO SEND THE PUMP TO THE FACTORY FOR REPAIR OR MAINTENANCE REBUILDING; DRAIN ALL OIL AND CHEMICAL FROM PUMP BEFORE SHIPPING. FAILURE TO DO SO CAN CAUSE EXTENSIVE DAMAGE TO THE MOTOR.

SEE IMPORTANT NOTICE – RETURN GOODS AUTHORIZATION

**IMPORTANT NOTICE
RETURN GOODS AUTHORIZATION**

- (1) All equipment returned to Neptune Chemical Pump Company, Inc. requires proper Returned Goods Authorization Number (RGA) and tags.
- (2) All equipment returned to the factory for repair or service must first be thoroughly flushed and have all chemical contact areas neutralized.
- (3) All equipment which has been in contact with chemicals must be accompanied by a copy of the Chemical Product Material Safety Data Sheet (MSDS).
- (4) Failure to comply with the above instructions will result in equipment being returned to sender, freight collect, without service.

SECTION I

PARTS ORDERING INSTRUCTIONS

The complete model number and serial number of the pump must be furnished to insure prompt and accurate parts service. These numbers are found on the name plate (sample below) located on the side of the pump.

Please refer to page number (13) for parts list. Ballooned drawing of the pumps can be found on pages (12) and (14).

NEPTUNE PROPORTIONING PUMP				
MODEL NO.	XXXXXX			
SERIAL NO.	XXXXXX			
MAX. CAP. EACH CYL.	XXX	GPH MAX. PRESSURE	XXX	PSI
NEPTUNE CHEMICAL PUMP CO., INC.				
LANSDALE, PA 19446				
PHONE (215) 699-8700				

Send all orders or inquiries for parts to:

Parts Department
Neptune Chemical Pump Company, Inc.
P.O. Box 247
Lansdale, PA 19446
Tel.: 215-699-8700
1 -888-3NEPTUNE (888-363-7886)
FAX: 215-699-0370

NOTE: PLEASE SUPPLY BOTH MODEL AND SERIAL NUMBERS.

SECTION II

INSTALLATION INSTRUCTIONS

1.0 GENERAL

1.0.1 UNPACKING & INSPECTION

When unpacking a pump or chemical feed system, be certain that no parts are thrown away. Examine the equipment for possible damage. If damage has occurred, file claim with the common carrier within 24 hours. Neptune will assist in estimating the repair costs.

1.0.2 The Mechanical Diaphragm metering pumps should be located on a level surface. Three mounting holes are provided to anchor the pump securely to the mounting surface. All piping to the pump should be supported to prevent stress on the pump input and output fittings.

1.0.3 Before connecting the pump make sure that all fittings are completely clean by flushing thoroughly. Foreign matters with sharp edges entering the pump can damage the diaphragm and severely limit the life of the pump.

1.0.4 A "Y" STRAINER (AT LEAST ONE PIPE SIZE LARGER THAN SUCTION INLET SIZE OF THE PUMP) MUST BE INSTALLED IN THE SUCTION LINE OF THE PUMP TO INSURE AGAINST FOREIGN MATTER ENTERING THE PUMP

1.0.5 It is recommended that shut-off valves and unions be placed in the suction and discharge lines if possible. Such an arrangement will facilitate servicing the pump.

1.0.6 The electrical supply to the pump must match the motor nameplate characteristics. The motor rotation is counter clockwise when viewed from the top of the motor or looking down on the pump. An arrow mark on the gearbox shows the rotation (See Figure 1)

IMPORTANT

On single-phase units, the rotation is set at the factory and must not be changed.

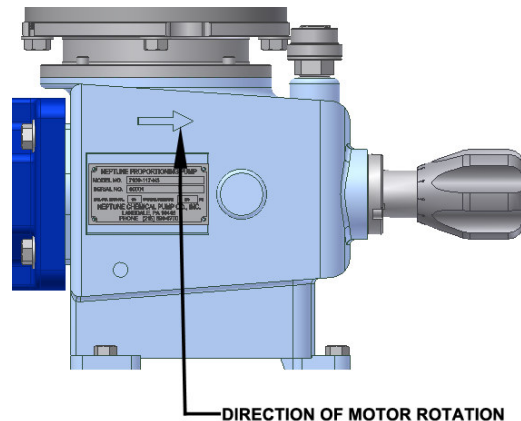


FIGURE 1

Please note Figure 1, indicating the correct rotation. Operation with the incorrect rotation will damage the pump and motor.

1.0.7 Fill gearbox and pump by pouring the specified gear oil (drive lubricant) supplied through the Breather (see note) at the rear of the pump. Pour fluid in slowly until it covers the worm gear.

PLEASE NOTE: Oil may be poured through breather. Snap off the breather top and remove the breather sponge to fill oil and then reinstall sponge and breather top.

The hydraulic fluid supplied by Neptune is Industrial Tufoil

Common sources for hydraulic fluid are:

Fluoramics Inc	Industrial Tufoil

All piping systems should include:

- 1.1.1 A separate system relief valve to protect piping and process equipment, including the pump, from excess process pressures.

