

AP1000

OPERATION AND MAINTENANCE

MANUAL

Air Power Pack

MODELS AP1000, AP1000-Q



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NOTICE

Heavy duty air motor. Powerful 4HP industrial air motor runs on 60cfm/100PSI
Disconnect removable pressure gauge. Quadra-Torc function (optional). Quick connect couplers.
Supplied with dual non-conductive high pressure hose with couplers.

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

WARNING

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.

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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.

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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 air/pneumatic 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 damage, frayed or deteriorated air 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 currently 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 a 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 local representative or service center 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

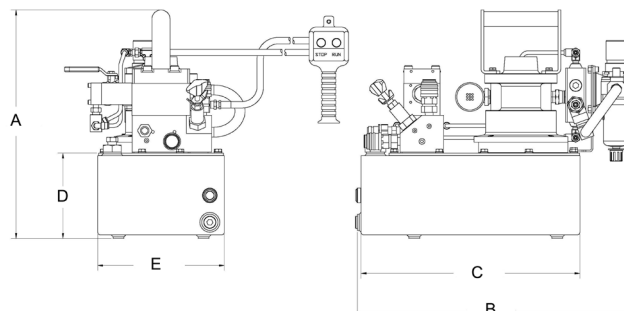
Usable Reservoir Capacity		A		B		C		D		E	
(Gal.)	(litre)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
1.5	5,7	15.13	384,3	19.09	484.88	15.89	406.48	5.94	150.88	8.75	222.25

Model Number	Reservoir Capacity		Valve			Pendant	Motor Specification	Flow Rate	Weight	
	Gal.	Litre	Model	Style	Function				lbs.	Kg
AP1000	1.5	5,7	Torque	Auto Retract	Advance/ Retract	Motor/ Solenoid Control	4 HP @ 100 psi/ 60cfm	700 cu. in./min. @1,100 psi 55 cu.in./min.@10,000 psi	63.75	28,92

Weight is without oil.

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.



TECHNICAL SPECIFICATIONS

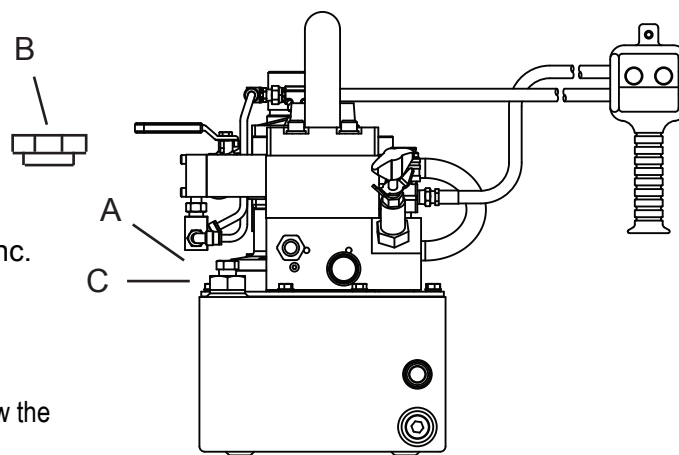
INSTALL VENT PLUG

Remove SHIPPING PLUG (A) and install VENT PLUG (B) into cover plate.

ADDING OIL

Remove OIL FILLER CAP (C) and add TorcUP Inc. hydraulic oil into reservoir. Oil level should not exceed 1" from the reservoir cover.

*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.



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.

CONNECTING HYDRAULIC TOOLS

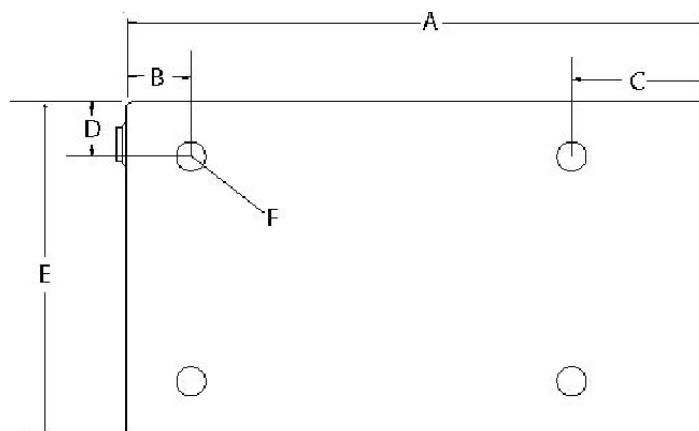
Use only tools, hoses and accessories rated at 10,000 PSI (700kg/cm²). When making connections with quick disconnect couplings, make sure the couplings are fully engaged. Threaded connections such as fittings, gauges, etc. must be securely tightened and leak free. Use 1.5 wraps of Teflon tape (or suitable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

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.

PUMP MOUNTING

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

	1.5 gal (6L)	2.5 gal. (10L)
A	15.13	17
B	3.68	4.75
C	1.57	2.37
D	1.43	1.93
E	8.75	9.75
F	1/4-20UNC (4 PLATES)	1/4-20UNC (4 PLATES)

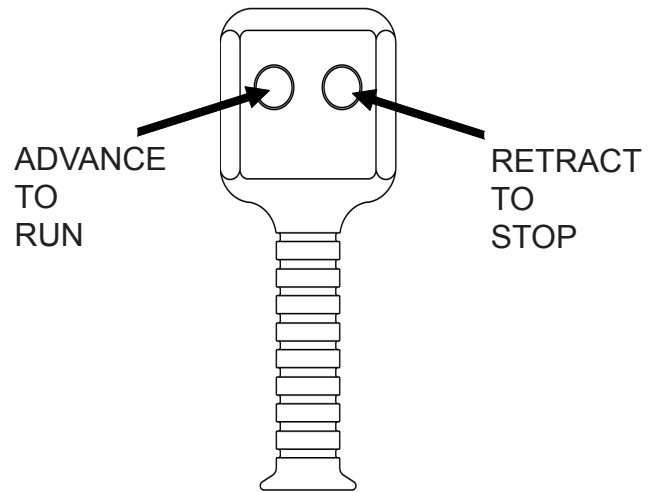


TECHNICAL SPECIFICATIONS

AIR CONTROL BUTTONS

RUN = Press and hold button to activate air solenoid and turn on.

STOP = Release run button and press this button to turn off motor.

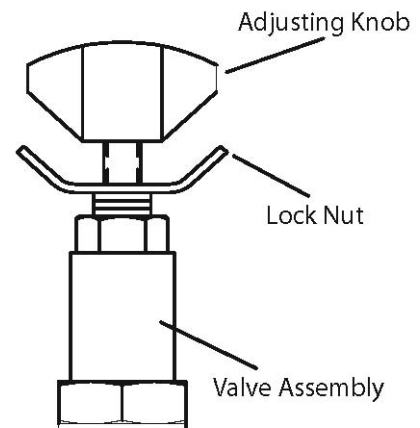


WARNING

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.

PRESSURE TORQUE SETTING

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 the "RUN" switch, and read pressure gauge.
4. While holding the button, 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.



