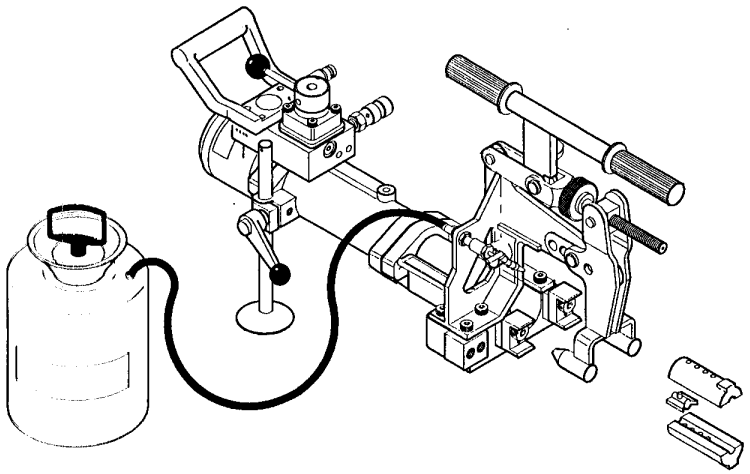
RD11

HYDRAULIC RAIL DRILL



Safety, Operation, and Maintenance Manual

Focused on performance™

STANLEY® Hydraulic Tools

28859 U.S.A. 02/95

SAFETY PRECAUTIONS

Tool operators and maintenance personnel must always comply with the safety precautions given in this manual and on the stickers and tags attached to the tool and hose.

These safety precautions are given for your safety. Review them carefully before operating the tool and before performing general maintenance or repairs.

Supervising personnel should develop additional precautions relating to the specific work area and local safety regulations. If so, place the added precautions in the space provided on page 4.

GENERAL SAFETY PRECAUTIONS

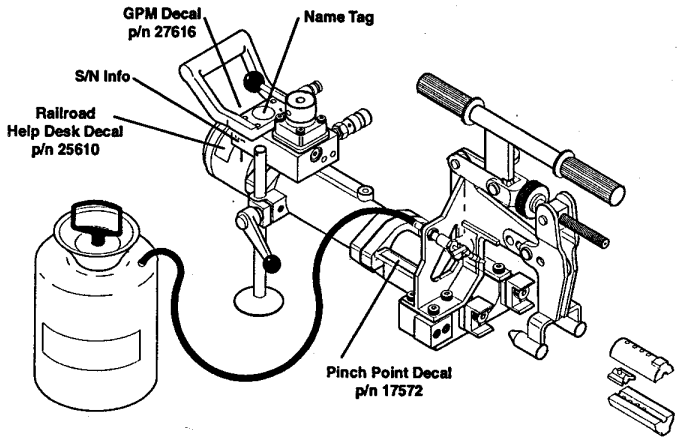
The RD11 Hydraulic Rail Drill will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual and any stickers and tags attached to the drill and hose before operation. Failure to do so could result in personal injury or equipment damage.

- Operator must start in a work area without bystanders. The operator must be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.
- Establish a training program for all operators to ensure safe operation.
- Do not operate the tool unless thoroughly trained or under the supervision of an instructor.
- Always wear safety equipment such as goggles, ear and head protection, and safety shoes at all times when operating the tool.
- Do not overreach. Maintain proper footing and balance at all times.
- Do not inspect, replace the drill bit or clean the tool while the hydraulic power source is connected. Accidental engagement of the tool can cause serious injury.
- Always connect hoses to the tool hose couplers before energizing the hydraulic power source. Be sure all hose connections are tight.
- Do not operate the tool at oil temperatures above 140°F/60°C. Operation at higher temperatures can cause higher than normal temperatures at the tool which can result in operator discomfort.
- Never transport or carry the drill with the unit energized.
- Do not operate a damaged, improperly adjusted, or incompletely assembled drill.
- Never wear loose clothing that can get entangled in the working parts of the tool.
- To avoid personal injury or equipment damage, all tool repair, maintenance and service must only be performed by authorized and properly trained personnel.
- Keep hands and fingers away from rotating parts.

TOOL STICKERS AND TAGS

The stickers and tags attached to the rail drill prior to shipment from the factory are shown on this page. The pressure and flow rate specified must never be exceeded. All stickers and tags must be read and understood prior to operating the tool.

The information listed on stickers and tags must be legible at all times. Always replace stickers that have become worn or damaged. Replacements are available from your local Stanley distributor.



CAUTION

5-10 GPM/20-38 LPM
DO NOT EXCEED 2000 PSI/140 BAR

■DO NOT EXCEED SPECIFIED FLOW OR PRESSURE. ■USE CLOSED-CENTER TOOL ON CLOSED-CENTER SYSTEM. ■USE OPEN-CENTER TOOL ON OPEN-CENTER SYSTEM. ■CORRECTLY CONNECT HOSES TO TOOL "IN" AND "OUT" PORTS. ■IMPROPER HANDLING, USE OR MAINTENANCE OF TOOL COULD RESULT IN A LEAK, BURST, OR OTHER TOOL FAILURE. ■CONTACT AT A LEAK OR BURST CAN CAUSE OIL INJECTION INTO THE BODY. ■FAILURE TO OBSERVE THESE PRECAUTIONS CAN RESULT IN SERIOUS PERSONAL INJURY.

GPM/PRESSURE STICKER P/N 27616

WARNING

PINCH POINT
STAY CLEAR OF ALL MOVING PARTS

PINCH POINT WARNING STICKER P/N 17572

The safety tag (p/n 15875) at right is attached to the drill when shipped from the factory. Read and understand the safety instructions listed on this tag before removal. We suggest you retain this tag and attach it to the drill when not in use.

DANGER

1. FAILURE TO USE HYDRAULIC HOSE LABELED AND CERTIFIED AS NON-CONDUCTIVE WHEN USING HYDRAULIC TOOLS ON OR NEAR ELECTRICAL LINES MAY RESULT IN DEATH OR SERIOUS INJURY.

