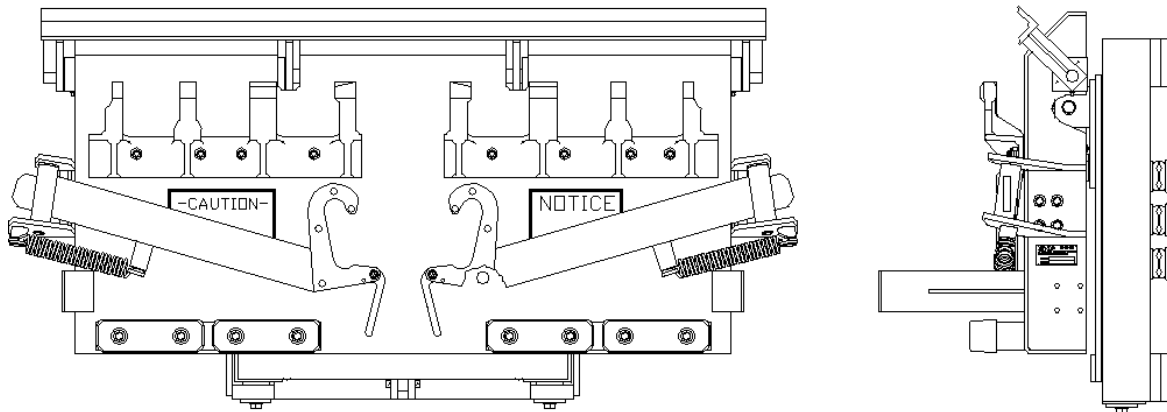




Premium Lift Systems

OPERATION AND PARTS MANUAL



**EVTL 2212 + 15" DWT
DUAL HAND VALVE CONTROLS**

MODEL NUMBER : _____

PART NUMBER : **1905-0107**

SERIAL NUMBER : _____

BAYNE MACHINE WORKS, INC.
910 FORK SHOALS ROAD
GREENVILLE SC, 29605
WEBSITE: www.baynethinline.com

PHONE: 864.288.3877
TOLL FREE: 800.535.2671
FAX: 864.458.7519
E-MAIL: sales@baynethinline.com

LICENSED UNDER ONE OR MORE OF
THE FOLLOWING U.S. AND CANADIAN PATENTS:

- | | | | |
|-----------|-----------|-----------|-----------|
| 5,503,512 | 4,773,812 | 1,327,765 | 5,447,405 |
| 1,335,648 | 5,308,211 | 5,333,984 | 5,826,485 |

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SPECIFICATIONS (WI-0081-A)
Bayne **THINLINE**[®] Premium Lift Systems

- A.** Rotary Actuator - rack and pinion style design.
- Rack, pinion, and shaft bearings are constantly lubricated by the hydraulic oil for extended life.
 - Body and caps are made of high quality ductile iron.
 - Pinion output shaft and racks are made of high tensile alloy steel.
 - The rotary actuator provides smooth motion throughout the lift cycle, which results in longer cart life with virtually no cart damage or abuse.
- B.** Arm bearings are made of a composite material which provides superior compression strength along with self-lubrication, thus eliminating the need to grease the arm bearings.
- C.** The THINLINE[®] lift unit can measure as little as 5” thick from the front of the mainframe to the front of the faceplate depending on the types of arms used. This allows for easy dumping of large commercial containers without interference.
- D.** The faceplate is normally at 45 degrees in the dump position and extends 13” to 15” from the back of the mainframe into the hopper or container opening. This places the cart or barrel 16” to 18” into the truck or container opening thus reducing any potential spillage of materials.
- E.** Cycle times for safe, fast, efficient service.
- **6 - 8 seconds** for rear-load and side-load units
 - **8 - 10 seconds** for units with 9” and 15” vertical lifts
 - **10 - 12 seconds** for stationary, recycling, and double wide, and 24” vertical units
 - **15 - 30 seconds** for 3300 series and 3300 series stationary units
- Note : Cycle time is controlled by flowrate, as flowrate increases, cycle times decrease.*
- Warning : Never exceed the cycle times listed above. In order to avoid injury and maintain manufacturer’s warranty never operate outside of these recommendations.***
- F.** Recommended flowrates are as follows:
- **2 to 2 1/2 GPM** for 1100 series units
 - **2 to 4 GPM** for 2200 series units
 - **2 1/2 to 6 GPM** for 3300 series units
- G.** Hydraulic pressure requirements are as follows:
- **2000 to 2500 PSI** normal working pressure
 - **3000 PSI** maximum pressure
- H.** All lifters can be a bolt on type installation for easy, quick maintenance and less downtime.

- I. All parts are manufactured and kept in stock at Bayne Machine Works, Inc. for fast response to customer request.
- J. Two (2) year limited warranty from date of delivery on all units and models when properly maintained and operated within the recommended cycle time.

All lift units and parts are inspected by our Quality Control Department before shipment to insure that you always receive the highest quality available in the lift business.

For more information, please contact us at 1/800/535-2671 or by fax at 1/864/458-7519.

INSTALLATION INSTRUCTIONS (WI-0244)

Bayne *THINLINE*[®] Premium Lift Systems

The following information is intended to be a **GENERAL GUIDE** to installing the Bayne *THINLINE*[®] lifter on a typical refuse truck. Before starting the installation, read these instructions completely. **ALWAYS** use the proper tools, lift devices, and personal protective equipment to prevent injury while performing the installation.

I. Mounting lifter on the truck:

1. The truck should be emptied and cleaned before any installation. The truck should be parked on a level solid surface, a concrete floor if possible.
2. All lights, tags, steps, etc. that will interfere with the installation should be removed and/or relocated.
3. Position the lifter on the sill of the truck per figure I-1 and mounting height drawing (*Appendix A*) and tack weld the mounting plates in place (*later in the installation procedure the final weld will be applied*).

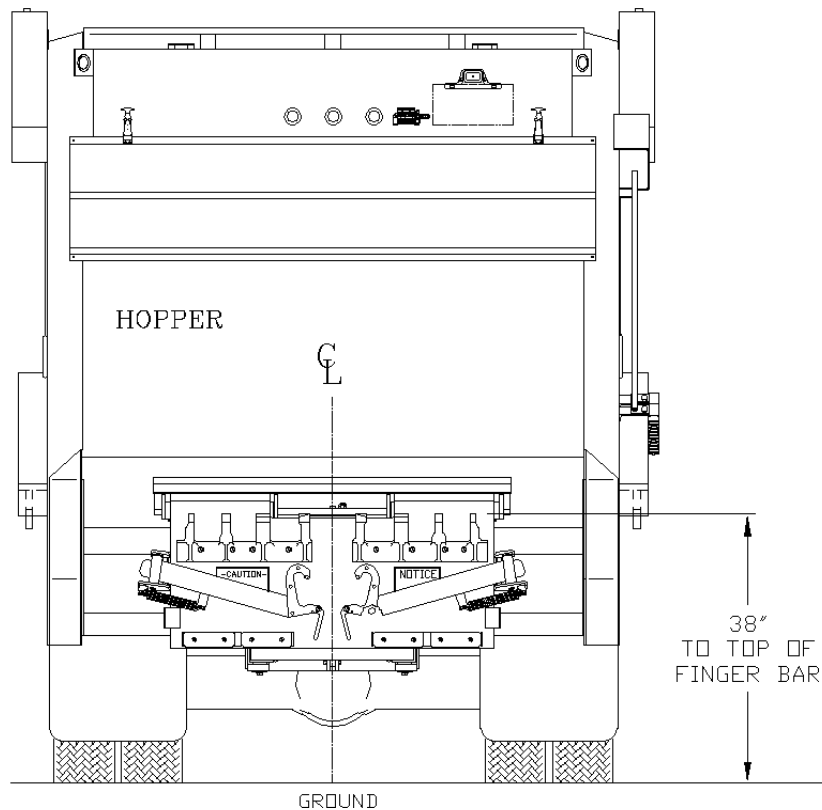


figure I-1

II. Mounting dual hand valve on the truck:

1. Choose and mark an acceptable location on the side of the truck to mount the dual hand valve assembly as shown in figure I-2.
2. Remove the mounting bracket from the dual hand valve assembly and weld to the truck.
3. After the weld has cooled, paint the mounting bracket to match the truck color.
4. After the paint has dried, reassemble the dual hand valve assembly on the mounting bracket.

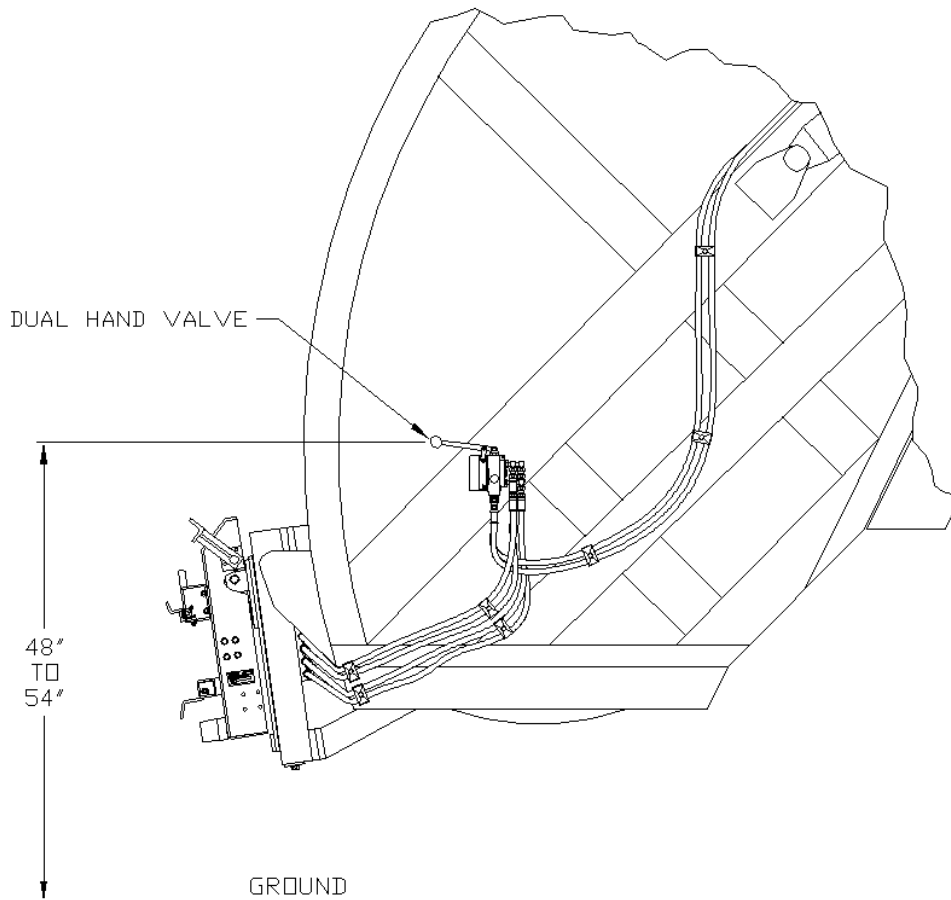


figure I-2

III. Making Hydraulic Connections :

Before attempting any hydraulic connections, turn the truck's engine off and release all hydraulic pressure from the system. Refer to the hydraulic layout (figure I-3) and hydraulic schematic (Appendix A) while performing the following steps. Always clean & lubricate fitting threads before installation.

1. Cut or disconnect truck's main hydraulic pressure line and install the Bayne diverter valve in series using the "IN" and "OUT" ports.
2. Connect the "T" port on the diverter valve to the truck's hydraulic tank line with an appropriate size line to handle the full system flow.
3. Connect port "P1" on the diverter valve to the "IN" port on the dual hand valve.
4. Connect port "T1" on the diverter valve to the "OUT" port on the dual hand valve.

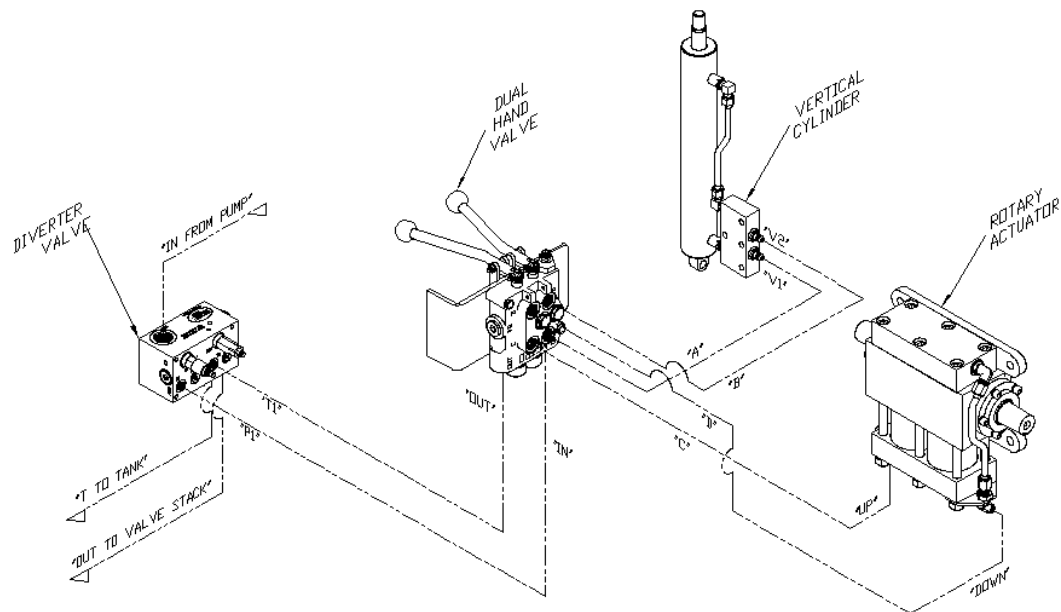


figure I-3

5. Connect the "A" port on the dual hand valve to the "V1" port on the vertical cylinder.
6. Connect the "B" port on the dual hand valve to the "V2" port on the vertical cylinder.
7. Connect the "C" port on the dual hand valve to the "UP" port of the rotary actuator.
8. Connect the "D" port on the dual hand valve to the "DOWN" port of the rotary actuator.
9. Disassemble each hose clamp assembly and position weld plates where needed and weld in place.
10. After the weld has cooled, paint the weld plates to match the truck color.
11. After the paint has dried, reassemble the hose clamp assemblies around the hoses.

IV. Adjusting relief valve settings :

The diverter valve (1) (figure I-4) supplies the cart lifter hydraulic system with approximately 2 GPM of oil flow. This diverter valve is equipped with a full system relief valve (4) set at 2500 psi, to protect the truck's hydraulic system from any blockages that may occur down stream of the diverter valve. The diverter valve also includes a lifter circuit relief valve (3) set at 2300 psi, to prevent the diverter valve from shutting down if a blockage occurs in the lifter circuit. There is also a relief valve (5) set at 1800 psi in the hand valve (2) to protect the lifter from excessive pressure. These relief valves are preset from the factory to operate properly on most trucks with a system pressure between 2300 and 2500 psi without any adjustment. However, if any adjustment is necessary, follow these instructions.

WARNING : Bayne equipment is rated for a maximum pressure of 3000 psi. Operation at pressures above 3000 psi may damage equipment and cause personal injury. In order to avoid injury and maintain manufacturer's warranty never operate above 3000 psi.

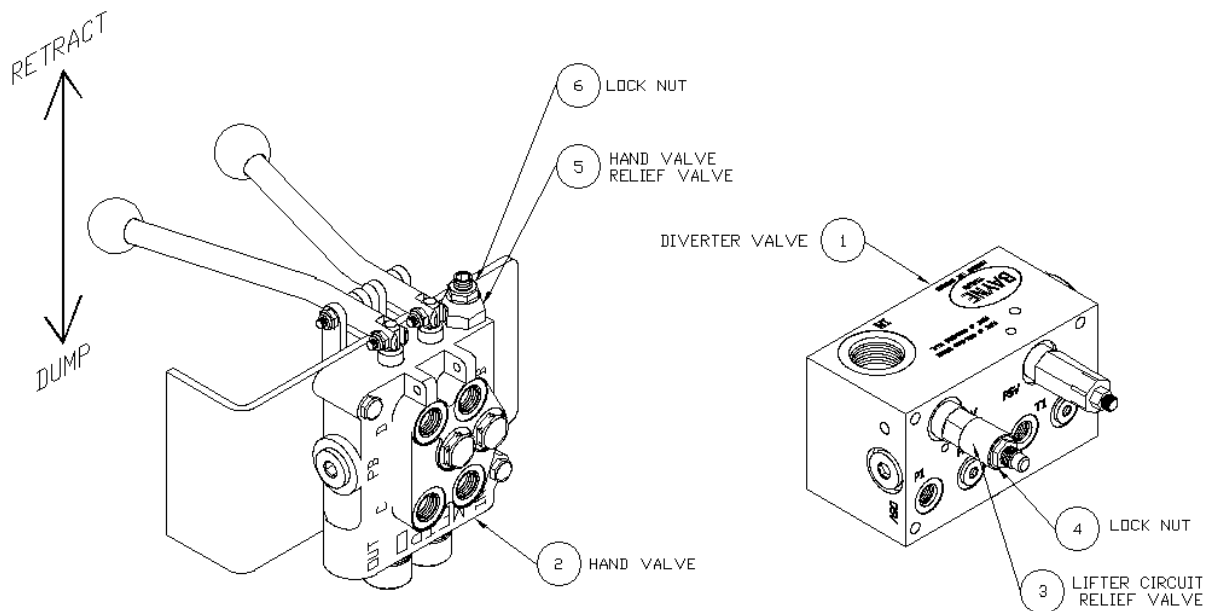


figure I-4

1. Determine the truck's system pressure setting.
2. Loosen the lock nut (8) (figure I-4) on the hand valve relief valve (5) and turn the adjustment screw clockwise until it bottoms out.
3. Loosen the lock nut (6) (figure I-4) on the lifter circuit relief valve (3) and turn the adjustment screw clockwise until it bottoms out.

4. Loosen the lock nut (7) (*figure I-4*) on the full system relief valve (4) and turn the adjustment screw counter-clockwise until it stops backing out.
5. Install a 3000 psi hydraulic pressure gauge with the necessary adapter in the “G” port of the diverter valve.
6. Start the truck’s engine and engage the hydraulic system.
7. Operate the handle on the hand valve (2) (*figure I-4*) back and forth a few times to bleed all air from the lifter hydraulic system.
8. **Setting the diverter valve full system relief valve :**
 - a) Have an assistant hold the handle on the hand valve (2) (*figure I-4*) in the “retract” position.
 - b) Turn the pressure relief adjustment screw on the full system relief valve (4) clockwise until the pressure reading on the gauge is either 100 psi above truck system pressure, or if the pressure reaches a certain point and will not go any higher, set the adjustment screw 1/2 turn past that point.
 - c) Release the handle on the hand valve.
9. Turn the truck’s engine off and release all hydraulic pressure from the system.

