

MODEL 216
SPECIFICATIONS

MACHINE SPECIFICATIONS

PERFORMANCE

DISCHARGE VOLUME.....2.0 GPM / LPM
PUMP HEAD PRESSURE.....1600 PSI / 111 BAR

GENERAL

MINIMUM INLET WATER PRESSURE.....40 PSI / 0.68 BAR
WEIGHT (DRY) 230 LBS / 100 KG
SPRAY TIP.....(#3-15DEG) P/N J00-15030-2
HOSE, DISCHARGE.....3/8" X 50' P/N K02-03150E1
42" WAND & TRIGGER GUN..... P/N J06-00158-B
BELT..... P/N R02-002427-II

PUMP MOTOR

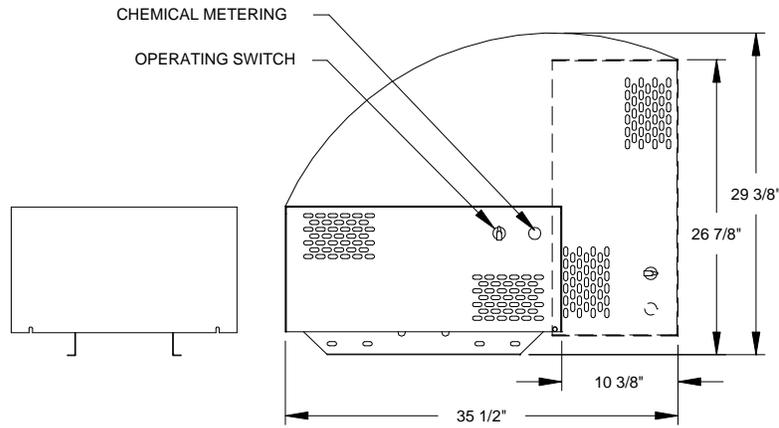
MOTOR HORSEPOWER.....2.3 HP / 1.7 KW
MOTOR SPEED.....3450 RPM
MOTOR VOLTAGE.....115V/230V 60HZ 1PH
MOTOR PART NUMBER..... F02-00138-U
MOTOR PULLEY.....R03-00132

ELECTRICAL

MACHINE VOLTAGE.....115V 60HZ 1PH
CURRENT.....20 AMP
VACUUM SWITCH.....P/N F04-00761
CAM SWITCH - 32 AMP.....F04-00741A

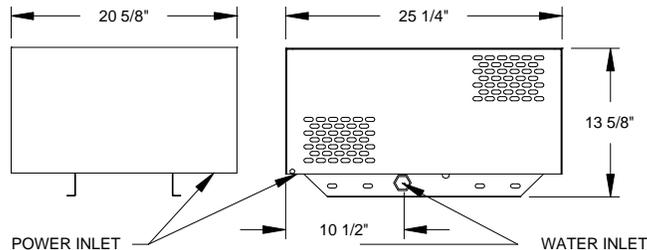
PUMP

PUMP.....P/N N07-00026
PUMP PULLEY.....P/N R03-00669
PUMP PULLEY BUSHING.....P/N R04-00001
PUMP UNLOADER..... P/N C07-03700



LEFT SIDE FRONT VIEW

FRONT VIEW



LEFT SIDE BACK VIEW

BACK VIEW

OPERATION TABLE OF CONTENTS

ELECTRIC DRIVEN COLD WATER

SAFETY INSTRUCTIONS

Page Number

- Safety Symbols 3
- General 3
- Mechanical 4
- Electrical 4

INSTALLATION

- Barrier 4
- Water Supply 4
- Water Conditions 4
- Freezing 4
- Chemicals 4
- Electrical 5
- Extension Cord 5

OPERATION

- Pre Start-Up 5
- Start-Up 5
- Shut Down 6

MAINTENANCE

Machine

- Flushing 7
- Storage 7
- Belt Deflection 7
- Schedule 8

TROUBLESHOOTING

Page Number

- Machine 9, 10
- Pump See Parts List Section

SERVICE

- Machine 5
- Pump See Parts Lists Section
- Unloader See Parts Lists Section
- Trigger Gun See Parts List Section
- Chemical Metering Valve See Parts Lists Section

COMPONENT ADJUSTMENT

CHEMICAL METRING

- Flow Adjustment See Parts List Section

UNLOADER

- Pressure Adjustment See Parts List Section

WARRANTY

Inside Back Cover

OPERATION - TABLE OF CONTENTS

VALVE, UNLOADER - C07-03700

SPECIFICATIONS

MAX FLOW.....7.8 GPM / 30 LPM
 MAXIMUM UNLOADING PRESSURE.....3650 PSI / 251 BAR
 MAXIMUM TEMPERATURE.....190°F / 88°C
 WEIGHT.....2.1 LBS / 0.91 KG
 BYPASS.....1/4 NPT
 INLET & DISCHARGE.....3/8 NPT

REPAIR PARTS PACKAGE

* P/N C07-03700KA - INCLUDES 1 EACH OF ITEMS:
 6, 13, 21, 24, TWO OF 9 & THREE OF ITEM 5

ACCESSORIES

Y02-00009.....0 TO 1500 PSI / 103 BAR GAUGE
 Y02-00002.....0 TO 2000 PSI / 138 BAR GAUGE
 Y02-00010.....0 TO 5000 PSI / 345 BAR GAUGE

PARTS LIST

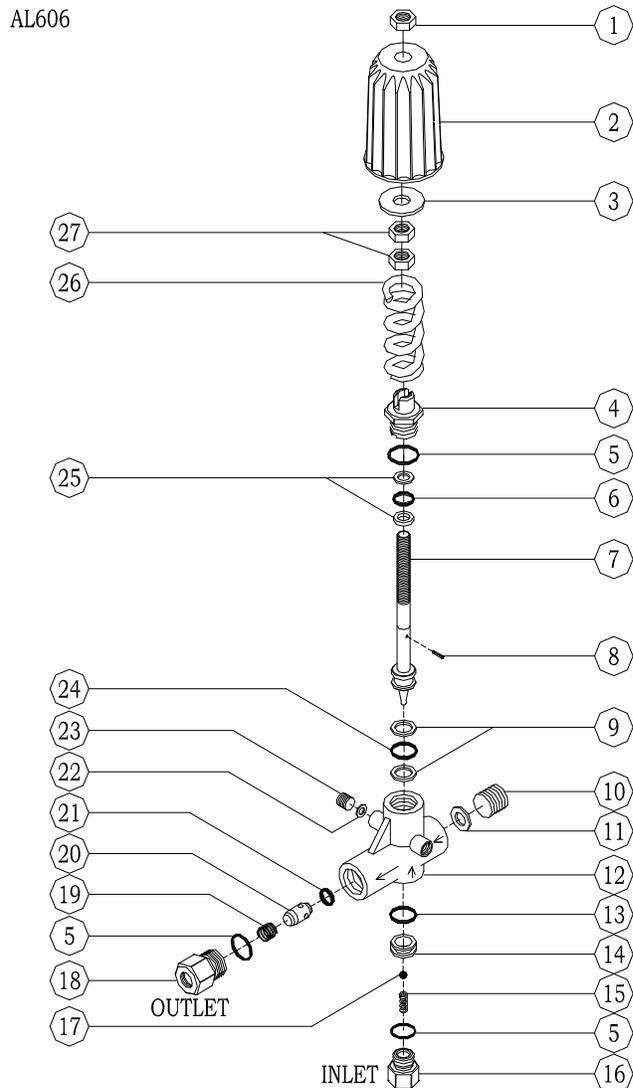
ITEM	PART NO.	DESCRIPTION
1	C07-03700-7	NUT, LOCK - M8
2	C07-03700-8	KNOB, ADJUSTMENT
3	C07-03700-9	FOLLOWER, SPRING
4	C07-03700-11	GUIDE, PISTON
* 5	C07-02300-08	O-RING
* 6	8RS6-000SV01	O-RING
7	C07-03700-26	PISTON
8	C07-03700-15	PIN, SPRING
* 9	C07-03700-28	RING, ANTI-EXTRUSION
10	C07-0370019A	PLUG - 3/8
11	C07-0370019B	GASKET, WASHER
12	C07-0370018B	HOUSING - 3/8
* 13	N07-20028	O-RING
14	C07-03700-21	SEAT
15	C07-03700-23	SPRING, COMPRESSION
16	C07-03700-24	GUIDE, BALL
17	C07-02000-18	BALL
18	C07-03700-1	GUIDE, ORIFICE
19	C07-03700-3	SPRING, COMPRESSION
20	C07-03700-4	ORIFICE, SHUTTER
* 21	C07-02000-20	O-RING
22	C07-03700-6B	GASKET, WASHER
23	C07-03700-6A	PLUG - 1/4
* 24	C07-03700-29	O-RING
25	C07-03700-12	RING, ANTI-EXTRUSION
26	C07-0370010C	SPRING, COMPRESSION - BLUE
27	C07-03700-25	NUT, HEX - M8

UNLOADING ADJUSTMENT

1. INSTALL APPROPRIATE PRESSURE GAUGE IN PUMP HEAD OUTLET. THE GAUGE SHOULD HAVE A PRESSURE RANGE OF TWICE THE OPERATING PRESSURE.
2. LOOSEN NUT (1) AND TURN KNOB COUNTER CLOCKWISE UNTIL MINIMUM SPRING TENSION.
3. OPEN TRIGGER GUN, START PUMP, AND OBSERVE PRESSURE GAUGE READING. SLOWLY TIGHTEN KNOB CLOCKWISE UNTIL DESIRED OPERATING PRESSURE.
4. CLOSE AND OPEN TRIGGER GUN TO CHECK UNLOADING PRESSURE AND BYPASS FUNCTION OF UNLOADER VALVE. UNLOADING PRESSURE SHOULD NOT EXCEED OPERATING PRESSURE BY MORE THAN 400 PSI.
5. LOCK SETTING BY TIGHTENING LOCK NUT (1).

NOTE: ONCE OPERATING PRESSURE IS REACHED, TURNING CLOCKWISE INCREASES UNLOADING PRESSURE ONLY.

