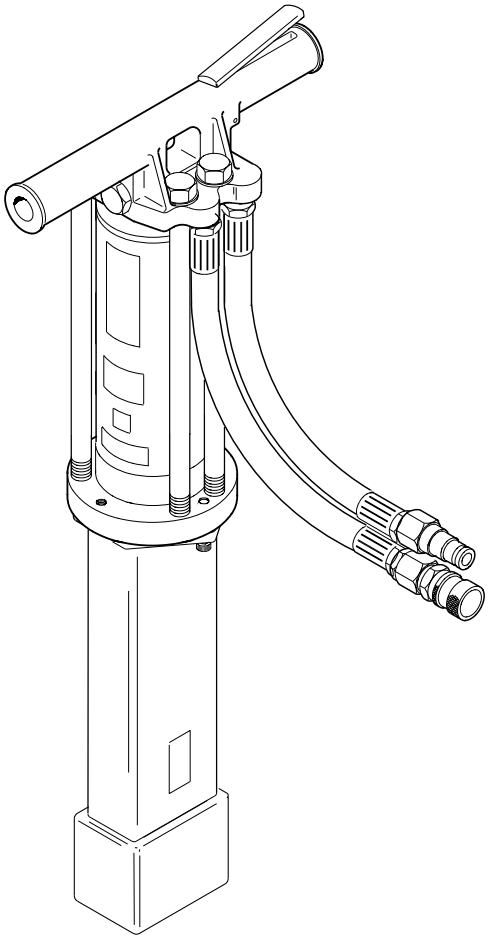
STANLEY®

SP47/SP48
Hydraulic Spike Puller



Safety and Operation 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 S.E. Naef Road • Milwaukie, OR 97267

OPS USA & CE VERSION
Printed in U.S.A.
34019 Sept 02 Ver 2

CE

INDEX

SERVICING SP47/SP48 SPIKE PULLERS: This manual contains safety, operation, and routine maintenance instructions. A complete service manual may be obtained from you dealer. 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 TOOL.

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

A list of Stanley Hydraulic Tools Distribution Centers can be found on the last page of this manual.

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 in this manual.

GENERAL SAFETY PRECAUTIONS

The SP47 and SP48 Hydraulic Spike Pullers 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 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.
- Do not operate a damaged, improperly adjusted, or incompletely assembled spike puller.
- Do not weld or cut with an acetylene torch the chute weldment or jaws 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.
- Do not overreach. Maintain proper footing and balance at all times.
- Place the end of the chute squarely against the tie plate, tilting as required, to avoid the sudden realignment that can occur as the tool begins to pull.

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

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.

