OPERATORS' GUIDE

REL-GRD Series "THE DOOGIE DRIVER"

GROUND ROD DRIVER

The **REL-GRD SERIES** Hydraulic Ground Rod Drivers from **RELIABLE EQUIPMENT** has been designed to drive 1/2-5/8, 3/4, and 1 inch galvanized ground rods *FAST*.

REL-GRD-5/8 Drive 1/2"- 5/8" Ground Rod
REL-GRD-3/4 Drive 3/4" Ground Rod
REL-GRD-1 Drive 1" Ground Rod

- WARNING —



All information found in this guide must be read and understood before use or testing of this tool.

Failure to read and understand these warnings and safe handling instructions could result in severe personal injury and or death.

NOTICE —

Sizes, weights and tool specifications listed in this manual are subject to change without notice. Please consult factory for information and updates.







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This symbol indicates items of extreme importance. Safety of user and others may be in jeopardy if these instructions are not read and understood.

REGISTRATION

UPON RECEIPT OF THIS TOOL, COMPLETE THE REGISTRATION BELOW.

COMPANY _______

ADDRESS ______

PHONE ______ FAX _____

SERIAL NUMBER ______

DATE OF PURCHASE _____

DEALER NAME _____

RELIABLE EQUIPMENT & SERVICE CO., INC.



SPECIFICATIONS

Pressure 2000 psi Max.

Flow 5-8 gpm (18-30 lpm)
Whip Set 70 inches (178 cm)

Ports 9/16 - 18 SAE O-Ring Weight 60 lbs. (27.2 kg)

Length 25 1/2 inches (654 mm)

REL-GRD SERIES "THEDOOGIEDRIVER"

GROUND ROD DRIVERS

The **REL-GRD Series** Hydraulic Ground Rod Drivers from **RELIABLE EQUIPMENT** have been designed to drive 1/2-5/8, 3/4, or 1 inch galvanized ground rods *FAST*.

Cushioned "Comfort Grip" handles run the length of the tool body providing two handed control while reducing operator fatigue.

The **REL-GRD** will operate from any Openor Closed-Center hydraulic system.

70 inch whips with a remote in-line ON/OFF valve provides convenient access to control for accurate drive depth.

The integral lifting eye allows the driver to be lifted and suspended above the rod reducing operator strain.

Flush face quick disconnect couplers are factory installed, so you may use the tool right out of the box.

Please specify model when ordering.

REL-GRD-5/8 Drive 1/2"- 5/8" Ground Rod

REL-GRD-3/4 Drive 3/4" Ground Rod **REL-GRD-1** Drive 1" Ground Rod



301 Ivyland Road • Warminster, PA 18974 Phone: 800-966-3530 • Fax: 215-357-9193 Visit us on the web at www.Reliable-Equip.com



WARNING

BEFORE USING THIS TOOL, READ THE WARNINGS and the recommended practices described in this manual. Failure by the operator to read and fully understand these warnings will leave this person unqualified to use and operate this tool. Property damage, severe personal injury, and/or death could result by not following these warnings.

These warnings will appear in appropriate locations when they are pertinent to the particular subject being shown. Read each one carefully and follow them strictly.



Eye Protection

WARNING

Always wear eye protection to avoid injury from flying debris or hydraulic oil leaks. Failure to do so can result in serious personal injury.



Dust Mask

WARNING

Always wear a dust mask. Failure to observe this warning may result in serious health issues and/or breathing difficulty.



Hard Hat

WARNING

Always wear a hard hat to avoid injury from falling debris. Failure to do so can result in serious personal injury.



Foot Protection

WARNING

Always wear foot protection.

Failure to do so can result in serious personal injury.



Hearing Protection

WARNING

Always wear hearing protection, to avoid hearing loss due to long term exposure to high noise levels.



Gloves

Protective

WARNING

Always wear protective gloves Failure to do so can result in serious personal injury.