EXPLODED VIEW



SAFETY, INSTALLATION, AND OPERATION

ELECTRIC DRIVEN COLD WATER CLEANER

MACHINE UNPACKING

ALL CLEANERS ARE CAREFULLY INSPECTED AND CARTONED TO PROTECT AGAINST SHIPPING DAMAGE. IF THERE IS DAMAGE OR MISSING PARTS, THE TRANSPORTATION COMPANY AGENT SHOULD MAKE A NOTATION TO THAT EFFECT ON THE BILL. REFER TO THE PARTS LIST IN THIS MANUAL AND ADVISE WHAT PARTS ARE MISSING OR DAMAGED. IF AVAILABLE, GIVE THE INVOICE NUMBER ON ALL ORDER BILLS. THIS PROCEDURE WILL ENABLE NEEDED PARTS TO BE SHIPPED QUICKLY.

READ ALL Installation, Operation, and Maintenance instructions before operating the machine

NOTE: Refer to CLEANER MODEL for **SERIAL NUMBER** location

NOTE: Dimensions are in inches unless otherwise noted

IMPORTANT SAFETY

INSTRUCTIONS



The safety alert symbol.

This symbol is used to identify safety information about hazards that can result in personal injury. A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard

 **DANGER** indicates a hazard which, if not avoided, **will result in death or serious injury.**

 **WARNING** indicates a hazard which, if not avoided, **could result in death or serious injury.**

 **CAUTION** indicates a hazard which, if not avoided, **might result in minor or moderate injury.**

CAUTION, when used **without** the alert symbol, indicates a situation that **could result in damage to the equipment.**

GENERAL SAFETY

1. Before operating this machine, read and observe all safety, unpacking, and operating instructions. Failure to comply with these instructions could create a hazardous situation.
2. The operator of this equipment should not operate this equipment when fatigued or under influence of alcohol or drugs.
3. The operator of this equipment should be thoroughly familiar with its operation and trained in the job to be accomplished.
4. The operator of this equipment should wear protective face shields and other protective clothing as required for safe operation.
5. Keep all protective covers and shields in place. Operating this machine with moving parts could allow operator or bystander serious injury or even death.
6. Do not operate the machine if any mechanical failure is noted or suspected. Keep all shields in place.
7. Do not leave this machine unattended when it is operating.
8. All installations must conform to all applicable local codes. Contact your electrician, plumber, utility company or seller for details.
9. If a water leak is found, **DO NOT OPERATE THE MACHINE.** Shut off the machine and repair.
10. Follow instructions on how to stop the machine and bleed pressures quickly. Be thoroughly familiar with the controls.
11. When starting a job, survey the area for possible hazards and correct before proceeding.
12. If chemicals are used in conjunction with this equipment, read and follow the product label directions.
14. Do not start the machine unless the gun assembly is firmly gripped by the machine operator. Failure to do this could result in injury from a flying hose and gun assembly.

⚠ WARNING: RISK OF INJECTION OR SEVERE INJURY. KEEP CLEAR OF NOZZLE. DO NOT DIRECT DISCHARGE STREAM AT PERSONS. THIS EQUIPMENT IS TO BE USED ONLY BY TRAINED OPERATORS.

⚠ AVERTISSEMENT: RISQUE D'INJECTION ET DE BLESSURES GRAVES. SE TENIR À L'ÉCART DU JET. NE PAS DIRIGER LE JET DE SORTIE VERS D'AUTRES PERSONNES. CONFIER L'UTILISATION LE JET DE SORTIE VERS D'AUTRES PERSONNES. CONFIER L'UTILISATION DE CE MATÉRIEL À UN OPÉRATEUR QUALIFIÉ.

15. Always point the gun assembly in a safe direction and do not direct spray on the cleaner or personnel in the area.

MECHANICAL SAFETY

1. All guards, shields, and covers must be replaced after adjustments are made to prevent accidental contact with hazardous parts.
2. Drive belts must be inspected and tightened periodically to operate at optimum levels.
3. Inspect machine for damaged or worn components and repair or replace to avoid potential hazards. Do not operate the machine if any mechanical failure is noted or suspected.
4. Always use the correct size spray tip found in the GENERAL section of the **MODEL SPECIFICATIONS** or **MODEL EXPLODED VIEW**.
5. **DO NOT** start the machine until you have observed all safety and operating instructions found in the engine manual..

ELECTRICAL SAFETY

1. This machine must be electrically grounded. Failure to have the machine grounded may result in the operator being electrically shocked and even death.
2. Do not plug-in or un-plug machine with wet hands.
3. Keep power cords and connections (connectors) out of water.

4. If an extension cord must be used to operate this machine, it should be as short as possible. The extension cord must be properly sized and fitted with a grounding type plug and receptacle.
5. All wiring and electrical connections should comply with the National Electrical Code (NEC) and with local codes and practices.
6. Fuses or circuit breakers should be compatible with machine requirements. (See ELECTRICAL section of **MODEL SPECIFICATIONS** for power requirements.)
7. High voltage may be present within this machine. Servicing should only be performed by properly trained personnel.

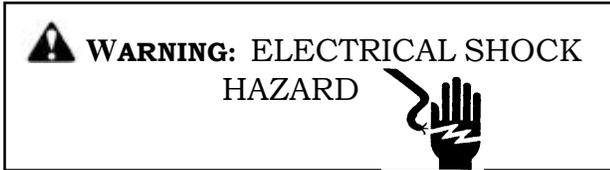
SAVE THESE SAFETY INSTRUCTIONS

INSTALLATION

1. **BARRIER:** We recommend a barrier be installed between the machine and wash area to prevent moisture from coming in direct contact with electrical controls and engine. This will increase the machine's life and lessen electrical problems.
2. **WATER SUPPLY:** This machine must have a water supply meeting or exceeding the maximum discharge volume specified in the machine specifications, and a minimum water inlet pressure of 40PSI / 12.1KGM.
3. **WATER CONDITIONS:** Local water conditions affect the coil adversely more than any other element. In areas where troublesome conditions may exist with like equipment (such as water heaters), we recommend the use of a water softener.
4. **FREEZING:** This machine must be protected from freezing according to STORAGE section of **MACHINE MAINTENANCE**.
5. **CHEMICALS:** Mix chemicals per the chemical manufacturers printed directions. Follow all mixing, handling, application, and disposal instructions. Wear gloves, boots, goggles, and protective clothing appropriate for the chemical being used

ELECTRICAL INSTALLATION

1. **ELECTRICAL:** Connect machine to an electrically grounded circuit that is fused or circuit breaker protected. The circuit must match that specified in the ELECTRICAL section under **MODEL SPECIFICATIONS**.



COPPER WIRE SIZE MINIMUM AWG	MACHINE AMP DRAW* 3 CONDUCTOR WIRES	MACHINE AMP DRAW* 2 CONDUCTOR WIRES
16	10	13
15	--	--
14	15	18
12	20	25
10	25	30
8	35	40
6	45	55
4	60	70
2	80	95

CHART FIGURES ARE BASED ON NOT MORE THAN 100 FOOT

(Based on Ambient Temperature of 86°F (30°C)).

*Use Amp Draw indicated the same or higher than your machine output

EXAMPLE: Machine Amp Draw 51, use 55 (2 Conductor). The thermostat type of cord shall be C, PD, E, EO, EN, S, SO, SRD, SJ, SJO, SV, SVO, SP.

The thermostat plastic types shall be ET, ETT, ETLB, ETP, ST, STO, SRDT, SJT, SJTO, SVT, SVTO, and SPT.

2. **EXTENSION CORD:** The use of an extension cord that has undersize wire compared to the amp draw of your machine will adversely limit the starting load carrying abilities of the motor and machines performance. Use only 3-wire extension cords that have 3-prong plugs and 3-pole cord connectors that accept the plug from the product. Use only extension cords that are intended for outdoor use. These extension cords are identified by a marking

“Acceptable for use with outdoor appliances; store indoors while not in use.” Use only extension cords having an electrical rating not less than the rating of the product. Do not use damaged extension cords. Use an extension cord in good repair free of frays or cracks in the outer covering. Do not abuse extension cord and do not yank on any cord to disconnect. Keep cord away from heat and sharp edges. Always disconnect the extension cord from the receptacle before disconnecting the product from the extension cord.

WARNING: To reduce the risk of electrocution, keep all connections dry and off the ground. Do not touch plug with wet hands

OPERATING INSTRUCTIONS

PRE START-UP

1. The first time the machine is operated, after repairs have been made, or if the machine has set for a period of time (30 days or more) follow the following procedures.
 - A. Check the tension of the belt (if so equipped) per instructions in **MACHINE MAINTENANCE**.
 - B. Flush the machine per instructions in **MACHINE MAINTENANCE**.
 - C. Install float tank drain plug (if so equipped).
 - D. Open float tank ball valve (if so equipped).
- “ **CAUTION:** Always use the factory supplied pressure wash hose with your machine.
- “ **DO NOT** substitute any other hoses as a potential safety problem may develop.
- “ **CAUTION:** If machine has been exposed to sub-freezing temperatures, it must be thoroughly warmed to above freezing before operating. Failure to warm machine can cause damage to the pump packings and other components.
2. Read and observe all items in “CLEANER INSTALLATION”.

START-UP

- ◆ Refer to the **MAINTENANCE SCHEDULE** for any maintenance to be performed before operation.

- ◆ **ELECTRICAL:** Connect the machine to an electrically grounded circuit that is fuse or circuit breaker protected. Do not use any type of adapter. If the correct type of receptacle is not available, have one installed by a qualified electrician.
- ◆ **OIL LEVEL:** Check the oil level in the water pump.
- ◆ **BELT** (if so equipped): Make sure the belt tension and condition is as specified in **MACHINE MAINTENANCE**.
- ◆ **METERING VALVE** (if so equipped): Make sure the metering valve is closed before operation. If air enters the system through this valve, poor performance and machine damage will occur. Refer to the metering valve insert for proper operation.
- ◆ **WATER SUPPLY:** This machine must have a water supply meeting or exceeding the maximum discharge volume specified in the machine specifications, and a minimum water inlet pressure of 40PSI / 12.1KGM.
- ◆ **LIME:** Water containing large amounts of lime, calcium or other similar materials can produce a coating on the inside of the impact nozzle or spray tip and coil pipe.
- ◆ **FLOAT TANK:** Check the float tank (if so equipped) to assure it is full and the float tank valve shuts off securely.
- ◆ **BALL VALVE:** Check the position of the ball valve (if so equipped) on outlet line of the float tank assuring that it is in the open position.

1. **GUN ASSEMBLY IN HAND:** (on trigger gun models hold the trigger gun valve in open position) and with a good flow of water turn the switch to pump position.

