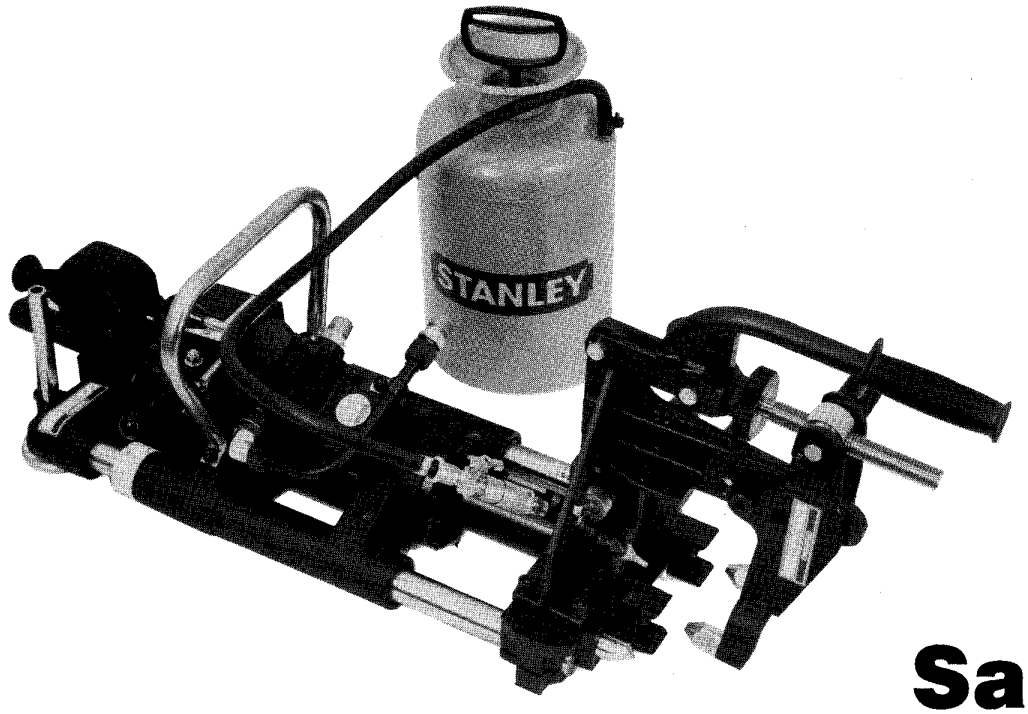
RD10
RAIL DRILL



Safety, Operation and Maintenance Manual

Focused on performance ™

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helps you do things right

22982 8/92

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 maintenance or repairs.

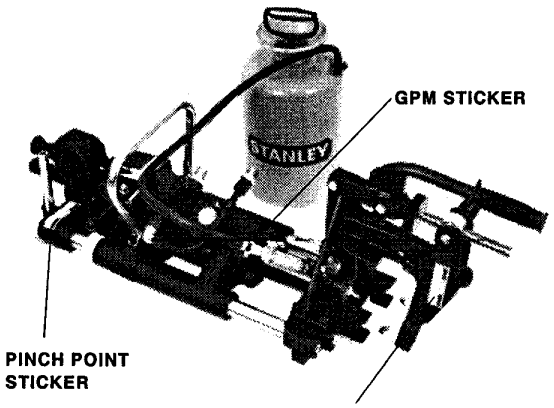
Supervising personnel should develop additional precautions relating to the specific work area and local safety regulations. If so, place the added precautions in the space provided on page 3.

GENERAL SAFETY PRECAUTIONS

The RD10 Rail Drill provides 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 tool and hose before operation. Failure to do so can result in personal injury or equipment damage.

- Operators must start in a work area without bystanders. Flying debris can cause serious injury.
- The operator must be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.
- Always wear safety equipment such as goggles, ear and head protection, leg protection, gloves, snug fitting clothing, and safety shoes at all times when operating the tool.
- Do not overreach. Maintain proper footing and balance at all times.
- Do not inspect 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. Make sure all hose connections are tight.
- 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.
- Do not operate the tool at fluid 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 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.

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 HOSE 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 INJECTIONS INTO THE BODY. ■ FAILURE TO OBSERVE THESE PRECAUTIONS CAN RESULT IN SERIOUS PERSONAL INJURY.

