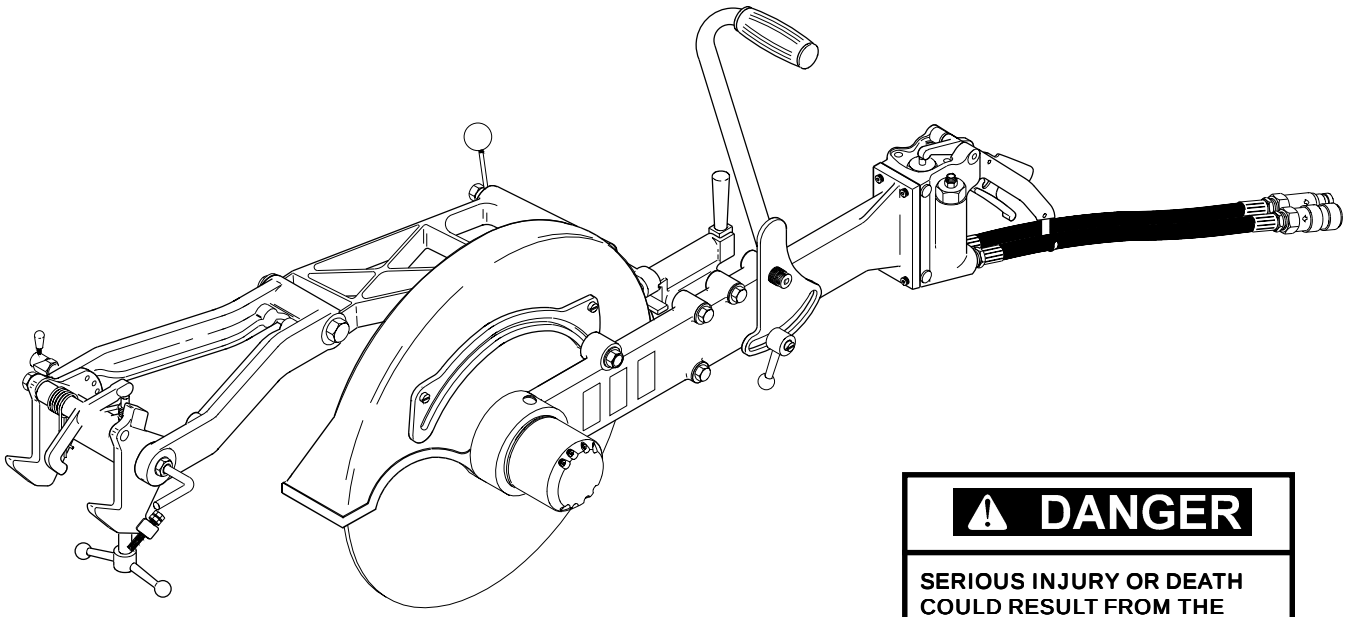
STANLEY®

RS25

Hydraulic Rail Saw

Safety, Operation and Maintenance Manual



⚠ DANGER

SERIOUS INJURY OR DEATH COULD RESULT FROM THE IMPROPER REPAIR OR SERVICE OF THIS TOOL.

REPAIRS AND / OR SERVICE TO THIS TOOL MUST ONLY BE DONE BY AN AUTHORIZED AND CERTIFIED DEALER.

Stanley Hydraulic Tools • 3810 SE Naef Road • Milwaukie, Oregon 97267-5698
Ph 1-800-549-0517 • Fax 503-652-1780

OPS/MAINT USA & CE VERSION
Printed in U.S.A.
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CE

CERTIFICATE OF CONFORMITY
ÜBEREINSTIMMUNGS-ZERTIFIKAT
CERTIFICAT DE CONFORMITE CEE
D'UN MARTEAU-PIQUEUR OU D'UN BRISE-BETON EXAMINE
CERTIFICADO DE CONFORMIDAD
CERTIFICATO DI CONFORMITA

STANLEY
Hydraulic Tools

I, the undersigned:
Ich, der Unterzeichnende:
Je soussigné:
El abajo firmante:
Io sottoscritto:

Mellits, Kirk E.

Surname and First names/Familienname und Vernamen/Nom et prénoms/Nombre y apellido/Cognome e nome

hereby certify that the construction plant or equipment specified hereunder:
bestätigt hiermit, daß die Konstruktion und Ausrüstung wie folgt spezifiziert ist:
atteste que le brise-béton:
por el presente certifico que la fabrica o el equipo especificado a continuacion:
certifico che l'impianto o l'attrezzatura sotto specificata:

1. Category: Rail Saw (Hydraulic)
   Kategorie:
   Catégorie:
   Categoria:
   Categoria:

2. Make/Ausführung/Marque/Marca/Fabbricazione Stanley

3. Type/Typ/Type/Tipo/Tipo: RS25100

4. Type serial number of equipment:
   Typ und Serien - Nr. der Ausrüstung:
   Numéro dans la série du type de matériel:
   Numero de serie tipo del equipo:
   Matricola dell´attrezzatura: All

5. Year of manufacture/Baujahr/année de fabrication/Año de fabricacion/Anno di fabbricazione 2001

Has been manufactured in conformity with - EEC Type examination as shown.
wurde hergestellt in Übereinstimmung mit - EEC Typ-Prüfung nach.
est fabriqué conformément - au(x) type(s) examiné(s) comme indiqué dans le tableau di-après.
ha sido fabricado de acuerdo con - tipo examen EEC como dice.
è stata costruita in conformitá con - le norme CEE come illustrato.

	Examen CEE de type			
Directive Richtlinie Directives particulières Directriz Direttiva	No. Nr Numéro No n.	Date Datum Date Fecha Data	Approved body Prüfung durch Organisme agréé Aprobado Collaudato	Date of expiry Ablauf datum Date d´expiration Fecha de caducidad Data di scadenza
EN	28662-1	1988	Self	N/A
EN	1454	1996	Self	N/A
EN ISO	3744	1994	Self	N/A

6. Special Provisions: None
   Spezielle Bestimmungen:
   Dispositions particulières:
   Provisiones especiales:
   Misure special:

7. Measurements: Sound Power Level 108 dBA
   Vibration Level 6.0 m/s^2

Done at/Ort/Fait à/Dado en/Fatto a Stanley Hydraulic Tools, Milwaukie, Oregon USA Date/Datum/le/Fecha/Data 2001

Signature/Unterschrift/Signature/Firma/Firma Kirk E. Mellits

Position/Position/Fonction/Puesto/Posizione Engineering Manager

P/N 35511

INDEX

SERVICING THE RS25 RAIL SAW: This manual contains safety, operation, and maintenance instructions. Stanley Hydraulic Tools recommends that servicing of hydraulic tools, other than routine maintenance, must be performed by an authorized and certified dealer. Please read the following warning.

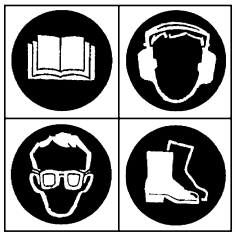
⚠ DANGER

SERIOUS INJURY OR DEATH COULD RESULT FROM THE IMPROPER REPAIR OR SERVICE OF THIS EQUIPMENT.

