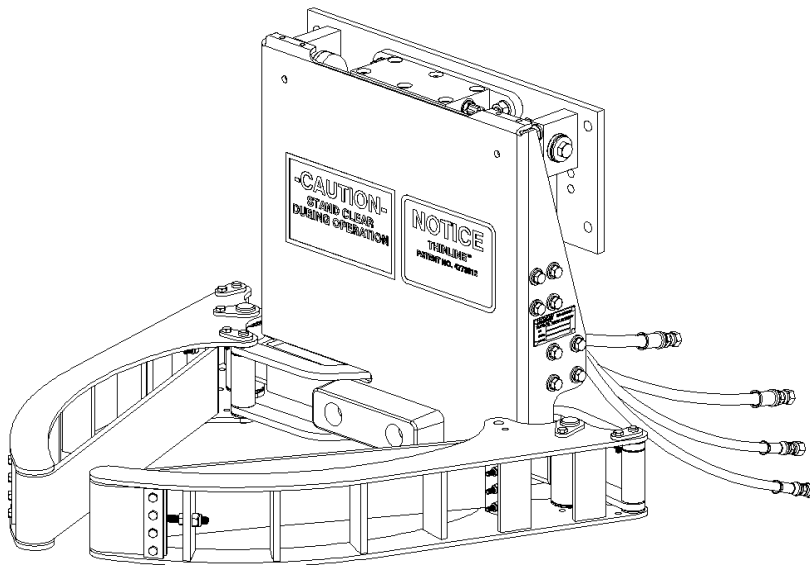




Premium Lift Systems

OPERATION AND PARTS MANUAL



MODEL NUMBER : **GRL 1110**
PART NUMBER : **1900-0540**
SERIAL NUMBER :

BAYNE MACHINE WORKS, INC.
910 FORK SHOALS ROAD
GREENVILLE SC, 29605
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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-0091-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 7 1/8" thick from the back of the mainframe to the front of the lifter, depending on the types of arms used.
- D. The faceplate is normally at 45 degrees in the dump position and extends 10" to 12" from the back of the mainframe into the hopper or container opening. This places the cart or barrel 13" to 15" 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 Actuator to rotate up and down.
 - **3 - 4 seconds** for GRL arms to clamp and unclamp.

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 flow rates are as follows:
- **2 to 2 1/2 GPM** for 1100 series units
 - **2 to 4 GPM** for 2200 series units
- G. Hydraulic pressure requirements are as follows:
- **1800-2000 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-0236-A)

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.

NOTE: If a **Bayne THINLINE**[®] Tap-In Kit was also acquired for this installation, refer to the installation instructions included in the Tap-In Kit manual for more detailed information.

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 in place. If using an “S” unit for bolt on applications, tack weld the mounting plate in place and attach the lifter to the mounting plate using the 1/2” studs. (*tack weld only at this time so that adjustments can be made if necessary.*).

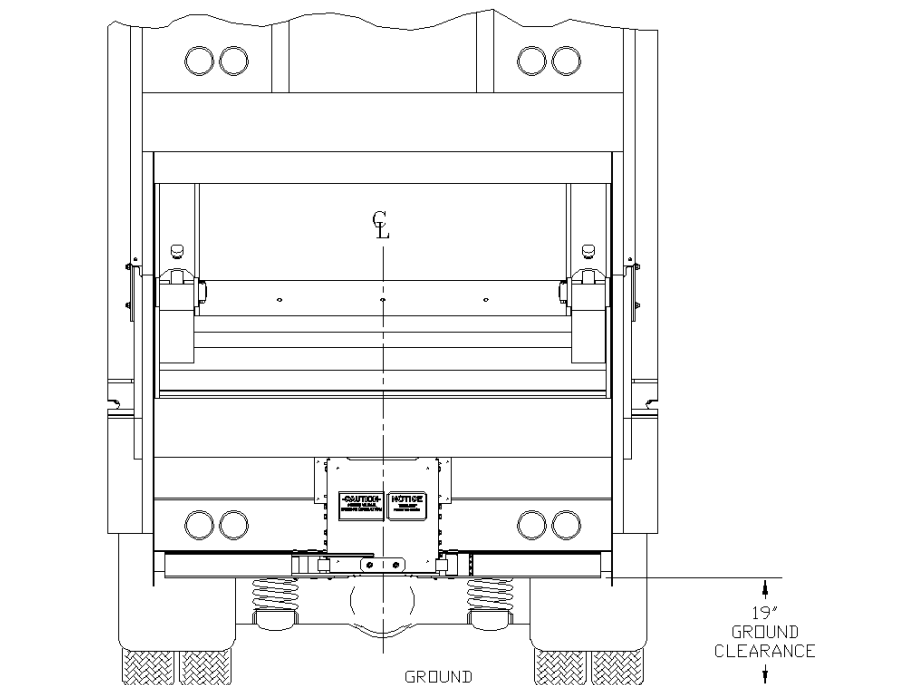


figure I-1

II. 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-2) and hydraulic schematic (Appendix A) while performing the following steps.

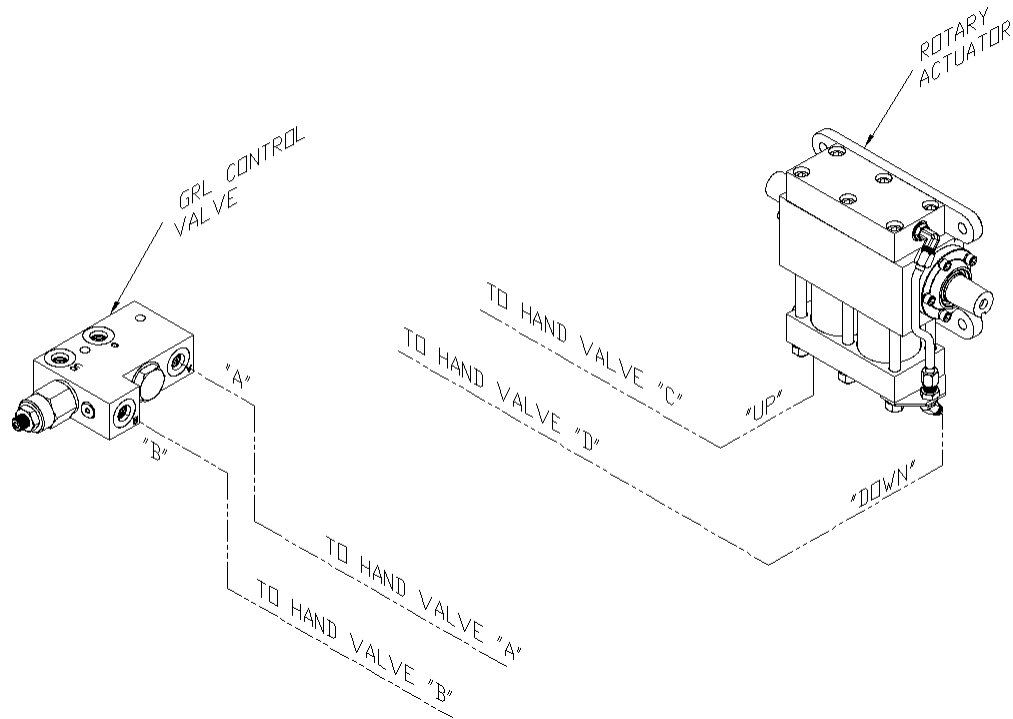


figure I-2

1. Connect the hose from the “UP” port of the rotary actuator to the “C” port of the dual hand valve.
2. Connect the hose from the “DOWN” port of the rotary actuator to the “D” port of the hand valve.
3. Connect the hose from the “C” port of the GRL control valve to the “A” port of the hand valve.
4. Connect the hose from the “UC” port of the GRL control valve to the “B” port of the hand valve.

III. Adjusting the GRL control valve :

The clamping pressure and speed of the **THINLINE[®]** GRL lifter's arms are controlled by the GRL control valve mounted to the lifter.

It is very important to make sure the hydraulic oil is at operating temperature, and the flow rate and relief valve settings have been properly adjusted before setting the GRL control valve pressures.
The proper flow rate and relief settings are 2 gpm at 1800 psi.

The amount of pressure the GRL arms use to clamp the container is controlled with a pressure relief valve in the GRL control valve. This valve is preset at the factory to operate with most containers. However, if the lifter seems to be crushing or loosing grip on your specific containers, refer to figure I-3 while performing the following steps to properly adjust the clamping pressure.

1. Loosen the lock nut on the pressure relief valve in the GRL control valve.
2. If the lifter is crushing the waste container, turn the adjustment screw counter-clockwise 1/4 turn. If the lifter is loosing grip on the waste container, turn the adjustment screw clockwise 1/4 turn.
3. Repeat clamping and dumping the container, making necessary adjustments to the pressure relief valve in 1/4 turn increments until the lifter securely holds the container without crushing it.
4. Tighten the lock nut on the pressure relief valve to secure the correct pressure setting.

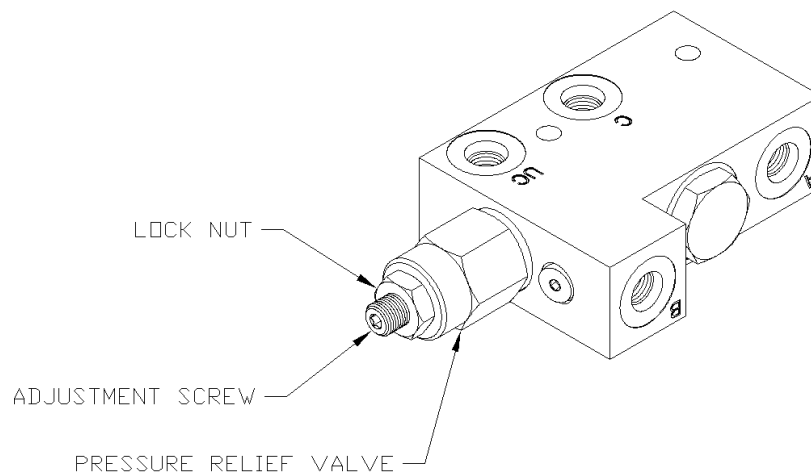


figure I-3

IV. Final operation and mounting:

1. Start the truck's engine and engage the hydraulic system.
2. Operate the lifter and bleed all air from the hydraulic system.
3. 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.
4. After locating an acceptable mounting position, complete the welding of the lifter to the truck.

OPERATION INSTRUCTIONS (WI-0405-A)

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 rolled up to the lifter.
- 2) ***CLAMPING*** - The clamp arms are engaged around the cart.
- 3) ***ACTUATOR DUMP*** - The rotary actuator is cycled to dump the contents of the cart.
- 4) ***ACTUATOR REVERSE*** - The rotary actuator is reversed, returning the cart to the ground.
- 5) ***UNCLAMPING*** - The clamp arms are unclamped.