*An **external relief valve** is required!!
- 1.1.2 Shutoff valves and unions (or flanges) on suction and discharge piping. This permits check valve inspection without draining long runs of piping. Shutoff valves should be of the same size as connecting pipe. Ball valves are preferred since they offer minimum flow restriction.
- 1.1.3 An inlet strainer, if the product is not slurry. Pump check valves are susceptible to dirt and other solid contaminants unless designed for that service, and any accumulation can cause malfunction. The strainer should be located between the suction shutoff valve and the pump suction valve. It must be sized to accommodate the flow rate and the anticipated level of contamination. A 100-mesh screen size is recommended.
- 1.1.4 Valve housings or other portions of the reagent head must not support piping weight, as the resulting stresses can cause leaks. In piping assembly, use a sealing compound chemically compatible with the process material.

SUCTION PRESSURE REQUIREMENTS

Although Mechanical Diaphragm metering pumps have suction lift capability, a flooded suction is preferable whenever possible. The pump should be located as close as possible to the suction side reservoir or other source.

The pump will self-prime with 10 ft (3 meters) of water suction lift (wetted valves, zero back pressure, full stroke and speed, water like solutions). Once primed, the pump is capable of up to 10 feet (3 meters) of water suction lift.

All Mechanical Diaphragm metering pumps are designed for continuous service at the rated discharge pressure. The discharge pressure must exceed suction pressure by at least 6 Psia (or 0.41 Bar). This can be achieved where necessary by the installation of a backpressure valve in the discharge line.

2.0 SUCTION PIPING

- 2.0.1 The suction piping to the pump must be absolutely airtight for optimum operation any leakage in the suction line will reduce pumping capacity. Pipe should be one size larger than suction inlet size of the pump. It is suggested that the suction piping be tested with low air pressure and a soap solution to assure that no leaks exist. Limit the total length of the suction line to 5-8 feet for suction lift or 8-10 feet for flooded suction. Minimize bends, elbows, or other restrictions for better pumping efficiency.
- 2.0.2 NEPTUNE RECOMMENDS THAT The Mechanical Diaphragm metering pumps BE OPERATED WITH A FLOODED SUCTION, AS THIS WILL FACILITATE START UP AND INCREASE THE SERVICE LIFE OF THE PUMP.

- 2.0.3 It is recommended that all solution tanks be furnished with a low level cut off switch or low-level alarm and cut off switch to prevent the pump from running dry. Although the pump can run dry for a few minutes. OPERATION AGAINST A DRY SYSTEM FOR A PROLONGED PERIOD MAY CAUSE DAMAGE TO THE PUMP DIAPHRAGM AND REDUCE THE OPERATING LIFE OF THE PUMP.

3.0 DISCHARGE PIPING

- 3.0.1 It is recommended that the Mechanical Diaphragm metering pump operate against a suitable back pressure to facilitate better operation of the check valves.
- 3.0.3 To protect the pump, it is recommended that an external relief valve as manufactured by Neptune Chemical Pump Company, or equal, be placed in the discharge line of the pump to avoid over pressure.
- 3.0.4 Discharge piping should equal discharge port size.

NOTE: All parts must have a working pressure rating above the required set pressure.

- 3.0.5 Start and run the pump.
- 3.0.6 Adjust the required percentage of flow required.

CAUTION

Do not attempt to run the pump in excess of its nameplate rating.

4.0 INSTALLATION OUTDOORS

The Mechanical Diaphragm metering pump is a totally enclosed pump, which can be used outdoors or indoors. When installed outdoors, make sure that the pump is protected against extremes of nature as follows:

- 4.0.1 Running of the pump when exposed to tropical sunshine with ambient temperature above 90°F (32°C) would cause excessive oil and motor temperatures. The pump should be shaded and located in such a way as to permit an ample degree of air circulation.
- 4.0.2 Under cold conditions, the pump should be insulated and a heater should be supplied in order to maintain the hydraulic fluid at an ambient temperature above 36°F (2°C.)

5.0 START UP PROCEDURE

The following start up procedure is complete and does repeat instructions on filling the gearbox and pump.

- 5.0.1 Open suction and discharge valve. (See recommendation 1.0.5)
- 5.0.2 Set capacity indicator to zero by turning hand knob clockwise.
- 5.0.3 Adjust backpressure close to zero.
- 5.0.3 Start pump.
- 5.0.4 On initial start-ups: Check for proper motor rotation (Refer to Paragraph 1.0.6). Listen for any abnormal motor or crank noises, and if present, refer to trouble shooting chart.
- 5.0.5 Adjust pump to required capacity by turning hand knob anticlockwise.
- 5.0.6 Adjust pressure to requirement.

SECTION III

NORMAL MAINTENANCE

6.0 MAINTENANCE

Under normal conditions, the Mechanical Diaphragm metering pumps should not require any significant amount of maintenance. It is advised that periodic visual observations be made of the oil level to make sure that it is over the worm gear. The liquid end of the pump should also be inspected for leakage. These observations should be made regularly.

The Gear oil should be drained and replaced twice a year, removing the drain plug at the side of the pump. This change can be scheduled with the normal factory maintenance at seasonal periods.

