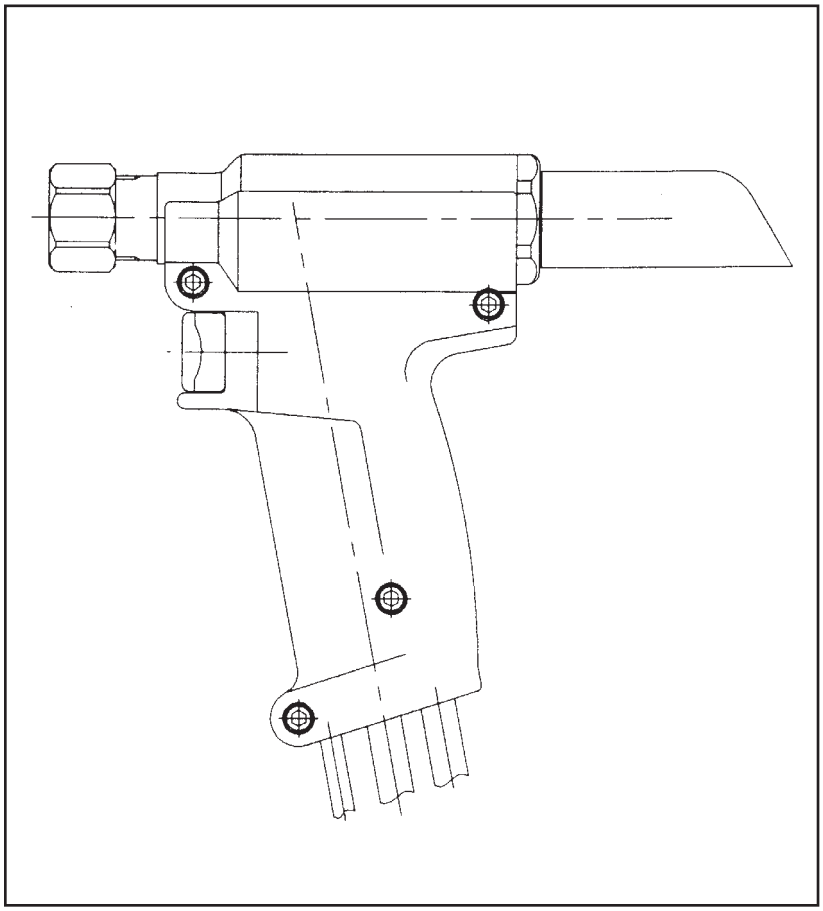
Alcoa Fastening Systems

ALCOA

INSTRUCTION MANUAL

MODELS 2480 & 2481 SERIES

HYDRAULIC INSTALLATION TOOLS



Makers of Huck®, Marson®, Recoil®
Brand Fasteners, Tools & Accessories

08-17-2005
HK970

HUCK®

EU Declaration of Conformity

Manufacturer:
Alcoa Fastening Systems, Commercial Products Division, 1 Corporate Drive, Kingston, NY, 12401, USA

Description of Machinery:
Model numbers **2480 & 2481 series** fastener installation tools

Relevant provisions complied with:
Council Directive related to Machinery, (89/392/EEC), (91/368/EEC), (93/44/EEC), (93/68/EEC)
Council Directive related to EMC/EMI, (89/336/EEC)

European Representative:
Rob Pattenden, Huck International, Ltd. Unit C Stafford Park 7, Telford Shropshire TF3 3BQ, England, United Kingdom

Authorized Signature/date:
I, the undersigned, do hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Signature: _____

Full Name: Henk Rosier

Position: Engineering Manager
Installation Systems Division

Place: Kingston, New York, USA

Date: June, 2005

Sound Levels

Models: 2480 & 2481 Series

SEL dB (A)	Peak Value dB (C)	Leq dB (A)
87.8	113	78.0

Leq reflects the equivalent noise level result of installing 3,000 typical Huck fasteners for an eight hour work day.

To calculate equivalent noise level for other quantities of fasteners in an eight hour period, use the formula:
Leq = SEL + 10 log (n/28,800)
where **n** = *number of fasteners in eight hours.*

Vibration Levels

Models: 2480 & 2481 Series

For an eight hour work day, installing 3,000 typical Huck fasteners will result in an equivalent weighted RMS vibration level A(8) of:

$.22\ m/s^2$

To calculate equivalent vibration level for other quantities of fasteners in an eight hour period, use the formula:

Equivalent Vibration Level, A8 (m/s^2) = (n/480) x .42

where **n** = number of fasteners in eight hours,
and **.42(m/s^2)** = Aeq for 60 seconds.

Test data to support the above information is on file at Alcoa Fastening Systems, Commercial Products Division, Kingston Operations, Kingston, NY, USA. Vibration measurements are frequency weighted in accordance with ISO 8041 (1990).

SAFETY

This instruction manual must be read with particular attention to the following safety guide lines, by any person servicing or operating this tool.

1. Safety Glossary

 — Product complies with requirements set forth by the relevant European directives.

 — Read manual prior to using equipment.

 — Eye protection required while using this equipment.

 — Hearing protection required while using this equipment.

WARNINGS - Must be understood to avoid severe personal injury.

CAUTIONS - *show conditions that will damage equipment and or structure.*
Notes - are reminders of required procedures.
Bold, Italic type and underlining - emphasizes a specific instruction.

2. Huck equipment must be maintained in a safe working condition at all times and inspected on a regular basis for damage or wear. Any repair should be done by a qualified repairman trained on Huck procedures.

3. Repairman and Operator must read manual prior to using equipment and understand any Warning and Caution stickers/labels supplied with equipment before connecting equipment to any primary power supply. As applicable, each of the sections in this manual have specific safety and other information.

4. See MSDS Specifications before servicing the tool. MSDS Specifications are available from you Huck representative or on-line at www.huck.com. Click on Installation Systems Division.

5. When repairing or operating Huck installation equipment, always wear approved eye protection. Where applicable, refer to ANSI Z87.1 - 1989

6. Disconnect primary power source before doing maintenance on Huck equipment.

7. If any equipment shows signs of damage, wear, or leakage, do not connect it to the primary power supply.

8. Make sure proper power source is used at all times.

9. Never remove any safety guards or pintail deflectors.

10. Never install a fastener in free air. Personal injury from fastener ejecting may occur.

11. When using an offset nose always clear spent pintail out of nose assembly before installing the next fastener.

12. If there is a pinch point between trigger and work piece use remote trigger. (Remote triggers are available for all tooling).

13. Do not abuse tool by dropping or using it as a hammer. Never use hydraulic or air lines as a handle. Reasonable care of installation tools by operators is an important factor in maintaining tool efficiency, eliminating downtime, and in preventing an accident which may cause severe personal injury.

14. Never place hands between nose assembly and work piece.

15. Tools with ejector rods should never be cycled with out nose assembly installed.

16. When two piece lock bolts are being used always make sure the collar orientation is correct. See fastener data sheet of correct positioning.

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DESCRIPTION

The 2480, A2480, and 2481 series, with appropriate nose assemblies, install a wide range of Huck blind fasteners and HUCKBOLT® fasteners. The 2480 series has hoses that pass through the handle and 2481 has hoses attached to the top of the tool - - see FIGURE 3 and FIGURE4. These lightweight and compact tools are particularly adapted to installing fasteners in limited clearance areas. Each tool is complete with hydraulic hoses and couplings; electric switch and cord. Tool is basically a cylinder aid piston assembly. An unloading valve, designed to relieve hydraulic pressure at end of the PULL stroke, is positioned by the piston. The end of the piston rod is threaded - - retaining nut and stop are included for attaching a nose assembly.