REPAIRS AND / OR SERVICE TO THIS EQUIPMENT MUST ONLY BE DONE BY AN AUTHORIZED AND CERTIFIED DEALER.

For the nearest authorized and certified dealer, call Stanley Hydraulic Tools, 1-800-549-0517 and ask for a Customer Service Representative.

SAFETY PRECAUTIONS



⚠ DANGER

Do not operate this equipment or associated equipment until the following safety instructions have been thoroughly read and understood! Read this manual before installing, operating or maintaining this equipment.

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 equipment.

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 5.

GENERAL SAFETY PRECAUTIONS

The model RS25 Hydraulic Rail Saw 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 tool and hoses 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 inspect or clean the tool while the hydraulic power source is connected. Accidental engage ment 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.
- Do not operate a damaged, improperly adjusted, or incompletely assembled rail saw.
- Do not operate the tool with the wheel guard removed.
- Never wear loose clothing that can get entangled in the working parts of the tool.
- Keep all parts of your body away from the rotating wheel. Long hair or loose clothing can become drawn into rotating components.
- Keep the wheel off all surfaces when starting the rail saw.

- Always hold the tool with both hands when the unit is running. Use a firm grip.
- Make sure the wheel has stopped before setting the tool down. Always carry the tool with the wheel stopped.
- Inspect the wheel guard and collars for damage after any wheel breakage.
- Do not operate the tool in the vicinity of flamable materials.
- Never exceed the maximum operating speed marked on the wheel.
- Do not attempt to adjust the flow control in the valve handle.
- Eye injury, and cutting or severing of body parts is possible if proper procedures are not followed.

CUTTING WHEEL SAFETY

- Do not store or transport the saw with the wheel installed.
- Ensure that the cutting wheel is correctly mounted and tightened before use.
- Operate the Rail Saw at "no load" for 30 seconds in a safe position and ensure there is no vibration or other defects detected. If considerable vibration or other defects are detected, stop operation of the tool immediately and determine the cause. Do not use the tool until the defect is corrected.
- If the Rail Saw is dropped with a cutting wheel installed, the cutting wheel should be examined throughly before use.
- Only use cutting wheels that comply with ANSI B7.5/ISO 525, 603.
- Check that the maximum operating speed (rpm - revolutions per minute) of the cutting wheel is equal to or greater than the rated shaft speed of the grinder. Stanley recommends wheels rated at 4700 RPM for 16 inch models and 5300 RPM for 14 inch models.

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

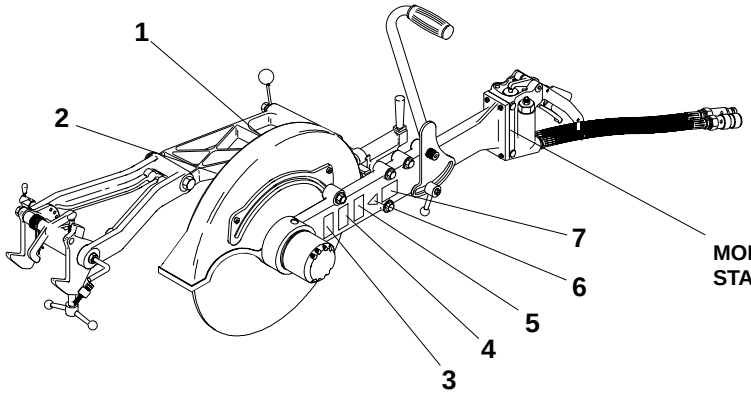
This safety symbol appears in these instructions to identify an action or condition that could result in damage to the tool or other equipment.

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.

TOOL STICKERS & TAGS



WHEEL SIZE
RPM: SPINDLE:
PRESS: BAR PSI
FLOW: LPM GPM

1
28811 INFORMATION PLAQUE
(CE models only)

CAUTION

PROTECT YOUR EYES...
WEAR SAFETY GOGGLES

1. DO NOT USE DAMAGED WHEELS.
2. USE FULL TROTTLE ONLY WHILE CUTTING.
3. USE ONLY WHEELS MARKED HIGH SPEED REINFORCED THAT MEET REQUIREMENTS OF ANSI B7.5. WHEELS SHOULD BE NO LARGER THAN 16" DIA X 5/32" THICK WITH A 1" ARBOR HOLE & RATED FOR 4700 RPM MINIMUM SPEED.
4. INSPECT WHEEL GUARD & COLLARS FOR DAMAGE AFTER ANY WHEEL BREAKAGE ON THE MACHINE.
5. MAXIMUM SPINDLE SPEED IS 4700 RPM.

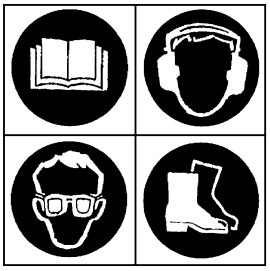
2
17641 ABRASIVE CUT-OFF SAFETY LABEL
(16 inch models only)

CAUTION

PROTECT YOUR EYES...
WEAR SAFETY GOGGLES

1. DO NOT USE DAMAGED WHEELS.
2. USE FULL TROTTLE ONLY WHILE CUTTING.
3. USE ONLY WHEELS MARKED HIGH SPEED REINFORCED THAT MEET REQUIREMENTS OF ANSI B7.5. WHEELS SHOULD BE NO LARGER THAN 14" DIA X 5/32" THICK WITH A 1" OR 22 mm ARBOR HOLE & RATED FOR 5300 RPM MINIMUM SPEED.
4. INSPECT WHEEL GUARD & COLLARS FOR DAMAGE AFTER ANY WHEEL BREAKAGE ON THE MACHINE.
5. MAXIMUM SPINDLE SPEED IS 5300 RPM.

2
05868 ABRASIVE CUT-OFF SAFETY LABEL
(14 inch models only - except CE)



3
28409 COMPOSITE STICKER
(CE models only)

STANLEY
Stanley Hydraulic Tools
3810 SE Naef Rd
Milwaukie, Oregon 97267 U.S.A.

Model No.	26-38 lpm/7-10 gpm
RS25	140 bar/2000 psi

3 (16" model) ***or*** **4** (14" model)
28728 NAME TAG
(14 inch & 16 inch models)

TOOL STICKERS & TAGS (Continued)

STANLEY **RAILROAD HELP DESK**

1-800-549-0517

FOR CUSTOMER SERVICE OR TECHNICAL QUESTIONS

4

25610 RAILROAD HELP DESK STICKER

(16 inch models only - except CE)

CAUTION

7-10 GPM/26-38 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.

03787

5

03787 FLOW & GPM STICKER

(14 & 16 inch models only - except CE)

CE

5

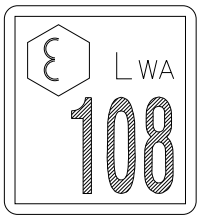
28322 CE STICKER

(CE models only)

6

11207 CIRCUIT TYPE "D" STICKER

(CE models only)



7

11210 SOUND POWER LEVEL STICKER

(CE models only)

The safety tag (p/n 15875) at right is attached to the tool 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 tool 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 than actual size)

HYDRAULIC HOSE REQUIREMENTS

HOSE TYPES

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

1. Certified non-conductive
2. Wire-braided (conductive)
3. Fabric-braided (not certified or labeled non-conductive)

Hose 1 listed above is the only hose authorized for use near electrical conductors.