Safe Operation & Care

USE THIS TOOL FOR ITS INTENDED PURPOSE ONLY Any other use can result in injury or property damage. INSPECT TOOL BEFORE USE. Replace any worn, damaged or missing parts. A damaged or improperly assembled tool may malfunction, injuring operator and/or nearby personnel.

INSPECT HYDRAULIC HOSES AND COUPLINGS before each use. Repair or replace if any cracking, leakage, wear or damage is is found. Worn or damaged hoses may fail resulting in personal injury or property damage.

<u>CLEAR WORK AREA</u> of all bystanders and unnecessary personnel before operating this tool.

KEEP ALL PARTS OF THE BODY AWAY FROM MOVING PARTS.

Failure to observe this warning could result in serious injury.



Safety

<u>DO NOT</u> attempt to make any changes to any of the component parts or accessories when connected to the power source.

<u>DO NOT</u> adjust, inspect, or clean tool while the tool is connected to the power source. The tool could accidentally start up and cause serious injury.

<u>DO NOT</u> lock the tool in the On Position. In an emergency, serious damage or injury could occur during the time required to stop the tool.



Oil Injection Injury

Hydraulic oil or fluid under the skin is a serious injury. Oil under pressure can penetrate the skin and may cause dismemberment or loss of life. Seek medical assistance immediately if such an injury should occur.

Always wear safety gloves, eye protection and all required safety equipment when operating or handling this tool. DO NOT use fingers or hands to attempt to locate a leak. DO NOT handle hoses or couplers while system is pressurized. NEVER open or service the system before depressurizing.



WARNING

Burn Hazard

<u>Do Not</u> connect or disconnect tool, hoses or fittings while power source is running or while hydraulic fluid is hot. Hot hydraulic fluid may cause serious burns.

Failure to observe this warning could result in serious injury.



WARNING

Electrical Shock Hazard

Use only certified nonconductive hoses and fittings. Always wear and use the necessary clothing, equipment and safety practices to protect against electrical shock. Failure to follow these rules can result in serious personal injury or death.



CAUTION

Vibration Hazard

Apply just enough pressure to control the tool operation. Applying excess pressure to the tool may cause operator discomfort or temporary numbness.

Failure to observe this warning could result in serious injury.



CAUTION

Safe Handling

HYDRAULIC FLUID MAY CAUSE SKIN IRRITATION.

Prevent hydraulic fluid from making contact with skin.

IN THE EVENT OF SKIN CONTACT immediately wash thoroughly. Failure to observe this warning could result in injury.



CAUTION

General Safety

Ensure that all fellow employees and bystanders are clear and protected from possible injury caused by this tool or the operations being performed. Persons in close proximity could be injured and property damaged if the tool were to malfunction.

This tool should always be used within the limits and purposes stated by the product manufacturer. Abuse or usage beyond the manufacturers' intended purposes could cause damage to the tool and severe injury to the operator.

TOOL SPECIFICATIONS

Overall Length (W/O HOSES)	25 1/2 in.
Handle Width	8.0 in.
Weight	44 lbs.

HYDRAULIC POWER SOURCE SPECIFICATIONS

The following requirements are essential for the safe operaton of this tool.

Hydraulic System	Open- or C	losed- Center
Flow Range	6 gpm	Minimum
	7 gpm	Optimum
	8 gpm	Maximum
Operating Pressure 1,80	00 - 2,200 psi	
Filtration	10 Micron	Nominal
Back Pressure	200 psi	Maximum*
Pressure Port Thread 3	/4-16 Female	SAE O-Ring
Return Port Thread 3	/4-16 Female	SAE O-Ring
* 200 psi (1,379 kPa) is the maximum agre	ed standard	for the HTMA

If you have any questions regarding the information in this manual contact **RELIABLE EQUIPMENT** at the address, phone or fax numbers on page 3.

(Hydraulic Tool Manufacturers Association).



These specifications must be strictly adhered to for the safe and effective operation of this tool.

