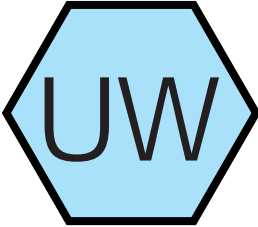


OPERATORS' GUIDE

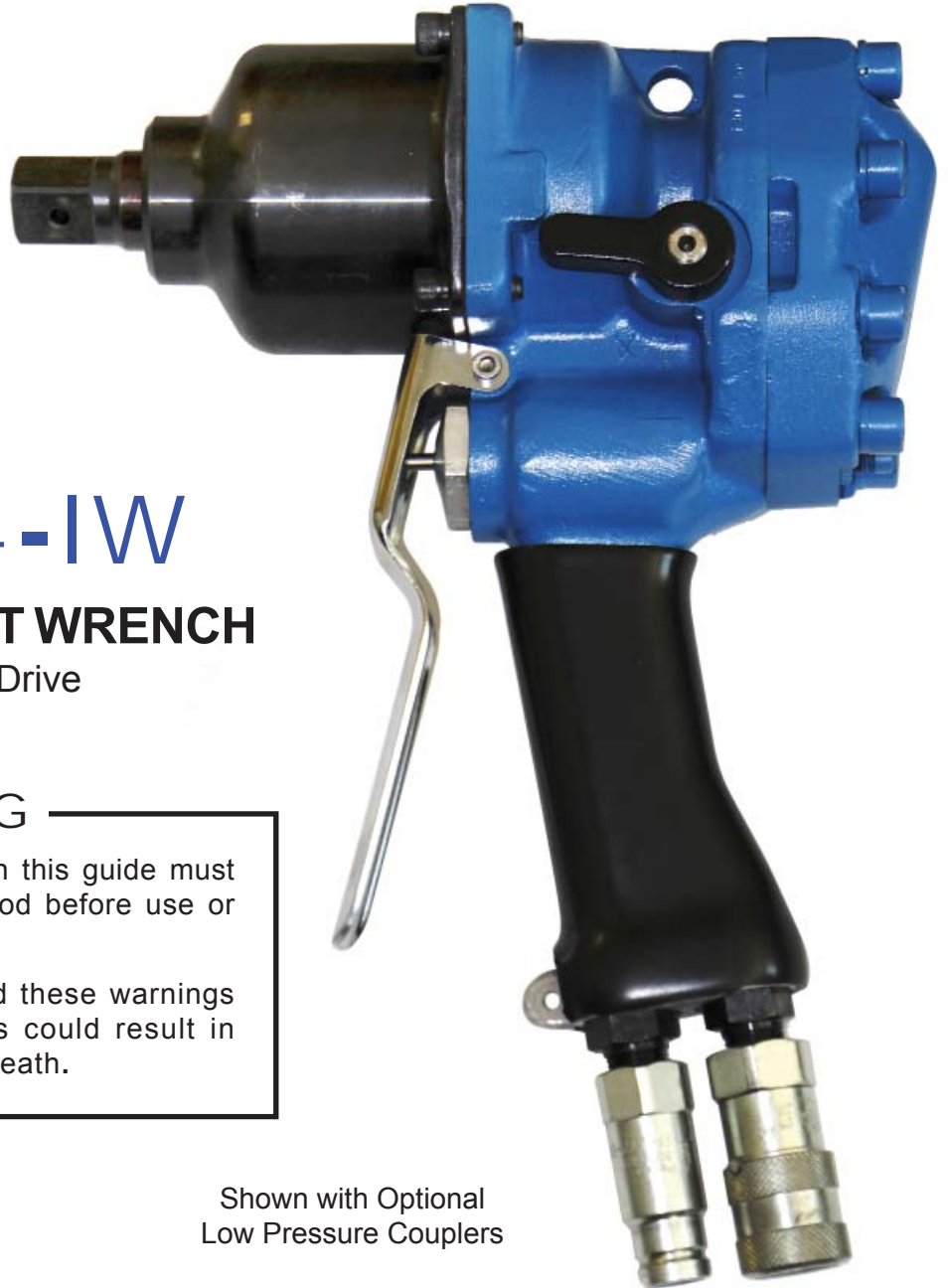


Sealed for
UNDERWATER
applications

REL-3/4-IW

HYDRAULIC IMPACT WRENCH

with 3/4" Square Drive



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.

Shown with Optional
Low Pressure Couplers



RELIABLE EQUIPMENT & SERVICE CO., INC.