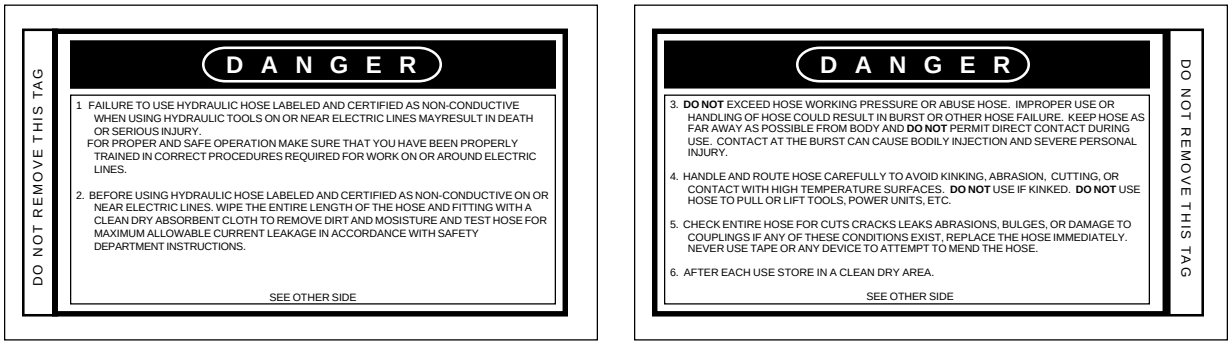
Hoses 2 and 3 listed above are **conductive** and **must never** be used near electrical conductors.

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.

1 CERTIFIED NON-CONDUCTIVE HOSE

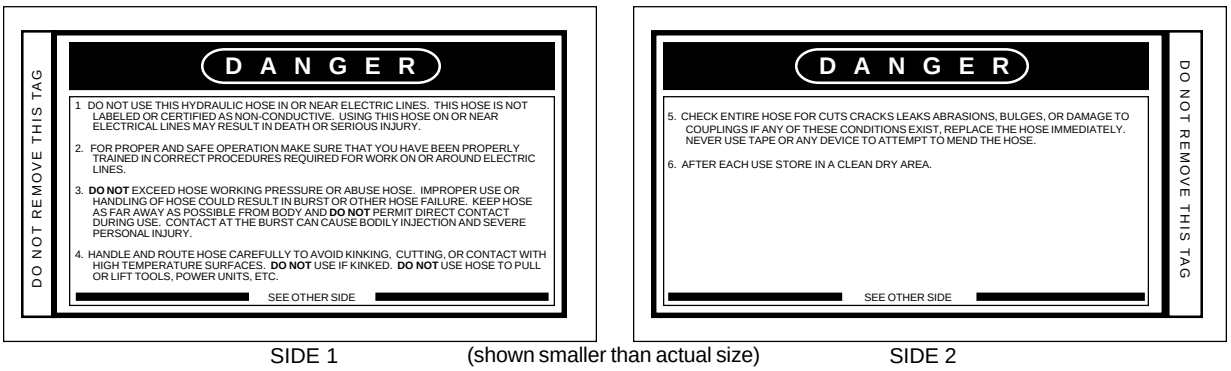
This tag is attached to all certified **non-conductive** hose.



SIDE 1 (shown smaller than actual size) SIDE 2

2 AND 3 WIRE-BRAIDED AND FABRIC-BRAIDED (NOT CERTIFIED OR LABELED NON-CONDUCTIVE) HOSE

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



SIDE 1 (shown smaller than 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.

ADDITIONAL REQUIREMENTS

IMPORTANT

In addition to the Safety Precautions on pages 2 thru 3 of this manual, observe the following for equipment protection and care.

• Always store an idle rail saw in a clean dry space, safe from damage or pilferage. Make sure the cutting wheel is removed.

• Do not exceed the rated limits or use the rail saw 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 experienced 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 rail saw. Failure to do so may result in damage to the quick couplers and cause overheating of the hydraulic system.

• Check fastener tightness often and before each use daily.

• Quick disconnect couplings must conform to EHTMA/HTMA specifications.

• The Stanley HPR Twin Circuit Power Unit is recommended for use as the Rail Saw's hydraulic supply.

HTMA Requirements

Hydraulic System Requirements	Tool Category:  Type I	 Type II	Type III	Type RR
Flow rate Tool Operating Pressure *(at the power supply outlet)*	4-6 GPM (15-23 lpm) 2000 psi (138 bar)	7-9 GPM (26-34 Lpm) 2000 psi (138 bar)	11-13 GPM (42-49 lpm) 2000 psi (138 bar)	9-10.5 GPM (34-40 lpm) 2000 psi (138 bar)
System relief valve setting *(at the power supply outlet)*	2100-2250 (145-155 bar)	2100-2250 (145-155 bar)	2100-2250 (145-155 bar)	2200-2300 (152-159 bar)
Maximum back pressure *(at tool end of the return hose)*	250 psi (17 bar)	250 psi (17 bar)	250 psi (17 bar)	250 psi (17 bar)
Measured at a max. fluid viscosity of: *(at min. operating temperature)*	400 SSU (82 centistokes)	400 SSU (82 centistokes)	400 SSU (82 centistokes)	400 SSU (82 centistokes)
Temperature Sufficient heat rejection capacity to limit max. fluid temperature to: *(at max. expected ambient temperature)*	140° F (60° C)	140° F (60° C)	140° F (60° C)	140° F (60° C)
Min. cooling capacity at a temperature difference of between ambient and fluid temps	3 hp (2.24 kW) 40° F (22° C)	5 hp (3.73 kW) 40° F (22° C)	7 hp (5.22 kW) 40° F (22° C)	6 hp (4.5 kW) 40° F (22° C)
NOTE: Do not operate the tool at oil temperatures above 140° F (60° C). Operation at higher temperatures can cause operator discomfort at the tool.				
Filter Min. full-flow filtration sized for flow of at least: *(For cold temp. startup and max. dirt-holding capacity)*	25 microns 30 GPM (114 lpm)	25 microns 30 GPM (114 lpm)	25 microns 30 GPM (114 lpm)	25 microns 30 GPM (114 lpm)
Hydraulic fluid Petroleum based *(premium grade, anti-wear, non-conductive)* Viscosity *(at min. and max. operating temps)*	100-400 SSU* (20-82 centistokes)	100-400 SSU* (20-82 centistokes)	100-400 SSU* (20-82 centistokes)	100-400 SSU* (20-82 centistokes)
NOTE: When choosing hydraulic fluid, the expected oil temperature extremes that will be experienced in service determine the most suitable temperature viscosity characteristics. Hydraulic fluids with a viscosity index over 140 will meet the requirements over a wide range of operating temperatures.				

*SSU = Saybolt Seconds Universal

NOTE: These are general hydraulic system requirements. See tool Specification page for tool specific requirements.