6.1.0 OIL CHANGE (100% Tufoil)

The recommended oil change intervals are dependent upon the operating environment and level of pump usage. Under normal service conditions the oil must be changed after up to 1500 annual operating hours.

- 6.1.1 Disconnect the power source to the drive motor
- 6.1.2 Relieve all pressure from the piping system.
- 6.1.3 Drain the oil by removing the drain plug at the side of the gearbox.
- 6.1.4 Replace the drain plug.
- 6.1.5 Remove breather on the gearbox. (Or snap off the breather top and remove sponge)
- 6.1.6 Fill with oil up to an inch from the top of the gearbox.
- 6.1.7 Replace breather. (Or snap on the breather top after replacing sponge)

6.2.0 CHECK VALVE REMOVAL CLEANING AND REPLACEMENT.

Should the valves need cleaning, remove as follows:

- 6.2.1 Disconnect the power source to the drive motor.
- 6.2.2 Relieve all pressure from the piping system.
- 6.2.3 Close the inlet and outlet shutoff valves.
- 6.2.4 Loosen and remove the suction and discharge valve cartridges slowly to drain any trapped liquid.
- 6.2.5 Clean valve cartridges with suitable solvent. Both valve cartridges are complete and integral units and should not be disassembled for cleaning. If the valves are found to be worn and in need of replacement, an entire valve cartridge in either suction or discharge should be ordered.
- 6.2.6 To replace reverse above procedures. Make sure that the port orientation is right.

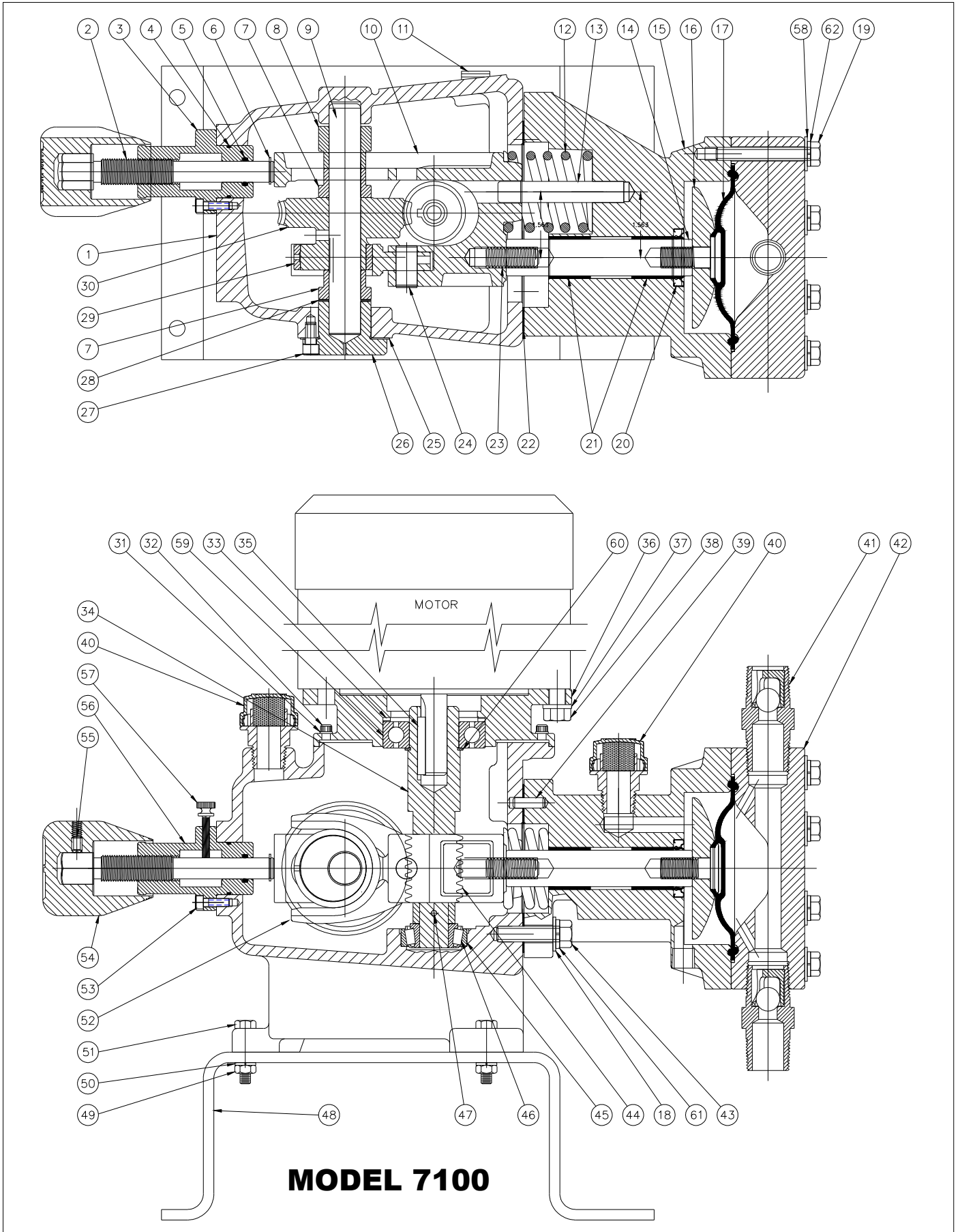
6.3.0 LIQUID HEAD REMOVAL, INSPECTION, AND REINSTALLATION

CAUTION

If the diaphragm has failed, any process fluid would pass through the bleed hole located behind the diaphragm. Handle any liquid with appropriate care.