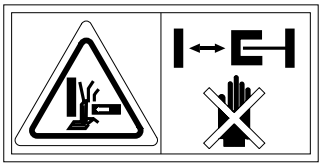
TOOL STICKERS & TAGS

WARNING

PINCH POINT

STAY CLEAR OF ALL MOVING PARTS

17572 PINCH POINT STICKER
(USA Models Only)



31064 CRUSH HAZARD STICKER
(CE Models Only)

STANLEY **RAILROAD HELP DESK**

1-800-549-0517

FOR CUSTOMER SERVICE OR TECHNICAL QUESTIONS

25610 RAILROAD HELP DESK STICKER
(USA Models Only)

TOOL STICKERS & TAGS

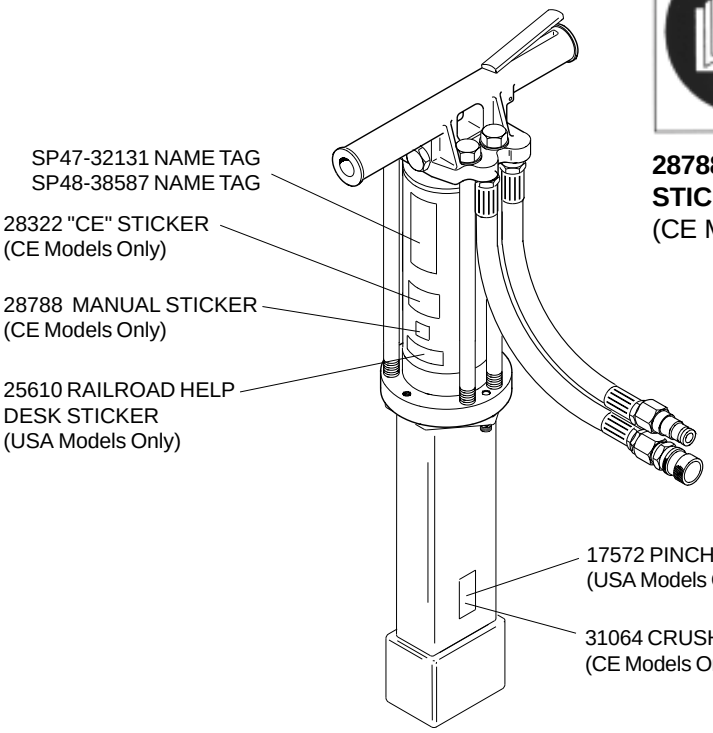
SP47
SPIKE PULLER

SERIAL NO.

FLOW 4-10 GPM/15-38 LPM

PRESS 2000 PSI / 140 BAR

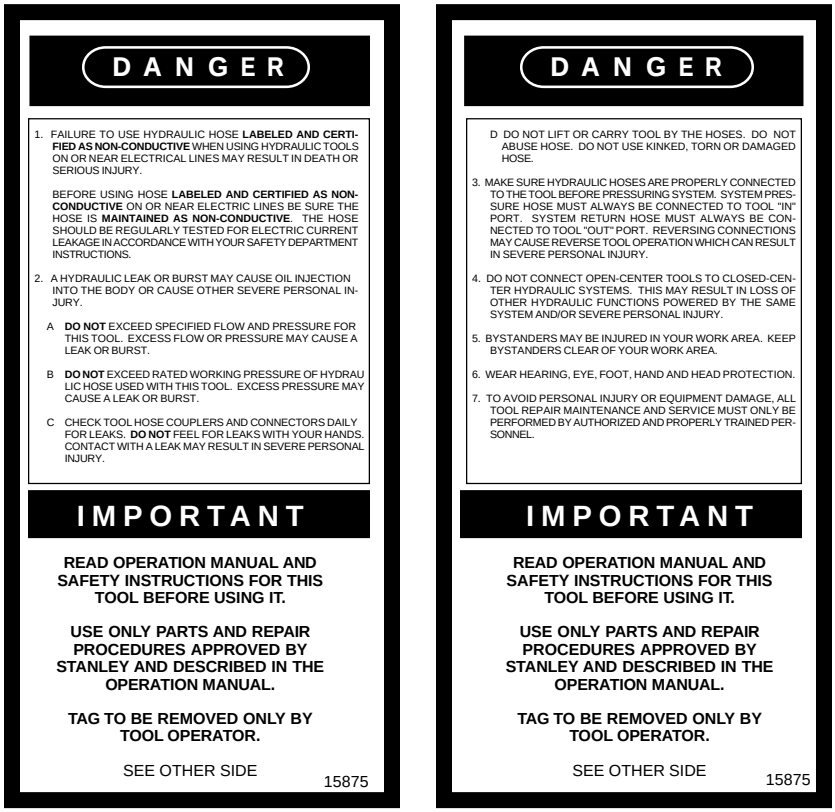
STANLEY®
Stanley Hydraulic Tools
Division of The Stanley Works



28788 MANUAL STICKER
(CE Manuals Only)

SP47 32131 NAME TAG STICKER
SP48 38587 NAME TAG STICKER

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.



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:

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.

