

EP500 AND EP1000

OPERATION AND MAINTENANCE

MANUAL

Torque Wrench Power Pump

MODELS EP500, EP500-230V, EP1000, EP1000-Q, EP1000-230V, EP1000-Q-230V

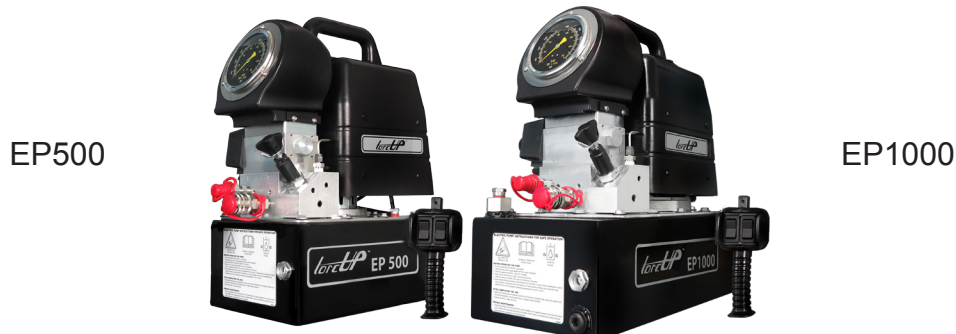


1025 Conroy Place, Easton PA 18040 * U.S.A.
Phone: +1 610-250-5800 * Fax: +1 610-250-2700
Toll Free: 1-888-TORCUP-1
Email: sales@torcup.com * Website: www.torcup.com



NOTICE

IMPORTANT SAFETY INFORMATION ENCLOSED.
 READ THIS MANUAL BEFORE OPERATING PUMP.
 IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PLACE THE INFORMATION IN THIS
 MANUAL INTO THE HANDS OF THE OPERATOR.
 FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.



CONTENTS

Category	Page #	Category	Page #
Manual Index	1	Control Valves	8
General Warnings	2	Power Control Switches	8
Safe and Correct Use	3 - 5	Pressure Torque Setting	9
Warranty Statement	4	Completing the job	9
Working Pressure	5	Periodic Maintenance	9
Install Vent Plug	5	Oil Level	10
Adding Oil	5	Oil Intake Screen	10
General Safety	5	Oil Flushing	10
Technical Specifications	6	Troubleshooting	11
Install Hydraulic Connections	6	EP1000 Parts Index	12
Electrical	7	EP500 Parts Index	23
Connecting Tools	7	Pendant	37
Initial Startup	7		
Pump Mounting	8		

TorcUP Inc. is not responsible for customer modification of tools for applications on which TorcUP Inc. was not consulted.

TorcUP has taken every care in preparing this Operational Manual that is intended as a technical guideline only. TorcUP accepts no liability in relation to any use or reliance made of any information in this Operational Manual. All information, illustrations and specifications in this Operational Manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice. Equipment operators and installers shall be responsible for ensuring that a safe working environment and safe systems of work are in place before operating the equipment.

The use of other than genuine TorcUP replacement parts may result in safety hazards, decreased tool performance, and increased maintenance, and may invalidate all warranties. Repairs should be made only by authorized personnel. Consult your nearest TorcUP Authorized Service Center. Refer All Communications to the Nearest TorcUP Office or Distributor.

For Technical Support & Information Contact:

TorcUP Inc.

1025 Conroy Place, Easton, PA 18040 USA

Phone: +1 610-250-5800 Fax: +1 610-250-2700

email: sales@torcup.com

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY

Do NOT exceed Maximum Pressure. See Torque Chart with Tool. Damage May Occur.

Do not use damaged, frayed or deteriorated hydraulic hoses and fittings.



Always wear eye protection when operating or performing maintenance on this tool.



WARNING

Always wear ear protection when operating this tool.



Do not carry the tool by the hose.



Keep body stance balanced and firm. Do not overreach when operating this tool.



The Torque Reaction Arm must be positioned against a positive stop. Do not use the arm as a dead handle. Take all precautions to make certain the operator's hand cannot be pinched between the arm and a solid object.



USING THE TOOL

- Keep hands, loose clothing & long hair away from the reaction arm and working area during operation.
- This tool will exert a strong reaction force. Use proper mechanical support and correct reaction arm positioning to control these forces. Do not position the reaction arm so that it tilts the tool off the axis of the bolt and never use the swivel inlets as a reaction stop.
- Avoid sharp bends and kinks that will cause severe back-up pressure in hoses and lead to premature hose failure.
- Use accessories recommended by TorcUP.
- Use only impact sockets and accessories. Do not use hand (chrome) sockets or accessories.
- Use only sockets and accessories that correctly fit the bolt or nut and function without tilting the tool off the axis of the bolt.
- This tool is not insulated against electric shock.
- This equipment must not be operated or serviced unless the operator read the operating instructions and fully understands the purpose, consequences and procedure of each step.

Depending on the working environment your local health and safety regulations may require you protective gear (i.e. Ear Protection, Safety Shoes, Hard Hat, Gloves, Coveralls, etc.) In case external forces are exerted on the equipment, non-compliance with these regulations may result in injury. **EAR PROTECTION MUST BE WORN WHEN OPERATING THIS TOOL.**

SAFE AND CORRECT USE

Operation of the Equipment in Accordance with Specified Use

1. Inspect, maintain, operate and install the tool in accordance with all applicable standards and regulations (local, state, country, federal, etc.)
2. Do not remove any labels. Replace any damaged labels immediately.
3. Be sure all hoses and fittings are the correct size and tightly secured.
4. Do not use damaged, frayed or deteriorated hydraulic hoses and fittings. Do not paint hoses.
5. Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel. Use only TorcUP recommended lubricants.
6. Use only proper cleaning solvents to clean parts. Use only cleaning solvents which meet current safety and health standards. Use cleaning solvents in a well ventilated area.
7. Keep work area clean, uncluttered, ventilated and illuminated.

Safety Information When Using The Tool

1. When wearing gloves always be sure that the gloves will not prevent the throttle mechanism from being released.
2. Always wear eye protection when operating or performing maintenance on this tool.
3. Always wear hearing protection when operating this tool.
4. Always use personal protective equipment appropriate to the tool used and material worked. This may include dust mask or other breathing apparatus, safety glasses, ear plugs, gloves, apron, safety shoes, hard hat and other equipment.
5. Keep others a safe distance from your work area, or ensure they use appropriate personal protective equipment.
6. Be aware of buried, hidden or other hazards in your work environment. Do not contact or damage cords, conduits, pipes, or hoses that may contain electrical wires, explosive gases or harmful liquids.
7. Keep hands, loose clothing, long hair and jewelry away from working end of tool.
8. Power tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming.
9. Keep body stand balanced and firm. Do not overreach when operating this tool. Anticipate and be alert for sudden changes in motion, reaction torques, or forces during start up and operation.
10. **DO NOT USE THIS TOOL WHEN TIRED, UNDER THE INFLUENCE OF MEDICATION, DRUGS OR ALCOHOL.**
11. Never use a damaged or malfunctioning tool or accessory.
12. Do not modify the tools, safety devices or accessories.
13. Do not use this tool for purposes other than those recommended
14. Never exceed rated pressure of tool.

SAFE AND CORRECT USE

IMPORTANT - READ CAREFULLY

This manual contains important information for the correct installation, operation and maintenance of this equipment. All persons involved in the installation, operation and maintenance of this equipment must be thoroughly familiar with the contents of this manual. To safeguard against the possibility of personal injury or property damage, follow the recommendations and instructions of this manual. Keep this manual for reference.

WARRANTY STATEMENT

TorcUP products are warranted to be free of defects in materials and workmanship under normal use for as long as the original purchaser owns them, subject to the guidelines and limitations listed. This warranty does not cover: normal wear & tear, cosmetic items, abuse, overloading, alterations, improper fluid, or use in a manner for which they are not intended. If the customer believes a product is defective, the product must be delivered, or shipped freight prepaid, to the nearest TorcUP Authorized Service Center for evaluation and repair. This pump offers 13 month warranty.

RECEIVING INSTRUCTIONS

Important! Make sure to inspect all of the components for shipping damage. If damage is found, notify carrier at once. Shipping damage will not be covered by warranty. The carrier is responsible for all loss associated with shipping damage.

SAFETY

Make sure to read the instructions, warnings and precautions carefully. Follow any recommended safety precautions to avoid personal injury or damage to the unit. TorcUP cannot be responsible for any damage or injury from unsafe use, lack of maintenance or incorrect operation. In the event any questions or concerns arise, contact TorcUP or a local representative for clarification.

The pump's maximum working pressure is 10,000 PSI(700kg/cm²). Make sure that all hydraulic equipment such as rams, hoses, etc. used with this pump are rated at 10,000 PSI (700kg/cm²) operating pressure.

If you have never been trained on high-pressure hydraulic safety, consult your representative for a free TorcUP Hydraulic Safety Course.

Failure to comply with the following cautions and warnings could cause equipment damage, property damage or personal injury.

DANGER is only used when your action or lack of action may cause serious injury or even death.

WARNING indicates a potential danger that requires correct procedures or practices to avoid personal injury.

CAUTION is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment, or other property.

SAFE AND CORRECT USE

WARNING: Wear proper personal protective gear when operating hydraulic equipment.

DANGER: To avoid personal injury, keep hands and feet away from work-piece during operation.

WARNING: Do not exceed equipment ratings. Overloading causes equipment failure and possible personal injury. The pump tools are designed for a maximum pressure of 10,000 PSI (700kg/cm²). Do not connect a jack or cylinder to a pump. Never set the relief valve to a higher pressure than the maximum rated pressure of the pump. Higher settings may result in equipment damage and/or personal injury.

WARNING: The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauges in the system to monitor operating pressure.

CAUTION: Avoid damaging hydraulic hose. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose, leading to premature hose failure. Do not drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.

IMPORTANT: Do not lift hydraulic equipment by the hose or swivel couplers. Use the carrying handle or other means of safe transport.

CAUTION: Keep hydraulic equipment away from flames and heat. Excessive heat will soften seals, resulting in fluid leaks. Heat also weakens hose materials. For optimum performance do not expose equipment to temperatures of 65° C (170° F) or higher. Protect hoses and cylinders from weld spatter.

TECHNICAL SPECIFICATIONS

WORKING PRESSURE

The pump's maximum working pressure is 10,000 PSI (700kg/cm²). Make sure that all hydraulic equipment such as tools, hoses, etc. used with this pump are rated at 10,000 PSI (700kg/cm²) operating pressure.

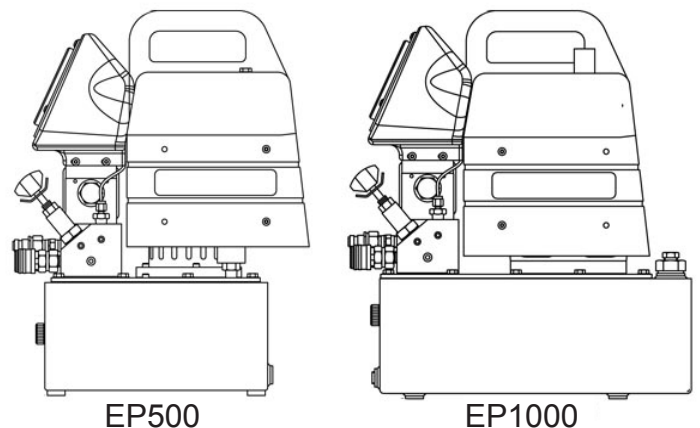
INSTALL VENT PLUG

Remove shipping plug from reservoir and install vent plug supplied with pump.

ADDING OIL

Remove oil filler cap and add TorcUP hydraulic oil into reservoir. Oil level should not exceed 1" from the reservoir cover. Oil should be ISO 32 or 46 weight.

*As a "rule of thumb" oil should be filled about an inch below the top of the reservoir when the unit is powered down and all connected tools or cylinders are retracted.



TECHNICAL SPECIFICATIONS

EP500

TorcUP EP500									
Usable Reservoir Capacity		A		B		C		D	
(gal)	(litre)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
1	3.8	13.1	333	8.19	208	19	483	5.73	146

Weight is without oil.

MODEL NUMBER	Reservoir Capacity		Valve			Pendant	Motor Specification	Flow Rate	Weight	
	gal	litre	Model	Style	Function				lbs	kg
EP500	1	3.8	Torque	Auto Retract	Advance/Retract	Motor/Solenoid Control	1.125 HP @230VAC Single Phase	525 cu.in./min.@1,100psi 46 cu.in./min.@10,000psi	59.4	26.9
EP500-230V	1	3.8							59.4	26.9

EP1000

TorcUP EP1000									
Usable Reservoir Capacity		A		B		C		D	
(gal)	(litre)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
1.5	5.7	15.13	384	8.75	222	19	483	5.94	151
2.5	9.5	17	432	9.75	248	19	483	5.94	151

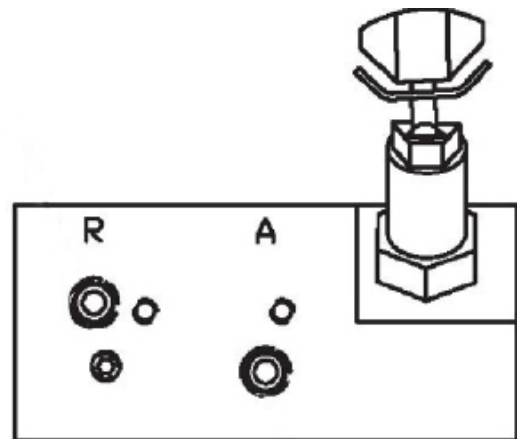
Weight is without oil.

MODEL NUMBER	Reservoir Capacity		Valve			Pendant	Motor Specification	Flow Rate	Weight	
	gal	litre	Model	Style	Function				lbs	kg
EP1000	1.5	5.7	Torque	Auto Retract	Advance/Retract	Motor/Solenoid Control	1.5 HP @115VAC Single Phase 700 cu. in./min.@0psi 55 cu.in./min.@10,000psi 11.5 litres/min. @0bar 0.9 / min. @700bar	74.2	33.7	
EP1000-230V	1.5	5.7						74.2	33.7	
EP1000-Q	2.5	9.5						81.2	36.8	
EP1000-Q-230V	2.5	9.5						81.2	36.8	

INSTALL HYDRAULIC CONNECTIONS

Use only tools, hoses and accessories rated at 10,000 PSI (700kg/cm²). Remove the shipping plugs from the ports to connect your coupling(s) or hose(s) to manifold. Use 1.5 wraps of Teflon tape (or suitable thread sealant) on all threads, leaving the first complete thread free of tape to ensure no foreign matter enters the hydraulic circuit.

When making connections with quick disconnect couplings, make sure the couplings are fully engaged. Threaded connections such as fittings, gauges, etc. must be securely tightened and leak free.



TECHNICAL SPECIFICATIONS

WARNING

Loose or improperly threaded fittings can be potentially dangerous if pressurized; however, severe over tightening can cause premature thread failure. Fittings need to be tightened secure & leak free. Never hold or stand directly in line with any hydraulic connections while pressurizing. Never grab, touch or in any way come in contact with a hydraulic pressure leak. Escaping oil can penetrate the skin and a serious injury can result.

CAUTION: Do not subject the hose to potential hazards such as sharp surfaces, extreme heat or heavy impact. Do not allow the hose to kink or twist. Inspect each hose for wear before it is used.

ELECTRICAL

Check for proper electrical supply before connecting. Be sure the electrical connection is grounded. Check that your power supply agrees with the motor nameplate and/or TorcUP model decal.

NOTE: MOTOR MAY SPARK. DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE OR IN THE PRESENCE OF CONDUCTIVE LIQUIDS.

1. Do not use a power or extension cord that is damaged or has exposed wires.
2. All single phase motors come equipped with a three prong grounding type plug to fit the proper grounded type electrical outlet. Do not use a two prong ungrounded extension cord as the pump's motor must be grounded.

CONNECTING HYDRAULIC TOOLS

Use only tools, hoses and accessories rated at 10,000 PSI (700kg/cm²). When making connections with quick disconnect couplings, make sure the couplings are fully engaged. Threaded connections such as fittings, gauges, etc. must be securely tightened and leak free. Use 1.5 wraps of Teflon tape (or suitable thread sealant) on all threads, leaving the first complete thread free of tape to ensure no foreign matter enters the hydraulic circuit.

STARTING THE PUMP FOR THE FIRST TIME

1. Check for any leaks, repair as needed.
2. When first plugged in the solenoid makes 4 "clicks" relieving any pressure still in the system. When the button to turn off the pump is pressed it goes through the same sequence for the same reason. It is then safe to remove tool and hoses.
3. Shift pendant to the advance position to advance tool and release to retract tool. Look for movement in tool, check for any leaks, repair as needed.

CAUTION: Never operate the pump without tool movement for more than 1 minute. Leaving the valve in the advance or retract position without the tool's piston rod moving will overheat the oil.