CAUTION: A good flow of water must be Flowing from the end of a gun for 30 seconds, before proceeding. Lack of water can cause damage to the water pump and like components.

CAUTION: On a machine equipped with a trigger gun valve, if the trigger gun valve remains in the closed position for more than 3 minutes, water pump damage may occur.

2. To **CLEAN:**

- A. Start on the lower portion of the area to be cleaned and work up using long, even, overlapping strokes.
- B. Dirt is generally removed easily if grease and/or oil is not present. However if grease and/or oil are present, hot water and chemical will accelerate in the cleaning process.

3. **TO APPLY CHEMICAL:**

CHEMICAL: Use factory recommended chemicals for best cleaning action and for extended pump life. Contact your dealer for chemicals available. Follow instructions on chemical container.

Mix chemicals per label instructions. Use necessary safety precautions.

- A. Insert chemical screen into chemical container
- B. Adjust metering valve (if so equipped).
- C. If the gun assembly is equipped with variable or multiple nozzle assembly, adjust as desire.

4. **TO RINSE:**

- A. If the machine is equipped with a panel mounted metering valve, close the chemical metering valve (if so equipped). NOTE: It is advisable to dip the chemical screen in a container of clean water and open the valve 1 minute to clean the valve of any remaining residue.
- B. If the gun assembly is equipped with variable or multiple nozzle assembly, open and close to clean nozzle of any remaining residue.
- C. After a clear flow of water is noted from the end of the wand, start from the top, working downward using long, overlapping strokes.

SHUT-DOWN

1. Turn the pump switch to the off position.
2. Turn off the water supply.
4. If freezing conditions may exist, refer to STORAGE in **MACHINE MAINTENANCE**.

MACHINE MAINTENANCE

ELECTRIC DRIVEN COLD WATER CLEANER

FLUSHING

1. Connect machine to an electrically grounded circuit that is fuse or circuit breaker protected.
2. Connect machine to a pressurized water supply meeting the requirements specified in the GENERAL section of the **MODEL SPECIFICATIONS**.
3. Turn on the water supply.
4. Check the float tank (if so equipped) to assure it is full and the float valve shuts off securely.
5. Check the position of the ball valve (if so equipped) on outlet line of the float tank assuring it is in the open position.
6. Remove spray tip from gun assembly.
7. With gun assembly in hand, turn on the pump switch. On trigger gun models hold the trigger gun valve in open position. **CAUTION: DO NOT RUN PUMP WITHOUT WATER, AS THIS WILL CAUSE DAMAGE TO THE PUMP AND VOID WARRANTY.**
8. When clean water flows from gun, turn off the switch.
9. Reinstall spray tip.
10. With gun assembly in hand, turn on the switch. On trigger gun models hold the trigger gun valve in open position.
11. When clean water flows from gun, turn off the pump switch.
12. If freezing conditions may exist, refer to "STORAGE" section.
13. Turn off and disconnect the water supply. Disconnect electrical supply.

STORAGE

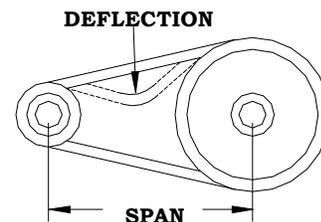
1. Rinse the Soap Line by inserting the screen into a container of clear water and open the metering valve 1 minute to clean it of any remaining residue. Be sure the chemical metering valve is closed when finished.
2. Disconnect the water supply.
3. Remove the spray tip nozzle from gun assembly and wire to machine.
4. Check the position of the ball valve (if so equipped) on the outlet of the float tank assuring it is in the closed position.
5. Attach an air chuck to the air valve stem on the pump assembly. With the trigger gun in the open position, apply air until a mixture of air and very little water is coming from the gun wand

6. Fill a 1-gallon container with Ethylene Glycol type antifreeze. Minimum should be a mixture of ½ antifreeze and ½ water strength before each use, as the antifreeze will dilute with each use.
7. Install a 2-ft. Garden hose to the water inlet. Insert the other end into a container of antifreeze solution.
8. With the discharge gun assembly in hand, turn on the switch. On trigger gun models hold the trigger gun valve in open position.
9. Turn off the switch just prior to running out of antifreeze mixture.
10. Disconnect electrical supply.
11. Disconnect gun and hose.
12. Place machine in a dry place protected from weather conditions.

SPRAY TIP

1. Remove the spray tip from the gun assembly.
2. Blow out debris with compressed air from the outside in. Any debris remaining in the inlet side of the nozzle should be cleaned out. If lime or chemical scale is present in the inlet side, the nozzle may be soaked in descaling solution or replaced. If the tip is worn, replace with one specified in the GENERAL section of **MODEL SPECIFICATIONS** or **MODEL EXPLODED VIEW**.
3. Before replacing spray tip flush the machine per "FLUSHING".
4. Reinstall Spray tip to gun assembly.

BELT TENSION



1. Correct belt tension will allow a 1/64-inch deflection for each inch of span between pulley centers with a 6-pound force applied in the middle of the span. **EXAMPLE:** A 6-pound force applied at the middle of an 8 inch span should produce a deflection of 8/64 inch or 1/8 inch.
2. Belts can be tightened or loosened by loosening the nuts holding the pump assembly to the motor mount. Then tighten or loosen the j-bolt on the motor mount. Retighten the pump assembly after the desired tension is reached.

MACHINE MAINTENANCE

<i>ELECTRIC DRIVEN COLD WATER CLEANERS</i>	DAILY	EACH HR FIRST 8 HRS	AFTER FIRST 50 HRS	EVERY 50 HRS	EVERY 100 HRS	EVERY 500 HRS	YEARLY
<p><u>OIL BATH WATER PUMP:</u></p> <p>Oil Level – check and add as needed per PUMP SERVICE insert.</p> <p>Oil Change – drain and refill per PUMP SERVICE insert. CAUTION: Used oil must be disposed into an environment safe container and brought to an oil recycling center.</p> <p>Oil Contamination – Milky color indicates water</p>	●		●			●	
<p><u>HOSES:</u></p> <p>Blistering, Loose Covering</p> <p>Abrasion of cover exposing reinforcement.</p> <p>Cuts exposing reinforcement</p>	● ● ●						
<p><u>BELTS:</u></p> <p>Cracks or fraying</p> <p>Belt Tension - For correct belt tension, see MACHINE MAINTENANCE insert.</p>	●	●		●			
<p><u>SPRAY TIP:</u></p> <p>Check Tip for debris.</p>	●						
<p><u>PUMP MOTORS WITH GREASE FITTINGS:</u></p> <p>Remove Drain Plug. Use 1 or 2 full strokes of Shell "DOLIUM R", Chevron "SR1 No. 2" or Texaco "PREMIUM RB". operate 20 minutes and replace drain plug.</p>							●
<p><u>SCREEN—WATER:</u></p> <p>Check Inlet Hose Screen for debris .</p> <p>Check Float Tank Hose Screen (if so equipped)for debris .</p> <p>Check Water Filter (if so equipped)for debris see breakdown elsewhere in this manual.</p>	● ● ●						
<p><u>GUARDS AND SHIELDS:</u></p> <p>Check That All Guards and shields are in place and secure.</p>	●						
<p><u>FREEZING TEMPERATURES:</u></p> <p>Freezing Temperatures Break water pumps and like components. See STORAGE tn the MACHINE MAINTENACE section for cold weather instructions.</p>	●						

CLEANER TROUBLESHOOTING

ELECTRIC MOTOR DRIVEN COLD WATER CLEANERS

TROUBLE	POSSIBLE CAUSE	REMEDY
1. Poor Cleaning Action.	<p>A. Hard water. B. Low Pressure. C. Little or no chemical being drawn. D. Improper chemical. E. Improper chemical mixture.</p> <p>F. Low Discharge Pressure.</p>	<p>A. Connect machine to water softener. B. See "Low operating pressure" C. See "Machine will not draw chemical".</p> <p>D. Obtain proper chemical. E. Mix chemicals per the label. Follow all mixing, handling, application, and disposal instructions. F. See "Low operating pressure"</p>
2. Machine will not draw chemical.	<p>A. No chemical solution. B. Metering valve not open. C. Chemical line strainer clogged. Air leak in chemical line. D. Metering valve clogged.</p> <p>E. Restrictor orifice too large or missing.</p>	<p>A. Replenish supply. B. Turn metering valve knob to open. C. Remove screen and clean.</p> <p>D. Tighten all fittings and hoses for the chemical line. E. Disassemble and clean. Install proper size orifice.</p>
3. Low operating pressure	<p>A. Insufficient water supply.</p> <p>B. Incoming water hose too small. C. Water supply hose too long. D. Belt slippage.</p> <p>E. Worn Belt.</p> <p>F. Spray tip worn or wrong size.</p> <p>G. Dirty or worn check valves in water pump. H. Water supply hose kinked. I. Inlet filter screen clogged.</p> <p>J. Motor runs slow.</p> <p>K. Air leak in inlet plumbing. L. Defective water pump. M. Leaking discharge hose.</p> <p>N. Chemical metering valve open and sucking air. O. Defective unloader valve. P. Inlet ball valve not fully open (if so equipped)</p>	<p>A. The water supply must meet or exceed the maximum discharge volume specified in the PERFORMANCE section, and minimum water inlet pressure specified in the GENERAL section of the MODEL SPECIFICATIONS section.</p> <p>B. Use larger water supply hose. C. Use shorter water supply hose. D. Tighten belt per instructions in MACHINE MAINTENANCE insert. E. Replace belt per CLEANER EXPLODED VIEW. F. Replace with spray tip specified in the GENERAL section of MODEL SPECIFICATIONS. G. See PUMP TROUBLESHOOTING.</p> <p>H. Straighten hose. I. Clean water filter screen or hose inlet screen. J. See "Pump engine starts slow or overheats and stops". K. Tighten all fittings. L. See PUMP TROUBLESHOOTING. M. If a water leak is found, DO NOT OPERATE THE MACHINE. Disconnect the power and replace hose. N. Resupply chemical, place soap screen in water, or shut off metering valve. O. Repair or replace unloader valve. P. Open inlet ball valve completely. (Handle parallel w/ valve body).</p>