TECHNICAL SPECIFICATIONS

AIR MOTOR AND FILTER LUBRICATOR

The air motor is a precision built rotary motor. The top clearance (between rotor and bore) is .0015". The total end clearance (between the sides of the rotor and the end plates is .002"). The vanes take up their own wear and will last 5,000-12,000 hours, depending upon speed, method of oiling, operating pressure, and lend itself to operating pressure above 100PSI (6.89 Bar-Metric). Allowing excess moisture or foreign particles from the air line to enter the motor will nullify the guarantee.

A moisture trap and filter has been installed in the air line ahead of motor. For efficiency of output and control of speed, use air line of not less than 1/2" pipe size. When coupling or connecting the motor to a drive member, avoid any end or side thrust on the output shaft and especially DO NOT HAMMER ON SHAFT.

The starting torque is more than the running torque and could vary depending on the position at which the vanes stop in relation to the air intake port. The speed and torque can be regulated by using a pressure regulator or a simple shut-off valve. Lubrication is necessary for the shaft seal, and rust prevention. Each air powered pump is equipped with an automatic air line oiler set to feed 1-3 drops per minute. Use TorcUP Inc. antifreeze oil. Excessive moisture in the line can cause rust formation in the motor and might also cause ice to form in muffler due to expansion of air through the motor.

NOTE: To adjust oiler drops, turn dial counter clockwise to "raise", and clockwise to "lower".

If the motor is sluggish or inefficient, try flushing with solvent in well ventilated area. Disconnect the air line, again connect the air line and apply pressure slowly until there is no trace of solvent in exhaust air. (Keep face away from exhaust air.) Check the muffler felts for grease, dirt, etc. If dirty, wash them in solvent. Replace the felts and connect muffler. Relubricate the motor with a squirt of oil in the chamber. If the vanes need replacing, or foreign particles are present in motor chamber, an experienced mechanic may remove the end plate apposite the drive shaft end.

WARNING

To prevent explosive hazard, do not pump combustible liquids or vapors through these units.

AFTER COMPLETING THE JOB

Before disconnecting hoses, fittings, etc. first be sure the tool is unloaded and retracted, then disconnect the air line and shift the hydraulic controls several times to release system pressure. Store the pump in a clean, dry area.

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.

OPERATION PROCEDURES

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.

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 1.5, 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.

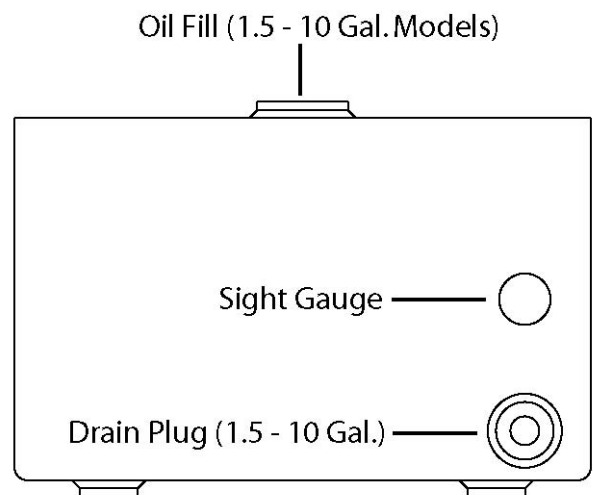
Applies to the 5 and 10 gallon reservoirs:

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.



TROUBLE SHOOTING

PROBLEM

CAUSE-SOLUTION

Sporadic Tool Action:

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

Motor Will Not Start:

- Too much water in air line, froze motor
- Not enough air pressure
- Have motor checked for proper operation.
- Check air adjustment knob on FRL

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:

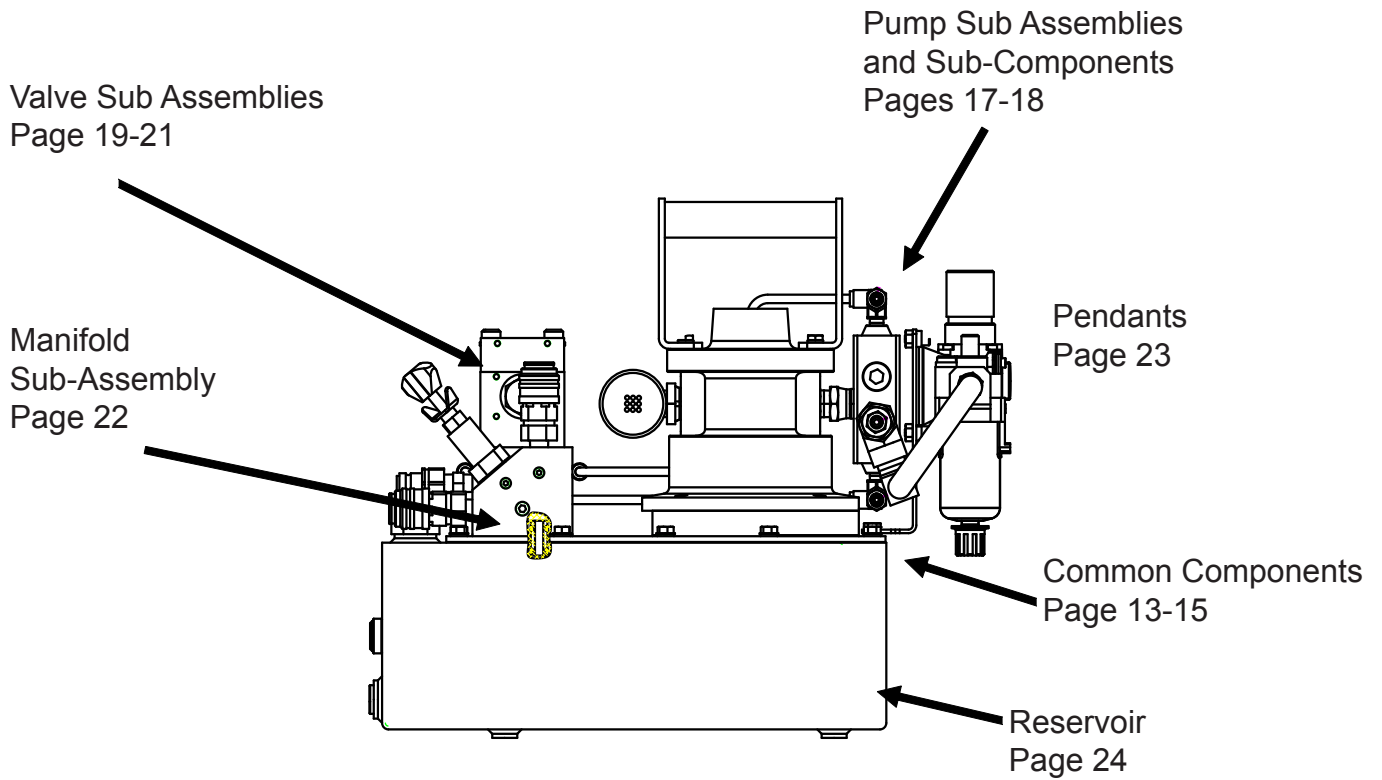
- Inspect for high pressure leakage at the pump (leaking at plug or relief valve).
- Oil level is low. Fill reservoir to normal level, or retrofit the pump with larger reservoir or heat exchanger.

Pump Runs But Will Not Build Pressure:

- 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.
- 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.
- Supplying air line too small
- Not enough air pressure

PARTS IDENTIFICATION

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



PARTS IDENTIFICATION

How to Identify Parts for Your Model.