PREOPERATION PROCEDURES

PREPARATION FOR INITIAL USE

Each unit as shipped has no special unpacking or assembly requirements prior to usage. Inspection to assure the unit was not damaged in shipping and does not contain packing debris is all that is required. After installation of a cutting wheel a unit may be put to use.

CHECK HYDRAULIC POWER SOURCE

1. Using a calibrated flowmeter and pressure gauge, check that the hydraulic power source develops a flow of 9-10.5 gpm/34-40 lpm at 2000 psi/ 140 bar.

2. Make certain the hydraulic power source is equipped with a relief valve set to open at 2200-2300 psi/152-159 bar minimum.

3. Check that the hydraulic circuit matches the tool for open-center (OC) or closed-center (CC) operation.

CHECK TOOL

1. Make sure all tool accessories are correctly installed. Failure to install tool accessories properly can result in damage to the tool or personal injury.

2. There should be no signs of leaks.

3. The tool should be clean, with all fittings and fasteners tight.

CHECK TRIGGER MECHANISM

1. Check that the trigger operates smoothly and is free to travel between the "ON" and "OFF" positions.

CHECK GUARD ASSEMBLY

1. Inspect the wheel guard assembly for cracks and other structural damage.

INSTALLING AND REMOVING ABRASIVE CUTTING WHEELS

NOTE: Use 14 in. / 350 mm diameter (*for 14 in. model*) or 16 in. / 400 mm diameter (*for 16 in. model*) abrasive cutting wheels with a 1 in. arbor hole. Only use cutting wheels which comply with ANSI B7.5/ISO 525, 603. Make sure the paper labels or blotters are installed between the wheel and collars.

1. Before installing abrasive wheels, "sound" the wheel for possible damage by hanging the wheel vertically be the arbor hole and rapping lightly with a screwdriver handle or similar instrument. Thin, organic bond wheels will produce a low drumming tone if it is physically sound. If the wheel produces a "dead" or "flat" sound, it may be cracked. Cracked or damaged wheels must never be used.

2. Check that the surfaces of the wheel that come in contact with blotters and flanges are free of dirt and other foreign particles.

3. Remove the jam nut (77) and outside collar (78) by using a box type wrench while gripping the cutting wheel.

3. Install the cutting wheel. Make sure blotters or labels remain on the cutting wheel.

5. Reinstall the outside collar and jam nut. Tighten the jam nut with a box type wrench while gripping the cutting wheel. Only tighten sufficiently to prevent slippage of the wheel between the collars (78 & 79).

DRIVESHAFT SPEED CHECK

The speed of the motor output shaft should be checked at least every 100 hours of operation by trained and experienced personnel. A record of the speed checks should be maintained. The rated speed of the RS25 Rail Saw is 3600 rpm at 10 gpm / 38 lpm for the 16 inch/400 mm model and 4500 rpm at 10 gpm / 38 lpm for the 14 inch/350 mm model. The cutting wheel must be rated for a minimum of 4700 rpm for the 16 inch/400 mm model and 5300 rpm for the 14 inch/350 mm model. Tests should be conducted while operating the normal power supply used with the saw.

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 rail saw. It is a good practice to connect the return hose first and disconnect it last to minimize or avoid trapped pressure within the rail saw 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.

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.

OPERATING PROCEDURES

CLAMPING THE RAIL SAW TO THE RAIL

1. Observe all safety precautions.

2. Make sure the disconnect pivot bolt (24) is tight to the disconnect pivot (60) by turning the handle (20) to tighten the disconnect pivot bolt..

3. Fully extend the indicator (69) and position the rail clamp (76) on the rail so the clamp arms bear on the top and sides of the rail and the bell crank (6) bears under the rail as shown in figure 1.

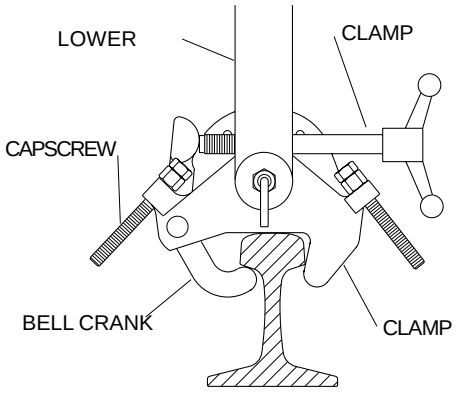


Figure 1.

4. Move the rail saw along the rail until the indicator is next to the cut as shown in figure 2.

5. Tighten the bell crank to the rail by turning the clamp screw (75) clockwise.
6. While holding onto the upper link (18), release the detent (13) by turning the knob (7) and then position the lower link forward (*away from the operator*) until the detent can be re-engaged in one or the other of the two holes away from the "top dead center hole". This positions the saw so that the operator may stand erect while cutting the rail and also allows the saw to cut down to the flange of the rail.

An optional method is to disengage the detent and adjust the capscrews (*see figure 1*) as required.

7. Adjust the wheel guard (87) so that it does not interfere with the cutting process and cuttings are directed away from the operator.

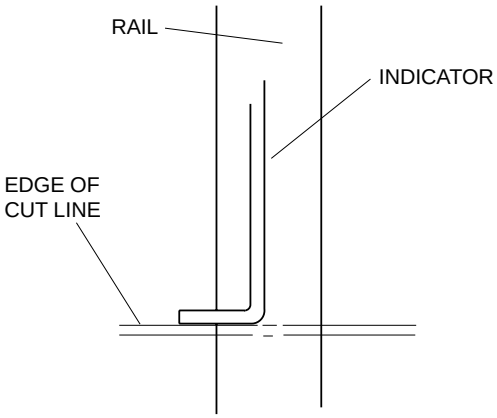


Figure 2.

SAWING THE RAIL

1. Always start the rail saw with the cutting wheel away from the work surface.

2. Start the cut with the wheel rotating.

NOTE: Do not "bump" the rail. Feed the wheel through the material as fast as possible without allowing the wheel to reduce its speed. Cutting through the material too slowly allows heat expansion and can cause wheel "pinching" in the material. "Pinching" the wheel from heat expansion is one of the most common causes of wheel breakage.

3. Starting at the top of the rail, cut straight down while rocking the handle back and forth. Cut down until near the flange.

4. When near the flange, stop the saw, release the detent and move the lower link toward the operator until the detent can be re-engaged in one of the holes away from the "top dead center hole". This positions the saw lower so that the flange of the rail may be easily cut.

If the detent has been removed in favor of using the capscrews as stops for the lower link, simply move the lower link toward the capscrew closest to the operator.

If the wheel is worn such that it will not completely cut through the rail, loosen the clamp lever on the saw, and rotate the saw to allow cutting from the opposite side. Readjust the lower link as required and finish the cut.

DETACHING THE UPPER AND LOWER LINKS

The upper (18) and lower (16) links can be detached from the motor mount (50) by unscrewing the disconnect pivot bolt (24).

SAW STORAGE

By disengaging the double cam (52), the upper link (18) and lower link (16) and clamp (76) can be rotated so that the entire saw has a flatter profile for storage.

Do not store the saw with the abrasive wheel attached.