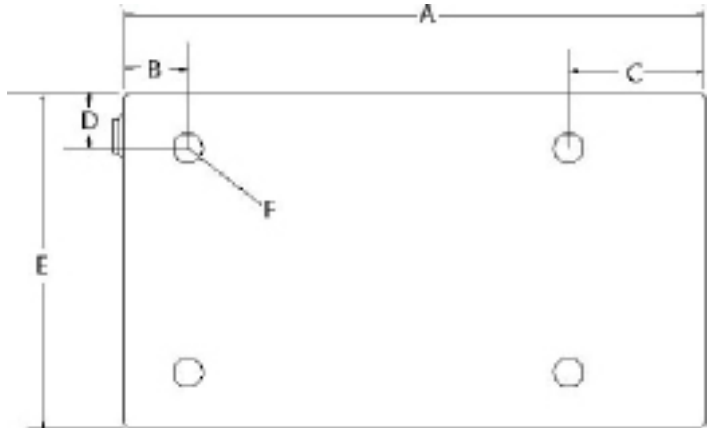
CAUTION: Never disconnect or connect any hydraulic hoses or fittings without first unloading the tool, then unplug the electrical cord of the pump. Open manual relief valve to assure that the system has been depressurized.

TECHNICAL SPECIFICATIONS

PUMP MOUNTING

Refer to the chart for mounting dimensions to secure the pump to a fixed surface.

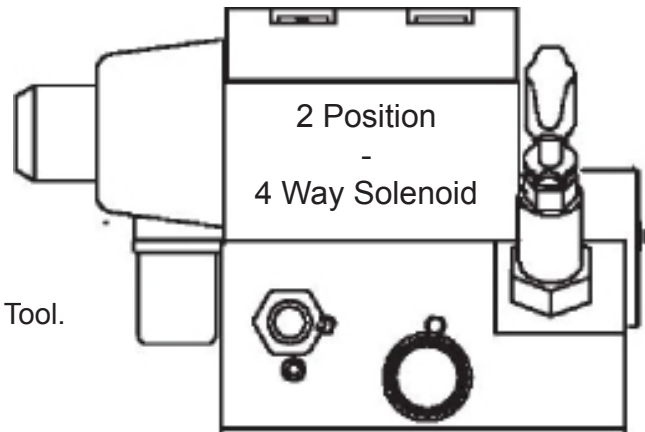
	1 gal. (4L)	1.5 gal. (6L)	2.5 gal. (10L)	5 gal (20L)
A	11	15.13	17	19.6
B	0.56	1.68	2.75	4.69
C	0.56	3.57	4.37	5.03
D	1.16	1.43	1.93	2.93
E	8.19	9.75	9.75	11.75
F	1/4-2unc (4 places)	1/4-2unc (4 places)	1/4-2unc (4 places)	1/4-2unc (4 places)



CONTROL VALVES

2-Position – 4 Way Solenoid Valve for Hydraulic Torque Wrenches.

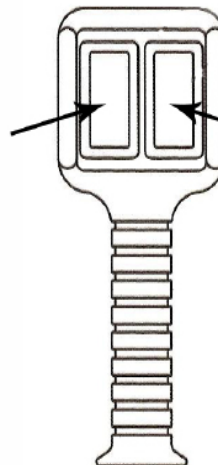
To Advance.....depress the Advance Switch
To Retract.....release advance switch to Retract Tool.



POWER CONTROL SWITCHES

Remote pendant.
Configured with motor control pendant:

Press UP or Down
To Turn Pump Off



Press UP or Down
To Turn On Pump

NOTE: In the event multiple buttons are depressed for longer than 5 seconds, the unit is programmed to shut down. To restart, you will need to depress the motor "ON" to continue, or unplug/replug the unit into power supply, then depress the motor "ON" to continue.

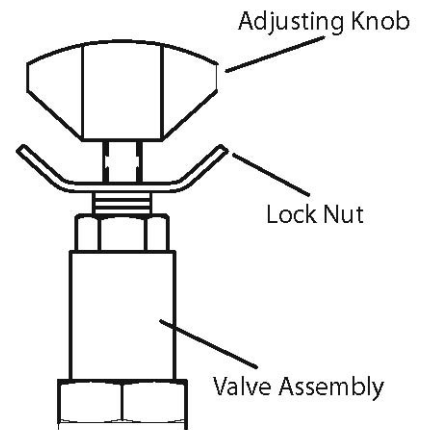
OPERATION PROCEDURES

PRESSURE TORQUE SETTING

WARNING

Make these adjustments BEFORE putting torque wrench on nut or bolt head. The pump pressure setting may be above the pressure needed to provide the required torque for your application. Exceeding required torque will cause equipment damage and may lead to serious personal injury.

1. See torque wrench instructions for amount of pressure required to produce desired torque.
2. Loosen lock nut and back out relief valve to prevent unintended pressure builds up.
3. Turn pump on. Press and hold the "ADVANCE" switch, and read pressure gauge.
4. While holding the switch, turn relief valve in (clockwise) to increase pressure or out (counter-clockwise) to decrease maximum pressure. Repeat until correct pressure is obtained.
5. Tighten lock nut on the relief valve to maintain setting.
6. Run pump several times to test this setting before setting tool on the nut.



AFTER COMPLETING THE JOB

Before disconnecting hoses, fittings, etc., first be sure the tool is unloaded and retracted, then unplug the power cord. The pump is designed to cycle the valve upon powering off to release pressure.

PERIODIC MAINTENANCE

Completely change the hydraulic oil and clean the intake screen and magnet (located in the reservoir) twice a year. If equipped, change the external oil filter twice a year (Use TorcUP oil only, Model # AO1, 1 gallon). Change the oil more frequently when used in extremely dusty areas or when the oil has been overheated. Using oil other than TorcUP Brand may void the pump's warranty.

The following conditions require more frequent oil changes.

- Rigorous duty, where oil temperature may reach 150° F.
- High humidity environment and extreme changes in temperature that can result in condensation inside the reservoir.
- Dirty or dusty environments that may contaminate the oil.
- Frequent connection and disconnection of hydraulic hoses and components.

WARNING

The electrical power cord must be disconnected from electrical outlets before performing maintenance or repair procedures.

OPERATION PROCEDURES

MAINTAIN OIL LEVEL

Check hydraulic oil level every 30 hours of operation (sight gauge should be completely covered in oil when all tools are retracted. Add TorcUP oil (Model # AO1 – 1 gallon) when necessary. Oil level should be no more than 1” from top of reservoir plate – with cylinders retracted and motor off.

CLEAN OIL INTAKE SCREEN ONCE A YEAR

Loosen and remove reservoir plate bolts. Lift pump unit off the reservoir, being careful not to damage the gasket.

Applies to 1, 1.5, 2, 2.5 gallon reservoirs:

Remove the five allen socket head cap screws, securing the screen to the 1st stage gear pump. Care should be taken not to remove the center plate and gears. Remove and clean with nonflammable solvent, blow dry clean. Reinstall in reverse order and torque bolts to 75 inch pounds. Keep the motor and pump as clean as possible.

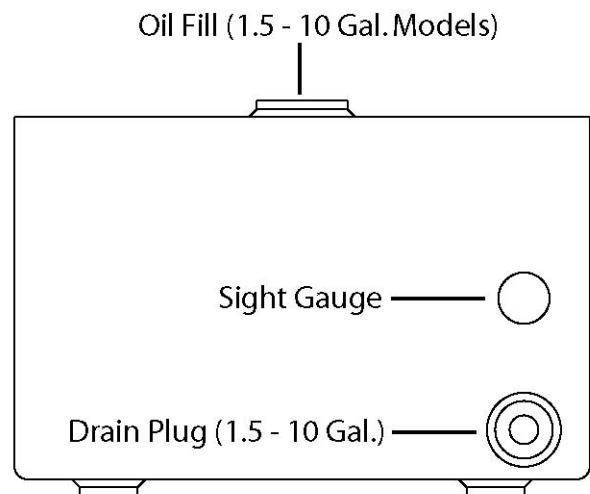
Applies to the 5 and 10 gallon reservoirs:

Unscrew screen from bottom of pump unit and clean with nonflammable solvent. Blow dry and reassemble. Keep areas around pump unobstructed to provide good air flow around the motor and pump. Keep the motor and pump as clean as possible.

FLUSH THE PUMP

If you suspect your pump has been contaminated or discover sludge or other deposits on internal components, you should thoroughly flush the pump. Remove the old oil from the reservoir, then thoroughly clean the reservoir and refill with a clean, nonflammable flushing oil. Reassemble the pump and motor to the reservoir.

Run the pump in no load condition for 1 or 2 minutes maximum. Unplug the pump and remove the motor and pump assembly again. Now drain the flushing oil and re-clean the inside of the reservoir. (Make sure flushing fluid is also drained from pump assembly). Reassemble the pump and refill the reservoir with TorcUP hydraulic oil and reassemble the pump.



TROUBLESHOOTING

PROBLEM

CAUSE-SOLUTION

Sporadic Tool Action:

- Air in the hydraulic system. Bleed the hydraulic circuit.
- Check reservoir oil level.

Motor Will Not Start:

- Be sure power cord is not damaged.
- Check for tripped circuit breaker; be sure breaker is of adequate size.
- Have motor checked for proper operation.
- Have qualified electrician inspect for loose or faulty wiring or switch.

Noisy Operation:

- Air in system.
- Be sure the oil reservoir is filled to normal level.
- Check all points where air might leak into system.
- Clogged or blocked intake screen.

Pump Oil is Over Heating:

- Inspect for high pressure leakage at the pump (leaking at plug or relief valve).
- Oil level is low. Fill reservoir to normal level, or retrofit the pump with larger reservoir or heat exchanger.

Pump Runs But Will Not Pump Oil:

- Pump is not primed. Run pump a few minutes tipping from side to side.
- Inspect to make sure that external adjustable relief valve is set properly.
- Defective control valve, take to nearest TorcUP Authorized Service Center for repair.
- Incorrect motor rotation, take to nearest TorcUP Authorized Service Center for repair.
- Check to make sure the intake screen is not clogged. Clean if needed.
- Check oil reservoir is low. Fill as needed.
- Oil viscosity is too high. Replace with TorcUP oil.

PARTS INDEX

How to Identify Parts for Your Model.

MODEL NUMBER & DATE CODE LOCATION

For example, the date code and serial number

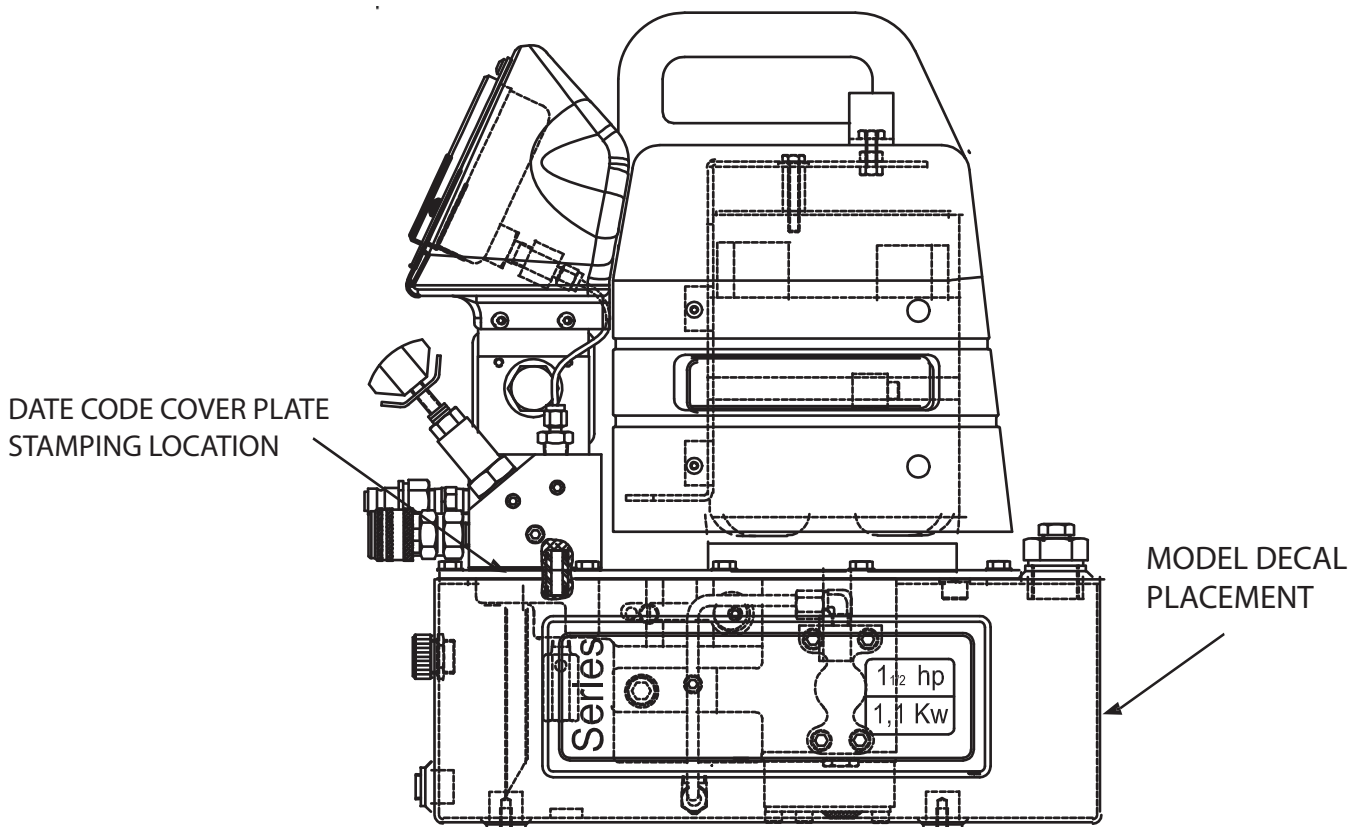
J = **October**

07 = **Year 2007**

42 = **Week number in year**

J 07 42

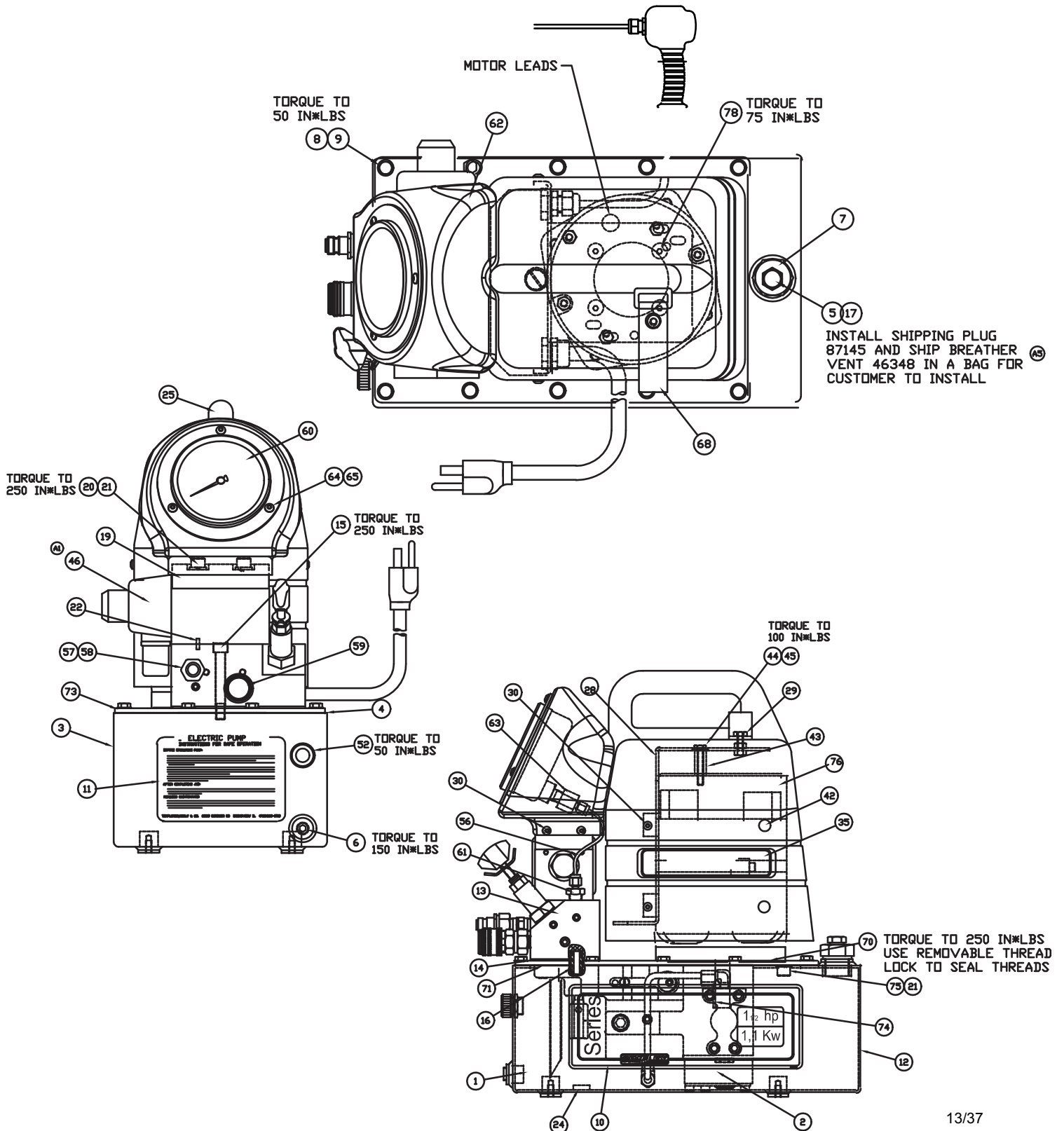
A	B	C	D	E	F	G	H	I	J	K	L
1	2	3	4	5	6	7	8	9	10	11	12



COMMON COMPONENTS

EP1000

Note: This illustration is for reference only. The appearance of your unit may differ from unit shown.