GPM/PRESSURE DANGER STICKER

WARNING

PINCH POINT
STAY CLEAR OF ALL MOVING PARTS

PINCH POINT WARNING STICKER

SAFETY TAG

The safety tag at right is attached to the rail 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 rail 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 ELECTRICAL 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 PRESSURIZING 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 CLOSED-CENTER TOOLS TO OPEN-CENTER HYDRAULIC SYSTEMS. THIS MAY CAUSE EXTREME SYSTEM HEAT AND/OR SEVERE PERSONAL INJURY.

   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.

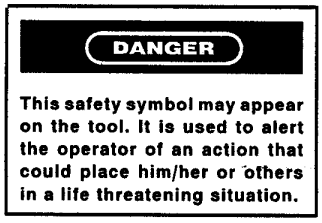
USE ONLY PARTS AND REPAIR PROCEDURES APPROVED BY STANLEY AND DESCRIBED IN THE OPERATION MANUAL.

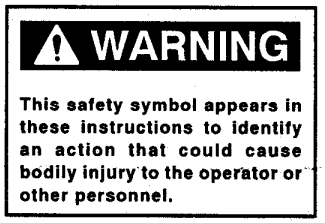
TAG TO BE REMOVED ONLY BY TOOL OPERATOR.

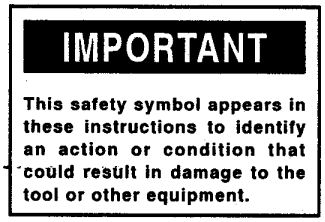
SEE OTHER SIDE 15875

SAFETY 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.







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.

EQUIPMENT PROTECTION AND CARE

IMPORTANT

In addition to the Safety Precautions on pages 1 thru 3 of this manual, observe the following for equipment protection and care.

- Always store the tool in a clean, dry space, safe from damage or pilferage.
- Always keep critical tool markings, such as labels and 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.
- Always use hoses that have a fluid resistant inner surface and an abrasive resistant outer surface. Whenever near electrical conductors, use **clean** hose labeled and certified non-conductive.
- To avoid personal injury or equipment damage, all tool repair, maintenance and service must only be performed by authorized and properly trained personnel.
- Make sure all couplers are wiped clean before connection.
- The hydraulic circuit control valve must be in the "OFF" position when coupling or uncoupling hydraulic tools. Failure to do so can result in damage to the quick couplers and cause overheating of the hydraulic system.
- Keep the rail drill clean and lubed, especially the slides and feed screw.

HYDRAULIC HOSE REQUIREMENTS

HOSE TYPES

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

❶ Labeled and 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.

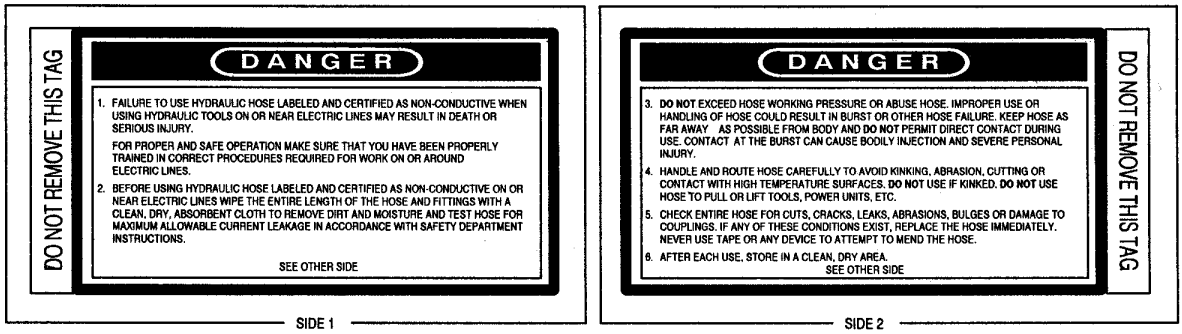
Hoses ❷ and ❸ listed above are **conductive** and **must never** be used near electrical conductors.

To help ensure your safety, the following DANGER tags are attached to all hoses 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 can be obtained at no charge from your Stanley distributor.