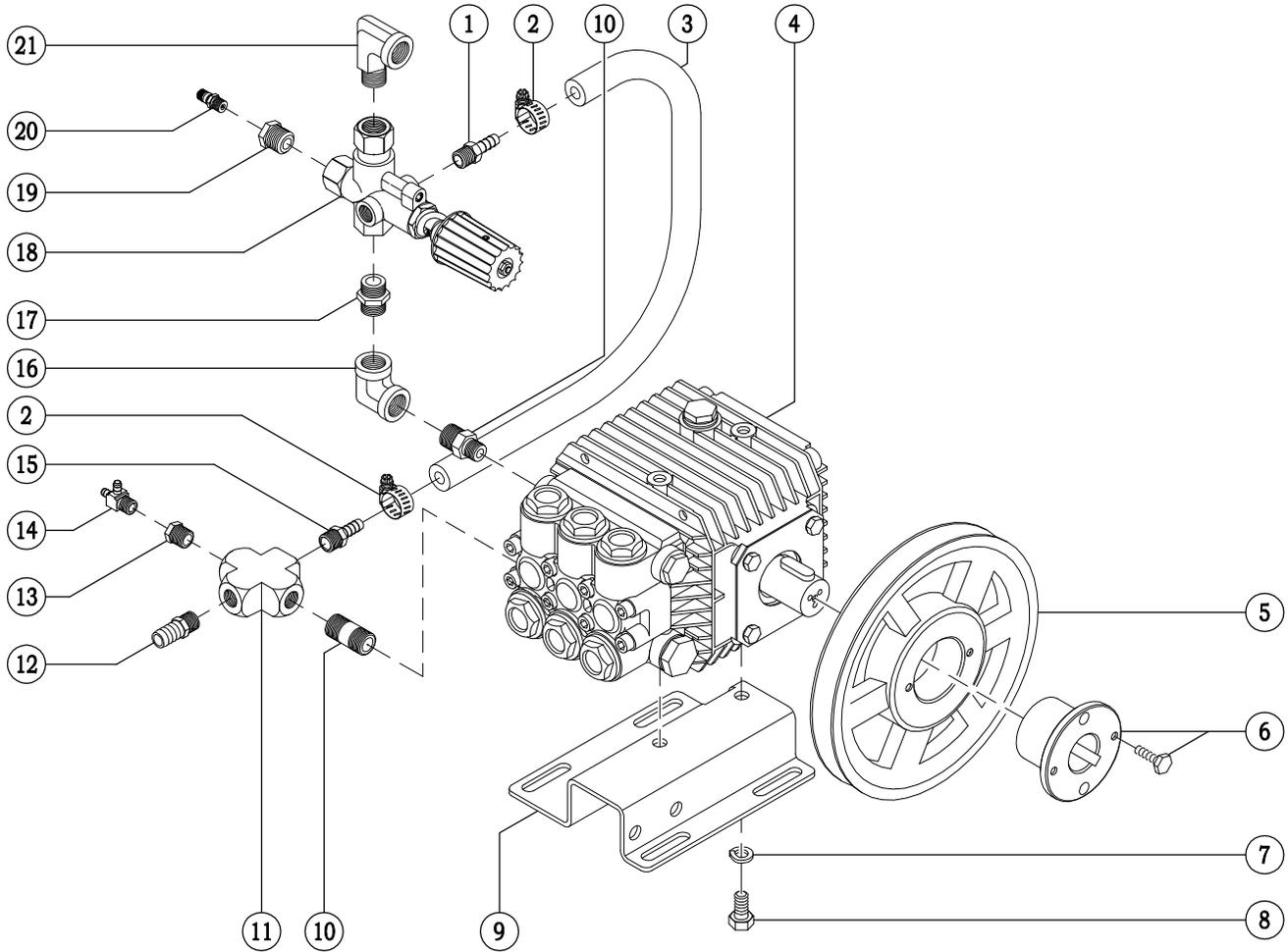
CLEANER TROUBLESHOOTING (CONT.)

ELECTRIC MOTOR DRIVEN COLD WATER CLEANERS

TROUBLE	POSSIBLE CAUSE	REMEDY
4. Excessive, unusual noise.	A. Defective Pump. B. Defective motor. C. Pulleys rubbing. D. Misalignment of pump & motor	A. See PUMP TROUBLESHOOTING . B. Call service technician or take engine to Repair/Warranty station. C. Adjust shields or pulley(s). D. Realign pump and engine.
5. Belts slipping.	A. Belts too loose. B. Excessive Back Pressure. C. Defective Water Pump.	A. Tighten belt per instructions on MACHINE MAINTENANCE . B. See "Excessive Back Pressure" below. C. See PUMP SERVICE .
6. Excessive Back Pressure	A. Spray tip built up with lime. B. Water pump turning too fast. C. Coil built up with lime. D. Relief valve defective.	A. Remove and clean, or replace spray tip with tip specified in the <i>GENERAL</i> section of MODEL SPECIFICATIONS . Flush machine per <i>FLUSHING</i> in MACHINE MAINTENANCE B. See MODEL SPECIFICATIONS . C. Delime coil. D. Remove and replace.
7. Excessive vibration.	A. Defective Belt. B. Defective Pump. C. Defective accumulator	A. Remove and replace using belt specified in CLEANER EXPLODED VIEW or the <i>GENERAL</i> section of MODEL SPECIFICATIONS . B. See PUMP TROUBLESHOOTING . C. Recharge/Replace.
8. Pump motor will not start (motor does not hum)	A. No Power. B. Defective motor starter or ON/OFF switch. C. Defective motor.	A. Use a different outlet, check fuses in main disconnect switch. Replace fuse if blown. B. Call service technician. C. Call service technician, or take motor to Repair/Warranty station.
9. Pump motor will not start (motor hums)	A. Pump frozen. B. Defective motor. C. Defective water pump. D. Excessive back pressure	A. Machine must be thoroughly warmed to above freezing. B. Call service technician or take motor to Repair/Warranty station. C. See PUMP SERVICE . D. See "Excessive Back Pressure" above.
10. Pump motor starts slow or overheats and stops.	A. Low voltage B. Excessive back pressure C. Defective motor	A. See "Low voltage" below. B. See "Excessive Back Pressure" above. C. Call service technician, or take motor to Repair/Warranty station.
11. Pump motor stops and will not start.	A. Motor starter "kicked out" (if so equipped) or thermal overload tripped. B. Excessive back pressure. C. Defective motor.	A. Turn motor starter off to reset, then turn on, or push thermal overload reset button on motor. B. See "Excessive Back Pressure". above. C. Call service technician, or take motor to Repair/Warranty station.
12. Low voltage	A. Incoming voltage incorrect. B. Not large enough extension cord. C. Too long extension cord	A. Have a qualified technician check the motor terminal voltage. Correct voltage is in MODEL SPECIFICATIONS . B. Use an extension cord with amperes or watts rating as high or higher than that of the MODEL SPECIFICATIONS . C. Shorten extension cord.
13. Machine shocks operator	A. Machine improperly grounded. B. Outlet not grounded	A. STOP! Operating machine. Call service technician. B. Have properly wired outlet installed.

ASSEMBLY, PUMP - P/N 2160-00501

EXPLODED VIEW

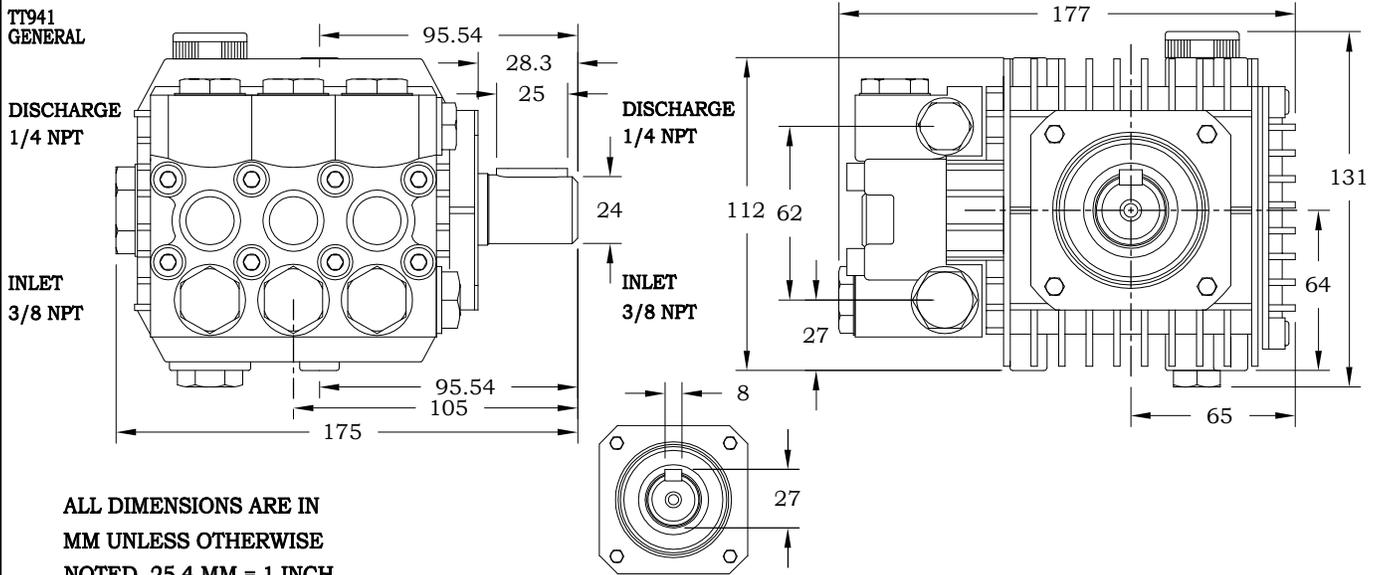


PARTS LIST

ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	W02-10023-8	BARB, HOSE	12	W02-10022-8	BARB, HOSE
2	W02-00032	CLAMP, HOSE	13	E04-00016-48	BUSHING, PIPE
3	K33-01300	HOSE, WATER	14	W02-10016-8	BARB, HOSE
*4	N07-00026	PUMP, WATER	15	W02-10021-8	BARB, HOSE
5	R03-00669	PULLEY, V	16	E08-00010-5	ELBOW, PIPE
6	R04-00001	BUSHING, PULLEY	17	E14-00010-68	NIPPLE, PIPE
7	H05-31304	WASHER, LOCK	*18	C07-03700	VALVE, UNLOADER
8	N07-20048	SCREW, CAP	19	E04-00002-58	BUSHING, PIPE
9	N07-31046	MOUNT, PUMP	20	C03-00810	VALVE, AIR
10	E14-00015-48	NIPPLE, PIPE	21	E08-00011-58	ELBOW, STREET
11	E07-00006-4	CROSS, PIPE	*For Breakdown See Z08-01808 (4), Z08-02643 (18)		