MODEL NUMBER & DATE CODE LOCATION

For example, the date code and serial number

J = **October**

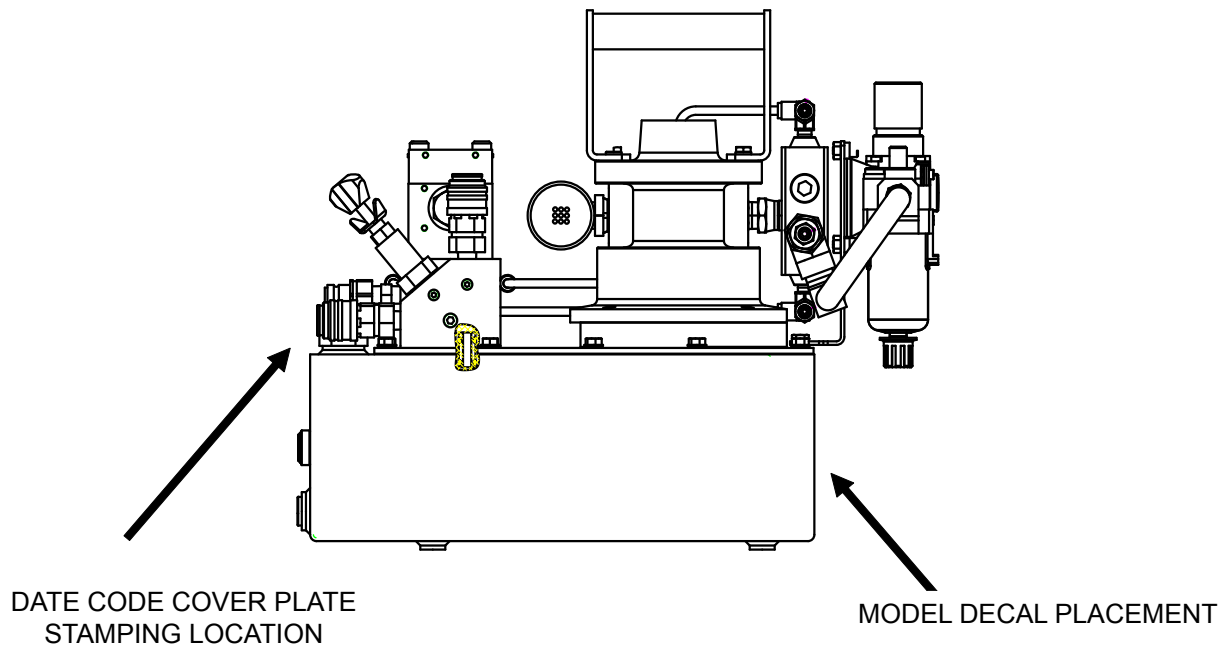
07 = **Year 2007**

42 = **Week number in year**

J 07 42

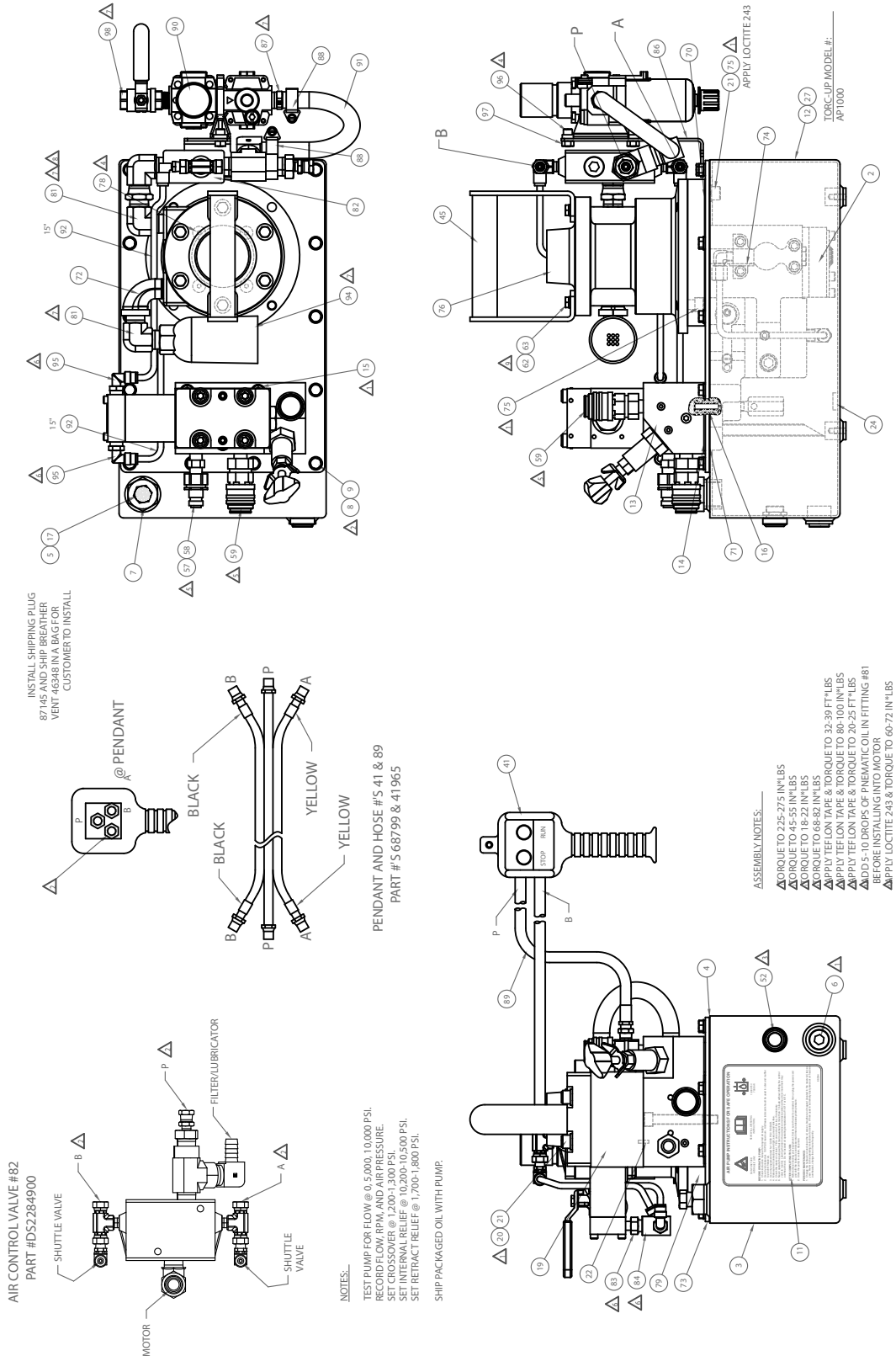
A B C D E F G H I **J** K L

1 2 3 4 5 6 7 8 9 **10** 11 12



COMMON COMPONENTS

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



COMMON COMPONENTS

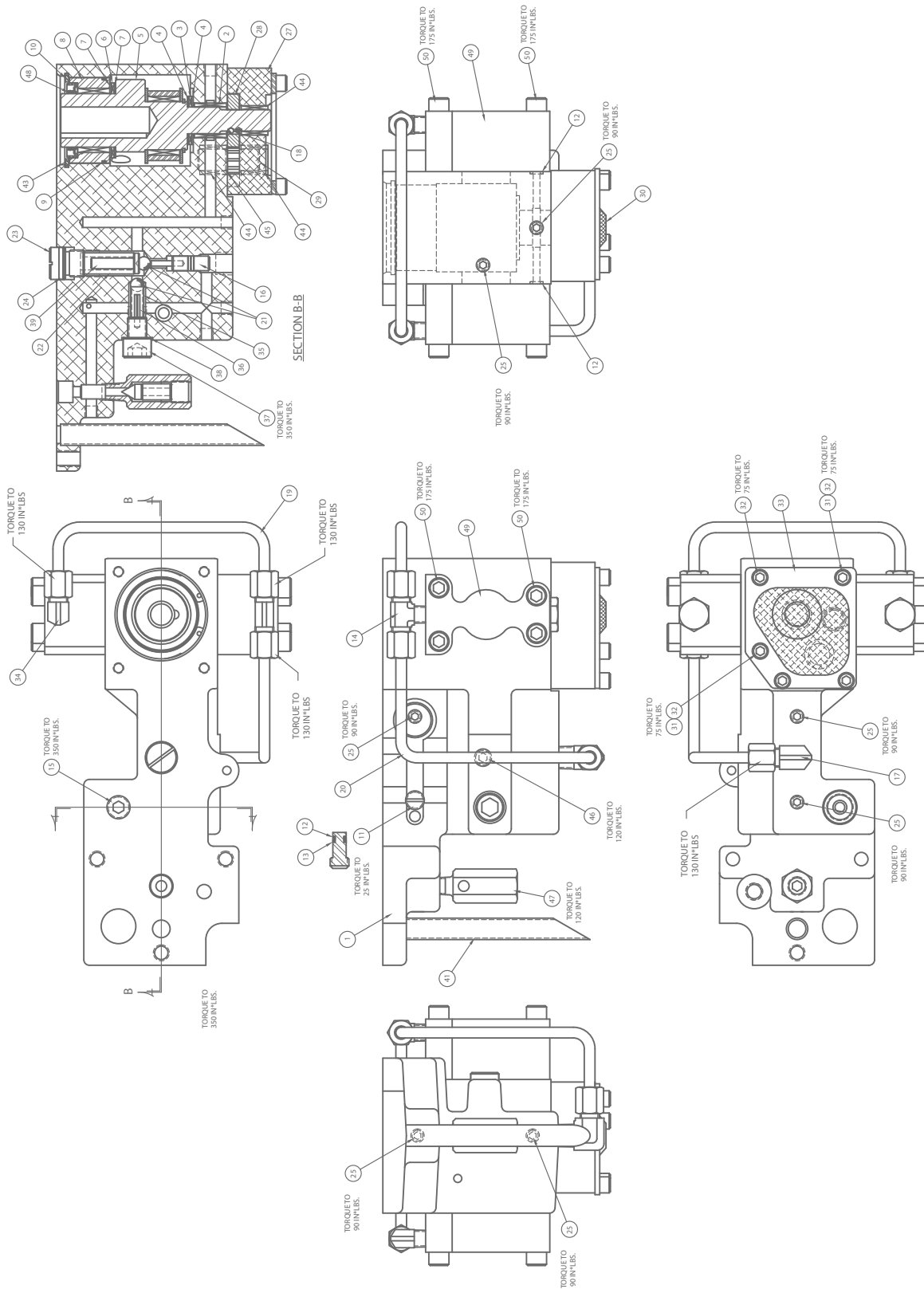
Balloon #	Item	Description	Quantity	UOM
0	18131	HYDRAULIC OIL 1 QT.	2	EA
0	AO1	HYD OIL-1 GAL.	1	EA
2	46335SS	PUMP ASM. G5 2 STAGE	1	EA
3	45996P	RESERVOIR 1.5 GAL. BLACK	1	EA
4	*	RESERVOIR GASKET	1	EA
5	46348	BREATHER VENT 3/8 NPT	1	EA
6	46697	1/2 FLUSH PLUG W/SEALANT	1	EA
7	46118	SAE #12 HEX PLUG WITH PORT	1	EA
8	65891	1/4-20 X .75 HHCS ZINC	14	EA
9	65892	SEALING WASHER	14	EA
11	68394	SAFE USE DECAL AIR	1	EA
12	87305	BLANK DECAL 3 X 4	2	EA
13	46292SS	MANIFOLD ASM. TORQUE WRENCH	1	EA
14	*	VALVE GASKET	1	EA
15	99921	SHCS 3/8-16 X 2 3/4	3	EA
16	68963SS	ADAPTER ASSY.	1	EA
17	87145	PLUG	1	EA
19	46297SS	AIR SOLENOID 4W/2P NORMALLY RETRACT	1	EA
20	88363	SHCS 3/8-16 X 3 1/2	4	EA
21	93943	LOCK WASHER	6	EA
22	561604	SPRING PIN	1	EA
24	*	MAGNET	1	EA
27	46539	DECAL OVERLAY	1	EA