Huck Hydraulic Installation Tools are designed to be powered by Huck POWERIG® Hydraulic Units - - Models 913H, 918, 918-5, 940, 956. or equivalent, are power sources.

A specific nose assembly is required for each fastener type and size. Nose assemblies must be ordered separately - - contact your Huck representative.

SPECIFICATIONS (All Models)

Power source	Huck POWERIG Hydraulic Unit
PULL pressure	8400 psi 580 BAR
RETURN pressure	3200 psi 220 BAR
Maximum pinbreak	5380 lb_f 23,931 N
Fasteners installed	Refer to appropriate NOSE ASSEMBLY SELECTION CHART.
Operating temperature	32º - 125º F (0º - 51.7º C)
Hydraulic fluid	Automatic transmission fluid DEXRON III, DTE20 or equivalent.

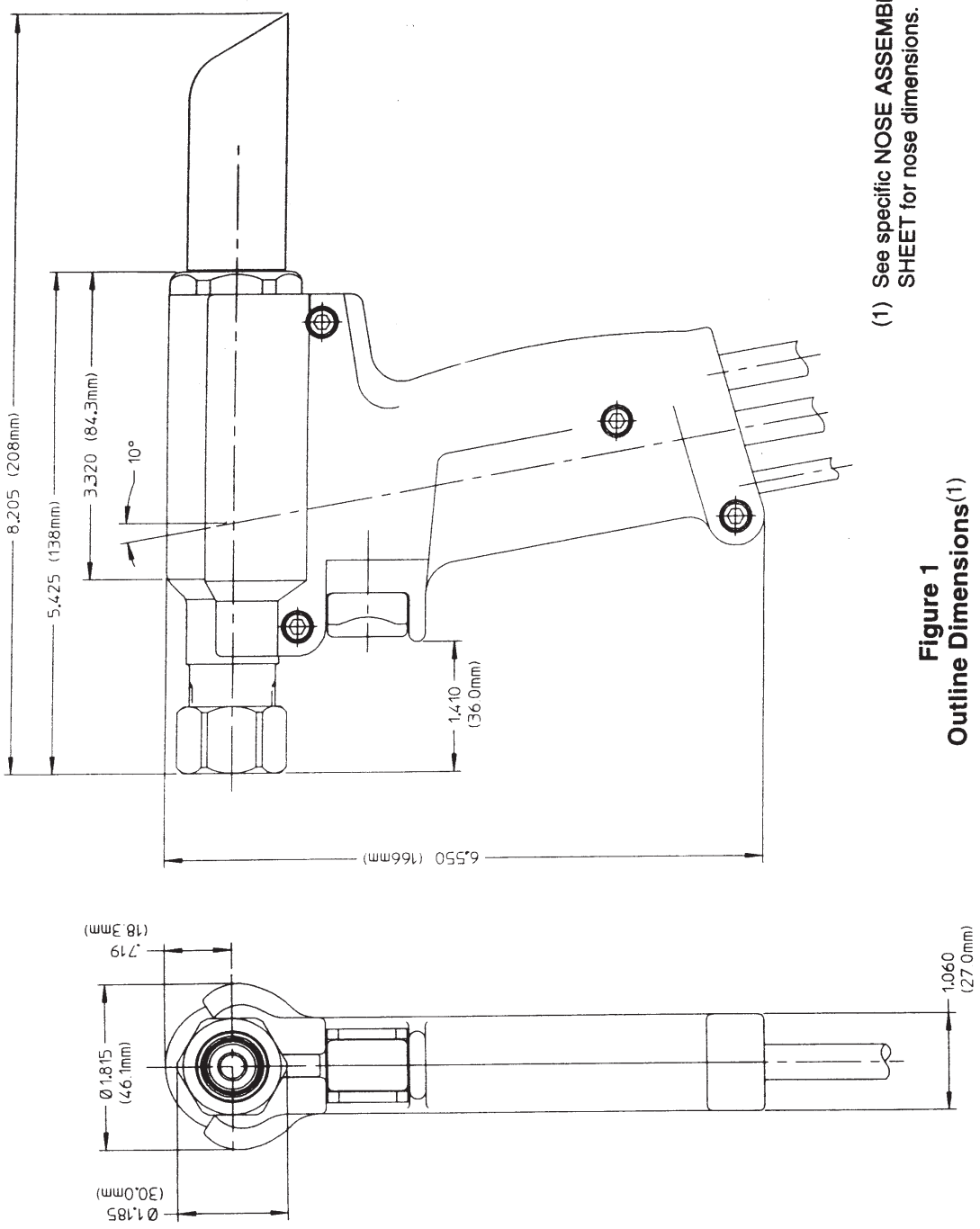
Note: Quintolubric 822 can be used if fire resistant fluid is required.

MSDS Specifications are available from you Huck representative or on-line at www.huck.com. Click on Installation Systems Division.

Model No.	Length	Width	Height	Weight	Stroke
2480	8.63 in.	1.88 in.	6.50 in.	2.2 lbs.	.875
	219 mm	48 mm	165 mm	1.0 kg	22.2 mm

Note: Length and weight does not include hose/cord or nose assembly.

SPECIFICATIONS (Continued)



(1) See specific NOSE ASSEMBLY DATA SHEET for nose dimensions.

Figure 1
Outline Dimensions(1)

Principle of Operation (See Figure 2)

An electric trigger controls the PULL and RETURN strokes. Press trigger to direct the hydraulic pressure to PULL side of the piston - fastener installation begins.

At the end of PULL stroke, before the trigger is released, piston uncovers flats ofunloading valve - - pressure is unloaded by allowing fluid to flow back to POWERIG® Hydraulic Unit. Release the trigger at end of PULL stroke when fastener is installed - - pressure is directed to RETURN side of the piston and moves piston forward. Nose assembly, with tool, is pushed off fastener.