DISTRIBUTED BY

REGISTRATION

UPON RECEIPT OF THIS TOOL, COMPLETE THE REGISTRATION BELOW.

COMPANY _____

ADDRESS _____

PHONE _____ FAX _____

SERIAL NUMBER _____

DATE OF PURCHASE _____

DEALER NAME _____



THIS SYMBOL INDICATES ITEMS OF EXTREME IMPORTANCE.

Safety of user and others may be in jeopardy if these instructions are not read and understood.



CAUTION

The information in this manual is intended to guide the user in the use and application of this tool. It is not intended as a substitute for proper training and experience in safe work practices for this type of equipment.

Consult your supervisor or safety personnel if you have any questions regarding the safe operation of this tool.

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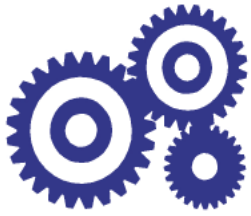
DESCRIPTION

The **REL-3/4-IW**, user friendly 3/4” square drive, hydraulic impact tool that has broad applications for the utility, line construction and underwater construction industries.

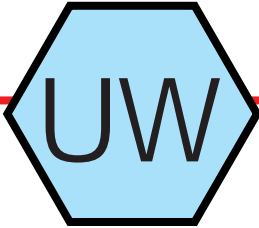
Delivering up to 1,200 ft.lbs. of torque, this tool is great for drilling, loosening rusted hardware, or tightening lag bolts and hardware with ease.

The well balanced tool feels comfortable and secure. The trigger is designed to be responsive in a heavily gloved hand, enabling the user smooth, easily controlled operation. A readily accessible reversing lever allows unconstrained direction control. The handle is coated with a heat protecting material which aids in handling the tool under adverse conditions.

If you have any questions regarding the information found in this manual please contact RELIABLE EQUIPMENT at the address, phone or fax numbers found on the back cover of this manual.



RELIABLE EQUIPMENT & SERVICE CO., INC.