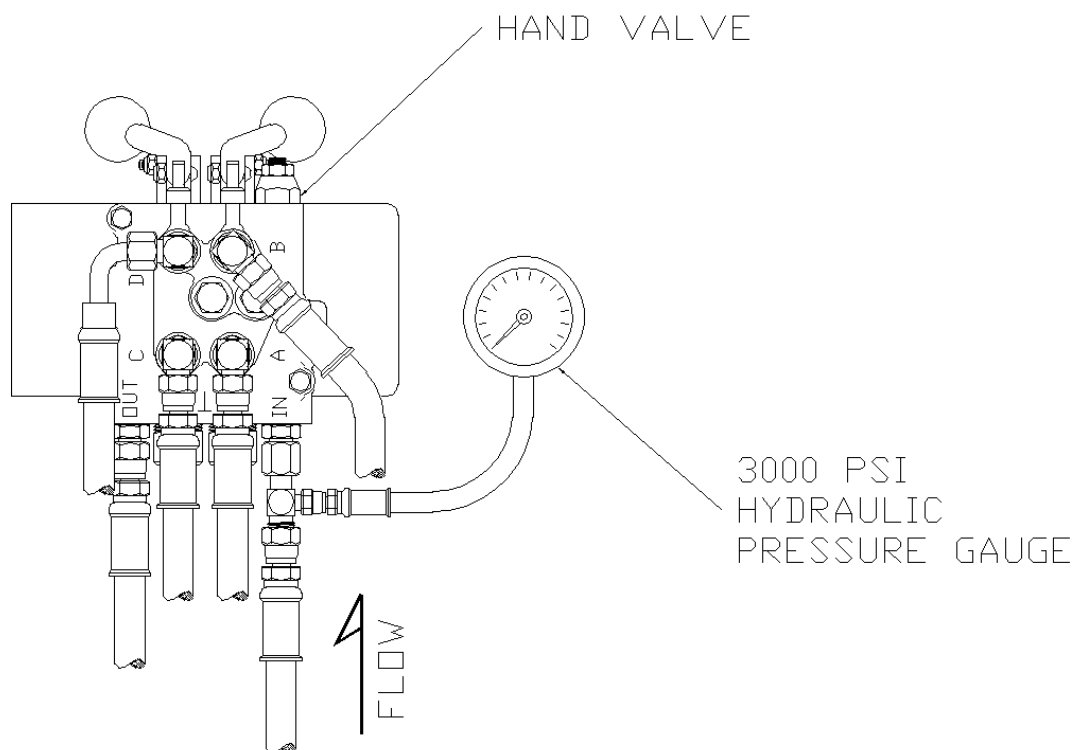


figure I-5

10. Remove the hydraulic pressure gauge from the “G” port of the diverter valve and reinstall the plug.
11. Install the 3000 psi hydraulic pressure gauge with the necessary adapter in the hydraulic line connected to the “IN” port of the hand valve as shown in figure I-3.
12. Start the truck’s engine and engage the hydraulic system.
13. **Setting the diverter valve lifter circuit relief valve :**
 - a) Have an assistant hold one of the handles on the hand valve (2) (*figure I-4*) (*with pressure gauge installed at the “IN” port*) in the “retract” position to show pressure on the gauge.
 - b) Turn the pressure relief adjusting screw on the lifter circuit relief valve (3) counter-clockwise until the pressure reading on the gauge is either 100 psi less than the truck system pressure or 2300 psi, which ever is the lowest.
 - c) Release the handle on the hand valve.
14. **Setting the hand valve relief valve :**
 - a) Hold one of the handles on the hand valve (2) (*figure I-4*) (*with pressure gauge installed at the “IN” port*) in the “retract” position to show pressure on the gauge.
 - b) Turn the pressure relief adjusting screw on the hand valve relief valve (5) counter-clockwise until the pressure reading on the gauge is either 200 psi less than truck system pressure or 1800 psi, which ever is the lowest.
 - c) Release the handle on the hand valve.
15. Turn the truck’s engine off and release all hydraulic pressure from the system.
16. Remove the hydraulic pressure gauge from the hydraulic line connected to the “IN” port of the hand valve.
17. Tighten the lock nut (8) (*figure I-4*) on the hand valve relief valve (5) to secure the correct pressure setting.
18. Tighten the lock nut (7) (*figure I-4*) on the full system relief valve (4) to secure the correct pressure setting.
19. Tighten the lock nut (6) (*figure I-4*) on the lifter circuit relief valve (3) to secure the correct pressure setting.
20. The hydraulic circuit pressures are now set for optimum performance.

V. Final operation and mounting:

1. Place a cart on the lifter and operate to make sure there are no clearance problems and that the lifter engages the cart properly. Make any adjustments to the mounting position of the lifter to ensure correct operation.
2. Position the lid openers (*if required*) per mounting height drawing (*Appendix A*) and weld or bolt in place.
3. Place a cart on the lifter and operate to make sure the lid openers operate correctly. Make any adjustments to the mounting position of the lid openers to ensure correct operation.
4. After locating an acceptable mounting position, remove the lift unit from the mounting plates and complete the welding of the mounting plates to the truck.
5. After the weld has cooled, paint the mounting plates to match the truck color.
6. When reinstalling the lifter, place the *LOCTITE* thread-lock (*supplied*) on the four bolts that secure the lifter to the mounting plates.

OPERATION INSTRUCTIONS (WI-0411)

Bayne **THINLINE**[®] Premium Lift Systems

The Bayne **THINLINE**[®] Premium Lift System is a high quality durable cart lifter built to meet your industry's requirements. To insure the safety of all operators of this equipment, please read this manual carefully before operating the lifter. *FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE.*

The operating stages (*figure O-1*) in the cycle of the cart lifter are as follows:

- 1) **START** - The cart to be dumped is placed on the lifter.
- 2) **VERTICAL EXTEND** - The vertical cylinder extends to lift the cart vertically off the ground.
- 3) **ACTUATOR DUMP** - The rotary actuator cycles to dump the contents of the cart into the box. During this cycle, the clamp bar automatically rotates to "lock" the cart to the lifter.
- 4) **ACTUATOR REVERSE** - The rotary actuator reverses its cycle returning the cart to the start position. The clamp bar automatically retracts to "unlock" the cart from the lifter.
- 5) **VERTICAL RETRACT** - The vertical cylinder retracts to lower the cart back down to the ground.

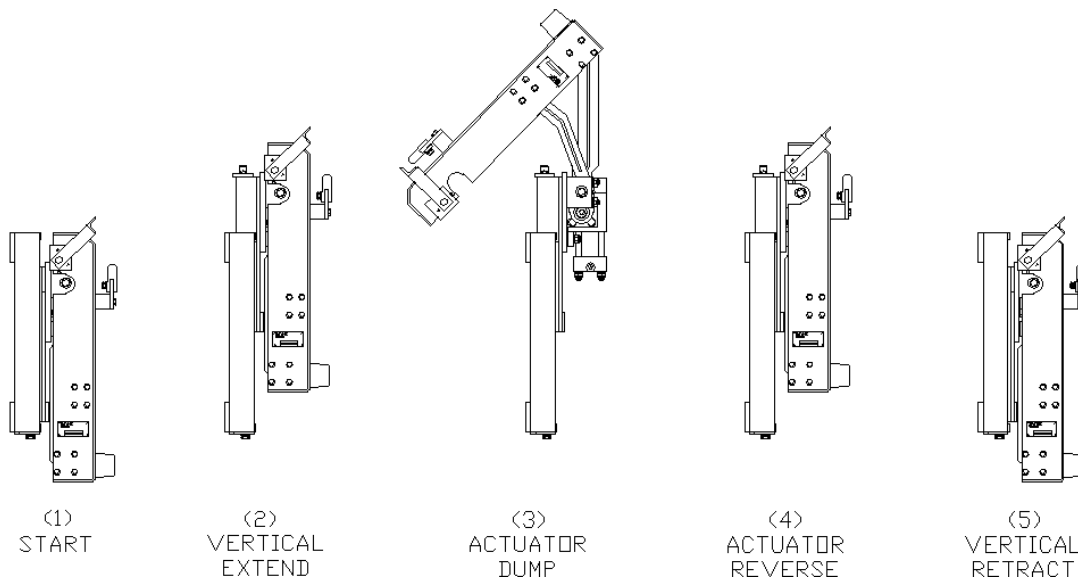


figure O-1

Warning: Exceeding the 10 to 12 second cycle time on any lifter will void the manufacturer's warranty

The vertical and rotational motions of the cart lifter are controlled with the use of a dual hand valve. Moving one of the handles on the dual hand valve “UP” will cause the lifter to perform the vertical extend stage (*figure O-2*), then moving the other handle “UP” will cause the lifter to perform the actuator dump stage. Moving the same handle “DOWN” will cause the lifter to perform the actuator reverse stage, then moving the other handle “DOWN” will cause the lifter to perform the vertical retract stage.

CLAMP BAR ADJUSTMENT

Check the distance (**B**) (*figure O-2*) between the top of the finger bar and the inside of the clamp bar when the lifter faceplate is in the **FULL DUMP** position. Maintain this dimension at approximately $7/8$ ” for the proper “locking” of the cart to the lifter. To adjust the setting, loosen the jam nuts (1) on the spherical rod ends (2). Remove the bolts (3) that hold the rod ends to the clamp bar. Screw the rod ends in or out as required to obtain the correct dimension at (**B**). Replace the bolts (3) and tighten the jam nuts (1).

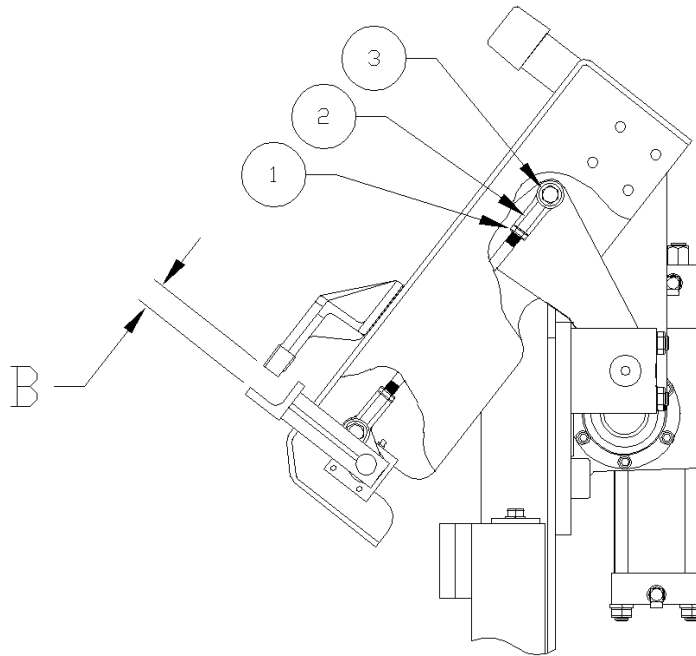


figure O-2

CAUTION: *The distance in figure O-2 is an arbitrary figure based on information furnished by cart manufacturers. It is the responsibility of the owner / operator of this equipment to adjust these dimensions to be compatible with his specific application.*

6091/6092-0700 DIVERTER VALVE
OPERATION AND INSTALLATION INFORMATION
(WI-0026)

Bayne *THINLINE*[®] Premium Lift Systems

The Bayne diverter valve establishes priority flow to the lifter circuit “P1” and “P2” ports and bypasses oil to the “OUT” port, which typically supplies flow to the remainder of the truck’s hydraulic circuit. This bypass occurs only after the lifter circuit is satisfied. The priority flow is controlled by the flow regulator cartridge (FR1) (and FR2 in dual applications) in combination with the differential pressure sensing valve (DPS). This allows the valve to maintain constant flow regardless of changes in load pressure or volume flow rate. Since both the lifter circuit and bypass flow can be utilized in the operation of the truck regardless of which pressure is greater, a single pump can be used to supply two circuits or operations.

The lifter circuit flow is regulated and maintained by the flow regulator cartridge (FR1) (and FR2 in dual applications). The differential pressure sensing valve (DPS), rated for 75 gpm of flow and 3000 psi of pressure, is operated by an internal spring and dampening orifice (OR) which establishes a pressure drop across the block sufficient to ensure the correct operation of the flow regulator (FR1). For a dual diverter valve, a second flow regulator cartridge (FR2) is installed in the “FR2” cavity and a shuttle valve (DSV) is installed in place of the SAE plug in the “DSV” cavity. Once the pressure drop is established, a precision metered flow is provided to the tipper circuit(s) with additional flow being bypassed to the “OUT” port.

The operation of the diverter valve does not require the use of a tank line to be run to the “T” port. However, the efficiency of the block will be significantly increased if a tank line is installed. The logic circuit of the block will manage the flow of oil returning from the tipper circuit to ensure optimum performance. This is primarily controlled with the sequence valve (PSV) which is factory set and should not be adjusted. All oil returning from the tipper circuit will normally be regenerated into the outgoing flow to ensure that the downstream functions are not slowed in any way. When the downstream backpressure rises to a predetermined pressure, the block will redirect the flow to the “T” port to increase the overall efficiency of the block and reduce the pressure drop through the block. If the “T” port is connected to a tank line, the oil will be dumped through the block at a lower pressure. This allows downstream functions to operate at the highest possible pressure when pressure is being required. If the “T” port is blocked, the oil will be redirected back into the outgoing flow through the check valve (CV).

A relief circuit for the tipper function is controlled by a relief valve (RV), which is preset to 2300 psi. This can be adjusted to limit pressure to the tipper(s). This relief valve is more efficient than the relief in the hand valve and will operate with less noise. It is recommended that it be adjusted to relieve before the hand valve relief. It may also be used to limit the weight the lifter can dump. This may be beneficial in avoiding damage to cans resulting from overloading. This should be the only adjustment that the block may require. Any other adjustments should only be made after close consultation with Bayne’s Engineering Department to ensure proper operation.

POSSIBLE PROBLEMS

1. The most common cause of valve failure is dirty oil. If debris becomes lodged in the cartridge valves they will malfunction. Recommended filtration level is between 15 and 25 microns. Many systems filter the oil on the return side. This does not guarantee clean oil going into the system. It is important to ensure that the tank vent filtration element is properly maintained as well. Very small contaminants may not cause the valve to stop functioning, but can cause “stiction” in the cartridges between the body and the moving spool. This can cause improper operation. A slow moving tipper is most likely the result of contamination in the flow regulator cartridge. A pulsating noise may be the result of contamination in the differential pressure sensing valve causing it to stick. If any valve malfunctions, remove and thoroughly clean the valve, being extremely careful not to score or abrade the “o” ring seals or moving parts of the valve. Be sure that the spool moves freely in the valve body.
2. The flow regulator cartridges (FR1 and FR2) are designed to operate at a designated pressure of 80 psi. This means that in order for the valve to function properly, a minimum of 80 psi is required from the supply line through the “IN” port of the valve. This can present a problem on trucks with a dry valve pump system. Normally in the dry (off) mode of the pump, a flow of approximately 2 gpm at 20 psi is required to circulate through the open center system of the truck. This is for pump lubrication in the off mode. When the diverter valve is placed in the main pressure line of the truck, a blockage occurs because of the differential pressure sensing valve needing 80 psi to initially open and allow the flow regulators function. The path of the lubrication oil is therefore stopped because the valve does not open. When the oil is blocked, the pump will rotate and cavitate in the lubricating oil, causing heat to build up over an extended period of time, possibly leading to premature pump failure. To prevent this problem from occurring, a “bleed line” circuit needs be installed on the truck to allow passage of the lubricating oil back to tank.
3. On front load residential truck applications, several considerations need to be noted. The Bayne hand valve is an open center valve that allows for the lifter circuit to maintain flow through the hand valve and back to the diverter valve when the lifter is not being operated. If flow is not maintained through the hand valve, the oil will constantly be relieving over the lifter circuit relief valve (RV) in the diverter valve, which can cause an increase in operating temperature. Certain front load box designs allow for the hand valve to be located on the arms of the truck which keeps the hand valve in the lifter circuit at all times to maintain flow. Most problems occur with applications where the hand valve is located on the box itself. In this situation, when the operator disconnects the hydraulic lines to the box, a blocked condition occurs in the lifter circuit. To prevent this problem, the pump must be turned off prior to disconnecting the box hydraulic lines. Once the lines have been disconnected from the box, it is necessary to connect the two lines for the hand valve to each other to functionally complete the lifter circuit. It is recommended that male and female quick disconnects be used opposite each other on the truck to provide an uninterrupted circuit. Once the lines have been connected and the circuit continued, the pump could then be turned on to continue operations.

MAINTENANCE INSTRUCTIONS (WI-0140-A)

Bayne ***THINLINE***[®] Premium Lift Systems

NOTE:

THE MOST COMMON CAUSE OF HYDRAULIC COMPONENT FAILURE IS CONTAMINATION OF THE HYDRAULIC FLUID (WATER, CHIPS, DIRT, ETC.) THE Bayne ***THINLINE***[®] LIFT SYSTEM COMES CLEAN FROM THE FACTORY. IF REMOVED, BE SURE THE HOSES, CYLINDER AND FITTINGS ARE CLEAN BEFORE RE-INSTALLING THEM ON THE UNIT.

Inspect your cart lifter on a weekly basis for loose bolts, fittings, oil leaks, etc. Tighten loose hardware as necessary and replace necessary seals to repair oil leaks.

In order to maintain warranty and for preventive maintenance, grease all points weekly with a good multi-purpose grease at points shown in the lubrication drawing (*APPENDIX A*).

BAYNE

PREMIUM LIFT SYSTEMS

ASSEMBLY INSTRUCTIONS

2200 SERIES ROLLER BEARING ACTUATOR

PART NUMBER 2220-2001 (WI-2209-C)

LICENSED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS:
4,773,812 1,327,765 5,308,211 5,333,984

READ INSTRUCTIONS COMPLETELY BEFORE STARTING ASSEMBLY.

Before starting the assembly of the Rotary Actuator, refer to the exploded parts drawing and parts list (fig. A-17 found at the end of these instructions) to familiarize yourself with the individual components. Prepare a clean surface, in an area free of blowing dust and contaminants in which to assemble the Rotary Actuator. Be sure that all parts are thoroughly clean and dry before starting assembly.

NOTE: All torque values given apply to clean dry threads only. Follow these directions closely when repairing the Rotary Actuator.

1. Install the piston seal load ring (13) (fig. A-1) in the small groove on the head of the actuator rack (2). Place the “square” piston seal (17) over the load ring (13) in the same small groove (a small “blunt” flathead screwdriver may be used, taking care not to scratch or damage the seal). Install the wear ring (18) in the large groove on the head of the rack. Using a ring compressor, firmly seat the rings on the rack before setting it aside, this will help to reverse the effects of any stretching of the rings that occurred during installation. Repeat this procedure for the other rack.

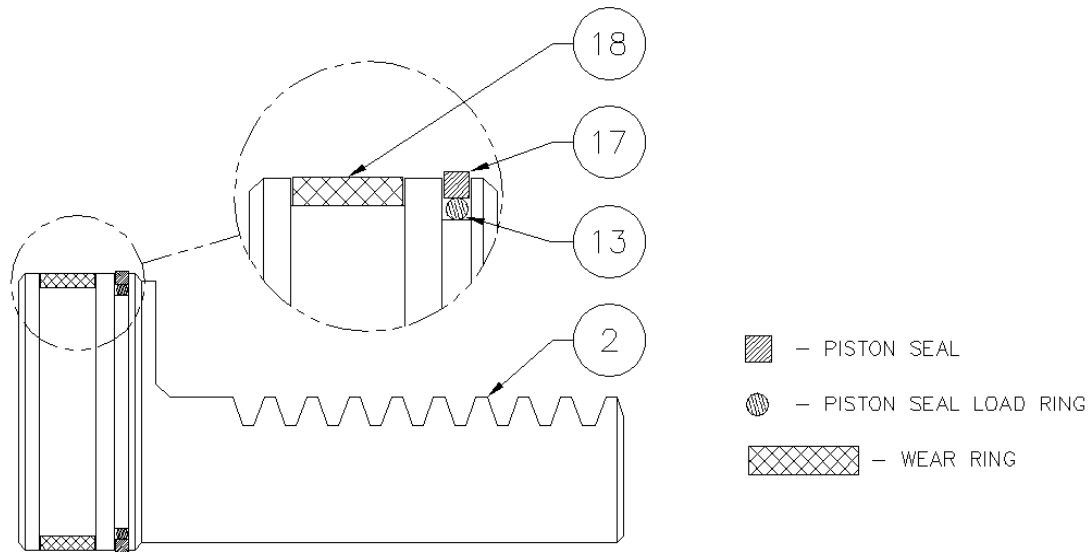


figure A-1

- Install the piston seal load ring (13) (fig. A-2) in the small groove on the head of the lower piston (35). Place the “square” piston seal (17) over the load ring (13) in the same small groove (a small “blunt” flathead screwdriver may be used, taking care not to scratch or damage the seal). Install the wear ring (18) in the large groove on the head of the lower piston. Using a ring compressor, firmly seat the rings on the rack before setting it aside, this will help to reverse the effects of any stretching of the rings that occurred during installation. Repeat this procedure for the other lower piston.