COMMON COMPONENTS

EP1000

115V 230V

115V 230V

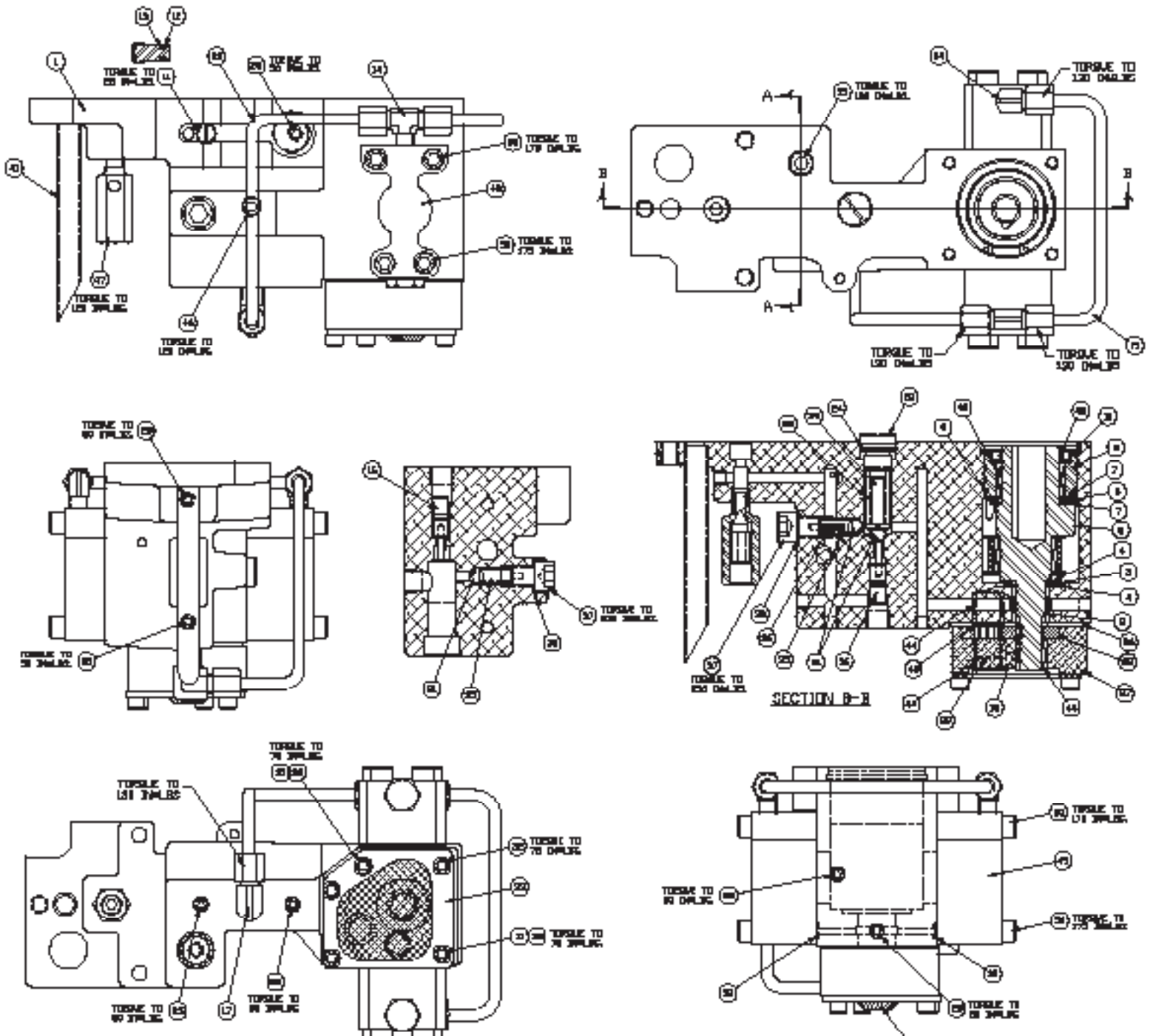
ITEM #	DESCRIPTION	PART #	PART #	QTY.
02	PUMP ASM.	SEE PAGE 16		1.00
03	RESERVOIR	SEE PAGE 23		1.00
* 04	RESERVOIR GASKET	85469		1.00
05	BREATHER VENT 3/8" NPT	46348	46348	1.00
06	PIPE PLUG 1/4" W/ COATING	46510	46510	1.00
07	SAE #12 HEX PLUG WITH PT	46118	46118	1.00
08	HHCS 1/4-20 X .75 PLT	65891	65891	14.00
09	SEALING WASHER	65892	65892	14.00
10	G5 RESERVOIR DECAL	46052	46052	2.00
11	LABEL SAFE USE ELEC	68068	68068	1.00
12	BLANK DECAL 3 X 4	87305	87305	1.00
13	MANIFOLD ASM.	SEE PAGE 20		1.00
14	VALVE GASKET	69242	69242	1.00
15	SHCS 3/8-16 X 2 3/4	99921	99921	3.00
16	ADAPTER ASSY.	68963	68963	1.00
17	HEX PIPE PLUG 3/8" W/ COATING	46513	46513	1.00
19	VALVE ASM. 2P/4W	SEE PAGE 19		1.00
20	SHCS 3/8-16 X 3 1/2	88363	88363	4.00
21	LOCK WASHER 3/8	93943	93943	2.00
21	LOCK WASHER 3/8	93943	93943	4.00
22	ROLL PIN 1/8 X 3/8 LG	561604	561604	1.00
24	MAGNET	66021	66021	1.00
25	MOTOR SHROUD W/ HANDLE	45534	45534	1.00
27	DECAL OVERLAY	46539	46539	1.00
28	BRACKET ASM - CIRCUIT BOARD	SEE PAGE 21-22		1.00

ITEM #	DESCRIPTION	PART #	PART #	QTY.
29	HEAVY HEX JAM NUT 1/4-20	69234	69234	2.00
30	BHCS 10-24 x 3/8 LG	69236	69236	4.00
30	BHCS 10-24 x 3/8 LG	69236	69236	4.00
35	DECAL 5.71" x 1.15"	46355	46355	2.00
37	QUICK DISCON. FLAG BLUE	44491	44491	2.00
42	HOLE PLUG 1/4"	46405	46405	4.00
43	SPACER 1"	69353	69759	2.00
44	HHCS 1/4-20 X 1.50	84417	87260	2.00
45	WASHER 1/4" SS	88429	88429	2.00
46	COIL 115V WITH DIN CONNECTOR	46294	46324	1.00
52	SIGHT GAUGE	46009	46009	1.00
57	1/4 IN NIPPLE	F004004	F004004	1.00
58	1/4" NIPPLE	HC-M-100	HC-M-100	1.00
59	1/4" SELF-LOCKING COUPLER	HC-F-400	HC-F-400	1.00
62	GAUGE SHROUD ASSEMBLY	46474	46474	1.00
68	VELCRO STRAP 1x14	46310	46310	1.00
* 70	GASKET-MOTOR	S66012	S66012	1.00
* 71	PUMP GASKET G5	46032	46032	1.00
73	COVER PLATE	SEE PAGE 23		1.00
74	PIN,DOWEL 3/16 1" LONG	69026	69026	1.00
75	SHCS 3/8-16 X 1	93594	93594	2.00
76	1 1/2HP, PM MOTOR	68376	68403	1.00
78	FHCS 1/4-28 x 0.50 LONG	46279	46279	4.00

NOTES : REBUILD KIT (* = COMPONENTS) -- PART # 54488

SUB PUMP ASSEMBLY

(46335) PUMP ASM.
EP1000



SUB PUMP ASSEMBLY

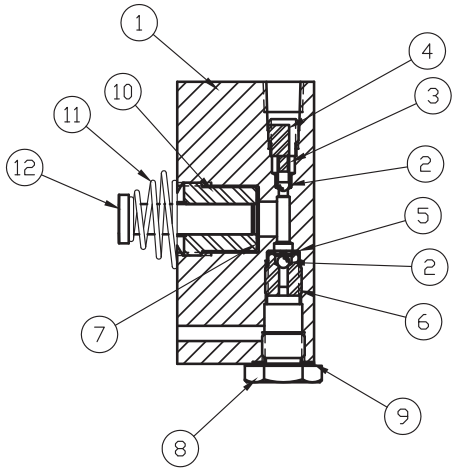
(46335) PUMP ASM.
EP1000

ITEM #	DESCRIPTION	PART #	QTY.
01	PUMP BODY G5	45750	1.00
02	BEARING ROLLER 5/8x13/16x5/8 WIDE	68360	1.00
03	THRUST BEARING	66033	1.00
04	THRUST WASHER	66474	2.00
05	ECCENTRIC SHAFT ASM 5/8" G5	SEE PAGE 18	1.00
06	THRUST BEARING	66106	1.00
07	THRUST WASHER	66108	2.00
08	ECCENTRIC SHAFT ADAPTER G5	45908	1.00
* 09	O-RING 1 3/4 X 1 7/8	560203	1.00
10	RETAINING RING	68978	1.00
11	POW'R BUD DUMP PLUG	43283	1.00
* 12	O-RING 3/16X5/16	5602008	3.00
13	BACKUP WASHER	56080087	1.00
14	MALE TEE 1/8" PIPE TO 1/4" TUBE	45426	1.00
15	PIPE PLUG 1/4" FLUSH W/ COATING	46509	1.00
16	UNLOADING PISTON ASSEMBLY	SEE PAGE 18	2.00
17	MALE ELBOW 1/4" TUBE 1/4" PIPE	45929	1.00
18	BALL 1/8"	90906	3.00
19	G3 PISTON BLOCK TUBE	45420	1.00
20	OUTLET TUBE PISTON BLOCK	45815	1.00
21	BALL 5/16"	91701	3.00
22	UNLOADING SPRING	43671	1.00
23	ADJUSTING SCREW G5	45903	1.00
* 24	O-RING 5/8X3/4 URETH	56020162	1.00
25	PIPE PLUG FLUSH 1/16 W/ COATING	40049	7.00
26	WEAR PLATE G5	45909	1.00
27	BOTTOM PLATE 9/32" G5	45900	1.00
28	GEAR PUMP 0.281	45824	2.00
29	SHAFT-IDLER	68850	1.00
30	SCREEN	68921	1.00
31	TUBE-GUIDE .11	68894	2.00
32	SHCS 1/4-28 X 1 3/4	68255	5.00
33	PLATE-SCREEN MTG.	68927	1.00
34	MALE ELBOW 1/8 PIPE	69354	1.00
35	SPRING	68225	2.00
36	ROLL PIN 1/8 X 3/4 LONG	97782	1.00
37	BALL STOP G5	45904	2.00
* 38	GASKET 29/64 X 5/8	86268	2.00
39	SPRING CAP UNLOADING VALVE	43673	1.00
41	TUBE RETURN	68569	1.00
43	BEARING ROLLER 1 1/4x1 1/2x3/4 WIDE	66030	1.00
44	BEARING ROLLER 1/2x11/16x1/2 WIDE	68891	3.00
45	RING-RETAINING	68892	1.00
46	PIPE PLUG 1/8" FLUSH W/ COATING	46508	1.00
47	CART REL. VAL. ASSEMBLY	66220	1.00
* 48	SHAFT SEAL G5	45930	1.00
49	PISTON BLOCK ASM. 0.255 G5	SEE PAGE 18	2.00
50	SHCS 5/16-24 X 1.75	69392	8.00

SUB PUMP ASSEMBLY

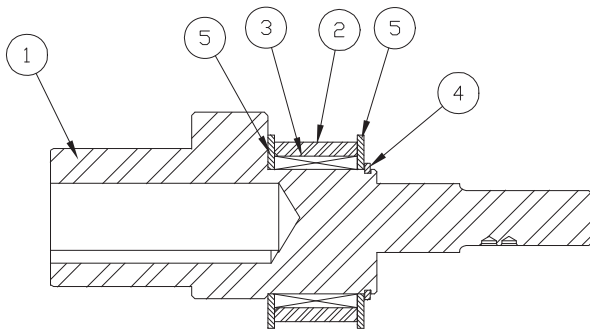
EP1000

(46336) PISTON BLK ASM.



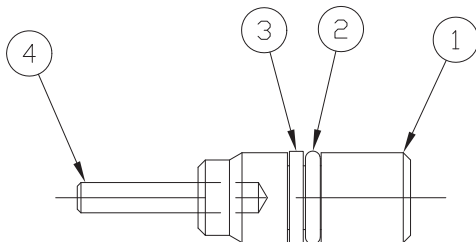
ITEM #	DESCRIPTION	PART #	QTY.
01	GEN II PISTON BLOCK	45539	1.00
02	BALL 1/8"	90906	2.00
03	SPRING	66042	1.00
04	BALL STOP	68810	1.00
05	BALL RETAINER	66043	1.00
06	INTAKE SEAT	66046	1.00
*	GASKET 25/64X19/32	85726	1.00
08	PLUG PISTON BLOCK	68825	1.00
*	GASKET 29/64 X 5/8	86269	1.00
10	ADAPTOR .255 DIA.	68909	1.00
11	SPRING, PISTON	68340	1.00
12	PISTON .255 DIA.	68222	1.00

(45820) ECCENTRIC SHAFT ASM.



ITEM #	DESCRIPTION	PART #	QTY.
01	ECCENTRIC SHAFT 5/8"	45819	1.00
02	ECCENTRIC RING	45907	1.00
03	ROLL BEARING 1 1/8x1 3/8x3/4 WIDE	45926	1.00
04	RETAINING RING EXTERNAL 1 1/8"	45931	1.00
05	THRUST WASHER	68026	2.00

(43766) UNLOADING PISTON ASM.



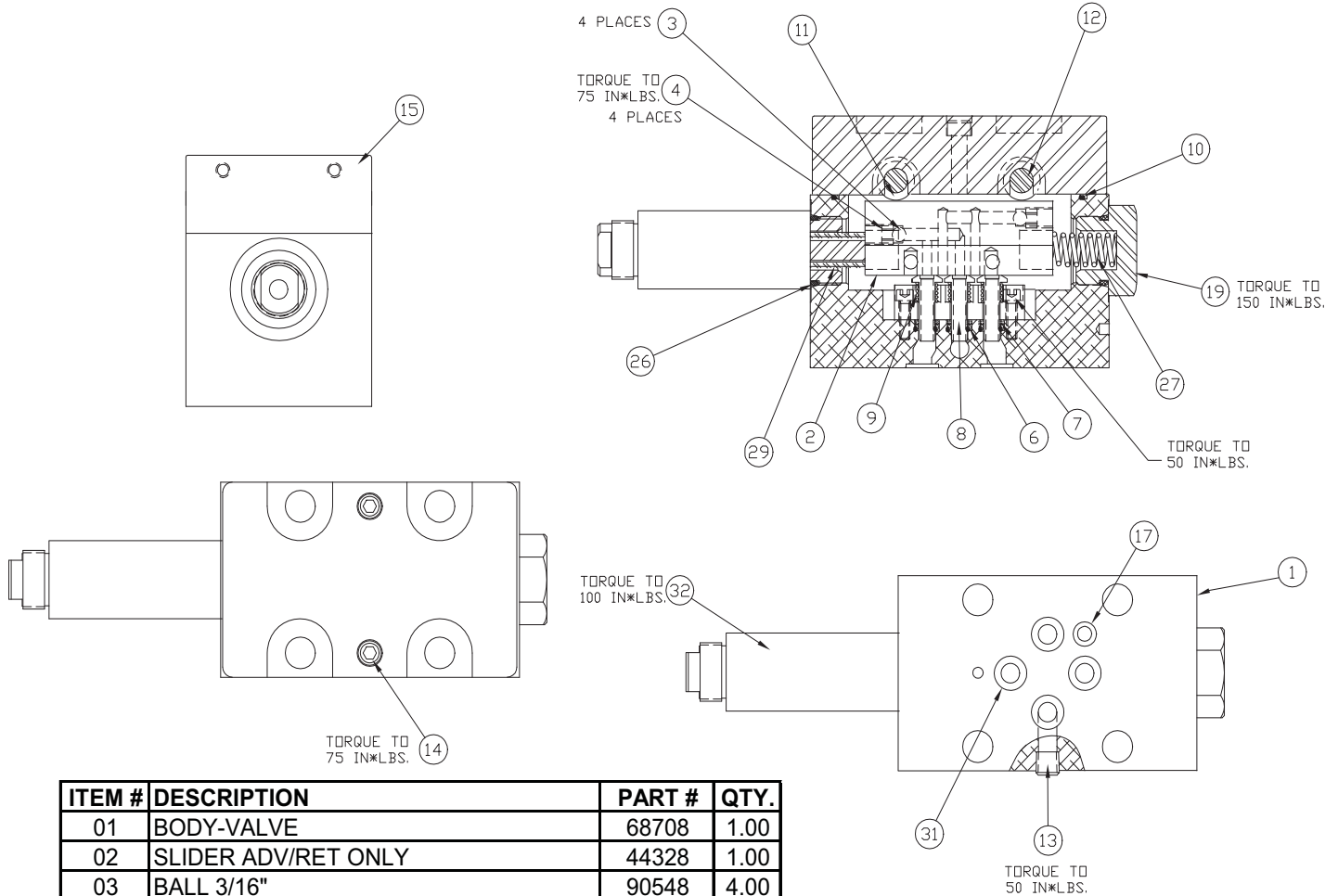
ITEM #	DESCRIPTION	PART #	QTY.
01	UNLOAD PISTON	43765	1.00
*	O RING 1/4X3/8	5602010	1.00
03	BACK-UP WASHER TEF	43768	1.00
04	DOWEL PIN 1/8X3/4 LG	43686	1.00

REBULID KIT (* = COMPONENTS) PART#54488

VALVE SUB ASSEMBLY

(46291) 3 & 4 WAY SOLENOID VALVE 115V/230V.