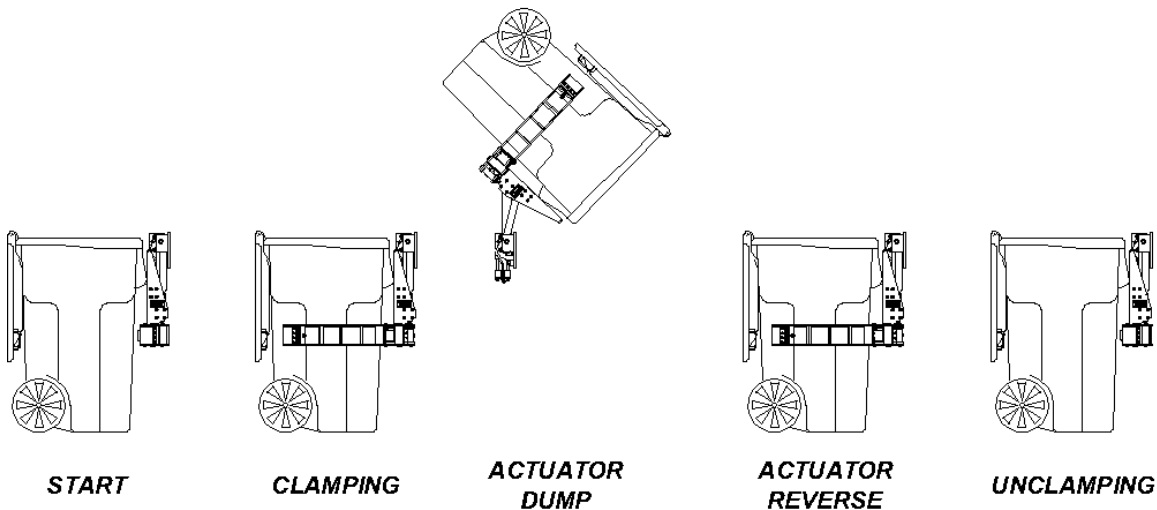


figure O-1

The rotational and clamping motions of the cart lifter are controlled with the use of a dual hand valve. Moving the grabber arm handle on the dual hand valve in the upward direction will cause the grabber arms to perform the *CLAMPING* stage. Moving the actuator handle in the upward direction will cause the lifter to perform the *ACTUATOR DUMP* stage. Moving the actuator handle in the downward direction will cause the lifter to perform the *ACTUATOR REVERSE* stage. Finally, moving the grabber arm handle in the downward direction will cause the lifter to perform the *UNCLAMPING* stage.

MAINTENANCE INSTRUCTIONS (WI-0141-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 dumper on a weekly basis for loose bolts, fittings, oil leaks, etc. Tighten loose hardware as necessary and replace necessary seals to repair oil leaks.

BAYNE
PREMIUM LIFT SYSTEMS

ASSEMBLY INSTRUCTIONS
1100 SERIES ROLLER BEARING ACTUATOR
PART NUMBER 1120-1034 (WI-1124-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-13 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.

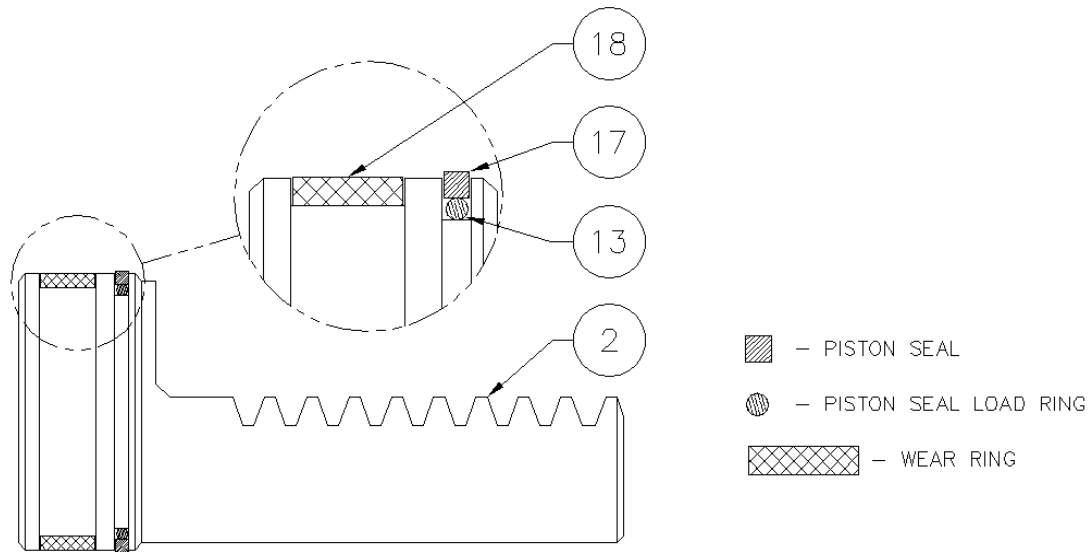


figure A-1

2. Install the tube seal (12) (fig. A-2) and “square” tube seal backup (16) on each end of the actuator tubes (3) (fig. A-13). 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 other tube.

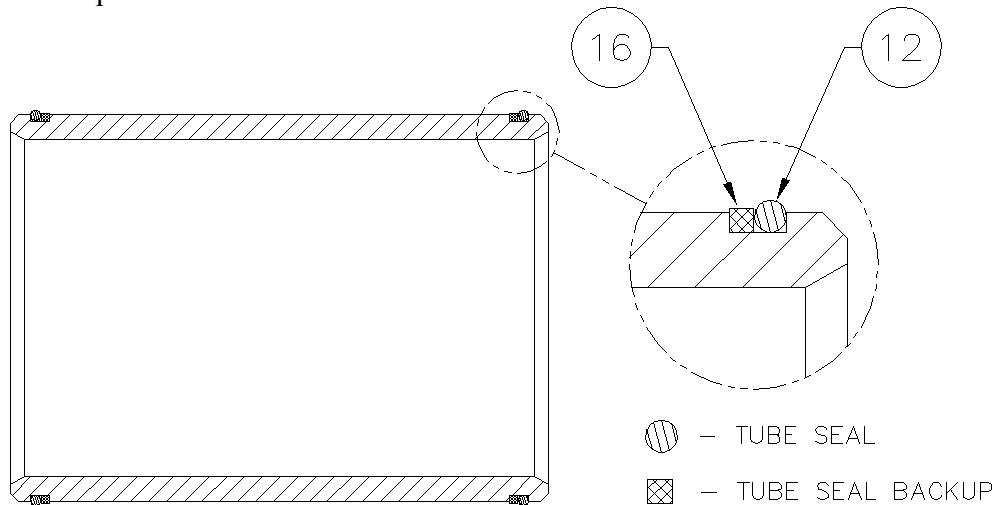


figure A-2

3. Thoroughly clean the pinion shaft (1) (fig. A-3) and inner races (10) with a mild solvent and dry completely. Spray the inner race contact area (shown in figure A-3) at each end of the pinion shaft and the inside diameter of the inner race 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 (radius end first as shown in figure A-3) 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.

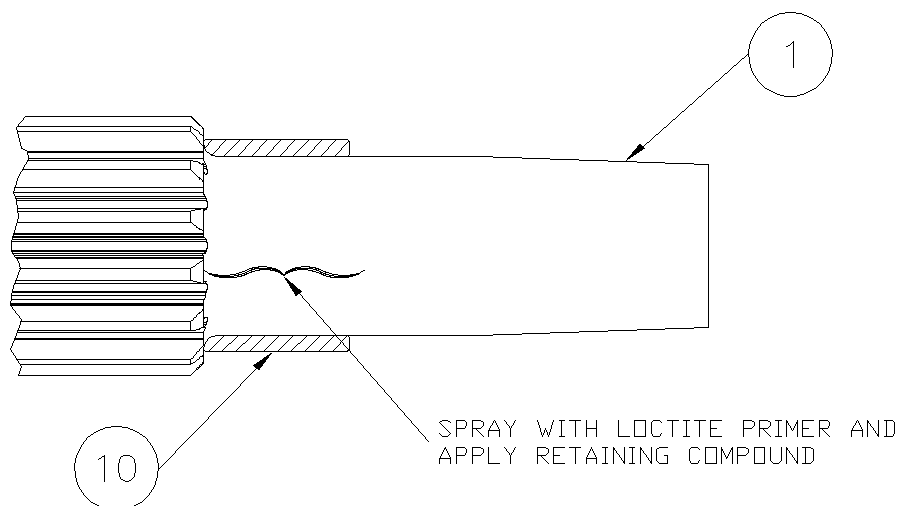


figure A-3

- Place the actuator body (7) (fig. A-4) 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 back toward the mounting flanges and up away from the table with the center line of the key ways pointing toward the center of the tapped hole shown in figure A-4. Center the pinion in the actuator body.

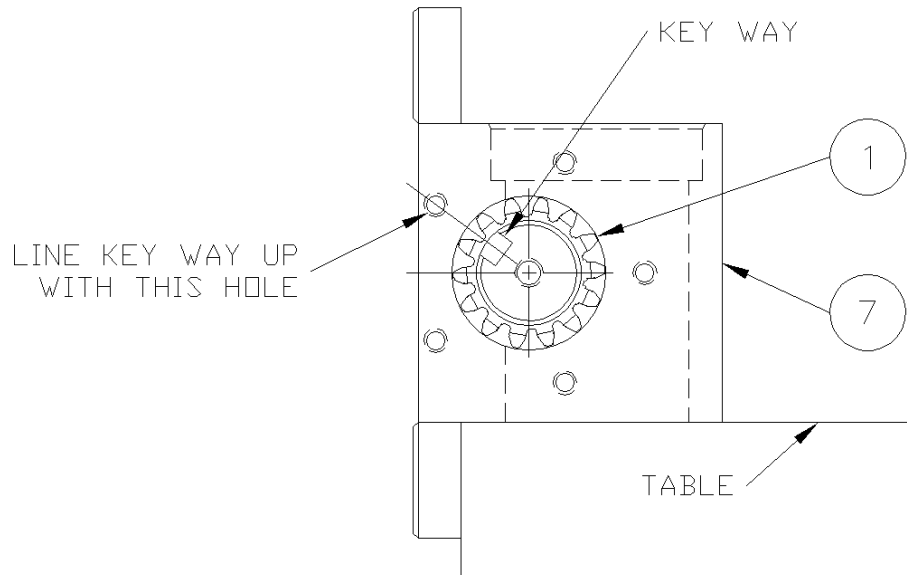


figure A-4

- Coat the head portion of the racks (2) (fig. A-13) with STP Oil Treatment. 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.

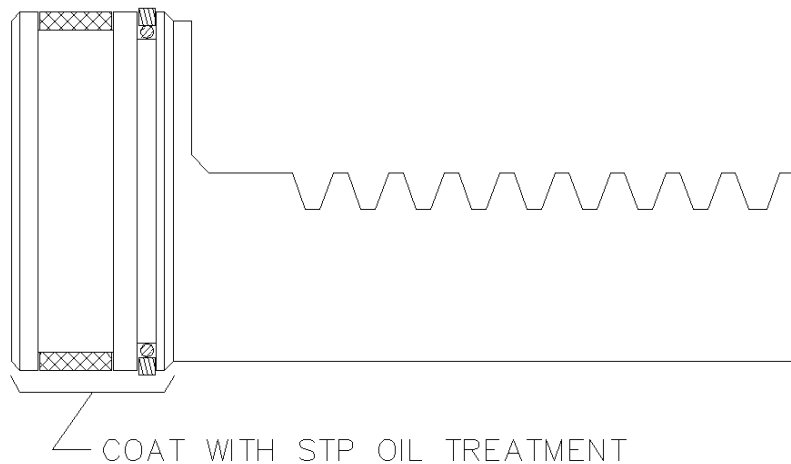


figure A-5

6. 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-6.