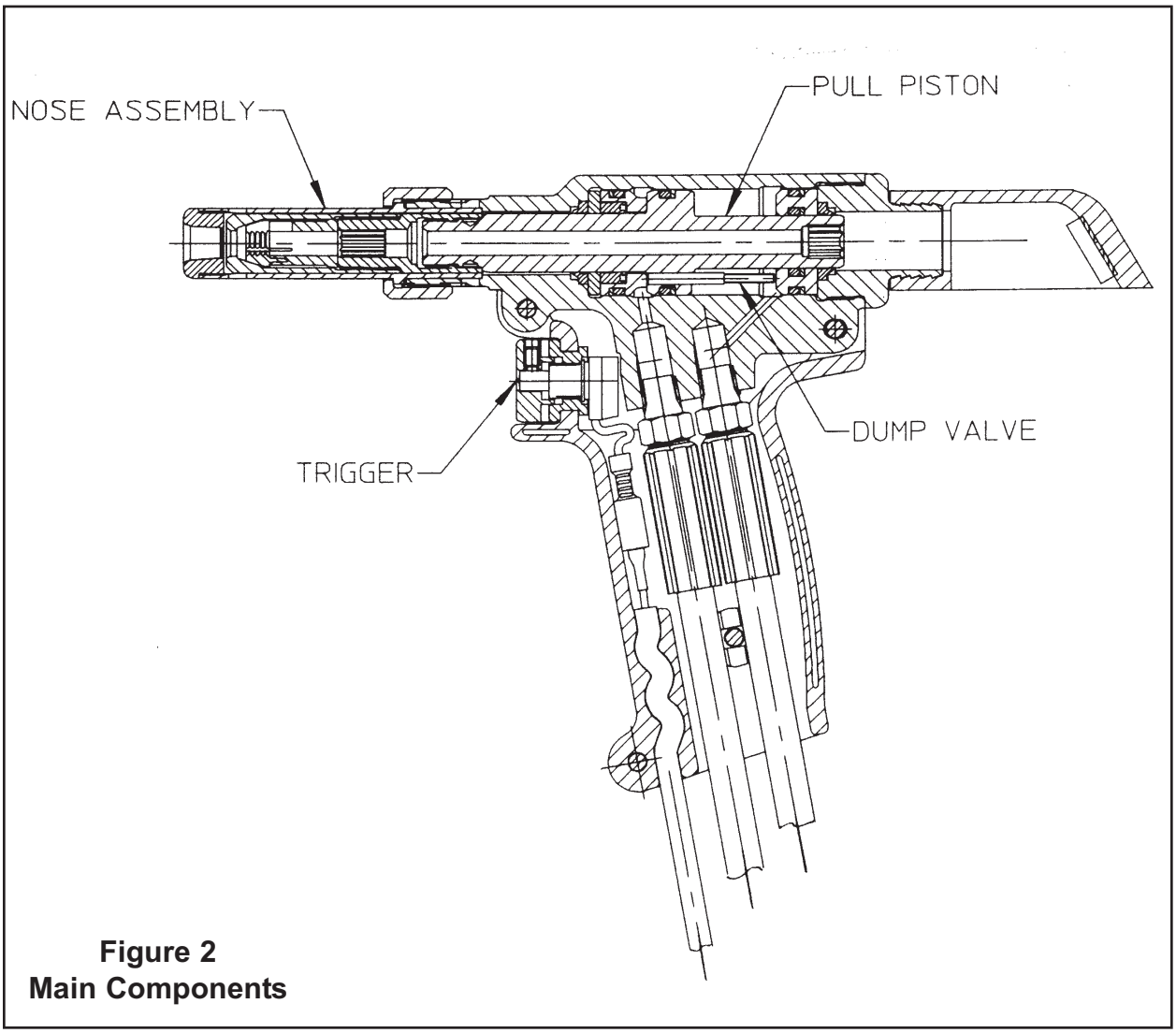
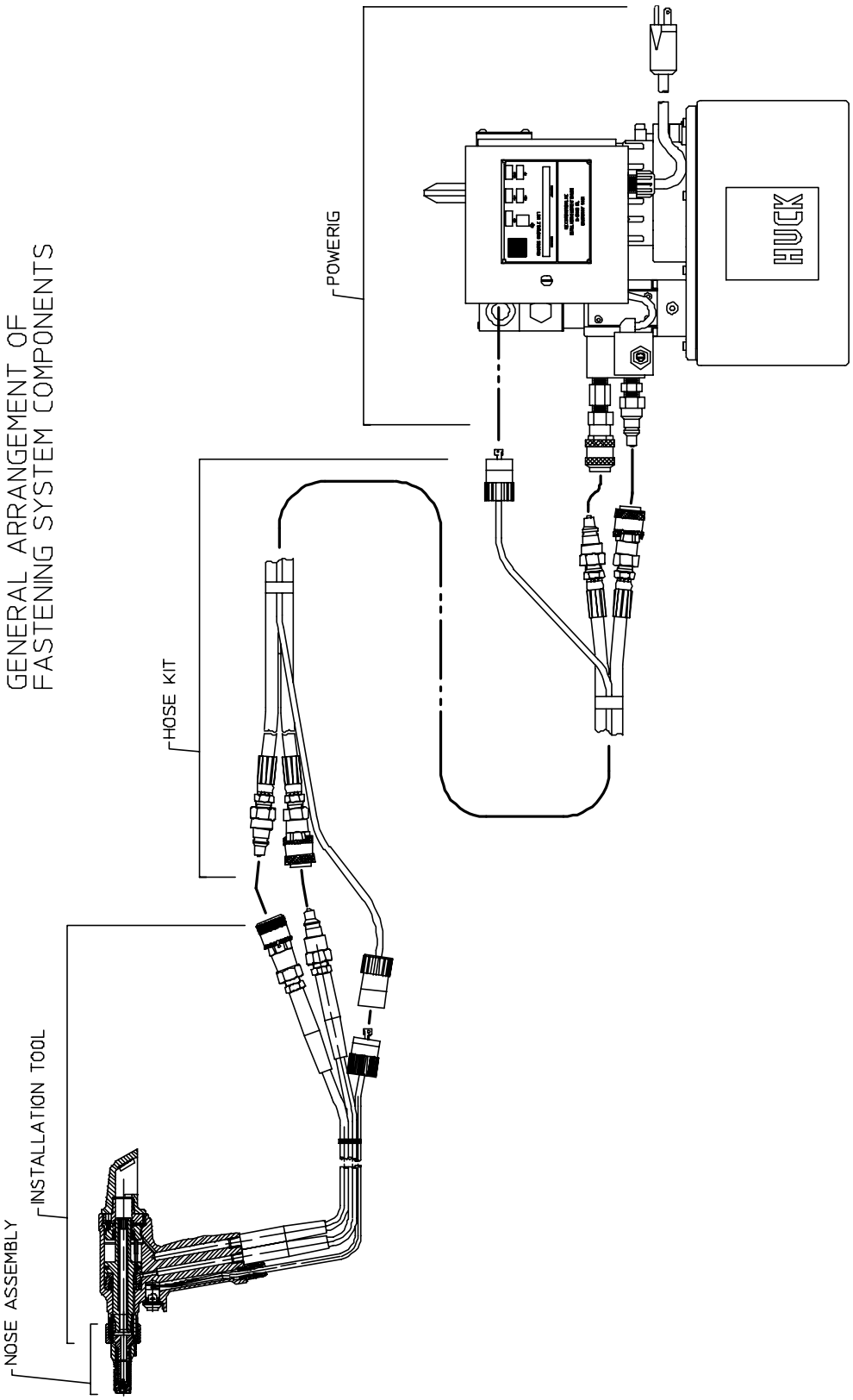
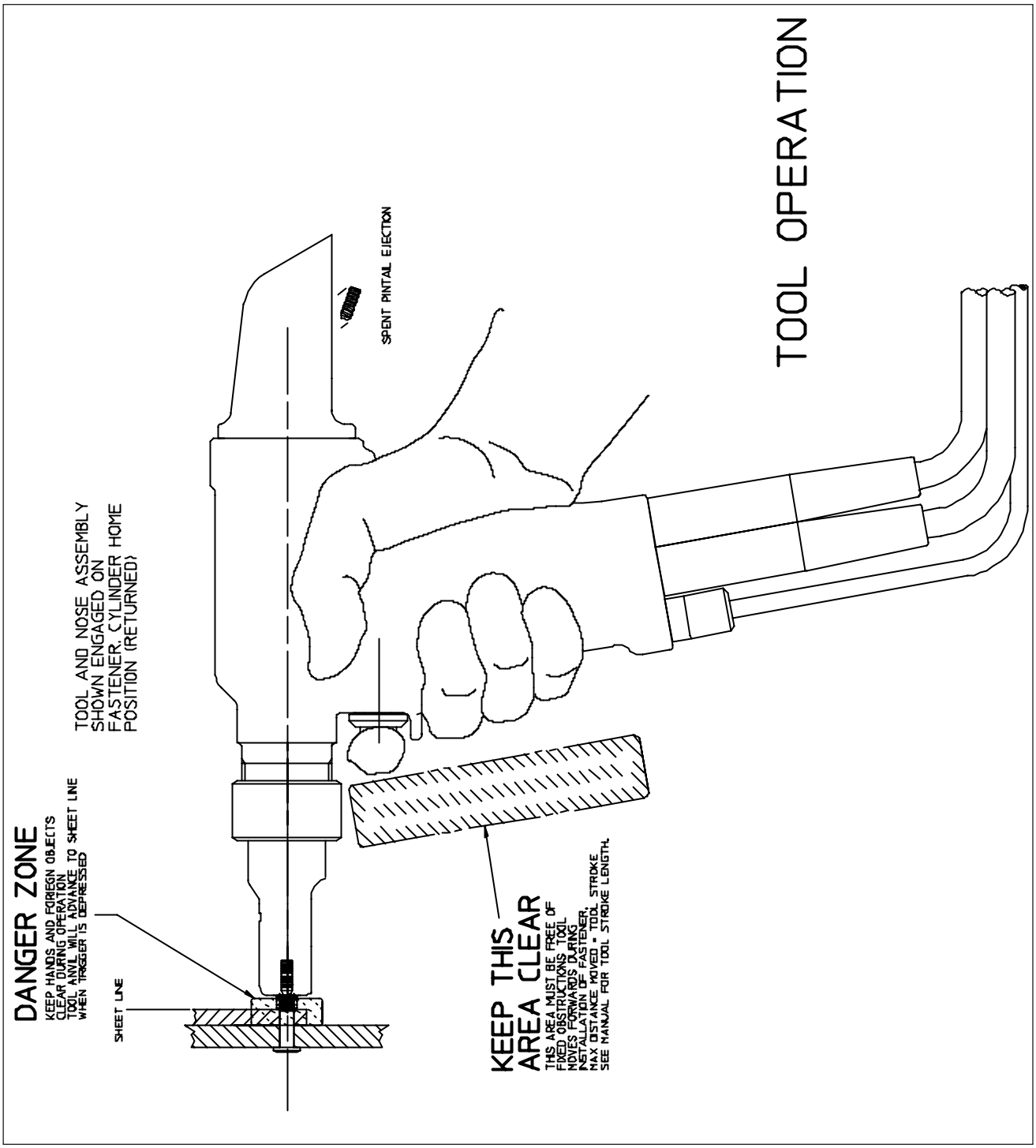