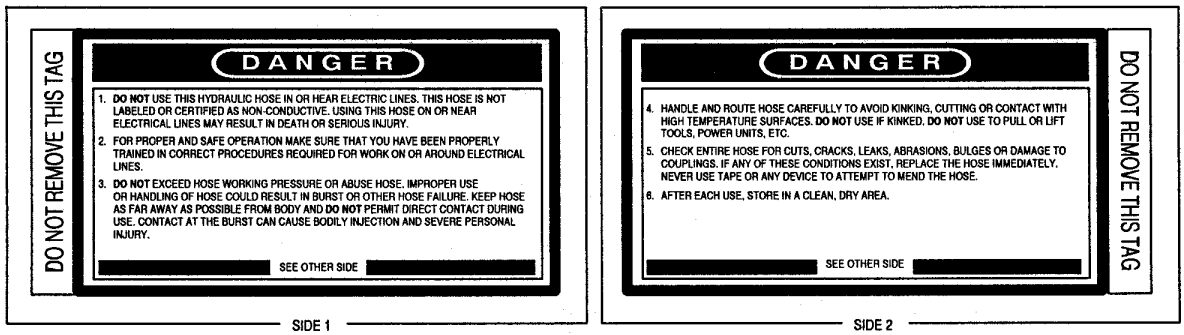
❶ CERTIFIED NON-CONDUCTIVE HOSE

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



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

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



HOSE PRESSURE RATING

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

HYDRAULIC SYSTEM REQUIREMENTS

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

- The hydraulic system should not have 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 sufficient heat rejection capacity to limit the maximum fluid 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/4° C difference between ambient temperature and fluid temperature.

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

- 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. Hydraulic fluids of petroleum base with antiwear and non-conductive properties and viscosity indexes over 140 meet the recommended requirements over a wide range of operating temperatures.

- The recommended hose size is 0.500-inch/12 mm I.D. to 50 ft/15 m long and 0.625-inch/16 mm I.D. minimum up to 100 ft/30 m long.

PREOPERATION PROCEDURES

CHECK POWER SOURCE

1. Using a calibrated flowmeter and pressure gauge, check that the hydraulic power source develops a flow of 5-10 gpm/20-38 lpm at 2000 psi/140 bar.

2. Make certain that 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 250 psi/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 couplers on the rail drill or rail drill hoses. It is a good practice to connect the return hose first and disconnect it last to minimize or eliminate trapped pressure within the rail drill motor.

Note: If uncoupled hoses are left in the sun, pressure increase inside the hoses can make them difficult to connect. Whenever possible, connect the free ends of hoses together.

3. 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.

USING COOLANT

The RD10 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% 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.

RAIL DRILL OPERATION

1. Observe all safety precautions.

2. Make sure the rail drill is clean and properly lubed, especially the guide rods and feed screw.

Note: Check the slipping torque of the feed screw and make sure its between 14.5-18 ft lb/19.6-24.4 Nm. Refer to the RAIL DRILL ADJUSTMENTS section of this manual for further information.

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).

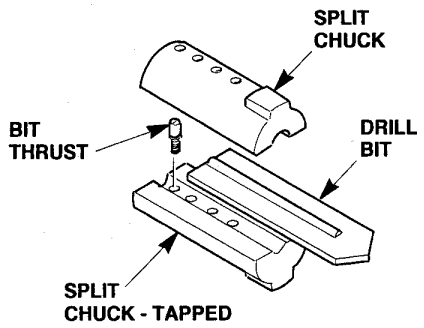


Figure 1. Installing a Drill Bit.

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

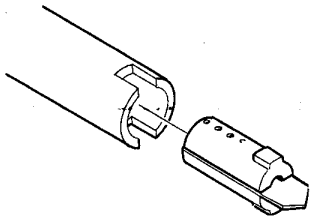


Figure 2. Installing the Split Chuck.

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

7. Make sure the feed screw guard is in its fully raised position. If not, push forward on it to disengage it from the feed screw.

8. Using the handle, slide the motor carriage toward the rail until it comes to a complete stop.

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

10. Adjust the knob assembly to center the drill bit at the horizontal ink mark on the rail web.

11. Adjust the crutch weldment until the rail drill is perpendicular to the rail.

12. 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.

13. Clamp the tightening lever assembly to the rail web. Make sure the height adjusting lever lines up with the vertical ink mark on the rail web.

14. Set the feed speed of the drill (FAST, MED, SLOW) that gives the best performance for the hardness of the rail and the type of drill bit being used.