HYDRAULIC FLOW MUST NOT EXCEED 8 GPM

LIMIT RELIEF SETTINGS TO 2,000 PSI (13,790 kPa)

Any deviation can result in severe injury or death to the operator and or extraneous personnel.



HOSES AND FITTINGS

There exists the potential for shock in using anything other than certified nonconductive hoses and hydraulic oil with dielectric properties, when using system components near energized electrical lines.

Failure to recognize these conditions could cause electrocution.

Hoses and fittings used with this tool must comply with S.A.E. J1273 which covers recommended practice for selection, installation, and maintenance of hose and hose assemblies. The correct hoses and fittings are available from your supplier.

WARNING: Failure to comply with these warnings could result in severe bodily injury.



WARNING

UNIT/HOSE CONNECTIONS

ALWAYS SHUT OFF pump/power source and move flow selector to **OFF** before connecting or disconnecting system components.

<u>ALWAYS DEPRESSURIZE</u> hydraulic system before slowly disconnecting this unit or any of the systems components.

<u>ALWAYS TIGHTEN</u> couplings completely. Loose or improperly tightened couplings will not allow fluid to pass through the hose creating a blockage in the supply or return line.

ALWAYS INSPECT HOSES AND CONNECTORS before connection to tool. Replace or repair if any leakage is evident. Leakage is a sign of deterioration in component parts. Worn or leaking parts must be repaired or replaced, or tool damage or severe injury could result.



HOSE INSTALLATION

Care must be taken to assure the correct connection of the hoses to the pressure "P" and return "T" ports.

Connect the return hose to the return port on the power source, then to the return "T" port on the tool.

Connect the pressure hose to the pressure port "P" on the tool, then to the pressure port on the power source.

Operation with hydraulic flow reversed can cause malfunction. Failure to fully comply can result in tool damage, injury, or death.

PRE-OPERATION OF TOOL



DO NOT connect hoses or fittings to this unit before completing all of the instructions in this section.

Ensure power source is <u>OFF</u>, and hydraulic flow is lever is turned <u>OFF</u>. Failure to comply with this warning can result in severe injury or death.

Before attempting to run or use the tool, check all connections, including hoses, and couplings.

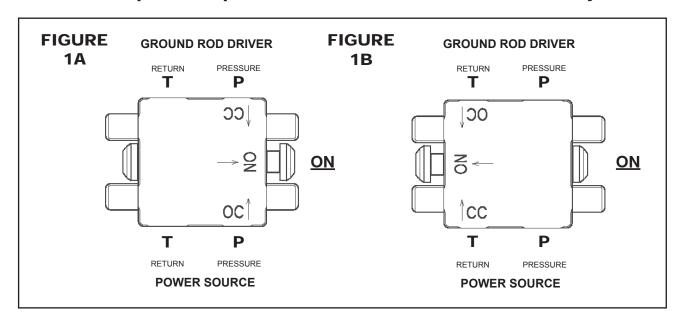
Ensure that valve is moving freely.

Wear all safety items required and make sure that the working area is clear of obstructions and non essential personnel.

Set the Valve to Open- or Closed-Center, according to which system the power supply pump provides. It is important to know which type of power system is supplying the tool so that the REL-GRD-1 can be properly set.

All these items are crucial to the safe operating procedure of the REL-GRD-1.

Tool Set-up for Open-Center or Closed-Center Systems



Model REL-GRD-1 (Refer to the illustration in Figure 1A above.)

This model is factory configured for Open-Center operation. (as shown above) Connect pressure and return from power source to OC ports on valve as shown above.

Valve Conversion for Closed-Center Operation: (Refer to Figure 1B above)

Rotate valve 180°. Connect return & pressure hoses from REL-GRD-1 to OC ports on valve. Connect return and pressure from power source to the CC ports on valve as shown above.

GROUND ROD DRIVER OPERATION

There are a number of safety items that need to be addressed when using the tool.