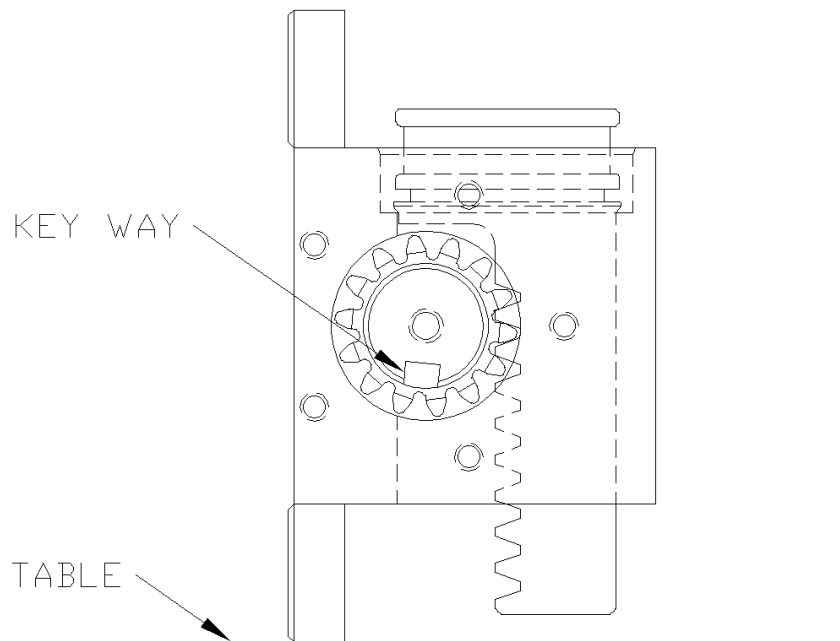


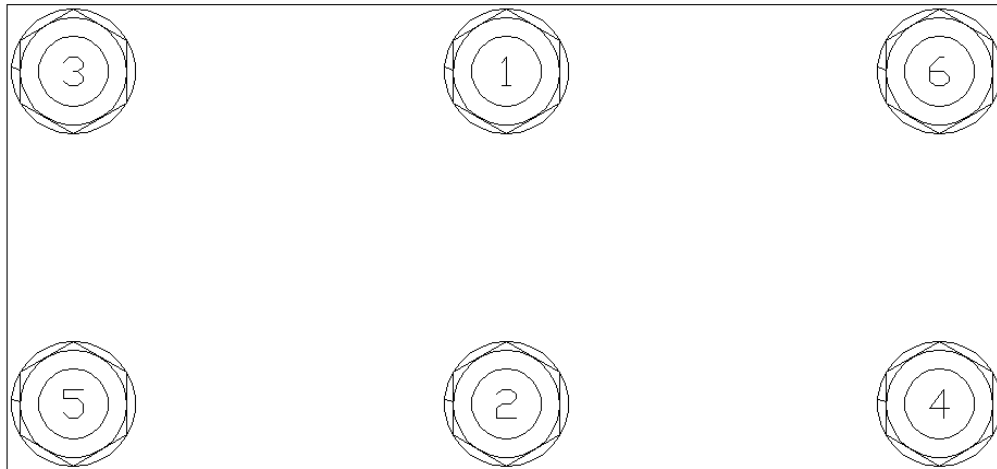
figure A-6

7. Coat one end of the actuator tubes (3) (fig. A-13) around the seal area with STP Oil Treatment as shown in figure A-7. 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-7

8. Install the six tie rod studs (6) (fig. A-13) by screwing the short threaded end into the actuator body. Hand tighten only at this time (the torque needed will be applied later in the procedure).
9. Place the tube cap (4) (fig. A-13) on the table. Coat the sides of the two bores in the tube cap with STP Oil Treatment. Install the cap over the tubes and rod studs with the oil port positioned to the left as shown in figure A-13. 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.
10. Place the tube mounting bracket (30) (fig. A-13) over the two end rod studs opposite the oil port in the tube cap as shown in figure A-13.
11. Install the hex nuts (23) (fig. A-13) and lock washers (24) on the tie rod studs. Torque the nuts to 50 ft-lb. in the sequence shown in figure A-8.



TUBE CAP TORQUE SEQUENCE

figure A-8

12. Place the rack cap (5) (fig. A-13) 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-9) in the rack cap.

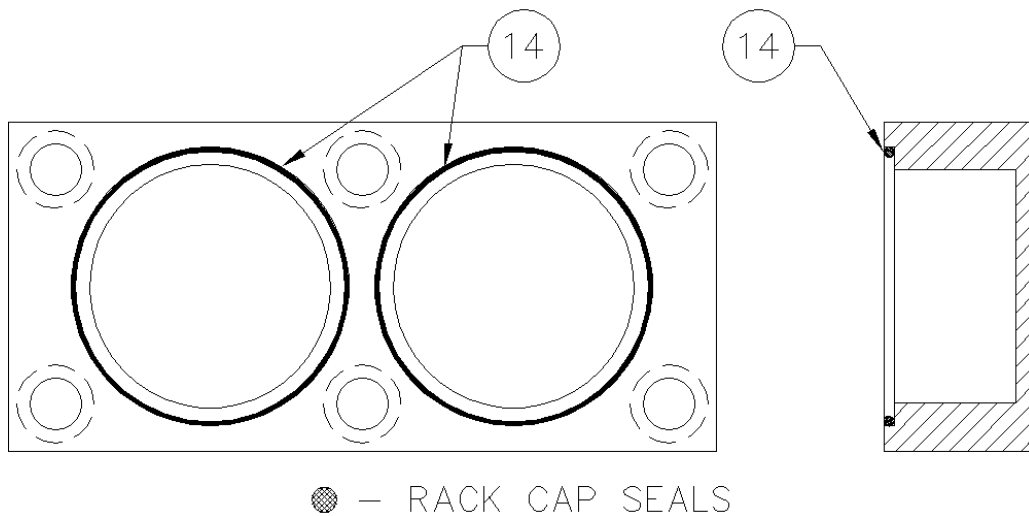
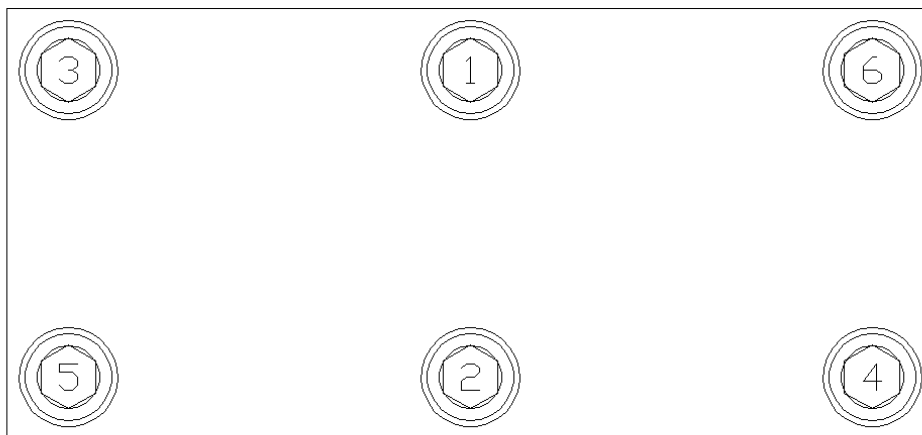


figure A-9

13. 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-13. Attach the rack cap to the actuator body using the socket head bolts (22) (fig. A-13) and lock washers (26). Torque the bolts to 90 ft-lb. in the sequence shown in figure A-10.



RACK CAP TORQUE SEQUENCE

figure A-10

14. 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.

15. 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-13), over the pinion shaft and inner race, and into the actuator body. Repeat this procedure for the other bearing.
16. Thoroughly clean the bearing caps (8) (fig. A-11) with a mild solvent and lubricate all seal grooves with STP oil treatment. Place the bearing caps (8) 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 that 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-11. ***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.
17. Coat the bearing cap seal area and pinion seal area shown in figure A-11 lightly with STP Oil Treatment.

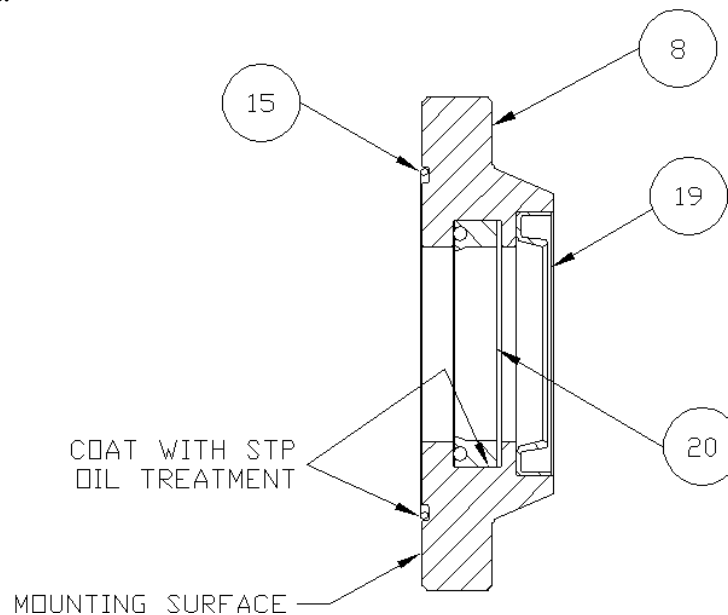


figure A-11

18. 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-12 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-13) and lock washers (25). Hand tighten only at this time. Repeat this procedure for other bearing cap.

19. After both bearing caps have been installed, torque all bearing cap bolts to 30 ft-lb. in the sequence shown in figure A-12.