EP1000



ITEM #	DESCRIPTION	PART #	QTY.
01	BODY-VALVE	68708	1.00
02	SLIDER ADV/RET ONLY	44328	1.00
03	BALL 3/16"	90548	4.00
04	SET SCREW 1/4-28 X 1/4 CUP	40254	4.00
*	06 O-RING 7/32X11/32	5602009	3.00
*	07 BACK UP WASHER	68391	3.00
	08 SHEAR SEAL	68383	3.00
	09 SPRING	68384	3.00
*	10 O-RING 2 5/8 X 2 3/4	5602038	1.00
	11 BEARING ROLLER 5/16x1/2x5/16 WIDE	68385	4.00
	12 PIN BEARING	68390	2.00
	13 PIPE PLUG FLUSH 1/16 W/ COATING	40049	1.00
	14 SHCS #10-32 X 1" LG PLATED	68264	2.00
	15 VALVE TOP PLATE MACHINED	46272	1.00
*	17 O-RING 3/16X5/16	5602008	1.00
	19 VALVE PLUG 2 POSITION SLIDER	46271	1.00
*	26 O-RING SAE PORT #10	5603910	2.00
	27 SPRING	68711	1.00
	29 SPACER VALVE SLIDER	46418	1.00
*	31 O-RING 5/16X7/16 URE	56020112	4.00
	32 PUSHER-SOLENOID	68729	1.00

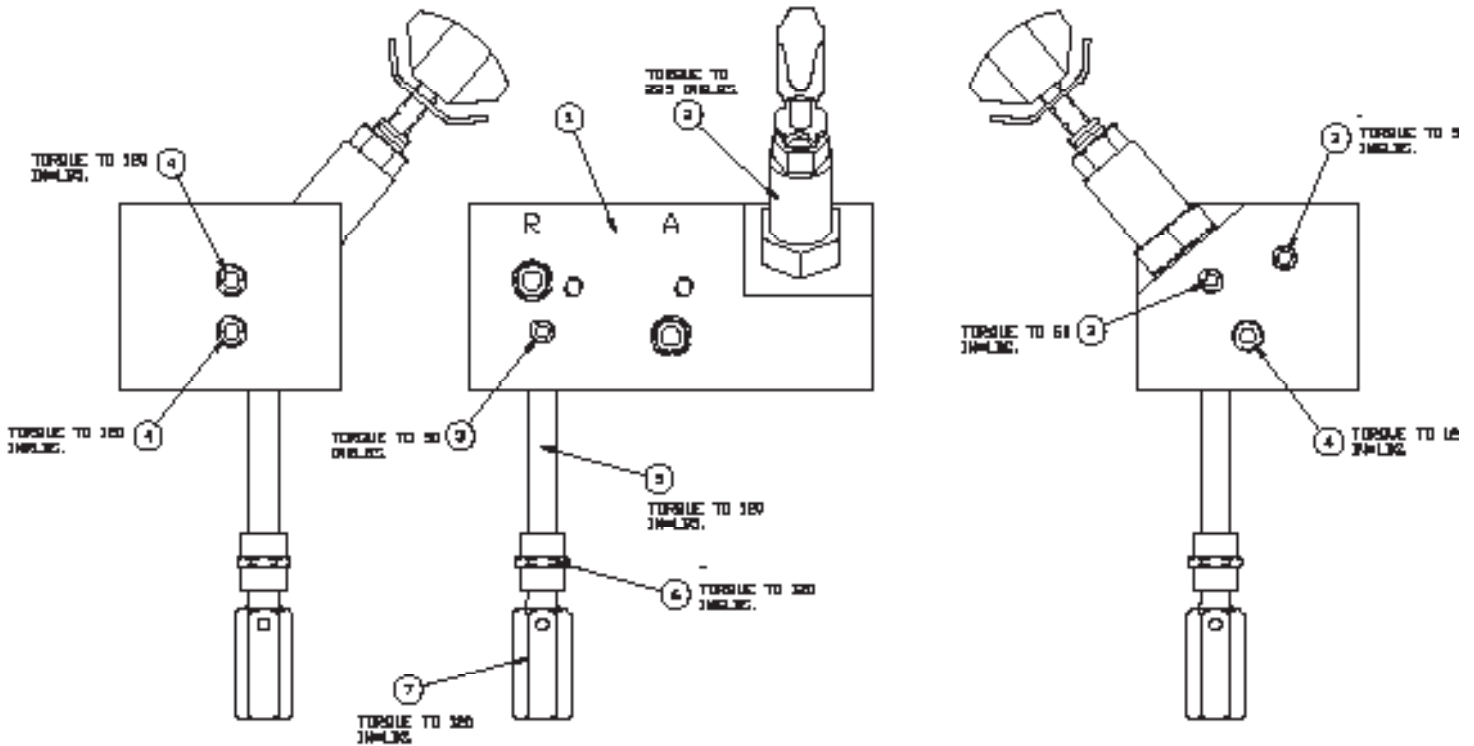
PACKING KIT 3 & 4 WAY SOLENOID VALVE

(* = COMPONENTS) -- PART #54491

MANIFOLD SUB ASSEMBLY

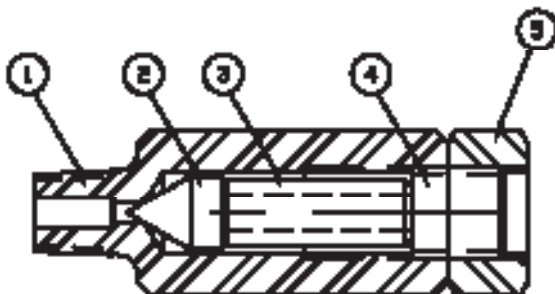
(46292) MANIFOLD ASML

EP1000



ITEM #	DESCRIPTION	PART #	QTY.
D1	VALVE MANIFOLD	48270	1.00
D2	CARTRIDGE RELIEF VALVE	45423	1.00
D3	1/16 PIPE PLUG-FLUSH	40049	3.00
D4	PIPE PLUG 1/8" FLUSH	81083	3.00
D5	PIPE NIPPLE 1/8 NPT	68017	1.00
D6	PIPE COUPLING 1/8	68018	1.00
D7	INT. RELIEF ASM HF	68000	1.00

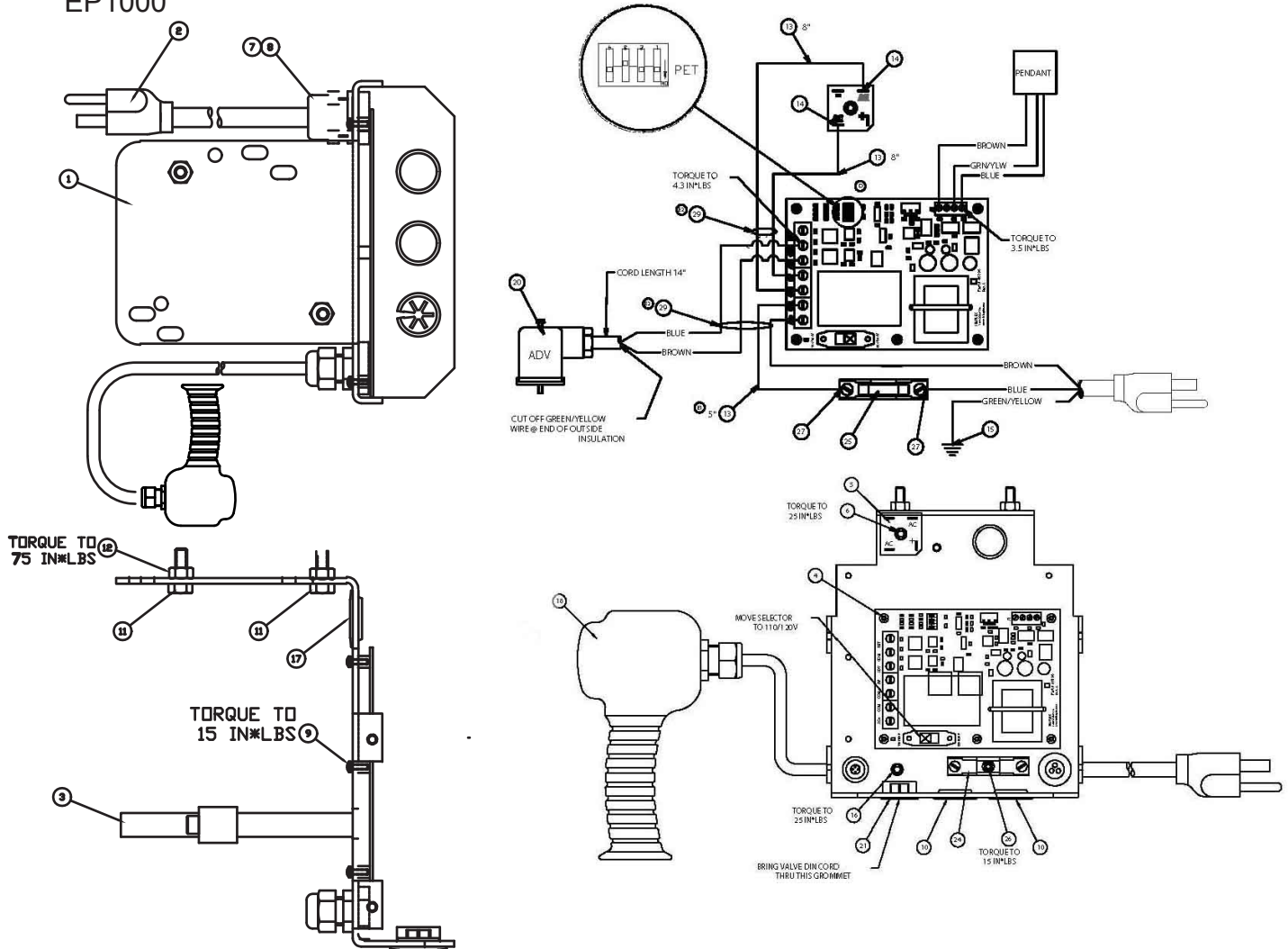
(68999) INT. RELIEF ASM.



ITEM #	DESCRIPTION	PART #	QTY.
D1	CARTRIDGE	68008	1.00
D2	CONE REL VALVE	68008	1.00
D3	POPPET RELIEF SPRING	44841	1.00
D4	RELIEF VALVE ADJUSTING SCREW	68083	1.00
D5	HEX NUT 7/16-20	68020	1.00

BRACKET SUB ASSEMBLY

(46281) BRACKET SUB ASM. 115V.
EP1000

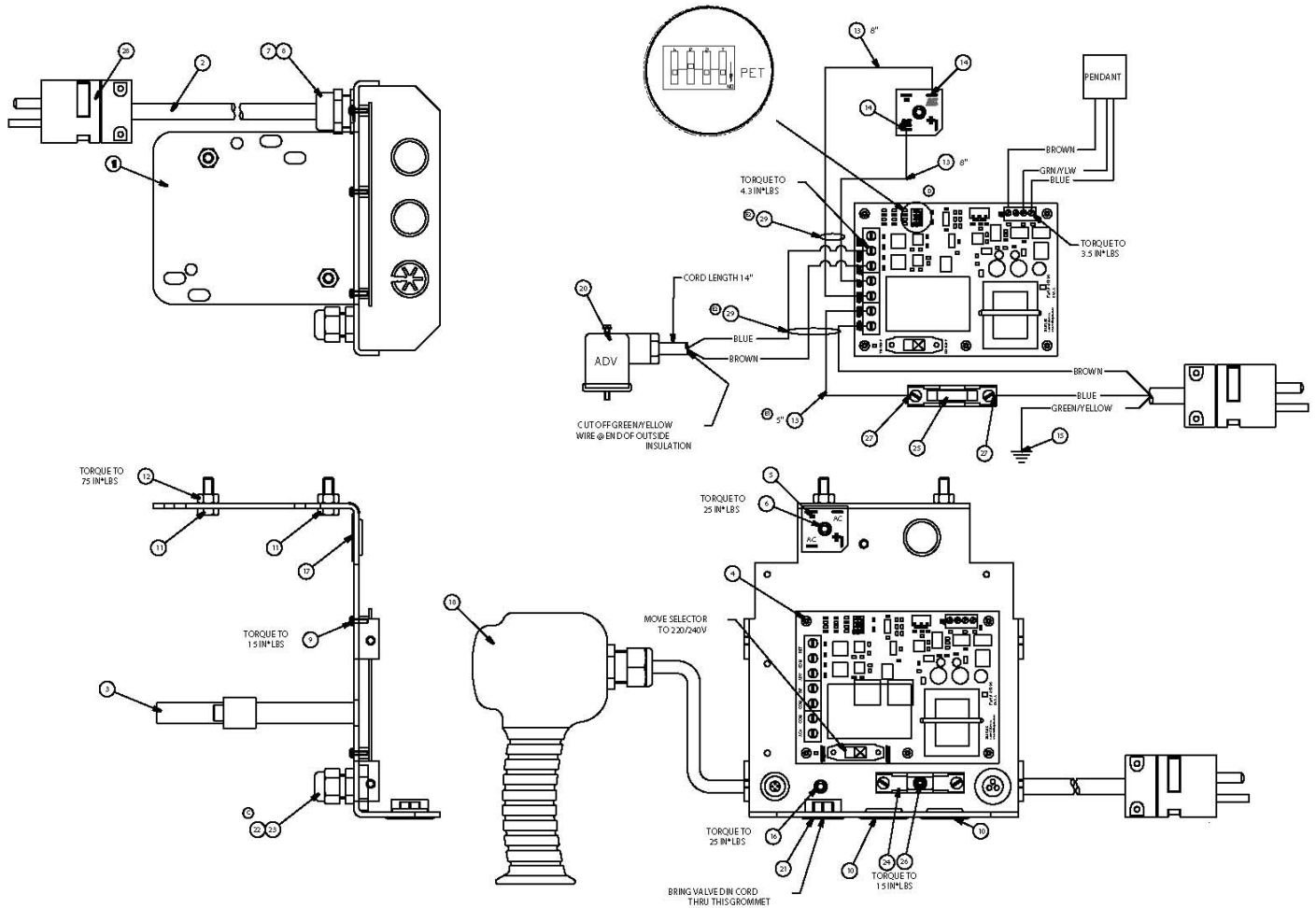


ITEM #	DESCRIPTION	PART #	QTY.
01	MOUNTING BRACKET G3/G5	46233	1.00
02	PLUG AND CORD ASSY	68595	1.00
03	HOSE CLAMP	69235	1.00
04	CIRCUIT BOARD BASIC	46196	1.00
05	BRIDGE RECTIFIER 25A	68623	1.00
06	SHCS #10-32 X 1/2	66805	1.00
07	FITTING, CORD L-TIGHT	68375	1.00
08	LOCKNUT 1/2 INCH	85510	1.00
09	MACHINE SCREW W/ LOCK WASH	46248	5.00
10	HOLE PLUG 7/8"	69652	2.00
11	HHCS 1/4-20 X .75 PLT	65891	2.00
12	HEX NUT 1/4-20 PLATD	93849	2.00
13	WIRE #14 BLACK	68261B	2.00
14	QUICK DISCON. FLAG BLUE	44491	2.00