41	68799SS	PENDANT AIR TORQ WRE	1	EA
45	6001768	HANDLE	1	EA
52	46009	SIGHT GAUGE	1	EA
57	4100067	1/4" NIPPLE	1	EA
58	CT210	1/4"NIPPLE	1	EA
59	45765	1/4"SELF-LOCKING COUPLER	2	EA
62	6001769	HHCS .25-28x 1.25 ZINC	2	EA
63	6001770	FLAT WASHER M6	2	EA
70	*	GASKET-MOTOR	2	EA
71	*	PUMP GASKET G5	1	EA
72	86244	STREET ELBOW	1	EA
73	46334	COVER PLATE G5 TORQUE WRENCH	1	EA
74	6001771	DOWEL PIN 3/16" x 2" LONG	1	EA

COMMON COMPONENTS

Balloon #	Item	Description	Quantity	UOM
75	97084	SHCS 3/8-16 X 3/4 LG	4	EA
76	86447B	AIR MOTOR 6AM PAINTED BLACK	1	EA
78	46279	FHCS 1/4-28 x 0.50 LONG	4	EA
79	46392	MOTOR STANDOFF	1	EA
81	86243	ELBOW MALE 1/2 NPT PIPE	2	EA
82	DS2284900SS	AIR CONTROL VALVE ASSEMBLY	1	EA
83	45970	MALE HEX NIPPLE 1/4 - 1/8	1	EA
84	44245	SHUTTLE VALVE	1	EA
86	DS2209111	BRACKET FILTER/LUBRICATOR	1	EA
87	6001772	HOSE BARB TO MALE PIPE	1	EA
88	87283	HOSE CLAMP	2	EA
89	41965	HOSE-EA.	1	EA
90	DS2279118	FILTER REGULATOR LUBRICATOR 3/8" NPT	1	EA
91	69645R	HOSE- PUSH LOK	12	IN
92	S69361	NYLON TUBING	30	IN
94	6001773	MUFFLER PARKER ZA4	1	EA
95	68794	MALE ELBOW 1/4 TUBE	2	EA
96	93581	SHCS 1/4-20 X 1/2	2	EA
97	93849	HEX NUT (.250-20)	2	EA
98	DS2280662	VALVE FLOW CONT 3/8" NPT	1	EA
*	54488	REBUILD KIT		

PUMP ASSEMBLY

(46335SS) PUMP ASM.