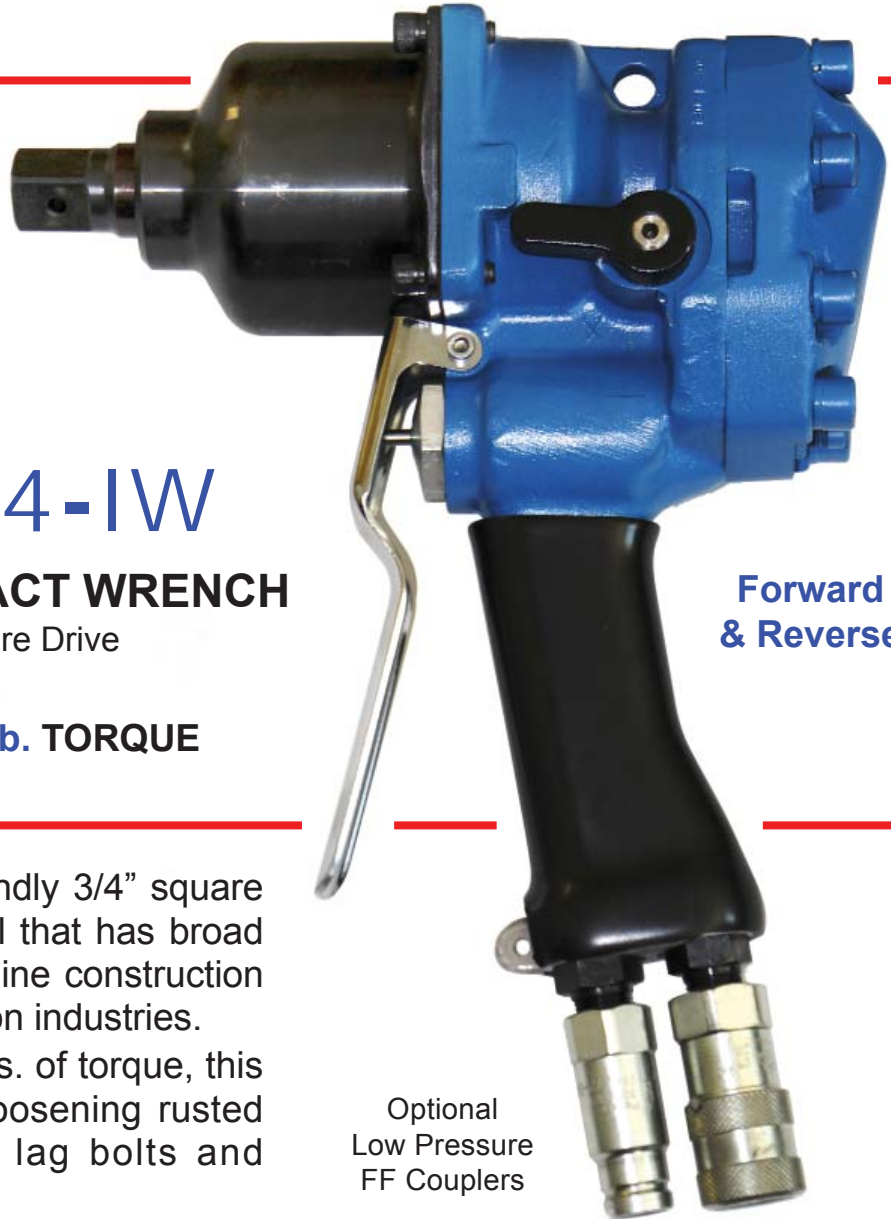


Sealed for
UNDERWATER
applications

REL-3/4-IW

HYDRAULIC IMPACT WRENCH
with 3/4" Square Drive

UP TO 1,200 ft.lb. TORQUE



**Forward
& Reverse**

Optional
Low Pressure
FF Couplers

The **REL-3/4-IW**, user friendly 3/4" square drive, hydraulic impact tool that has broad applications for the utility, line construction and underwater construction industries.

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**RELIABLE EQUIPMENT
& SERVICE CO., INC.**

301 Ivyland Road • Warminster, PA 18974
Phone: 800-966-3530 • Fax: 215-357-9193

Visit us on the web at www.Reliable-Equip.com

TOOL SPECIFICATIONS

Length	9.5" (24 cm)
Width	4" (10 cm)
Height wo Cplrs.	11.25" (28.5 cm)
Weight	14 lb. (6 kg)
Output Torque	250-1200 ft. lb. (340-1630 Nm)
NOTE: TORQUE MAY VARY WITH TRUCK PRESSURE AND HYDRAULIC FLOW	
Output Speed	2,000 rpm at 5 gpm/19 lpm
Input speed	1,200 Impacts/Minute
Pressure/Return Ports	8 SAE O-ring
Drive	3/4" Square Drive
Hyd. System Type	Open Center

SPECIFICATIONS

Hydraulic Power Source

Flow: Min.	4 gpm (5.1 lpm)
Recommended	7-10 gpm (19-30 lpm)
Flow Range.....	4-12 gpm (15-45 lpm)
Operating Pressure Min.	1,500 psi (105 bar)
Operating Pressure Max.	2,000 psi (138 bar)
Pressure Relief Setting	2,000 psi Max. (138 bar)
Back Pressure.....	200 psi (13.8bar)
Filtration	10 microns Max.
Hydraulic System	Open Center
Fluid Temperature, Max.	140° F (60° C)

* Checked with Flowmeter on Pressure Line



WARNING

Relief Valve not to exceed 2,000 psi



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.



Protective Gloves

WARNING

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



WARNING

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 found. Worn or damaged hoses may fail resulting in personal injury or property damage.

CLEAR WORK AREA 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.



WARNING

Safety

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

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

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



WARNING

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

Do Not 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.



WARNING

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.

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

ALWAYS TIGHTEN 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.



CAUTION

HOSE INSTALLATION

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

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

Connect the pressure hose to the pressure port 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 severe injury or death.

HOSES AND FITTINGS

Care must be exercised in the use of hose and fittings for use on hydraulic tools, especially in confined areas. Any obstruction or abrasive surrounding could damage the hose and cause a serious accident. Always use the recommended hose for the tool that is being used. Always consult the dealer or distributor for the correct hoses and purchase from him to ensure, from a safety standpoint that the materials used in the manufacture of the hoses is to the correct specification for the application. Fittings must meet the standards established by the industry to adequately assure safety. Poor quality or low rated fittings are not to be used. They invite a serious accident.

Length: Hose must be the correct length for the general use of the tool or for the specific function it is to provide. Pressure surge is an important factor in the selection of hoses. The hose should be rated above the expected surge pressure to ensure adequate safety. Hoses that are too long will have a tendency to coil, kink, or move in multiple directions creating a safety hazard. Hoses that are too long will rub or chafe against the ground or projecting objects, seriously shortening the life of the hose. It may be advisable to carefully restrain a hose which is temporarily too long for the current application. Pressure surge can cause whipping, and seriously damage the hose. Always keep the hose length as short as possible for the operation which is it intended.