Figure 2
Main Components

Tool Operation/Installation Sequence



Tool Danager Zones



Preparation for use

CAUTION:
Do not let disconnected hoses and couplers contact a dirty floor — keep harmful material out of hydraulic fluid — dirt in hydraulic fluid causes valve failure In Tool and In POWERIG Hydraulic Unit.

Note:
Where a part number (P/N) is given, Huck sells that part.

Rub SLIC-TITE TEFLON thread compound, or equivalent, on pipe threads to prevent leaks and for ease of assembly — **CAUTION:** *Do not use TEFLON tape on pipe threads* — particles of shredded tape cause failure of hydraulic unit valve. (Use SLIC-TITE — in stick form, P/N 503237; manufactured by Markal Co.)

WARNING
Correct PULL and RETURN pressures are required for operator's safety and for Installation Tool's function. Gauge Set-Up, T-124883 and T-124883CE, Is available for checking pressures — see Tool's SPECIFICATIONS and Gauge Instruction Manual. Failure to verify pressures may result in severe personal injury.

WARNING
Be sure to connect Tool's hydraulic hoses to POWERIG Hydraulic Unit before connecting Tool's switch control cord to unit. If not connected in this order, severe personal Injury may occur.

1. Use Huck POWERIG Hydraulic Unit, or equivalent, that has been prepared for operation per INSTRUCTION MANUAL. Check both PULL and RETURN pressures, and if required, adjust to pressures given in SPECIFICATIONS of this manual. See both hydraulic unit's and T-124883's Instruction manuals before/during checking procedure. Visually inspect for leaks and to verify that End Cap is installed correctly.

2. First, turn hydraulic unit to OFF, and then, disconnect power supply from hydraulic unit — disconnect trigger control system from hydraulic unit.

3. Connect tool hoses to hydraulic unit. If required, adjust position of trigger assembly on return pressure hose. Connect trigger control system to hydraulic unit.

4. Connect hydraulic unit to power supply (air or electric). Turn hydraulic unit to ON. Hold Tool trigger depressed for 30 seconds; depress trigger a few times to cycle tool and to circulate hydraulic fluid — observe action of Tool and check for leaks.

5. Select nose assembly from SELECTION CHART for fastener to be installed. Disconnect hydraulic unit from power supply; disconnect Tool's trigger control system from hydraulic unit. Attach nose assembly to Tool per instructions in NOSE ASSEMBLY DATA SHEET.

6. Reconnect Tool's trigger control system to hydraulic unit; reconnect unit to power supply. Check operation of nose assembly — see NOSE ASSEMBLY DATA SHEET. Install fasteners in test plate of correct thickness with proper size holes — inspect installed fasteners. If fasteners do not pass inspection, see TROUBLESHOOTING CHART to locate and correct Tool's malfunction.

7. Operator should receive training on proper use from qualified personnel.

OPERATING INSTRUCTIONS

For safe operation. Please read completely

General

Operators should receive training from qualified personnel.

WARNING: To avoid severe personal injury: *Wear approved eye and ear protection* Be sure of adequate clearance for Operator's hands before proceeding with fastener installation. Be sure that pintail deflector is on tool and directed away from all personnel.

Do not bend tool to free if stuck.

Tool should only be used to install fasteners. NEVER use as a jack/spreader or hammer.

HUCKBOLT® Fastener Installation:

WARNING: Do not pull on a pin without placing fastener/collar in a workpiece, and also, collar chamfer *MUST* be out toward tool - - these conditions cause pin to eject with great velocity and force when the pintail breaks off or teeth/grooves strip. This may cause severe personal injury.

CAUTION: *Remove excess gap from between the sheets. This permits enough pintail to emerge from collar for ALL jaw teeth to engage with pintail - - if ALL teeth do not engage properly, jaws will be damaged.*

Place pin in workpiece and place collar over pin - - see **WARNING**. (If Collar has only one tapered end, that end ***MUST*** be out toward tool - - not next to sheet.) Hold pin and push nose assembly onto pin protruding through collar until nose anvil touches collar. Depress trigger - - hold trigger depressed until collar is swaged and pintail breaks. Release trigger. Tool will go into its return stroke. fool/nose are ready for next installation cycle.

Blind Fastener Installation:

WARNING: Do not pull on a pin without placing fastener in a workpiece - - fastener will eject from front with velocity and force when pintail breaks off or teeth/grooves strip - - this may cause severe personal injury.

CAUTION:
Remove excess gap from between the sheets to permit correct fastener installation and prevent jaw damage. ALL jaw teeth must engage pintail to avoid damaging teeth.

Fastener may be placed in workpiece or in end of nose assembly - - see **WARNING**. In either case, tool/nose must be held against work and at right angles to it. Depress trigger - - hold trigger depressed until fastener is installed and pintail breaks. Release trigger. Tool will go into its return stroke. Tool/nose are ready for next installation cycle.

CAUTIONS:
BOM blind fasteners jam in nose assembly if pulled when not in workpiece.

To avoid structural and tool damage, be sure enough clearance is allowed for nose assembly at full stroke.

Do not abuse tool by dropping it, using it as a hammer or otherwise causing unnecessary wear and tear.

NOTE: Reasonable care of tools by operators is an important factor in maintaining efficiency and reducing downtime.

Maintenance

CAUTION:

- *Keep dirt and other material out of hydraulic system.*
- *Separated parts most be kept away from dirty work surfaces.*
- *Dirt/debris in hydraulic fluid causes unloading valve failure in Tool and in POWERIG® Hydraulic Unit's valves.*
- *Always check tool assembly drawing for the proper direction of the flats on the Dump or Unloading Valve.*
- *Insure tool has been properly assembled prior to use.*

Good Service Practices

The efficiency and life of your Installation Tool depends upon proper maintenance and good service practices. Using our manual will help give you a clear understanding of your tool and basic maintenance procedures — please read entire page before proceeding with maintenance/repair.