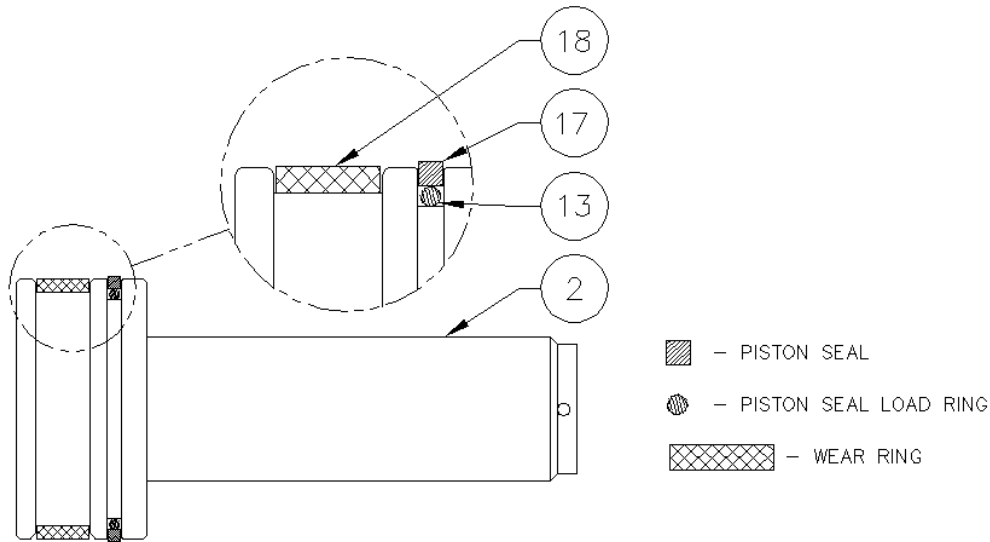


figure A-2

- Install the tube seal (12) (fig. A-3) and “square” tube seal backup (16) on each end of the “shorter” actuator tubes (3) (fig. A-17). Be sure that the “square” tube seal backup ring is toward the inside of the tubes at both ends as shown. Press all rings firmly into the grooves. Repeat this procedure for the “longer” lower piston tubes (32) (fig. A-17).

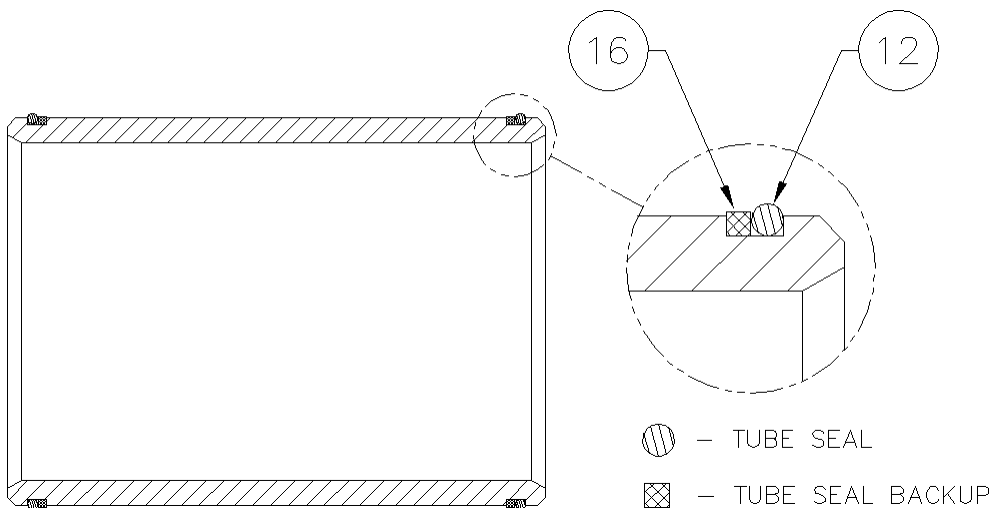


figure A-3

4. Thoroughly clean the pinion shaft (1) (fig. A-4) and inner races (10) with a mild solvent and dry completely. Spray the inner race contact area (shown in figure A-4) at each end of the pinion shaft and the inside diameter of the inner races thoroughly with *LOCTITE 7649 N PRIMER*. Apply *LOCTITE RETAINING COMPOUND 609* around the pinion shaft at contact area and the inside diameter of the inner races. Slide the inner races (10) on the pinion shaft until the races seat against the gear teeth. After the races seat against the gear teeth, twist the races on the pinion 360° to spread the retaining compound evenly. Wipe off any excess retaining compound.

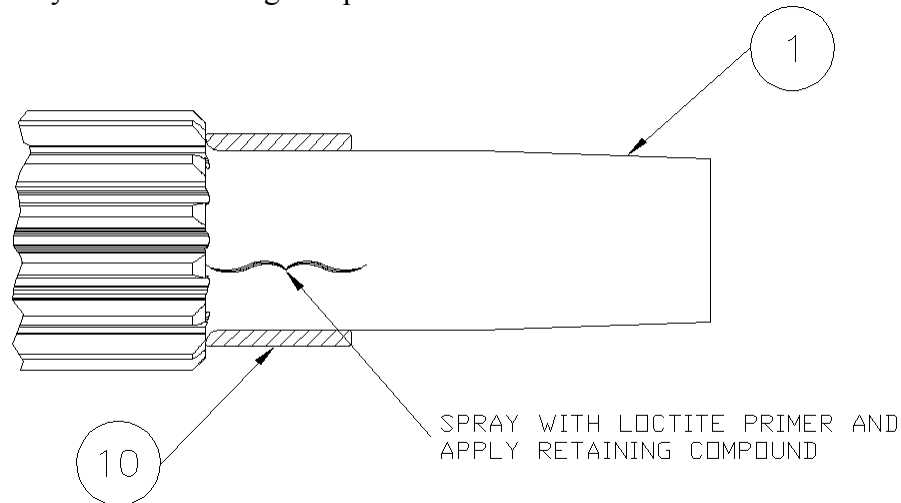


figure A-4

5. Place the actuator body (7) (fig. A-5) on the edge of the table, mounting flanges closest to the assembler with the counter-bores facing up. Insert the pinion shaft (1) through the bore on either side of the actuator body with the key ways facing the center of the tapped hole as shown in figure A-5. Center the pinion in the actuator body.

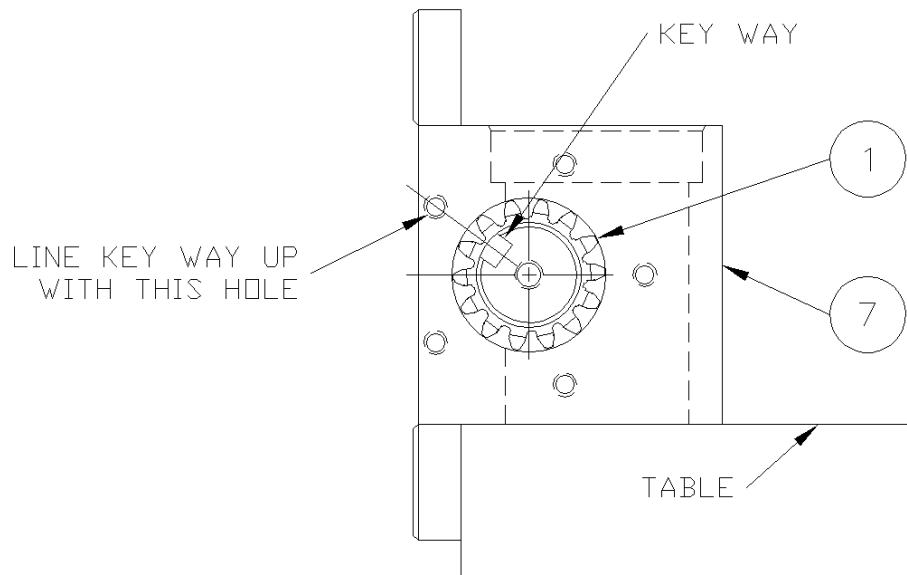


figure A-5

6. Coat the head portion of the racks (2) (fig. A-17) with STP Oil Treatment as shown in figure A-6. Install the racks, head portion up with the teeth facing the flanges of the actuator body, into the dual set of bores in the body. Simultaneously slide the racks into the bores so that the racks mesh with the pinion in the same position. Rotate the pinion shaft to engage the racks into the pinion.

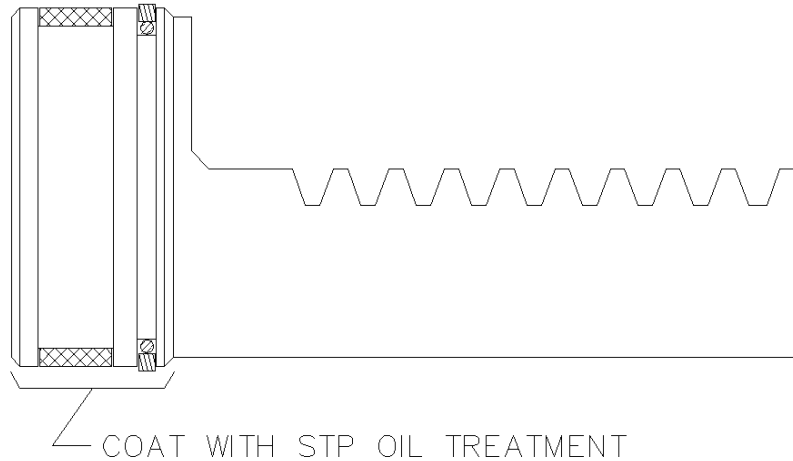


figure A-6

7. Check the position of the racks in the pinion by making sure both racks seat against the actuator body at the same time and also when the racks are seated against the body, the key ways on the pinion shaft should be facing down toward the table and very slightly back toward the mounting flanges on the actuator body as shown in figure A-7.

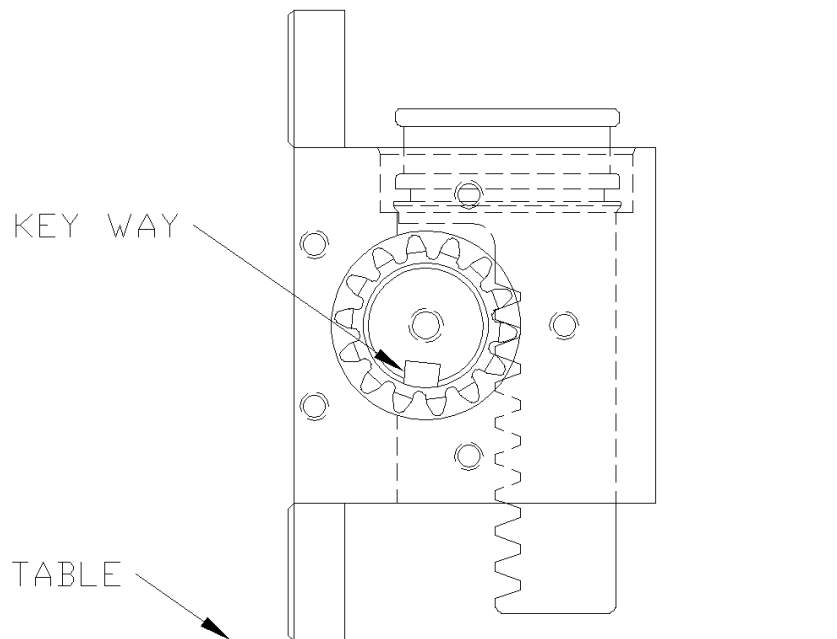


figure A-7

8. Coat one end of the “shorter” actuator tubes (3) (fig. A-17) around the seal area with STP Oil Treatment as shown in figure A-8. Using a rubber mallet, drive the coated end of the tube onto the exposed rack until the tube end seats in the actuator body, making sure that the seals remain in place as the tube enters the counter-bore. Repeat this procedure for the other side.

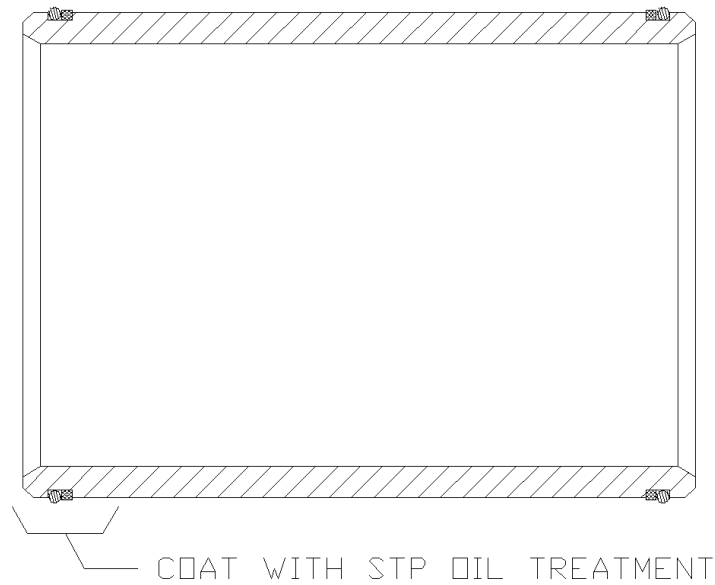


figure A-8

9. Place the spacer plate (33) (fig. A-9) on the table with the double counter-bore side up. Install the two rod seals (36) into the spacer plate with the “O”-ring insert facing down as shown.

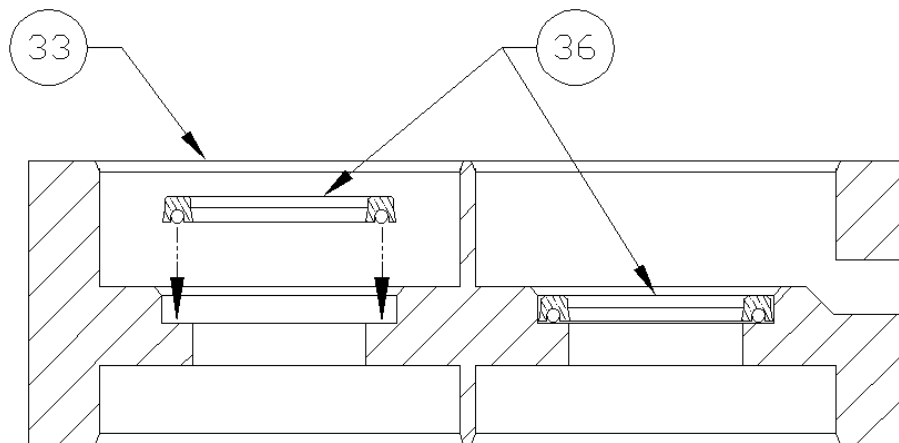
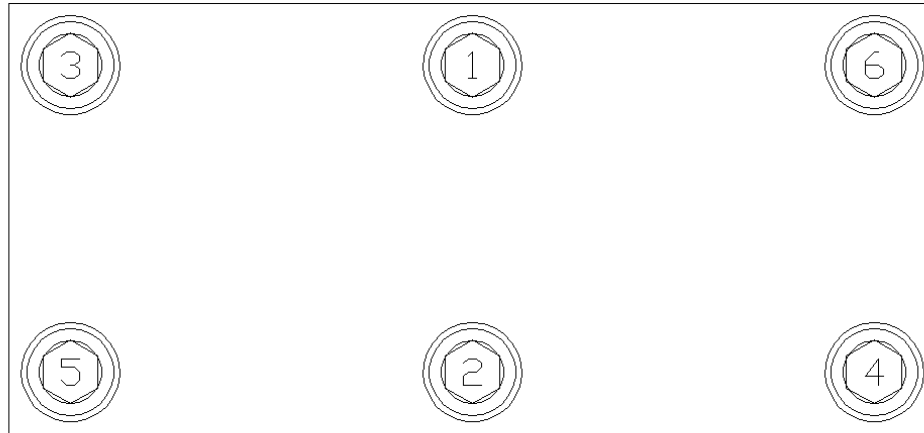


figure A-9

10. Place the lower bearings (34) (fig. A-10) flat on the table. Locate the wear rings (37) and install the wear rings into the inside groove of the lower bearings as shown in figure A-10.
11. Coat the wear ring area with STP Oil Treatment as shown in figure A-10.



RACK CAP TORQUE SEQUENCE

figure A-10

12. Coat the sides of the shallow counter-bore in the spacer plate with STP Oil Treatment as shown in figure A-11. Install the spacer plate over the tubes with the rod seals facing up as shown. Using a rubber mallet, tap the spacer plate over the tubes until it seats making sure the tube seals remain in place and are not damaged.
13. Install the lower bearings (34) into the spacer plate as shown in figure A-11.

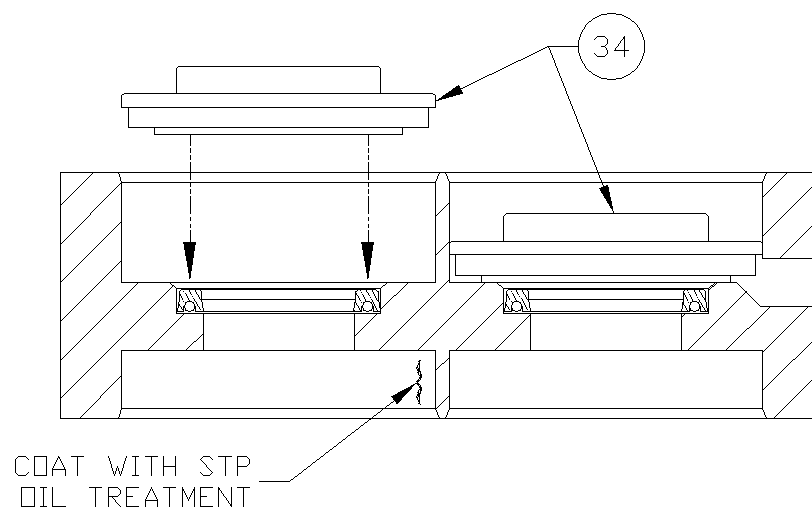
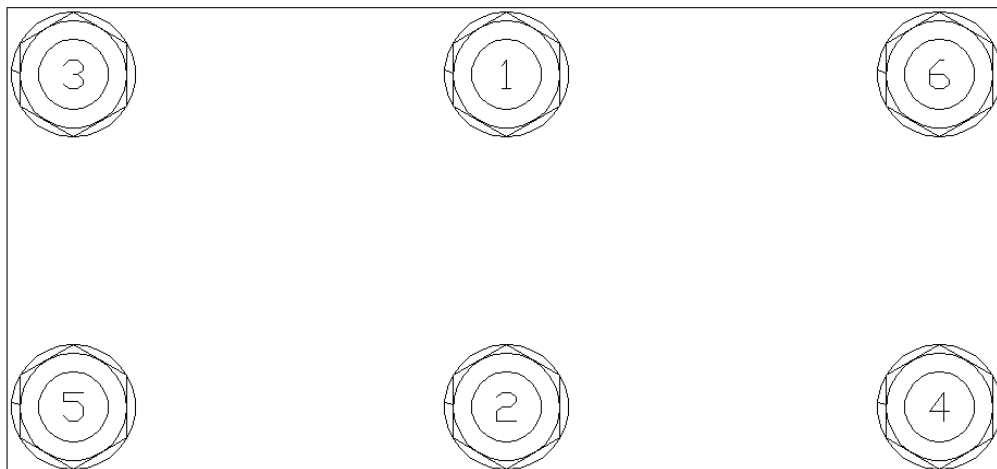


figure A-11

14. Coat one end of the “longer” lower piston tubes (32) (fig. A-17) around the seal area with STP Oil Treatment as shown in figure A-8. Using a rubber mallet, drive the coated end of the tube into the exposed bore of the spacer plate until the tube end seats against the lower bearing, making sure that the seals remain in place as the tube enters the counter-bore. Repeat this procedure for the other side.
15. Coat the head portion of the lower piston with STP Oil Treatment as shown in figure A-6.
16. Install the lower pistons (35) (fig. A-17) head portion up, into the lower bearings and lower piston tubes as shown in figure A-17. Tap the lower pistons using a rubber mallet until they stop against the racks.
17. Install the check valve tee assembly (30) (fig. A-17) into the spacer plate.
18. Install the six tie rod studs (6) (fig. A-17) by screwing the short threaded end through the spacer plate and into the actuator body. Hand tighten only at this time (the torque needed will be applied later in the procedure).
19. Place the tube cap (4) (fig. A-17) on the table. Coat the sides of the two bores in the tube cap with STP Oil Treatment. Install the cap over the lower piston tubes and rod studs with the oil port positioned to the left as shown in figure A-17. Using a rubber mallet, tap the tube cap over the tubes until the tubes seat in the cap, making sure that the seals remain in place.
20. Place the check valve mounting bracket (39) (fig. A-17) over the end of the two middle rod studs with the extension pointing towards the oil port in the tube cap as shown in figure A-17.
21. Install the hex nuts (23) (fig. A-17) and lock washers (24) on the tie rod studs. Torque the nuts to 50 ft-lb. in the sequence shown in figure A-12.



TUBE CAP TORQUE SEQUENCE

figure A-12

22. Place the rack cap (5) (fig. A-17) bore side up on the table and coat the edge of each bore with STP Oil Treatment. Install the rack cap seals (14) (fig. A-13) in the rack cap.