   BEFORE USING HOSE LABELED AND CERTIFIED AS NON-CONDUCTIVE ON OR NEAR ELECTRIC LINES BE SURE THE HOSE IS MAINTAINED AS NON-CONDUCTIVE. THE HOSE SHOULD BE REGULARLY TESTED FOR ELECTRIC CURRENT LEAKAGE IN ACCORDANCE WITH YOUR SAFETY DEPARTMENT INSTRUCTIONS.

2. A HYDRAULIC LEAK OR BURST MAY CAUSE OIL INJECTION INTO THE BODY OR CAUSE OTHER SEVERE PERSONAL INJURY.

   A DO NOT EXCEED SPECIFIED FLOW AND PRESSURE FOR THIS TOOL. EXCESS FLOW OR PRESSURE MAY CAUSE A LEAK OR BURST.

   B DO NOT EXCEED RATED WORKING PRESSURE OF HYDRAULIC HOSE USED WITH THIS TOOL. EXCESS PRESSURE MAY CAUSE A LEAK OR BURST.

   C CHECK TOOL HOSE COUPLERS AND CONNECTORS DAILY FOR LEAKS. DO NOT FEEL FOR LEAKS WITH YOUR HANDS. CONTACT WITH A LEAK MAY RESULT IN SEVERE PERSONAL INJURY.

IMPORTANT

READ OPERATION MANUAL AND SAFETY INSTRUCTIONS FOR THIS TOOL BEFORE USING IT.

USE ONLY PARTS AND REPAIR PROCEDURES APPROVED BY STANLEY AND DESCRIBED IN THE OPERATION MANUAL.

TAG TO BE REMOVED ONLY BY TOOL OPERATOR.

SEE OTHER SIDE

15875

DANGER

D DO NOT LIFT OR CARRY TOOL BY THE HOSES. DO NOT ABUSE HOSE. DO NOT USE KINKED, TORN OR DAMAGED HOSE.

3. MAKE SURE HYDRAULIC HOSES ARE PROPERLY CONNECTED TO THE TOOL BEFORE PRESSURING SYSTEM. SYSTEM PRESSURE HOSE MUST ALWAYS BE CONNECTED TO TOOL "IN" PORT. SYSTEM RETURN HOSE MUST ALWAYS BE CONNECTED TO TOOL "OUT" PORT. REVERSING CONNECTIONS MAY CAUSE REVERSE TOOL OPERATION WHICH CAN RESULT IN SEVERE PERSONAL INJURY.

4. DO NOT CONNECT OPEN-CENTER TOOLS TO CLOSED-CENTER HYDRAULIC SYSTEMS. THIS MAY RESULT IN LOSS OF OTHER HYDRAULIC FUNCTIONS POWERED BY THE SAME SYSTEM AND/OR SEVERE PERSONAL INJURY.

5. BYSTANDERS MAY BE INJURED IN YOUR WORK AREA. KEEP BYSTANDERS CLEAR OF YOUR WORK AREA.

6. WEAR HEARING, EYE, FOOT, HAND AND HEAD PROTECTION.

7. TO AVOID PERSONAL INJURY OR EQUIPMENT DAMAGE, ALL TOOL REPAIR MAINTENANCE AND SERVICE MUST ONLY BE PERFORMED BY AUTHORIZED AND PROPERLY TRAINED PERSONNEL

IMPORTANT

READ OPERATION MANUAL AND SAFETY INSTRUCTIONS FOR THIS TOOL BEFORE USING IT.

USE ONLY PARTS AND REPAIR PROCEDURES APPROVED BY STANLEY AND DESCRIBED IN THE OPERATION MANUAL.

TAG TO BE REMOVED ONLY BY TOOL OPERATOR.

SEE OTHER SIDE

15875

SAFETY TAG P/N 15875 (shown smaller then actual size)

HYDRAULIC HOSE REQUIREMENTS

HOSE TYPES

Hydraulic hose types authorized for use with Stanley Hydraulic Tools are as follows:

❶ Certified non-conductive

❷ Wire-braided (conductive)

❸ Fabric-braided (not certified or labeled non-conductive)

Hose ❶ listed above is the only hose authorized for use near electrical conductors.

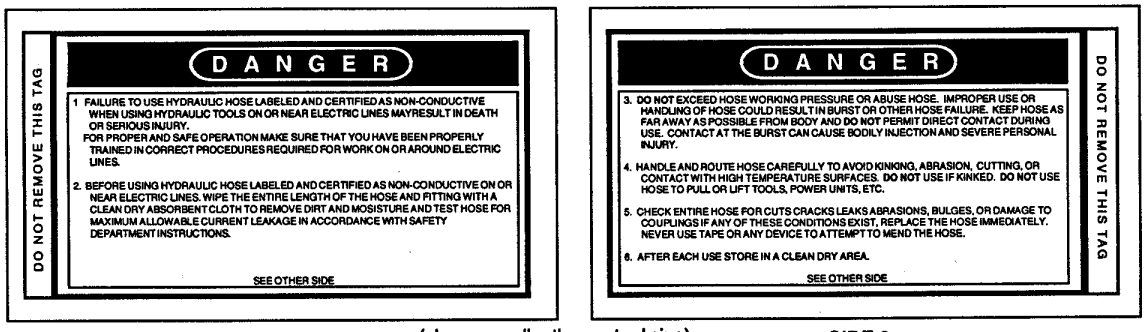
Hoses ❷ and ❸ listed above are **conductive** and **must never** be used near electrical conductors.

To help ensure your safety, the following DANGER tags are attached to all hose purchased from Stanley Hydraulic Tools. DO NOT REMOVE THESE TAGS.

If the information on a tag is illegible because of wear or damage, replace the tag immediately. A new tag may be obtained at no charge from your Stanley Distributor.