Use proper hand tools in a clean well-lighted area formaintenance/repair — always be careful to keep dirt/debris out of pneumatic and hydraulic systems. Only standard hand tools are required in most cases; where a special tool Is required, the description and part number are given.

While clamping Installation Tool and/or parts in a vise, and when parts require force, use suitable soft materials to cushion impact — for example, using a half-inch brass drift, wood block and/or vise with soft jaws greatly diminishes the possibility of a damaged tool. Remove components in a straight line without bending, cocking or undue force — reassemble tool with the same care.

Note: Individual parts must be handled carefully and examined for damage or wear —replace parts where required. Always replace O-rings and back-up rings when the tool Is disassembled for any reason — see SERVICE PARTS KIT.

Note: Consult manual's TROUBLESHOOTING CHART if malfunction occurs — then see appropriate section of DISASSEMBLY, ASSEMBLY and SECTIONAL VIEW W/TOOL P/N's.

Note: Where a part number (P/N) is given, Huck sells that part.

Fluid Maintenance

For fluid maintenance please refer to NAS 1638 class 9 or ISO CODE 18/15 or SAE level 6

Standard Sealants, Lubricants and SERVICE PARTS KIT

Rub SLIC-TITE TEFLON thread compound, or equivalent, on pipe threads to prevent leaks and for ease of assembly — ***CAUTION: Do not use TEFLON tape on pipe threads*** — particles of shredded tape cause hydraulic unit valve failure/malfunction. (SLIC-TITE —In stick form, P/N 503237.)

Smear LUBRIPLATE 130AA, or equivalent lubricant, on O-rings and mating surfaces this prevents nicking/pinching O-rings on any rough/tight spot and increases ease of assembly. (LUBRIPLATE 130AA — in tube, P/N 502723.)

SERVICE PARTS KIT contains perishable parts for your specific Tool — see NOTES FOR TOOL. For conve ience and as experience indicates, keep extra Kits (O-rings; back-up rings: other standard items) and Tool parts on hand. As an alternative, you can obtain O- rings and back-up rings from any regular retailer of these items — ask for: O-ring size (AS 568-number): material and durometer. For additional information/specifications on O-rings and back-up rings, see NOTES AND SPECIFICATIONS FOR STANDARD PARTS.

Inspect tool daily. Check hoses, fittings and disconnects for leaks or damage.

MAINTENANCE (CONTINUED.)

PREVENTIVE MAINTENANCE

System Inspection
Operating efficiency of the Tool is directly related to performance of complete system, including tool/nose assembly, hydraulic hoses, control trigger assembly and the POWERIG® Hydraulic Unit Therefore, an effective preventive maintenance program includes scheduled inspections of the system to detect and correct minor troubles.

1. Inspect Tool for external damage.

2. Verify that hoses and fittings, and trigger connections are secure.

3. Inspect hydraulic hoses for signs of damage. Replace if required.

4. Inspect tool, hoses, and POWERIG Hydraulic Unit during operation to detect abnormal heating, leaks or vibration.

POWERIG Hydraulic Unit Maintenance
Maintenance and repair instructions are in applicable POWERIG Hydraulic Unit Instruction Manual.

Tool/Nose Assembly Maintenance and Precautions
Whenever disassembled, and also at regular intervals (depending on severity and length of use), replace all O-rings and back-up rings. Spare Parts Kits should be kept on hand. Inspect cylinder bore, piston and rod/extension, and unloading valve for scored surfaces, excessive wear or damage — replace parts as necessary. On any assembly with UNITIZED™ Jaws, clean all parts in mineral spirits or isopropyl alcohol only — under no circumstances let jaws come in contact with other solvents — also, do not let jaws soak; dry the jaws immediately after cleaning; dry other parts before assembling. Urethane soaks up other solvents, then swells up and becomes unusable. Use a sharp pointed “pick” to remove imbedded particles from the pull grooves of the jaws. If additional information is required, see appropriate NOSE ASSEMBLY DATA SHEET.

Troubleshooting

Always check the simplest possible cause of a malfunction first. For example, a loose or disconnected trigger line. Then proceed logically, eliminating each possible cause until the defective part is located. Where possible, substitute known good parts for suspected defective parts. Use Trouble Shooting Chart as an aid for locating and correcting trouble.

I. Tool fails to operate when trigger is depressed.	a. Inoperative POWERIG® Hydraulic Unit. See applicable instruction manual. b. Loose air or electric connections. c. Damaged trigger assembly d. Loose or faulty hydraulic hose couplings e. Unloading valve not installed in Tool.
2. Tool operates in reverse. connections	a. Reversed hydraulic hose between hydraulic unit and Tool.
3. Tool leaks hydraulic fluid.	a. Defective Tool 0-rings or loose hose connections at Tool.
4. Hydraulic couplers leak fluid.	a. Damaged or worn 0-rings in coupler body — see Coupler, 110440.
5. Hydraulic fluid overheats.	a. Hydraulic unit not operating properly — see manual. b. Unloading valve installed incorrectly. c. POWERIG Hydraulic Unit running in reverse (918; 918-5 only) — see unit's manual.
6. Tool operates erratically and fails to install fastener properly.	a. Low or erratic hydraulic pressure — air in system. b. Damaged or worn piston 0-ring in Tool. c. Unloading valve installed incorrectly. d. Excessive wear on sliding surfaces of Tool parts. e. Excessive wear of unloading valve in Tool.
7. Pull grooves on fastener pintail stripped during PULL stroke.	a. Operator not sliding anvil completely onto fastener pintail. b. Incorrect fastener grip. c. Worn or damaged jaw segments. d. Metal particles in pull grooves of jaw segments. e. Excessive sheet gap.
8. Collar of HUCKBOLT® fastener not completely swaged.	a. Improper Tool operation — see Trouble 6. b. Scored anvil.
9. Shear collar on Huck blind fastener not driven.	a. Improper Tool operation. b. Worn or damaged driving anvil in nose assembly.
10. Tool "hangs-up" on swaged collar of HUCKBOLT Fastener.	a. Improper Tool operation — see Trouble 6. b. RETURN pressure too low. c. Nose assembly not installed per NOSE DATA SHEET.
11. Pintail of fastener fails to break.	a. Improper Tool operation — see Trouble 6. b. Pull grooves on fastener stripped. — see Trouble 7. c. PULL pressure too low. d. Worn unloading valve.

Spare Part Service Kit (Refer to fig 3-3g for optional assembly tool kits and notes)

The quantity of spare parts that should be kept on hand varies with the application and number of tools in service. Spare service kits, 2480KIT, containing perishable parts such as seals, back-up rings, etc. should be kept on hand at all times - - see below. This kit is for all tools.

Service Kit, 2480KIT

Part No.	*Description*	*Quan.*
505843	WIPER MICRODOT #959-3	1
507108	WIPER MICRODOT #959-2	1
505818	POLY-SEAL MICRODOT #125-00.625-25DB	1
505849	O-RING AS568-119 CR250 900	1
500773	O-RING AS568-007 C366Y 70D	1
500777	O-RING AS568-011 C366Y 70D	1
500816	O-RING AS568-119 C366Y 70D	2
500810	O-RING AS568-113 C366Y 70D	1
504438	O-RING AS568-111 GU747 75D	1
501102	BACK-UP RING S-11248-111	1
501104	BACK-UP RING S-11248-113	1
501110	BACK-UP RING S-11248-119	3
8-2480	2480 H.I.T. ASSEMBLY DWG.	1
8-a2480	A2480 H.I.T. ASSEMBLY DWG.	1

Specifications for Standard Parts

1. All part numbers shown in this manual are available from Huck. The 500000 series part numbers are standard parts which can generally be purchased locally.