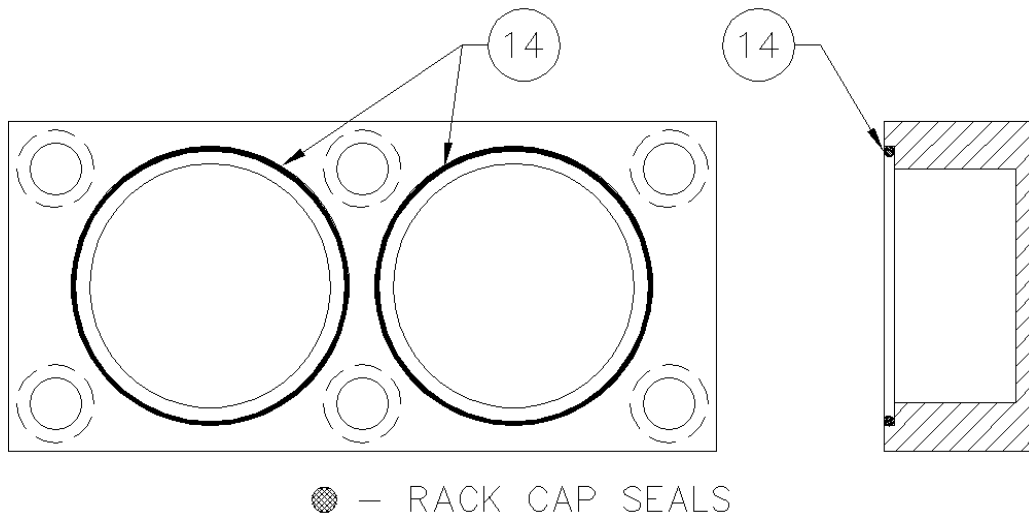
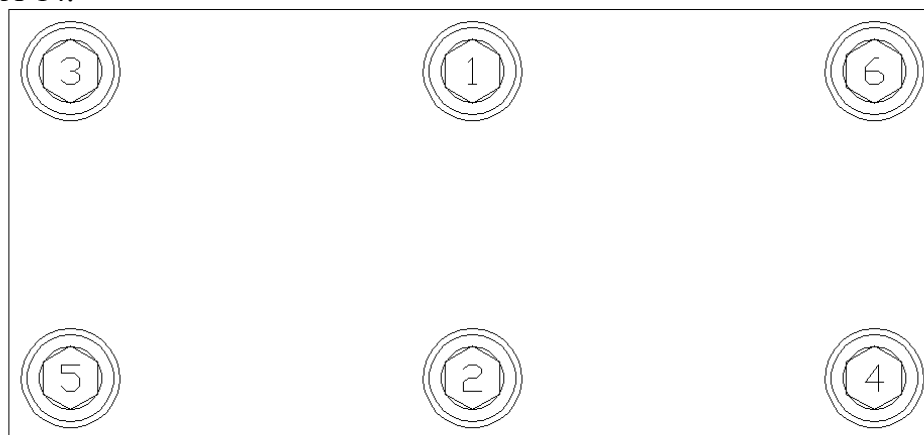


figure A-13

23. Reposition the actuator on the table mounting flanges down, and the lower tubes facing away from the assembler. Rotate the pinion shaft to allow 1" of the rack to protrude from the top of the actuator body. Install the rack cap with the oil port positioned to the left hand side of the actuator opposite the bottom oil port located in the tube cap as shown in figure A-17. Attach the rack cap to the actuator body using the socket head bolts (22) (fig. A-17) and lock washers (26). Torque the bolts to 90 ft-lb. in the sequence shown in figure A-14.



RACK CAP TORQUE SEQUENCE

figure A-14

24. Reposition the actuator so that the pinion shaft can be rotated with no obstacles. Rotate the pinion shaft to ensure that the racks move freely. Also make sure that the key ways point perfectly straight “up” toward the rack cap and “down” toward the tube cap at each end of the 180° stroke. If the assembly does not perform all of these functions correctly, it must be disassembled, cleaned, and reassembled.

25. Re-center the actuator pinion in the actuator body by tapping on one end of the shaft with a rubber mallet. Install the roller bearing (9) (fig. A-17), over the pinion shaft and inner race, and into the actuator body. Repeat this procedure for the other bearing.

26. Thoroughly clean the bearing caps (8) (fig. A-15) with a mild solvent and lubricate all seal grooves with STP oil treatment. Place the bearing cap (8) (fig. A-15) on the table (mounting surface down) and install the wiper ring (19) in the outside groove using a rubber mallet or small press. ***(Avoid using tools which may damage seals or scratch bearing cap or bearing surfaces)***. Turn the bearing cap (8) over. Collapse the pinion seal (20) and carefully work it into the groove. Use fingers to carefully press the seal completely into the groove as shown in figure A-15. ***Be careful not to score or scratch the sealing surface during the installation.*** Install the bearing cap seal (15) by pressing it firmly into the groove on the bearing cap mounting surface.

27. Coat the bearing cap seal area and pinion seal area shown in figure A-15 lightly with STP Oil Treatment.

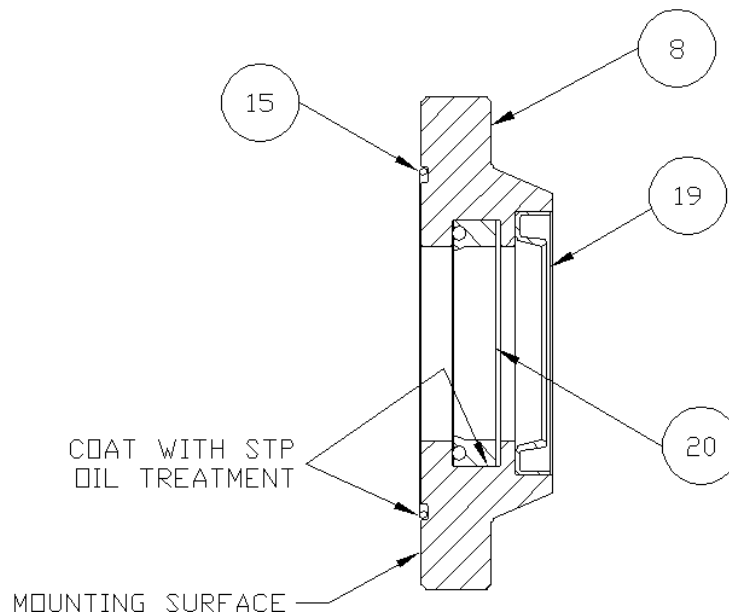


figure A-15

28. Wrap masking tape or electrical tape around the pinion to cover the edges at the keyway. Slide the bearing cap assembly over the pinion shaft with the bearing cap seal facing toward the actuator body and the flat surface of the flange shown in figure A-16 facing toward the actuator mounting flanges. Press against the bearing cap until the shoulder seats against the actuator body, making sure that the seals remain in place. Install the bearing cap bolts (21) (fig. A-17) and lock washers (25). Hand tighten only at this time. Repeat this procedure for other bearing cap.
29. After both bearing caps have been installed, torque all bearing cap bolts to 30 ft-lb. in the sequence shown in figure A-16.

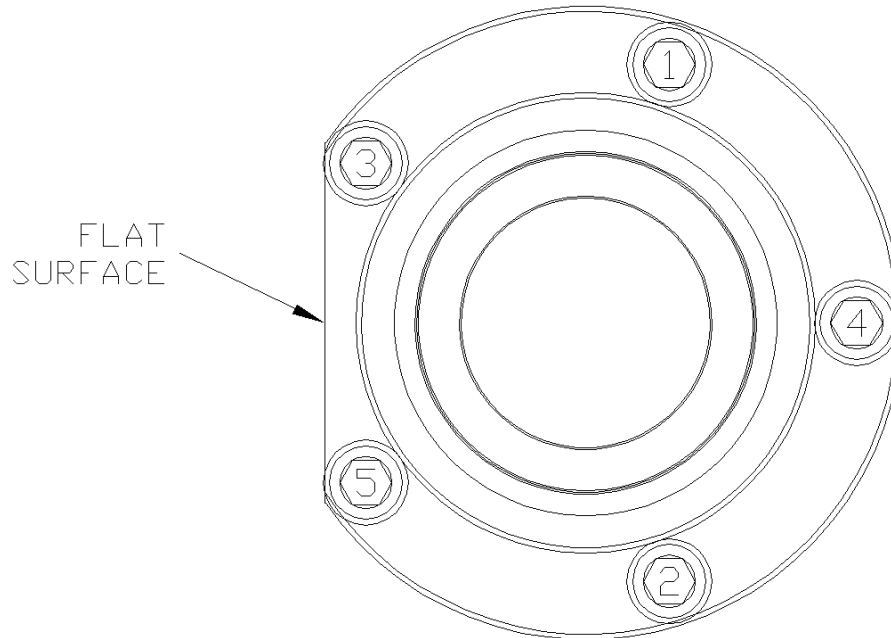


figure A-16

30. Install the long 90° adapter (31) (fig. A-17) into the oil port on the side of the rack cap (5). Hand tighten only at this time.
31. Install the orifice plug (11) (fig. A-17) into the oil port on the side of the tube cap (4), and install the short 90° adapter (27) into the oil port over the orifice plug as shown in figure A-17. Hand tighten only at this time.
32. Install the 90° swivel adapter (42) (fig. A-17) in the “C” port of the check valve (9). Install the tee adapter (41) in the “P” port of the check valve. Install the short 90° adapter (27) in the “V” port of the check valve.
33. Attach the 90° swivel adapter (42) (fig. A-17) in the “C” port of the check valve to the short 90° adapter (27) in the tube cap.

34. Bolt the check valve (38) (fig. A-17) to the check valve mounting bracket (39) with the 5/16" bolt (43), hex nut (44), flat washer (45), and lock washer (46) as shown in figure A-17.
35. Install the tubing assembly (29) (fig. A-17) between the long 90° adapter (31) in the rack cap and the check valve tee assembly (30) in the spacer plate (33).
36. Install the tubing assembly (40) (fig. A-17) between the check valve tee assembly (30) in the spacer plate (33) and the "P" port of the check valve (38).
37. Tighten all connections, and install the cap nuts (28) (fig. A-17) on the open adapters as shown in figure A-17 to prevent contamination of the unit until the hoses are connected.

ACTUATOR ASSEMBLY

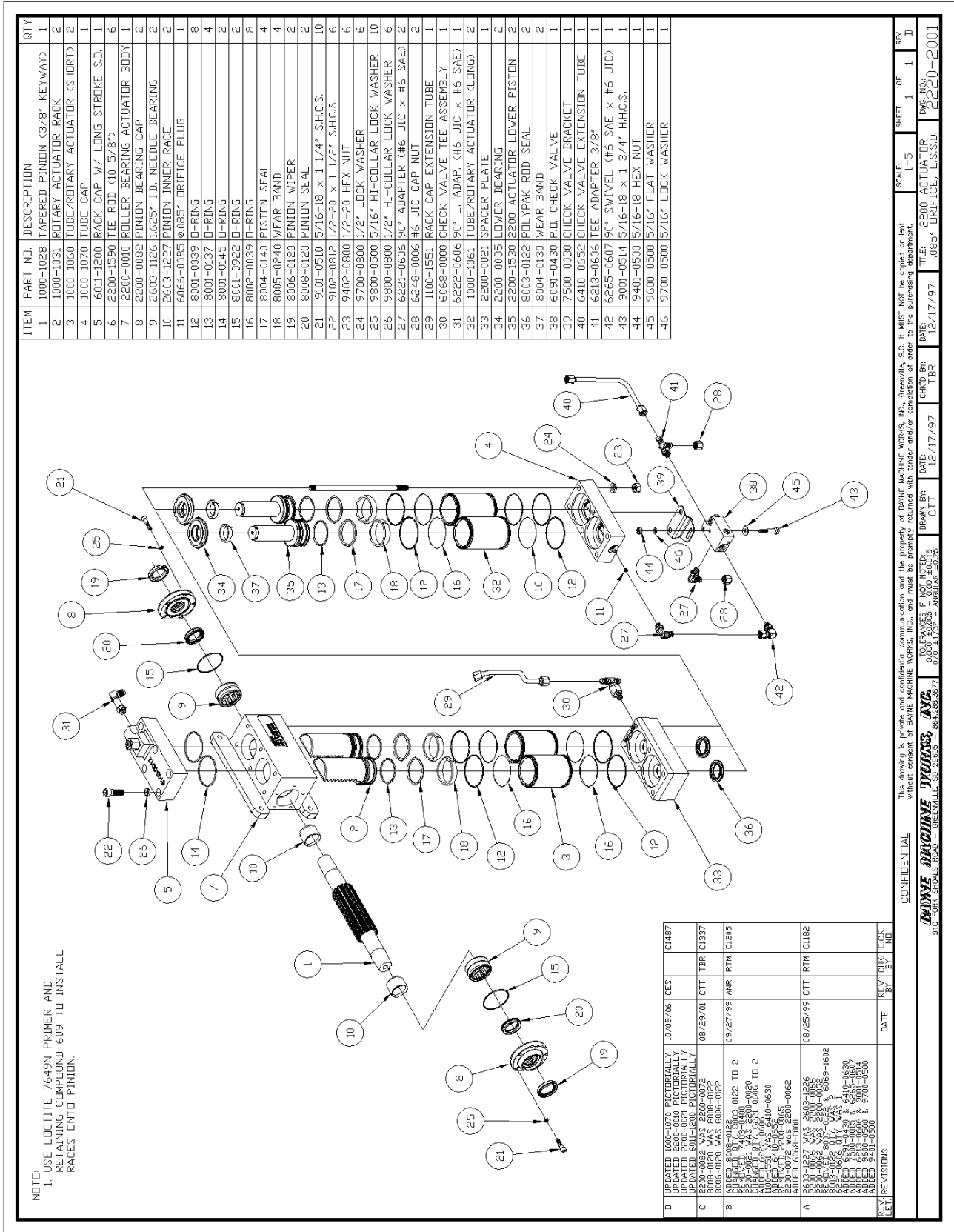


figure A-17

BAYNE
PREMIUM LIFT SYSTEMS

ASSEMBLY INSTRUCTIONS
LONG STROKE SLOWDOWN

PART NUMBER 6011-1200 (WI-2301-A)

LICENSED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS:

4,773,812 1,327,765 5,308,211 5,333,984

READ INSTRUCTIONS COMPLETELY BEFORE STARTING ASSEMBLY.

The Slowdown is a patented device used to cushion the unit as it completes its rotation into the dump position. This cushioning prevents the tearing of carts and helps protect the dumper from abuse. The Slowdown is part of the Actuator assembly and is assembled into the rack cap.

Before starting the assembly of the Slowdown, refer to the exploded parts drawing (figure S-4) and parts list to familiarize yourself with the individual components. Prepare a clean surface in an area free from blowing dust and contaminants in which to assemble the Slowdown. Be sure that all parts are clean and dry before starting assembly. NOTE: All torque values given apply to clean dry threads only. Follow these directions when assembling the Slowdown:

1. Install the housing seal (5) (figure S-1) in the groove next to the hexagon head of the plunger housing (1). Place the square backup ring (7) in the groove at the end of the plunger housing (1). Place the o-ring (6) in the same groove as the square backup ring (7) closest to the hexagon head of the plunger housing (1).

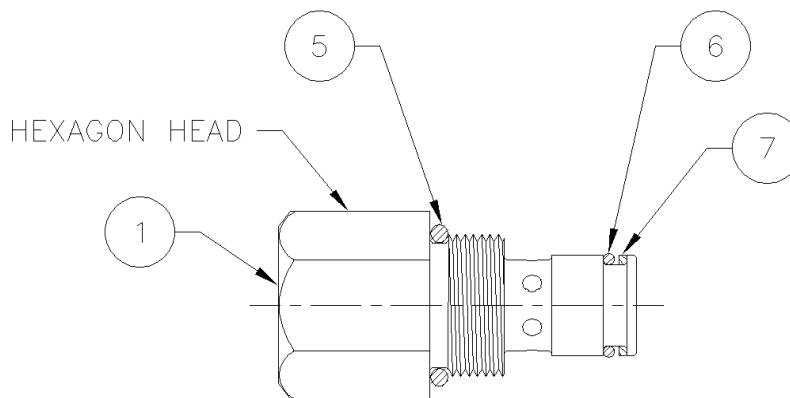


figure S-1

2. Place the plunger (2) (figure S-2) into the plunger housing (1). Place the spring (4) on top of the plunger (2). Coat the o-ring on the o-ring plug (9) with STP Oil Treatment. Screw the o-ring plug (9) into the plunger housing (1) on top of the spring (4) and tighten to 30 in-lb. torque.

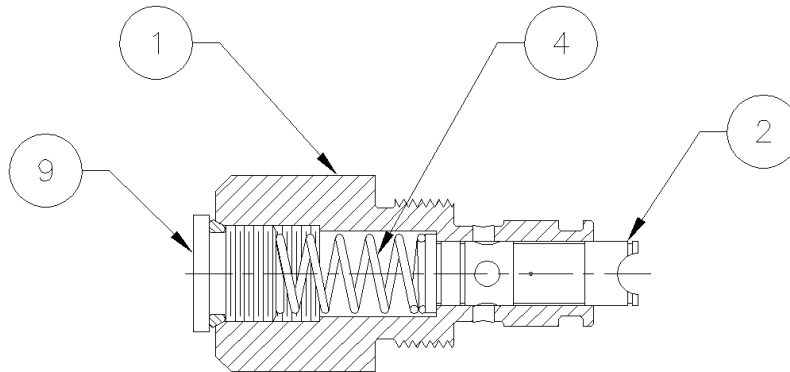


figure S-2

3. Coat the o-rings on the plunger housing (1) (figure S-3) and the o-ring on the o-ring plug (8) with STP Oil Treatment. Screw the plunger housing (1) into the top of the rack cap (3) (figure S-4) and tighten. Screw the o-ring plug (8) into the side of the rack cap (3) in the bottom port and tighten.