❶ CERTIFIED NON-CONDUCTIVE HOSE

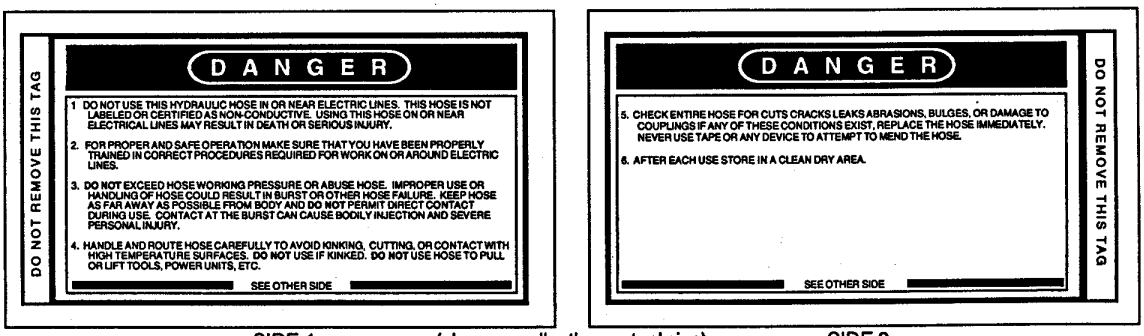
This tag is attached to all certified **non-conductive** hose.



SIDE 1 (shown smaller then actual size) SIDE 2

❷ AND ❸ WIRE-BRAIDED AND FABRIC-BRAIDED (NOT CERTIFIED OR LABELED NON-CONDUCTIVE) HOSE

This tag is attached to all **conductive** hose.



SIDE 1 (shown smaller then actual size) SIDE 2

HOSE PRESSURE RATING

The rated working pressure of the hydraulic hose **must be equal or higher than** the relief valve setting on the hydraulic system used to power the tool.

SAFETY SYMBOLS

Safety symbols are used to emphasize all operator, maintenance and repair actions which, if not strictly followed, could result in a life-threatening situation, bodily injury or damage to equipment.

DANGER

This safety symbol may appear on the tool. It is used to alert the operator of an action that could place him/her or others in a life threatening situation.

⚠ WARNING

This safety symbol appears in these instructions to identify an action that could cause bodily injury to the operator or other personnel.

IMPORTANT

This safety symbol appears in these instructions to identify an action or condition that could result in damage to the tool or other equipment.

Always observe safety symbols. They are included for your safety and for the protection of the tool.

LOCAL SAFETY REGULATIONS

Enter any local safety regulations here. Keep these instructions in an area accessible to the operator and maintenance personnel.

IMPORTANT

In addition to the Safety Precautions on pages 1 thru 4 of this manual, observe the following for equipment protection and care.

- Always store an the tool in a clean dry space, safe from damage or pilferage.

- Do not exceed the rated limits or use the drill for applications beyond its design capacity.

- Always keep critical tool markings, such as lables and warning stickers legible.

- Always replace hoses, couplings and other parts with replacement parts recommended by Stanley Hydraulic Tools. Supply hoses must have a minimum working pressure rating of 2500 psi/175 bar.

- Permit only properly trained personnel to perform tool repair.

- Be sure to wipe all couplers clean before connecting. Use only lint-free cloths.

- The hydraulic circuit control valve must be in the "OFF" position when coupling or uncoupling the drill. Failure to do so may result in damage to the quick couplers and cause overheating of the hydraulic system.

HYDRAULIC SYSTEM REQUIREMENTS

- The hydraulic system should provide a flow of 5-10 gpm/20-38 lpm at an operating pressure of 1000-2000 psi/70-140 bar. Recommended relief valve setting is 2100-2250 psi/145-155 bar.

- The system should have no more than 250 psi/17 bar backpressure measured at the tool end of the operating hoses. The system conditions for measurement are at maximum fluid viscosity of 400 ssu/82 centistokes (minimum operating temperatures).

- The hydraulic system should have enough heat rejection capacity to limit the maximum oil temperature to 140°F/60°C at the maximum expected ambient temperature. The recommended minimum cooling capacity is 5 hp/3.73 kW at a 40° F/22°C difference between ambient temperature and oil temperature.

- The hydraulic system should have a minimum of 25 micron filtration. Use of filter elements sized for a flow of at least 30 gpm/114 lpm for cold temperature startup and maximum dirt holding capacity is recommended.

- The hydraulic fluid used should have a viscosity between 100 and 400 ssu/20 and 82 centistokes at the maximum and minimum expected operating temperatures. Petroleum base hydraulic fluids with antiwear properties and a viscosity index over 140 will meet the recommended requirements over a wide range of operating temperatures.

- The recommended hose size is .500 inch/12 mm I.D. up to 50 ft/15 m long and .625 inch/16 mm I.D. minimum up to 100 ft/30 m long.

PREOPERATION PROCEDURES

PREPARATION FOR INITIAL USE

The unit as shipped has no special unpacking or assembly requirements prior to usage. Inspection to assure the unit was not damaged in shipping and that it does not contain packing debris is all that is required. Otherwise, the unit may be connected to a hydraulic source upon receipt.

CHECK HYDRAULIC POWER SOURCE

1. Using a calibrated flowmeter and pressure gauge, check that the hydraulic power source develops a flow of 8-10 gpm/30-38 lpm at 1000-2000 psi/70-140 bar.

2. Make certain the hydraulic power source is equipped with a relief valve set to open at 2100-2250 psi/145-155 bar maximum.

3. Make certain that the power source return pressure does not exceed 250psi/17 bar.

CONNECT HOSES

1. Wipe all hose couplers with a clean lint-free cloth before making connections.

2. Connect the hoses from the hydraulic power source to the hose couplers on the drill. It is a good practice to connect the return hose first and disconnect it last to minimize or avoid trapped pressure within the drill motor.

3. Observe flow indicators stamped on hose couplers to be sure that oil will flow in the proper direction. The female coupler is the inlet coupler.

4. Observe the "IN" and "OUT port lettering on the valve block assembly to ensure that the hydraulic flow is in the proper direction. The "IN" port lettering indicates the inlet (pressure) side.

Note: The pressure increase in uncoupled hoses left in the sun may result in making them difficult to connect. When possible, connect the free ends of operating hoses together.

USING COOLANT

The RD11 rail drill is equipped with a separate coolant can assembly that is used to deliver coolant to the drill bit. To use the coolant can assembly with the rail drill:

1. If operating the rail drill at temperatures above 32° F/0° C, fill the coolant can with ordinary tap water.

2. If operating the rail drill at temperatures below 32° F/0° C, fill the coolant can with a mixture of 50% ordinary tap water and 50% bio-degradable antifreeze.