Seek out the supervisor for basic instruction in handling the tool. Some basic problems are easily overcome by knowing the rules of operation.

Make sure that the correct anvil for the rod size being driven is inserted. (5/8" from Factory) Inspect, set-up and connect the tool as described on the previous pages.

Start the hydraulic power source.

Allow the power source to run for a few minutes to warm the hydraulic fluid.

Slide the ground rod into the driver.

Raise the rod and driver to a vertical position and ensure adequate down pressure is applied.

NOTE: Due to the weight and raised position of the rod and the driver, it is recommended that the lifting procedure be proformed by two persons for lift and transport.

Activate control valve or control spool to the **ON** position. (Refer to Figure 1A or 1B) Firmly grasp the tube with both hands. Ensure proper footing and balance.

Apply light downward pressure to the REL-GRD driver.



WARNING: Driver operation does not require excessive pressure. Excess pressure may cause operator discomfort, fatigue or numbness.

Operator must maintain a firm grip and proper balance, cotroling the tool with both hands at all times. Failure to maintain control of the tool could result in severe personal injury or death.

When finishing with the operation, move the control spool to the **OFF** position.

Move the flow lever on the power source to the **OFF** position.

Stop the hydraulic power source.



WARNING: <u>DO NOT</u> disconnect the tool, hoses, or fittings while the tool is running, hot, or under pressure. Serious injury or burns could result.

DISCONNECT HOSES

Move the flow lever on the power source to the **OFF** position.

Stop the hydraulic power source.

Disconnect the pressure hose from the pressure "P" port on the power source, then disconnect the hose from the pressure port on the tool.

Disconnect the return hose from the return "T" port on the tool, then disconnect the hose from the return port on the power source.

Install dust caps on all connectors to prevent dirt and contaminants from entering the hydraulic system.

MAINTENANCE

The life, reliability, and safety of the tool is dependent on proper maintenance.

DAILY MAINTENANCE

Clean all surfaces including handle, trigger, valve, fittings, hoses and housing. **Inspect** tool for wear and damage.

Worn or damaged parts can cause malfunction during operation.

Inspect for cracked hoses and leaking fittings.

Check fluid level of the power source reservoir frequently.

All the above items must be replaced with new parts if signs of wear are evident.

FLUID CONTAMINATION: Cover the ends of fittings with a dust cap when disconnected. This will help keep the fluid from contamination.

MONTHLY MAINTENANCE: Inspect per Appendix A, SAE Standard J1273, 5/86 for hose or fitting damage such as wear, cracks or leakage, replace the necessary parts.

NOTE: Keep Label Set clean and legible. Replace decals when necessary. Part #RL27400



WARNING

BEFORE USING THIS PRODUCT READ THE SAFETY WARNINGS

and recommended practices described in the manual. Failure by the operator to read and fully understand the warnings will leave this person unqualified to use and operate the tool.

Failure to observe all warnings and instructions could result in property damage, severe personal injury, and/or death.

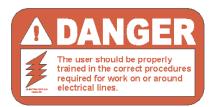


This tool is factory configured for Open-Center Tool Systems. Convert for Closed-Center Use Rotate the valve 180°. Connect from tamper to OC ports on valve.

Connect return and pressure from power source to the CC ports on valve.

Failure to observe all warnings could result in property damage, severe injury, and/or death.