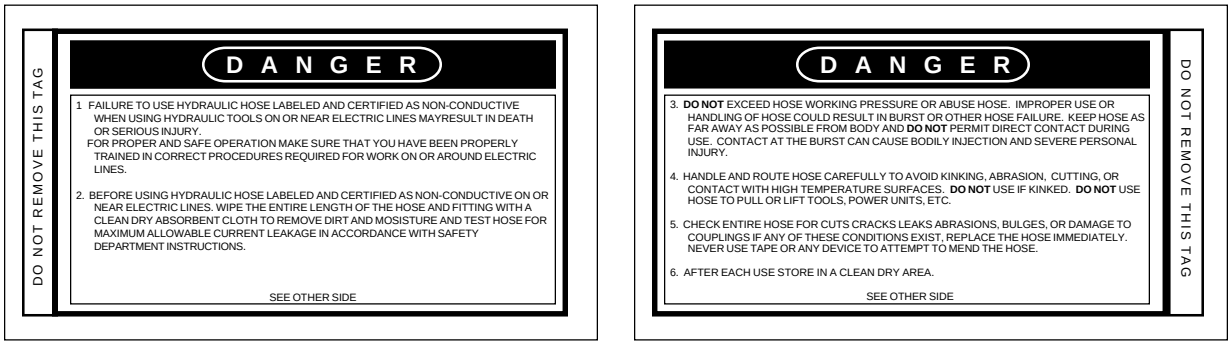
Hoses 2 and 3 listed above are **conductive** and **must never** be used near electrical conductors.

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

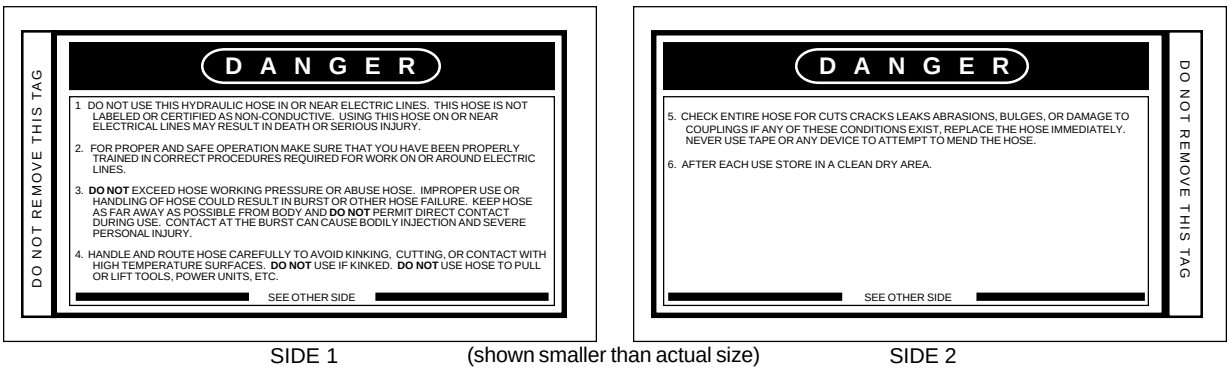
This tag is attached to all certified **non-conductive** hose.



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.

HYDRAULIC REQUIREMENTS

IMPORTANT

In addition to the Safety Precautions on pages 3 thru 6 of this manual, observe the following for equipment protection and care.

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

• Do not exceed the rated limits or use the tool 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 tool. 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.

HYDRAULIC SYSTEM REQUIREMENTS

• The hydraulic system should provide a flow of 4-10 gpm/15-38 lpm at an operating pressure of 2000 psi/140 bar. Recommended relief valve setting is 2200-2300 psi/152-159 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 hydraulic system should have a minimum of 25 micron filtration. Filter elements sized for a flow of at least 30 gpm/114 lpm for cold temperature startup and maximum dirt holding capacity are 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.

• Quick disconnect couplings must conform to NFPA T3.20,15/HTMA specifications.

PREOPERATION PROCEDURE

• 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.

• CHECK HYDRAULIC POWER SOURCE

1. Using a calibrated flowmeter and pressure gauge, check that the hydraulic power source develops a flow of 4-10 gpm/15-38 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) operation.

• CHECK TOOL

1. There should be no signs of leaks.

2. 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.

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

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

1. Observe all safety precautions.

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

3. Place the spike puller firmly over the spike to be pulled making sure the end of the chute is in full contact witht he tie plate.

4. Squeeze the trigger to start the spike puller.

5. When the spike is completely pulled, lift the tool and release the trigger. The spike will be ejected automatically.

SP48 MODELS ONLY:
Note: On SP48 Spike Puller Models the trigger is a two stage trigger. By pressing the trigger until it reachs the first position of the two stages (this will be evident by a distinct increase in effort).
The Puller should slowly pull down and align itself such that it is “square” with and against the Spike plate. **Caution: Be prepared for a sudden alignment of the tool if the trigger is depressed too far or the Valve malfunctions.**
Without releasing the Trigger from the first position, press the Trigger fully to engage the second stage. The second stage will fully pull the spike.
Lift the tool and release the trigger. The spike will be ejected automatically.