15. Move the hydraulic circuit control valve to the "ON" position.

16. Open the coolant can assembly valve and then direct the modular hose towards the hole you intend to drill.

17. Begin drilling by pushing down on the feed screw guard until it engages the feed screw.

18. To stop drilling, disengage the feed screw guard and then pull the motor carriage toward the feed screw guard until it comes to a complete stop.

19. Close the coolant can assembly water valve.

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

REMOVING THE DRILL BIT

Removing a drill bit requires a drift, Stanley part number 22308, and a hammer. To remove a drill bit:

1. Insert the 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 and feed speed. The feed speed lever must be put into the slow position. The drill should also be operated at 5 g.p.m. Attention must be paid to directing a generous amount of coolant to the bit using the coolant system included with the RD-10. Failure to follow this procedure can cause rapid dulling of the drill bit and may damage the RD-10.

RAIL DRILL ADJUSTMENTS

INTRODUCTION

The following two adjustments might be required due to normal wear of the feed screw and feed screw guard mechanisms.

ADJUSTING THE FEED SCREW SLIP CLUTCH

1. Remove the split chuck (with drill bit) if installed. Refer to the OPERATION section of this manual for further information.
2. Install a solid metal bar into the two slots at the front of the spindle. Turn the bar until the spindle is locked in place.
3. Thread two nuts onto the end of the feed screw just enough to install a torque wrench. Tighten one nut against the other.
4. Using the torque wrench, carefully turn the feed screw to get an accurate torque reading. If the reading is between 14.5-18 ft lb/19.6-24.4 Nm, then no adjustment is required. If not, equally tighten (or loosen) the four 1/4-inch free wheel body lock nuts until the correct reading is attained.
5. Remove the torque wrench, two nuts, and bar.
6. Replace the split chuck (with drill bit). Refer to the OPERATION section of this manual for further information.

ADJUSTING THE FEED SCREW AUTOMATIC ADVANCE

1. Using the handle, slide the motor carriage toward the feed screw guard until it comes to a complete stop.
2. Lower the feed screw guard to engage the feed screw. If properly engaged, the feed screw guard should move towards the operator approximately 1/4 inch/7 mm and lock into place. If it does not, manually turn the feed screw and re-engage the feed screw guard.
3. Loosen the 1/4-inch x 3/4-inch/6 mm capscrews securing the lower half shell weldment.
4. Loosen the 5/16-inch jam nut. Tighten the 5/16-inch set screw to bring zero clearance between the feed screw and the feed nut.
5. Tighten the 1/4-inch capscrews of the lower half shell weldment.
6. Loosen the 5/16-inch set screw to allow approximately 0.010-inch clearance between set screw and the lower half shell weldment.
7. Remove the 5/16-inch capscrews securing the nut support weldment to the rear bridge. Remove the shims beneath the nut support weldment.

8. Replace front capscrews allowing a 0.010-inch clearance between the nut support weldment and the head of the capscrew.

9. Measure the maximum and minimum clearance between the nut support weldment and the rear bridge, while moving the feed screw up and down.

10. Loosen the 1/4-inch capscrews securing the lower half weldment. Remove front capscrews of the nut support weldment.

11. Insert shims between the nut support weldment and the rear bridge equal to the average maximum and minimum clearance measured.

12. Replace and tighten the front capscrews of the nut support weldment. Replace and tighten the rear capscrews of the nut support weldment.

13. Tighten the 5/16-inch set screw to allow a 0.004-0.008 inch maximum clearance between the feed screw and the lower half shell weldment.

14. Tighten the 5/16-inch jam nut.

15. Tighten the 1/4-inch capscrews of the lower half shell weldment.

TROUBLESHOOTING

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

When diagnosing faults in operation of the rail drill, always check that the hydraulic power source is supplying the correct hydraulic flow and pressure to the rail drill as listed in the table. Use a flow meter known to be accurate. Check the flow with the hydraulic fluid at a temperature of 80° F/27° C.

PROBLEM	CAUSE	REMEDY
Rail drill will not operate.	No hydraulic fluid flow or pressure.	Turn on power unit and check that 5-10 gpm/20-38 lpm at 2000 psi/140 bar is available at the rail drill.
	Defective hydraulic motor.	Repair or replace the hydraulic motor.
Spindle rotates, but drill does not advance.	Clutch slips. Feed screw not engaged.	Adjust the feed screw slip clutch and feed screw auto advance as described in the RAIL DRILL ADJUSTMENTS section of this manual.
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.
Poor rail drill 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.
	Improper hydraulic fluid flow.	Check that 5-10 gpm/20-38 lpm at 2000 psi/140 bar is available at the rail drill.
Drill bit dulls quickly	Feed speed or drill rpm too fast.	Replace drill bit. Reduce feed speed.
		Replace drill bit. Reduce hydraulic flow.
	Using insufficient amount of coolant.	Replace drill bit. Increase flow of coolant.