CARE OF ABRASIVE CUT-OFF WHEELS

All abrasive cut-off wheels are breakable and, therefore, care must be exercised during handling and storage to prevent damage.

Wheels should be laid on a flat, rigid, surface away from excessive heat or moisture. Wheels should not be stored where they will be exposed to high humidity, water, other liquids or freezing temperature. If wheels are supplied with blotters attached, suitable separators should be used to preserve flatness.

COLD WEATHER OPERATION

If the saw is to be used during cold weather, preheat the hydraulic fluid at low engine speed. When using the normally recommended fluids, fluid temperature should be at or above 50° F/
10° C (400 ssu/82 centistokes) before use.

INVESTIGATION OF WHEEL BREAKAGE

If a wheel breaks during use, a careful investigation should be conducted by to determine the cause of the breakage. The cause must then be corrected before using the saw again.

If unable to determine the cause of breakage, the wheel manufacturer should be consulted.

SERVICE INSTRUCTIONS

A. PRIOR TO DISASSEMBLY

Clean exterior of the tool.

Obtain a seal kit so that all seals exposed during disassembly can be replaced.

B. ON-OFF VALVE SERVICING

The following steps may be performed without removing the valve handle (46) from the motor mount (50).

TRIGGER (39) AND SAFETY CATCH (40) REMOVAL & INSTALLATION

1. Drive the trigger pivot roll pin (48) out of the handle assembly using a 1/4 in./6 mm diameter punch. Remove the trigger (39) and spacer (38).

2. Drive the safety catch pivot roll pin (42) out of the handle assembly using a 3/16 in./4 mm diameter punch. Remove the safety catch (40) and spring (41).

3. To install the trigger and safety catch.

A. Reverse the above procedures.

B. The spring (41) is placed on the boss of the safety catch with the spring tab on top of and facing the back of the catch. After the pin (42) is in place, push down on the spring tab until it snaps in place under the saftey catch.

VALVE SPOOL (31) REMOVAL & INSTALLATION

1. Unscrew and remove the cap (33). Lift out the valve spool (31).

2. Unscrew and remove the cap (113) being careful to pick out the spring (114) and poppet (45).

3. To reinstall the valve spool.

A. Reverse the above procedures.

B. Use new seals and apply grease to each seal prior to installation.

FLOW CONTROL (35)

The flow control is factory preset and is not field serviceable. If the spindle speed of the motor is over or under 4000 rpm at 13 gpm/49 lpm input for the 16 in. / 400 mm model, the flow control should be replaced. If the spindle speed of the motor is over or under 4500 rpm at 13 gpm/49 lpm input for the 14 in. / 350 mm model, the flow control should be replaced. A new preset flow control can be aquired from an authorized dealer.

Also see MOTOR SERVICING.

REMOVAL OF THE VALVE HANDLE ASSY (46)

1. Unscrew and remove 4 capscrews (51). Wiggle and pull the valve handle away from the motor mount (50).

2. Repeat the above procedure to install the valve handle.

C. CLAMP, LOWER & UPPER LINK, INDICATOR SERVICING

1. Periodically inspect all bearings, tolerance rings and associated parts for proper operation. Such parts are critical to ensuring perfectly perpendicular cuts. Worn or damaged parts can result in non-perpendicular cutting, may cause wheel binding and may cause wheel damage. Also check for endplay of the rail clamp, lower link and upper link. There should be minimal endplay. Replace worn parts and make adjustments as necessary.

INDICATOR ADJUSTMENT

Adjust the indicator so that the outside edge of the indicator contacts the face of the abrasive wheel when the indicator is fully extended.

The pilot screw (68) is tightened to 40 lb ft / 54 Nm.

D. MOTOR SERVICING

1. Remove the jam nut (77), outside collar (78), inside collar (79), thrust collar (82), shims (85 & 86), retaining ring (83) and key (105).

2. Remove the nut (91) and washer (90) and then

remove the guard (87).

3. Remove the capscrews (121).

4. Using a flat-blade screwdriver or similar tool, gently pry the gear housing (120) away from the front bearing housing (94). Lift the gear housing straight up. **Do Not** tilt the housing or pry on the flat surface inside of the surrounding groove. For prying, only use the groove provided at the split between the parts to prevent scratches on the inner mating surfaces.

5. Remove the two gears (98 & 99), needle roller (107), and the idler shaft (97).

6. Remove the large face seal o-ring (96) while being careful not to damage the o-ring groove or surrounding surface.

7. While protecting the motor surface of the front bearing housing from damage, remove the retaining ring (101) next to the bearing (102). Tap lightly on the small diameter end (*gear side*) of the motor shaft (106) to remove it and the bearing from the front of the housing.

8. To remove the bearing from the shaft, press on the threaded end of the motor shaft while supporting the outer race of the bearing. Discard the old bearing.

9. Remove the retaining ring (108) at the bottom of the bearing bore in the bearing housing to service the shaft seal. Remove the seal gland (109) using the appropriate o-ring service tools to remove it. Take care to avoid damaging the seal surfaces. Note seal orientation. Remove the o-ring (118) from the outside of the seal gland. Remove the quad ring (119) from the inside of the seal gland.

IMPORTANT

DO NOT REMOVE THE FRONT BEARING HOUSING (94) FROM THE MOTOR MOUNT (50) UNLESS IT IS NECESSARY TO PERFORM SERVICING OF OTHER COMPONENTS. IF REMOVAL OF THE BEARING HOUSING IS DEEMED NECESSARY, REFER TO THE INSTRUCTIONS BELOW.

10. To remove the bearing housing (94) from the motor mount (50) first remove the oil tubes (117) by removing the the valve handle (46) and then sliding the oil tubes back. (NOTE: Tubes have internal threads to help with removal)

11. Remove the machine screws (93) and slide the bearing housing out of the motor mount.

12. The bushings (100 & 125) can be removed using p/n 11930 collet from p/n 05064 bearing puller kit.

E. MOTOR INSPECTION AND CLEANING

Inspect and clean all parts as follows:

Cleaning

Clean all parts with a degreasing solvent. Blow dry with compressed air and wipe clean. Use only lint-free cloths.

Gear Housing

The chamber bores and bottoms around the shaft bushings should be polished and not rough or grooved. If the bushing bores are yellow-bronze, replace them and investigate the cause of wear.

The flat surfaces around the chamber and bolt holes should be flat and free of nicks or burrs that could cause misalignment or leaks.

Bushings

The inside of the bushings should be gray with some bronze showing through. If significant yellow-bronze shows, replace the bushings. Inspect motor shaft for corresponding wear and replace as required.

Gears

The drive and idler gears should have straight tips without nicks, square tooth ends and a smooth even polish on the teeth and end faces. Check for cracks between the drive gear keyway and gear tooth root. Replace the gear if cracks are present.

Bearing Housing

The surface near the gears should show two interconnecting polished circles without a step. The bottom of the o-ring groove should be smooth as should the rest of the flat surface.

The bore for the shaft seal (*inside diameter of the seal gland*) should be smooth or oil leakage may occur. The bore in which the seal liner fits should also be smooth.

Gear Housing

Shake the gear housing and the two seal check balls (not shown) should rattle. If the seal balls do not rattle then they are probably plugged with contaminants and the gear housing will require replacement.