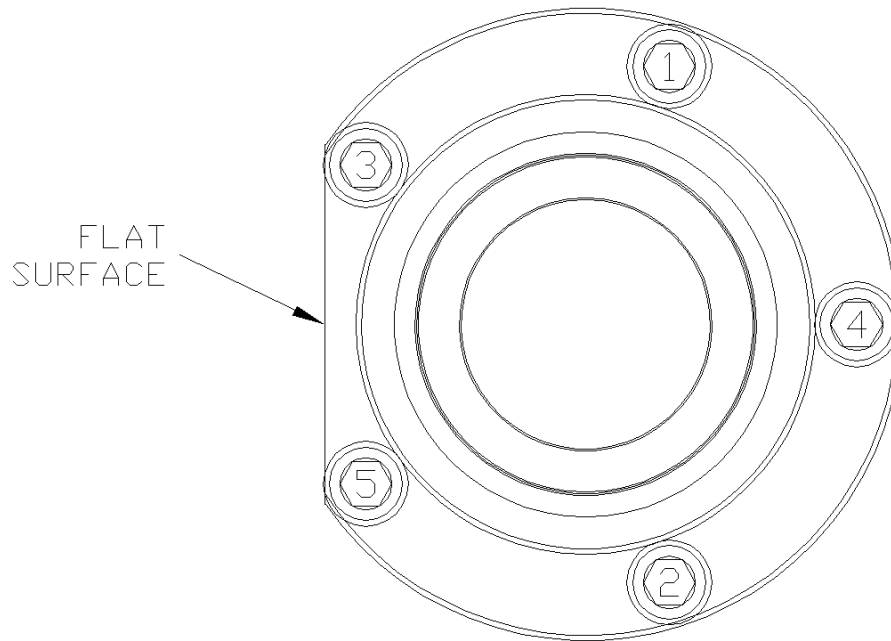


figure A-12

20. Install the 90° fitting (27) (fig. A-13) into the oil port on the side of the rack cap (5). Hand tighten only at this time.
21. Install the 45° bulk-head fitting (31) (fig. A-13) up through the hole in the tube mounting bracket (30) bolted to the tube cap as shown in figure A-13. The 45° end must be pointing down away from the rack cap (5) and back toward the mounting flanges on the actuator body. Hand tighten only at this time.
22. Install the rack cap extension tube assembly (29) (fig. A-13) between the 90° fitting in the rack cap and the 45° fitting in the tube mounting bracket as shown in figure A-13. Tighten all connections.
23. Install the orifice plug (11) (fig. A-13) into the oil port on the side of the tube cap (4), and install the 90° fitting (27) into the oil port over the orifice plug as shown in figure A-13. Turn the fitting so that it points down away from the rack cap (5) and back toward the mounting flanges on the actuator body and tighten.
24. Install the cap nuts (28) (fig. A-13) onto the open fittings to prevent contamination of the unit until the hoses are installed.

ACTUATOR ASSEMBLY

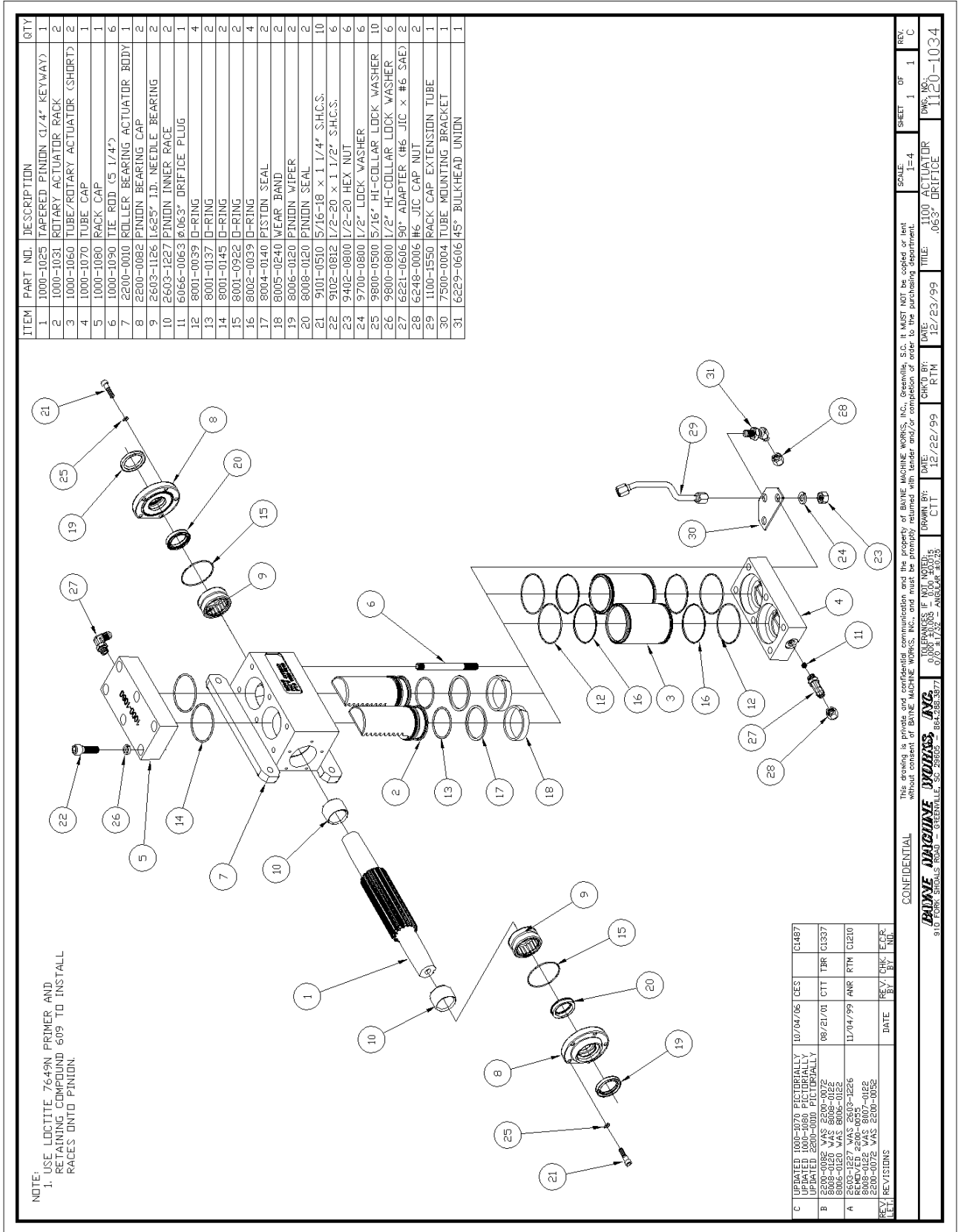


figure A-13

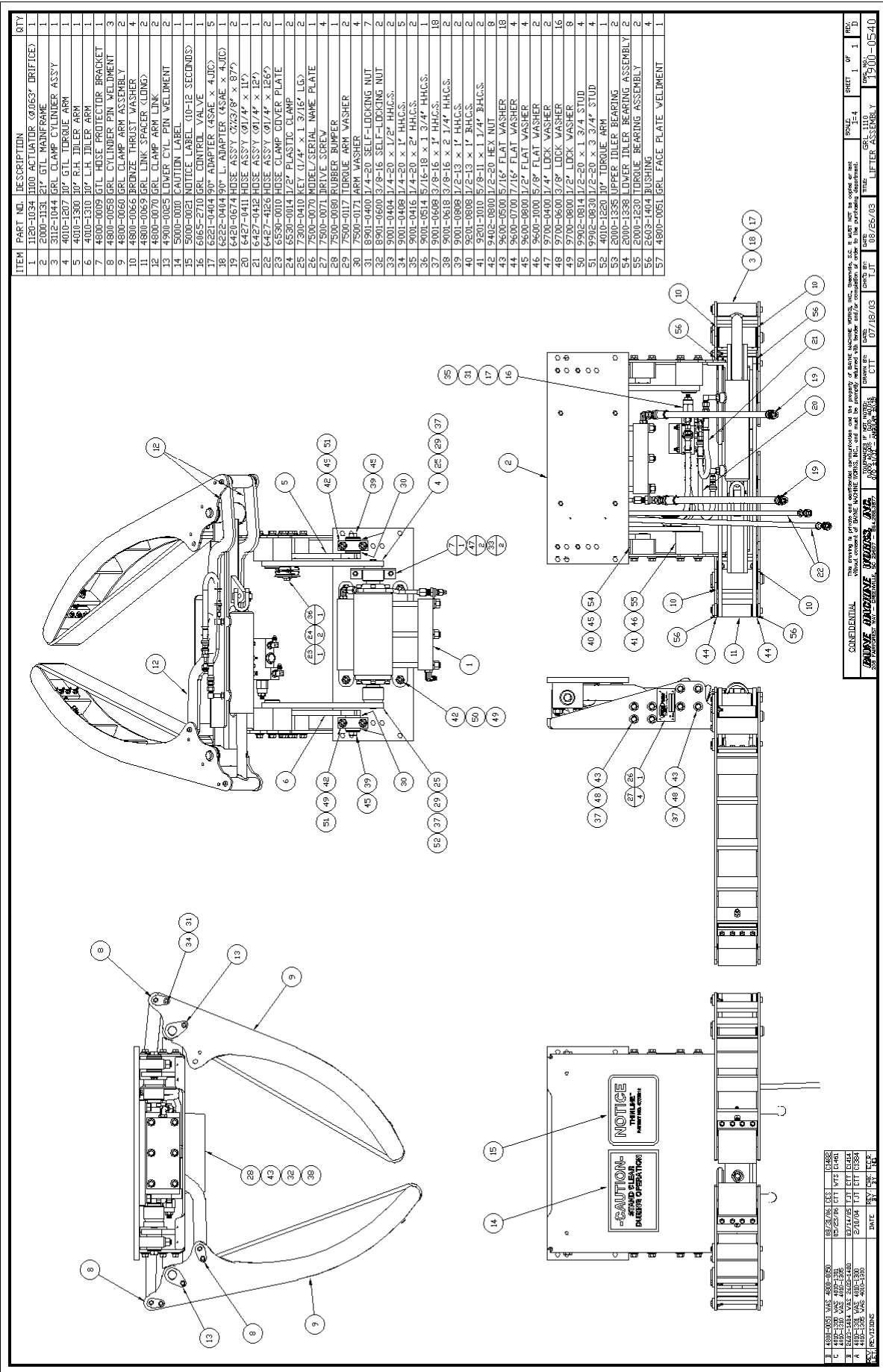
TROUBLE-SHOOTING CHART (WI-0320-A)

<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. 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. Low hydraulic flow to lifter circuit. 4. Faulty truck hydraulic pump. 	<ol style="list-style-type: none"> 1. Adjust engine idle. 2. Replace hand valve. 3. Check truck's hydraulic system flow. 4. Consult truck maintenance manual.
Lifter operates under recommended cycle time.	<ol style="list-style-type: none"> 1. Engine idle too high. 2. High hydraulic flow to lifter circuit. 	<ol style="list-style-type: none"> 1. Adjust engine idle. 2. Check truck's hydraulic system flow.

TROUBLE-SHOOTING CHART (WI-0320-A)

<i>SYMPTOM</i>	<i>POSSIBLE CAUSES</i>	<i>CORRECTIVE ACTION</i>
Actuator leaking oil around pinion shaft.	1. Worn pinion shaft seals.	1. Install pinion seal kit.
Actuator leaking oil around piston tubes or rack cap.	1. Worn seals in actuator.	1. Install actuator seal kit.
Cylinder leaking around rod.	1. Worn cylinder rod seal.	1. Install cylinder seal kit.
Valve settings quit working after a period of time.	1. Valves were adjusted with cool oil temperature.	1. Adjust valves with oil at operating temperature.
Lifter loses carts when dumping.	1. Clamping pressure setting too low. 2. Cart sides are too weak.	1. Adjust clamping pressure setting per Installation Instructions of this manual. 2. Replace cart.
Lifter crushes carts when dumping.	1. Clamping pressure setting too high. 2. Cart sides are too weak.	1. Adjust pressure setting per Installation Instructions of this manual. 2. Replace cart.