PUMP ASSEMBLY

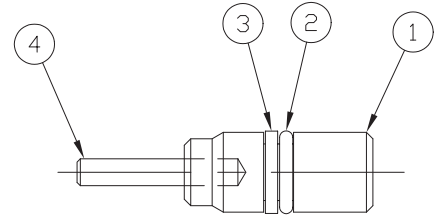
(46335SS) PUMP ASM.

ITEM #	DESCRIPTION	PART #	QTY
1	PUMP BODY	45750	1
2	BEARING ROLLER 5/8x13/16x5/8 WIDE	68360	1
3	THRUST BEARING	66033	1
4	THRUST WASHER	66474	2
5	ECCENTRIC SHAFT ASM 5/8"	45820SS	1
6	THRUST BEARING	66106	1
7	THRUST WASHER	66108	2
8	ECCENTRIC SHAFT ADAPTER	45908	1
9	O-RING 1 3/4 X 1 7/8	5602031	1
10	RETAINING RING	68978	1
11	POW'R BUD DUMP PLUG	43283	1
12	O-RING 3/16X5/16	5602008	3
13	BACKUP WASHER	56080087	1
14	MALE TEE 1/8" PIPE TO 1/4" TUBE	45426	1
15	PIPE PLUG 1/4" FLUSH W/ COATING	46509	1
16	UNLOADING PISTON ASSEMBLY	43766SS	2
17	MALE ELBOW 1/4" TUBE 1/4" PIPE	45929	1
18	BALL 1/8"	90906	2
19	PISTON BLOCK TUBE	46548	1
20	OUTLET TUBE PISTON BLOCK	45815	1
21	BALL 5/16"	91701	3
22	UNLOADING SPRING	43671	1
23	ADJUSTING SCREW	45903	1
24	O-RING 5/8X3/4 URETH	56020162	1
25	PIPE PLUG FLUSH 1/16 W/ COATING	40049	7
27	BOTTOM PLATE	45900	1
28	GEAR SET 9/33"	45823S	1
29	SHAFT-IDLER	68850	1
30	SCREEN	68921	1
31	TUBE-GUIDE .11	68894	2
32	SHCS 1/4-28 X 1 3/4	68255	5
33	PLATE-SCREEN MTG.	68927	1
34	MALE ELBOW 1/8 PIPE	69354	1
35	SPRING	68225	2
36	ROLL PIN 1/8 X 3/4 LONG	97782	1
37	BALL STOP	45904	2
38	GASKET 29/64 X 5/8	86269	2
39	SPRING CAP UNLOADING VALVE	43673	1
41	TUBE RETURN	68569	1
43	BEARING ROLLER 1 1/4x1 1/2x3/4 WIDE	66030	1
44	BEARING ROLLER 1/2x11/16x1/2 WIDE	68891	3
45	RING-RETAINING	68892	1
46	PIPE PLUG 1/8" FLUSH W/ COATING	46508	1
47	CART REL. VAL. ASSEMBLY	66220SS	1
48	SHAFT SEAL	45930	1
49	PISTON BLOCK ASM. 0.255"	46336SS	2
50	SHCS 5/16-24 X 1.75	69392	8

PUMP SUB ASSEMBLY

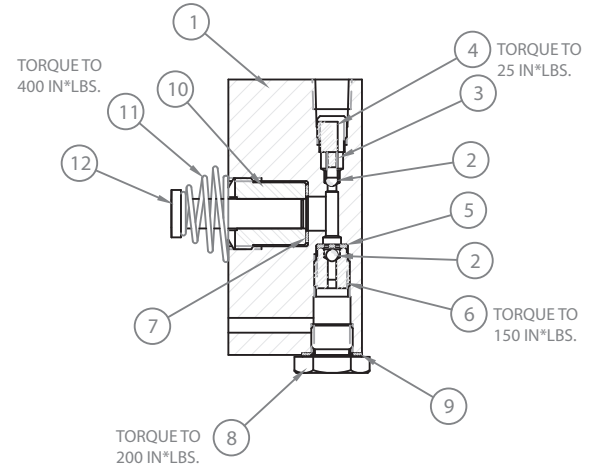
PART# 43766SS (UNLOAD PISTON ASM.)PUMP ASM.

ITEM #	DESCRITPION	PART #	QTY.
01	UNLOAD PISTON	43765	1.00
02	O RING 1/4X3/8	5602009	1.00
03	BACK-UP WASHER TEF	43768	1.00
04	DOWEL PIN 1/8X3/4 LG	43686	1.00



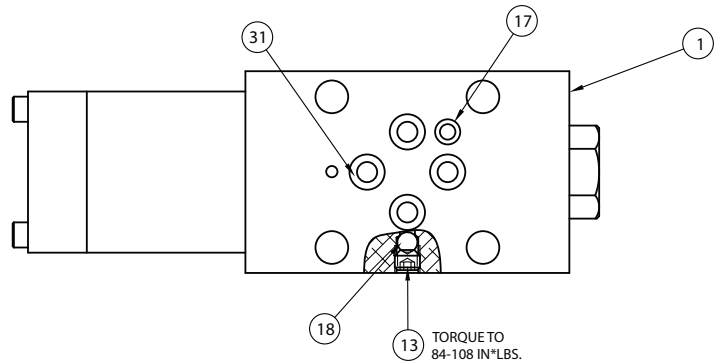
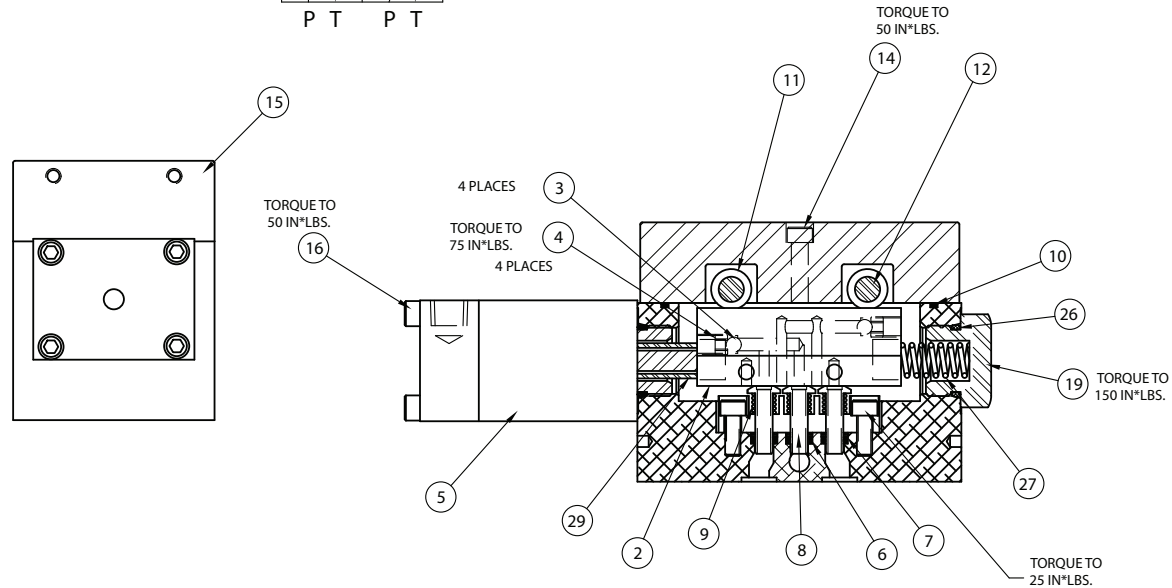
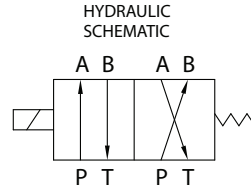
PART# 46336SS (PISTON BLK ASM)