2. O-ring sizes are specified A5568 dash numbers (AS568 is an Aerospace Size Standard for O-rings and formerly was known as ARP). Service Kit, 2480KIT, has specific material and durometer just after the identifying AS568- dash numbers.

3. Back-tip rings are W.S. Shamban & Co. series S-11248, single turn TEFLON (MS-28774), or equivalent. The dash numbers correspond to the O-ring dash numbers.

DISASSEMBLY (REFER TO FIGURES 5, 6, 6A, 6B, 6C, 7 AND 7A)

NOTE - *For proper Assembly/Disassembly Tools please refer to the NOTES Section on the proper Assembly Drawing for the model 2480 that is being repaired.*

The following procedure is for complete disassembly - - disassemble only sub-assemblies necessary to check and replace damaged seals, wipers, back-up rings and components. ***Always replace seals, wiper, O-rings and back-up rings of disassembled sub-assemblies.***

WARNING: Be sure to disconnect Tool's control trigger system from POWERIG® Hydraulic Unit before disconnecting Tool's hydraulic hoses from unit. If not disconnected in this order before any maintenance or cleaning is done, severe personal injury may occur.

1. See ***WARNING*** on this page. Disconnect tool's electrical connector from hydraulic unit. Uncouple tool's hydraulic hoses.
2. Remove tools retaining nut - - use 1 1/16 open end wrench. Slide nose anvil away from tool. Unscrew collet from tool's piston.
3. Unscrew four socket screws from handle assembly. Remove screws and nuts. Separate handle halves - see *FIGURE 5*.
4. **2480**: Lift switch assembly from handle half. Pull control cord out of handle's built-in strain relief. Pull both bullet connectors apart - see *FIGURE 5*.

   A2480: Lift trigger assembly from handle half. Pull air hose out of handle's built-in strain relief.

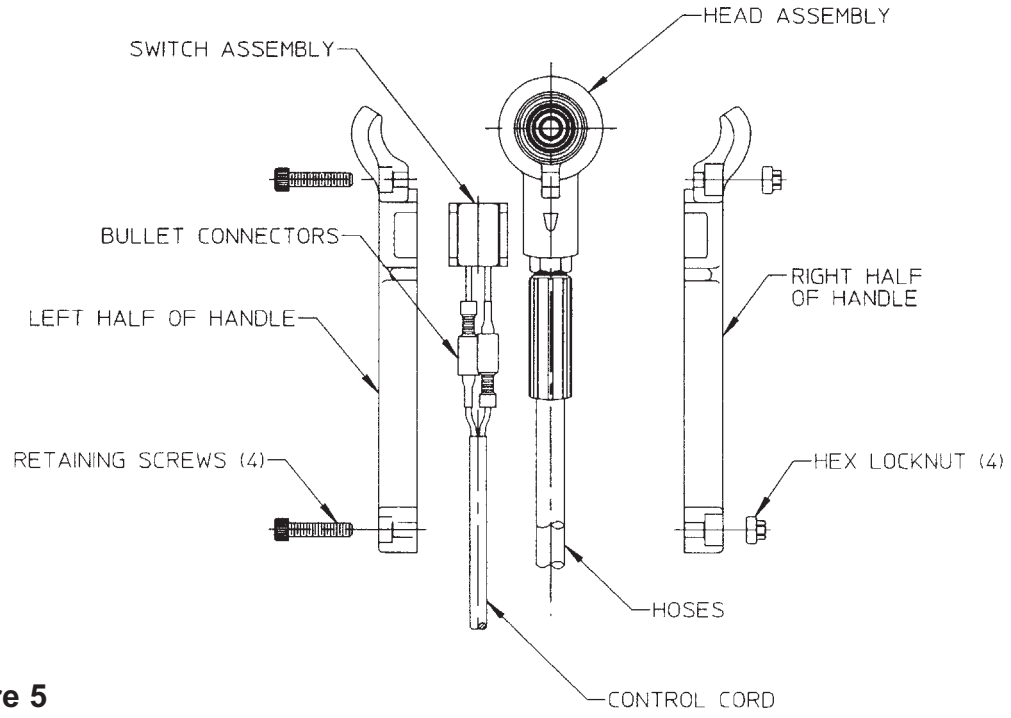


Figure 5

Disassembly (Continued)

5. Unscrew hoses from tool. Drain hoses into container. Piston can be pushed to rear of cylinder to drain fluid. Discard fluid.

6. Disassemble cylinder and piston assembly. (refer to *Cylinder and Piston Assembly Section)*

7. Disassemble switch and cord assembly. **(**refer *to Switch and Cord Assembly Section)*

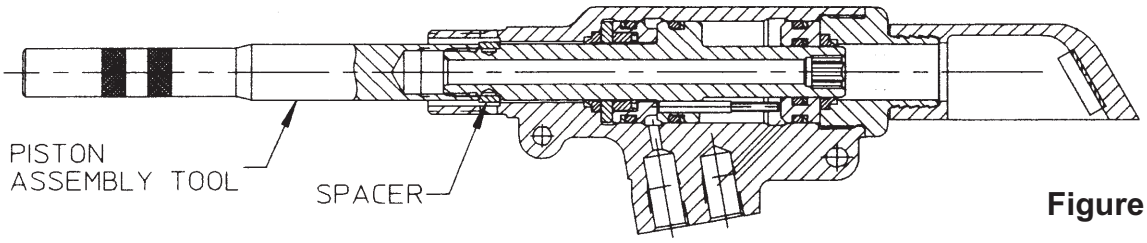


Figure 6

Cylinder and Piston Assembly (Refer to Figure 6 through 6c.)

1. See *FIGURE 6*. Place spacer over threaded end of piston. Thread piston assembly tool onto piston. If cylinder contains fluid, push piston to rear and drain into container. Discard fluid.

2. Remove pintail deflector from tool by twisting and pulling in one motion. With a 1 5/16 open end wrench, unscrew end cap.

3. Thread piston insertion tool into cylinder- -*FIGURE 6.*

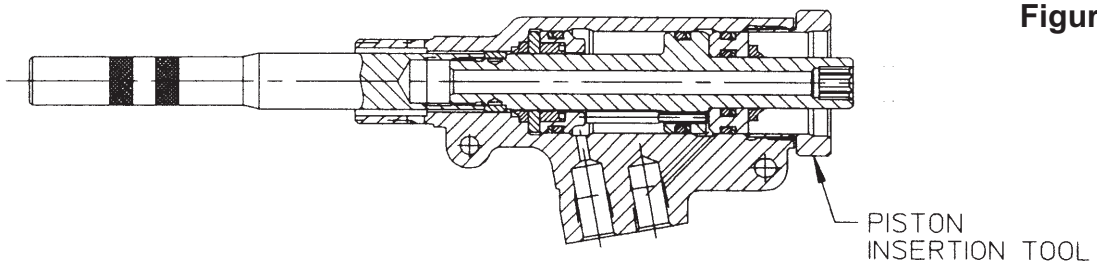


Figure 6a

Disassembly (Continued)

4. See *FIGURE 6b.* Supporting tool as shown, press (or drive) piston, rear gland assembly, dump valve, and front gland assembly out of cylinder.

5. See *FIGURE 6c.* Remove piston assembly tool and spacer from piston. Remove rear gland assembly and dump valve. Remove front gland assembly. Remove piston insertion tool from piston.

6. Use a small diameter dull pointed rod to remove all O-rings and seals. Clean parts, including O-ring grooves. Examine all components for wear or defects. Replace parts as required.