COLD WEATHER OPERATION

If the spike puller 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.

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 spike driver, always check that the hydraulic power source is supplying the correct hydraulic flow and pressure to the spike driver 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.

Spike puller does not cycle.	Power unit not functioning.	Check power unit for proper flow and pressure (4-10 gpm / 15-38 lpm, 2000 psi / 140 bar).
	Couplers or hoses blocked.	Remove restriction.
	Presssure and return line hoses reversed at ports.	Be sure hoses are connected to their proper ports.
Spike puller does not pull effectively.	Power unit not functioning.	Check power unit for proper flow and pressure (4-10 gpm / 15-38 lpm, 2000 psi / 140 bar).
	Couplers or hose blocked.	Remove restriction,
	Fluid too hot (above 140° F / 60° C).	Provide cooler to maintain proper fluid temperature.
	The jaw is not sliding freely in the chute.	Remove, clean and replace as required.
Spike puller operates slow.	Low oil flow from power unit.	Check power source for proper flow.
	High backpressure.	Check hydraulic system for excessive backpressure and correct as required.
	Couplers or hoses blocked.	Remove restriction.
Jaw retracted with tool in neutral position.	Pressure and return lines reversed at ports.	Be sure hoses are connected to their proper ports.

SPECIFICATIONS

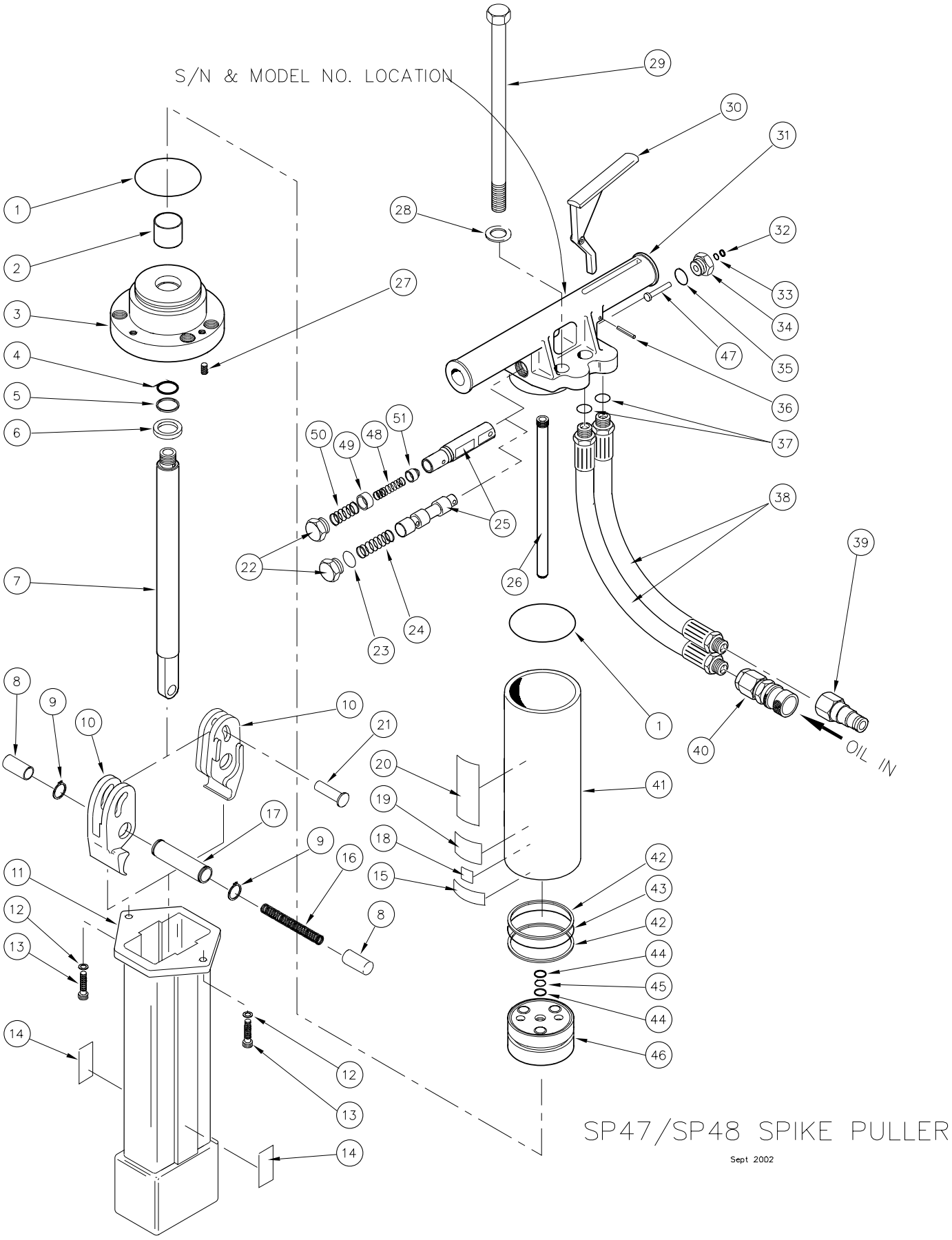
Capacity ..... 13,000 lbs/5,900 kg
Pressure ..... 2000 psi/140 bar
Maximum Back Pressure ..... 250 psi/17 bar
Flow Range ..... 4-10 gpm/15-38 lpm
Porting ..... -8 SAE O-ring
Couplers ..... HTMA/EHTMA Flush Face Type Male & Female
Connect Size and Type ..... 3/8 in. Male Pipe Adapter
Hose Whips ..... Yes