APPENDIX A
Assembly drawings and part numbers



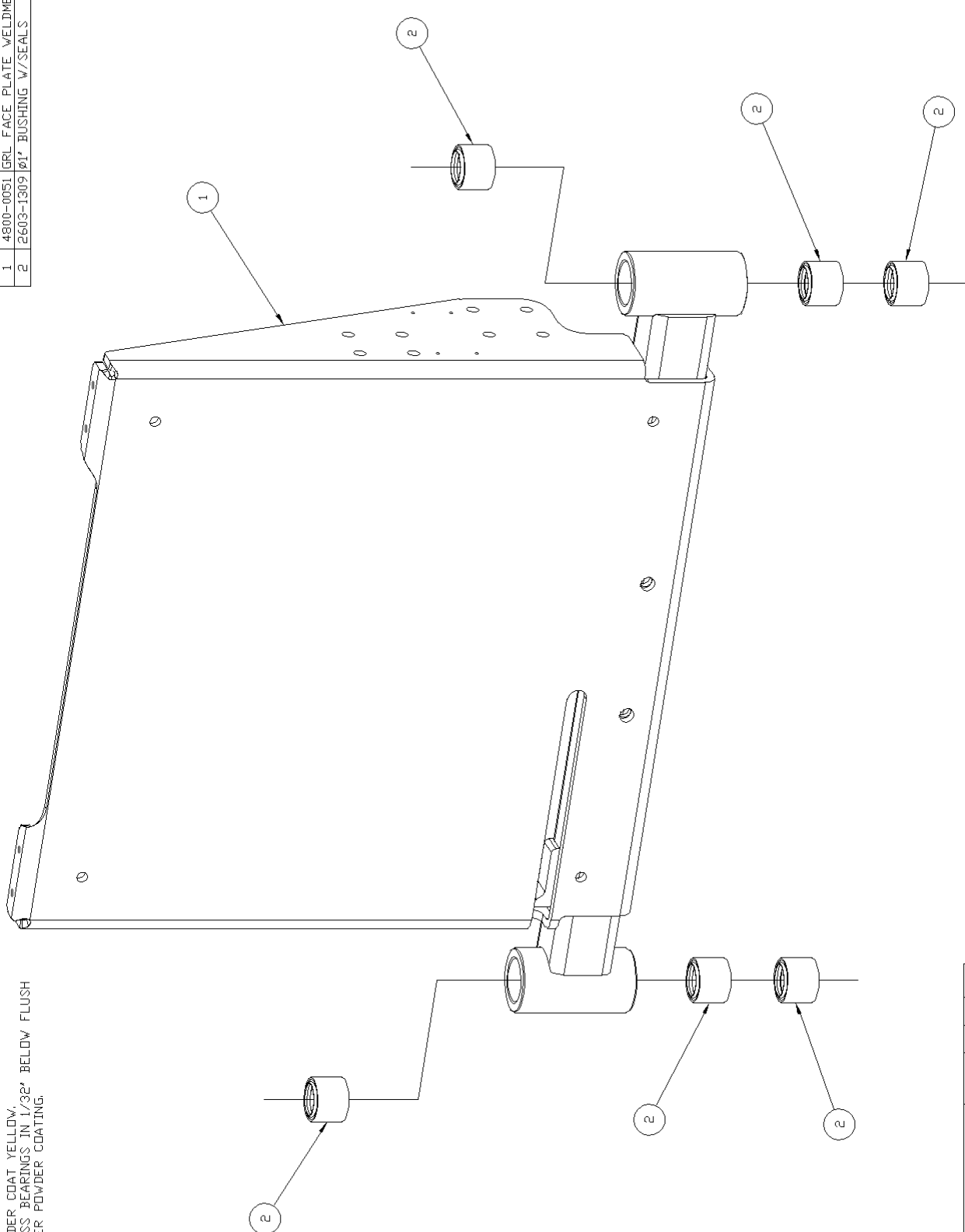
ITEM	PART NO.	DESCRIPTION	QTY
1	1120-1034	1000 ACTUATOR (4063" DRIFTICE)	1
2	2000-1131	21" GTL MAINFRAME	1
3	3112-1044	GRL CLAMP CYLINDER ASSY	1
4	4010-1207	10" GTL TORQUE ARM	1
5	4010-1300	10" R.H. IDLER ARM	1
6	4010-1310	10" L.H. IDLER ARM	1
7	4800-0009	GTL HOSE PROTECTOR BRACKET	1
8	4800-0058	GRL CYLINDER PIN WELDMENT	3
9	4800-0060	GRL CLAMP ARM ASSEMBLY	2
10	4800-0066	BRONZE THRUST WASHER	4
11	4800-0069	GRL LINK CLAMP (LONG)	2
12	4800-0070	GRL CLAMP ARM LINK	2
13	4900-0025	LOWER CYL. PIN WELDMENT	1
14	5000-0000	CAUTION LABEL	1
15	5000-0001	CAUTION LABEL (10.12 SECONDS)	1
16	5000-0002	CAUTION LABEL	1
17	6042-0414	90° ADAPTER (4SAE X 4 JIC)	5
18	6222-0414	90° L. ADAPTER (4SAE X 4 JIC)	1
19	6420-0674	HOSE ASSY (3/8" x 8')	2
20	6427-0411	HOSE ASSY (1/4" x 1')	1
21	6427-0412	HOSE ASSY (1/4" x 1')	1
22	6427-0426	HOSE ASSY (1/4" x 1.26')	2
23	6530-0010	HOSE CLAMP COVER PLATE	1
24	6530-0014	1/2" PLASTIC CLAMP	2
25	7300-0410	KEY (1/4" x 1.3716" LG.)	2
26	7500-0070	MODEL/SERIAL NAME PLATE	1
27	7500-0071	DRIVE SCREW	4
28	7500-0080	RUBBER BUMPER	1
29	7500-0117	TORQUE ARM WASHER	2
30	7500-0171	ARM WASHER	4
31	8200-0174	20 SELF-LOCKING NUT	7
32	8200-0460	1/4-20 SELF-LOCKING NUT	2
33	9001-0484	1/4-20 3/4" H.H.C.S.	5
34	9001-0488	1/4-20 X 1" H.H.C.S.	5
35	9001-0416	1/4-20 X 2" H.H.C.S.	1
36	9001-0514	5/16-18 X 1.374" H.H.C.S.	2
37	9001-0608	3/8-16 X 1" H.H.C.S.	18
38	9001-0618	3/8-16 X 2 1/4" H.H.C.S.	2
39	9001-0808	1/2-13 X 1" H.H.C.S.	2
40	9200-0808	1/2-13 X 1" B.H.C.S.	2
41	9200-1010	5/8-11 X 1 1/4" B.H.C.S.	2
42	9402-0800	1/2-20 HEX NUT	8
43	9600-0500	5/16" FLAT WASHER	18
44	9600-0700	7/16" FLAT WASHER	4
45	9600-0800	1/2" FLAT WASHER	4
46	9600-1000	5/8" FLAT WASHER	2
47	9700-0400	1/4" LOCK WASHER	18
48	9700-0800	1/2" LOCK WASHER	18
49	9700-0900	1/2" LOCK WASHER	9
50	9902-0814	1/2-20 X 1.374" STUD	4
51	9902-0830	1/2-20 X 3 3/4" STUD	4
52	4010-1220	10" TORQUE ARM	1
53	2000-1335	UPPER IDLER BEARING	2
54	2000-1338	LOWER IDLER BEARING ASSEMBLY	2
55	2000-1230	TORQUE BEARING ASSEMBLY	2
56	2603-1404	BUSHING	4
57	4800-0051	GRL FACE PLATE WELDMENT	1

B	4800-0051	VAR.	4800-2000	08/28/06	LES	04382
C	4800-1330	VAR.	4800-1330	05/25/04	CTT	04661
J	1260-0411	VAR.	1260-1100	02/17/05	LJT	03343
K	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
L	4800-1330	VAR.	4800-1330	02/18/04	LEI	04661
M	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
N	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
O	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
P	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
Q	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
R	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
S	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
T	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
U	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
V	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
W	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
X	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
Y	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661
Z	4800-0051	VAR.	4800-1330	02/18/04	LEI	04661

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 BOMBAI MACHINERY WORKS, INC. 1000 ACTUATOR (4063" DRIFTICE)
 3000 MAINFRAME
 10" GTL TORQUE ARM
 10" R.H. IDLER ARM
 10" L.H. IDLER ARM
 GRL CYLINDER PIN WELDMENT
 GRL CLAMP ARM ASSEMBLY
 BRONZE THRUST WASHER
 GRL LINK CLAMP (LONG)
 GRL CLAMP ARM LINK
 LOWER CYL. PIN WELDMENT
 CAUTION LABEL
 CAUTION LABEL (10.12 SECONDS)
 CAUTION LABEL
 90° ADAPTER (4SAE X 4 JIC)
 90° L. ADAPTER (4SAE X 4 JIC)
 HOSE ASSY (3/8" x 8')
 HOSE ASSY (1/4" x 1')
 HOSE ASSY (1/4" x 1')
 HOSE ASSY (1/4" x 1.26')
 HOSE CLAMP COVER PLATE
 1/2" PLASTIC CLAMP
 KEY (1/4" x 1.3716" LG.)
 MODEL/SERIAL NAME PLATE
 DRIVE SCREW
 RUBBER BUMPER
 TORQUE ARM WASHER
 ARM WASHER
 20 SELF-LOCKING NUT
 1/4-20 SELF-LOCKING NUT
 1/4-20 3/4" H.H.C.S.
 1/4-20 X 1" H.H.C.S.
 1/4-20 X 2" H.H.C.S.
 5/16-18 X 1.374" H.H.C.S.
 3/8-16 X 1" H.H.C.S.
 3/8-16 X 2 1/4" H.H.C.S.
 1/2-13 X 1" H.H.C.S.
 1/2-13 X 1" B.H.C.S.
 5/8-11 X 1 1/4" B.H.C.S.
 1/2-20 HEX NUT
 5/16" FLAT WASHER
 7/16" FLAT WASHER
 1/2" FLAT WASHER
 5/8" FLAT WASHER
 1/4" LOCK WASHER
 1/2" LOCK WASHER
 1/2" LOCK WASHER
 1/2-20 X 1.374" STUD
 1/2-20 X 3 3/4" STUD
 10" TORQUE ARM
 UPPER IDLER BEARING
 LOWER IDLER BEARING ASSEMBLY
 TORQUE BEARING ASSEMBLY
 BUSHING
 GRL FACE PLATE WELDMENT

REV. NO. 1 OF 1
 SHEET 24
 DWG. NO. 1910-0540
 DATE 08/28/06
 DESIGNED BY CTT
 CHECKED BY CTT
 APPROVED BY CTT
 DATE 07/18/06
 DRAWN BY CTT

ITEM	PART NO.	DESCRIPTION	QTY
1	4800-0051	GRL FACE PLATE WELDMENT	1
2	2603-1309	Ø1" BUSHING W/SEALS	6



NOTE:
 1. POWDER COAT YELLOW.
 2. PRESS BEARINGS IN 1/32" BELOW FLUSH AFTER POWDER COATING.