Mechanical diaphragms should operate for approximately 2000 hours under normal operating conditions; however, the accumulation of foreign material or debris and abnormal operating condition or simply age can cause failure. Failure can also occur as a result of system over pressure. Periodic diaphragm inspection and replacement are recommended.

- 6.3.1 Adjust the stroke setting to "0" percent and disconnect the power source to the drive motor
- 6.3.2 Relieve all pressure from the piping system.
- 6.3.3 Take all precautions described under "Caution" to prevent environmental and personnel exposure to hazardous materials.
- 6.3.4 Disconnect piping to the reagent head and drain any process liquid.
- 6.3.5 Place a pan underneath the pump head adaptor to catch any liquid leakage.
- 6.3.6 Remove all but two top reagent head bolt. Product will leak out between the pump head adaptor and reagent head as the bolts are loosened.
- 6.3.7 Tilt the head and pour out any liquids retained by the check valves into a suitable container, continuing to follow safety precautions as appropriate.
- 6.3.8 Remove the final bolt and rinse or clean the reagent head with an appropriate material.
- 6.3.9 Inspect the diaphragm and remove the diaphragm if necessary, by turning counter-clockwise. The diaphragm must be replaced if it is cracked, separated, or obviously damaged.
- 6.3.10 To install a diaphragm, first ensure that the critical sealing areas of diaphragm, reagent head, and pump head are clean and free of debris. Then lubricate the elastomer side of the diaphragm liberally, where it is in contact against the intermediate chamber wall and backup plate, with a lubricant (silicone grease is preferred).
- 6.3.11 Thread the diaphragm (clockwise) fully onto the shaft.
- 6.3.12 Install the reagent head bolts and tighten in an alternating pattern to ensure an even pressure on all bolts.



COMMON PARTS TO SERIES 7000 PUMP

ITEM NO.	DESCRIPTION	QTY.	PART NO.
1	Gear Box	1	004224
4*	Control Stud Holder O-Ring	1	100322
5*	Control Stud O-Ring	1	100417
6*	Retaining Ring	1	106524
7	Middle Gear Spacers		004225
8	End Gear Spacer	1	004227
9	Gear Shaft	1	106305
10	Link	1	004214
11	Drain Plug	1	100182
12	Spring	1	107668
13	Guide Pin	1	105235
18	Flat Washers	4	106747
20*	Seal	1	107537
21	Glide Bearings	2	107532
22*	Face Gasket	1	107678
23	Anchor Screw	1	107667
24	Wrist Pin	1	107681
25	Shaft Retainer Gasket	1	106290
26	Shaft Retainer	1	000289
27	Shaft Retainer Screws	3	100254
28	Thrust Washers	3	100252
29*	Cam Bearing Ring	1	004222
31	#8 Lock Washers	4	100219
32	#8 Screws	4	100215
33	Wave Spring	1	107599

ITEM NO.	DESCRIPTION	QTY.	PART NO.
34	Motor Worm Shaft	1	004156
35	Motor Shaft Key	1	-----
36	Motor Flange Adapter	1	004157
37	3/8" Lock Washers	4	100217
38	Motor Screws	4	100216
39	Spring Pin	2	100010
40	Fill/Vent Plug	2	000191
44	Worm 18 SPM	1	003516
	Worm 37 SPM	1	000170
	Worm 72 SPM	1	000172
	Worm 117 SPM	1	000169
45	Bearing Cup	1	100179
46	Bearing Cone	1	100180
47	Worm Pin	1	100181
48	Pump Mount Bracket	1	001415
49	1/4" Hex Nuts	3	100448
50	1/4" Lock Washers	3	100169
51	1/4-20 x 1 1/4" Lg. Screw	3	100168
52	Connecting Rod	1	004215
53	Control Holder Screws	3	105108
54	Hand Knob	1	107652
55	Hand Knob Set Screw	1	105017
57	Thumb Screw	1	107677
59	Bearing	1	106180
60	Retaining Ring	1	106593
61	3/8" Lock Washer	4	107175