Size: The hose must be large enough to carry the pressurized flow of fluid to the end application without creating undue heat generation or excessive turbulence. These factors could cause excessive wear to the hose from any or all of the above reasons.

Pressure: Hose selection must be made so that the *recommended maximum operating pressure is greater than the system pressure*. A surge or sudden drop in pressure will cause the hose to deteriorate faster if the maximum pressure of the hose is significantly below the surge pressure. A hose with a top rate of pressure as the line pressure of the installation is not an accepted safety practice. Always err on the side of safety.

Temperature: Hose can be seriously damaged by passing over or near hot objects. Avoid any situation that will heat the hose. Serious damage and/or failure will occur.

Unusual Applications: Careful thought and research should precede installation of hoses. Thorough and protected testing, with appropriate safety guards, must be done to avoid injury before general use.

Connections: Hoses must have the proper end fittings in order to mate correctly with connectors. Worn or damaged connectors and worn end fittings on the ends of the hose can cause a failure. Pressure surge can cause a slow or sudden failure at the connection causing serious damage or injury.

Safety Check: Before using any installation, perform a thorough checkout to determine if any of the above or unforeseen problems occur. Initial testing with safety guards is an invaluable safety precaution.

Always consult the distributor or manufacturer for the correct specifications regarding any of the items discussed above. **The correct hoses and fitting are available from your supplier.** There exists the potential for **SHOCK** in using anything other than certified non-conductive hoses and hydraulic oil with dielectric properties when using system components near **ENERGIZED ELECTRICAL LINES**. Failure to recognize these conditions could cause **ELECTROCUTION**.



WARNING

Hoses and fittings used with this tool must comply with **S.A.E. J1273** recommended practice for selection, installation, and maintenance of hose assemblies.

**FAILURE TO COMPLY WITH THESE WARNINGS
COULD RESULT IN SEVERE BODILY INJURY.**



WARNING

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.

OPERATIONAL SAFETY WARNINGS

SHOCK, ELECTRICAL: This is a non-insulated tool. The need for keeping the tool dry and clean is imperative. Using this tool in an energized electrical environment could be dangerous to the user. Failure to take this into account could result in electrocution.

NEVER CONNECT components or fittings to this unit unless power/pump source is turned off or disconnected.

ALWAYS INSPECT hydraulic hoses and fittings for wear or deterioration every day. Replace all parts that show signs of leaking, wear, or damage.

KEEP ALL PARTS OF THE BODY AWAY from moving parts of the tool when connected to the power source for the tool.

MAKE SURE there is no person in close proximity to you or the tool who could be injured by any operation being performed with the tool.

DO NOT overextend your position by overreaching or unbalancing the footing necessary to maintain physical control of your body.

ALWAYS MAINTAIN a firm grip on the tool to avoid having the tool slip out of the hands during an operation, causing a serious injury.

DO NOT side load or apply any type of indirect force.

Socket, bit, or adapter may be damaged creating a potentially dangerous situation.

DEPRESSURIZE THE UNIT before attempting to disassemble, connect, or disconnect any of the components. Check oil temperature before disconnecting or disassembling this unit. A serious burn could result from this exposure.

SEE A DOCTOR IMMEDIATELY, if a hot oil injury should occur.

SEE A DOCTOR IMMEDIATELY, if a pressurized oil injury should occur. Infection or serious reaction could result from any hydraulic pressure injury.

USE THIS TOOL FOR THE MANUFACTURERS' INTENDED PURPOSE ONLY.

USE ALL APPROPRIATE AND APPLICABLE PERSONAL SAFETY EQUIPMENT as required by the operating company.

OBSERVE CLOSELY ALL SAFETY RULES FOR A PARTICULAR JOB CLASS

THE PURCHASER/OWNER of this unit must be certain that all the users of this unit are properly trained in its use and in compliance with all appropriate industrial codes and/or practices.

**FAILURE TO HEED THESE WARNINGS COULD RESULT IN
SERIOUS PERSONAL INJURY AND/OR PROPERTY DAMAGE.**

PRE-OPERATION

NOTE: This tool is NOT intended as a substitute for a Hammer Drill.