PUMP, WATER - P/N N07-00026

DIMENSIONS



ALL DIMENSIONS ARE IN
MM UNLESS OTHERWISE
NOTED. 25.4 MM = 1 INCH

PERFORMANCE

DISCHARGE VOLUME.....3.43GPM / 13.0 LPM
PUMP HEAD PRESSURE.....1500 PSI / 103.0 BAR

GENERAL

CRANKSHAFT ROTATION.....CLOCKWISE AND COUNTER CLOCKWISE
MAXIMUM SPEED.....2800 RPM
MAXIMUM PUMPED FLUID TEMPERATURE.....165°F / 74°C
INLET PRESSURE.....-9 IN HG @ 75°F TO 116 PSI / -0.3 BAR @ 24°C TO 8 BAR
WEIGHT (WET).....11.2 LBS / 5.1 KG

LUBRICATION

OIL CHANGE INTERVALAFTER FIRST 50 HOURS THEN AFTER 500 HOURS
OIL TYPE.....SAE 20 OR SAE 30 (NON-DERTERGENT)
CRANKCASE CAPACITY.....11.2 FL OZ / 0.33 LT

TORQUE

VALVE PLUG.....33 FT LBS / 4.6 KG M
MOUNT TO CRANKCASE.....16 FT LBS / 2.2 KG M
*PLUNGER NUT TO CROSSHEAD.....10 FT LBS / 1.0 KG M
REAR CRANKCASE COVER TO CRANKCASE.....7.0 FT LBS / 1.0 KG M
HEAD TO CRANKCASE.....8.8 FT LBS / 1.2 KG M

***NOTE:** When plunger nut is removed, install a new copper washer and flinger washer to ensure proper fit and seal of ceramic plunger. If same copper washers are reused cracking or a poor seal may result.

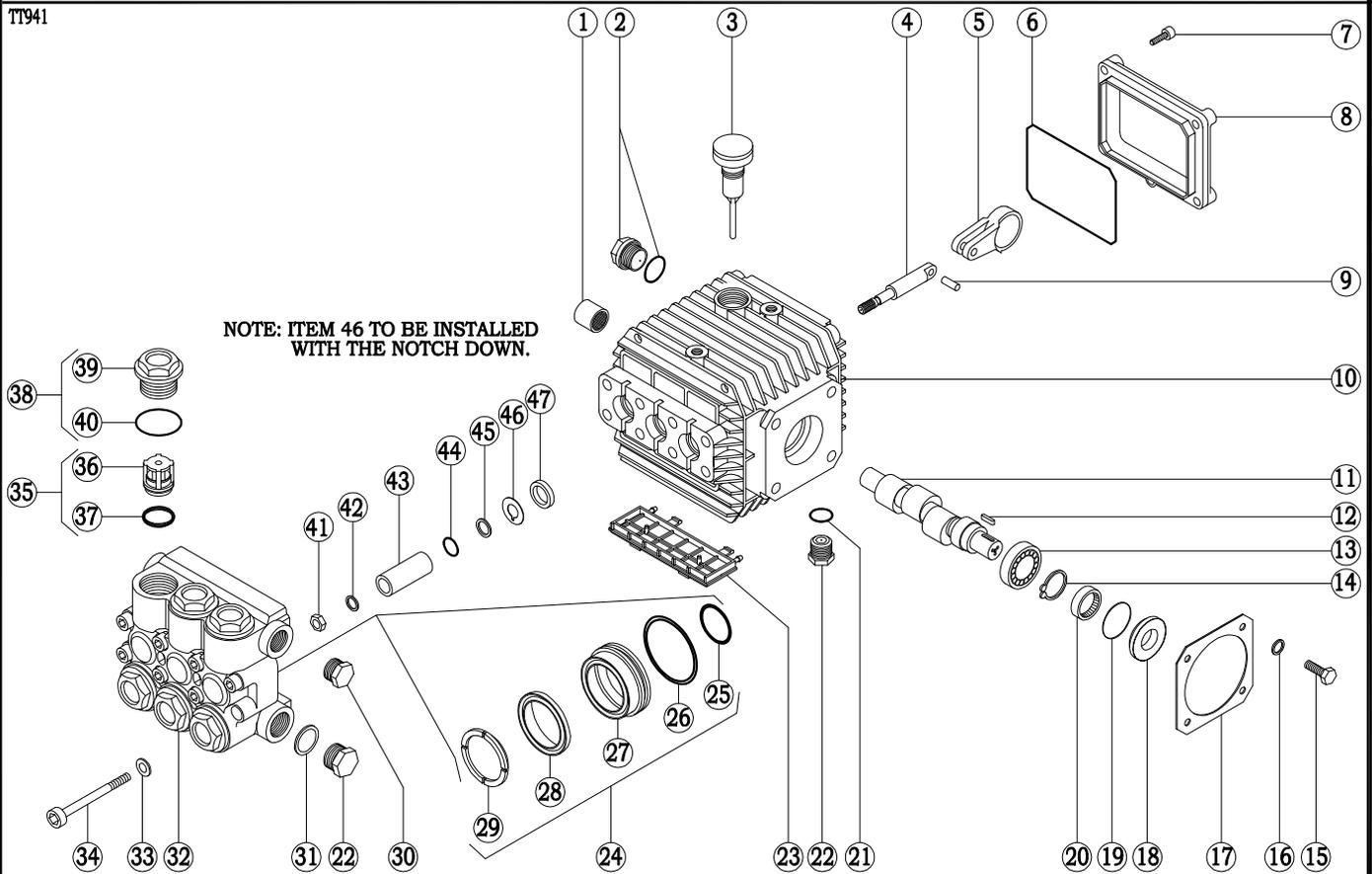
REPAIR PARTS PACKAGES

PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY
N07-99001	VALVE ASSEMBLIES			N07-99097	PLUNGER PACKING			N07-99096	PLUNGER PACKING W/RETAINER		
	ASS'Y, CHECK VALVE	36	6		O-RING	25	3	NOTE: ORDER THREE FOR COMPLETE PUMP.	O-RING	25	1
	O-RING	37	6		O-RING	26	3		O-RING	26	1
N07-99086	RETAINER & O-RINGS				PACKING, V	28	3		RETAINER, PACKING	27	1
	O-RING	25	3		ADAPTER, MALE	29	3		PACKING, V	28	1
	O-RING	26	3	N07-99084	PLUGS & O-RINGS			ADAPTER, MALE	29	1	
	RETAINER, PACKING	27	3		PLUG	39	6	N07-99083	OIL SEALS		
					O-RING	40	6		OIL SEAL	47	3

BREAKDOWN, PUMP - N07-00026

EXPLODED VIEW

TT941



PARTS LIST

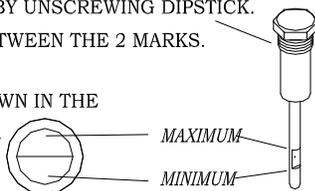
ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	N07-12055	BEARING, NEEDLE	24	N07-99096	KIT, PLUNGER PACKING
2	N07-20029	INDICATOR, OIL LEVEL	25	N07-31016	O-RING
3	N07-20024	DIPSTICK, OIL	26	N07-12016	O-RING
4	N07-12038	CROSSHEAD	27	N07-12015	RETAINER, PACKING
5	N07-12034	ROD, CONNECTING	28	N07-15012	PACKING, V
6	N07-43025	O-RING	29	N07-12014	ADAPTER, MALE
7	N07-80052	SCREW, CAP	30	N07-20030	PLUG
8	N07-12026	COVER, CRANKCASE	31	N07-20051	WASHER, FLAT
9	N07-12032	PIN, CROSSHEAD	32	N07-12001-B	HEAD, BRASS
10	N07-17023	CRANKCASE	33	N07-20036	WASHER, FLAT - SERRATED
11	N07-12031	CRANKSHAFT	34	N07-12002	SCREW, CAP
12	N07-20033	KEY	35	N07-99001	KIT, VALVE ASSEMBLY
13	N07-20022	BEARING, BALL	36	N07-20054	ASSEMBLY, VALVE
14	N07-12053	RING, SNAP	37	N07-20004	O-RING
15	N07-20018	SCREW, CAP	38	N07-99084	KIT, PLUGS & O-RINGS
16	N07-20036	WASHER, FLAT	39	N07-12010	PLUG
17	N07-20019	RETAINER, BEARING	40	N07-20009	O-RING
18	N07-20044	SPACER	41	N07-12056	NUT, HEX
19	N07-20021	O-RING	42	N07-12042	WASHER, FLAT - COPPER
20	N07-20045	SEAL, OIL	43	N07-12040	PLUNGER - 15MM
21	C07-01409	O-RING	44	J06-20209	O-RING
22	N07-20049	PLUG	45	F04-76509	RING, ANTI-EXTRUSION
23	N07-17060	COVER	46	N07-12039	WASHER, FLINGER - COPPER
			47	N07-99083	KIT, OIL SEAL

GENERAL PUMP MAINTENANCE

OIL LEVEL

CHECK THE OIL LEVEL BY UNSCREWING DIPSTICK. THE LEVEL SHOULD BE BETWEEN THE 2 MARKS.

OIL LEVEL IS ALSO SHOWN IN THE ROUND INDICATOR.



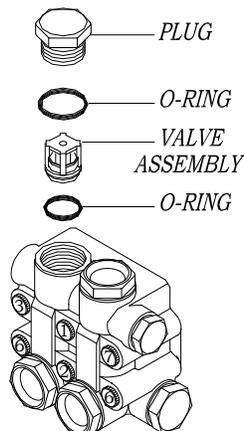
TOOL KITS

PACKING EXTRACTION KIT - P/N Z09-00028

COMPLETE TOOL KIT - P/N Z09-00021

VALVE SERVICE

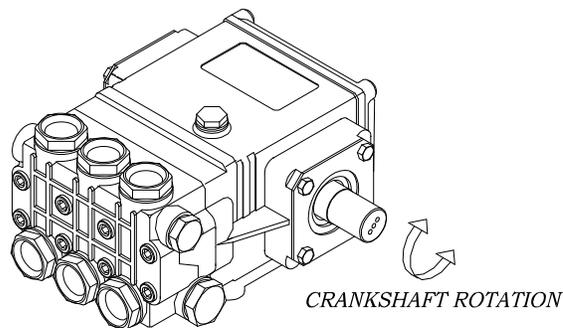
1. Remove the plugs holding the valve assemblies.
2. Remove and discard o-rings from the plugs. Clean plugs with solvent or soap and water. Allow to dry.
3. Using a needle nose pliers, fingers, or hook shaped tool, remove the valve assemblies from the head. Remove and discard the o-rings from the valve assemblies and/or head. Examine each valve assembly and discard damaged parts. Refer to the "**PUMP BREAKDOWN**" for part numbers of any replacement items.
4. Clean any accumulated debris from the valve cavities and flush with water.
5. Wash the valve assemblies in clean water and rinse. While still wet, test each valve assembly by sucking on the valve seat. A properly sealing valve will allow a good vacuum to be developed and maintained, while a malfunctioning valve will not. Good valve assemblies should be set aside for installation in step 7.