3. Pressurize the coolant can using the carrying handle/pump.

4. Connect the coolant can assembly to the rail drill using the supplied quick-disconnect coupler.

OPERATING PROCEDURES

1. Observe all safety precautions.

2. Make sure the rail drill is clean.

3. Make sure the drill bit you intend to use is sharp and the shank is not damaged.

4. Install the appropriate drill bit into the two halves of the split chuck. Make sure the beaded portion of the drill bit engages the center slot in each of the chuck halves (figure 1).

5. Place the split chuck (with drill bit) inside the spindle. Make sure the lugs on the ends of the split chuck line up with the notches in the spindle (figure 2).

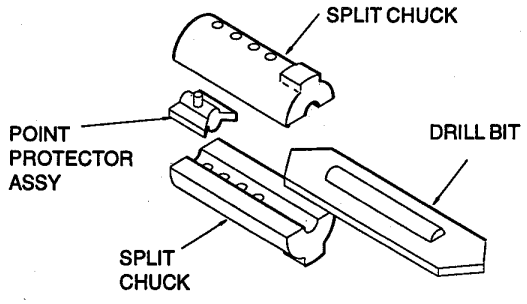


Figure 1. Installing a Drill Bit.

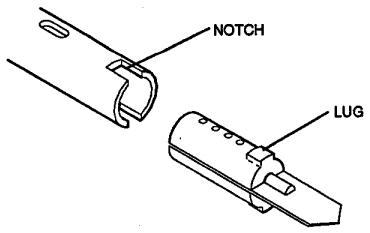


Figure 2. Installing the Split Chuck.

DRILLING WITHOUT TEMPLATES

1. Using a permanent ink marker, carefully mark the rail web where you intend to drill. A vertical and horizontal mark is required.

2. Line up the rail drill with the rail at the first drill position.

3. Adjust the knob assembly (55) to center the drill bit at the horizontal ink mark on the rail web.

4. Adjust the crutch weldment (91) until the rail drill is perpendicular to the rail.

5. Prior to clamping the tightening lever assembly, make sure there is a 1/4-inch/6 mm space between adjustment yoke and stop plate of the operating lever.

6. Clamp the tightening lever assembly to the rail web. Make sure the drill bit lines up with the vertical ink mark on the rail web.

DRILLING WITH TEMPLATES

1. Remove the 2 positioners (80) and install the rail template.

2. Place the guide template on top of the rail, locating the template stop against the end of the rail and tighten the clamp screws.

3. Adjust the positioner washer (71) as required to engage the slots in the guide template.

4. Place the rail drill on the rail, adjust the crutch weldment (91) until the rail drill is perdendicular to the rail. Adjust the height adjustment to engage the guide template slot corresponding to the hole location you intend to drill.

5. Adjust the tightening lever assembly to securely clamp the rail drill to the rail.

TO BEGIN DRILLING

1. Direct the modular hose towards the hole you intend to drill and open the water/coolant valve.

2. Move the control valve to the rapid advance position "A" to bring the drill bit into contact with the rail (figure 3).

3. Begin drilling by moving the control valve into the drill "D" position (figure 3).

TO STOP DRILLING

1. To stop drilling, move the control valve to the neutral "N" position (figure 3).

2. Retract the drill by moving the control valve to the retract "R" position (figure 3) and then move it back to the "N" position.

3. Close the water/coolant valve.

4. Move the hydraulic circuit control valve to the "OFF" position.

REMOVING THE DRILL BIT

1. Align the spindle cross hole for easy Insert a drift through a cross hole in the spindle, positioning the flat of the drift against the end of the split chuck.

2. Using a hammer, drive the drift into the spindle to loosen the split chuck from the spindle.

3. Remove the drill bit from the split chuck.

DRILLING IN HARDENED RAIL (CURVE RAIL)

When drilling in hardened rail (curve rail), attention must be paid to the drill RPM. It may be required to operate the drill at a reduced oil flow (speed) to minimize bit wear. Attention must be paid to directing a generous amount of coolant to the bit using the coolant system included with the RD11. Failure to follow this procedure can cause rapid dulling of the drill bit and may damage the RD11.

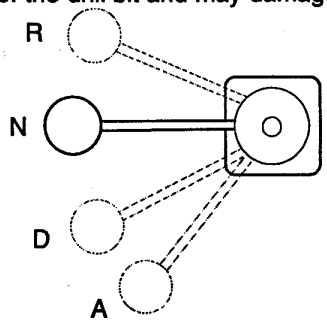


Figure 3. Operating the Control Valve

RAIL DRILL DISASSEMBLY

CONTROL VALVE, VALVE BLOCK, & CARRY HANDLE REMOVAL (Necessary to Service Hydraulic Motor, Cylinder Machining, Piston, or Spindle and all associated seals)

1. Unscrew 4 capscrews (2) and remove the carry handle (3) and set aside. Then lift the control valve and valve block off of the hydraulic motor as an assembly.

CONTROL VALVE DISASSEMBLY

1. Unscrew 4 capscrews (31) and lift the control lever (27 to 29), control housing (32), and rotor assembly (37) off of the valve block (13) as an assembly.

2. The rotor and shaft may be removed from the control housing assembly by loosening the set-screw (24) and then removing the cap (29) with the control handle still attached. The rotor and shaft may then be removed from the housing assembly. **NOTE**: Care must be taken that the ball (16) and spring (23) do not fall out of their location in the housing assembly. To prevent loss of the ball and spring, remove the shaft and rotor while holding the housing upside down in the palm of your hand.

3. Remove the ball and spring, thrust washers (21) and needle roller bearing (35). Discard the o-rings (33 & 34).

4. Drive the roll pin (20) out of the rotor and remove the shaft if required.

HYDRAULIC MOTOR REMOVAL

1. Perform step 1 under CONTROL VALVE, VALVE BLOCK & CARRY HANDLE REMOVAL.

2. Unscrew the 2 capscrews (47), remove them and the two washers (48) and set aside.

3. The hydraulic motor is a Parker/Nichols 11YA-129-YM-0-07. Servicing of the motor must be accomplished through a Parker/Nichols servicing dealer.