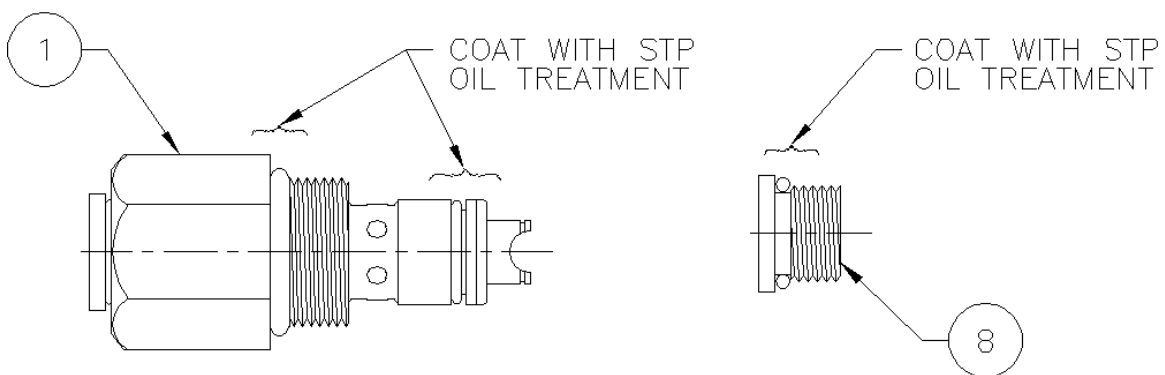


figure S-3

SLOWDOWN ASSEMBLY LONG STROKE PART NO. 6011-1200

ITEM NO	PART NO.	DESCRIPTION	QTY
1	6100-0011	PLUNGER HOUSING	1
2	6100-0006	VALVE-PLUNGER-LONG STROKE	1
3	6100-0012	RACK CAP- SOFT START/SLOW DOWN	1
4	3400-0020	SPRING-SLOWDOWN/SOFT START VALVE	1
5	8001-0910	O-RING	1
6	8001-0014	O-RING	1
7	8002-4014	BACK-UP WASHER	1
8	6246-0004	PLUG <ST. THREAD HOLLOW HEX>	1
9	6246-0006	PLUG <ST. THREAD HOLLOW HEX>	1
10	6011-1214	LONG STROKE SLOW DOWN ASSEMBLY	1

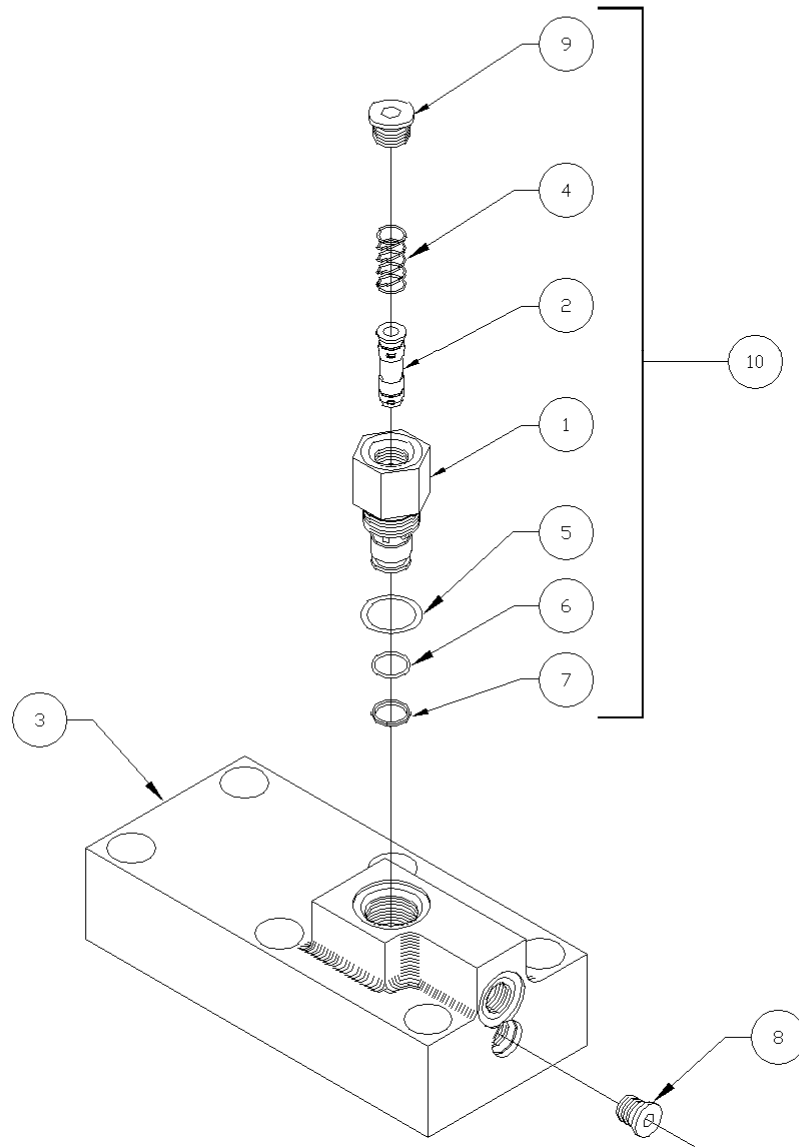


figure S-4

TROUBLE-SHOOTING CHART (WI-0056)

<i>SYMPTOM</i>	<i>POSSIBLE CAUSES</i>	<i>CORRECTIVE ACTION</i>
Lifter operation very erratic.	<ol style="list-style-type: none"> 1. Air trapped in system. 2. Low oil level. 	<ol style="list-style-type: none"> 1. Bleed all air from lifter hydraulic system. 2. Add oil to system.
Cart lifter will not pick up carts.	<ol style="list-style-type: none"> 1. Cart overweight. 2. Lifter system hydraulic pressure too low. 3. Truck system hydraulic pressure too low. 4. Faulty hand valve. 	<ol style="list-style-type: none"> 1. Reduce loaded weight of cart. 2. Check and adjust pressure relief on hand valve and lifter circuit relief in diverter valve. 3. Check and adjust pressure on truck system relief. 4. Replace hand valve.
Lifter operates extremely slow.	<ol style="list-style-type: none"> 1. Engine idle too low. 2. Faulty hand valve. 3. Faulty truck hydraulic pump. 4. Trash in diverter valve. 5. Orifice in diverter valve is too small. 	<ol style="list-style-type: none"> 1. Adjust engine idle. 2. Replace hand valve. 3. Consult truck maintenance manual. 4. Remove orifice from diverter valve body and clean thoroughly. 5. Remove orifice from diverter valve body and increase diameter.
Lifter operates under recommended cycle time.	<ol style="list-style-type: none"> 1. Engine idle too high. 2. Orifice in diverter valve is too large. 	<ol style="list-style-type: none"> 1. Adjust engine idle. 2. Remove orifice from diverter valve body and replace with a smaller diameter.

TROUBLE-SHOOTING CHART (WI-0056)

<i>SYMPTOM</i>	<i>POSSIBLE CAUSES</i>	<i>CORRECTIVE ACTION</i>
Hydraulic components downstream of diverter valve not operating or operating extremely slow.	<ol style="list-style-type: none"> 1. Truck system hydraulic pressure too low. 2. Faulty lifter circuit relief valve cartridge in diverter valve. 3. Faulty truck system relief valve. 4. System flow is being restricted. 5. Trash in flow regulator cartridge. 	<ol style="list-style-type: none"> 1. Check and adjust pressure on truck system relief and full system relief in diverter valve. 2. Replace lifter circuit relief valve cartridge in diverter valve. 3. Consult truck maintenance manual. 4. Ensure there is proper flow throughout the hydraulic system. Remove any restrictions. 5. Remove flow regulator cartridge from diverter valve body and clean thoroughly.
Diverter valve leaking oil around cartridges.	<ol style="list-style-type: none"> 1. Worn or damaged seals on cartridge valves. 	<ol style="list-style-type: none"> 1. Install diverter valve seal kit.
Actuator leaking oil around pinion shaft.	<ol style="list-style-type: none"> 1. Worn pinion shaft seals. 	<ol style="list-style-type: none"> 1. Install pinion seal kit.
Actuator leaking oil around piston tubes or rack cap.	<ol style="list-style-type: none"> 1. Worn seals in actuator. 	<ol style="list-style-type: none"> 1. Install actuator seal kit.
Cylinder leaking around rod.	<ol style="list-style-type: none"> 1. Worn cylinder rod seal. 	<ol style="list-style-type: none"> 1. Install cylinder seal kit.
Hand valve leaking oil around shift spool.	<ol style="list-style-type: none"> 1. Worn or damaged seals. 2. Worn spool. 	<ol style="list-style-type: none"> 1. Install hand valve seal kit. 2. Replace hand valve.

TROUBLE-SHOOTING CHART (WI-0056)

<i>SYMPTOM</i>	<i>POSSIBLE CAUSES</i>	<i>CORRECTIVE ACTION</i>
Hand valve lever sticks in up or down position.	<ol style="list-style-type: none"> 1. Worn or broken spring center device. 2. Trash in or around hand valve shift spool. 3. Pressure (IN) and tank (OUT) ports are hooked up backwards. 	<ol style="list-style-type: none"> 1. Install spring center kit. 2. Disassemble and clean spool and housing. 3. Make sure all hoses are plumbed according to the hydraulic schematic.
Lifter looses European style carts when dumping.	<ol style="list-style-type: none"> 1. Clamp bar to finger dimension out of adjustment. 2. Loose saddle box assembly on faceplate. 	<ol style="list-style-type: none"> 1. Adjust clamp bar to finger dimension as described in the Operation Instructions. 2. Tighten all bolts on saddle box.
Clamp bar connecting rods frequently breaking or bending.	<ol style="list-style-type: none"> 1. Clamp bar to finger dimension out of adjustment. 	<ol style="list-style-type: none"> 1. Adjust clamp bar to finger dimension as described in the Operation Instructions.

APPENDIX A
Assembly drawings and part numbers

ITEM NO	PART NO.	DESCRIPTION	QTY	ITEM NO	PART NO.	DESCRIPTION	QTY
46	9002-0816	1/2-20 x 2" H.H.C.S.	2	1	2220-2001	ACTUATOR ASSY. W/SLOW DOWN & P.O. CHK	1
47	9201-0808	1/2-13 x 1" H.H.C.S.	4	2	8150-0003	VERTICAL ASSEMBLY 15" DW	1
48	9402-0800	1/2-20 HEX NUT	12	3	8150-0198	2" VERTICAL FRAME MOUNTING PLATE	2
49	9502-0800	1/2-20 HALF NUT	10	4	1112-1200	12" TORQUE ARM-ENGLAND	2
50	9600-0800	1/2" FLAT WASHER	8	5	2000-1230	TORQUE BEARING	2
51	9700-0800	1/2" LOCK WASHER	24	6	9600-0500	5/16" FLAT WASHER	24
52	9902-0816	1/2-20 x 2" THREADED STUD	4	7	9001-0612	3/8-16 x 1 1/2" H.H.C.S.	8
53	9902-0830	1/2-20 x 3 3/4" THREADED STUD	8	8	7500-0117	TORQUE ARM WASHER	2
54	9002-1012	5/8-18 x 1 1/2" LG. H.H.C.S.	4	9	7300-0612	KEY (3/8" x 1 3/16")	2
55	9201-1010	5/8-11 x 1 1/4" H.H.C.S.	4	10	1112-1361	ETLE IDLER ARM 12" (RIGHT)	2
56	9600-1000	5/8" FLAT WASHER	2	11	1112-1365	ETLE IDLER ARM 12" (LEFT)	2
57	M91010615	M6-1 X 15mm LONG S.H.C.S.	2	12	2000-1335	UPPER IDLER BEARING ASSEMBLY	4
58	6530-0010	TWIN COVER PLATE	3	13	2000-1338	LOWER IDLER BEARING	4
59	6530-0012	TWIN HEX BOLT	3	14	M97000600	M6 LOCK WASHER	2
60	6530-0015	PLASTIC CLAMP 5/8"	6	15	7500-0171	ARM WASHER	8
61	6220-1006	ADAPTER (M SAE x M JIC)	1	16	2575-1507	FACE PLATE-ETL DW.T, 48"	1
62	6084-1020	DUAL HAND VALVE ASSEMBLY	1	17	4500-1331	FINGER BAR-LEFT DW	1
63	6530-0004	HOSE CLAMP - DUAL	6	18	4500-1330	FINGER BAR-RIGHT DW	1
64	6220-0606	ADAPTER - STRAIGHT	2	19	7500-0030	RUBBER BUMPER	4
65	6222-0606	ADAPTER - 90° LONG	2	20	2575-1525	BUMPER SPACER	2
66	6221-0606	ADAPTER - 90° SHORT	4	21	5000-0010	CAUTION LABEL	1
67	6420-6122	HOSE ASSY 3/8" x 122" (ST. TO ST.)	1	22	5000-0021	NOTICE LABEL (10 TO 12 SECONDS)	1
68	6420-6198	HOSE ASSY 3/8" x 198" (ST. TO ST.)	2	23	7500-0070	MODEL/SERIAL NAME PLATE	1
69	6421-6113	HOSE ASSY 3/8" x 113" (ST. TO 90°)	2	24	7500-0071	DRIVE SCREW	4
70	6421-6122	HOSE ASSY 3/8" x 122" (ST. TO 90°)	2	25	2100-0003	LH FOLDING ARM WELDMENT	1
71	6220-1612	STRAIGHT ADAPTER (M SAE x M JIC)	1	26	2100-0004	RH FOLDING ARM WELDMENT	1
72	6093-0700	SINGLE DIVERTER VALVE	1	27	7500-0164	CYL VIBRATION ISOLATORS	2
				28		**REMOVED**	
				29	3400-0030	SPRING ϕ.177 WIRE X 1 1/2" O.D. x 8" LG.	2
				30	2100-0031	HINGE PIN WELDMENT	2
				31	7900-3208	LATCH EAR	2
				32	4450-1602	ETL DW-48" CLAMP BAR	1
				33	2500-1938	CONNECTING ROD-8"	4
				34	7202-0800	SPHERICAL ROD END	8
				35	7500-0305	LOCITE #271 (RED) CAPSULE	2
				36	8901-0600	3/8-16 SELF LOCKING NUT	2
				37	9001-0608	3/8-16 x 1" H.H.C.S.	30
				38	9001-0630	3/8-16 x 3 3/4" H.H.C.S.	8
				39	9401-0600	3/8-16 HEX NUT	8
				40	9600-0600	3/8" FLAT WASHER	10
				41	9700-0600	3/8" LOCK WASHER	44
				42	8505-0808	1/2" x 1" SHOULDER BOLT	2
				43	8901-0800	1/2-13 SELF LOCKING NUT	8
				44	9001-0808	1/2-13 x 1" H.H.C.S.	4
				45	9001-0812	1/2-13 x 1 1/2" H.H.C.S.	16

B	6084-1020	WAS	6084-1000	06/20/07	CIT	C1515
A	REMOVED	2600-0007		02/01/07	CIT	WTS C1507
REV. LET.	REVISIONS			DATE	REV. BY	CHK. BY

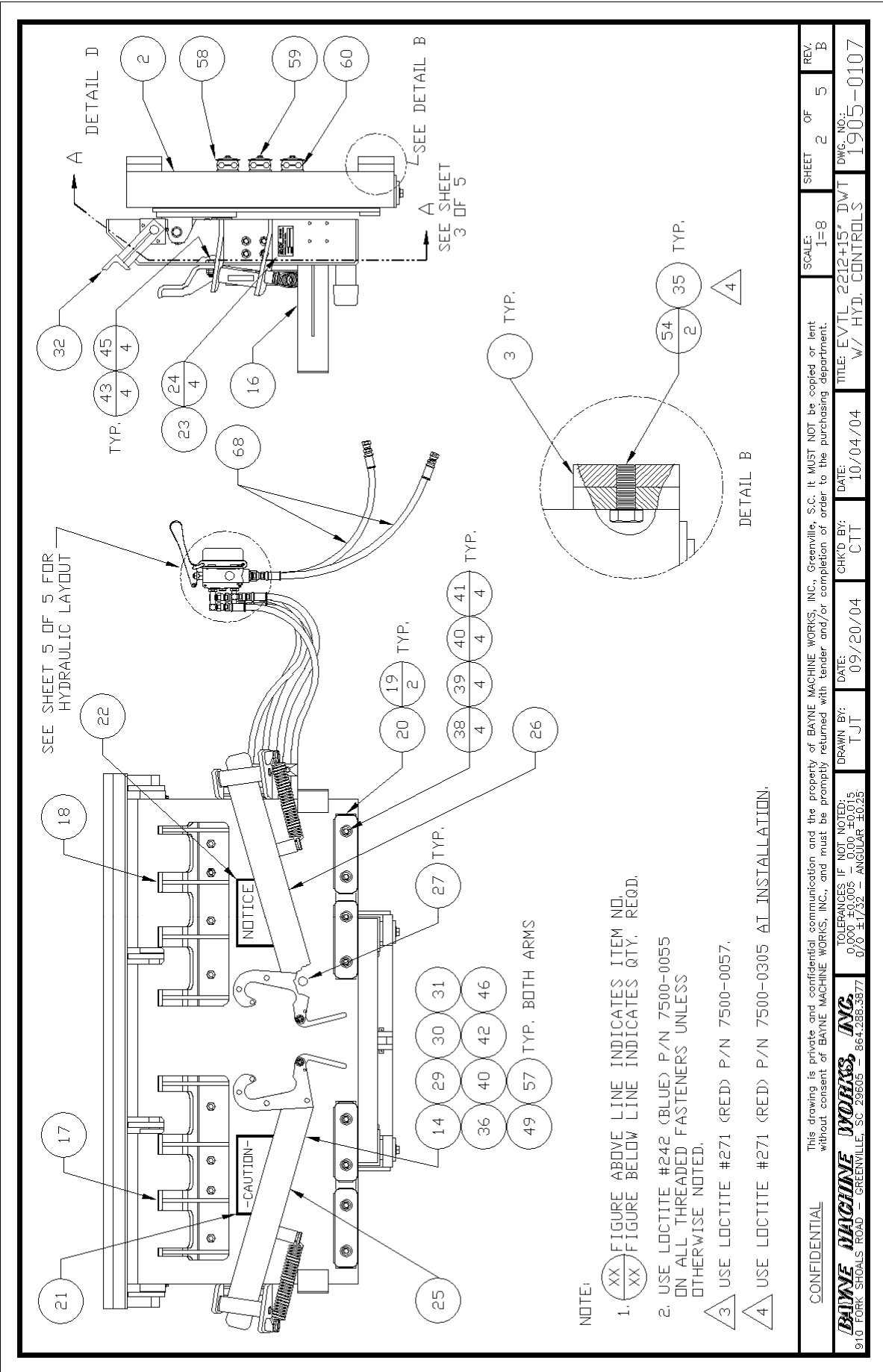
CONFIDENTIAL This drawing is private and confidential communication and the property of BAYNE MACHINE WORKS, INC., Greenville, S.C. It MUST NOT be copied or lent without consent of BAYNE MACHINE WORKS, INC., and must be promptly returned with tender and/or completion of order to the purchasing department.

SCALE:	1=2	SHEET	1	OF	5	REV.	B
TITLE:	EVTL 2212-15" DW		DWT			DWG. NO.:	1905-0107
CHKD BY:	CIT	DATE:	10/04/04	W/	HYD. CONTROLS		

DATE:	09/20/04	DATE:	10/04/04
DRAWN BY:	TJT	CHKD BY:	CIT

TOLERANCES IF NOT NOTED:
 0.000 ±0.005 - 0.00 ±0.015
 0/0 ±1/32 - ANGULAR ±0.25

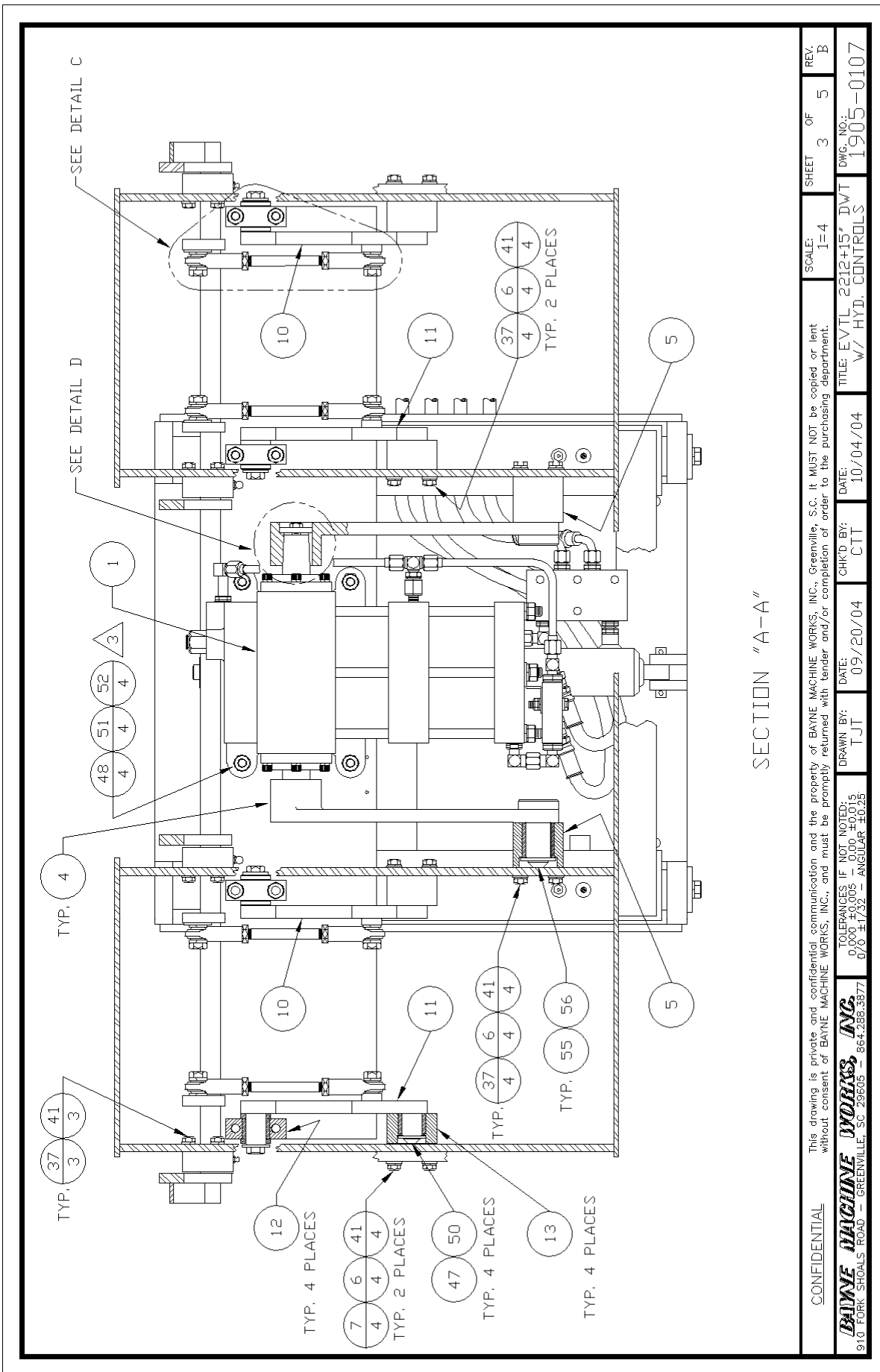
BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877



NOTE:

- 1. XX FIGURE ABOVE LINE INDICATES ITEM NO.
XX FIGURE BELOW LINE INDICATES QTY. REQD.
- 2. USE LOCTITE #242 (BLUE) P/N 7500-0055 ON ALL THREADED FASTENERS UNLESS OTHERWISE NOTED.
- 3. USE LOCTITE #271 (RED) P/N 7500-0057.
- 4. USE LOCTITE #271 (RED) P/N 7500-0305 AT INSTALLATION.