6. Malfunctioning valve assemblies must be replaced.
7. Lubricate a new o-ring with the pump crankcase oil and install into valve cavity in the head. Install a good valve assembly into the cavity as illustrated.
8. Lubricate a new o-ring with pump crankcase oil and place on a plug cleaned in step 2 above.
9. Install a plug into the pump head. Tighten plug by hand.
10. Torque the plug to the value indicated in the "TORQUE" section of the pump specifications.
11. Repeat steps 7 through 11 for remaining valve assemblies.

HEAD REMOVAL

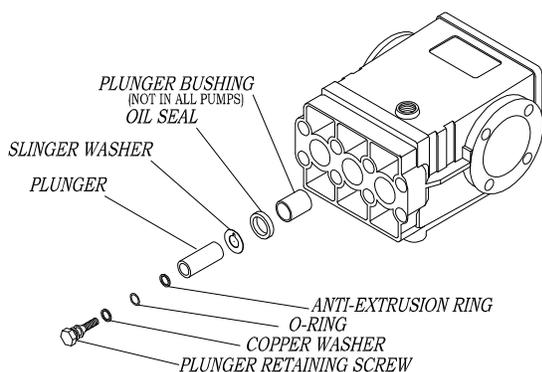
1. Remove the cap screws holding the pump head to the crankcase. A metric tool is required for this step. Be careful not to lose the washer on each cap screw.
2. Remove the head by rotating the crankshaft and tapping the head away from the crankcase with a soft mallet. Keep rear surface of the head parallel to the front surface of the crankcase to prevent binding on the plungers.
3. Once the head is removed, protect the plungers from damage.



GENERAL PUMP MAINTENANCE

PLUNGER SERVICE

1. Remove pump head per "HEAD REMOVAL".
2. Remove any packings and retainers left on the plungers by pulling them straight off.
3. Examine each plunger, looking for a smooth surface free of any scoring, cracks, or pitting. Any defective plungers should be removed per "PLUNGER REMOVAL".
4. Discard and replace any defective plungers.
5. Reinstall the plunger per "PLUNGER INSTALLATION".
6. Reinstall head per "HEAD INSTALLATION".



PLUNGER REMOVAL

NOTE: When the plunger screw is removed, it is important to install new o-ring, anti-extrusion, and copper washers.

1. Remove the plunger screw is removed, it is important to install new o-ring, anti-extrusion, and copper washers.
2. Remove the plunger retaining screw by turning counterclockwise. Remove and replace copper washer.
3. Remove and discard o-ring and anti-extrusion ring from retainer screw.
4. Remove the plunger from the cross head and examine it for cracks, scoring, or pitting.
5. Remove and discard copper flinger washer, clean with solvent and allow to dry.

PLUNGER INSTALLATION

1. Install the copper flinger washer onto the cross head.
2. Slide the plunger onto the crosshead.
3. Lubricate an o-ring with crankcase oil and install into the groove on the plunger screw. Install the anti-extrusion ring into the groove next to the o-ring. Note: The o-ring should be nearest the screw head and the anti-extrusion ring nearest the threads.
4. Apply a drop of thread sealant to the threads of the retainer screw.
5. Thread the plunger retainer screw into the cross head making sure the copper flat washer is installed onto the screw.
6. Torque the plunger retainer screw to the value indicated in the torque section of the pump specifications.

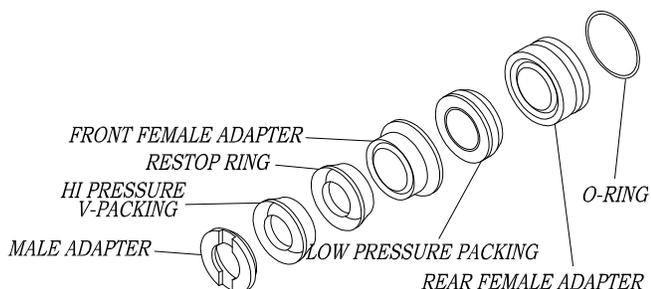
PACKING SERVICE

1. Remove the head per "PUMP HEAD REMOVAL".
2. Remove any packings and female adapters left on the plungers by pulling them straight off. Insert proper packing extractor onto the extractor hammer. Insert packing extractor and tool through the packings and adapters remaining in the head. Tighten the hammer and remove the remaining items in the head. Remove packings and o-rings from adapters. Discard the o-rings and packings.
3. Clean the packing canities in the head and rinse with clean water.
4. Clean exposed plungers. Clean male and female adapters with soap and water and allow to dry.
5. Examine male and female adapters, discard worn items. Trial fit the female adapters into the head

GENERAL PUMP MAINTENANCE

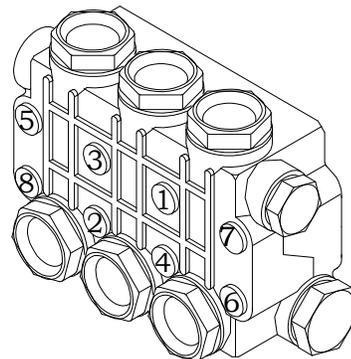
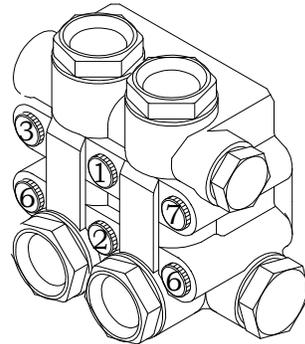
checking for binding or damage. Discard and replace damaged items.

- Lubricate packing cavities in the head and all packings and adapters with pump crankcase oil.
- Lay head on the bench with packing cavities up. Install one male adapter in each cavity with the flat side down.
- Install one v-packing into each cavity with the lips pointing down. A packing insertion too of the appropriate size is recommended for this operation.
- Install the restop ring with the lips pointing down.
- Install a front female adapter into each cavity with the flat side up. Make certain the adapter goes all way down into the cavity.
- Install the low pressure packing with the flat side down.
- Install the rear female adapter into each cavity with the lips pointing down.
- Lubricate o-rings with pump crankcase oil and install one into the groove of each adapter.
- Install one adapter and o-ring into each cavity with the flat side up. Each adapter and o-ring assembly should push into the head to approximately 1/16 inch of being flush with the surface of the head. Only hand pressure should be required to perform this operation. This step is **VERY IMPORTANT**. If the rear female adapter does not fit almost flush, something is not properly positioned. If a proper fit is obtained, proceed to step 16. If a proper fit is not obtained, remove the female adapters from the offending cavity and reinstall items per steps 8 through 15.
- Install head per "HEAD INSTALLATION".



HEAD INSTALLATION

- Prepare pump head per instructions in "PACKING SERVICE".
- Rotate the plungers so the outer plungers are projecting the same distance from the crankcase.
- Lubricate the exposed plungers with crankcase oil.
- Start the head onto the plungers and using a soft mallet, tap the head evenly until it comes in contact with the crankcase.
- Start the cap screws through the head and into the crankcase. Do not forget the lock washer on each screw.
- Tighten all cap screws by hand.
- Torque the cap screws to the value indicated in the "TORQUE" section of **PUMP SPECIFICATIONS**. Torque the cap screws in the order listed below.