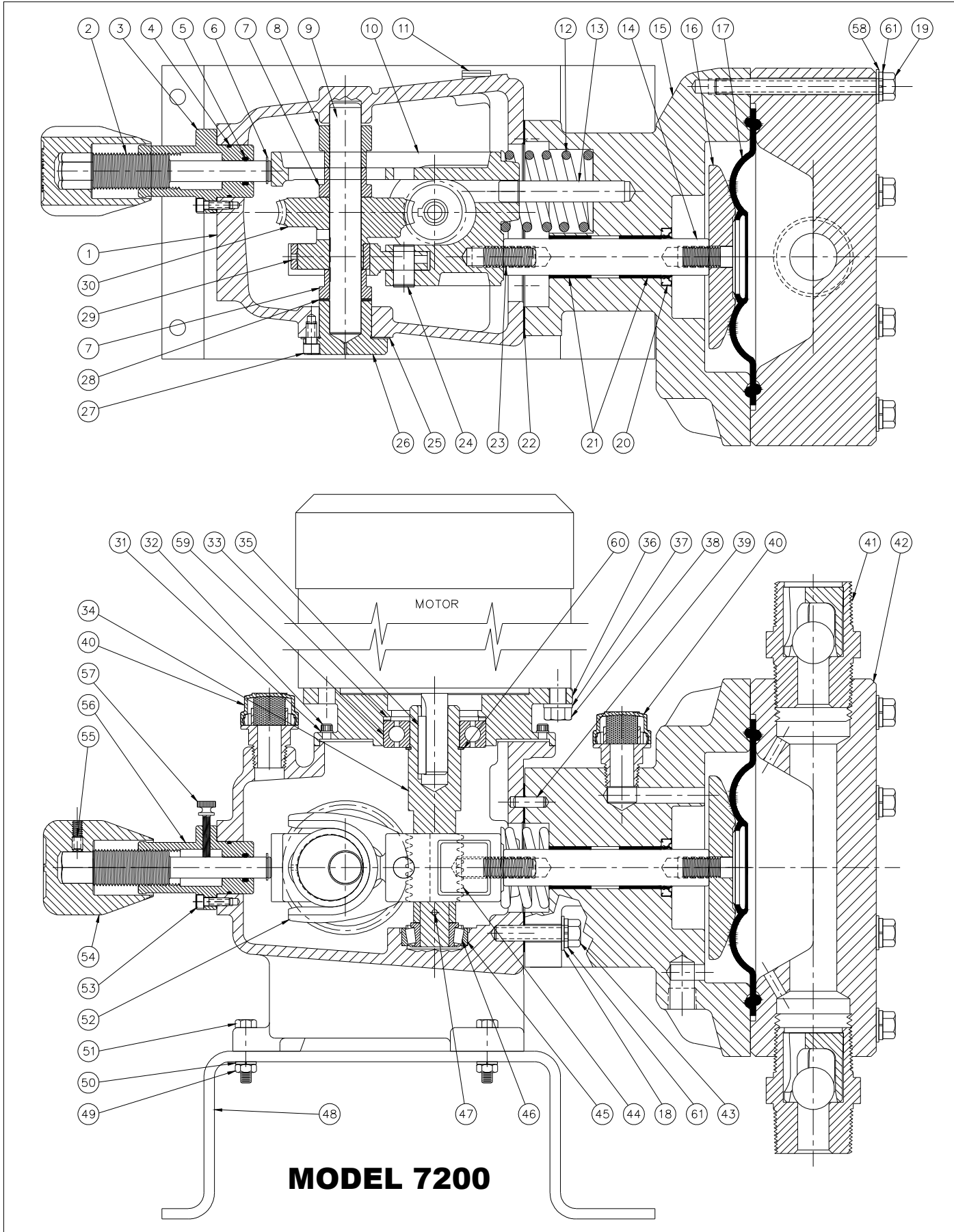
PARTS EXCLUSIVE TO SERIES 7200 PUMPS

ITEM NO.	DESCRIPTION	QTY.	N3 PART NO.	N5 PART NO.	N8 PART NO.
2	Control Stud	1	004212	004212	004212
3	Control Stud Holder	1	004211	004211	004211
14	Push Rod	1	004221	004221	004221
15	Intermediate Housing	1	004200	004200	004200
16	Backup Plate	1	004229	004229	004229
17*	Diaphragm	1	107682	107682	107682
19	Pump Head Screws	8	101132	106181	106181
30	Worm Gear 37 SPM	1	004285	004285	004285
	Worm Gear 72 SPM	1	004286	004286	004286
	Worm Gear 117 SPM	1	004287	004287	004287
41*	Valve Cartridge	2	004330	004175	004176
42	Liquid Head	1	004278	004123	004277
43	Housing Screws	4	101133	101133	101133
56	Indicating Scale	1	107660	107660	107660
58	Head Washers	8	106439	106439	106439
61	Head Lock Washers	8	107175	107175	107175

PARTS EXCLUSIVE TO SERIES 7100 PUMPS

ITEM NO.	DESCRIPTION	QTY.	N3 PART NO.	N5 PART NO.	N8 PART NO.
2	Control Stud	1	004273	004273	004273
3	Control Stud Holder	1	004274	004274	004274
14	Push Rod	1	004272	004272	004272
15	Intermediate Housing	1	004270	004270	004270
16	Backup Plate	1	004276	004276	004276
17*	Diaphragm	1	107692	107692	107692
19	Pump Head Screws	8	101122	107697	107697
30	Worm Gear 18 SPM	1	004220	004220	004220
	Worm Gear 37 SPM	1	004217	004217	004217
	Worm Gear 72 SPM	1	004218	004218	004218
	Worm Gear 117 SPM	1	004219	004219	004219
41*	Valve Cartridge	2	003117	004324	004325
42	Liquid Head	1	004269	004279	004268
43	Housing Screws	4	WD171315	WD171315	WD171315
56	Indicating Scale	1	107659	107659	107659
58	Head Washers	8	106857	106857	106857
62	Head Lock Washers	8	106832	106832	106832