SPECIFICATIONS

Bit Capacity ..... 1-1/2-inch/38.10 mm
Bit Type ..... Spade Drill bits (3/8 inch Thick, Flat Bead)
Output Torque @ 2000 psi/140 bar ..... 72 ft lbs/97.6 Nm
Weight ..... 100 lbs/45.3 kg
Height ..... 16.44 inches/41.76 cm
Length ..... 39.59 inches/100.3 cm
Width ..... 13.3 inches/33.85 cm
Pressure, Maximum ..... 2,000 psi/140 bar
Flow Range ..... 5-10 gpm/20-38 lpm
Porting, Valve ..... 1/2 SAE Female
Connect Size and Type ..... 1/2 NPT Male

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

GUIDES

Size of Rail	Hole Spacing		Part No.
90 lb & 100 lb	2 11/16 x 5 1/2 x 5 1/2	Guide Template	22631
115 lb, 132 lb, 136 lb, 140 lb	3 1/2 x 6 x 6	Guide Template	22625

TEMPLATES

Size of Rail		Part No.
90 lb	Template	22787
115-119 lb	Template	22788
132-136 lb	Template	22789
140 lb	Template	72790

WARRANTY

Hand held tools and their parts are warranted against defect 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, 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.

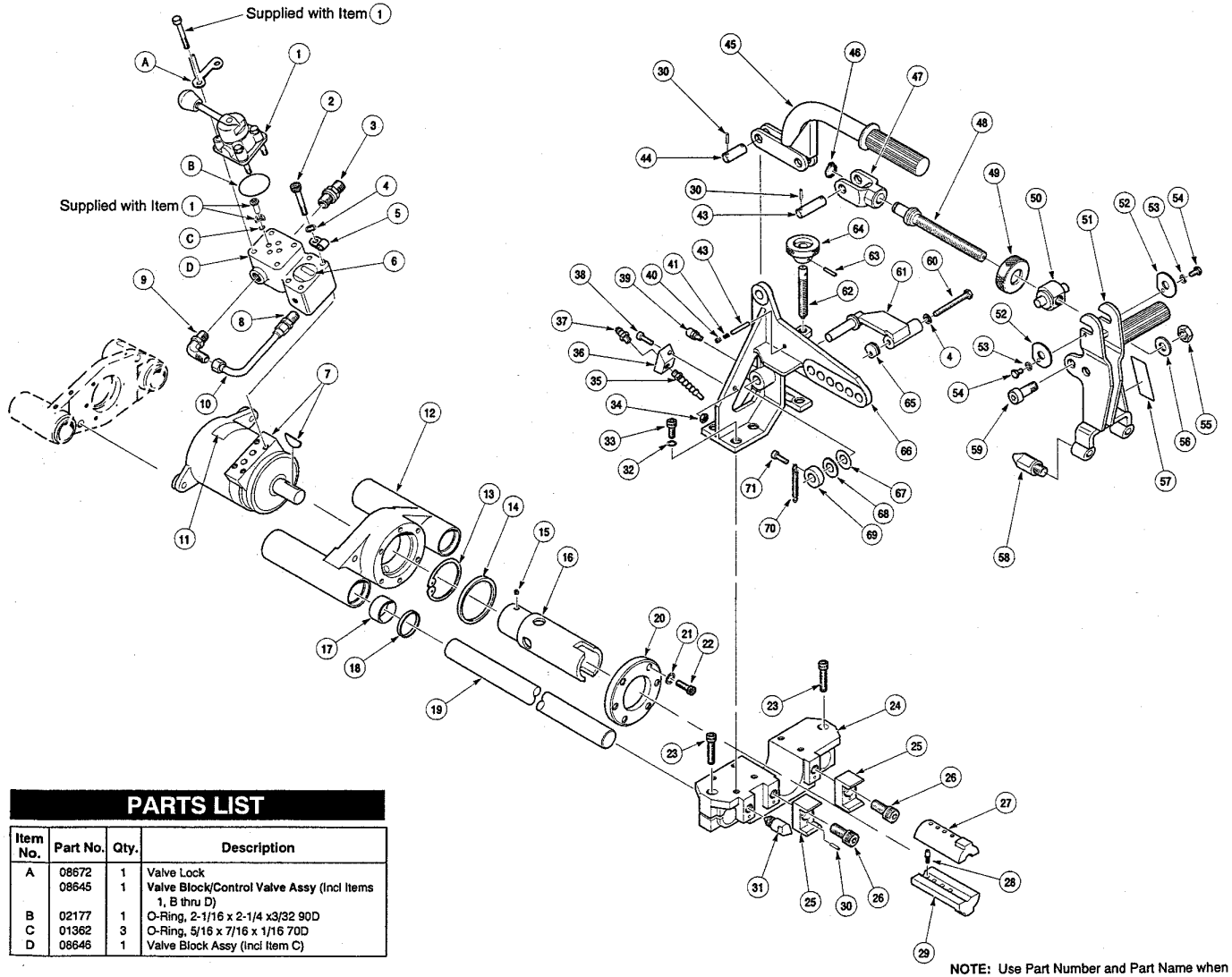
Shipping charges are prepaid by the customer unless otherwise authorized by Stanley.