Weight ..... 48.5 lbs / 22 kg
Overall Length ..... 32.5 in. / 82.55 cm
Overall Width ..... 16 in. / 40 cm
Maximum Fluid Temperature ..... 140° F/60° C

EHTMA Category ..... "C" (20 lpm @ 138 bar) or "D" (30 lpm @ 138 bar)

ACCESSORIES

DESCRIPTION	PART NUMBER
Hair Pin "W" Grip Jaw Cast (2 required)	34876
2 Stage Valve Kit	37302
Narrow "W" Grip Jaw (UK)	32157
Notched Chute	32156


S/N & MODEL NO. LOCATION
OIL IN
SP47/SP48 SPIKE PULLER
Sept 2002

SP47/SP48 PARTS LIST

Item	Part No. SP47	Part No. SP48100	Qty	Description
1	15385	15385	2	O-ring, 3 x 3-1/8 x 1/16 -041 R17 •
2	32093	32093	1	Bearing (Furnished with Item # 3)
3	32035	34098	1	Lower Cylinder Head
4	350759	350759	1	O-ring, 1-1/2 x 1-3/4 x 1/8 -222 •
5	13992	13992	1	Backup Ring •
6	32094	32094	1	Wiper •
7	30015	30015	1	Piston Rod (250 lb. ft. to piston)
8	26388	26388	2	Spring Cup
9	26812	26812	2	Retaining Ring
10	33256	33256	2	Grip Jaw
11	31720	31720	1	Chute
12	01459	01459	2	Lockwasher
13	06151	06151	2	Capscrew, 3/8-16 (20 lb. ft.)
14	17572	17572	2	Pinch Point Sticker (US Models Only)
	31064	31064	2	Crush Hazard Sticker (CE Models Only)
15	25610	25610	1	Railroad Help Desk Sticker (US Only)
16	32097	32097	1	Spring
17	25992	25992	1	Pivot Sleeve
18	28788	28788	1	Manual Sticker (CE Models Only)
19	28322	28322	1	CE Sticker (CE Models Only)
20	32131	38587	1	Name Tag
21	22349	22349	1	Pull Pin
22	15354	15354	1	Plug
23	21463	21463	1	O-ring • (Furnished with Item # 22 on Model (SP48100)
24	15356	N/A	1	Spring
25	33702	43570	1	Valve Spool
26	22350	22350	1	Oil Tube
27	00698	00698	4	Helicoil, 3/8-16
28	03061	03061	4	Lockwasher
29	32095	32095	4	Capscrew, 1/2-13 (25 lb. ft X pattern to 75 lb.ft.)
30	27702	27702	1	Trigger
31	35209	35209	1	Handle Assy (Koeing Plug Installed)
32	22064	22064	1	Rod Wiper •
33	00026	00026	1	O-ring, 3/16 x 5/16 x 1/16 -008 R16 •
34	22914	22914	1	Spool Cap
35	01604	01604	1	O-ring, .755 x .945 x .097 -910 R17 •
36	15384	15384	1	Roll Pin
37	01605	01605	2	O-ring • (Furnished with Item # 38)
38	06830	56725	2	Hose Assy
39	24061	24061	1	Male Coupler
40	24060	24060	1	Female Coupler
41	30157	30157	1	Outer Tube
42	15391	15391	2	Backup Ring
43	15392	15392	1	O-ring, 2-7/8 x 3-1/4 x 3/16 -336 R16 •
44	08041	08041	2	Backup Ring •
45	00016	00016	1	O-ring, 9/16 x 11/16 x 1/16 -015 R16•
46	32045	32045	1	Piston Assy
47	22919	22919	1	Push Pin
48	N/A	35404	1	Spring
49	N/A	35287	1	Valve Stop
50	N/A	35421	1	Spring
51	N/A	35327	1	Relief Poppet