Note: PARTS MARKED WITH "*" ARE Recommended SPARE PARTS



SECTION IV

MOTOR OPERATING CONDITIONS

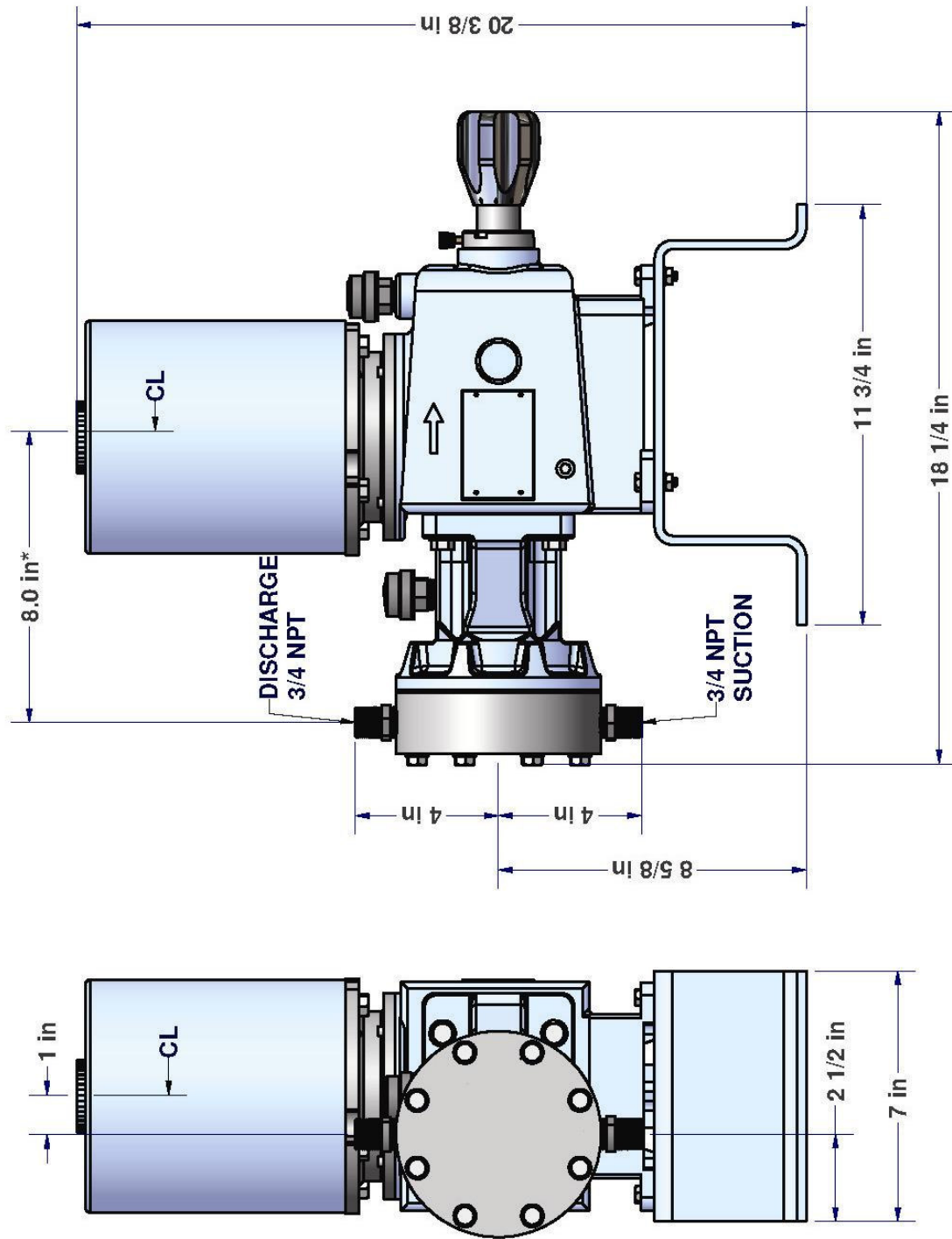
7.0 The normal temperature rise for standard motors is 40°C above ambient temperature and, thus, it might appear that the motor is operating at a higher than normal temperature. This situation is normal.

As a precaution against motor overheating, it is recommended that the pump be located where adequate ventilation is available, It is also recommended that a MOTOR STARTER WITH THE PROPER OVERLOAD PROTECTION BE SUPPLIED AS AN ADDITIONAL SAFETY DEVICE.