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

There is no other warranty expressed or implied.

SERVICE AND REPAIR NOTES

RD10 Exploded View sheet 1 of 2



PARTS LIST

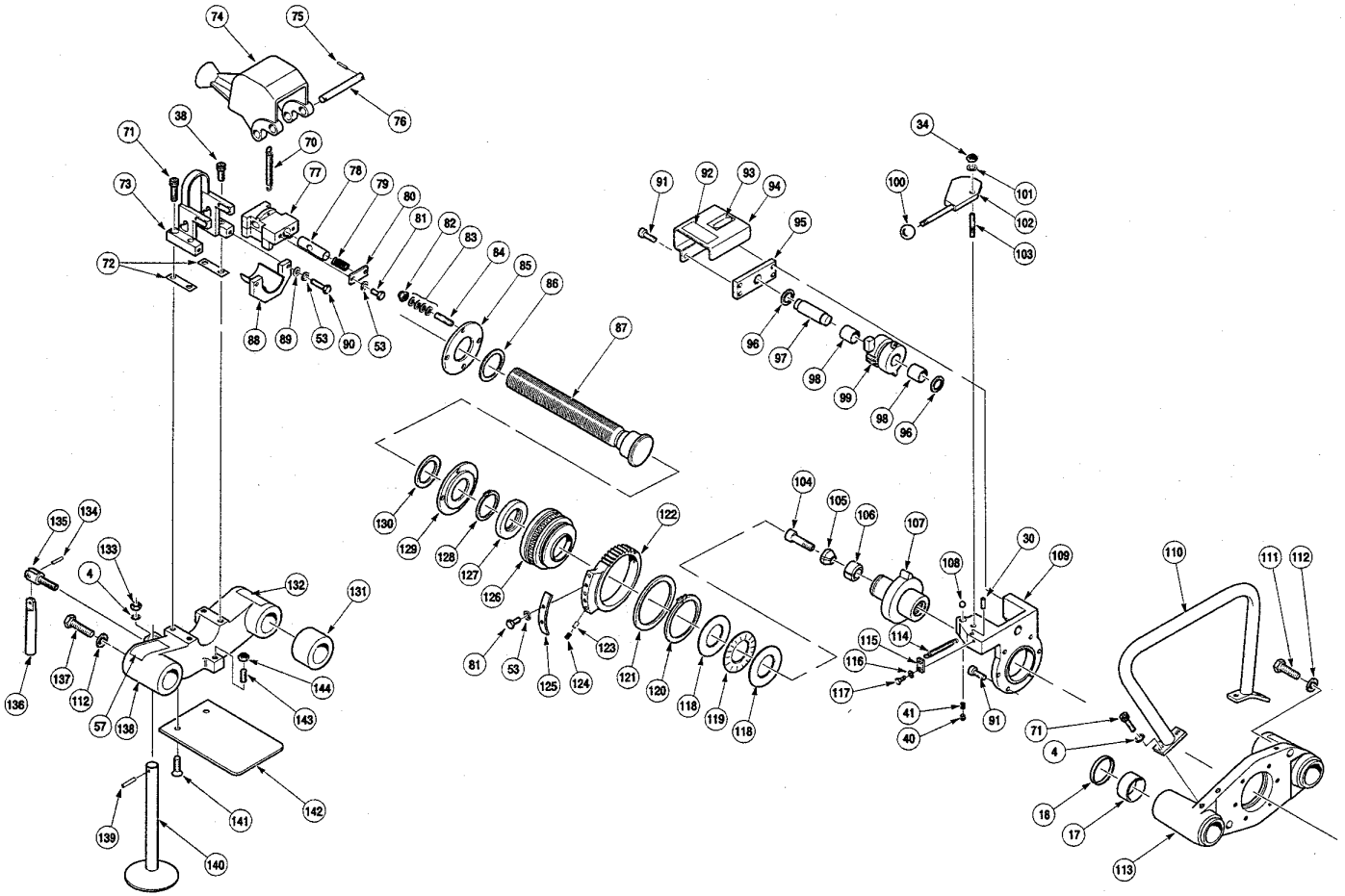
Item No.	Part No.	Qty.	Description
A	08672	1	Valve Lock
	08645	1	**Valve Block/Control Valve Assy** (Incl Items 1, B thru D)
B	02177	1	O-Ring, 2-1/16 x 2-1/4 x3/32 90D
C	01362	3	O-Ring, 5/16 x 7/16 x 1/16 70D
D	08646	1	Valve Block Assy (Incl Item C)