PUMP TROUBLESHOOTING

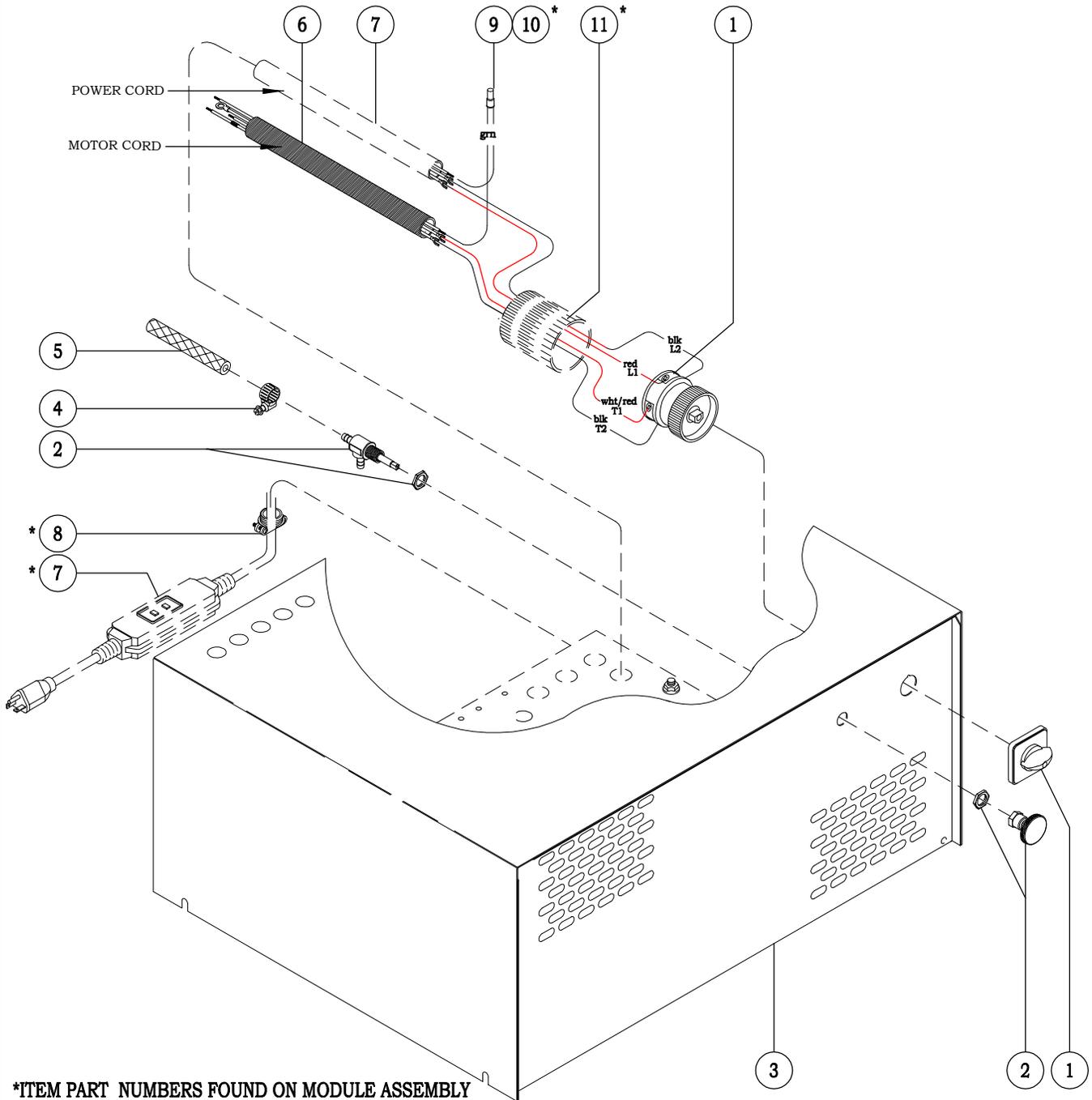
TROUBLE	POSSIBLE CAUSE	REMEDY
1. Oil leaking in the area of water pump crankshaft.	A. Worn crankshaft seal. B. Bad bearing. C. Grooved shaft. D. Failure of retainer o-ring	A. Remove and replace. B. Remove and replace. C. Remove and replace. D. Remove and replace.
2. Excessive play on crankshaft.	A. Defective bearings. B. Excess shims.	A. See "Worn bearing". B. Set up crankshaft.
3. Loud knocking in pump.	A. Loose connecting rod screws. B. Worn connecting rod. C. Worn bearings. D. Loose plunger bushing screw.	A. Tighten connecting rod screws per PUMP SPECIFICATIONS . B. Replace connecting rod per PUMP MAINTENANCE . C. Replace bearings per PUMP MAINTENANCE . D. Tighten plunger screw per PUMP SPECIFICATOINS .
4. Oil leaking at the rear portion of the pump.	A. Damaged or improperly installed oil gauge window gasket. B. Damaged or improperly installed rear cover. C. Oil gauge loosed. D. Rear cover screws loose. E. Pump overfilled with oil, displaced through crankcase breather hole in oil cap/dipstick.	A. Replace gasket or o-ring. B. Replace gasket or o-ring. C. Tighten oil gauge. D. Tighten rear screws. to torque values in PUMP SPECIFCATIONS. S E. Drain oil: refill to recommended oil level as stated in OIL LEVEL in PUMP MAINTENANCE .
5. Water in crankcase	A. May be caused by humid air condensing into water inside the crankcase. B. Worn or damaged plunger screw o-ring.	A. Maintain or step up lubrication schedule. B. Remove and replace. See PLUNGER SERVICE in PUMP MAINTENANCE .
6. Worn bearing	A. Excessive belt tension. B. Oil contamination.	A. See BELT TENSION in MACHINE MAINTENANCE . B. Check oil type and change intervals per PUMP SPECIFICATIONS .
7. Short bearing life	A. Excessive belt tension. B. Misalignment between pump and motor. C. Oil has not been changed on regular basis.	A. See BELT TENSION in MACHINE MAINTENANCE . B. Re-align pump and motor. C. Check oil type and change intervals per PUMP SPECIFICATIONS .
8. Short seal life	A. Damaged plunger bushing. B. Worn connecting rod. C. Excess pressure beyond the pump's maximum rating. D. High water temperature.	A. Replace punger bushing. B. Peplace connecting rod. C. Match pressure stated in PUMP SPECIFICATIONS . D. Lower water tempersture stated in PUMP SPECIFCATIONS .

PUMP TROUBLESHOOTING

TROUBLE	POSSIBLE CAUSE	REMEDY
9. Dirty or worn check valves.	A. Normal wear. B. Debris	A. Remove and replace. B. Check for lack of water inlet screens.
10. Presence of metal particles during oil change.	A. Failure of internal component. B. New pump.	A. Remove and disassemble to find probable cause. B. New pumps have machine fillings and debris and should be drained and refilled per PUMP SPECIFICATIONS .
11. Water leakage from under head.	A. Worn packing. B. Cracked/scored plunger. C. Failure of plunger retainer o-ring.	A. Install new packing. B. Remove and replace plunger. C. Remove and replace plunger retainer o-ring.
12. Loud knocking noise in pump	A. Pulley loose on crankshaft. B. Defective bearing. C. Worn connecting rod. D. Worn crankshaft. E. Worn crosshead.	A. Check key and tighten set screw. B. Remove and replace bearing. C. Remove and replace connecting rod. D. Remove and replace crankshaft. E. Remove and replace crosshead.
13. Frequent or premature failure of the packing	A. Scored, damaged, or worn plunger. B. Overpressure to inlet manifold. C. Abrasive material in the fluid being pumped. D. Excessive pressure and or temperature of fluid being pumped. E. Over pressure of pumps. F. Running pump dry.	A. Remove and replace plungers. B. Reduce inlet pressure. C. Install proper filtration on pump inlet pumping. D. Check pressures and fluid inlet temperature; be sure they are within specified range. E. Reduce pressure. F. Do not run pump without water.
14. Low Pressure	A. Dirty or worn check valves. B. Worn packing. C. Belt slipping. D. Improperly sized spray tip or nozzle. E. Inlet filter screen is clogged. F. Pitted valves.	A. Clean/Replace check valves. B. Remove and replace packing. C. See BELT TENSION in MACHINE MAINTENANCE . D. See MACHINE SPECIFICATIONS for specified spray tip or nozzle. E. Clean inlet filter screen. F. See VALVE SERVICE in PUMP MAINTENANCE .
15. Erratic pressure: pump runs rough	A. Dirty or worn check valves. B. Foreign particles in valve assemblies. C. High inlet water temperature	A. Clean/Replace check valves. A. Clean/Replace check valves. C. See temperature in PUMP SPECIFICATIONS .
16. Excessive vibration	A. Dirty or worn check valves	A. See "Dirty or worn check valves"
17. Scored plungers	A. Abrasive material in fluid being pumped.	A. Install proper filtration on pump inlet plumbing
18. Pitted plungers	A. Cavitation	A. Decrease inlet water temperature and/or increase inlet water pressure.
19. Cavitation	A. High inlet fluid temperature Low inlet pressure.	A. Lower inlet fluid temperature. Raise inlet fluid pressure.

ASSEMBLY, COVER - 115V 1PH 60HZ

EXPLODED VIEW - P/N 210-00151



*ITEM PART NUMBERS FOUND ON MODULE ASSEMBLY

PARTS LIST

ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	F04-00741A	SWITCH, CAM	7	*	CORDSET
2	C03-00305	VALVE, METERING	8	*	CONNECTOR, ELEC
3	212-00152	COVER	9	*	INSULATOR, TERMINAL
4	W02-00033	CLAMP, HOSE	10	*	TERMINAL, SPLICE
5	Z01-04013-2	HOSE, POLYBRAID - 1/4 x 40	11	*	TUBING, SHRINK
6	2160-00343	ASS'Y, CORD - 16/3SO X 36			

VALVE, METERING - P/N C03-00307

OPERATION

HANDLE

Turning Chemical flow handle clockwise will shut off chemical flow.

FLOW ADJUSTING SCREW

Turning the flow adjusting screw clockwise lowers the chemical flow. Turning the screw counterclockwise lowers the flow.

SPECIFICATIONS

Maximum Pressure.....4000 PSI / 276 BAR
 Maximum Flow12 GPM / 45 LPM
 Minimum Flow1.0 GPM / 3.8 LPM
 MAXIMUM TEMPERATURE200F° / 93°C
 WEIGHT.....0.75 LBS. / 0.33 KG
 INLET.....1/4 FNPT
 OUTLET1/4 FNPT
 O-RINGS.....VITON
 VALVE HOUSING MATERIAL.....BRASS

MAINTENANCE

VALVE STEM REMOVAL -

1. Using screw driver remove cap (item 1A).
2. Holding handle and using socket remove nut (item 1B) and lock washer (item 1C) found inside handle.
3. Remove mounting nut (item 1E).
4. Holding valve housing (item 7), turn the valve retainer (item 2) counter clockwise be careful not to lose o-ring off bottom of retainer.
5. Holding the valve retainer (item 2) turn stem (item 4) counterclockwise until it comes out of the bottom of the retainer.

VALVE STEM INSTALLATION -

Reinstall in reverse order lubing o-rings before reinstallation.
 Torque retainer (item 2) to 13 ft/lbs.

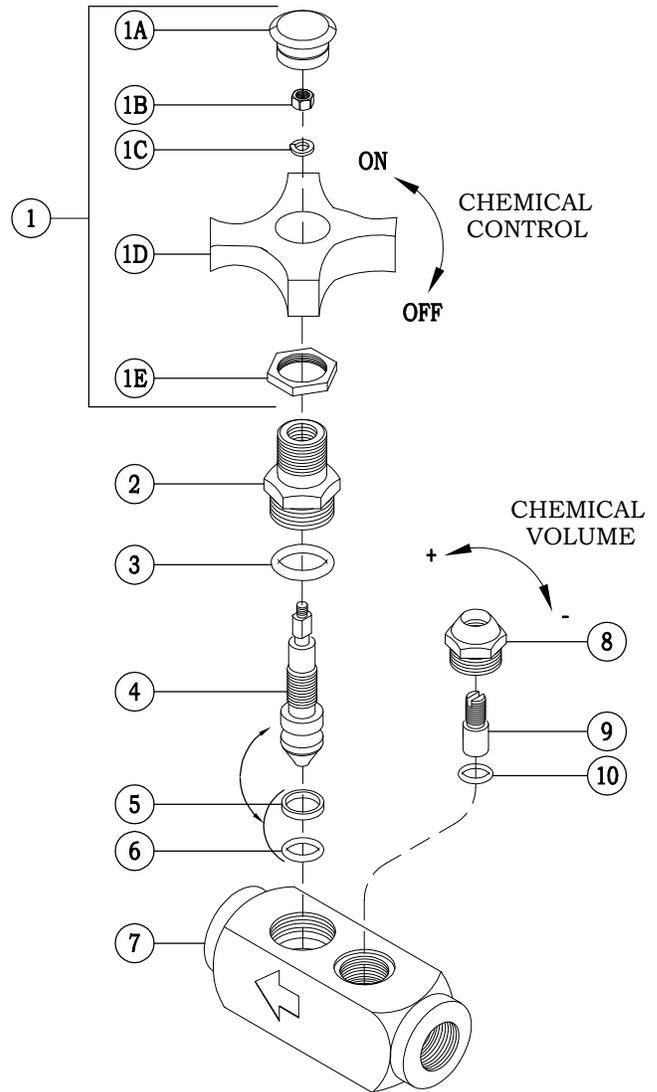
REMOVE FLOW ADJUSTING SCREW -

1. Remove the adjusting screw retainer (item 8) turning counter-clockwise.
2. Hold the retainer (item 8), using a screw driver turn the adjusting screw (item 9) clockwise until it comes out of the bottom.
3. Inspect screw for any nicks or scratches and replace as necessary.
4. Remove and replace o-ring (item 10).