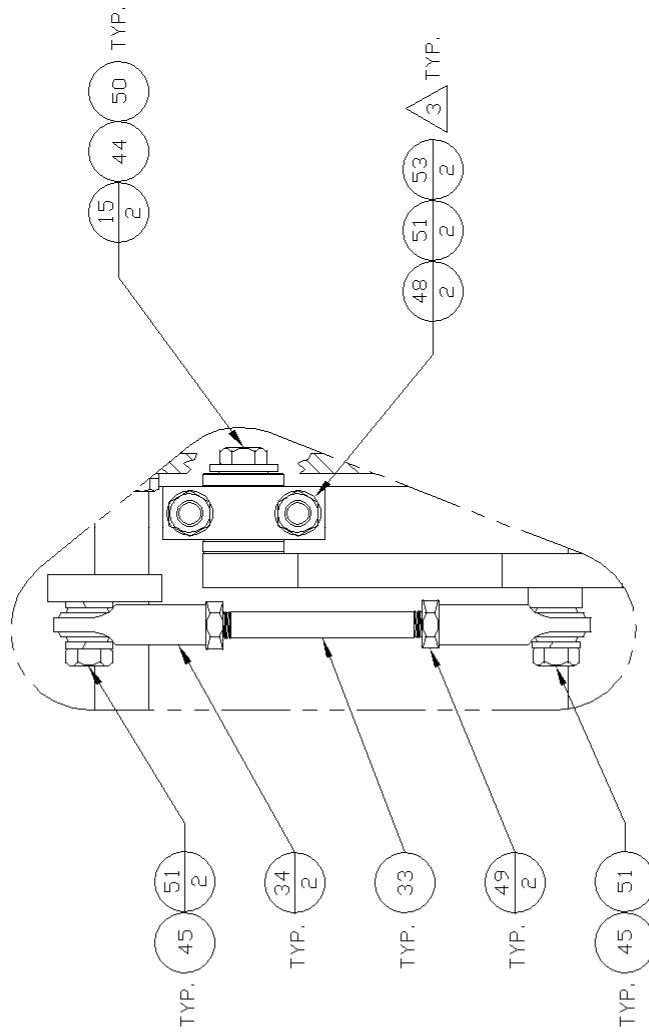
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BAYNE MACHINE WORKS, INC.		TITLE: EVTL-2212+15' DWT		
910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877		DWG. NO.: 1905-0107		
DRAWN BY: TJT	DATE: 09/20/04	CHKD BY: CTT	DATE: 10/04/04	TITLE: EVTL-2212+15' DWT W/ HYD. CONTROLS



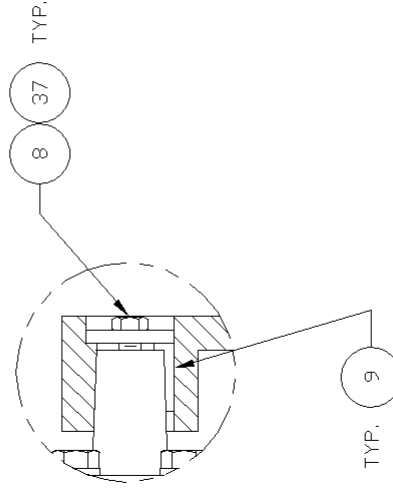
SECTION "A-A"

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BAYNE MACHINE WORKS, INC. 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877	TOLERANCES IF NOT NOTED: 0.000 ±0.005 - 0.00, ±0.015 0.0 ±1/32 - ANGULAR ±0.25	TITLE: EVTL 2212+15' DW/T W/ HYD. CONTROLS	DWG. NO.: 1905-0107	
	DATE: 09/20/04	CHK'D BY: CTT	DATE: 10/04/04	
	DRAWN BY: TJT			

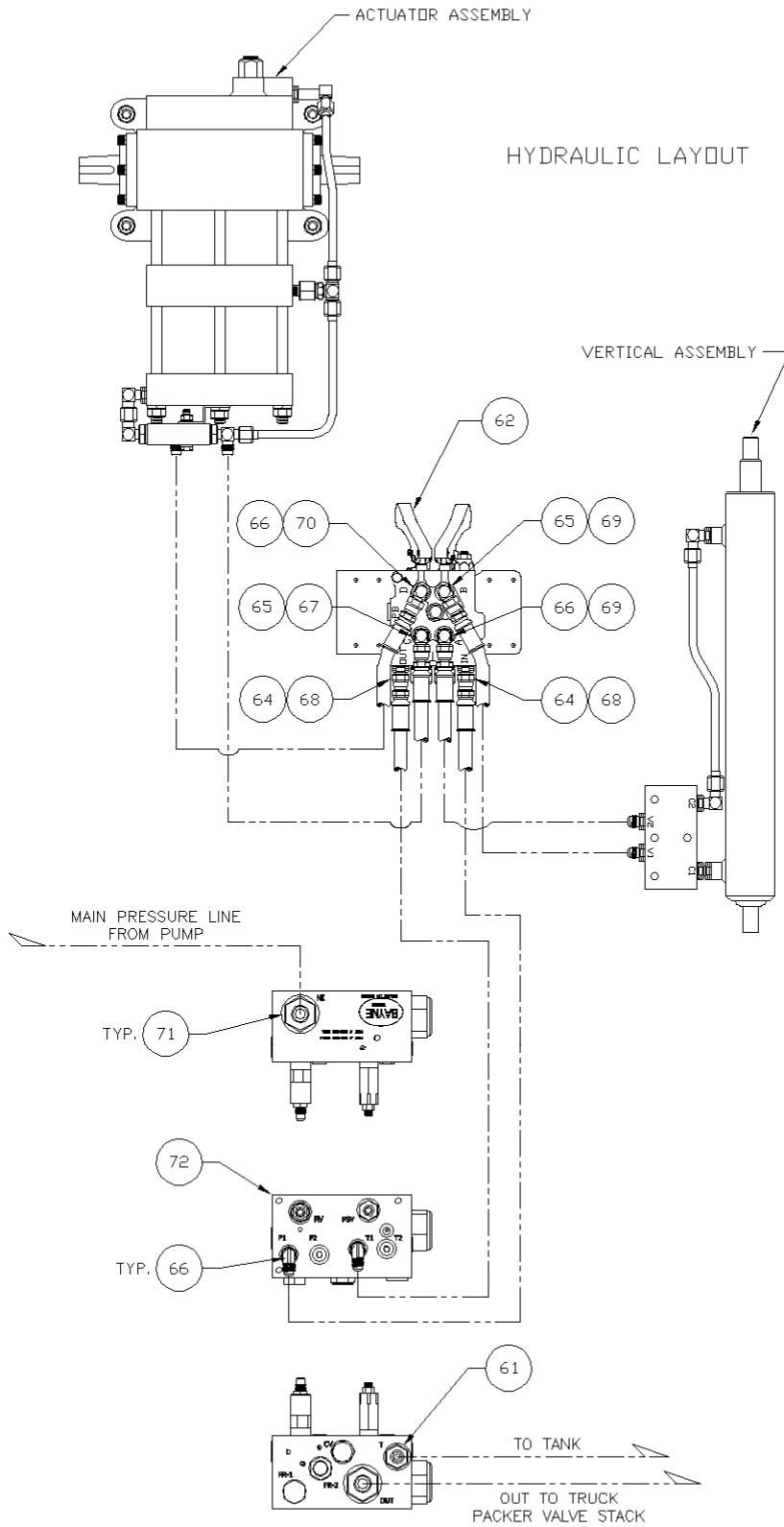
DETAIL C



DETAIL D

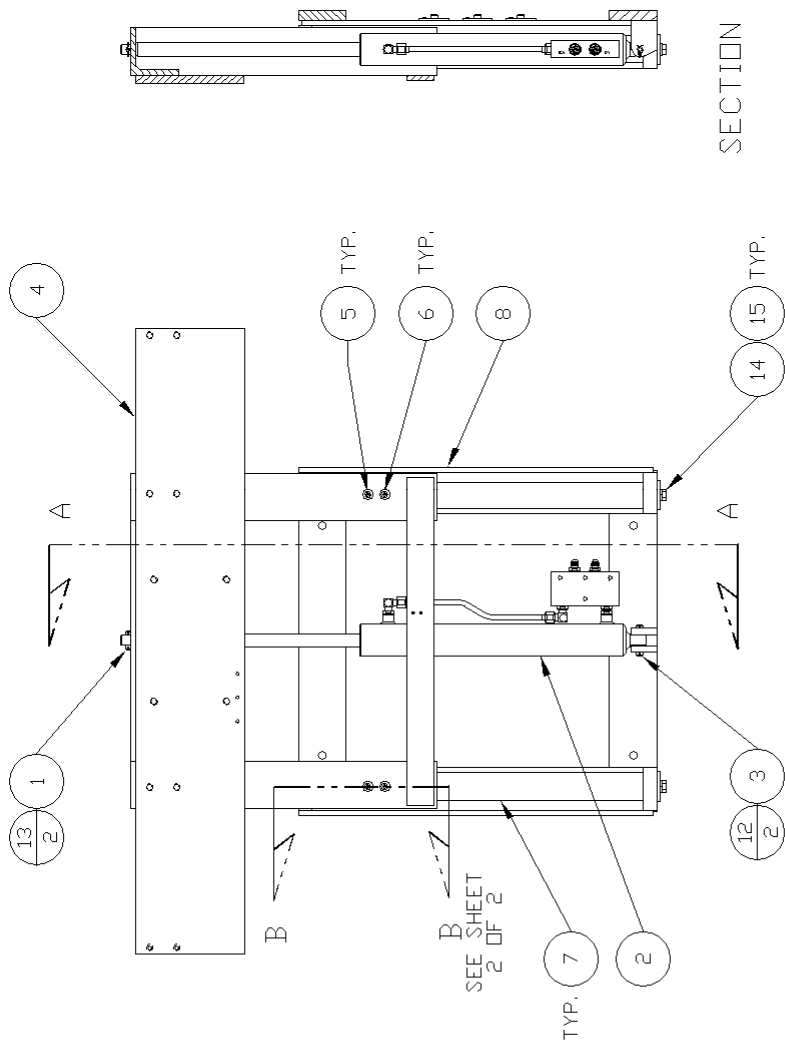


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				1=2	4	5	B
BAYNE MACHINE WORKS, INC.		DRAWN BY:		TITLE: EVTL - 2212+15' DWT	DWG. NO.:		
910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3377		TJT		DATE: 10/04/04	1905-0107		
		DATE: 09/20/04		CHK'D BY: CTT		W/ HYD. CONTROLS	
		TOLERANCES IF NOT NOTED:					
		0.000 ±0.0005 - 0.00, ±0.015					
		0/0 ±1/32 - ANGULAR ±0.25					



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	TITLE: EVTL-2212+15" DWT W/ HYD. CONTROLS	DATE: 10/04/04	DWG. NO.: 1905-0107
	DATE: 09/20/04	CHKD BY: CTT	
	DATE: 10/04/04	DRAWN BY: TJT	
	TOLERANCES IF NOT NOTED: 0.000 \pm 0.005 - 0.00 \pm 0.015 0/0 \pm 1/32 - ANGULAR \pm 0.25		

ITEM NO	PART NO.	DESCRIPTION	QTY
1	8110-0031	ROD RETAINER PIN	1
2	3116-1120	15" CYLINDER W/DUAL CHECK VALVE	1
3	8110-0032	CLEVIS PIN	1
4	8150-0185	CARRIAGE ASSEMBLY	1
5	7012-0001	VENT PLUG	2
6	7004-0300	GREASE FITTING	2
7	8150-1089	SHAFT	2
8	8150-0183	FRAME	1
9	7500-0160	INTERNAL RETAINING RING	4
10	8003-0124	SEAL	4
11	8006-0124	ROD WIPER	4
12	8810-0307	3/32" X 3/4" COTTER PIN	2
13	8801-0208	1/8" X 1" SPLIT PIN	2
14	9001-0808	1/2-13 X 1" HEX HEAD CAP SCREW	2
15	9700-0800	1/2" LOCK WASHER	2



SECTION A-A

REV.	REVISIONS	DATE	REV. BY	CHK. BY	E.C.R. BY	IND.
D	UPDATED 8150-0183 PICTORIALY	05/25/04	TJT	TJT		C1389
C	UPDATED 8150-0185 PICTORIALY	07/10/03	CTT	TJT		C1317
B	3116-1120 WAS 3016-1120		CTT	RTM		C0967
A	UPDATED TITLE BLOCK	11/03/97	CTT	RTM		
	ADDED ITEM #12, 13, 14, & 15	06/11/97	CTT	RTM		
	SEE EDR 0314					

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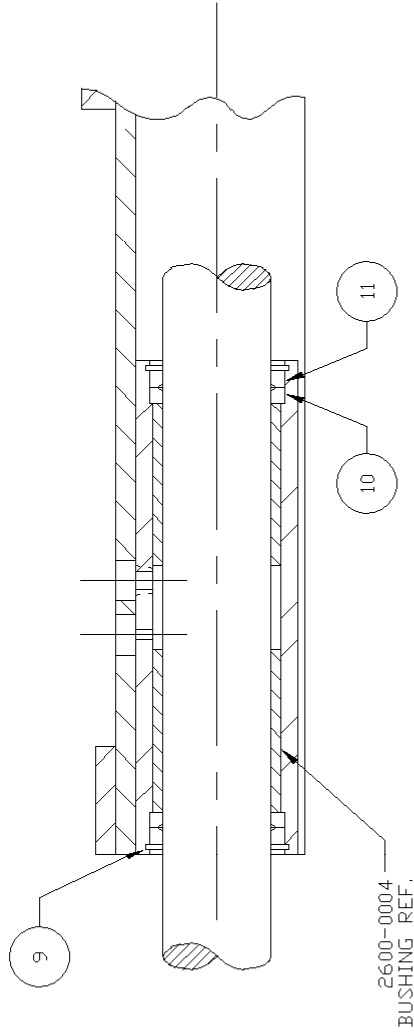
BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877

TOLERANCES IF NOT NOTED:
 0.000 ±0.005 - 0.00 ±0.015
 0/0 ±1/32 - ANGULAR ±0.25

DRAWN BY: JAH
 DATE: 08/24/95
 CHK'D BY: RLH
 DATE: 09/20/95

SCALE: 1=8
 TITLE: 15" DIA VERTICAL ASS'Y W/Ø2" ROD (2200)

SHEET 1 OF 2
 DWG. NO.: 8150-0003



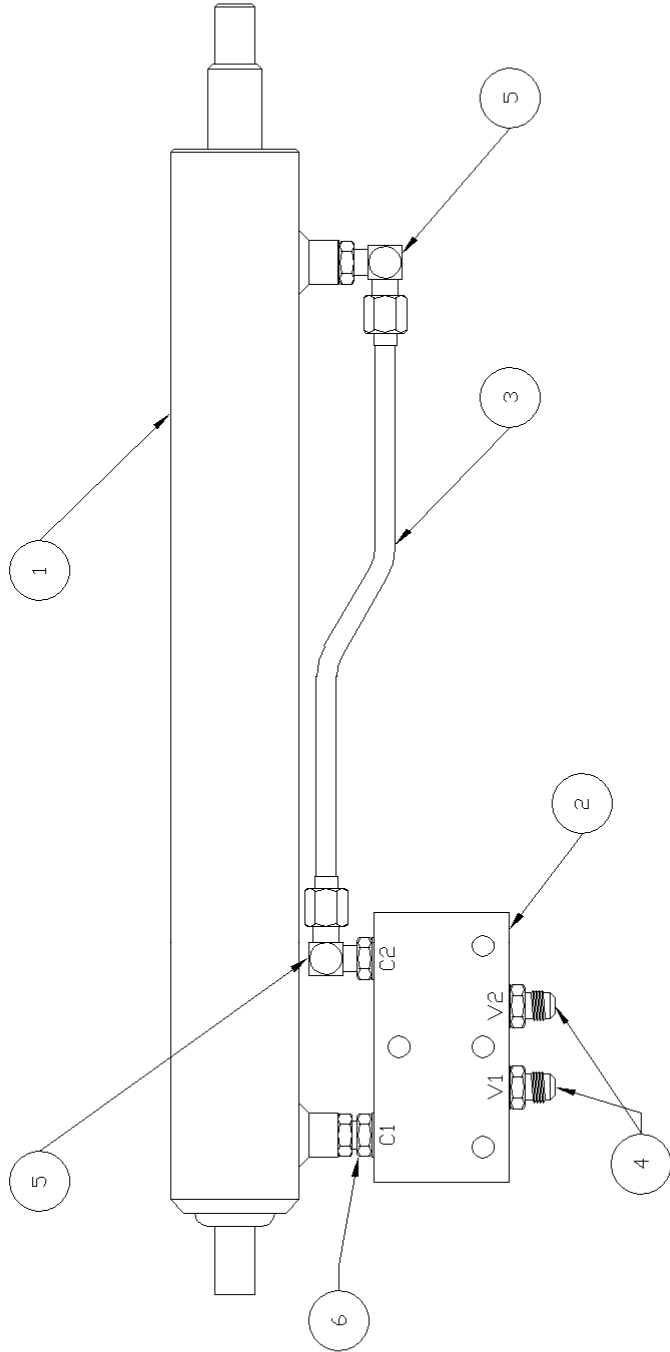
SECTION B-B

TYP. (2) PLACES
FROM SHEET 1

INSTALLATION OF ITEMS -9 THRU -11
TYP. AT EACH END OF TUBULAR HOUSING

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BAYNE MACHINE WORKS, INC. 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877		TOLERANCES IF NOT NOTED: 0.000 ±0.005 - 0.00 ±0.015 Ø/Ø ±1/32 - ANGULAR ±0.25	DATE: 08/24/95	CHKD BY: RLH	TITLE: 15" ID VERTICAL ASS'Y W/Ø2" ROD (2200)	DWG. NO.: 8150-0003
DRAWN BY: JAH		DATE: 09/20/95	DATE: 09/20/95	DATE: 09/20/95	DATE: 09/20/95	DATE: 09/20/95

ITEM NO	PART NO.	DESCRIPTION	QTY
1	3016-1120	15" CYLINDER - 2" BORE	1
2	6069-0425	DUAL P.D. CHECK VALVE	1
3	6410-0645	TUBING ASSY (15" CYLINDER)	1
4	6220-0606	3/8" STRAIGHT SAE ADAPTER	2
5	6221-0606	3/8" 90° SAE ADAPTER	2
6	6262-0606	3/8" STRAIGHT DUAL SAE ADAPTER	1



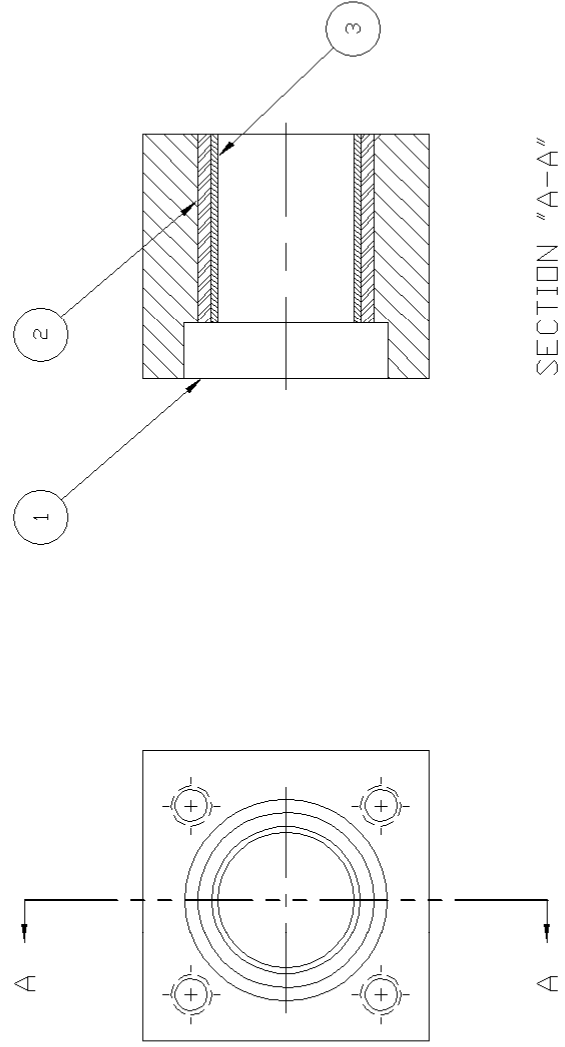
NOTE:
1. PAINT YELLOW

REV.	REVISIONS	DATE	REV. BY	CHK. BY	E.C.R. BY
A	REMOVED 6069-1503 ADDED 6069-0425 & 6410-0645 ADDED 6220-0606 & 6221-0606 ADDED 6262-0606	11/25/98	CTT	C1132	

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BAYNE MACHINE WORKS, INC.		910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877		TITLE:	15" CYLINDER W/ DUAL P.D. CHECK VALVE	DWG. NO.:	3116-1120				
TOLERANCES IF NOT NOTED: 0.000 ±0.005 - 0.00 ±0.015 Ø/Ø ±1/32 - ANGULAR ±0.25		DATE:	10/31/97	CHK'D BY:	RTM	DATE:	12/12/97				

NOTE:
 1. MACHINE CASTING PER SHEET 2 AND PAINT BEFORE ASSEMBLY.
 2. LAY BEARING MOUNT ON FLAT SURFACE AND PRESS BEARING IN.
 PRESS SHOULD STOP ON FLAT SURFACE OF BEARING MOUNT
 TO PREVENT DAMAGING THE BEARING.