Shafts

The shaft diameter at the bearing and seal locations must be smooth. Grooves, roughness or a reduced diameter indicate fluid contamination or damaged bushings. Grit particles may have been imbedded in the bushings grinding into the hardened shaft. If abnormal shaft wear as above occurs (more than normal polishing), replace both the shaft and associated bushings.

Also check the hydraulic system for excess contamination in the fluid and for filter condition. Operating conditions may require changing from a 25-micron filter to an oversized 10-micron filter.

F. MOTOR REASSEMBLY

1. If the bushings (100 & 125) were removed from the bearing housing (94) and the gear housing (120), install new bushings using a p/n 11918 bearing pusher. (NOTE: The bushing split line must face the center of the gear housing).

2. Grease and carefully install the quad ring (119) into the groove on the inside of the seal gland (109). Carefully install the o-ring (118) onto the smaller outside diameter of the seal gland and install the seal gland into the bore of the bearing housing (94). Replace the retaining ring (108).

3. To replace the bearing (102) on the motor shaft (106), support the bearing inner race and press the motor shaft through the bearing inner race.

4. Place the bearing housing on a smooth clean arbor press surface (protected from damage) with the large bearing bore facing up. Position the front bearing housing so a clearance hole exists for the insertion of the motor shaft.

5. Apply grease to the motor shaft, keyway and bushing and then insert the motor shaft through the shaft seal. Using a socket with a diameter equal to the bearing O.D., press the bearing assembly into place. Press only on the outer race. Install the bearing retaining ring (101).

6. Install the needle roller (107) in the keyway of the motor shaft. Use grease to keep the needle roller in place. Slide the drive gear (98) over the needle roller and shaft. Install the idler shaft (97) and gear (99).

7. Apply grease to the face seal o-ring groove; then install the o-ring (96).

8. Note the screw hole pattern on both housings. They will only assemble one way. With all parts aligned, carefully slide the gear housing assembly over the gears until it contacts the bearing housing assembly. **Do not force parts together.**

9. Turn the motor shaft manually to check for free rotation. Install the eight washers (126) and capscrews (121) and then recheck rotation.

10. Reinstall the motor assembly to the motor mount (50) and secure with the machine screws (93).

11. Apply grease and install new o-rings (116) onto the oil tubes and then insert the tubes into the motor.

12. Reinstall the valve handle assembly using the 4 capscrews (51).

Reinstalling the Guard and Shims

13. Install the guard (87) onto the motor. Install the retaining ring (83). Install the washer (90) and nut (91).

14. Install shims (84, 85, & 86) as required to align the abrasive wheel on a centerline with the motor mount pivot (59).

15. Install the thrust collar (80), inner collar (79), abrasive wheel, outer collar (78) and the jam nut (77).

16. Test for operation and performance.

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

Saw does not run.	Hydraulic power source not functioning correctly	Check power source for proper flow and pressure (7-10 gpm/26-38 lpm, 2000 psi/140 bar.
	Coupler or hoses blocked	Remove obstruction.
	Mechanical failure.	Have tool serviced by authorized dealer.
Saw runs backwards.	Pressure and return lines incorrectly connected.	Correct hose connections. Motor shaft rotates counter-clockwise as viewed from the end of the motor shaft.
Saw cuts too slow.	Insufficient fluid flow or too high back pressure or relief valve set too low.	Check hydraulic supply. If hydraulic supply is correct, have unit serviced by authorized dealer.
	Wrong wheel for material being cut.	Use correct wheel.
Fluid leakage.	Seal failure.	Do not use and have serviced by authorized dealer.
Off center cut and binding.	Bearings worn on link arms.	Have unit serviced by authorized dealer.
	Incorrect cutting technique.	Review operating procedures.