REINSTALL FLOW ADJUSTING SCREW -

Reinstall in reverse order lubing o-rings before reinstallation.
 Torque retainer (item 2) to 30 ft/lbs

EXPLODED VIEW

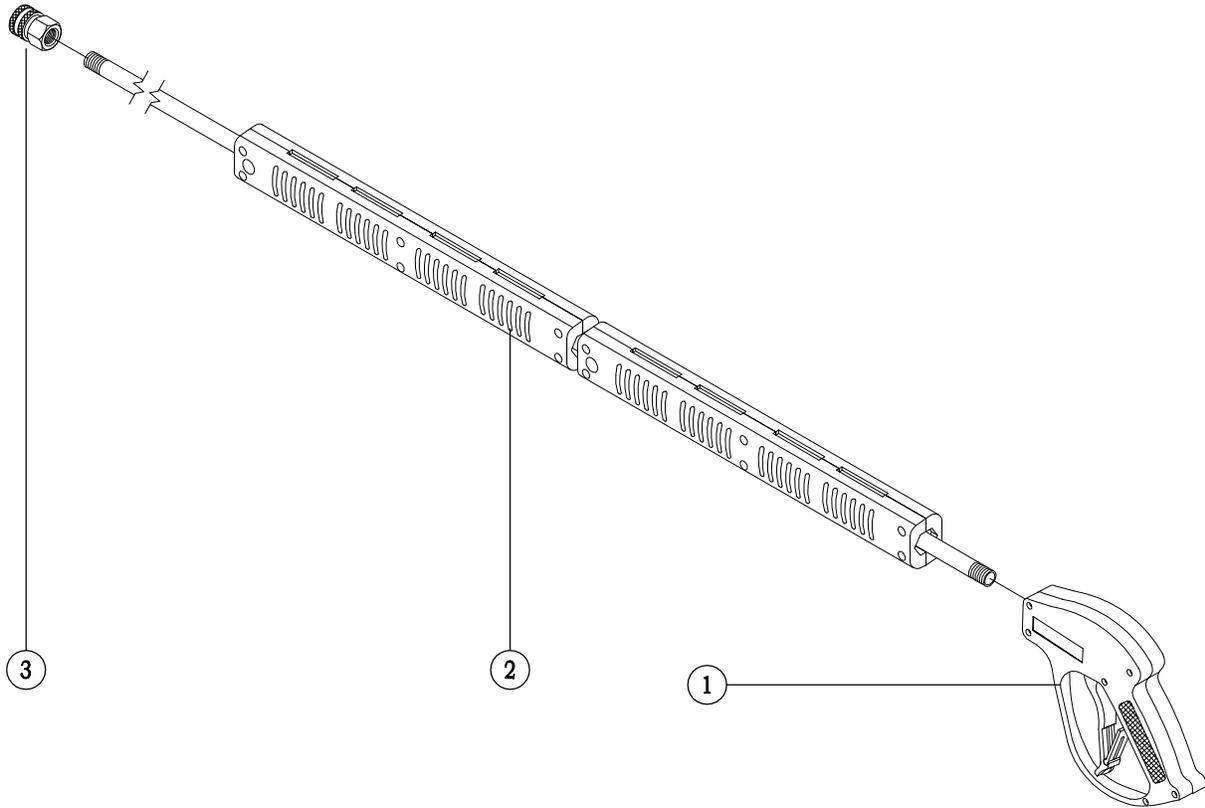


PARTS LIST

ITEM	PART NO.	DESCRIPTION
1	C07-00307-01	KIT, HANDLE
1A	-----	CAP, PLASTIC
1B	-----	NUT, HEX
1C	-----	WASHER, LOCK
1D	-----	HANDLE, ADJUSTMENT
1E	-----	NUT, HEX
2	-----	RETAINER, VALVE STEM
3	-----	O-RING - VITON 1/16CS X 3/16ID
4	-----	STEM, VALVE - SHUT-OFF
5	-----	RING, ANTI-EXTRUSOIN
6	-----	O-RING - VITON 3/32CS X 1/4ID
7	-----	HOUSING, VALVE
8	-----	RETAINER, ADJUSTING SCREW
9	-----	SCREW, ADJUSTING - FLOW
10	-----	O-RING - VITON 1/16CS X 1/8ID
	D01-00060	DECAL, METERING VALVE

ASS'Y, TRIGGER GUN & WAND

EV - P/N J06-00158-B



PARTS LIST

PARTS LIST

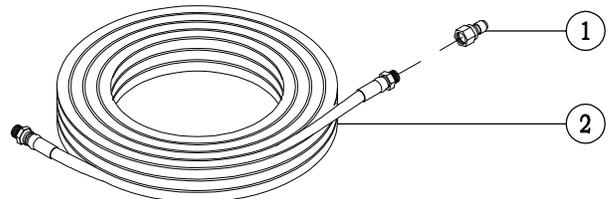
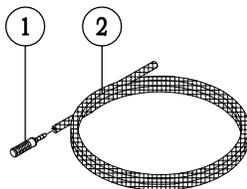
ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	J06-00158	VALVE, TRIGGER GUN	3	W04-24225-A	COUPLING, FEMALE
2	J06-00104E	ASSEMBLY, WAND - 42"			

ASSEMBLY, CHEMICAL LINE

ASSEMBLY, HOSE & COUPLER

EV - P/N 4120-00902P

EV - P/N 2102-00710



PARTS LIST

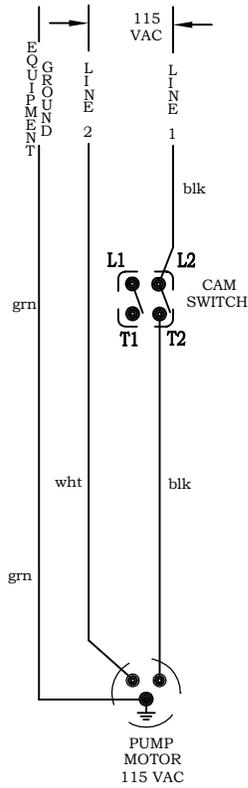
PARTS LIST

ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	C04-00131	SCREEN, CHEMICAL	1	W04-31231-B	NIPPLE, COUPLER
2	Z01-08413-2	HOSE, POLY BRAID - 84"	2	K02-03150-1	ASSEMBLY, HOSE

SCHEMATIC, ELECTRICAL

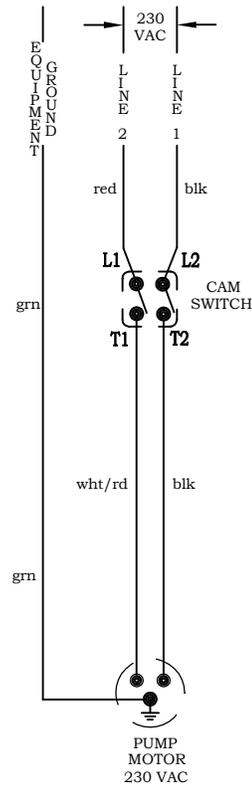
COLD WATER CLEANERS

ES-00074



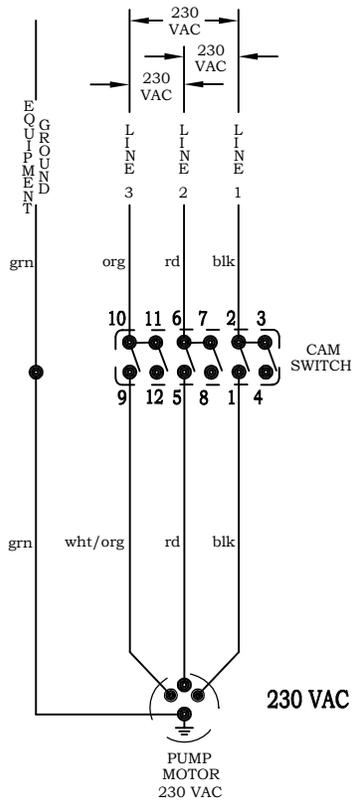
115 VAC 1 PHASE 60 HERTZ

ES-00361



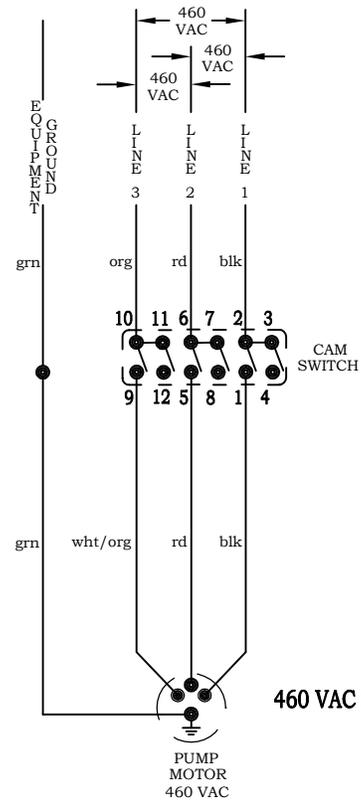
230 VAC 1 PHASE 60 HERTZ

ES-00076



230 VAC 3 PHASE 60 HERTZ

ES-00077



460 VAC 3 PHASE 60 HERTZ