PISTON, CYLINDER MACHINING, & SPINDLE DISASSEMBLY

1. Before proceeding with the following steps first remove the spade bit, split chucks (81), and point protector assembly (82) if they are still installed.

2. Perform steps 1 through 3 of HYDRAULIC MOTOR REMOVAL.

3. Unscrew the two capscrews (47) which hold the cylinder machining to the front bridge (85) and set the capscrews and washers (48) aside. Set the front bridge, clamp arm, tightening lever weldment, and operating lever aside as an assembly.

4. Clamp the cylinder machining in a vise with soft jaws. Using a 1 1/8 inch hex driver or service tool 28868, unscrew the plug (15) from the cylinder machining (46) by turning it counter clockwise. Set the plug aside.

5. Obtain a piece of scrap steel bar which measures approximatley 18 inches long by 2 to 4 inches wide by 1/2 inch thick (457 mm x 50 to 100 mm x 12 mm). Place the bar into the slot on the spindle (86) in such a way that one end of the bar rests against the work bench. Using special tool 28868, insert the spline end of the tool into the spline of the piston (42). Using a 1 1/8 inch socket and long ratchet handle, unscrew the piston counter clockwise until it can be separated from the spindle. Remove the piston and spindle from the cylinder machining and set aside.

6. Remove and discard all the seals.

OPERATING LEVER, TIGHTENING LEVER WELDMENT, CLAMP ARM & FRONT BRIDGE DISASSEMBLY

1. The operating lever (58), adjustment yoke ((60), adjustment screw (63), adjustment knob (62), and tightening lever weldment (64) can be removed from the clamp arm (53) by first removing the cotter pin (59) located closest to the motor end of the rail drill, then remove the bridge pin (65) and finally the two clevis pins (57).

2. The clamp arm can be removed from the front bridge assembly by unscrewing 6 capscrews (50).

3. The height adjusting lever (70) can be removed from the clamp arm by disconnecting the

spring (77) from the clamp arm, loosening the setscrew (78), and then removing the shaft collar (76) from the adjusting lever shaft. Note orientation of shims and washers.

PRIOR TO ASSEMBLY

1. Clean all parts with a degreasing solvent.

2. Ensure that all seals exposed during disassembly are replaced with new seals.

3. Apply clean grease or o-ring lubricant to all parts during assembly.

4. Obtain the seal kit shown in the parts listing so that all seals exposed during disassembly can be replaced.

NOTE: For orientation of parts identified in the following procedures, see the parts list exploded view illustration in this manual.

RAIL DRILL RE-ASSEMBLY

PISTON, CYLINDER MACHINING, & SPINDLE RE-ASSEMBLY

1. Clamp the cylinder machining (46) in a vise with soft jaws.

2. Apply grease to the quad ring (90) and the backup ring (89). Install the quad ring followed by the backup ring into the groove in the bore of the cylinder machining as shown in figure 4.

3. Apply grease to the wiper (88) and press it in place in the cylinder machining in the location shown in figure 4.

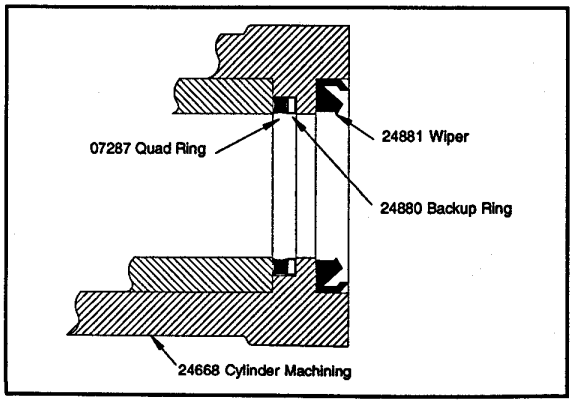


Figure 4. Cross Section of 24668 Cylinder Machining

4. Apply grease to the o-ring (87) and install it into the groove located behind the threads on the spindle.

5. Lubricate the spindle and the bore of the cylinder machining.

6. Grease the square ring of the piston ring set and install it into the groove on the piston. Grease the piston ring of the piston ring set and install it over the top of the square ring.

7. Lubricate the piston and intall it into the cylinder machining and thread it together with the spindle.

8. Place a flat bar into the slot on the spindle (see step 5 under PISTON, CYLINDER MACHINING, & SPINDLE DISASSEMBLY).

9. Insert the splined end of special tool 28868 into the spline in the piston. Using a 1 1/8 inch socket and torque wrench, tighten to 250 ft. lbs.

10. Grease the o-ring (95) and install it onto the plug (15). Screw the plug into the cylinder machining and tighten securely.

OPERATING LEVER, TIGHTENING LEVER WELDMENT, CLAMP ARM & FRONT BRIDGE RE-ASSEMBLY

1. Fasten the front bridge assembly (85) to the cylinder machining using two capscrews (47) and lock washers (48).

2. Install the clamp arm (53) to the front bridge assembly using 6 capscrews (50) and 6 lock washers (49).

3. Install the height adjusting lever (70) to the clamp arm and install shims (74 & 75) noting their original location to maintain the positioner washer on the drill bit center line. Install the shaft collar (76) onto the height adjusting lever shaft with the set screw (78) and spring (77) positioned as shown in the parts drawing and then tighten the set screw. Attach the spring to the loop provided on the clamp arm.

4. Install the positioner washer (71) onto the height adjusting lever using the capscrew (66) and washer (69) orienting the grooved side up for non template drilling, or down for use with the guide template.

5. Thread the threaded shaft with knob (54 & 55) into place on the clamp arm as shown on the parts drawing.

6. Thread the quick disconnect nipple (52) onto the anchor coupling (51). Thread the needle valve (73) onto the anchor coupling and secure with the nut provided. Install the modular hose (72) onto the needle valve.

7. Install the tolerance ring (61) onto the adjustment screw (63) followed by the adjustment ring (62) and the adjustment yoke (60). Secure in place with the retaining ring (56). Thread the adjustment screw of the assembly into the tightening lever weldment (64). Secure the adjustment yoke to the lever weldment using the clevis pin (67) and cotter pin (59) as shown in the parts drawing. Install the finished assembly to the clamp arm using clevis pins (57), cotter pin (59), and bridge pin (65).