ITEM #	DESCRIPTION	PART #	QTY
1	PISTON BLOCK	45539	1
2	BALL 1/8"	90906	2
3	SPRING	66042	1
4	BALL STOP	68810	1
5	BALL RETAINER	66043	1
6	INTAKE SEAT	66046	1
7	GASKET 25/64X19/32	85726	1
8	PLUG PISTON BLOCK	68825	1
9	GASKET 29/64 X 5/8	86269	1
10	ADAPTOR .255 DIA.	68909	1
11	SPRING, PISTON	68340	1
12	PISTON .255 DIA.	68222	1



VALVE ASSEMBLY

PART# 46297SS (AIR SOLENOID 4W/2P)

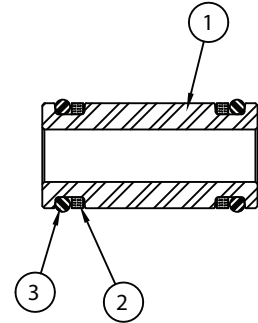


ITEM#	DESCRIPTION	PART #	QTY
1	BODY-VALVE	68708	1
2	SLIDER ADV/RET ONLY	44328	1
3	BALL 3/16"	90548	4
4	SET SCREW 1/4-28 X 1/4 CUP	40254	4
5	AIR CYL ASM	41954SS	1
6	O-RING 7/32X11/32	5602009	3
7	BACK UP WASHER	68391	3
8	SHEAR SEAL	68383	3
9	SPRING	68384	3
10	O-RING 2 5/8 X 2 3/4	5602038	1
11	BEARING ROLLER 5/16x1/2x5/16 WIDE	68385	4
12	PIN BEARING	68390	2
13	SET SCREW 5/16-18 X 1/4 CUP	94418	1
14	SHCS #10-32 X 1" LG PLATED	68264	2
15	VALVE TOP PLATE MACHINED	46272	1
16	SHCS #10-24 X 3.25"	41959	4
17	O-RING 3/16X5/16	5602008	1
18	BALL 1/4"	92549	1
19	VALVE PLUG 2 POSITION SLIDER	46271	1
26	O-RING SAE PORT #10	5603910	1
27	SPRING	68711	1
29	SPACER VALVE SLIDER	46418	1
31	O-RING 5/16X7/16 URE	56020112	4

VALVE SUB ASSEMBLY

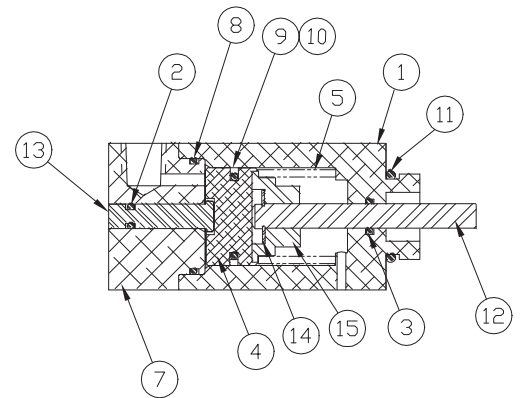
PART# 68963SS (VALVE ADPT)

ITEM#	DESCRIPTION	PART#	QTY.
1	VALVE ADP	88073	1
2	B-U RING	65881	2
3	O-RING 3/8X1/2	5602012	2



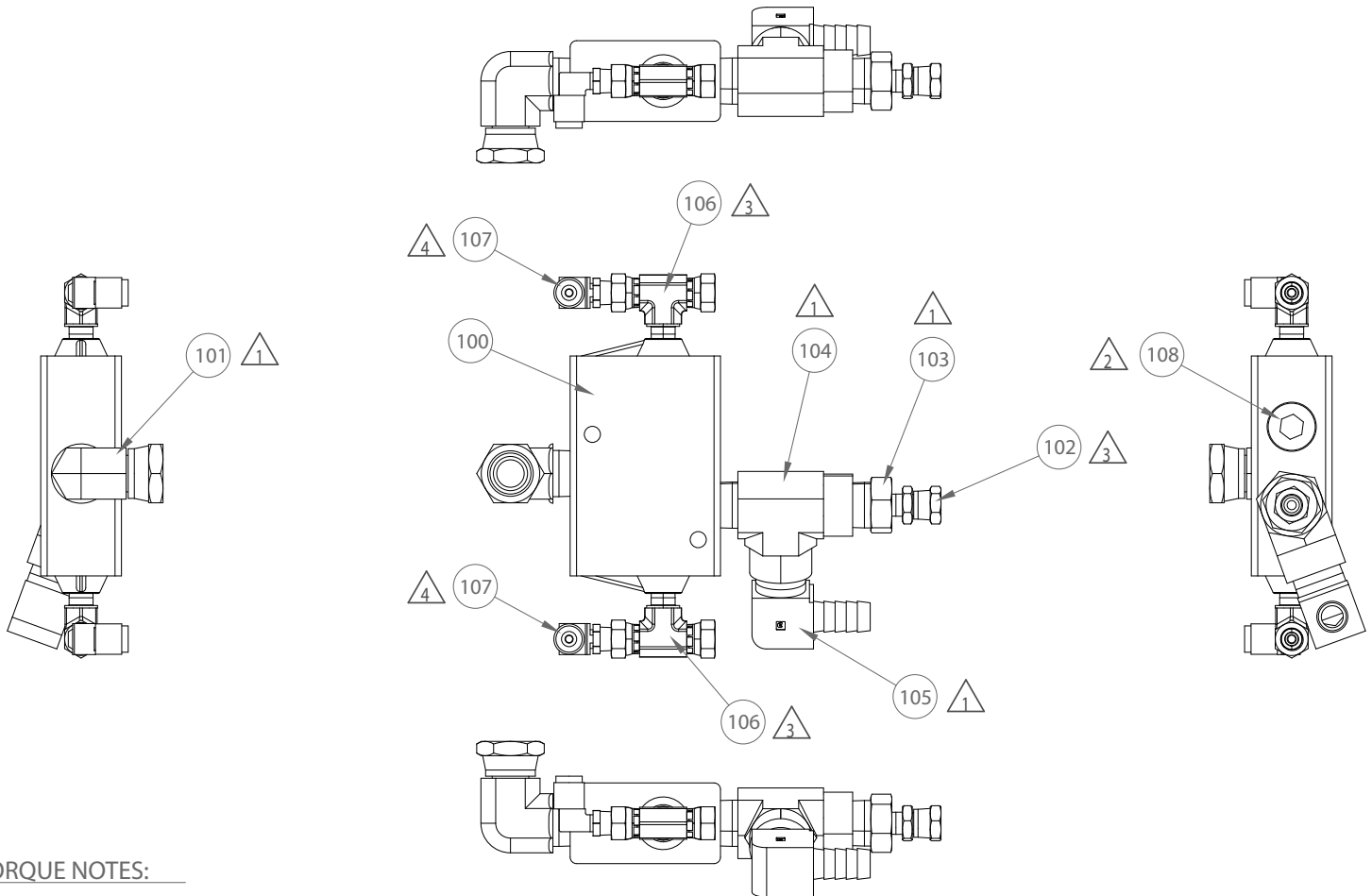
PART# 41954SS (AIR CYL ASSM)