ITEM #	DESCRIPTION	PART #	QTY.
15	RING TERMINAL 1/4"	69917	1.00
16	SHCS #10-32x1/4" LG PLATED	45175	1.00
17	GROMMET 7/8" HOLE	69855	1.00
18	PART # S-DS1042900	*	1.00
			1.00
20	MOLDED DIN CONNECTOR W/ CORD	46327	1.00
21	PUSH THRU BUSHING	46420	1.00
		*	1.00
		*	1.00
24	FUSE HOLDER 30 AMP	46481	1.00
25	FUSE 25 AMP	46482	1.00
26	SHCS #6-32 x 1/4 LONG	46506	1.00
27	SPADE TERMINAL	68116	2.00

BRACKET SUB ASSEMBLY

(46289) BRACKET SUB ASM. 230V.
EP1000



ITEM #	DESCRIPTION	PART #	QTY.
01	MOUNTING BRACKET	46233	1.00
02	POWER CORD 14-3 IEC	69604R	72.00
03	HOSE CLAMP	69235	1.00
04	CIRCUIT BOARD BASIC	46196	1.00
05	BRIDGE RECTIFIER 25A	68623	1.00
06	SHCS #10-32 X 1/2	66805	1.00
07	FITTING, CORD L-TIGHT	68375	1.00
08	LOCKNUT 1/2 INCH	85510	1.00
09	MACHINE SCREW W/ LOCK WASH	46248	5.00
10	HOLE PLUG 7/8"	69652	2.00
11	HHCS 1/4-20 X .75 PLT	65891	2.00
12	HEX NUT 1/4-20 PLATD	93849	2.00
13	WIRE #14 BLACK	68261B	2.00
14	QUICK DISCON. FLAG BLUE	44491	2.00

ITEM #	DESCRIPTION	PART #	QTY.
15	RING TERMINAL 1/4"	69917	1.00
16	SHCS #10-32X1/4" LG PLATED	45175	1.00
17	GROMMET 7/8" HOLE	69855	1.00
18	PART S-DS1042900		1.00
			1.00
20	MOLDED DIN CONNECTOR W/ CORD	46327	1.00
21	PUSH THRU BUSHING	46420	1.00
			1.00
			1.00
24	FUSE HOLDER 30 AMP	46481	1.00
25	FUSE 25 AMP	46482	1.00
26	SHCS #6-32 x 1/4 LONG	46506	1.00
27	SPADE TERMINAL	68116	2.00
28	PLUG 20 AMPS-250V	87093	1.00

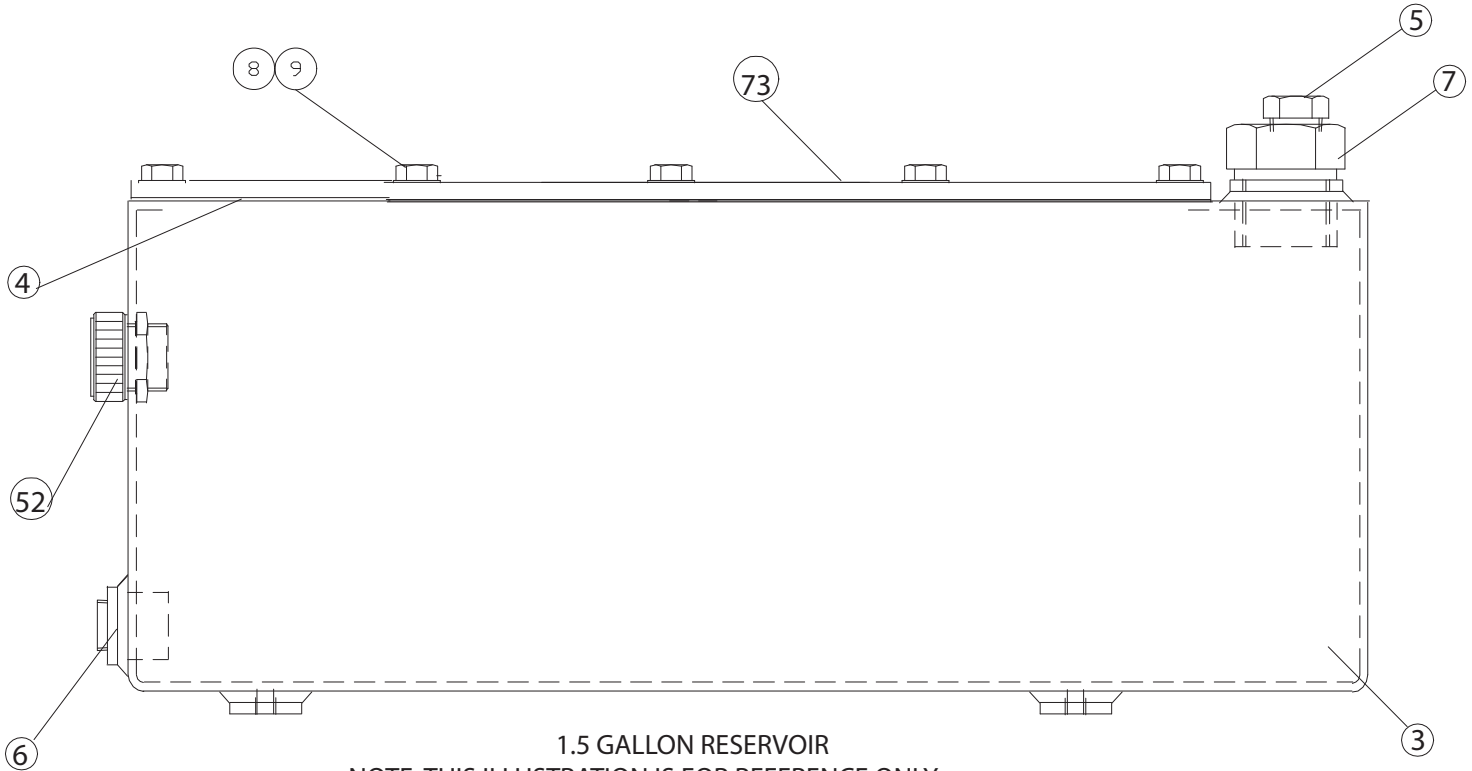
RESERVOIR

EP1000

(46109P) 1.0 GALLON RESERVOIR

(45996P) 1.5 GALLON RESERVOIR

(46213P) 2.5 GALLON RESERVOIR



1.5 GALLON RESERVOIR

NOTE: THIS ILLUSTRATION IS FOR REFERENCE ONLY.
THE APPEARANCE OF YOUR UNIT MAY DIFFER
FROM UNIT SHOWN.

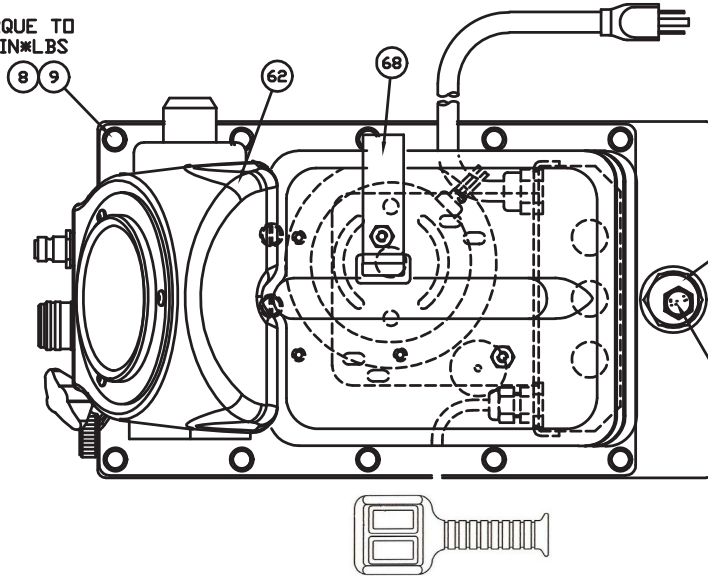
ITEM #	DESCRIPTION	EP500		EP1000		EP1000Q	
		1.0 GALLON	QTY.	1.5 GALLON	QTY.	2.5 GALLON	QTY.
03	RESERVOIR	46109	1.00	45996	1.00	46213P	1.00
04	RESERVOIR GASKET	46476	1.00	85469	1.00	85469	1.00
05	BREATHER VENT 3/8" NPT	68000	1.00	46348	1.00	46348	1.00
06	1/4 SOC PIPE PLUG	93950	1.00	93950	1.00	93950	1.00
07	SAE #12 HEX PLUG WITH PORT	N/A	0.00	46118	1.00	46118	1.00
08	HHCS 1/4-20 x 3/4 LG PLATED	65891	9.00	65891	14.00	65891	14.00
09	SEALING WASHER	65892	9.00	65892	14.00	65892	14.00
52	SIGHT GAUGE	46009	1.00	46009	1.00	46009	1.00
73	COVER PLATE	46350	1.00	45928	1.00	45928	1.00

NOTE: ALL RESERVOIRS ARE POWDER COATED BLACK

COMMON COMPONENTS

EP500

TORQUE TO
50 IN*LB



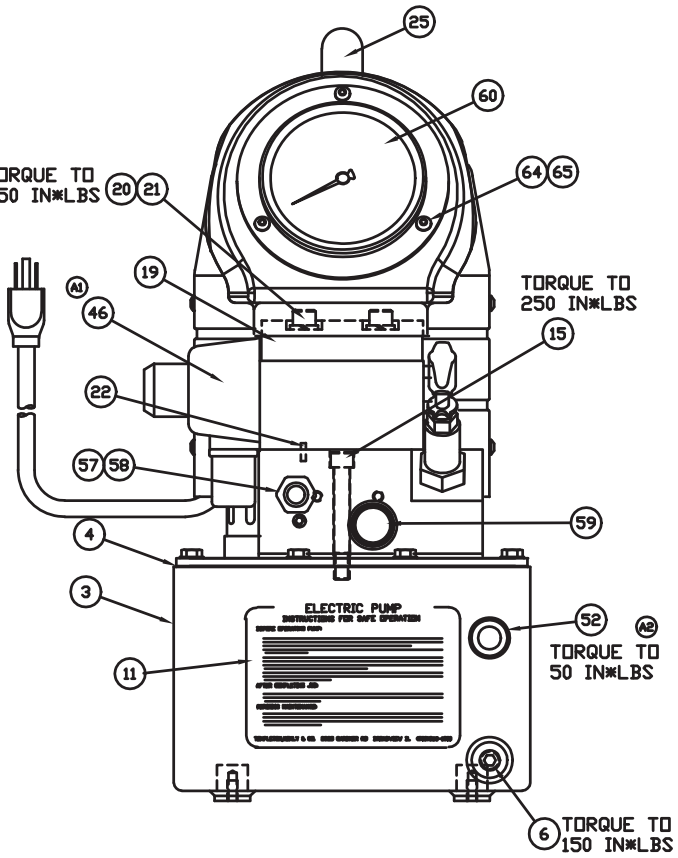
INSTALL SHIP
87145 AND SH
VENT 46348
CUSTOMER TO