If you are unsure of the proper application for this tool consult a supervisor/safety personnel.

INSTALL FITTINGS

NOTE: The direction of flow is indicated on the body of the tool. The tool is shipped from the factory with the Female/Pressure, Male/Return unless specified by the purchasing agent.

1. It is important to ensure that any couplers used are the correct type, and the flow is going in the right direction. Although the tool may move with the pressure and return lines backwards, the tool's performance will be adversely affected and this may create an unsafe condition in certain hydraulic systems.

IMPORTANT! The operator of the tool MUST know the type of hydraulic system on which the tool is being used. **This tool is factory configured to operate on Open Center Systems.** Failure to observe all warnings and instructions could result in property damage, or personal injury.

2. Ensure that the hydraulic power source is operating within the recommended range for both Pressure of 1,500-2,000 psi (70-140 bar) and Flow of 4-12 gpm (15-45 lpm)

NOTE: Use of a calibrated Flow Meter and Pressure Gauge (REL-FPG) is recommended.

3. Ensure that the power source is equipped with a relieve valve set to 2,000 psi (140 bar)

The REL-3/4-IW is designed for 3/4" square drive impact sockets and accessories.

Adapters are available to accommodate a wide range of bits and accessories.

ENSURE THAT THE POWER SUPPLY IS OFF BEFORE CONNECTING THE TOOL.

4. Install the proper IMPACT socket or accessory for the intended application.
5. Squeeze the trigger to relieve any internal pressure.
6. Connect an appropriate set of hydraulic hoses to the tool beginning with the return hose. (Refer to Hoses & Fittings on Page 9)

NOTE: Disconnect the return hose from the tool last to reduce trapped pressure.

OPERATION

USE ALL APPROPRIATE AND APPLICABLE PERSONAL SAFETY EQUIPMENT AND SAFETY RULES AS REQUIRED BY THE OPERATING COMPANY.

1. Before placing a load on the tool, squeeze the trigger a few times to ensure the wrench will start and stop correctly and the tool is turning in the right direction.
2. Turn on the hydraulic circuit at the source.
3. Engage the trigger to begin operation of the tool. The trigger is designed to make it easy to "feather". For safest operation, squeeze and release the trigger slowly.
4. When the tool is not in use, remove it from the power source.



WARNING

USE ONLY IMPACT STYLE BITS, SOCKETS AND ACCESSORIES

APPROVED FOR IMPACT USE. Bits, sockets, and accessories not designed for impact applications can break and cause severe injury.

INSPECT BITS, SOCKETS AND ACCESSORIES BEFORE EACH USE

Discard damaged items. Damaged items can break and cause severe injury.

DAILY MAINTENANCE

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

Post Operation Maintenance (Underwater Models & Applications ONLY)

The impact mechanism must be cleaned and lubricated with waterproof grease after every day of use. The Impact Handle Body and motor assemblies are sealed and do not require maintenance unless they are malfunctioning.

Clean & Inspect all surfaces including handle, trigger, chuck, main spool, reversing spool, fittings, hoses and accessories. *Inspect tool for corrosion, wear, and damage.* Worn or damaged parts can cause malfunction during operation.

Inspect for cracked hoses and leaking fittings.


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

Check fluid level of the power source reservoir frequently.

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.



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.

SPECIFICATIONS

Flow Range: 4 - 12 gpm
Recommended 7-10 gpm

Recommended
Operating Pressure
1,500-2,000 psi

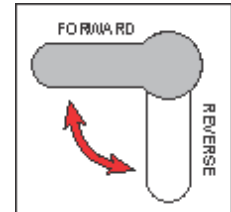
CAUTION

Operation and safety methods may vary in accordance with the guidelines established by each utility. For your safety, ensure that you fully comply with all safe operation guidelines established by your respective power utility.

REL-SM

DANGER

The user should be properly trained in the correct procedures required for work on or around electrical lines.