SECTION V TROUBLE SHOOTING CHART

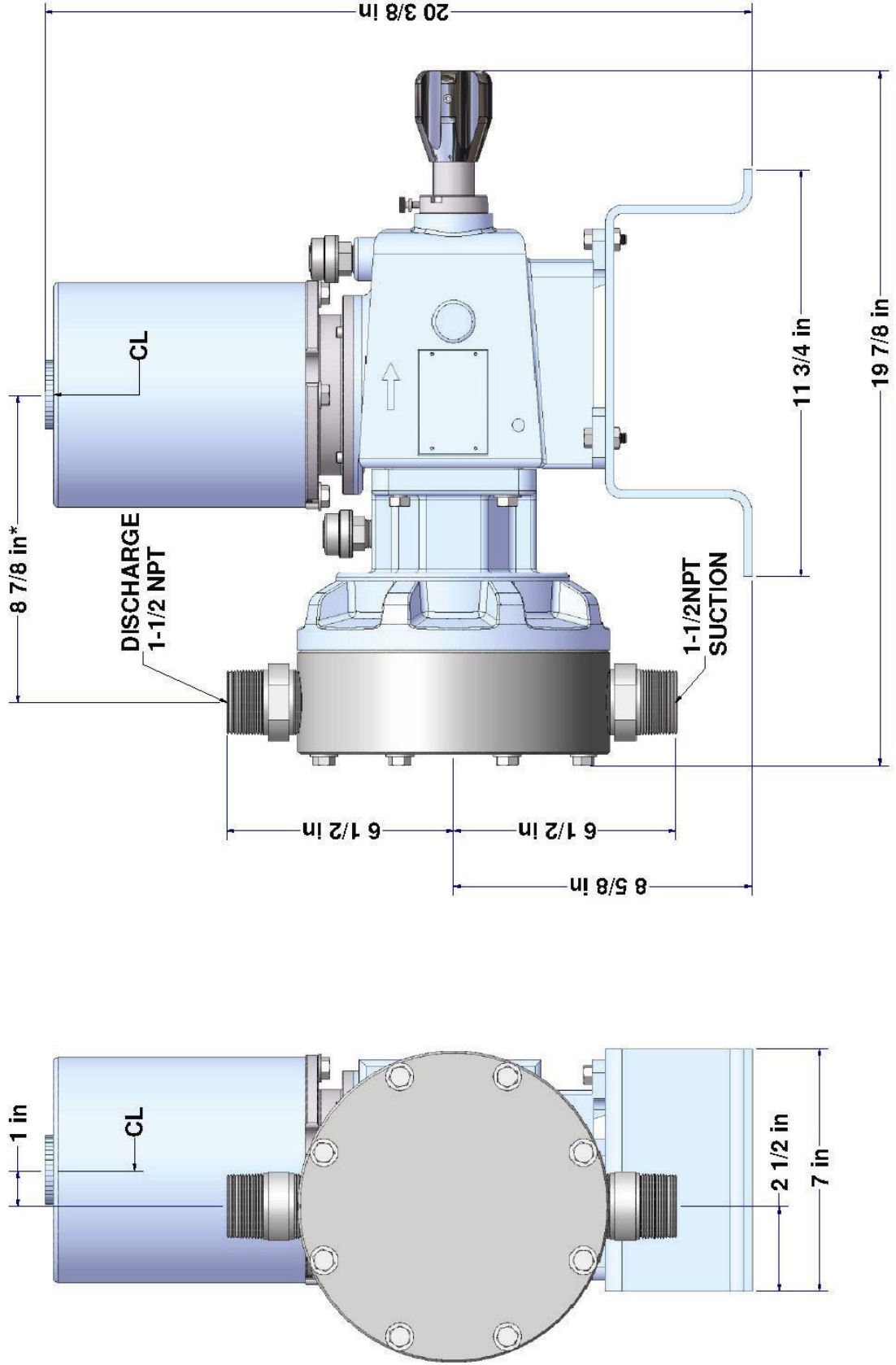
SYMPTOMS	CAUSES	REMEDIES
Pump Motor Will Not Operate.	A. Blown Fuse.	Check for short circuit or overload
	Open thermal overload device in starter.	Reset.
	Low liquid level in tank (where low level cut-off is used).	Fill tank.
	D. Broken wire.	Locate and repair.
	E. Low voltage.	Check for too light wiring.
Pump Does Not Deliver Rated Capacity	Oil "frozen" in pump.	Thaw out.
	A. Starved suction.	Look for blockage in suction line. Replace suction piping with larger size.
	B. Leaky suction piping.	Pressure test, repair or replace defective piping.
	C. Excessive suction lift.	Rearrange equipment location to reduce suction lift.
	Liquid too close to boiling point.	Lower temperature or increase suction pressure slightly.
Pump delivers erratically.	Worn or dirty valves or seats, or both.	Clean or replace.
	Viscosity of liquid too high.	Reduce viscosity by heating or other means. 2. Increase size of suction piping 3. Increase suction pressure slightly
	Low discharge pressure.	A minimum discharge pressure of 25 psi is required to insure proper capacity control
	Leaky suction line.	Repair or replace piping.
	Worn or dirty valves or seats, or both.	Clean or replace valve assembly.
Motor overheats thermal overload activates,	Excessive excursion of ball valves from seats (indicated by ball chatter).	Increase backpressure.
	Insufficient suction pressure	Increase suction pressure. Raise tank level.
	Liquid too close to boiling point, Leaky system relief valve.	Reduce temperature or raise suction pressure. Repair or replace relief valve
	Power supply does not match motor.	Check power supply against motor nameplate data.
	Overload caused by operating pump beyond rated capacity	Check operating pressure against pump manufacturer data plate maximum rating
5. Noisy Operation 1. In Pump	Pump Valves.	Valves must move to open and close, and they will make a clicking noise as they operate. These noises are sometimes amplified by natural resonances in piping system. They are usually indications of normal valve functioning.
	2. In Gear Reducer	Pounding noise at high discharge pressure
Oil level Low	Flexible diaphragm punctured	Fluid compressibility causes reversal of load on gears at end of pressure stroke, Not considered detrimental. Replace diaphragm
Gearbox hot	Gearbox temp. may rise to 150°F. and may be caused by various reasons and should not raise any concern.	In case of excessive heat buildup, contact factory.