REV. A	2603-1309	VAS	2603-1306	12/13/04	CTT	CL410	CHK	BY	IND
REV. UET				DATE	BY	CHK	BY	IND	

CONFIDENTIAL

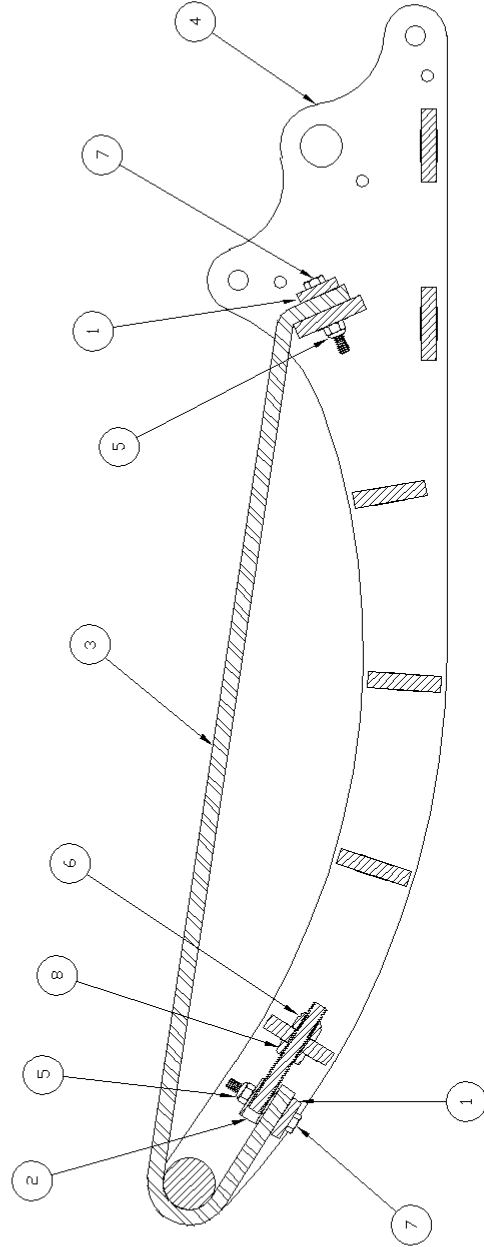
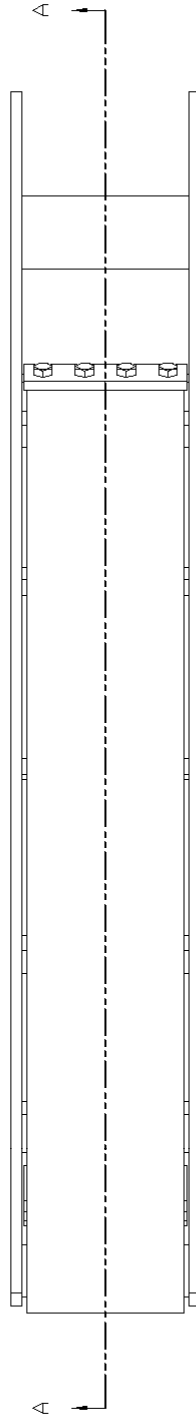
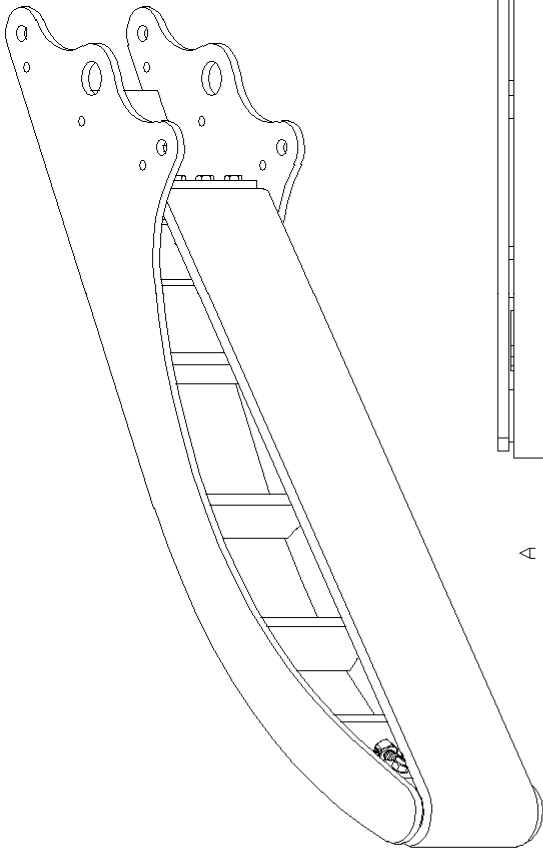
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BAYNE MACHINE WORKS, INC.
 205 FAIRGUEST WAY - GREENVILLE, SC 29607 - 864-255-3777

DATE	06/13/02	CHKD BY	TBR	DATE	07/22/02	CHKD BY	CTT
SCALE	1=2	SHEET	1	OF	1	REV.	A
TITLE	FACEPLATE ASSEMBLY		DWG. NO.	4800-0050			

ITEM	PART NO.	DESCRIPTION	QTY
1	4800-0021	GTL ARM BELT SQUISH PLATE	2
2	4800-0026	GTL ARM BELT TENSIDNER	1
3	4800-0056	GRL CLAMP ARM BELT	1
4	4800-0061	GRL CLAMP ARM WELDMENT	1
5	8901-0400	1/4-20 SELF-LOCKING NUT	8
6	8901-0600	3/8-16 SELF-LOCKING NUT	1
7	9001-0414	1/4-20 x 1 3/4" HH.C.S.	8
8	9401-0600	3/8-16 HEX. NUT	1

NOTE:
1. ORIENT THICK RUBBER SIDE OF BELTING AWAY FROM ARM WELDMENT.



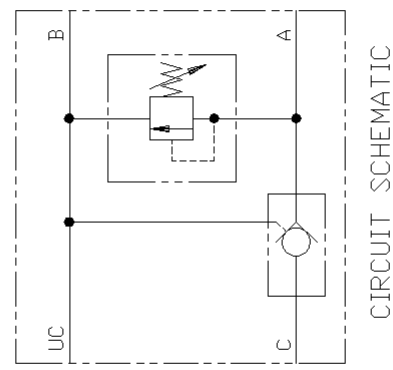
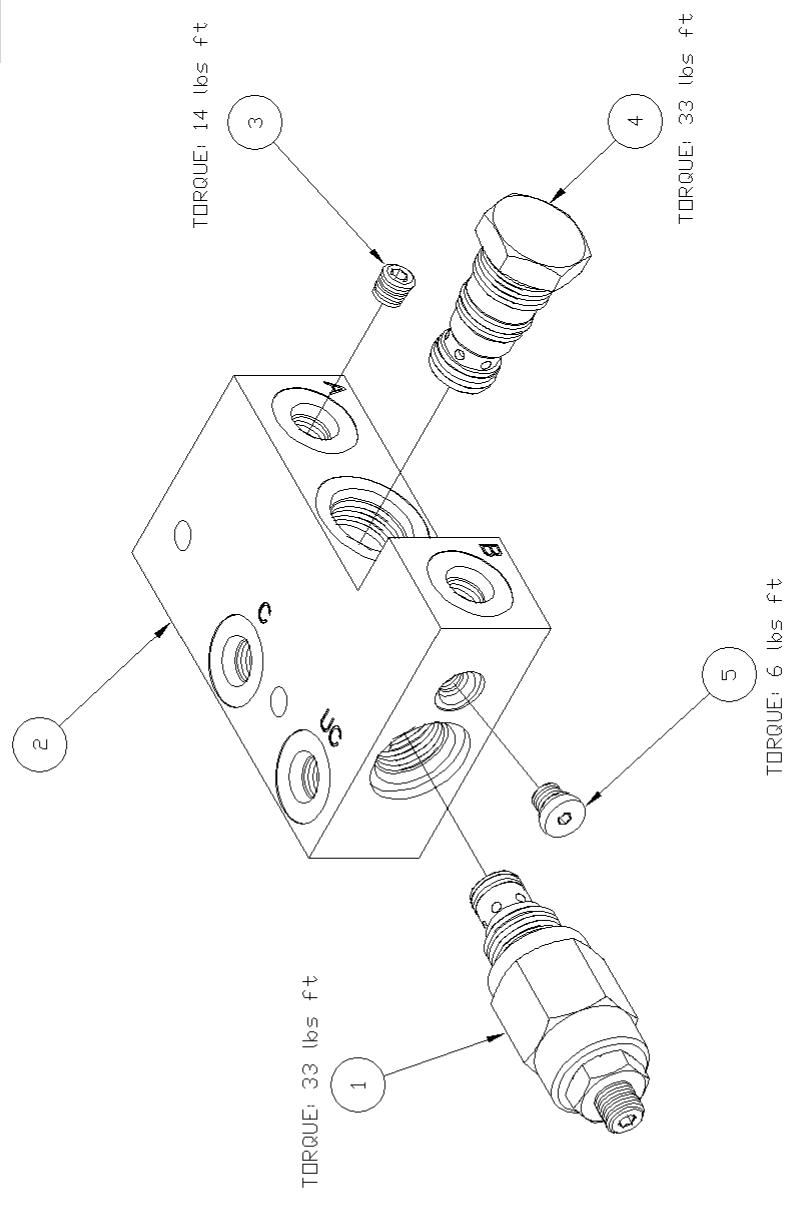
REV. A	DATE	BY	CHK. BY	CLASS.
1	11/17/05	CTT		CLASS
2				CHK
3				BY
4				IND

SECTION "A-A"

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BAYNE MACHINE WORKS, INC. 285 FAIRGREST WAY - GREENVILLE, SC 29607 - 864-255-3777 TOLL FREE: 1-800-430-9065 FAX: 864-255-3777		1=2	1	1	A
DATE:	CHKD. BY:	TITLE:	DWG. NO.:		
06/19/02	TBR	CLAMP ARM ASSEMBLY	4800-0060		
DATE:	DRAWN BY:				
08/22/02	CTT				