HYDRAULIC FLUIDS

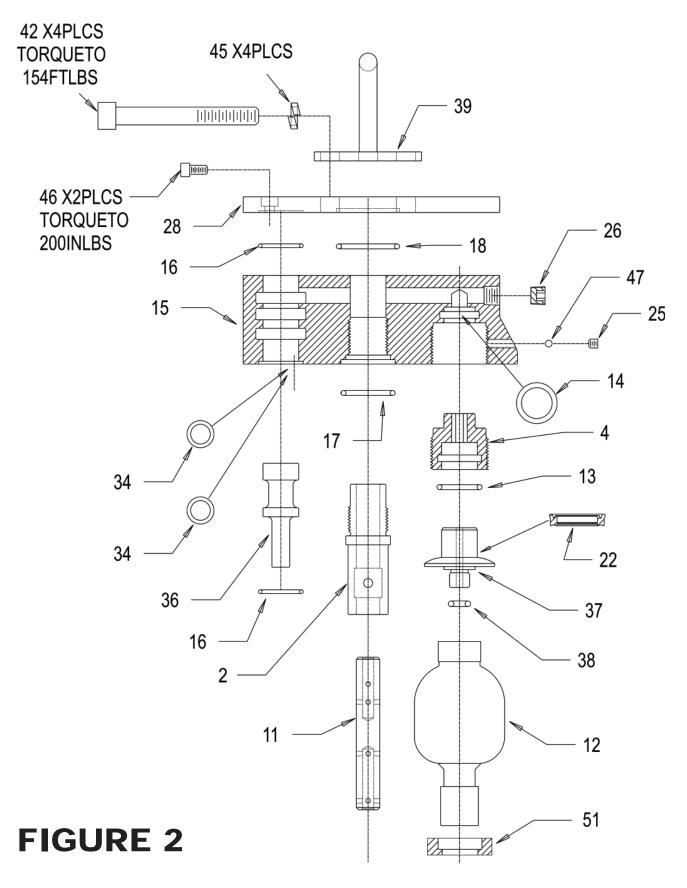
All hydraulic fluids that meet these listed specifications or the listed HTMA specifications may be used for this tool.

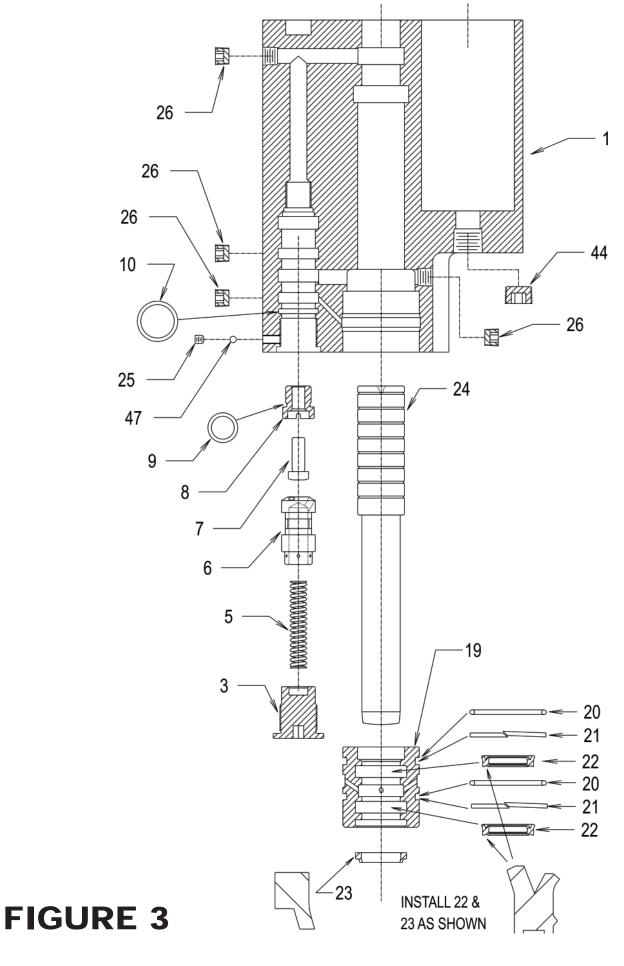