HYDRAULIC MOTOR RE-ASSEMBLY

1. Apply grease and install the face seal (14) into the plug. Grease the spline shaft on the hydraulic motor (12) and install the hydraulic motor to the cylinder machining using 2 capscrews (47) and lock washers (48).

CONTROL VALVE RE-ASSEMBLY

1. Apply grease and install 2 o-rings (11) into the grooves surrounding the ports on the hydraulic motor. Apply grease and install 2 o-rings (44) onto each oil tube (43) and then insert one end of each oil tube into a port on the cylinder machining.

2. Apply grease to the oil ports in the valve block (13) and install the valve block to the hydraulic motor and cylinder machining being careful to assure all oil ports are lined up.

3. Install the carry handle (3) to the valve block using 4 capscrews (2). Make sure the drift pin assembly (1) is attached as shown in the parts drawing.

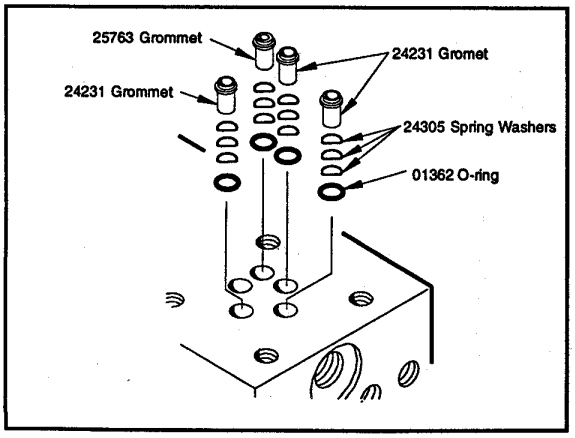


Figure 5. Valve Block & Grommets

4. Apply grease and install the grommets (38 & 41), spring washers (39), and o-rings (40) as shown in figure 5.

5. Install the roll pin (20) into the rotor (37) and shaft (36). Note that one end of the shaft contains a recess for the setscrew (24). The roll pin should be installed from the side opposite the recess and driven through the shaft until one end of the roll pin is flush with the side of the rotor (same side as recess in shaft). The roll pin should be sticking out of the other side of the rotor. Refer to figure 6 & 7 for correct orientation of parts.

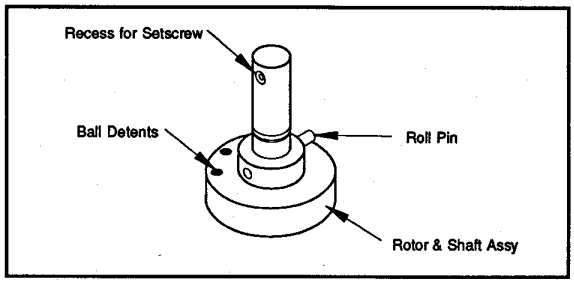


Figure 6. Correct Assembly of Rotor, Shaft, & Roll Pin

6. Apply grease and install the thrust washer (21), needle thrust bearing (35), another thrust washer 21, and the o-ring (34) onto the shaft.

7. Holding the housing (32) upside down in the palm of your hand, apply grease and install the spring (23) and ball (16) and then slide the shaft through the hole in the housing assembly (32). Install the cap (30), align the setscrew (24) with the recess on the shaft and tighten the set screw. Note the orientation of parts in figure 7.