NOTE: Use Part Number and Part Name when ordering.

PARTS LIST

Item No.	Part No.	Qty.	Description
1	08647	1	Manual Control Valve
2	00667	4	Capscrew, 5/16 -18 UNC x 2-1/4 LG. HSH
3	22538	1	Male Pipe Adapter, 8 x 1/2 NPT F50X-S
4	03031	11	Lockwasher, 5/16
5	21736	1	Insulated Clamp
6	02752	1	Replacement Name Tag
7	22406	1	Hydraulic Motor - Modified
8	16275	1	Male Connector -8 FTX -5
9	04860	1	Straight Thread Elbow -8 F50X-5
10	22539	1	Tube Assy
11	03787	1	GPM Sticker 7 - 10 2000 psi
12	22263	1	Adapter
13	22467	1	Retaining Ring
14	22471	1	Ball Bearing
15	00580	1	Set Screw, 1/4 -2 UNC x 1/4 Flat Point
16	22309	1	Spindle
17	22522	4	DU Bushing
18	22523	4	1-1/4 Rod Wiper
19	22236	2	Guide Rod
20	22290	1	Bearing Retainer
21	00145	6	Lockwasher, 5/16
22	02685	6	Capscrew, 5/16 -18 UNC x 7/8 HSH
23	370156	2	Capscrew, 3/8 -16 UNC x 2 HSH
24	22234	1	Bridge- Clamp Mount
25	22202	2	Positioner
26	22896	2	Capscrew, 5/8 -11 UNC x 1 HSH
27	22330	1	Split Chuck
28	22390	1	Bit Thrust
29	22331	1	Split Chuck - Tapped
30	03097	7	Roll Pin, 3/16 x 3/4
31	22226	1	Position Pointer
32	01459	6	Lockwasher, 3/8
33	04273	6	Capscrew, 3/8 -16 UNC x 1 HSH
34	03906	2	Nylock Nut, 5/16 -18 UNC
35	22532	1	Modular Hose
36	22489	1	Coolant Nozzle Bracket
37	22521	1	Quick Disconnect Nipple
38	10888	2	Capscrew, 5/16 -18 UNC x 1 HSH
39	01220	1	Lube Fitting, 1/8 -27 NPT
40	19511	2	Set Screw, 3/8 -16 UNC x 1/4 Flat Point
41	22316	2	Spring
42	22216	1	Pin
43	22198	1	Pin
44	22199	1	Pin
45	22237	1	Operating Lever Weldment
46	00167	1	Retaining Ring
47	22217	1	Adjustment Yoke
48	22207	1	Adjustment Screw
49	22201	1	Adjustment Knob
50	22231	1	Adjustment Nut
51	22272	1	Tightening Lever Assy
52	22227	2	Stop Washer
53	01298	12	Lockwasher, 1/4
54	22461	2	Capscrew, 1/4 -20 UNC x 1/2 Hex Head
55	20228	1	Nylock Nut, 1/2 -13 UNC
56	04861	1	Plain Washer, 1/2
57	17572	2	Pinch Point Warning Sticker
58	22200	2	Pointer
59	22221	1	Shoulder Bolt
60	370507	1	Capscrew, 5/16 -18 UNC x 3 Hex Head
61	22255	1	Height Adjusting Lever
	22220	1	**Knob Assy** (Includes Items 62 thru 64)
62	22219	1	Threaded Shaft
63	00129	1	Roll Pin, 5/32 x 1.000 LG
64	22218	1	Knob
65	22229	1	Position Washer
66	22418	1	Clamp Arm
67	22214	A/R	Shim .006
68	22213	A/R	Shim .010
69	22463	1	Shaft Collar
70	22318	2	Spring
71	02688	7	Capscrew, 5/16 -18 UNC x 3/4 HSH