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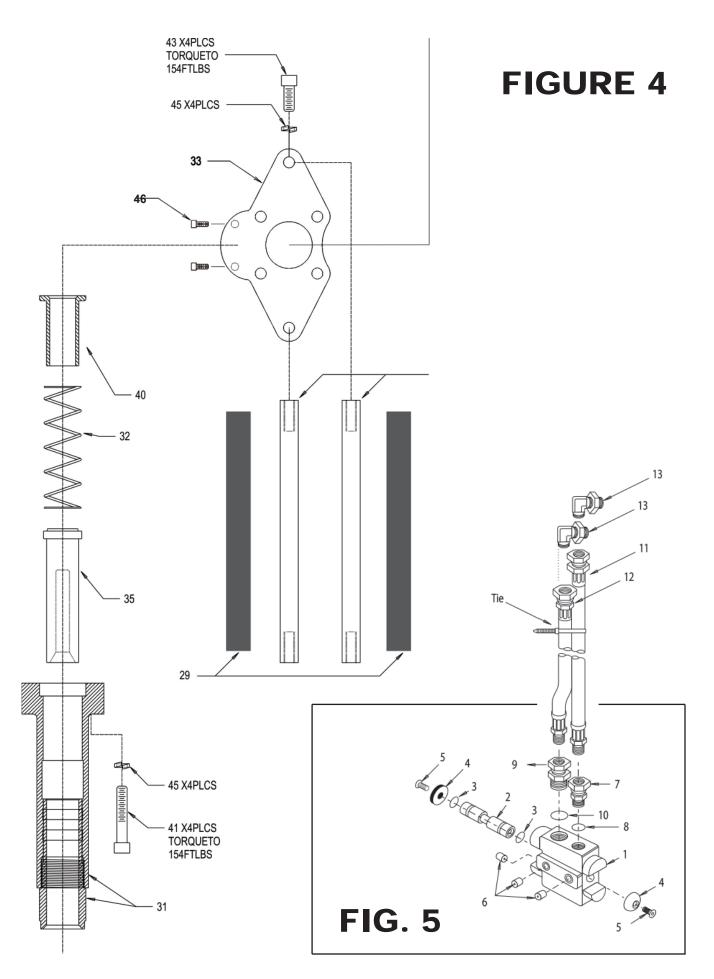
@ 100° F (38° C)	140 TO 225
@ 210° F (99° C)	40 minimum
FLASH POINT	340° F min. (170° C min.)
POUR POINT	-30° F min. (-34° C min.)