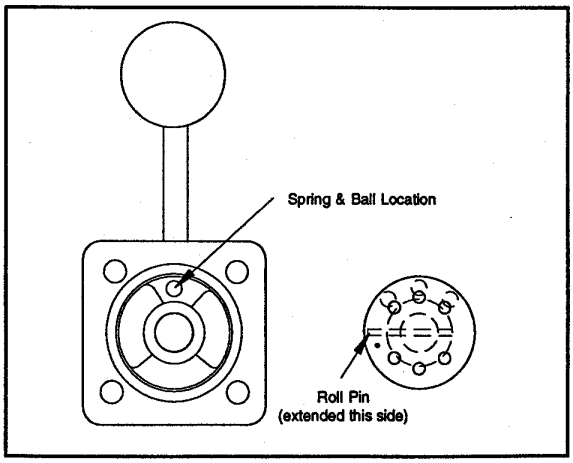


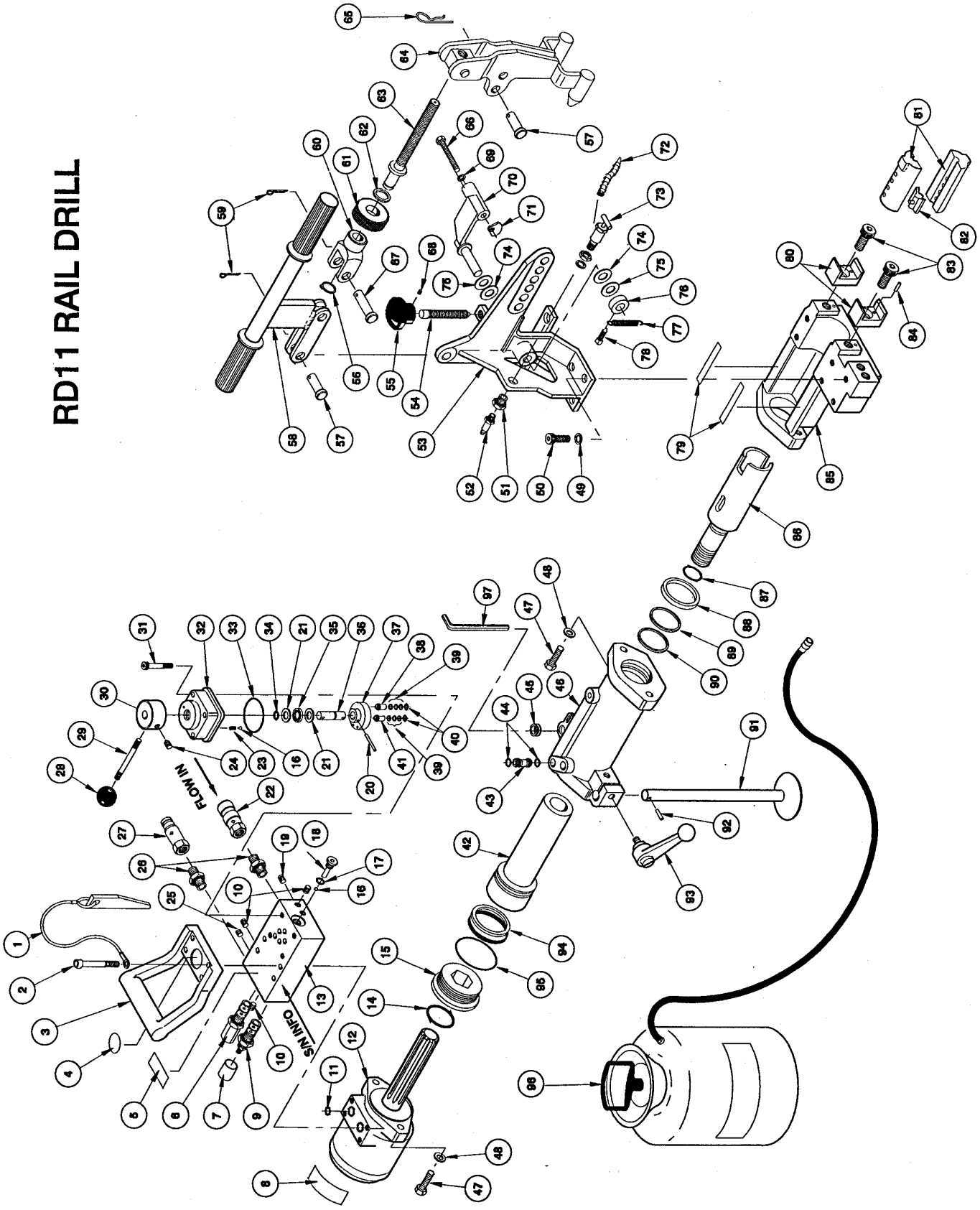
Figure 7. Bottom View of Housing Assy (32) & Rotor (37)

8. Apply grease and install the o-ring (33) to the housing assy. Install the completed housing assembly to the valve block using 4 capscrews (31).

SERVICE AND REPAIR NOTES

ITEMS 6 & 9 ARE FACTORY PRESET FOR OPTIMUM DRILL PERFORMANCE AT THE TIME OF ASSEMBLY. **DO NOT READJUST.**

RD11 RAIL DRILL



PARTS LIST

Item No	Part No	Qty	Description
1	25356	1	Drift Pin Assy
2	24871	4	Capscrew 5/16 - 18 UNC x 3 HSH
3	24844	1	Carry Handle
4	02752	1	Name Tag
5	27616	1	GPM Decal
6	25773	1	Pressure Relief Valve
7	25774	1	Tamper Resistant Cover
8	25610	1	Railroad "Help Desk" Decal
9	24868	1	Flow Control
10	00955	4	Pipe Plug, 1/8 - 27NPT
11	19095	2	O-ring, 5/8 x 13/16 x 3/32 •
12	24858	1	Hydraulic Motor
13	24571	1	Valve Block
14	24878	1	Face Seal •
15	24765	1	Plug
16	20145	2	1/4 Dia Steel Ball
17	01411	1	O-ring, .468 x .624 x .078 -906 •
18	24289	1	Plug
19	04119	1	Pipe Plug, 1/16 - 27NPT
20	03009	1	Roll Pin, 3/16 - 1 3/8
21	20761	2	Thrust Washer
22	24058	1	Female Coupler Body
23	24876	1	Spring
24	24300	1	Setscrew, 3/8 - 16 x 1/2 (core point)
25	12233	1	Lee Plug (Not a Service Item)
26	00936	2	Adapter
27	24059	1	Male Coupler Body
28	02633	1	Knob
29	24291	1	Lever Rod
30	17527	1	Cap
31	00146	4	Capscrew, 5/16 x 18UNC x 1 3/4 HSH
32	24313	1	Housing Assy
33	02177	1	O-ring, 2 1/16 x 2 1/4 x 3/32 •
34	17924	1	O-ring, 3/8 x 1/2 x 1/16 •
35	20762	1	Needle Thrust Bearing
36	24233	1	Shaft
37	24877	1	Rotor Assy
38	24231	3	Grommet (not all shown - omitted for clarity)
39	24305	12	Spring Washer
40	01362	4	O-ring, 5/16 x 7/16 x 1/16 •
41	25763	1	Grommet
42	24759	1	Piston
43	24818	2	Oil Tube
44	00055	4	O-ring, -012 R15 •
45	28384	1	Grommet
46	24668	1	Cylinder Machining
47	370251	4	Capscrew, 1/2 - 13UNC x 1 3/4 Hex Hd
48	03061	4	Lockwasher, 1/2
49	00683	6	Lockwasher, 3/8
50	04723	6	Capscrew, 3/8 - 16UNC x 1
51	24865	1	Anchor Coupling
52	22521	1	Quick Disconnect Nipple
53	26411	1	Clamp Arm
54	24773	1	Threaded Shaft
55	24873	1	Plastic Knob
56	00167	1	Retaining Ring
57	24863	2	Clevis Pin, 5/8 x 1 1/2
58	24472	1	Operating Lever
59	01924	2	Cotter Pin, 5/32 x 1 1/2
60	24775	1	Adjustment Yoke
61	24777	1	Adjustment Knob
62	24831	1	Tolerance Ring
63	24776	1	Adjustment Screw
64	26407	1	Tightening Lever Weldment
65	24875	1	Bridge Pin
66	370507	1	Capscrew, 5/16 - 18UNC x 3 Hex Hd
67	24862	1	Clevis Pin, 5/8 x 2
68	24874	1	Setscrew, #10 - 32 x 1/4
69	03031	1	Lockwasher, 5/16
70	26406	1	Height Adjusting Lever
71	22229	1	Positioner Washer
72	24860	1	Modular Hose
73	24864	1	Needle Valve
74	22214	AR	Shim .006
75	22213	AR	Shim .010
76	22463	1	Shaft Collar
77	22318	1	Spring
78	24866	1	Setscrew, 5/16 - 11UNC x 5/8
79	17572	2	Pinch Point Decal
80	22202	2	Positioner
81	22330	2	Split Chuck
82	24044	1	Point Protector Assy
83	22896	2	Capscrew, 5/8 - 11 UNC x 1 HSH
84	03047	2	Roll Pin, 3/16 x 3/4
85	24629	1	Front Bridge
86	24766	1	Spindle
87	01606	1	O-ring, -120 R16 •
88	24881	1	Wiper •
89	24880	1	Backup Ring •
90	07287	1	Quad Ring Q - 4226 - 366Y •
91	24761	1	Crutch Weldment
92	00114	1	Roll Pin, 5/32 x 1
93	24869	1	Handle
94	24859	1	Piston Ring Set •
95	04054	1	O-ring •
96	24774	1	Coolant Can Assy
97	21102	1	Allen Wrench - 1/2 in.