ITEM #	DESCRIPTION	PART #	QTY
1	BODY AIR CYL	42744	1
2	O-RING 1/8 X 1/4	5602006	1
3	O RING 1/4X3/8	5602010	1
4	AIR CYLINDER PISTON	42747	1
5	SPRING AIR CYL	42749	1
7	END CAP	41956	1
8	O-RING 1 1/16X1 3/16	5602023	1
9	SEAL	68497	1
10	O-RING 11/16X13/16	5602017	1
11	O-RING SAE PORT #10	5603910	1
12	PUSH PIN AIR VALVE	42746	1
13	OVERRIDE PIN	41958	1
14	E-RING 1/4" SHAFT	42750	1
15	SPRING PLATE AIR VLV	42748	1



VALVE SUB ASSEMBLY

PART# 46544SS (AIR CONTROL VALVE ASSM.)



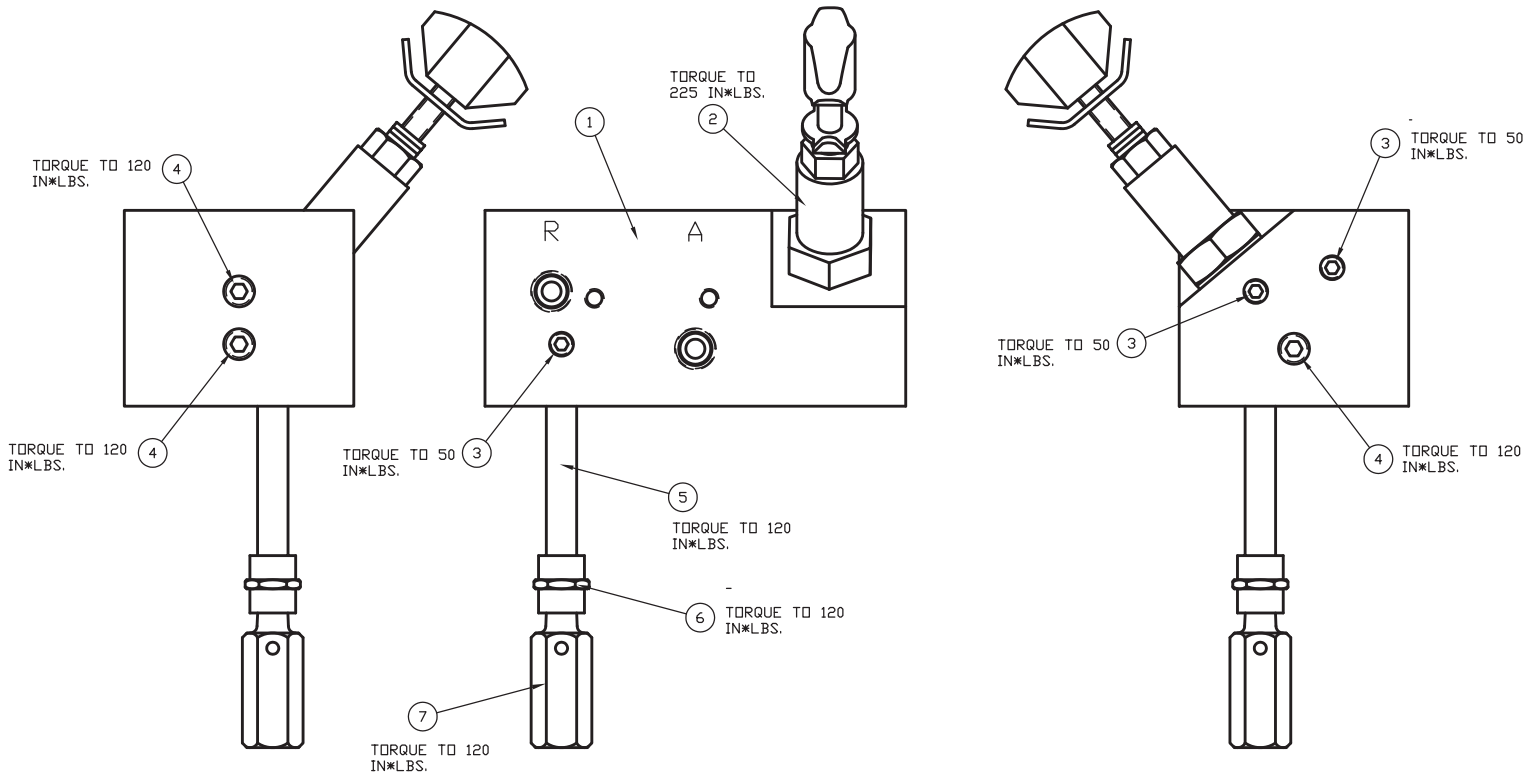
TORQUE NOTES:

- △△APPLY TEFLON TAPE &
TORQUE TO 20-25 FT*LBS
- △TORQUE TO 20-25 FT*LBS
- △△APPLY TEFLON TAPE &
TORQUE TO 80-100 IN*LBS
- △TORQUE TO 45-55 IN*LBS

Balloon #	Item	Description	Quantity	UOM
100	45969	AIR CONTROL VALVE 1/2 PORTS	1	EA
101	6011456	FITTING SWIVEL ELBOW 1/2 NPT	1	EA
102	42381	SWIVEL ADP 1/8	1	EA
103	42377	PIPE ADP 1/2-1/8	1	EA
104	42378	STREET TEE 1/2" NPT	1	EA
105	45991	HOSE BARB ELBOW 1/2 NPT TO 1/2 TUBE	1	EA
106	42968	1/8 SWIVEL TEE	2	EA
107	69362	SWIVEL NUT ELBOW	2	EA
108	46697	1/2 FLUSH PLUG W /SEALANT	1	EA

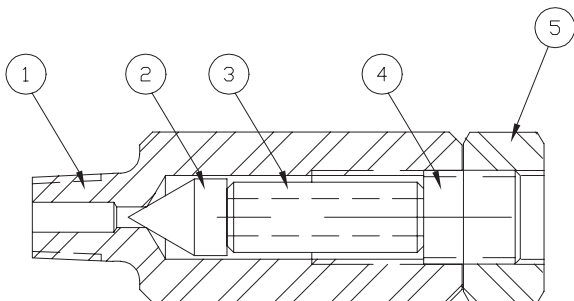
MANIFOLD ASSEMBLY

PART# 46292SS 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	68999SS	1.00

PART# 68999SS INT. RELIEF ASM.