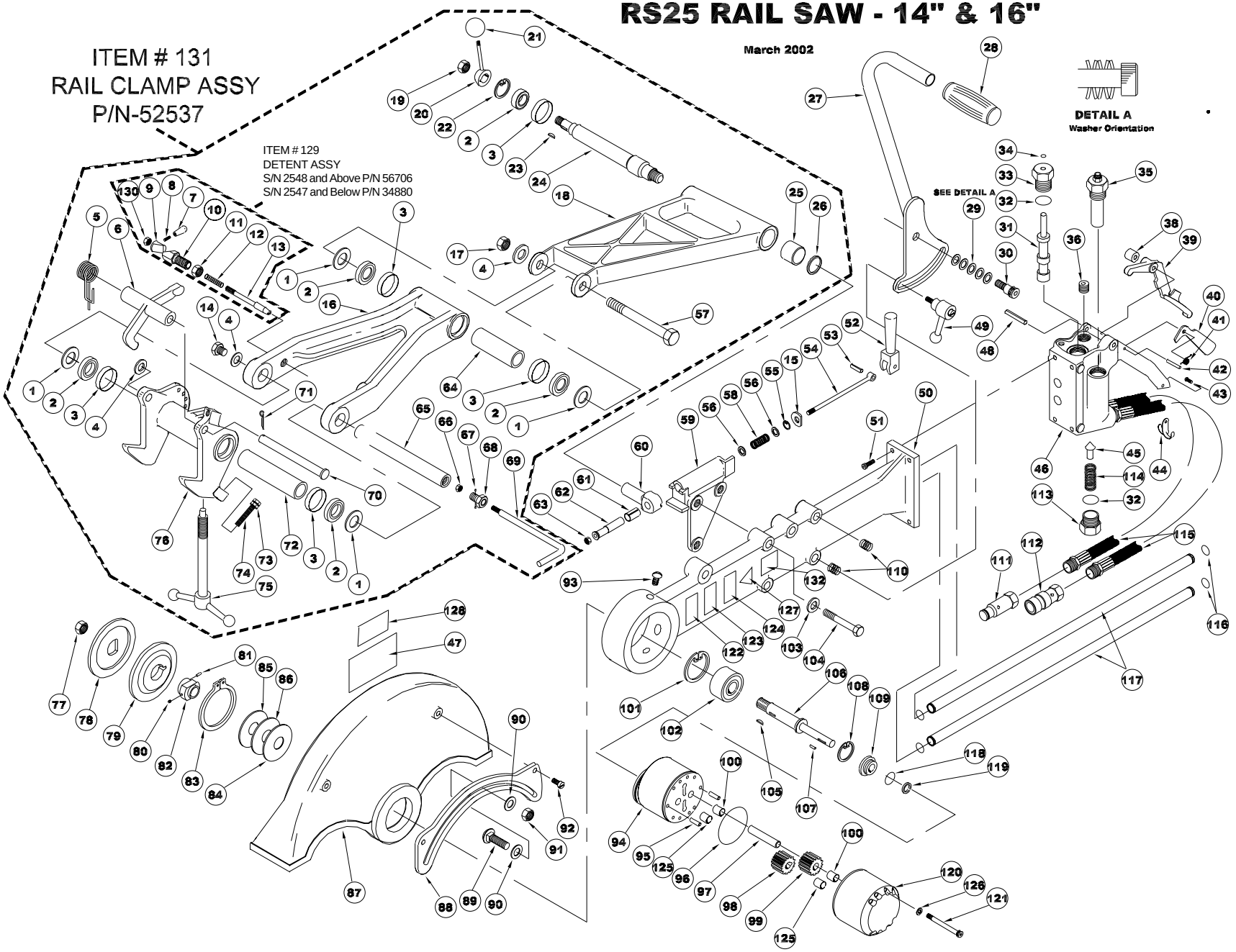
RS25 (14 in. & 16 in. Blade) PARTS LIST

Item No	Part No	Qty	Description
1	-------	4	✱ (see item # 131)
2	-------	5	✱ (see item # 131)
3	-------	5	✱ (see item # 131)
4	-------	3	✱ (see item # 131)
5	-------	1	✱ (see item # 131)
6	28181	1	Bell Crank
7	-------	1	✱ (see item # 129)
8	-------	1	✱ (see item # 129)
9	-------	1	✱ (see item # 129)
10	-------	1	✱ (see item # 129)
11	-------	1	✱ (see item # 129)
12	-------	1	✱ (see item # 129)
13	-------	1	✱ (see item # 129)
14	-------	1	✱ (see item # 131)
15	30958	1	"D" Washer
16	-------	1	✱ (see item # 131)
17	-------	1	✱ (see item # 131)
18	-------	1	✱ (see item # 131)
19	-------	1	✱ (see item # 131)
20	-------	1	✱ (see item # 131)
21	-------	1	✱ (see item # 131)
22	-------	1	✱ (see item # 131)
23	-------	1	✱ (see item # 131)
24	-------	1	✱ (see item # 131)
25	-------	1	✱ (see item # 131)
26	-------	1	✱ (see item # 131)●
27	30671	1	Assist Handle
28	31030	1	Handle Grip
29	31181	5	Belleville Washer
30	30667	1	Shoulder Bolt
31	31138	1	Valve Spool
32	01604	2	O-ring, .755 x .949 x .097 R17 ●
33	02931	1	Valve Cap
34	00112	1	Quad Ring, 1/4 x 3/8 x 1/16 R16 ●
35	31853	1	Flow Control (16 in. model only)
	31854	1	Flow Control (14 in. model only)
36	28108	1	Pipe Plug
38	02920	1	Spacer
39	22707	1	Trigger
40	22704	1	Safety Catch
41	22701	1	Torsion Spring
42	03009	1	Roll Pin
43	00165	1	Screw
44	02911	1	Hose Clip
45	31186	1	Poppet
46	28552	1	Valve Handle Assy (Incld Item 36)
47	17641	1	Wheel Safety Label (16" model only)
	05868	1	Wheel Safety Label (14" model only)
48	17681	1	Roll Pin
49	24869	1	Handle
50	35289	1	Motor Mount
51	02688	4	Capscrew
52	30632	1	Double Cam
53	30635	1	Spirol Pin
54	29510	1	Eye Bolt
55	04856	1	Retaining Ring
56	30841	2	Washer
57	-------	1	✱ (see item # 131)
58	28673	1	Spring
59	30412	1	Motor Mount Pivot
60	30530	1	Disconnect Pivot
61	28711	1	Tolerance Ring
62	30543	1	Stud
63	04353	1	Locknut
64	-------	1	✱ (see item # 131)
65	-------	1	✱ (see item # 131)
66	-------	1	✱ (see item # 131)
67	-------	2	✱ (see item # 131)
68	-------	1	✱ (see item # 131)
69	-------	1	✱ (see item # 131)
70	-------	1	✱ (see item # 131)
71	-------	1	✱ (see item # 131)
72	-------	1	✱ (see item # 131)
73	-------	1	✱ (see item # 131)
74	-------	1	✱ (see item # 131)
75	56708	1	Clamp Screw Assy
76	-------	1	✱ (see item # 131)
77	03012	1	Jam Nut
78	31028	1	Outer Collar
79	04876	1	Inside Collar
80	00720	1	Set Screw
81	23246	1	Dowel Pin
82	17656	1	Thrust Collar
83	03013	1	Retaining Ring
84	31034	A/R	.005 Shim
85	31032	A/R	.020 Shim
86	31033	A/R	.010 Shim
87	30957	1	Wheel Guard (16 in. model only)
	28709	1	Wheel Guard (14 in. model only)
88	17652	1	Sector
89	28729	1	Carriage Bolt
90	01594	2	Washer
91	03906	1	Locknut
92	17676	2	Capscrew
93	03006	2	Machine Screw
	28712	**1**	**Motor Assy (Incl Items 94-102, 105-109, 118-121, & 125-126 - 16 in. model only)**
	28763	**1**	**Motor Assy (Incl Items 94-102, 105-109, 118-121, & 125-126 - 14 in. model only)**
94	31852	1	Bearing Hsg Assy (16 in. model only) (Incld item 100 & 125)
	31851	1	Bearing Hsg Assy (14 in. model only) (Incld item 100 & 125)
95	372055	2	Dowel Pin (16 in. model only)
	00713	2	Dowel Pin (14 in. model only)
96	00049	1	O-ring, 2 x 2-1/8 x 1/16 -033 (16 in. model only)●
	00178	1	O-ring (14 in. model only)
97	18362	1	Idler Shaft (16 in. model only)
	06854	1	Idler Shaft (14 in. model only)
98	18360	1	Drive Gear (16 in. model only)
	25718	1	Drive Gear (14 in. model only)
99	18363	1	Idler Gear (16 in. model only)
	25717	1	Idler Gear (14 in. model only)
100	06316	2	Bushing
101	18389	1	Retaining Ring (16 in. model only)
	00166	1	Retaining Ring (14 in. model only)
102	18388	1	Bearing (16 in. model only)
	00148	1	Bearing (14 in. model only)
103	00283	3	Lockwasher
104	16260	3	Capscrew
105	00772	1	Key
106	28733	1	Motor Shaft (16 in. model only)
	28762	1	Motor Shaft (14 in. model only)
107	18364	1	Key (16 in. model only)
	06881	1	Needle Roller (14 in. model only)
108	00664	1	Retaining Ring (16 in. model only)
	00170	1	Retaining Ring (14 in. model only)
109	30590	1	Seal Gland (16 in. model only)
	30333	1	Seal Gland (14 in. model only)
110	00698	2	Helicoil
111	24059	1	Male Coupler Body
112	24058	1	Female Coupler Body
113	31137	1	Plug
114	02916	1	Spring
115	07226	2	Hose Assy
116	00175	4	O-ring, 1/2 x 5/8 x 1/16 (16 in. model only)●
117	29604	2	Oil Tube
118	30922	1	O-ring, 13/16 x 15/16 x 1/16 -015 (16 in. model only)●
	350771	1	O-ring (14 in. model only)
119	30921	1	Quad Ring (16 in. model only)●
	00214	1	Quad Ring (14 in. model only)
120	31850	1	Gear Hsg Assy (16 in. model only) (Incld item 100 & 125)
	31849	1	Gear Hsg Assy (14 in. model only) (Incld item 100 & 125)
121	18602	8	Capscrew (16 in. model only)
	00120	8	Capscrew (14 in. model only)
122	28728	1	Name Tag (16 in. model only)
	28409	1	Composite Sticker (14" model only)
123	25610	1	Railroad Help Desk Sticker (16 in. model only)
	28728	1	Name Tag (14 in. model only)
124	03787	1	Flow & GPM Sticker (16" model only)
	28322	1	CE Sticker (14 in. model only)
125	04040	2	Bushing (16 in. model only)
	06316	2	Bushing (14 in. model only)
126	00145	8	Lockwasher (16 in. model only)
127	11207	1	"D" Sticker (14 in. model only)
128	28811	1	Info Plaque (14 in. model only)
129	56706	1	Detent Assy (S/N 2548 and Above)
	34880	1	Detent Assy (S/N 2547 and Below)
130	-------	1	✱(See item # 129)
131	52537	1	Rail Clamp Assy.
132	11210	1	Sound Power level sticker 108 dBA