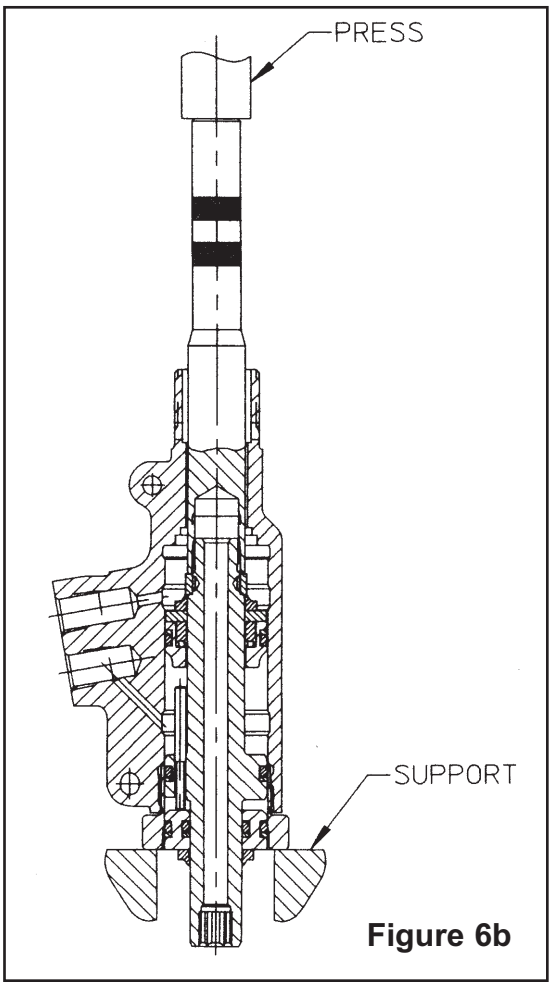


Figure 6b

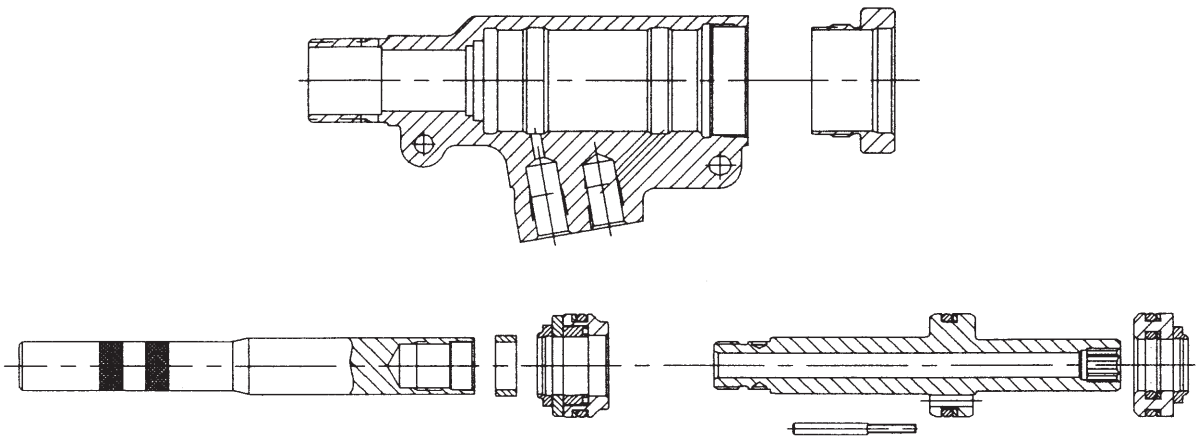


Figure 6c

Disassembly (Continued)

Switch and Cord Assembly (Refer to fig. 7)

1. Loosen set screw in top of button - - use 5/64 hex key. Remove button.
2. Unscrew switch from housing.
3. To remove male connector from control cord, unscrew two screws at connector.

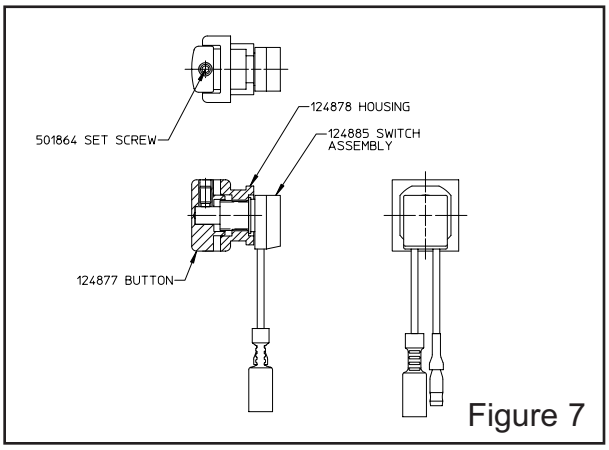


Figure 7

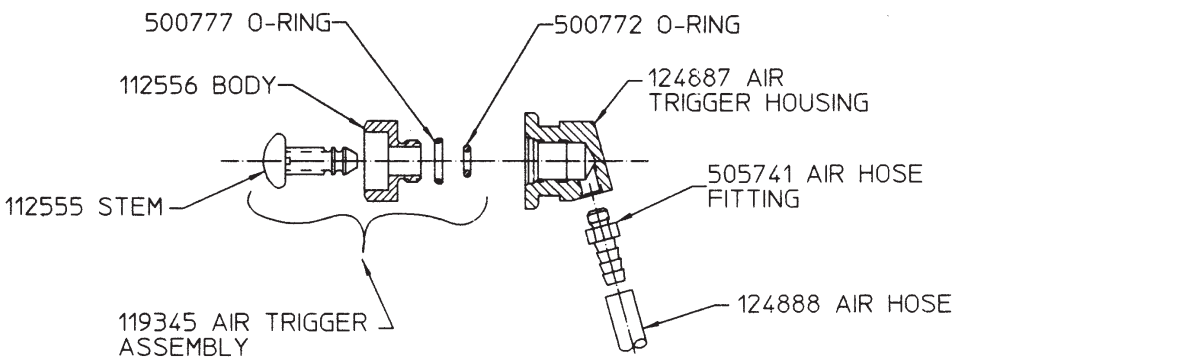


Figure 7a - Exploded View of Air Trigger and Quick Disconnect

Air Trigger and Hose Assembly (Refer to fig. 7a)

NOTE - When removing air hose from either fitting, slice hose length-wise, at fitting, just enough to remove easily. Then, cut hose squarely across to be ready for assembly.

1. After unscrewing nut from quick dis connect body, cut and remove hose.
2. After removing hose from trigger housing, unscrew air fitting from housing.
3. Unscrew air trigger assembly from housing. Remove O-ring from stem - - pull stem out. Remove O-ring from housing.

ASSEMBLY (Refer to Figures 8, 8a, 8b, 8c, 8d, 9, 10 and 11)

Refer to appropriate illustrations and *MAINTENANCE*: General Precautions - - clean out O-ring grooves and reinstall perishable parts (seals, etc.) - - see below. ***Use service kit, 2480KIT***.

Caution:

- *Do not use TEFLON tape on pipe threads. - - see MAINTENANCE: General Precautions.*
- *Insure tool has been properly assembled prior to use.*

NOTE - *The small inner ring insert of POLY-SEALS must remain positioned as shown. If it is forced out of seal body, it may be pinched against gland inner edge. A damaged seal will permit leakage.*

1. Thinly coat SUPER 0-LUBE, or equiv alent, on seals and mating surfaces. Assemble O-rings and back-up rings to piston, front gland, and rear gland as shown in Fig. 8. See caution above - - press POLY-SEAL into front gland housing.