SEAL KIT DATA

Seal Kit Part No. 28656

Item No	Part No	Qty	Description
11	19095	2	O-ring
95	04054	1	O-ring
94	24859	1	Piston Ring Set
90	07287	1	Quad Ring
17	01411	1	O-ring
33	02177	1	O-ring
40	01362	4	O-ring
34	17924	1	O-ring
89	24880	1	Backup Ring
88	24881	1	Wiper
87	01606	1	O-ring
44	00055	4	O-ring
14	24878	1	Face Seal

• Denotes part in seal kit
AR = As Required
NOTE: Use Part Number and Part Name when ordering.

TROUBLESHOOTING

If symptoms of poor performance develop, the following chart can be used as a guide to correct the problem.

When diagnosing problems with operation of the drill, always check that the hydraulic power source is supplying the correct hydraulic flow and pressure to the drill as listed in the specifications. Use a flowmeter known to be accurate. Check the flow with the hydraulic oil temperature at least 80°F/ 27°C.

PROBLEM	CAUSE	REMEDY
Drill does not run.	Hydraulic power source not functioning.	Check power source for proper flow and pressure (5 or 10 gpm/ 20 or 38 lpm, 2000 psi/140 bar.)
	Couplers or hoses blocked.	Locate and remove restriction.
	Hydraulic motor failure.	Inspect and repair.
	Hydraulic lines not connected.	Connect lines.
Poor drilling performance	Hydraulic flow reversed.	Check that the hoses are correctly connected to the rail drill. The female coupler should be connected to the "IN" port. The return fluid must never flow through a reversing valve on the hydraulic system.
Drilled holes not straight or aligned.	Split chuck incorrectly installed in the spindle.	Correctly install the split chuck. Refer to the OPERATION section of this manual.
Drill bit dulls quickly.	Feed speed or drill rpm too fast.	Check that 5 or 10 gpm/20 or 38 lpm at 2000 psi/140 bar is available at the rail drill.
		Replace drill bit. Reduce feed speed.
	Using insufficient amount of coolant.	Replace drill bit. Increase flow of coolant.

SPECIFICATIONS

Bit Capacity	up to 1-1/2 in. diameter/38 mm diameter
Bit Type	Spade - 3/8 in. thick/.95 mm thick
Pressure	2000 psi/140 bar
Flow Range	5 or 10 gpm/20 or 38 lpm
Porting	-8 SAE O-ring
Connect Size and Type	1/2 in. Flush Face Couplers
Weight (with couplers)	85 lb/38.5 kg
Length	18 inches/45.7 cm
Width	10-1/2 inches/26.7 cm
Height	9-1/2 inches/24 cm
Motor	Parker/Nichols 11YA-129-YM-0-07

NOTE: Weights, dimensions, and operating specifications listed are subject to change without notice. Where specifications are critical to your application, please consult the factory.

ACCESSORIES

28538	Heel Block Adapter
22787	90 lb Rail Template
22788	115-119 lb Rail Template
22789	132 & 136 lb Rail Template
23490	133 lb Rail Template
22790	140 lb Rail Template
22631	90 lb 2-11/16 in. x 5-1/2 in. x 5-1/2 in Guide Template
22625	115-140 lb 3-1/2 in. x 6 in. x 6 in. Guide Template
28534	Arm - right hand
28535	Arm - left hand
28538	Tightening Lever Weldment
22611	3/4 in. Double-Ended Bit
22612	13/16 in. Double-Ended Bit
22613	7/8 in. Double-Ended Bit
22614	15/16 in. Double-Ended Bit
22615	1 in. Double-Ended Bit
22616	1-1/16 in. Double-Ended Bit
22617	1-1/8 in. Double-Ended Bit
22618	1-3/16 in. Double-Ended Bit
22619	1-1/4 in. Double-Ended Bit
22620	1-5/16 in. Double-Ended Bit
22621	1-3/8 in. Double-Ended Bit
22622	1-7/16 in. Double-Ended Bit
22623	1-1/2 in. Double-Ended Bit
22624	1-9/16 in. Double-Ended Bit
28660	28 mm Double-Ended Bit
25350	30 mm Double-Ended Bit
25351	33 mm Double-Ended Bit

SERVICE TOOLS

28868	Piston Wrench (required for servicing RD11)
04182	Flow & Pressure Tester (up to 20 gpm)
28317	Flow & Pressure Tester (up to 100 gpm)

WARRANTY

Hand held tools and their parts carry a limited warranty against defects in materials and workmanship for a period of 12 months from the date of purchase. Exceptions are cutting parts, steels, and other parts not manufactured by Stanley (such as impact mechanisms, alternators, motors, regulators, and hoses), and parts subject to normal wear and tear (such as o-rings, saw blades, and other parts that become worn through normal use of the tool).

The Warranty Registration Card packed with the tool must be filled out and returned to Stanley upon receipt of the tool.

Stanley reserves the right to replace or repair only those parts which under our examination prove to have been defective at the time of purchase.

Shipping charges are prepaid by the customer unless otherwise authorized by Stanley.

The warranty is void if maximum flow and pressure ratings are exceeded.

There is no other warranty expressed or implied.

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