ITEM	PART NO.	DESCRIPTION	QTY
1	C20001220	TORQUE BEARING MOUNT CASTING	1
2	2603-1207	TORQUE ARM BUSHING	1
3	2603-1208	TORQUE ARM SLEEVE	1



SECTION "A-A"

REV.	REVISIONS	DATE	CHKD BY	DATE	CHKD BY	SCALE	SHEET	OF	REV.
D	2603-1207 & 2603-1208 WERE 2603-1205	05/24/05	CTT		CI439				
C	UPDATED PICTORIALY	01/27/05	TJT	CTT	CI415				
B	C20001220 WAS 2000-1210 ADDED MACHINING PRINT	04/16/04	CTT	TJT	CI393				
A	UPDATED 2000-1210 PICTORIALY	10/16/02	CTT	WTS	CI357				
LET.			REV. BY	CHK. BY	E.C.R.				

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BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877

TOLERANCES IF NOT NOTED:
 0.000 ±0.005 - 0.00 ±0.015
 0/0 ±1/32 - ANGULAR ±0.25

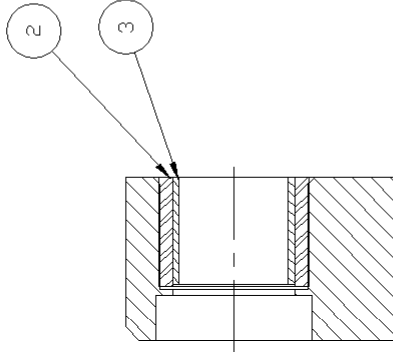
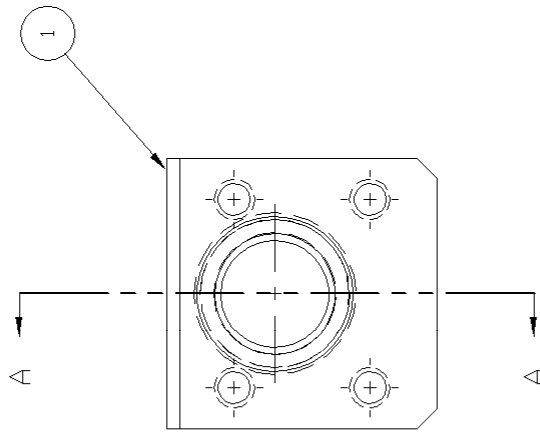
DRAWN BY: ANR DATE: 03/22/00
 CHKD BY: RTM DATE: 06/13/00

TITLE: TORQUE BEARING ASSEMBLY
 DWG. NO.: 2000-1230

SCALE: 1=1 SHEET 1 OF 2 REV. D

ITEM	PART NO.	DESCRIPTION	QTY
1	C20001330	LOWER IDLER BEARING CASTING	1
2	2603-1307	IDLER BEARING BUSHING	1
3	2603-1308	IDLER BEARING SLEEVE	1

NOTE:
 1. MACHINE CASTING PER SHEET 2 AND PAINT BEFORE ASSEMBLY.
 2. LAY BEARING MOUNT ON FLAT SURFACE AND PRESS BEARING IN. PRESS SHOULD STOP ON FLAT SURFACE OF BEARING MOUNT TO PREVENT DAMAGING THE BEARING.



SECTION "A-A"

REV.	REVISIONS	DATE	REV. BY	CHK. BY	LET.
C	1.030" WAS 1.010"	08/30/05	CTT		CI448
B	REMOVED 2603-1306	12/08/04	TJT	CTT	CI410
A	ADDED 2603-1307 & 2603-1308	04/19/04	CTT	TJT	CI393

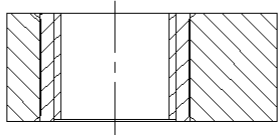
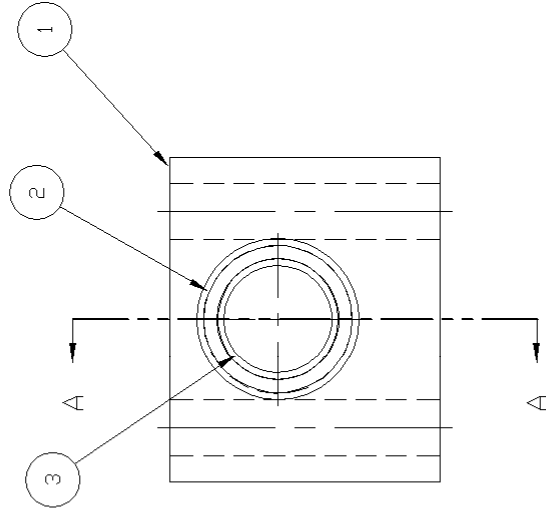
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BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877

SCALE: 1=1
 SHEET 1 OF 2
 REV. C
 DATE: 03/22/00
 CHK'D BY: ANR
 DRAWN BY: ANR
 DATE: 06/20/00
 CHK'D BY: RTM
 TITLE: LOWER IDLER BEARING ASSEMBLY
 DWG. NO.: 2000-1338

ITEM	PART NO.	DESCRIPTION	QTY
1	73-061025	1" x 2 1/2" C.R.S FLAT BAR	.021
2	2603-1307	IDLER BEARING BUSHING	1
3	2603-1308	IDLER BEARING SLEEVE	1

NOTE:
 1. MACHINE PER SHEET 2 AND PAINT BEFORE ASSEMBLY.
 2. LAY BEARING MOUNT ON FLAT SURFACE AND PRESS BEARING IN. PRESS SHOULD STOP ON FLAT SURFACE OF BEARING MOUNT TO PREVENT DAMAGING THE BEARING.



SECTION "A-A"

REV.	REVISIONS	DATE	REV. BY	CHK. BY	E.C.R. BY	IND.
D	REMOVED 2603-1306 ADDED 2603-1307 & 2603-1308	12/08/04	TJT			C1410
C	73-061025 WAS 2000-1340 ADDED MACHINING PRINT	08/12/04	CTT	TJT		C1401
B	2603-1306 WAS 2603-1305 REMOVED 8302-0404	05/16/01	ANR	TBR		C1302
A	2000-1340 WAS 2000-1306 ADDED 8302-0404	08/24/00	ANR	TBR		C1283

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TOLERANCES IF NOT NOTED:
 0.000 ±0.005 — 0.00 ±0.015
 0/0 ±1/32 — ANGULAR ±0.25

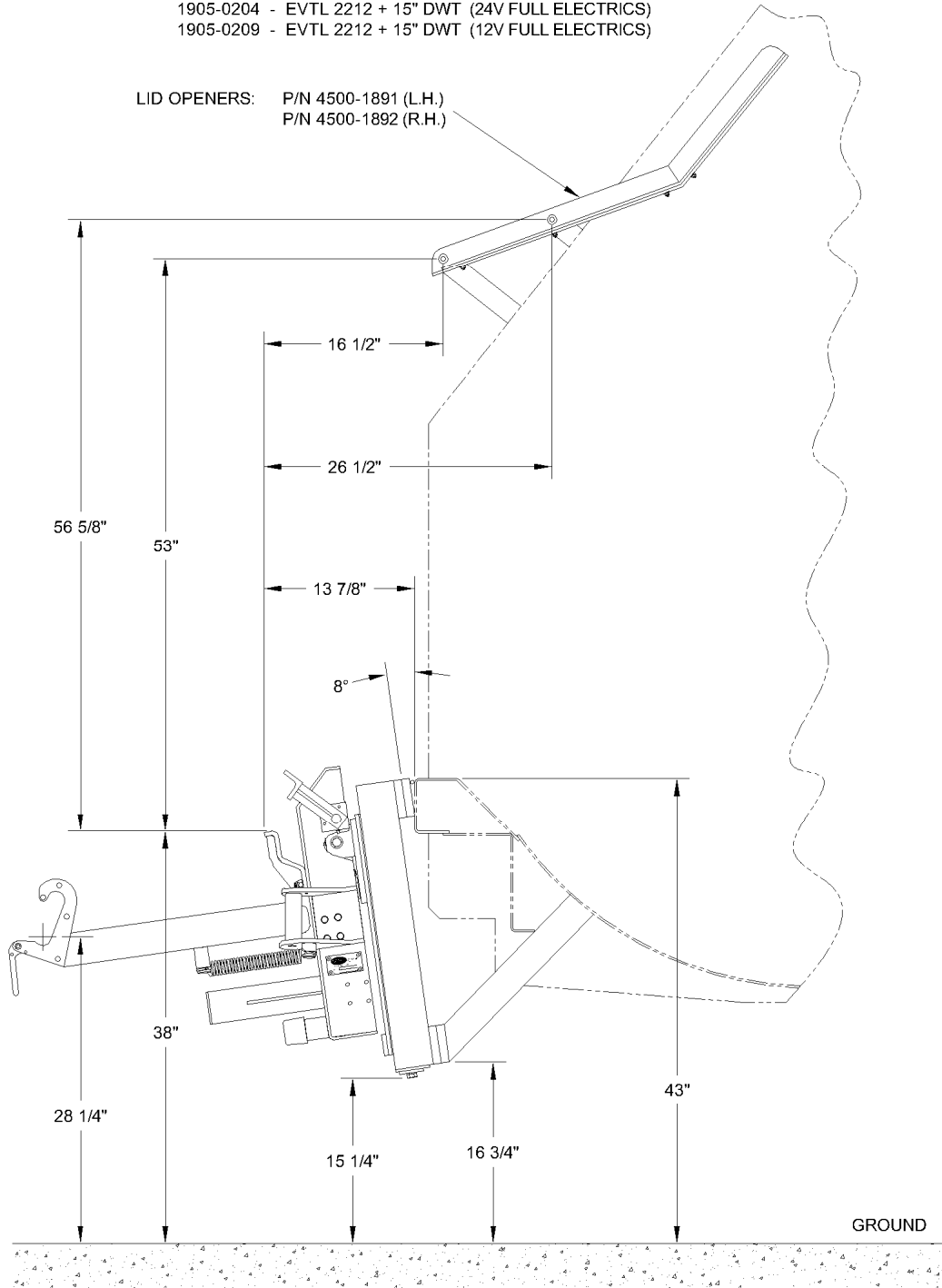
DATE: 03/22/00 DATE: 06/27/00
 DRAWN BY: ANR CHKD BY: RTM
 SCALE: 1=1 SHEET 1 OF 2
 TITLE: UPPER IDLER BEARING ASSEMBLY
 DWG. NO.: 2000-1335

BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD — GREENVILLE, SC 29635 — 864-288-3877

NOTE:

1. DIMENSIONS ACCOMMODATE MOST ANSI Z245.60-2008 TYPE C CONTAINERS (EUROPEAN COMB-LIFT CARTS), BUT MAY VARY DUE TO CONTAINER SPECIFICATIONS OR APPLICATIONS.
2. ALL DIMENSIONS ARE APPROXIMATE.
3. FABRICATE BRACKETS TO MOUNT 8150-0198 MOUNTING BARS TO REAR OF TRUCK, THEN BOLT LIFT UNIT TO MOUNTING BARS.
4. PART NUMBERS: 1905-0104 - EVTL 2212 + 15" DWT (24V ENGLAND)
 1905-0107 - EVTL 2212 + 15" DWT (DUAL HAND VALVE)
 1905-0109 - EVTL 2212 + 15" DWT (NO CONTROLS)
 1905-0113 - EVTL 2212 + 15" DWT (SEQUENCE VALVE)
 1905-0204 - EVTL 2212 + 15" DWT (24V FULL ELECTRICS)
 1905-0209 - EVTL 2212 + 15" DWT (12V FULL ELECTRICS)

LID OPENERS: P/N 4500-1891 (L.H.)
 P/N 4500-1892 (R.H.)



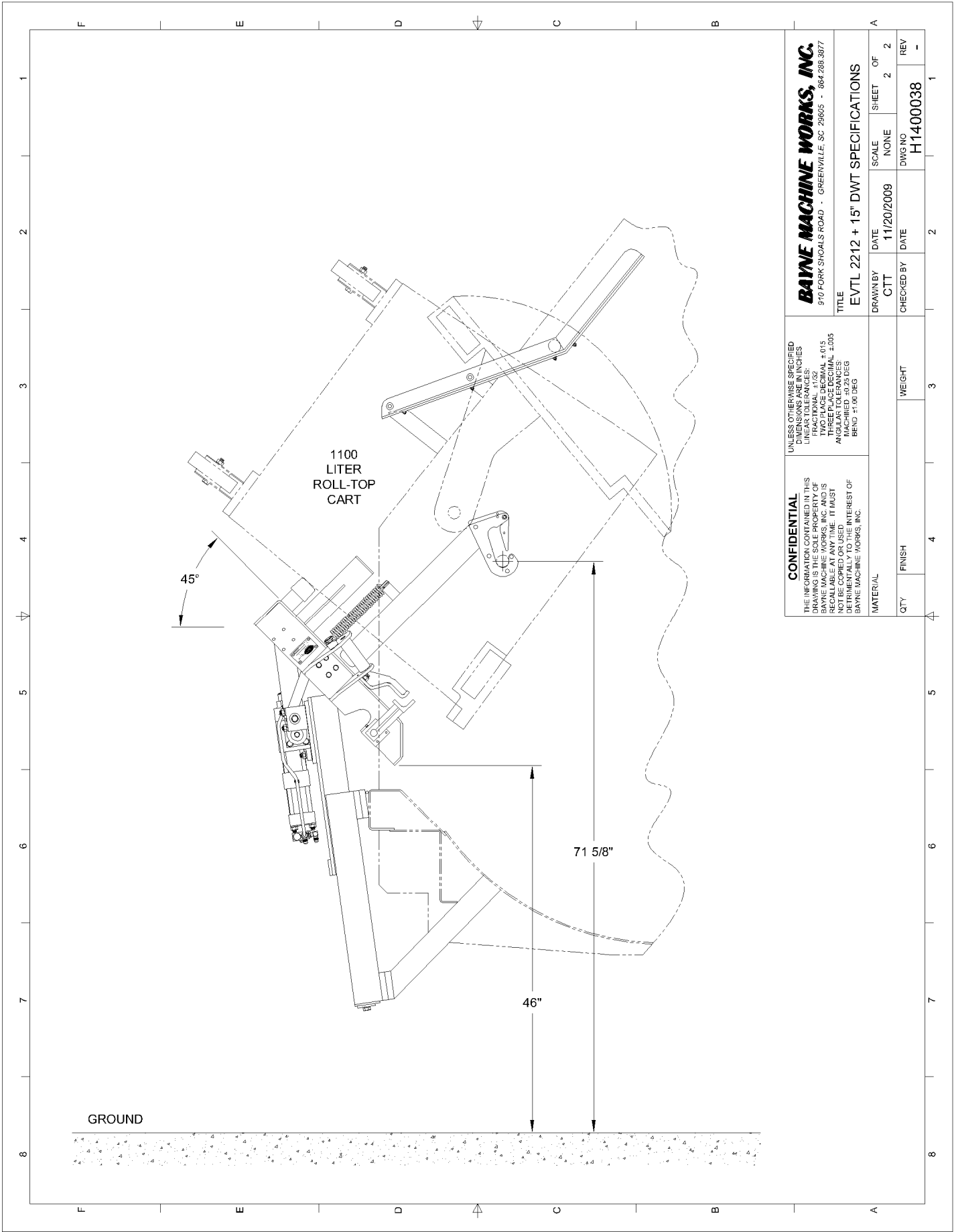
CONFIDENTIAL
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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
 DECIMALS TO THREE PLACES
 FRACTIONS TO TWO PLACES
 ANGLES TO THREE PLACES
 UNLESS OTHERWISE SPECIFIED MACHINED TO ±.005
 BEND ±1.00 DEG

BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD • GREENVILLE, SC 29605 • 864-288-3877

TITLE: EVTL 2212 + 15" DWT SPECIFICATIONS
 DRAWN BY: CTT DATE: 11/20/2009 SCALE: NONE SHEET OF: 2
 CHECKED BY: DATE: DWG NO: H1400038 REV: -

QTY	FINISH	WEIGHT	DATE	DATE	SCALE	SHEET	OF
					NONE	1	2
						DWG NO	REV
						H1400038	-



BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD • GREENVILLE, SC 29605 • 864.268.3877

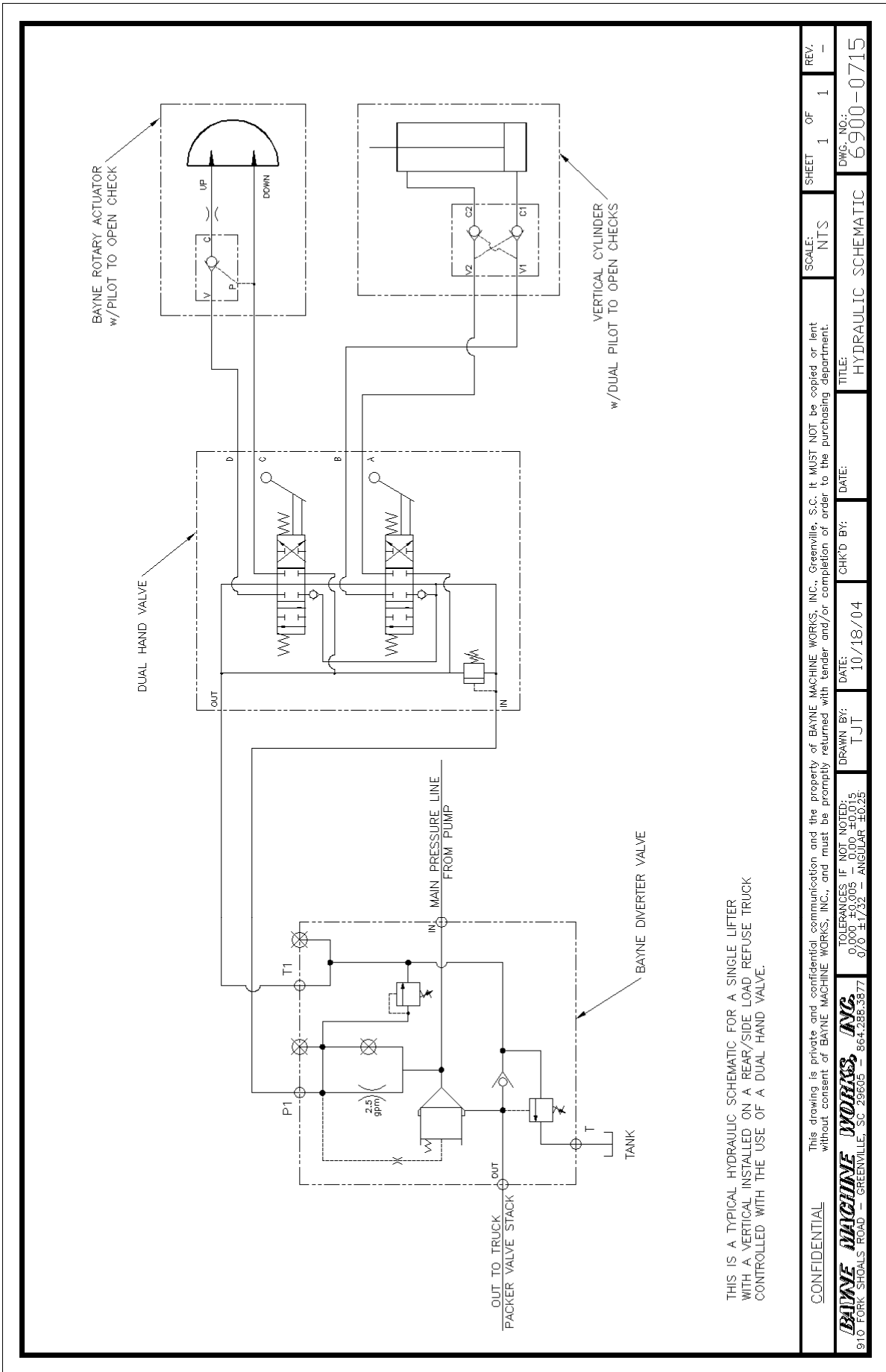
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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
 FRACTIONS ARE TO BE USED IN ALL DIMENSIONS
 TWO PLACE DECIMAL ±.015
 THREE PLACE DECIMAL ±.005
 ANGLES ARE TO BE SHOWN UNLESS OTHERWISE SPECIFIED
 MACHINED TO 25 DEGS
 BEND ±1.00 DEGS

TITLE			
EVTL 2212 + 15" DWT SPECIFICATIONS			
DRAWN BY	DATE	SCALE	SHEET OF
CTT	11/20/2009	NONE	2 2
CHECKED BY	DATE	DWG NO	REV
		H1400038	-

MATERIAL	WEIGHT

QTY	FINISH



THIS IS A TYPICAL HYDRAULIC SCHEMATIC FOR A SINGLE LIFTER WITH A VERTICAL INSTALLED ON A REAR/SIDE LOAD REFUSE TRUCK CONTROLLED WITH THE USE OF A DUAL HAND VALVE.