HYDRAULIC FLUIDS

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

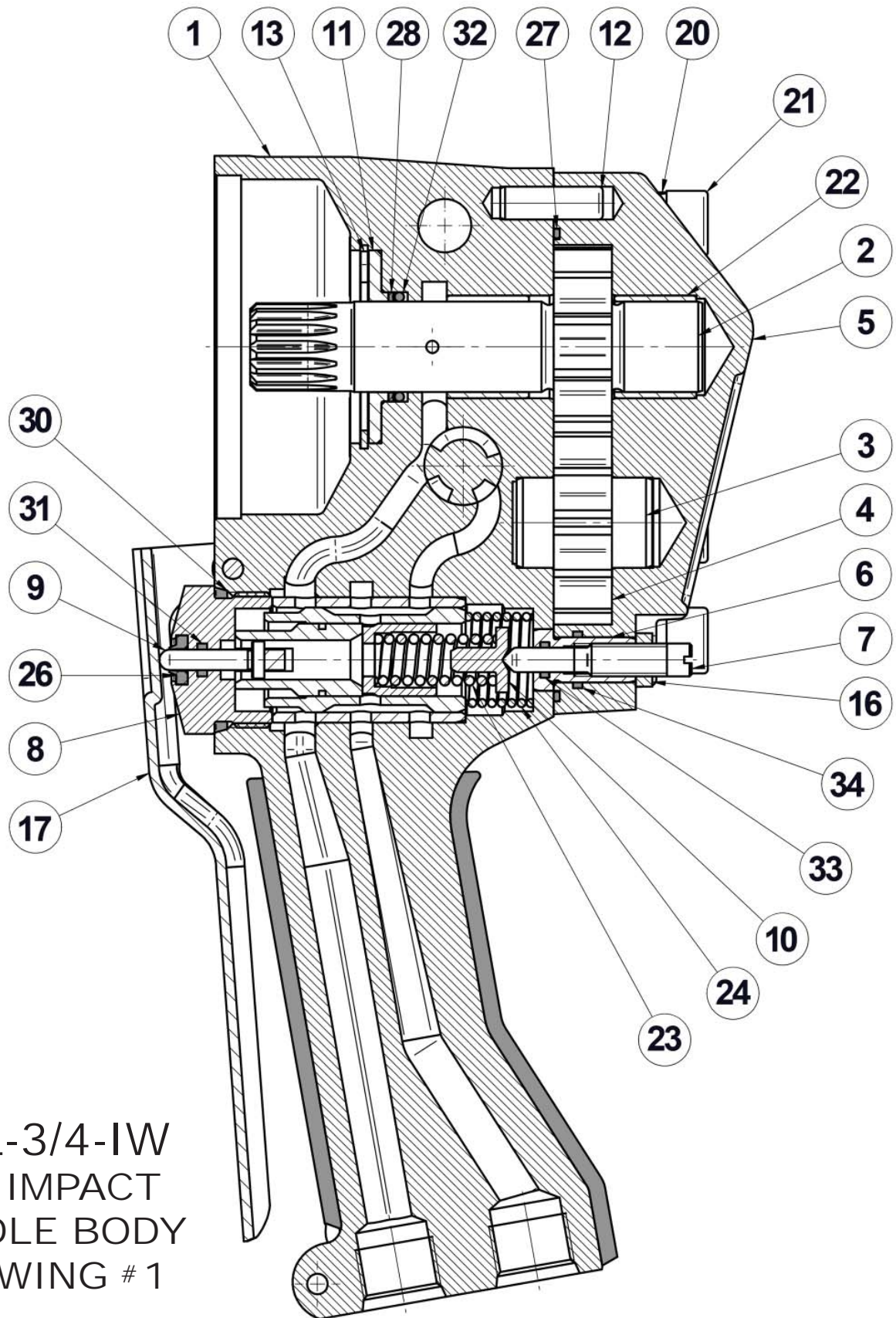
S. U. S.

@ 100° F (38° C) 140 TO 225

@ 210° F (99° C) 40 minimum

FLASH POINT 340° F min. (170° C min.)

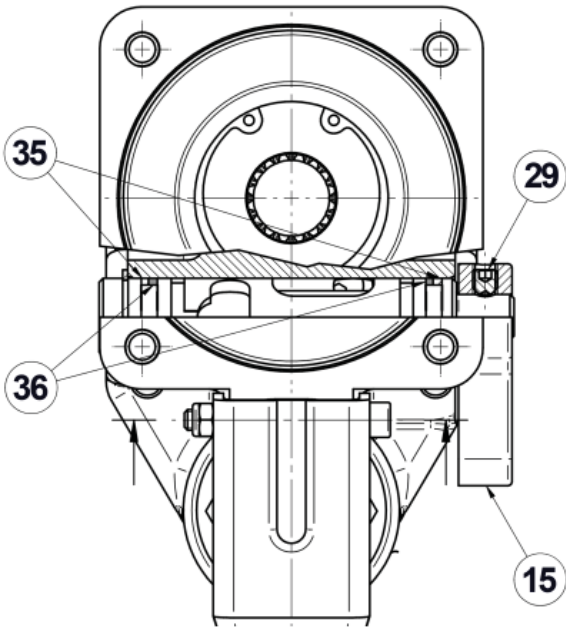
POUR POINT -30° F min. (-34° C min.)