• Denotes Part in Seal Kit

SEAL KIT P/N
18048

NOTE: Use Part Number and Part Name when ordering.

NOTE: SP48 S/N 465 and above, New 43570 relieving Valve Spool.

MODEL DESCRIPTIONS

SP47100/SP48100 - U.S.A. model

SP4710001 - European (CE) Model

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

NEW PARTS: New parts which are obtained individually are warranted, subject to the exceptions herein, to be free of defects in material and/or workmanship at the time of delivery and for a period of 6 months after the date of first usage. Seals and diaphragms are warranted to be free of defects in material and/or workmanship at the time of delivery and for a period of 6 months after the date of first usage or 2 years after the date of delivery, whichever period expires first. Warranty for new parts is limited to replacement of defective parts only. Labor is not covered.

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, HEAT, TYPE OF FLUID: Any failure or performance deficiency attributable to excess hydraulic pressure, excess hydraulic back-pressure, excess hydraulic flow, excessive heat, or incorrect hydraulic fluid.

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. PERMISSION TO APPLY ANY PRODUCT FOR WHICH IT WAS NOT ORIGINALLY INTENDED CAN ONLY BE OBTAINED FROM STANLEY ENGINEERING.

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.

SALES & SERVICE DIRECTORY

NORTH AMERICA & CORPORATE HEADQUARTERS

Stanley Hydraulic Tools
3810 S.E. Naef Road
Milwaukie, Oregon U.S.A. 97267-5698
Tel: 503 659 5660
Fax: 503 652 1780

EUROPEAN HEADQUARTERS

Stanley Hydraulic Tools
3810 S.E. Naef Road
Milwaukie, Oregon U.S.A. 97267-5698
Tel: 503 659 5660
Fax: 503 652 1780

NORTHERN EUROPE

Stanley Svenska Ab
Box 1054
Datavagen 51
S436 22 Askim, Sweden
Tel: 46 31 289775
Fax: 46 31 288099

SOUTHERN EUROPE

Stanley Tools S.p.A.
Via Trieste 1
22060 Figino Serenza (Co.)
Italy
Tel: 39 31 785111
Fax: 39 31 781766 / 781094

ASIA PACIFIC HEADQUARTERS

Stanley Hydraulic Tools Asia
No. 25 Senoke South
Woodland East Industrial Estate
Jurong Town
Singapore 2775
Tel: 65 7522001
Fax: 65 7522018
Telex: RS 23945 STANLEY

AUSTRALIA-NEW ZEALAND HEADQUARTERS

Stanley Hydraulic Tools
3810 S.E. Naef Road
Milwaukie, Oregon U.S.A. 97267-5698
Tel: 503 659 5660
Fax: 503 652 1780

CENTRAL & SOUTH AMERICA HEADQUARTERS

Stanley Hydraulic Tools
3810 S.E. Naef Road
Milwaukie, Oregon U.S.A. 97267-5698
Tel: 503 659 5660
Fax: 503 652 1780

STANLEY®