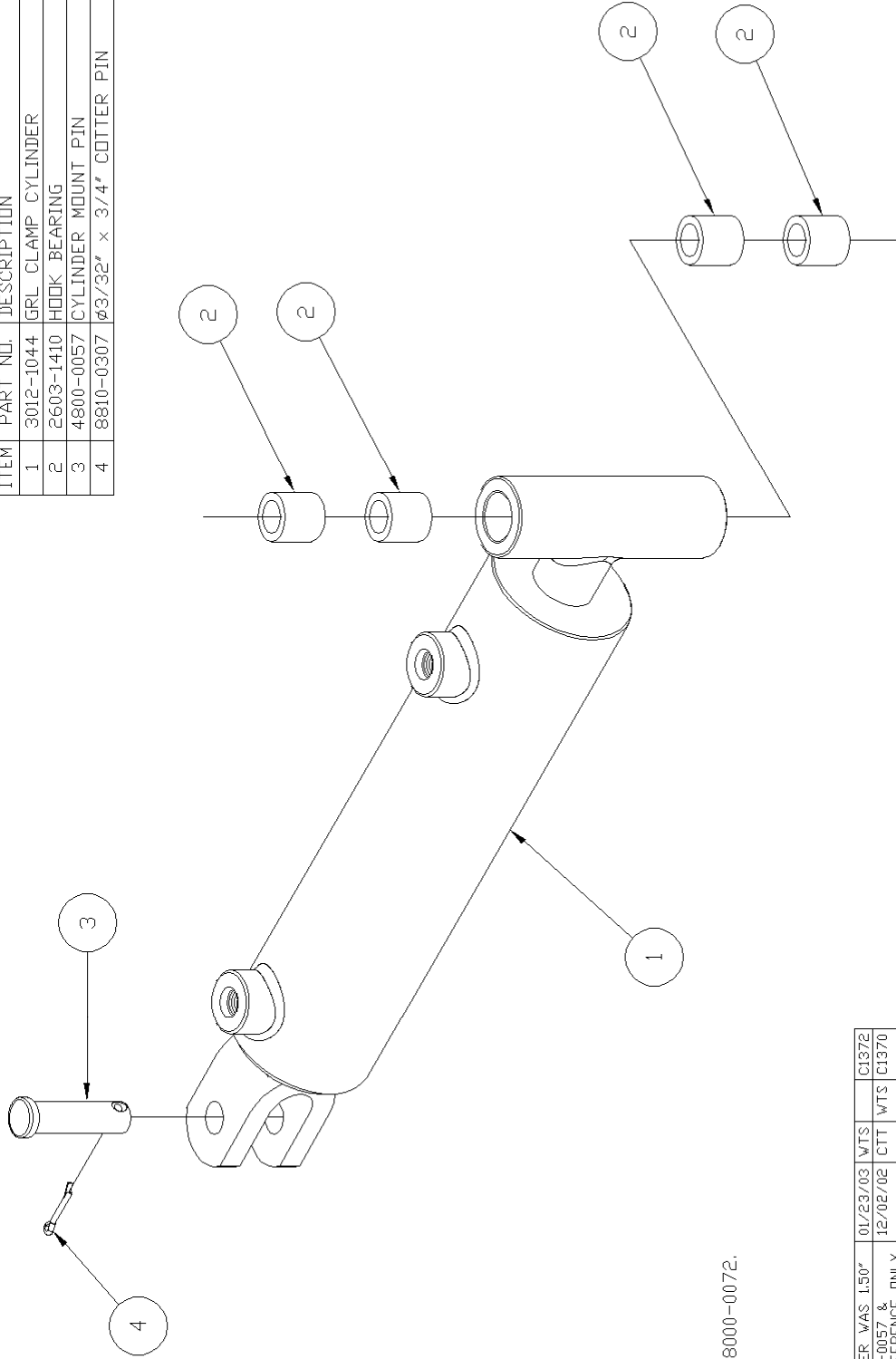
ITEM	PART NO.	DESCRIPTION	QTY
1	6065-2702	RELIEF VALVE CARTRIDGE	1
2	6065-2711	GRL VALVE MANIFOLD	1
3	6066-0043	Ø.043" DRIFICE PLUG	1
4	6069-3000	P.D. CHECK VALVE (4CK30)	1
5	6246-0002	#2 SAE SOCKET HEAD PLUG	1

NOTE:
1. SET PRESSURE RELIEF VALVE (6065-2702) TO 1400 PSI AT ASSEMBLY.



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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		TITLE: CONTROL VALVE		DWG. NO.: 6065-2710
910 FORK SHOALS ROAD - GREENVILLE, SC 29635 - 864-288-3877		DATE: 07/19/02	CHKD BY: CTT	GRL		

ITEM	PART NO.	DESCRIPTION	QTY
1	3012-1044	GRL CLAMP CYLINDER	1
2	2603-1410	HOOK BEARING	4
3	4800-0057	CYLINDER MOUNT PIN	1
4	8810-0307	Ø3/32" x 3/4" COTTER PIN	1



NOTE:
1. SEAL KIT: 8000-0072.

REV.	DATE	CHKD BY	DATE	CHKD BY	REV.	DATE	CHKD BY	DATE	CHKD BY
B	01/23/03	WTS	C1372						
A	12/02/02	CTT	WTS	C1370					
ADDED P/N'S 4800-0057 & 8810-0307 FOR REFERENCE ONLY									
REV.	DATE	CHKD BY	DATE	CHKD BY	REV.	DATE	CHKD BY	DATE	CHKD BY
LET.		BY		BY	E.C.R.		BY		ND.

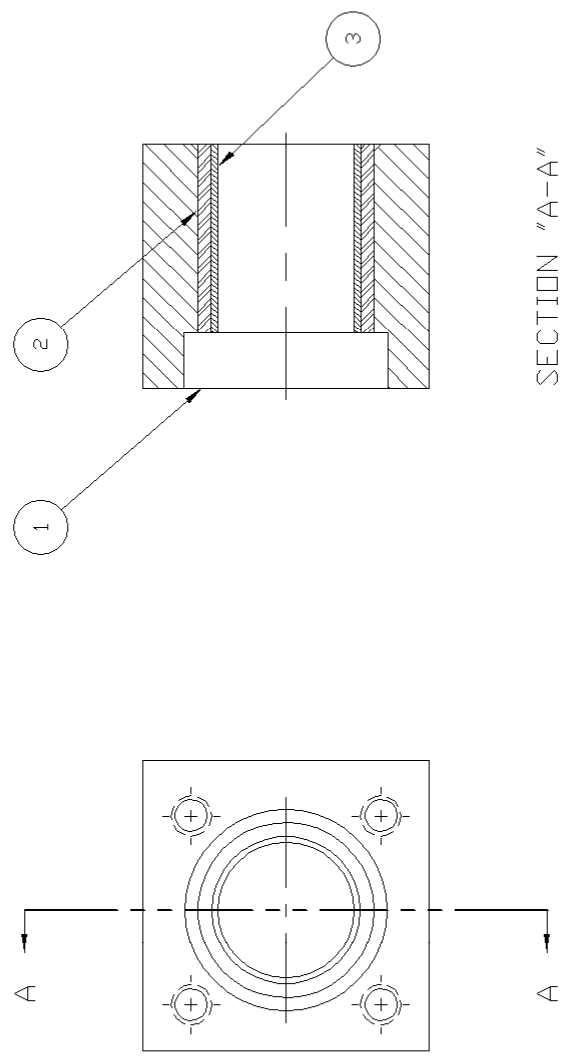
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SCALE:	NTS	SHEET	OF	REV.
		1	1	B
TITLE:		DWG. NO.:		
GRL CLAMP CYLINDER ASSEMBLY		3112-1044		
DATE:		CHKD BY:		
07/22/02		TBR		
DATE:		DRAWN BY:		
07/15/02		CTT		

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

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	BY	LET.
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

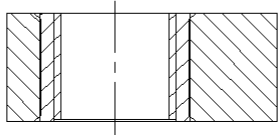
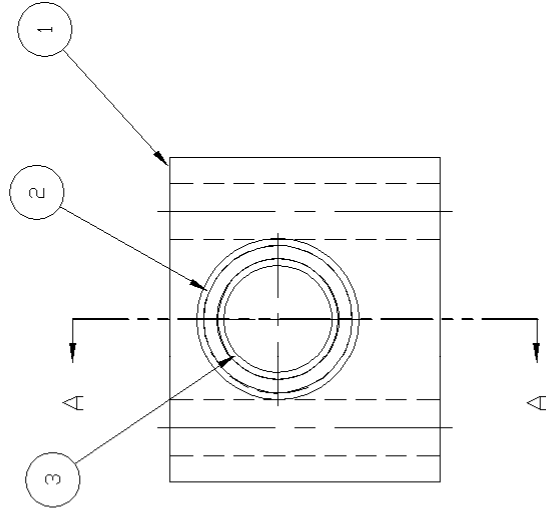
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BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864-288-3877

SCALE: 1=1 SHEET 1 OF 2 REV. D
 DATE: 03/22/00 CHKD BY: RTM TITLE: TORQUE BEARING ASSEMBLY DWG. NO.: 2000-1230
 DATE: 06/13/00 DRAWN BY: ANR

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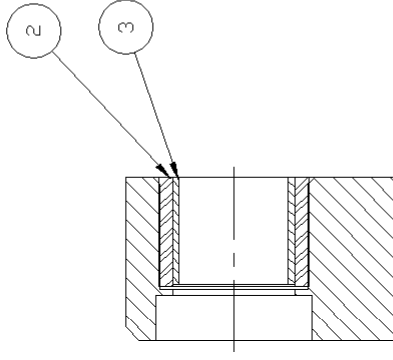
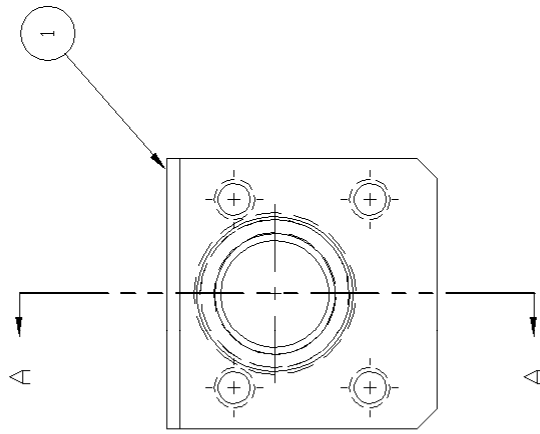
TOLERANCES IF NOT NOTED:
 0.000 ±0.005 - 0.00 +0.015
 0/0 ±1/32 - ANGULAR ±0.25

DATE: 03/22/00 DATE: 06/27/00
 DRAWN BY: ANR CHK'D BY: RTM
 TITLE: UPPER IDLER BEARING ASSEMBLY
 DWG. NO.: 2000-1335

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

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	E.C.R. 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