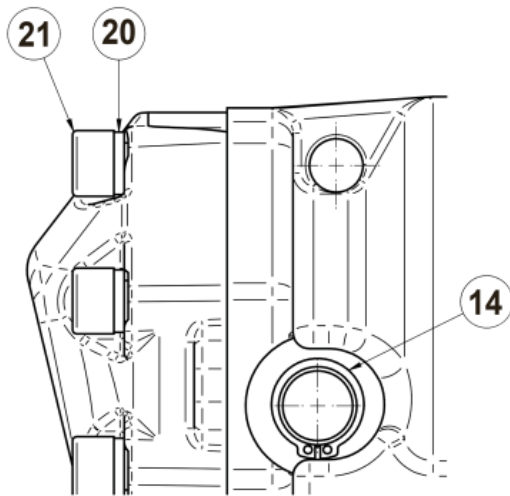
REL-3/4-IW
 3/4" IMPACT
 HANDLE BODY
 DRAWING # 1

REL-3/4-IW PARTS LIST HANDLE ASSEMBLY

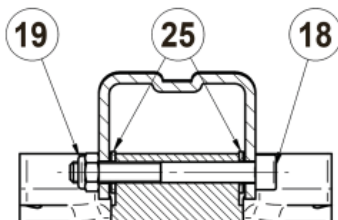
DRAWING # 2



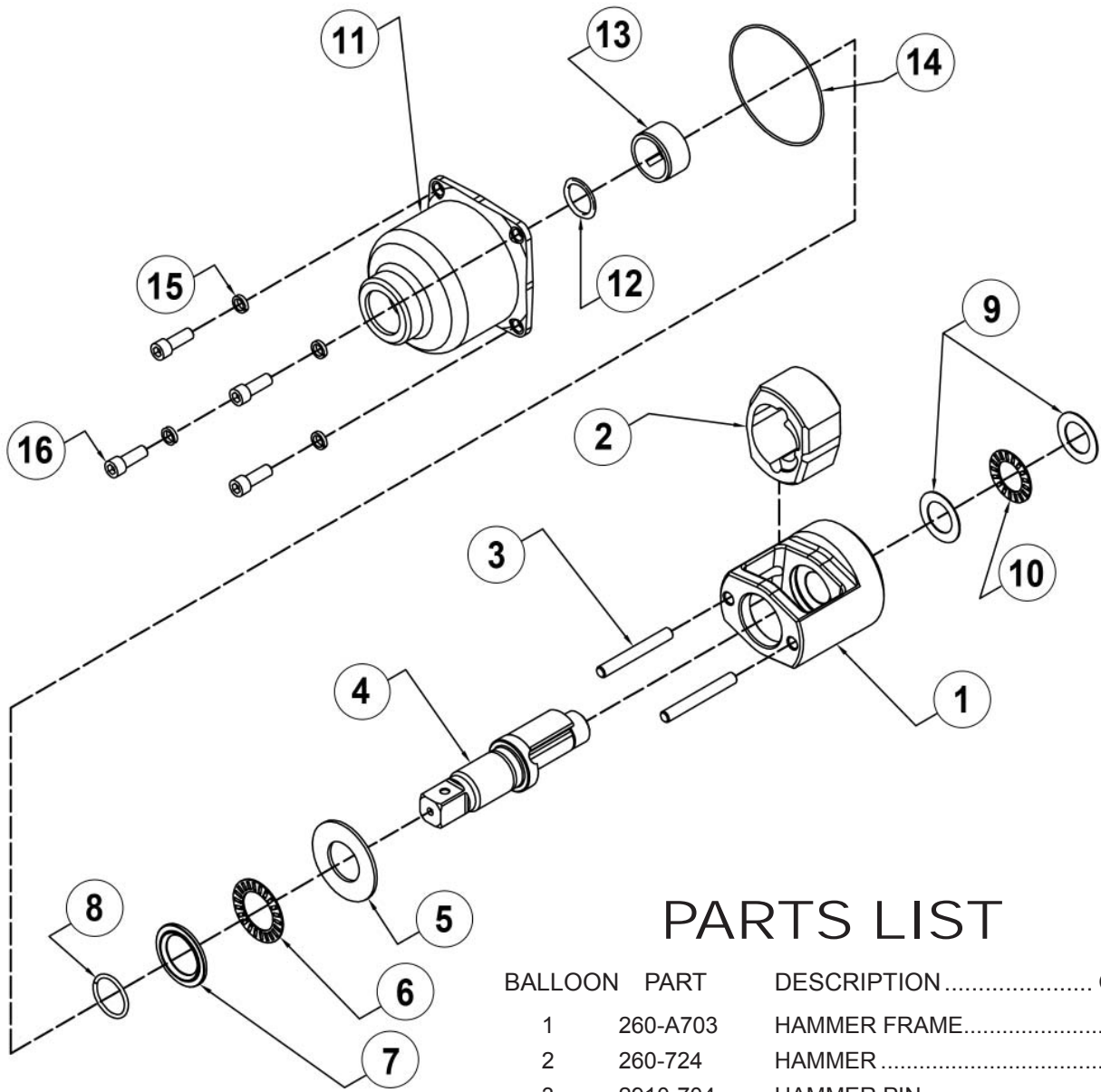
DRAWING # 3



DRAWING # 4



BALLOON	PART	DESCRIPTION.....	QTY.
1	R1898006	FULL BODY VALVE.....	1
2	R1891025	DRIVE GEAR	1
3	R1891024	STUD DRIVEN GEAR.....	1
4	R1898008	FULL DRIVEN GEAR	1
5	R1891015	COVER.....	1
6	R1891020	BUSH ADJUSTING SCREW	1
7	R1891019	ADJUSTING SCREW.....	1
8	R1891017	NUT VALVE	1
9	R1891018	TRIGGER PIN	1
10	R1891021	SUPPORT SPRING.....	1
11	R1891023	COVER SHAFT SEAL.....	1
12	R1891022	PIN 1	
13	R4550430	RETAINING RING	1
14	R1891035	RETAINING RING	1
15	R0009039	REVERSE LEVER.....	1
16	R1891026	NUT	1
17	R1891002	TRIGGER	1
18	R1891041	SCREW	1
19	R1891043	NUT	1
20	R1891040	WASHER.....	8
21	R1891039	SCREW	8
22	R1891006	BUSHING	1
23	R1891001	SPRING.....	1
24	R1891000	SPRING.....	1
25	R1891042	WASHER.....	2
26	R1891032	WIPER.....	1
27	R1891030	O-RING.....	1
28	R1891029	BACK-UP RING.....	1
29	R1891038	SCREW	1
30	R1891033	O-ORING.....	1
31	R1891034	O-RING.....	1
32	R1891028	O-RING.....	1
33	R1891027	O-RING.....	1