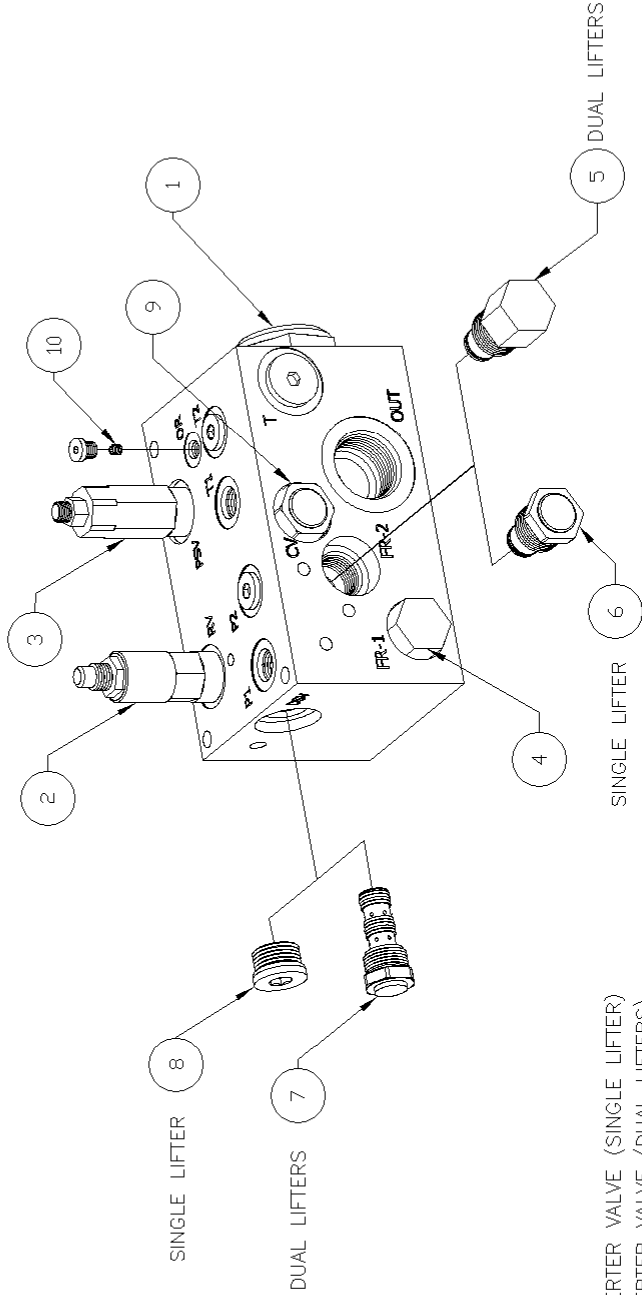
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BAYNE MACHINE WORKS, INC. 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877	TOLERANCES IF NOT NOTED: 0.000 ±0.005 - 0.00 ±0.015 Ø/Ø ±1/32 - ANGULAR ±0.25	DATE: 10/18/04	CHKD BY: TJT	DWG. NO.: 6900-0715

SERVICE PARTS

ITEM	PORT	PART NO.	DESCRIPTION	SEAL KIT	APPLICATIONS
1	DPS	6091-0716	DIFF. PRESSURE SENSING VALVE	8000-0782	ALL
2	RV	6091-0712	RELIEF VALVE	8000-0784	ALL
3	PSV	6091-0713	PRESSURE SEQUENCE VALVE	8000-0781	ALL
4	FR-1	6091-0710	FLOW REGULATOR		ALL
5	FR-2	6091-0710	FLOW REGULATOR	8000-0784	FOR DUAL LIFTERS
6		6091-0715	CAVITY PLUG	8000-0783	FOR SINGLE LIFTER
7	DSV	6091-0720	SHUTTLE VALVE		FOR DUAL LIFTERS
8		6246-0008	INL. 8 SAE SOCKET HEAD PLUG		FOR SINGLE LIFTER
9	CV	6091-0714	CHECK VALVE	8000-0784	ALL
10	DR	6066-0028	Ø0.038" DRIFICE	-	ALL

NOTE:

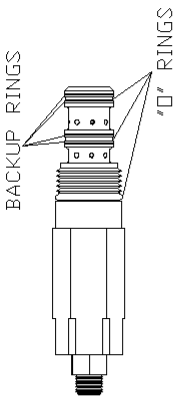
1. MAXIMUM WORKING PRESSURE 3000 PSI
2. MAXIMUM WORKING FLOW 50 GPM
3. TEMPERATURE RANGE = 160° MAXIMUM
4. PORT SIZES
IN & OUT = #16 SAE
T = #10 SAE
T1, T2, P1 & P2 = #6 SAE
5. T2 & P2 ARE PLUGGED USING #6 SAE PLUGS IN SINGLE LIFTER APPLICATIONS



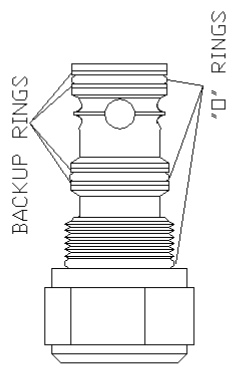
6091-0700 COMPLETE DIVERTER VALVE (SINGLE LIFTER)
 6092-0700 COMPLETE DIVERTER VALVE (DUAL LIFTERS)

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BAYNE MACHINE WORKS, INC.		DATE:	09/24/04	CHKD BY:	CJT	TJT	1	A
910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877		DATE:	10/11/04	TITLE:	SINGLE/DUAL DIVERTER VALVE PARTS	DWG. NO.: M3500005		

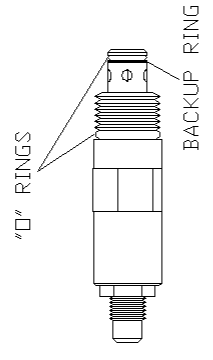
ITEM NO	PART NO.	DESCRIPTION	QTY
1	8000-0781	PRES. SEQUENCE VALVE SEAL KIT	1
2	8000-0782	PRESSURE SENSING VALVE SEAL KIT	1
3	8000-0783	SHUTTLE VALVE SEAL KIT	1
4		RELIEF VALVE SEAL KIT	1
5		FLOW REGULATOR SEAL KIT	1
6	8000-0784	FLOW REG. CAVITY PLUG SEAL KIT	1
7		CHECK VALVE SEAL KIT	1



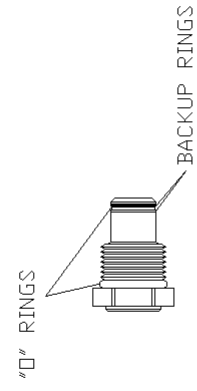
PRESSURE SEQUENCE VALVE SEAL KIT



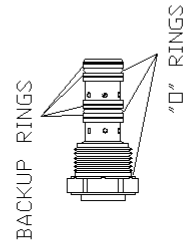
DIFFERENTIAL PRESSURE SENSING VALVE SEAL KIT



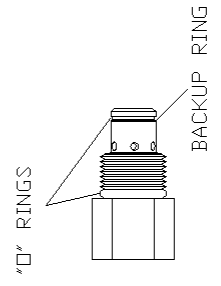
RELIEF VALVE SEAL KIT



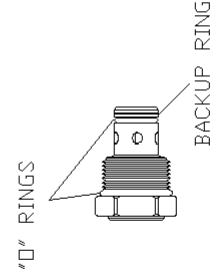
FLOW REGULATOR CAVITY PLUG SEAL KIT



SHUTTLE VALVE SEAL KIT



FLOW REGULATOR SEAL KIT



CHECK VALVE SEAL KIT

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BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877

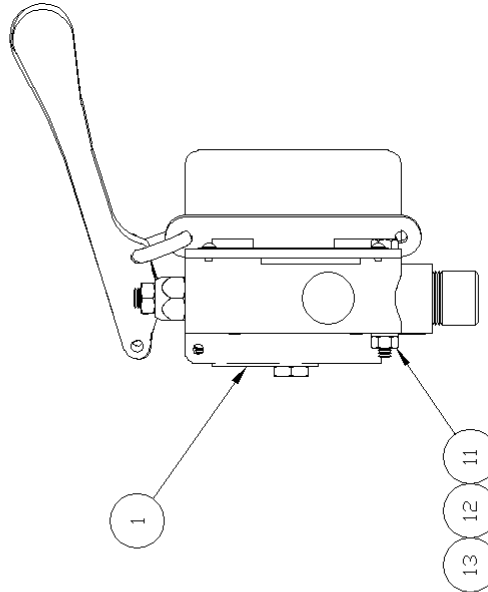
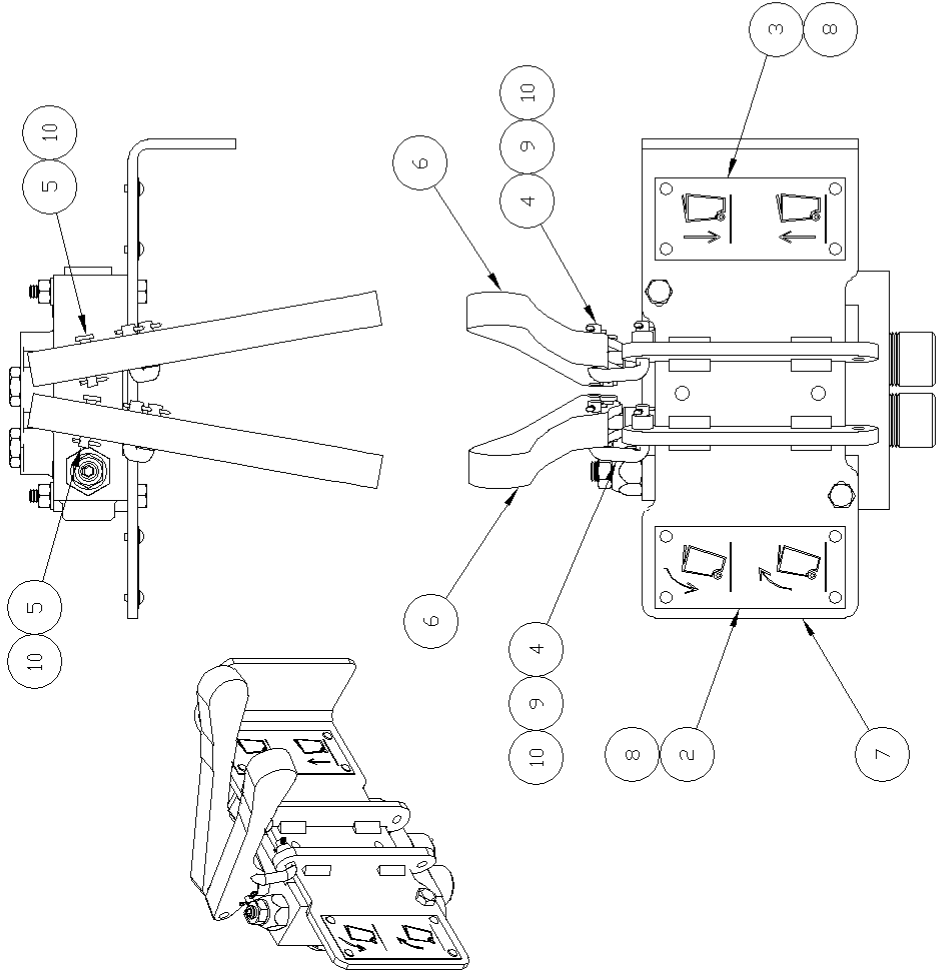
TOLERANCES IF NOT NOTED:
 0.000 \pm 0.005 - 0.00 \pm 0.015
 0.00 \pm 1/32 - ANGULAR \pm 0.25

DRAWN BY: TJT DATE: 09/29/04
 CHK'D BY: DATE:

TITLE: DIVERTER VALVE SEAL KIT
 DWG. NO.: 8000-0780

SCALE: 2=3 SHEET 1 OF 1 REV. -

ITEM	PART NO.	DESCRIPTION	QTY
1	6084-0406	DUAL HAND VALVE	1
2	6084-1010	LEGEND PLATE - ACTUATOR	1
3	6084-1011	LEGEND PLATE - VERTICAL	1
4	6083-1510	UNIVERSAL C-HOOK	2
5	6083-1511	CLEVIS PIN ($\varnothing 3/16"$ x $7/8"$)	2
6	6083-1520	METRO/EATON H.V. HANDLE	2
7	6083-1542	DUAL HAND VALVE BRACKET	1
8	7500-0071	DRIVE SCREW	8
9	7500-0198	NYLON SPACER	2
10	8810-0303	COTTER PIN ($1/16"$ x $1/2"$)	6
11	9001-0416	$1/4-20$ x $2"$ H.H.C.S.	2
12	9401-0400	$1/4-20$ HEX NUT	2
13	9700-0400	$1/4"$ LOCK WASHER	2



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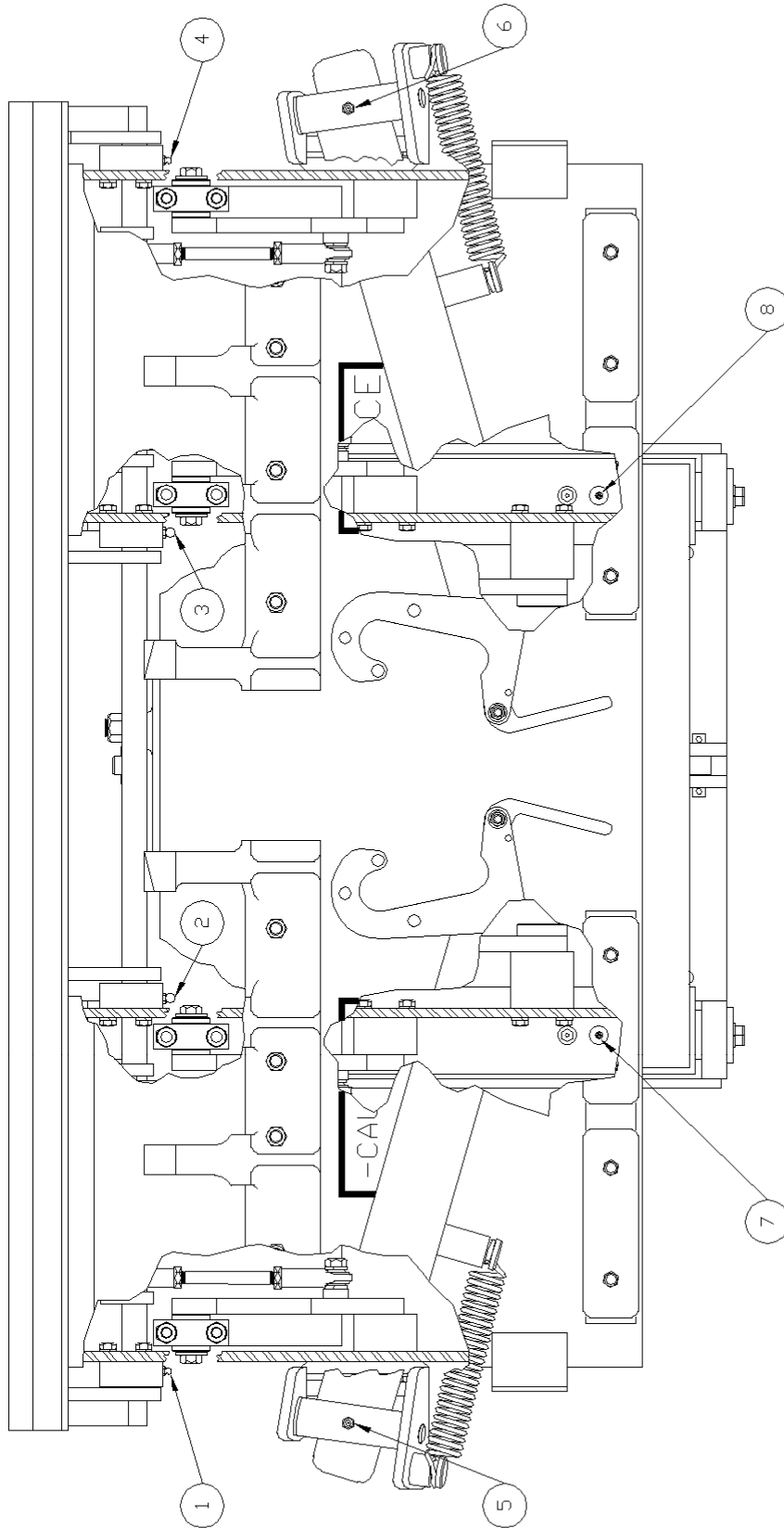
BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877

TOLERANCES IF NOT NOTED:
 0.000 ± 0.005 - 0.00 ± 0.015
 0/0 $\pm 1/32$ - ANGULAR ± 0.25

DATE: 05/22/07
 CHECKD BY: CTT
 DRAWN BY: CTT

SCALE: 1=2
 SHEET 1 OF 1
 REV. -

TITLE: DUAL H.V. ASSEMBLY - VERTICAL
 DWG. NO.: 6084-1020



LUB POINTS 9-16 ARE LOCATED ONE IN EACH ROD END.



TO MAINTAIN WARRANTY AND FOR PREVENTIVE MAINTENANCE, GREASE ALL LUBRICATION POINTS AT LEAST ONCE A WEEK

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BAYNE MACHINE WORKS, INC.	TOLERANCES IF NOT NOTED: 0.000 ±0.005 - 0.00 +0.015 Ø/Ø ±1/32 - ANGULAR ±0.25	EVTL DWT LUBRICATION POINTS	DWG. NO.: LUB2575	
910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877	CHKD BY: DTB	DATE: 07/17/95		
	DRAWN BY: JAH	DATE: 07/17/95		