✱ **NOT SOLD INDIVIDUALLY**

RS25 RAIL SAW - 14" & 16"

March 2002



SPECIFICATIONS

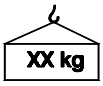
Wheel Capacity
- 14 inch model ..... 14 in / 35.5 cm dia. x 25.4 mm arbor (ANSI B7.5/ISO 525, 603)
- 16 inch model ..... 16 in / 41 cm dia. x 1 in arbor (ANSI B7.5/ISO 525, 603)

Pressure Range ..... 1800-2000 psi / 124-140 bar
Maximum Back Pressure ..... 250 psi / 17 bar
Flow Range..... HTMA Class RR, 9-10.5 gpm/34-40 lpm

EHTMA (D) 30 Lpm 138 Bar

EHTMA (E) 40 Lpm 138 Bar

Porting*..... -8 SAE O-ring
Hose Whips*..... Yes
Couplers ..... EHTMA/HTMA Flush Face
Overall Length (unfolded) ..... 36 inches / 92 cm
Overall Width ..... 11 inches / 28 cm
Height (with wheel - guard rotated to any position) ..... 13 inches / 33 cm



Weight (less wheel)
- 14 inch model ..... 55 lbs / 24.4 kg
- 16 inch model ..... 56 lbs / 25 kg

Spindle Speed
- 14 inch model (@ 10 gpm / 38 lpm) ..... 4500 rpm
- 16 inch model (@ 10 gpm / 38 lpm) ..... 3600 rpm

Maximum Fluid Temperature ..... 140° F / 60° C
Rail Size ..... 75-165 lb / yard /37-82 Kg/M

Sound Power Level..... 108 dBA

Sound Pressure Level At Operator (1 m)..... 97 dBA

Vibration Level..... 6.0 m/s^2

* Couplers and whip hoses are furnished as standard equipment.

SEAL KIT 31845

- **Denotes part in seal kit**

ACCESSORIES

Railsaw Blade - 16 in. Norton Norzone III Fastcut	29745
Railsaw Blade - 16 in. Norton AT-36	22439
Railsaw Blade - 14 in. Norton Norzone III Fastcut	30974
Universal Bellcrank Kit (Grooved Rail)	34733

WARRANTY

Stanley Hydraulic Tools (hereinafter called "Stanley"), subject to the exceptions contained below, warrants new hydraulic tools for a period of one year from the date of sale to the first retail purchaser, or for a period of 2 years from the shipping date from Stanley, whichever period expires first, to be free of defects in material and/or workmanship at the time of delivery, and will, at its option, repair or replace any tool or part of a tool, or new part, which is found upon examination by a Stanley authorized service outlet or by Stanley's factory in Milwaukie, Oregon to be DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP.

EXCEPTIONS FROM WARRANTY

FREIGHT COSTS: Freight costs to return parts to Stanley, if requested by Stanley for the purpose of evaluating a warranty claim for warranty credit, are covered under this policy if the claimed part or parts are approved for warranty credit. Freight costs for any part or parts which are not approved for warranty credit will be the responsibility of the individual.

SEALS & DIAPHRAGMS: Seals and diaphragms installed in new tools are warranted to be free of defects in material and/or workmanship for a period of 6 months after the date of first usage, or for a period of 2 years from the shipping date from Stanley, whichever period expires first.

CUTTING ACCESSORIES: Cutting accessories such as breaker tool bits are warranted to be free of defects in material and or workmanship at the time of delivery only.

ITEMS PRODUCED BY OTHER MANUFACTURERS: Components which are not manufactured by Stanley and are warranted by their respective manufacturers.

a. Costs incurred to remove a Stanley manufactured component in order to service an item manufactured by other manufacturers.

ALTERATIONS & MODIFICATIONS: Alterations or modifications to any tool or part. All obligations under this warranty shall be terminated if the new tool or part is altered or modified in any way.

NORMAL WEAR: any failure or performance deficiency attributable to normal wear and tear such as tool bushings, retaining pins, wear plates, bumpers, retaining rings and plugs, rubber bushings, recoil springs, etc.

INCIDENTAL/CONSEQUENTIAL DAMAGES: To the fullest extent permitted by applicable law, in no event will STANLEY be liable for any incidental, consequential or special damages and/or expenses.

FREIGHT DAMAGE: Damage caused by improper storage or freight handling.

LOSS TIME: Loss of operating time to the user while the tool(s) is out of service.

IMPROPER OPERATION: Any failure or performance deficiency attributable to a failure to follow the guidelines and/or procedures as outlined in the tool's operation and maintenance manual.

MAINTENANCE: Any failure or performance deficiency attributable to not maintaining the tool(s) in good operating condition as outlined in the Operation and Maintenance Manual.

HYDRAULIC PRESSURE & FLOW: Any failure or performance deficiency attributable to excess hydraulic pressure, excess hydraulic back-pressure, or excess hydraulic flow.

REPAIRS OR ALTERATIONS: Any failure or performance deficiency attributable to repairs by anyone which in Stanley's sole judgement caused or contributed to the failure or deficiency.

MIS-APPLICATION: Any failure or performance deficiency attributable to mis-application. "Mis-application" is defined as usage of products for which they were not originally intended or usage of products in such a matter which exposes them to abuse or accident, without first obtaining the written consent of Stanley.

WARRANTY REGISTRATION: STANLEY ASSUMES NO LIABILITY FOR WARRANTY CLAIMS SUBMITTED FOR WHICH NO TOOL REGISTRATION IS ON RECORD. In the event a warranty claim is submitted and no tool registration is on record, no warranty credit will be issued without first receiving documentation which proves the sale of the tool or the tools' first date of usage. The term "DOCUMENTATION" as used in this paragraph is defined as a bill of sale, or letter of intent from the first retail customer. A WARRANTY REGISTRATION FORM THAT IS NOT ALSO ON RECORD WITH STANLEY WILL NOT BE ACCEPTED AS "DOCUMENTATION".

NO ADDITIONAL WARRANTIES OR REPRESENTATIONS

This limited warranty and the obligation of Stanley thereunder is in lieu of all other warranties, expressed or implied including merchantability or fitness for a particular purpose except for that provided herein. There is no other warranty. This warranty gives the purchaser specific legal rights and other rights may be available which might vary depending upon applicable law.

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