REL-GRD SERIES

HYDRAULIC GROUND ROD DRIVER







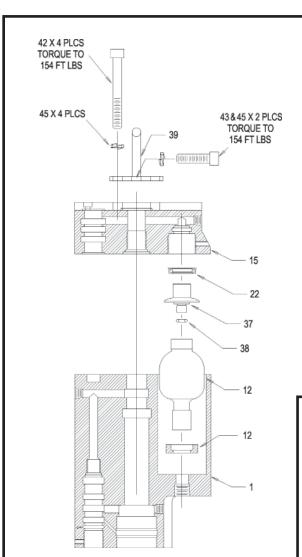
REL-GRD SERIES - GROUND ROD DRIVER - Parts List

ITEM	PART# QTY	DESCRIPTION	DRAWING
1	R48001 1	BODY	FIG. 2
2	R48002 1	BUSHING, PISTON	FIG. 1
3	R48062 1	END PLUG	
4	R48004 1	INSERT	FIG. 1
5	R48005 1	SPRING, SHUTTLE	FIG. 2
6	R48006 1	SHUTTLE SPOOL	
7	R48007 1	PLUNGER	
8	R48008 1	BUSHING, PLUNGER	
9	R48009 * 1	O-RING, PLUNGER BUSHING	
10	R48010 * 1	O-RING, END PLUG	
11	R48011 1	PISTON	
12	R48012 1	ACCUMULATOR	
13	R48013 * 1	O-RING, INSERT	
14	R48014 * 1	O-RING, VALVE BODY	
15	R48015 1	VALVE BODY	
16	R48016 * 2	O-RING, VALVE BODY	
17	R48017 * 1	O-RING, VALVE BODY	
18	R48018 * 1	O-RING, VALVE BODY	
19	R48019 1	GLAND	
20	R48020 * 2	O-RING, GLAND	
21	R48021 * 2	BACK-UP RING	
22	R48021 2 R48022 * 3	U-CUP	
23	R48023 * 1	WIPER	
24	R48024 1	RAM	
25	R48025 2	SET SCREW, 1/4 LG	
26	R48026 5	PLUG	
27	R48027 2	ROD, HANDLE	
28	R48028 1	END CAP	
29	R48048 2	CUSHION GRIP	
31	R48031 1	FRONT HOUSING, ASSY	
32	R48032 1	SPRING, FRONT HOUSING	
33	R48063 1	PLATE, FRONT HOUSING	
34	R48034 * 2	O-RING, VALVE BODY	
35	R48035 1	ANVIL, 5/8 INCH	
1	R48075 1	ANVIL, 3/4 INCH	
	R48076 1	ANVIL, 1 INCH	
36	R48036 1	VALVE SPOOL	
37	R48037 1	PLUG, ACCUMULATOR	
38	R48038 * 1	O-RING, ACCUMULATOR PLUG	
39	R48039 1	LIFTING PLATE	
40	R48040 1	SLEEVE	
41	R48041 4	SCREW, FRONT HOUSING 2-3/4 LG	
42	R48042 4	SCREW. LIFTING PLATE 4 LG	
43	R48043 4	SCREW, HANDLE 1-1/4 LG	
44	R48044 1	PLUG, ACCUMULATOR	
45	R48045 12	LOCK WASHER	
46	R48046 4	SCREW, END CAP 1/2 LG	
47	R48047 2	PLASTIC BALL	
51	R48052 1	DAMPENER	FIG. 2
*	R48100 1	SEAL KIT (* ITEMS INCLUDED)	

R27600 - IN LINE REMOTE ON/OFF VALVE - Parts List

1	VALVE BODY	1	R27601
2	SPOOL	1	R27602
3	O-RING	2	R27052
4	BUTTON	2	13138
5	SCREW	2	13139
6	PIPE PLUG	3	12791
7	O-RING	1	R27030A
8	O-RING	1	R27074
9	RETURN LINE ADAPTER (LARGE)	4	R27073
10	PRESSURE LINE ADAPTER	2	R27071
11	HOSE ASSEMBLY, OUTSIDE (70 inches)	1	R48150
12	HOSE ASSEMBLY, INSIDE (69 inches)	1	R48151
13	PORT ADAPTER	2	8-3/8AOEG-S

TESTING AND CHARGING THE ACCUMULATOR

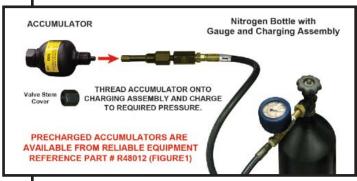


Testing or charging the accumulator will require a commercially available Nitrogen bottle equipped with a charging and gauging assembly. (min. 600 psi required)

- **1.** Remove the two (2) screws connecting the handles to the Lifting Plate.
- 2. Remove the four (4) screws connecting the Lifting Plate to the Valve Body as well as the Valve Body to the Tool Body.

NOTE: <u>Do Not Remove</u> End Cap Screws.

- 3. Lift the Valve Body off of the Tool Body.
- 4. Remove the Accumulator Assembly from the Valve Body and Tool Body.
- 5. Remove the Plastic Dampener and Valve Stem Cover from the Accumulator base and thread the charge valve onto the Accumulator.
- 6. Gauge the content of the Accumulator.
- 7. Charge as required or replace with a precharged Accumulator.
- 8. Re-assemble the Ground Rod Driver.



TROUBLE SHOOTING

Determine the source (i.e. tool or hydraulic system) of the problem before trouble shooting.

NOTE: A mis-charged accumulator may contribute to a variety of tool inconsistencies. Please refer to the **Accumulator Recharging Procedures** on page of this manual.