BASIC DIMENSIONS OF SERIES 7100 PUMP



* DIMENSION SHOWN IS FOR METAL HEAD
DIMENSION WITH PLASTIC HEAD IS 8-1/4"

BASIC DIMENSIONS OF SERIES 7200 PUMP



* DIMENSION SHOWN IS FOR METAL HEAD
 DIMENSION WITH PLASTIC HEAD IS 9-1/8"

MSDS

MATERIAL SAFETY DATA SHEET

IDENTITY: INDUSTRIAL TUFOIL

MANUFACTURER: Fluoramics Inc.

ADDRESS: 18 Industrial Avenue
Mahwah, N.J. 07430

PHONE: 201-825-8110

DATE PREPARED: January, 2003

PREPARED BY: F.G. Reick,
President

CAS NUMBERS:

Methacrylate/vinyl pyrroudone copolymer: 68171 46 0

Didecyldipate dimer ester: 16958 92 2

Poly alpha olefin: 68649 12 7

Polytetrafluoroethylene: 9002 84 0

Petroleum hydrocarbon motor oil:

64742 65 0 and 68649 42 3

SECTION 1 - COMPONENTS

COMPONENTS	%	ACHIH - TLV
PTFE (Teflon)	1	N/A
Poly Alpha Olefin	30	See CAS #
Complex Di Esters	30	N/A
30 Weight Engine Oil	30	N/A
Surfactant and Trace Additives	9	N/A

SECTION 2 – PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling point: 300° F Overpoint

Vapor Pressure: Nil

Vapor Density: N/A

Solubility in Water: Nil

Specific Gravity: 0.9047

Melting Point: N/A

Evaporation Rate (Butyl Acetate 1): N/A

Water Reactive: N/A

Appearance and Odor: Reddish tan - odorless

SECTION 3 - FIRE & EXPLOSION HAZARD DATA

Flash Point & Method Used: 435° F - ASTM D 92

Flammability Limits in Air % by Volume: N/A

Extinguisher Media: Carbon Dioxide - Dry Chemical

Special Fire Fighting Procedures: Use foam and water. Spray carefully to prevent excessive frothing. Cool exposed containers with water.

Unusual fire and Explosion Hazards: Do not store or mix with strong oxidants.

	NFPA CODES	HMS CODES
HEALTH	1	1
FLAMMABILITY	1	1
REACTIVITY	0	0
PERSONAL PROTECTION		B

SECTION 4 - REACTIVITY HAZARD DATA

Stability: Stable

Conditions to Avoid: Excessive heat - direct flame

Incompatibility (Materials to Avoid): Strong oxidants, ie Liquid Chlorine or Concentrated Oxygen

Hazardous Decomposition Products: CO² - Trace quantities of fluorides. Decompose product above 500° F

Hazardous Polymerization: Will not occur

SECTION 5 - HEALTH HAZARD DATA

Primary Routes of Entry: Inhalation, skin absorption, ingestion

Carcinogen listed in: N/A

Health Hazards: Acute - treat symptomatically

Signs and Symptoms of Exposure: Prolonged & repeated over-exposure may irritate the skin or some individuals.

Medical Conditions Generally Aggravated by Exposure: See below.

Eye Contact: Wash with copious amounts of water.

Skin Contact: Remove by wiping and wash with soap and water.

Inhalation: Expose to fresh air.

Ingestion: Treat symptomatically. Call physician.

Emergency First Aid Procedures: Seek medical assistance for further treatment, observation and support if necessary.

SECTION 6 - CONTROL AND PROTECTIVE MEASURES

Respiratory Protection (Specify Type): None required at ambient temperature.

Protective Gloves: Butyle rubber

Eye Protection: Safety goggles

Ventilation to be Used: Local exhaust (preferred), Mechanical (general); usually none.

Other Protective Clothing and Equipment: Protective garment when applicable.

Hygienic Work Practices: As indicated.

SECTION 7 PRECAUTIONS FOR SAFE HANDLING AND USE LEAK PROCEDURES

Steps to be Taken if Material is Spilled or Released: Absorb with porous inert material. Transfer to closed container.

Waste Disposal Methods: Sealed drum containment as per organic chemicals. Follow federal, state and local regulations regarding health and pollution.

Precautions to be Taken in Handling and Storage: Keep containers closed when not in use.

Other Precautions and/or Special Hazards: Avoid frequent or prolonged skin contact or inhalation of fumes, mists and vapors