TORQUE TO
250 IN*LB

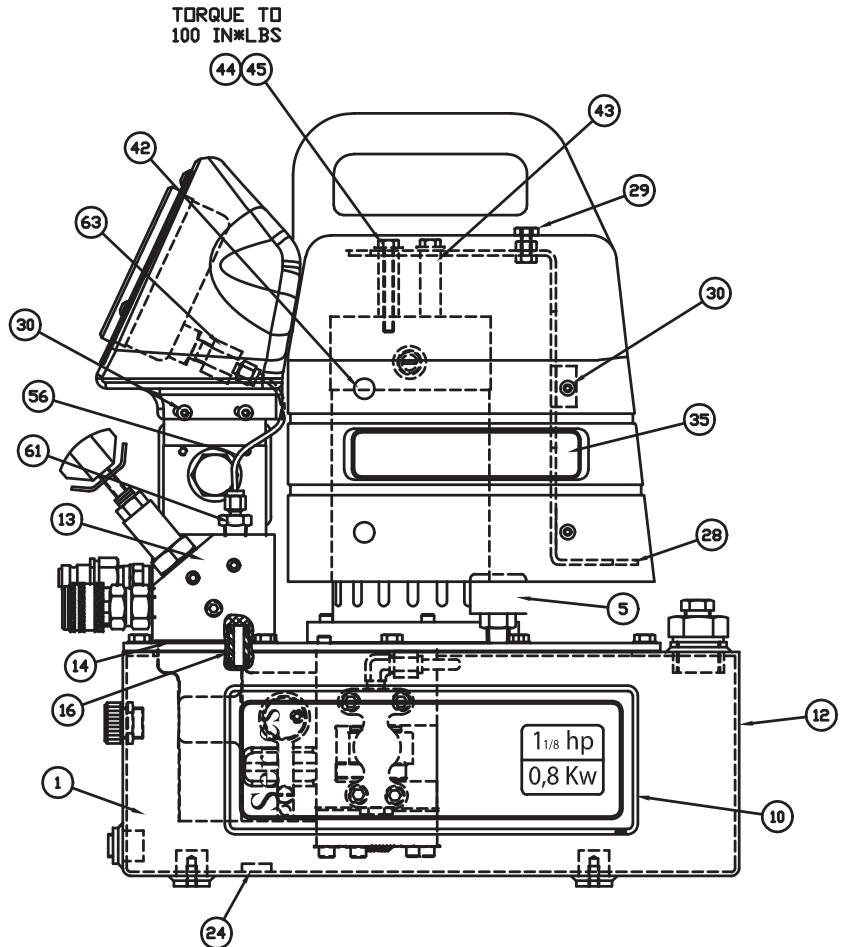
TORQUE TO
250 IN*LB

TORQUE TO
50 IN*LB

TORQUE TO
150 IN*LB

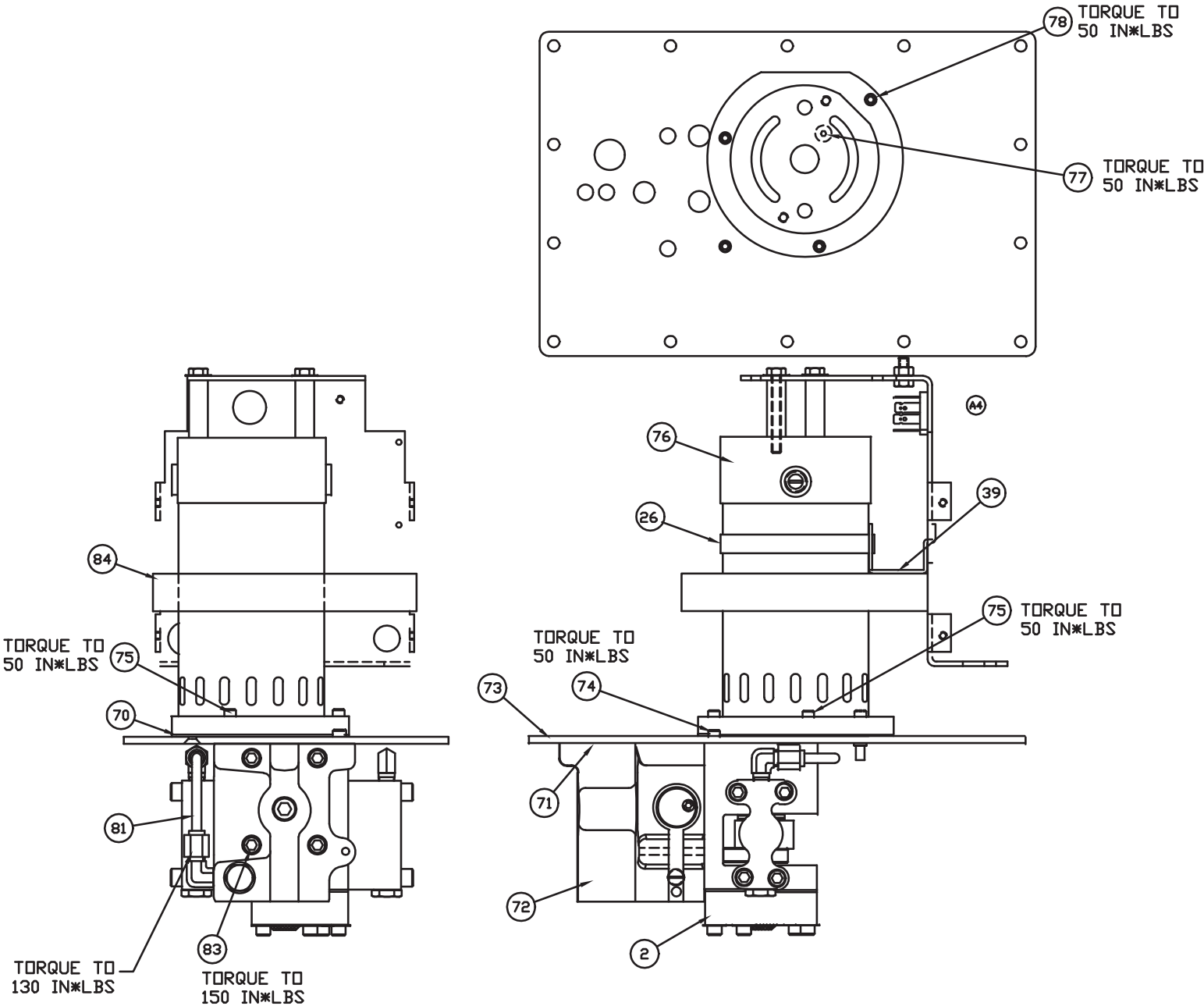


TORQUE TO
100 IN*LB



COMMON COMPONENTS

EP500



COMMON COMPONENTS

EP500

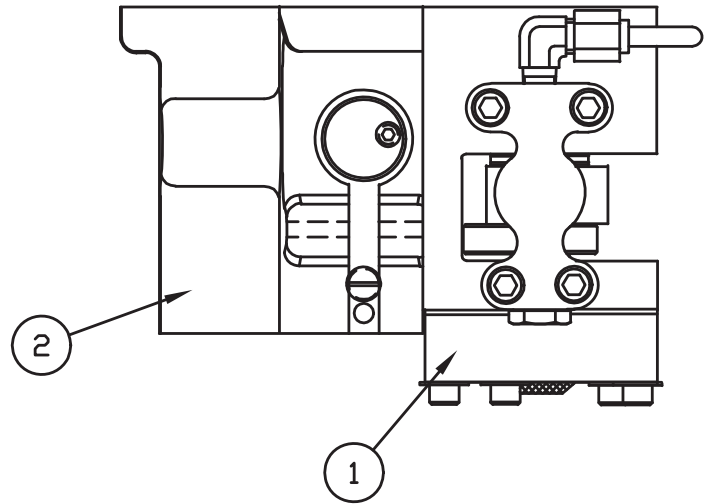
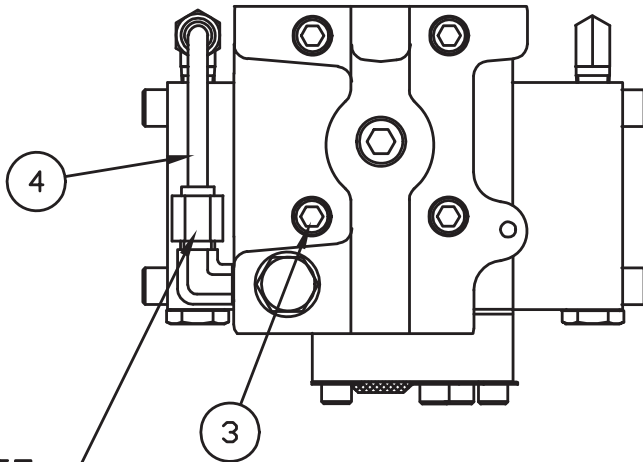
ITEM #	DESCRIPTION	115 V.	230 V.	QTY.
02	PUMP ASSEMBLY	SEE PAGE 26		1.00
03	RESERVOIR BLACK	SEE PAGE 23		1.00
* 04	RESERVOIR GASKET	46476	46476	1.00
05	BREATHER VENT 3/8" NPT	46348	46348	1.00
06	PIPE PLUG 1/4" W/ COATING	46510	46510	1.00
07	SAE #12 HEX PLUG WITH PORT	46118	46118	1.00
08	HHCS 1/4-20 X .75 PLT	65891	65891	14.00
09	SEALING WASHER	65892	65892	14.00
10	G3 RESERVOIR DECAL	46016	46016	2.00
11	LABEL SAFE USE ELEC	68068	68068	1.00
12	BLANK DECAL 3 X 4	87305	87305	1.00
13	MANIFOLD ASM.	SEE PAGE 33		1.00
14	VALVE GASKET	69242	69242	1.00
15	SHCS 3/8-16 X 2 3/4	99921	99921	3.00
16	ADAPTER ASSY.	68963	68963	1.00
17	HEX PIPE PLUG 3/8" COATING	46513	46513	1.00
19	VALVE ASM. 2P/4W	SEE PAGE 32		1.00
20	SHCS 3/8-16 X 3 1/2	88363	88363	4.00
21	LOCK WASHER 3/8	93943	93943	4.00
22	ROLL PIN 1/8 X 3/8 LG	561604	561604	1.00
24	MAGNET	66021	66021	1.00
25	MOTOR SHROUD W/ HANDLE	45534	45534	1.00
26	HOSE CLAMP	69235	69235	1.00
27	DECAL OVERLAY	46539	46539	1.00
28	BRACKET ASM G PET	SEE PAGE 34-35		1.00
29	HEAVY HEX JAM NUT 1/4-20	69234	69234	2.00

ITEM #	DESCRIPTION	115 V.	230 V.	QTY.
30	BHCS 10-24 x 3/8 LG	69236	69236	4.00
30	BHCS 10-24 x 3/8 LG	69236	69236	4.00
35	DECAL 5.71" x 1.15"	46355	46355	2.00
39	BRACKET SUPPORT G3	46338	46338	1.00
42	HOLE PLUG 1/4"	46405	46405	4.00
43	SPACER 1.5" LONG	46010	46010	2.00
44	HHCS 1/4-20 X 2.00	40970	40970	2.00
45	WASHER 1/4" SS	88429	88429	2.00
46	COIL WITH DIN CONNECTOR	46294	46324	1.00
52	SIGHT GAUGE	46009	46009	1.00
57	1/4 IN NIPPLE	F004004	F004004	1.00
58	1/4" NIPPLE	HC-M-100	HC-M-100	1.00
59	1/4" SELF-LOCKING COUPLER	HC-F-400	HC-F-400	1.00
62	GAUGE SHROUD ASM	46474	46474	1.00
68	VELCRO STRAP 1x14	46310	46310	1.00
* 70	MOTOR GASKET	46349	46349	1.00
* 71	GASKET POW'R PUMP	45902	45902	1.00
73	COVER PLATE	SEE PAGE 23		1.00
74	SHCS #10-24 X 5/8"	86699	86699	1.00
75	SHCS #10-24 X 1" LG	41327	41327	2.00
76	G3 MOTOR 1.5HP 115V	45418	45428	1.00
77	FHCS 10-24 X 0.50LG	43557	43557	1.00
78	SHCS #10-32 X .875	45084	45084	1.00
84	FOAM INSERT	46352	46352	1.00

REBUILD KIT (* = COMPONENTS) -- PART # 54487

PUMP ASSEMBLY

EP500
(46541) PUMP ASM.



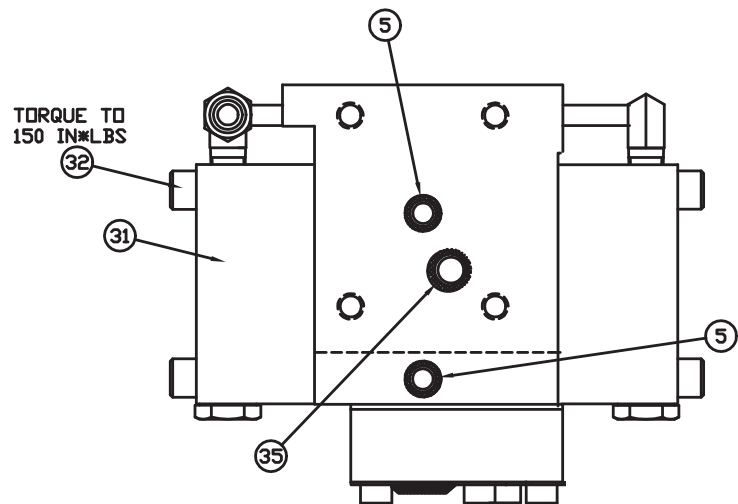
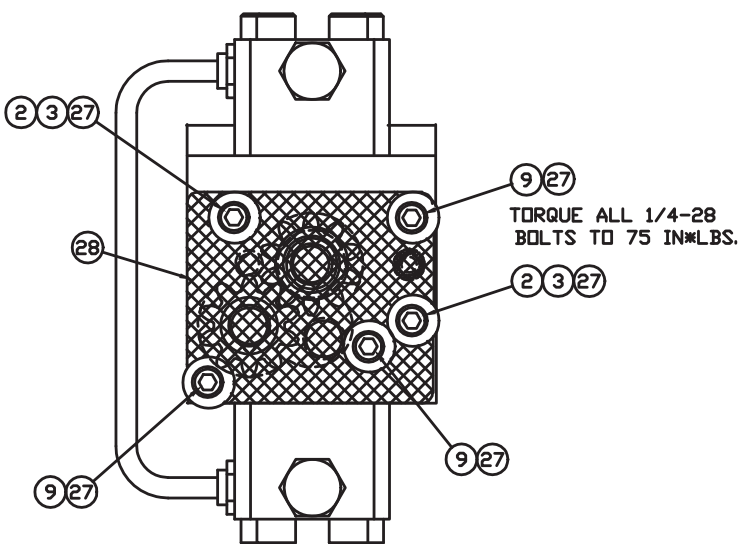
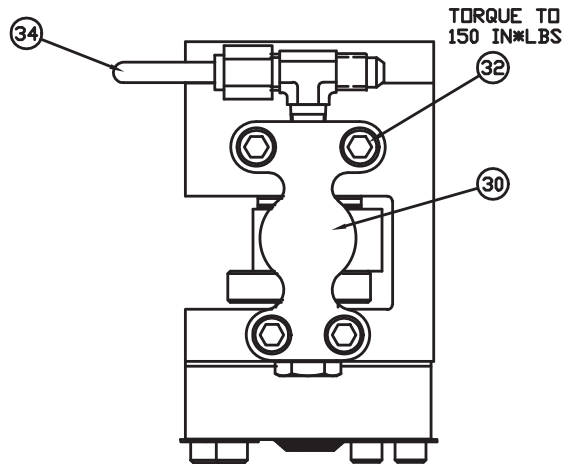
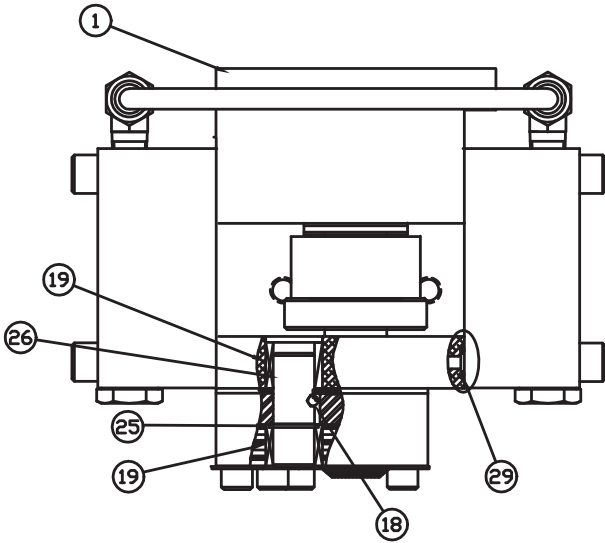
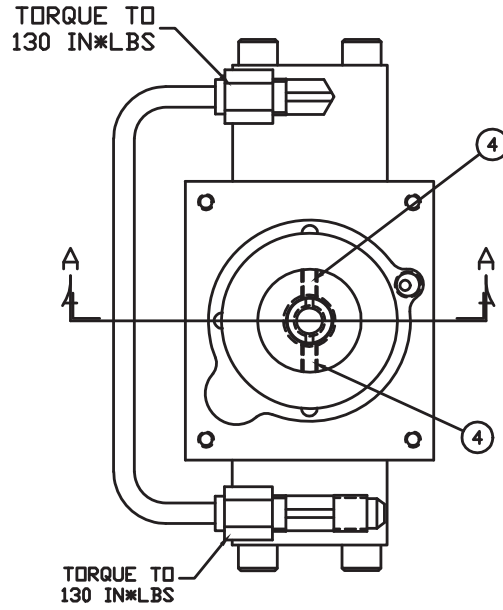
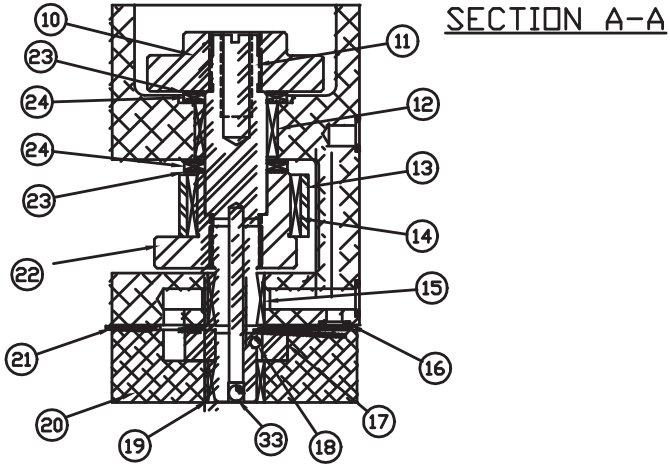
TORQUE TO
130 IN*LBS

TORQUE TO
150 IN*LBS

ITEM #	DESCRIPTION	PART #	QTY.
01	GEAR SECTION ASSEMBLY	SEE PAGE 31	1 .00
02	PUMP VALVE SECTION ASSEMBLY	SEE PAGE 34	1 .00
03	SHCS 5/16-24 X 1" LG	84188	4.00
04	PISTON BLOCK TUBE G3	45537	1.00

GEAR SECTION ASSEMBLY

EP500
(45535 GEAR SECTION ASM.)



GEAR SECTION ASSEMBLY

EP500

(45535 GEAR SECTION ASM.)

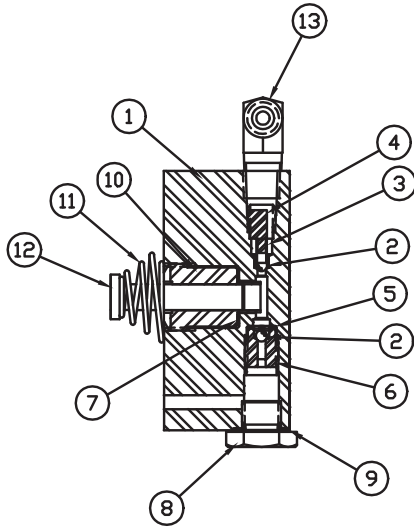
ITEM #	DESCRIPTION	PART #	QTY.
01	G3 PUMP BODY 2 PISTON	45419	1.00
02	TUBE-GUIDE .11	68894	2.00
03	SHCS 1/4-28 X 1 1/2	89148	2.00
04	SET SCREW #10-24 X 1/4 CUP	44596	2.00
* 05	O-RING 5/16X7/16	5602011	2.00
09	SHCS 1/4-28 X 1.25LG	40118	3.00
10	POW'R BUD REDUC GEAR	43520	1.00
11	POW'R BUDDY PUMP SHAFT	43278	1.00
12	ROLL BRG 3/4ID X 5/8	43346	1.00
13	POW'R BUD ECC RING	43353	1.00
14	ROLL BRG 1 1/8 X 3/4	43347	1.00
15	BEARING ROLLER 1/2x11/16x1/2 WIDE	68891	1.00
* 16	O RING 1/4X3/8	5602010	1.00
17	GEAR-PUMP .375	68896	2.00
18	BALL 1/8"	90906	2.00
19	BEARING ROLLER 1/2x11/16x1/2 WIDE	69330	3.00
20	BOTTOM PLATE 3/8" GEARS G3	45536	1.00
21	POW'R BUDDY WEAR PLATE	43279	1.00
22	POW'R BUDDY ECCENCTRIC RING	43275	1.00
23	THRUST WASHER 3/4"ID	43349	4.00
24	THRUST BRG 3/4" ID	43348	2.00
25	POW'R BUDDY IDLER SHAFT	43276	1.00
26	RING-RETAINING	68892	1.00
27	WASHER 1/4" SS	88429	5.00
* 28	POW'R BUDDY SCREEN	43548	1.00
* 29	O-RING 3/16X5/16	5602008	2.00
30	PISTON BLOCK ASSEMBLY #1 G3	SEE PAGE 30	1.00
31	PISTON BLOCK ASSEMBLY G3	SEE PAGE 30	1.00
32	SHCS 5/16-24 X 1.75	69392	8.00
33	BALL 3/16"	90548	1.00
34	G3 PISTON BLOCK TUBE	45420	1.00
* 35	O-RING 3/8X1/2	5602012	1.00

REBUILD KIT (* = COMPONENTS) -- PART # 54487

SUB COMPONENT ASSEMBLIES

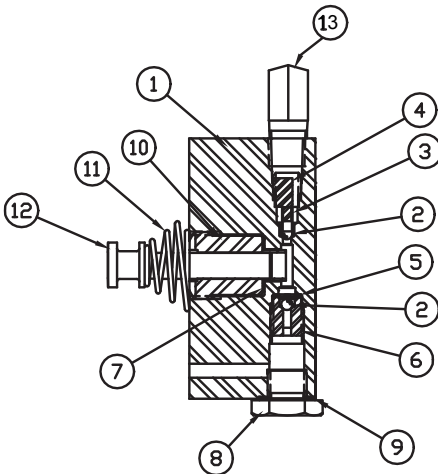
EP500

(45533) PISTON BLK ASM.