RD10 Exploded View sheet 2 of 2



NOTE: Use Part Number and Part Name when ordering.

PARTS LIST

Item No.	Part No.	Qty.	Description
72	22211	A/R	Shim
73	22260	1	Nut Support Weldment
74	22392	1	Feed Screw Guard
75	00757	4	Roll Pin, 1/8 x 3/4
76	22206	2	Pin
77	22268	1	Feed Nut
78	22205	1	Plunger
79	22320	1	Spring
80	22225	1	Plate
81	00899	4	Capscrew, 1/4 -20 UNC x 1/2 Hex Head
82	00719	4	Locknut, 1/4
83	22456	16	Spring Washer, 1/4
84	22224	4	Stud
85	22197	1	Plate
86	22215	1	Stop Washer
87	22233	1	Feed Screw
88	22269	1	Lower Half Shell Weldment
89	04539	2	Flatwasher, 1/4
90	02146	2	Capscrew, 1/4 -20 UNC x 3/4 Hex Head
91	00047	10	Capscrew, 1/4 -20 UNC x 7/8 HSH
92	22548	1	Speed Control Decal
93	05153	1	Stanley Sticker 1.000 x 2.000
94	22492	1	Cover
95	22208	1	Plate
96	371061	2	Flat Washer, 5/8 (Hardened)
97	22204	1	Gear Axle
98	06916	2	DU Bushing
99	22381	1	Ratchet Gear Weldment
100	22291	1	Plastic Control Ball 1.000 Dia.
101	731069	1	Washer, 5/16 Plated
102	22287	1	Adjusting Cam Weldment
103	22488	1	Stud
104	22371	1	Capscrew- Modified
105	22372	1	Cone Grip
106	22373	1	Outer Collet
107	22370	1	Hub Adapter
108	08298	1	3/8 Dia. Steel Ball
109	22311	1	Support
110	22472	1	Handle Weldment
111	04661	4	Capscrew, 1/2 -13 UNC x 1-1/4 Hex Head
112	03061	6	Lockwasher, 1/2
113	22238	1	Adapter
114	22317	1	Spring
115	22328	1	Tab
116	04420	1	Lockwasher #10
117	22460	1	Capscrew, #10 -24 UNC x 1/2 Hex Head
118	22469	2	Thrust Washer
119	22470	1	Needle Thrust Bearing
120	22461	1	Retaining Ring
121	22485	1	Washer
122	22364	1	Rachet Sector Gear
123	22389	3	Pin
124	22432	3	Spring
125	22228	1	Plate
126	22310	1	Free Wheel Body
127	22465	1	Ball Bearing
128	04166	1	Retaining Ring
129	22196	1	Spacer
130	22232	1	Brake Washer
131	22766	2	Bumper
132	14089	1	Decal "Made in USA"
133	00429	2	Nut, 5/16 -18 UNC
134	00190	1	Roll Pin, 5/32 x 3/4
135	22203	1	Adjustment Nut
136	22209	1	Handle
137	02504	2	Capscrew, 1/2 -13 UNC x 1-1/2 Hex Head
138	22256	1	Bridge - Thrust Nut
139	00114	1	Roll Pin, 5/32 x 1
140	22245	1	Crutch Weldment
141	22459	2	Capscrew, 5/16 -18 UNC x 1 FHCS
142	22195	1	Base Plate
143	22769	1	Set Screw, 5/16 -18 UNC x 3/4 Flat Point
144	22767	1	Jam Nut, 5/16
	22534	1	Coolant Can Assy (Not Shown)
	22308	1	Drift (Not Shown)

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