Please refer to the Accumulator Recharging	Procedures on page of this manual.
Will not run	
Ram is restricting hydraulic fluid	Apply light load to Ram by placing tool onto rod and raising to the vertical position.
Improper power source	· · · · · · · · · · · · · · · · · · ·
Low hydraulic fluid	Check fluid level
Incorrect viscosity	Use recommended fluid
Tool damaged	
· · · · · · · · · · · · · · · · · · ·	Switch hoses (see hose connection in this manual)
Dirt in tool	Disassemble, clean and repair
Tool runs slow	
Power supply not functioning correctly	
Fluid not warmed to correct temp	• •
Fluid viscosity too high	
	Check hoses for breaks, leaks, or loose connections
Hydraulic fluid level low	
Tool components loose	· ·
Worn or damaged components	Replace worn or damaged components
Tool runs too fast	Depart to apparator manual appara
Power supply not functioning correctly	· · · · · · · · · · · · · · · · · · ·
Excessive downward pressure	Do not apply downward pressure.
Tool operation is erratic	Allers elle somme om
Hydraulic fluid not warm	
Dirt or contaminants in tool	
-	Check hoses for breaks, leaks, or loose connections
Tool locked in "ON" position	Release trigger lever lock
Valve operation is difficult	
Tool valve spool dirty	Clean up spool so that spool slides freely
Components worn or damaged	Replace damaged components
Tool runs hot	
Low fluid level	Fill pump reservoir to correct level
Fluid viscosity incorrect	
Fluid dirty	•
Power supply not functioning correctly	· · · · · · · · · · · · · · · · · · ·
Worn or damaged O-rings or gaskets	
Hydraulic fluid level low	Fill to level. Check for leaks
Tool is erratic	
Hydraulic fluid not warm	·
Dirt or contaminants in tool	
-	Check hoses for breaks, leaks, or loose connections
Tool leaks hydraulic fluid	Disassamble and replace were as demand and
Components loose	Disassemble and replace worn or damaged seals
•	righten component natuware
Tool lacks power	More part or and rings
Control valve leaking	worn part or seal rings

READ BEFORE DISASSEMBLY



SAFETY

<u>DO NOT</u> attempt to make any changes to any of the component parts or accessories when connected to the power source.

<u>DO NOT</u> adjust, inspect, or clean tool while the tool is connected to the power source. The tool could accidentally start up and cause serious injury.



Before disassembly, disconnect hoses as described in this manual. Any residual pressure within the unit can and will spray at high velocity, injuring the person doing the disassembly. Hot or pressurized hydraulic fluid will cause serious injury or death. **Complete disassembly is not recommended.** Return the unit to an authorized dealer for total disassembly and/or repair.

All maintenance or disassembly should take place on a flat, clean work surface covered with towels or wipers so as to have a clean space for the disassembled parts.

Inspect each part during disassembly for wear, scratches, and cuts. Discard the worn or damaged parts and replace with new factory authorized parts.

O-rings are sensitive to sharp edges. Inspect closely for cuts or damage. A small cut will cause a leak. When assembling or disassembling O-rings, use hydraulic fluid as a lubricant to aid disassembly or installation.

The REL-GRD is dedicated to the memory of Doug Phillips.

"THE DOOGIE DRIVER"

Doug Phillips was a dedicated salesman, and a long time advocate for the production of a **RELIABLE** Ground Rod Driver.

We are sorry that Doug never got to introduce this tool to his customers, but we are convinced that the "Doogie Driver" will live up to his expectations.

















Operation/Safety methods may vary in accordance with the working guidelines established by each Utility or Contractor.

For your own safety, ensure that you fully comply with all safe operation guidelines required by your employer.





MAINTENANCE RECORD

Date	Parts or Service Required





If you have any questions regarding the information in this manual please contact **RELIABLE EQUIPMENT** at the address, phone or fax numbers shown below.





301 Ivyland Road • Warminster, PA 18974 Phone: 800-966-3530 • Fax: 215-357-9193 Visit us on the web at www.Reliable-Equip.com