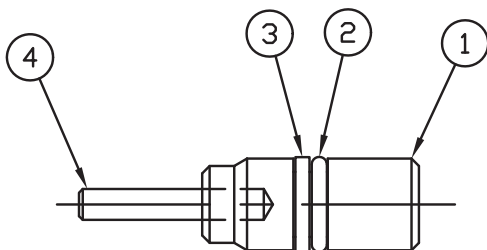
ITEM #	DESCRIPTION	PART #	QTY.	
01	GEN II PISTON BLOCK	45539	1.00	
02	BALL 1/8"	90906	2.00	
03	SPRING	66042	1.00	
04	BALL STOP	68810	1.00	
05	BALL RETAINER	66043	1.00	
06	INTAKE SEAT	66046	1.00	
*	07	GASKET 29/64 X 5/8	86269	1.00
	08	PLUG PISTON BLOCK	68825	1.00
*	09	GASKET 25/64X19/32	85726	1.00
	10	ADAPTER-.290 PISTON	68820	1.00
	11	SPRING, PISTON	68340	1.00
	12	PISTON-.290 DIA	68819	1.00
	13	MALE TEE 1/8" PIPE 1/4" TUBE	45426	1.00

(45538) PISTON BLK ASM.



ITEM #	DESCRIPTION	PART #	QTY.	
01	PISTON BLOCK	45539	1.00	
02	BALL 1/8"	90906	2.00	
03	SPRING	66042	1.00	
04	BALL STOP	68810	1.00	
05	BALL RETAINER	66043	1.00	
06	INTAKE SEAT	66046	1.00	
*	07	GASKET 29/64 X 5/8	86269	1.00
	08	PLUG PISTON BLOCK	68825	1.00
*	09	GASKET 25/64X19/32	85726	1.00
	10	ADAPTER-.290 PISTON	68820	1.00
	11	SPRING, PISTON	68340	1.00
	12	PISTON 0.290" DIA.	45425	1.00
	13	MALE ELBOW 1/8 PIPE	69354	1.00

(43687) UNLOADING PISTON ASM.

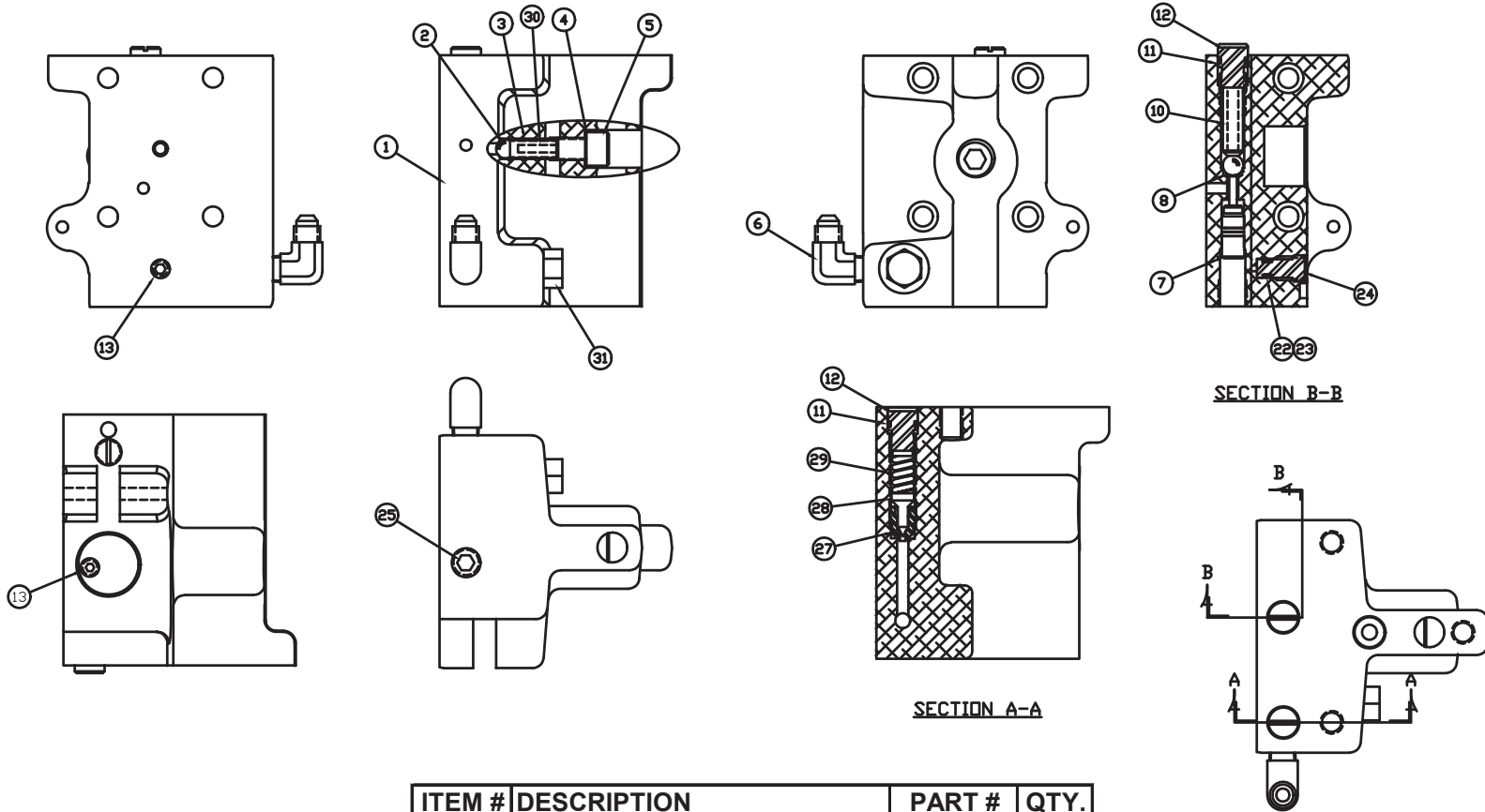


ITEM #	DESCRIPTION	PART #	QTY.	
01	UNLOAD PISTON	68209	1.00	
*	02	O RING 1/4X3/8	5602010	1.00
	03	BACK-UP WASHER	68145	1.00
	04	DOWEL PIN 1/8X3/4 LG	43686	1.00

REBUILD KIT (*COMPONENTS) - PART #54487

PUMP VALVE ASSEMBLY

EP500
(46025) PUMP VALVE SECT ASM.



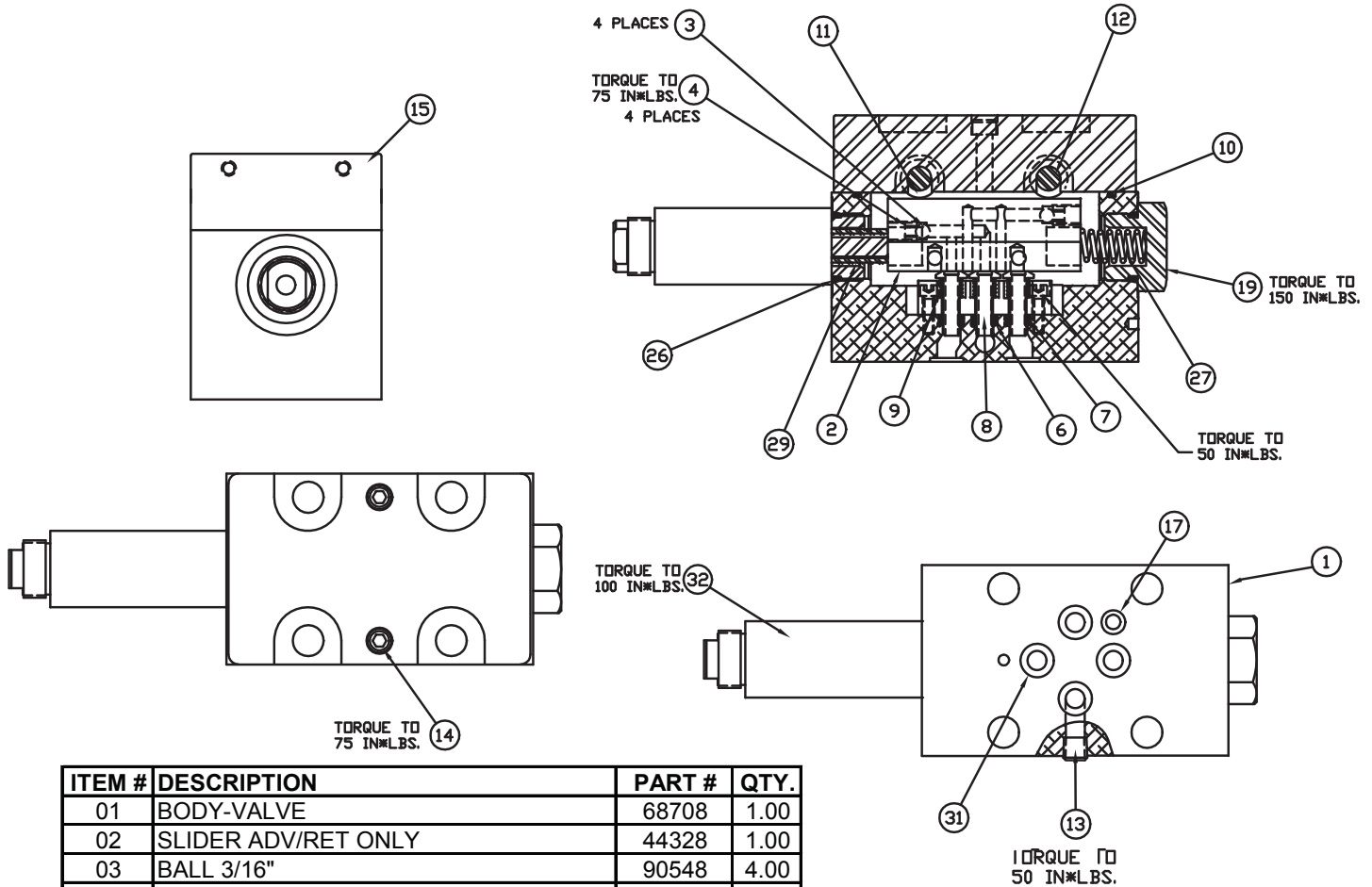
ITEM #	DESCRIPTION	PART #	QTY.	
01	PB VALVE BODY SECT.	43269	1.00	
02	BALL 5/16"	91701	1.00	
03	SPRING	68225	1.00	
*	04	GASKET 25/64X19/32	85726	1.00
	05	SCREW, BALL STOP	68226	1.00
	06	MALE ELBOW 1/8 PIPE	69354	1.00
	07	UNLOADING PISTON ASM	PAGE 9	1.00
	08	BALL 11/32"	94219	1.00
	10	SPRING UNLOADING VLV	68981	1.00
*	11	O-RING 3/8X1/2	5602012	2.00
	12	ADJUSTING SCREW	43274	2.00
	13	1/16 SOC PIPE PLUG	97641	2.00
*	22	O-RING 3/16X5/16	5602008	1.00
	23	BACKUP WASHER	56080087	1.00
	24	POW'R BUD DUMP PLUG	43283	1.00
	25	1/4 SOC PIPE PLUG	93950	1.00
*	27	SEAT - EXT RELIEF	68004	1.00
*	28	CONE - EXT RELIEF	68003	1.00
*	29	SPRING - RELIEF VALVE	66085	1.00
	30	ROLL PIN 1/8X15/16	81332	1.00
	31	PLUG SAE #4	68258	1.00

REBUILD KIT (* = COMPONENTS) -- PART # 54487

VALVE SUB ASSEMBLIES

EP500

(46291) 3 & 4 WAY SOLENOID VALVE 115V./230V.

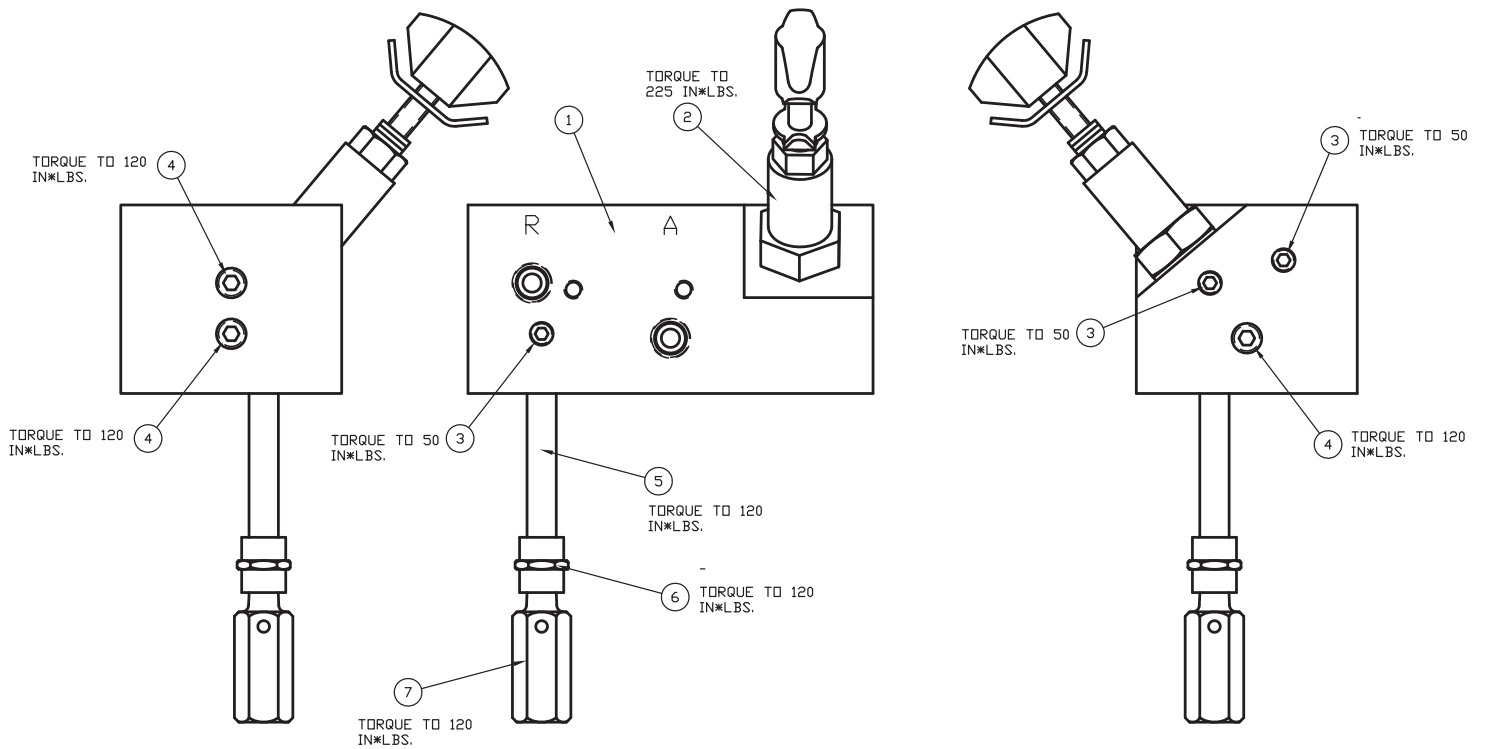


ITEM #	DESCRIPTION	PART #	QTY.
01	BODY-VALVE	68708	1.00
02	SLIDER ADV/RET ONLY	44328	1.00
03	BALL 3/16"	90548	4.00
04	SET SCREW 1/4-28 X 1/4 CUP	40254	4.00
* 06	O-RING 7/32X11/32	5602009	3.00
* 07	BACK UP WASHER	68391	3.00
08	SHEAR SEAL	68383	3.00
09	SPRING	68384	3.00
* 10	O-RING 2 5/8 X 2 3/4	5602038	1.00
11	BEARING ROLLER 5/16x1/2x5/16 WIDE	68385	4.00
12	PIN BEARING	68390	2.00
13	PIPE PLUG FLUSH 1/16 W/ COATING	40049	1.00
14	SHCS #10-32 X 1" LG PLATED	68264	2.00
15	VALVE TOP PLATE MACHINED	46272	1.00
* 17	O-RING 3/16X5/16	5602008	1.00
19	VALVE PLUG 2 POSITION SLIDER	46271	1.00
* 26	O-RING SAE PORT #10	5603910	2.00
27	SPRING	68711	1.00
29	SPACER VALVE SLIDER	46418	1.00
* 31	O-RING 5/16X7/16 URE	56020112	4.00
32	PUSHER-SOLENOID	68729	1.00

PACKING KIT 3 & 4 WAY SOLENOID VALVE
(* = COMPONENTS) -- PART #54491

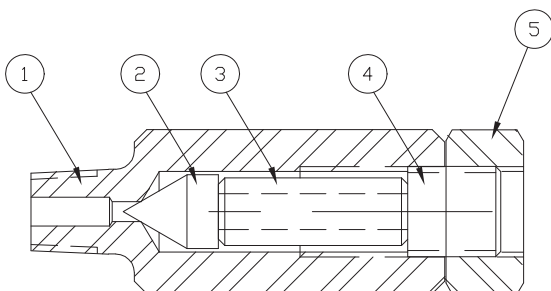
COMMON COMPONENTS

EP500
(46292) MANIFOLD ASM.