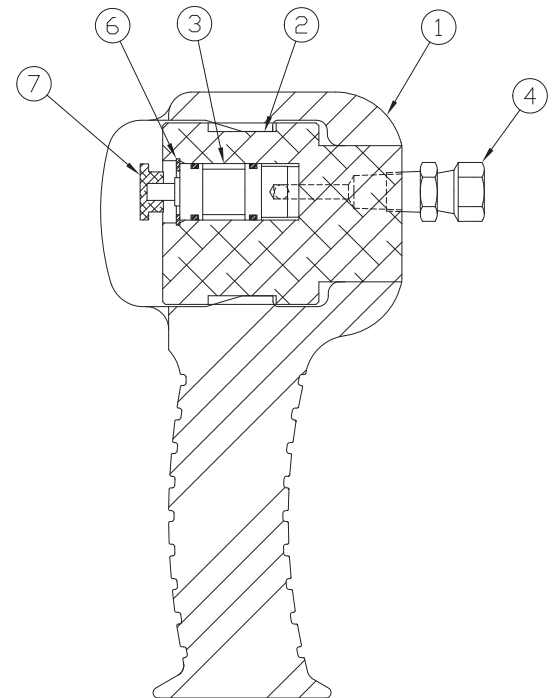
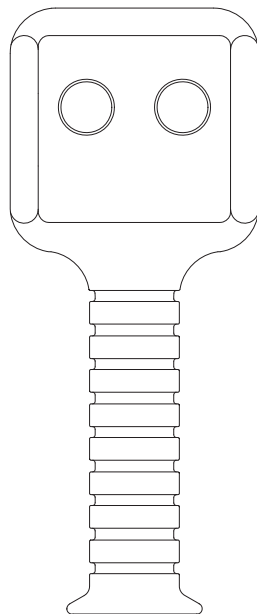
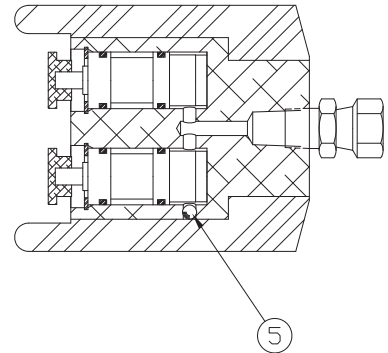


ITEM #	DESCRIPTION	PART #	QTY.
01	CARTRIDGE	66096	1.00
02	CONE REL VLVE	66086	1.00
03	POPPET RELIEF SPRING	44641	1.00
04	RELIEF VALVE ADJUSTING SCREW	66083	1.00
05	HEX NUT 7/16-20	68920	1.00

PENDANT ASSEMBLY

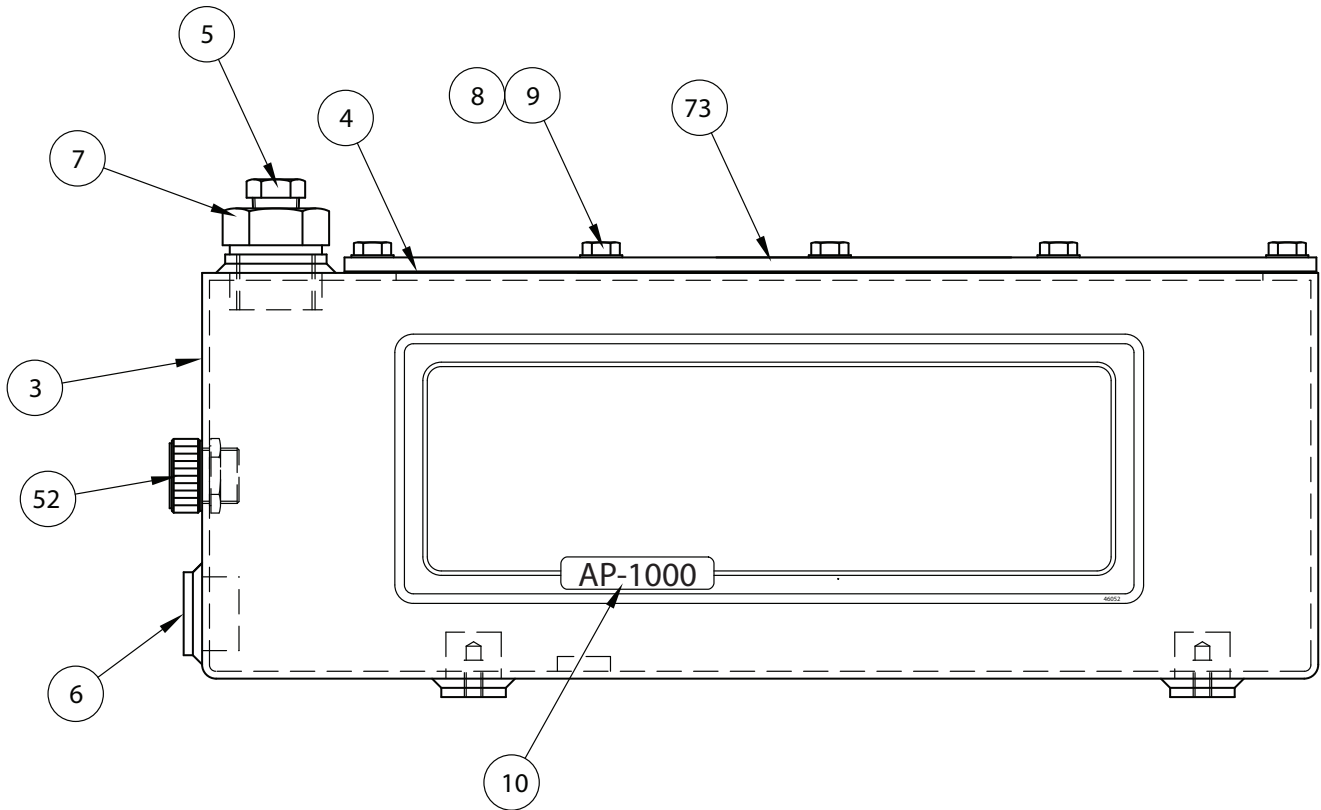
PART# 68799SS (PENDANT ASSM.)

ITEM#	DESCRIPTION	PART #	QTY
1	PENDANT BODY	41968	1
2	AIR PEND. BLOCK MOD.	68796	1
3	CARTRIDGE-AIR	41963	2
4	SWIVEL ADP 1/8	42381	3
5	BALL 5/32	6069613	3
6	RETAINING-RING	68808	2
7	CARTRIDGE CAP	41970	2



RESERVOIR

PART# 45996P 1.5 GALLON RESERVOIR
 PART# 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	1.5 GALLON	2.5 GALLON	QTY.
03	RESERVOIR	45996P	46213P	1.00
04	RESERVOIR GASKET	85469	85469	1.00
05	BREATHER VENT 3/8" NPT	46348	46348	1.00
06	PIPE PLUG	46697	46697	1.00
07	SAE #12 HEX PLUG WITH PORT	46118	46118	1.00
08	HHCS 1/4-20 x 3/4 LG PLATED	65891	65891	14.00
09	SEALING WASHER	65892	65892	14.00
10	RESERVOIR DECAL	46052	46052	1.00
52	SIGHT GAUGE	46009	46009	1.00
73	COVER PLATE	46334	46344	1.00

NOTE: ALL RESERVOIRS ARE POWDER COATED BLACK