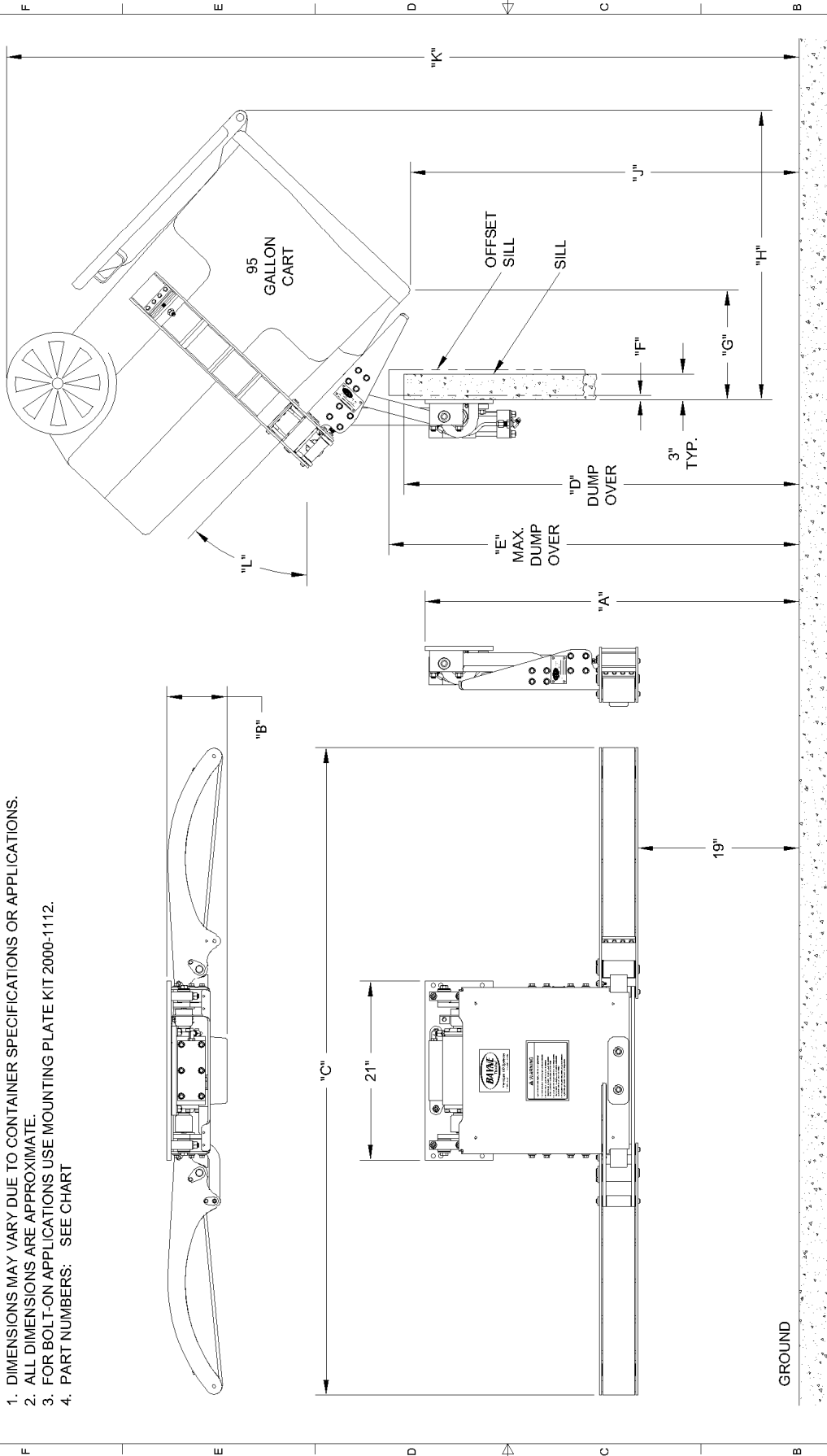
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910 FORK SHOALS ROAD - GREENVILLE, SC 29635 - 864-288-3877	BAYNE MACHINE WORKS, INC.	DRAWN BY: ANR	DATE: 03/22/00	CHKD BY: RTM	DATE: 06/20/00	TITLE: LOWER IDLER BEARING ASSEMBLY	SCALE: 1=1	SHEET 1 OF 2	REV. C
--	----------------------------------	---------------	----------------	--------------	----------------	-------------------------------------	------------	--------------	--------

0.000 ±0.005	0.00 ±0.015	DWG. NO.: 2000-1338
0.00 ±0.005	0.00 ±0.015	
0.00 ±0.005	0.00 ±0.015	

NOTE:

1. DIMENSIONS MAY VARY DUE TO CONTAINER SPECIFICATIONS OR APPLICATIONS.
2. ALL DIMENSIONS ARE APPROXIMATE.
3. FOR BOLT-ON APPLICATIONS USE MOUNTING PLATE KIT 2000-1112.
4. PART NUMBERS: SEE CHART



CONFIDENTIAL		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
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BAYNE MACHINE WORKS, INC. 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864.288.3877			
TITLE: GRL SERIES SPECIFICATIONS			
DRAWN BY	DATE	SCALE	SHEET OF
CTT	10/20/2009	NONE	1 2
CHECKED BY	DATE	DWG NO	REV
		H5900000	-

QTY	FINISH	WEIGHT

MODEL NUMBER	PART #	"A" DIM.	"B" DIM.	"C" DIM.	"D" DIM.	"E" DIM.	"F" DIM.	"G" DIM.	"H" DIM.	"J" DIM.	"K" DIM.	"L" DIM.
GRL 1110	1900-0540	40"	7 1/8"	76"	40 1/2"	N/A	N/A	12 7/8"	34"	37 3/4"	85 1/4"	43°
GRL 1110 E	1900-0550	40"	7 1/8"	82"	40 1/2"	N/A	N/A	12 7/8"	34"	37 3/4"	85 1/4"	43°
GRL 1111	1900-0541	41"	7 1/8"	76"	42 1/4"	42 3/4"	1/8"	13 1/8"	33 5/8"	40 1/4"	87 3/8"	41°
GRL 1112	1900-0542	42"	7 1/8"	76"	43 5/8"	44 3/4"	3/8"	13 1/4"	33 1/4"	42 5/8"	89 3/8"	40°
GRL 1113	1900-0543	43"	7 1/8"	76"	45 1/8"	46 7/8"	1/2"	13 3/8"	33"	45"	91 3/8"	39°
GRL 1114	1900-0544	44"	7 1/8"	76"	46 1/2"	48 1/4"	1/2"	12 7/8"	34"	45 3/4"	93 1/4"	43°
GRL 1115	1900-0545	45"	7 1/8"	76"	48"	51"	3/4"	13 5/8"	32 1/2"	49 3/8"	95 3/8"	37°
GRL 1120	1900-0550	50"	7 1/8"	76"	55 1/8"	60 3/4"	7/8"	13 3/8"	33"	59"	105 3/8"	39°

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
 DIMENSIONS IN PARENTHESES ARE FRACTIONAL DIMENSIONS
 DIMENSIONS IN BRACKETS ARE DECIMAL DIMENSIONS
 TWO PLACE DECIMAL 0.015
 THREE PLACE DECIMAL 0.005
 ANGLES ARE IN DEGREES
 UNLESS OTHERWISE SPECIFIED: MACHINED TO 0.005 DEGS BEND 11.00 DEGS

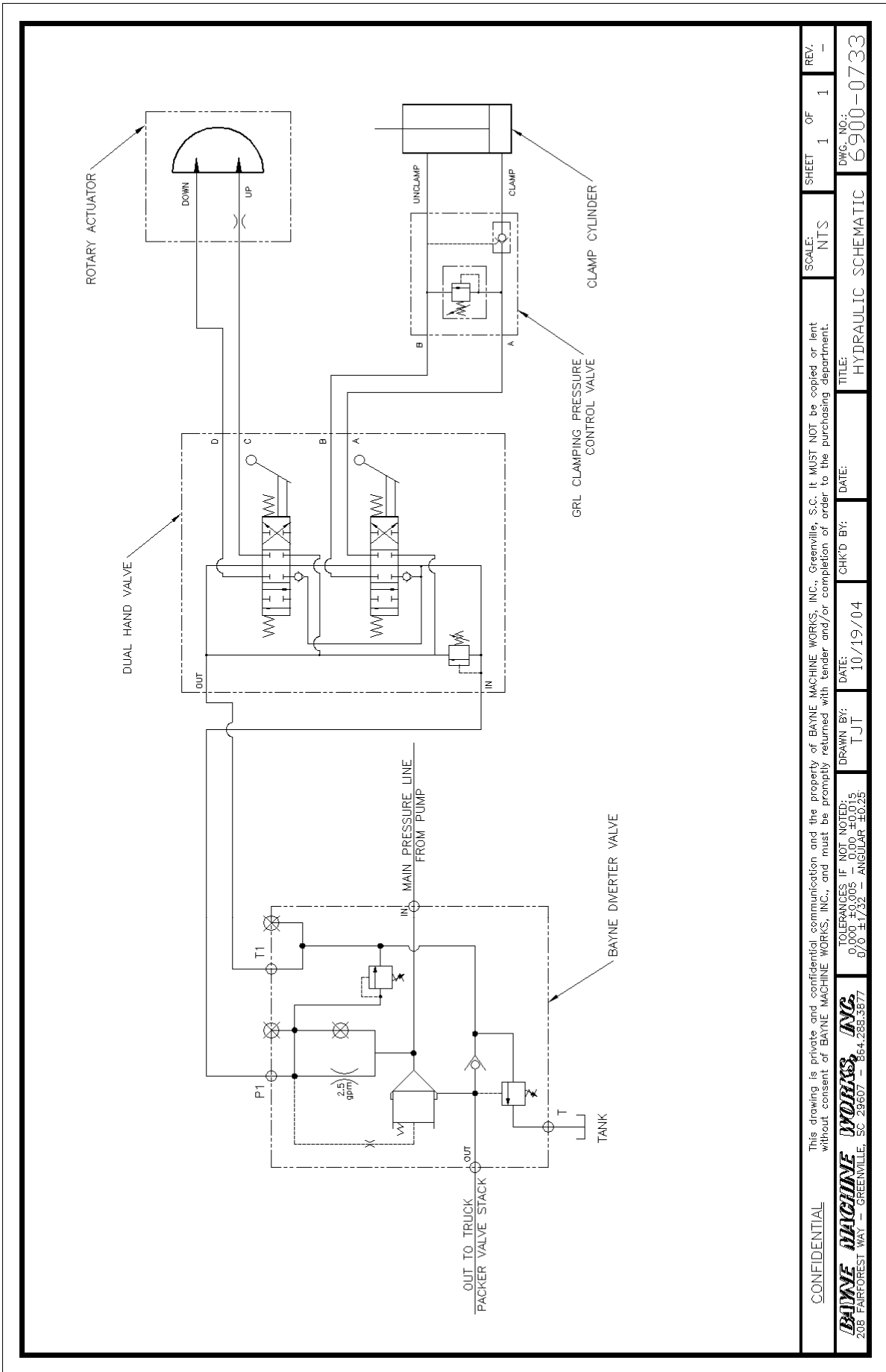
BAYNE MACHINE WORKS, INC.
 910 FORK SHOALS ROAD - GREENVILLE, SC 29605 - 864.288.3977

TITLE: **GRL SERIES SPECIFICATIONS**

DRAWN BY: CTT DATE: 10/20/2009 SCALE: NONE SHEET 2 OF 2

CHECKED BY: DATE: DWG NO: H5900000 REV: -

QTY	FINISH	WEIGHT



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				NTS	1	1	-
BAYNE MACHINE WORKS, INC. 208 FAIRFOREST WAY - GREENVILLE, SC 29607 - 864-288-3677		DATE:	CHK'D BY:	TITLE:			
TOLERANCES IF NOT NOTED: 0.000 ±0.005 - 0.00 ±0.015 0/0 ±1/32 - ANGULAR ±0.25		10/19/04	TJT	HYDRAULIC SCHEMATIC			
				DWG. NO.: 6900-0733			