34	R1891031	O-RING.....	1
35	R1891037	BACK-UP RING.....	2
36	R1891036	O-RING.....	2



REL-3/4-IW
 NOSE ASSEMBLY
 DRAWING # 5
 R260-UW2

PARTS LIST

BALLOON	PART	DESCRIPTION.....	QTY.
1	260-A703	HAMMER FRAME.....	1
2	260-724	HAMMER.....	1
3	2910-704	HAMMER PIN.....	1
4	260-726B	ANVIL.....	1
5	260-918	THRUST BEARING RETAINER ..	1
6	26-695NTR	NEEDLE THRUST RACE.....	1
7	TR260	THRUST RACE BEARING.....	1
8	RR260	RETAINING RING.....	1
9	260-729NTW	NEEDLE THRUST WASHER.....	1
10	260-695NTR	NEEDLE THRUST RACE.....	1
11	260-A727UW	HAMMER CASE ASSEMBLY.....	1
		(Includes: HHW1 & 260-641UW)	
12	HHW1-216	O-RING.....	1
13	260-641UW	HAMMER CASE BUSHING.....	1
14	R00BR-042	O-RING.....	1
15	260U-58	LOCKWASHER.....	4
16	260-490A	SCREW.....	4

Underwater Operation/Service Records

Date	Depth	Operation	Service	Inspection

NOTES

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

Maintenance Records

Date	Parts or Service Required

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



**RELIABLE EQUIPMENT
& SERVICE CO., INC.**

301 Ivyland Road • Warminster, PA 18974

Phone: 800-966-3530 • Fax: 215-357-9193

Visit us on the web at www.Reliable-Equip.com