ITEM #	DESCRIPTION	PART #	QTY.
01	VALVE MANIFOLD	46270	1.00
02	CARTRIDGE RELIEF VALVE	45423	1.00
03	1/16 PIPE PLUG-FLUSH	40049	3.00
04	PIPE PLUG 1/8" FLUSH	81093	3.00
05	PIPE NIPPLE 1/8 NPT	68917	1.00
06	PIPE COUPLING 1/8	68918	1.00
07	INT.RELIEF ASM HF	68999	1.00

(68999) INT. RELIEF ASM.

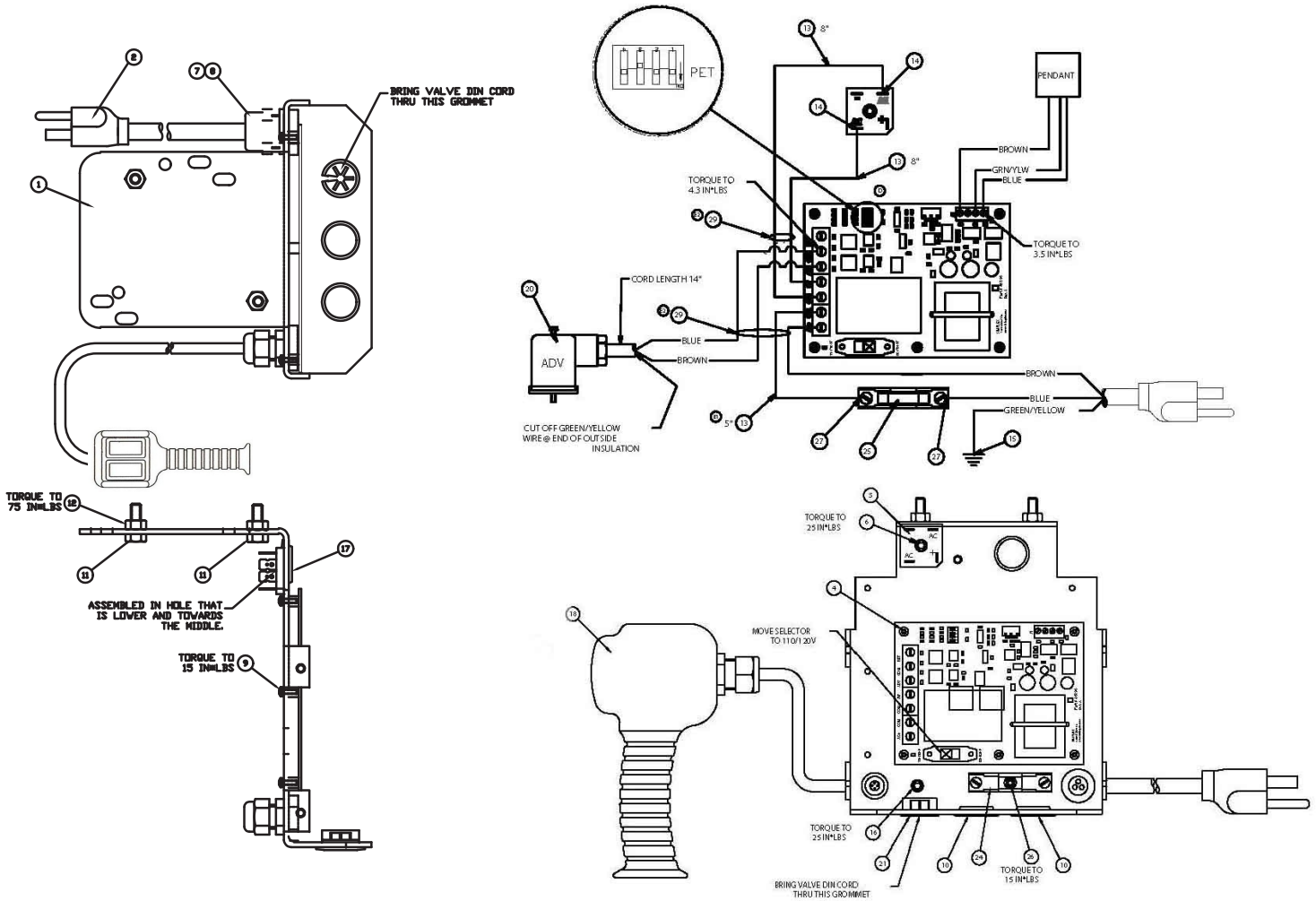


ITEM #	DESCRIPTION	PART #	QTY.
01	CARTRIDGE	66096	1.00
02	CONE REL VLVE	66086	1.00
03	POPPET RELIEF SPRING	44641	1.00
04	RELIEF VALVE ADJUSTING SCREW	66083	1.00
05	HEX NUT 7/16-20	68920	1.00

BRACKET SUB ASSEMBLIES

EP500

(46483 BRACKET SUB ASM. 115V.)

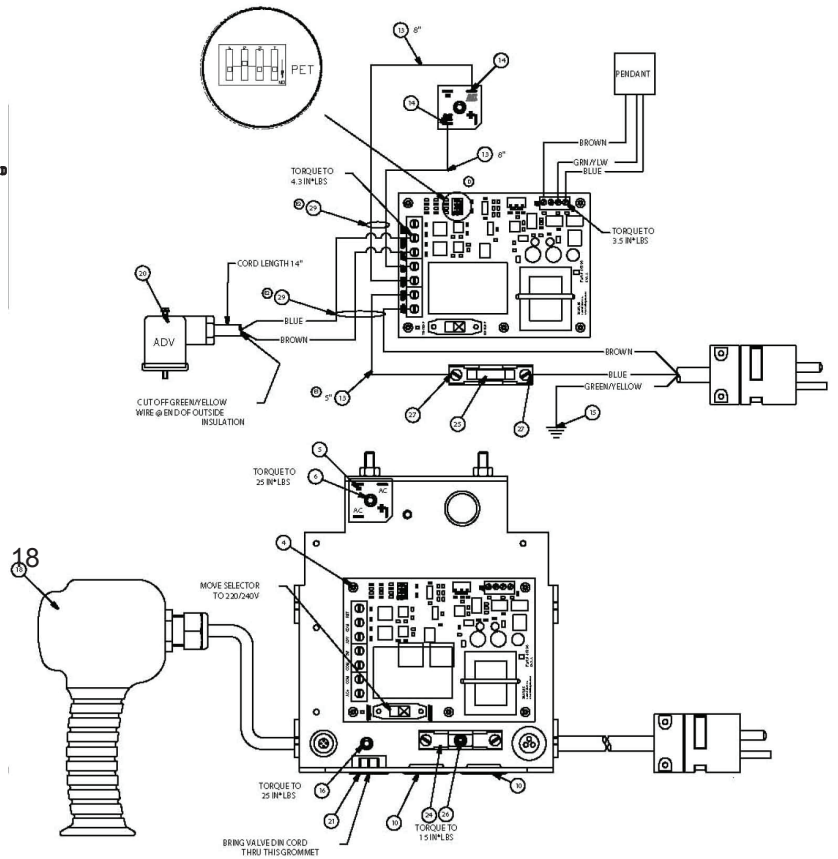
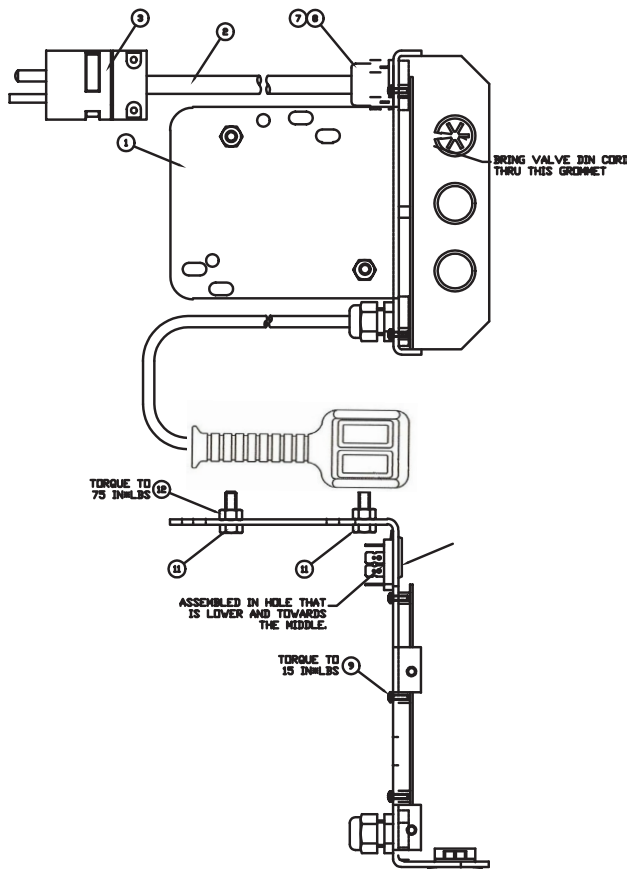


ITEM #	DESCRIPTION	PART #	QTY.
01	MOUNTING BRACKET	46233	1.00
02	PLUG AND CORD ASSY	68595	1.00
04	CIRCUIT BOARD BASIC	46196	1.00
05	BRIDGE RECTIFIER 25A	68623	1.00
06	SHCS #10-32 X 1/2	66805	1.00
07	FITTING,CORD L-TIGHT	68375	1.00
08	LOCKNUT 1/2 INCH	85510	1.00
09	MACHINE SCREW W/ LOCK WASH	46248	5.00
10	HOLE PLUG 7/8"	69652	2.00
11	HHCS 1/4-20 X .75 PLT	65891	2.00
12	HEX NUT 1/4-20 PLATD	93849	2.00
13	WIRE #14 BLACK	68261B	2.00
14	QUICK DISCON. FLAG BLUE	44491	2.00

ITEM #	DESCRIPTION	PART #	QTY.
15	RING TERMINAL 1/4"	69917	1.00
16	SHCS #10-32X1/4" LG PLATED	45175	1.00
17	GROMMET 7/8" HOLE	69855	1.00
18	PENDANT ASSEMBLY BASIC	DS1042900	1.00
			1.00
20	MOLDED DIN CONNECTOR W/ CORD	46327	1.00
21	PUSH THRU BUSHING	46420	1.00
24	FUSE HOLDER 30 AMP	46481	1.00
25	FUSE 25 AMP	46482	1.00
26	SHCS #6-32 x 1/4 LONG	46506	1.00
27	SPADE TERMINAL	68116	2.00

BRACKET SUB ASSEMBLIES

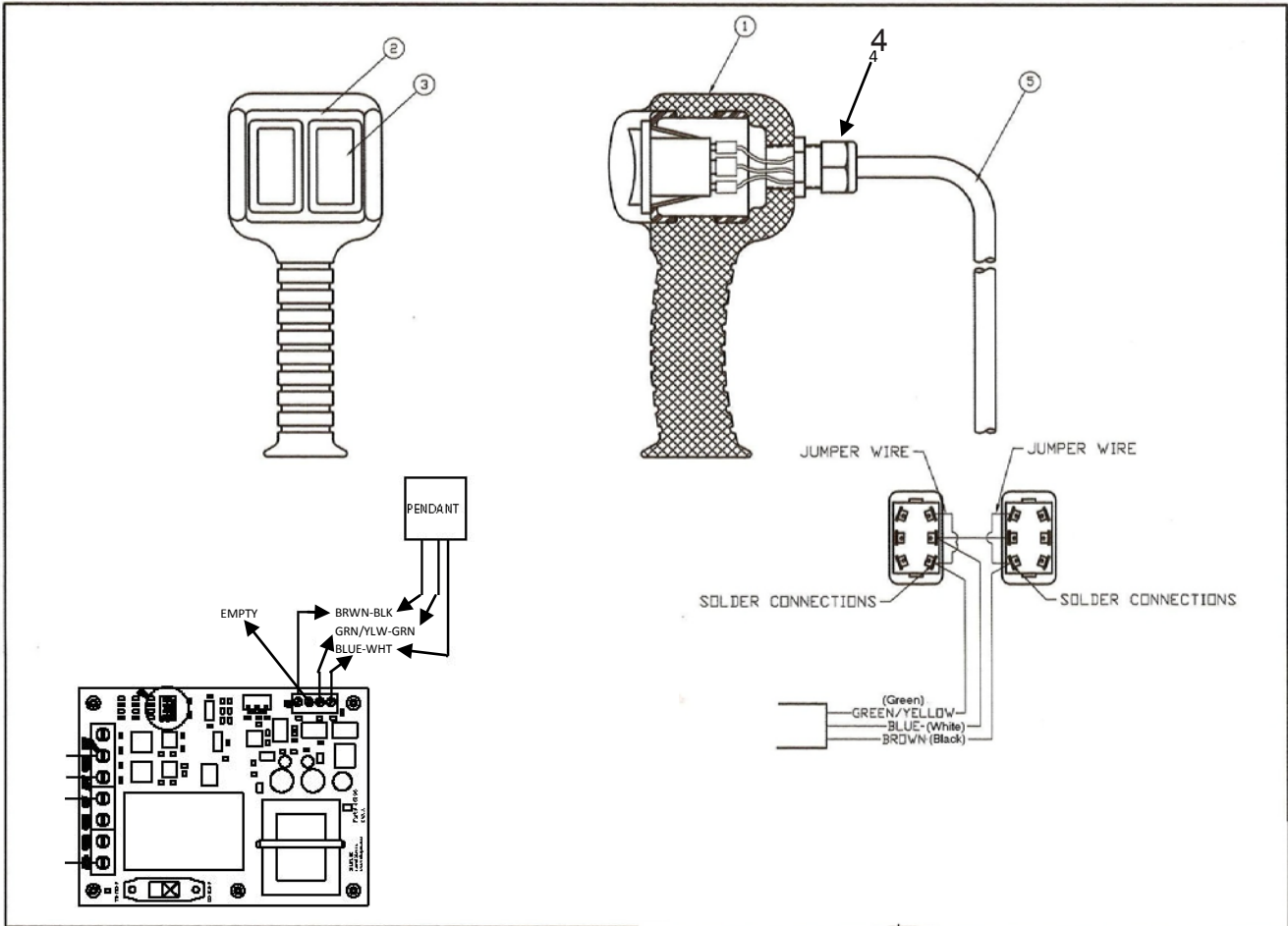
EP500
(46484) BRACKET SUB ASM. 230V



ITEM #	DESCRIPTION	PART #	QTY.
01	MOUNTING BRACKET	46233	1.00
02	POWER CORD 14-3 IEC	69604R	2.00
03	PLUG 20 AMPS-250V	87093	1.00
04	CIRCUIT BOARD BASIC	46196	1 .00
05	BRIDGE RECTIFIER 25A	68623	1.00
06	SHCS #10-32 X 1/2	66805	1.00
07	FITTING, CORD L-TIGHT	68375	1.00
08	LOCKNUT 1/2 INCH	85510	1.00
09	MACHINE SCREW W/ LOCK WAS	46248	5.00
10	HOLE PLUG 7/8"	69652	2.00
11	HHCS 1/4-20 X .75 PLT	65891	2.00
12	HEX NUT 1/4-20 PLATD	93849	2.00
13	WIRE #14 BLACK	68261B	2.00
14	QUICK DISCON. FLAG BLUE	44491	2.00

ITEM #	DESCRIPTION	PART #	QTY.
15	RING TERMINAL 1/4"	69917	1.00
16	SHCS #10-32X1/4" LG PLATED	45175	1.00
17	GROMMET 7/8" HOLE	69855	1.00
18	PENDANT ASSEMBLY BASIC	DS1042900	1.00
20	MOLDED DIN CONNECTOR W/ CORD	46327	1.00
21	PUSH THRU BUSHING	46420	1.00
24	FUSE HOLDER 30 AMP	46481	1.00
25	FUSE 25 AMP	46482	1.00
26	SHCS #6-32 x 1/4 LONG	46506	1.00
27	SPADE TERMINAL	68116	2.00

DS1042900 - EP500 & EP1000 PENDANT ASSEMBLY



ITEM #	DESCRIPTION	PART #	QTY
1	PENDANT BODY	69083	1.00
2	2 SWITCH JUNCTION BOX	69151	1.00
3	TOGGLE SWITCH	69487	2.00
4	CORD FITTING	68375	1.00
5	PENDANT WIRE	DS1309052	1.00