Caution - *Be carefull that POLY-SEAL does not hang up on the edge of the piston chamfer. Seal will be damaged and leakage may result.*

2. See *FIGURE 8a* - - thread piston assembly tool onto piston. Lubricate POLY-SEAL inside diameter and exter nal diameters of piston and piston assembly tool. Press evenly against gland cap to slide front gland assem bly over piston assembly tool and into piston. Slide wiper onto piston as shown. Install dump valve into piston as shown.

Caution - *Always make sure the large flats of the dump valve face the rear of the tool. (See Fig. 8a)*

3. Thread piston insertion tool into cylin der. Lightly coat internal surfaces of tool and cylinder with lubricant - -*FIGURE 8a.*

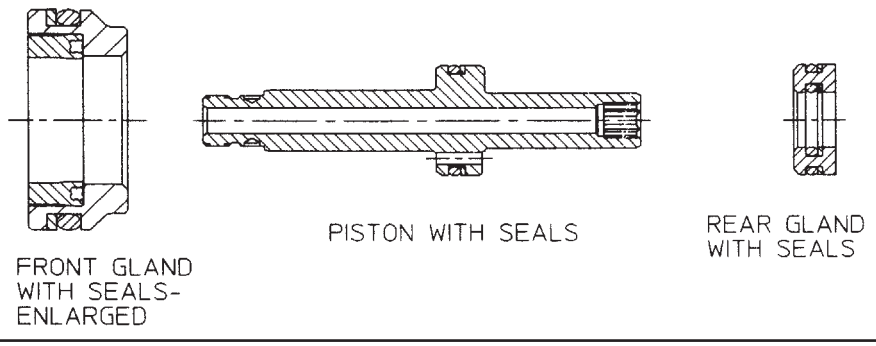


Figure 8

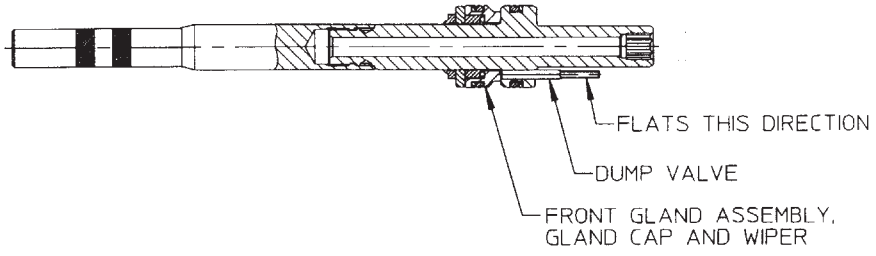


Figure 8a

ASSEMBLY (CONTINUED)

4. Lightly coat cylinder, piston O-rings, and front gland O-rings with lubricant. While supporting tool, as shown, press assembled piston and components into cylinder. Remove piston assembly tool - - *FIGURE 8b*.

Caution - *To avoid damaging dump valve, do not use arbor press.*

5. See *FIGURE 8c* - - lightly coat cylinder and rear gland O-rings with lubricant. As shown, hold cylinder upright on a bench or in a vice fitted with soft jaws. Install rear gland assembly using suit able spacer, plate, and soft mallet.

6. Press wiper into groove of end cap. Thread end cap into cylinder and tight en. Install deflector - - *FIGURE 8d*.

7. Assemble hoses to cylinder head assembly. Use SLIC-TITE TEFLON thread compound, or equivalent, on pipe threads - - see **Caution** above. Hose with male connector must be on PULL (front) side of cylinder.

8. Assemble switch assembly, see *Fig. 9 for Electric Trigger ,or Fig. 10 for Air Trigger.*

9. Assemble handle assembly to tool, see *TO ASSEMBLE HANDLE ASSEMBLY TO ASSEMBLED TOOL*

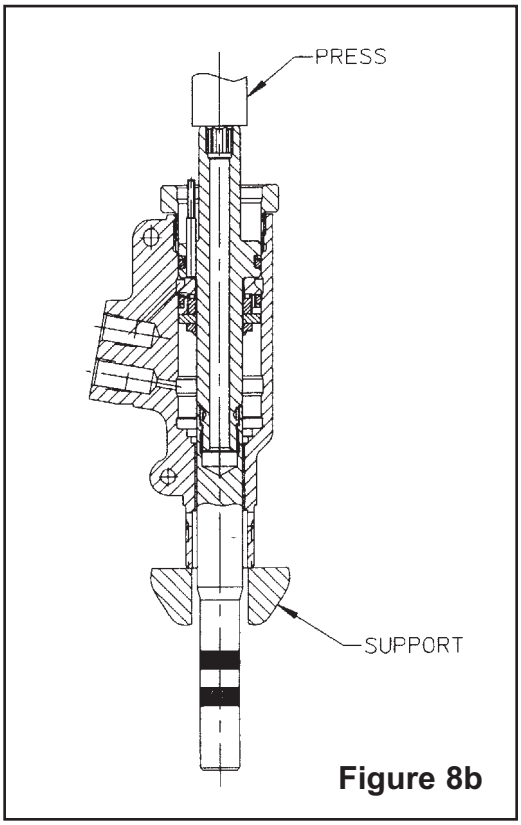


Figure 8b

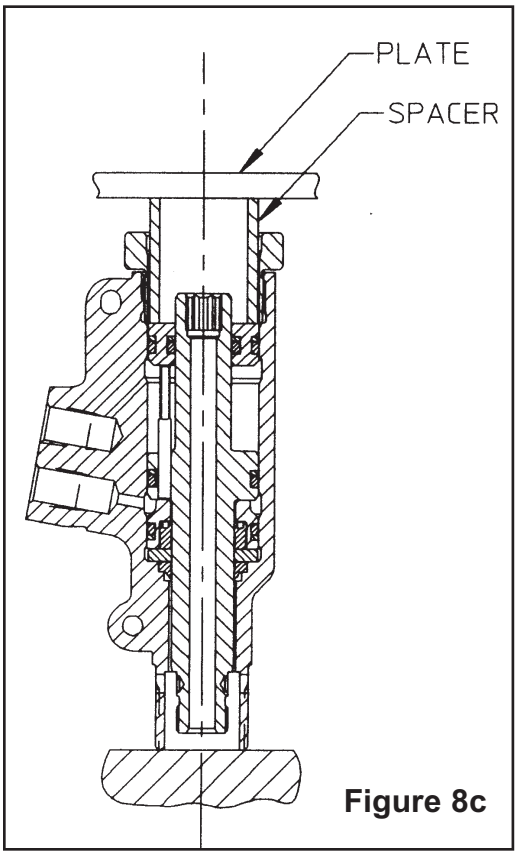


Figure 8c

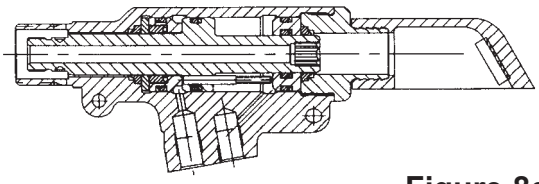


Figure 8d

Assembly (Continued)

Electrical Switch Assembly
(Refer to fig. 9)

1. Screw switch into housing.

2. Slide button onto switch. Tighten down set screw - - use 5/64 hex key.

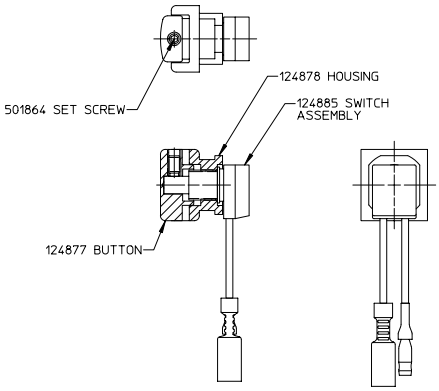
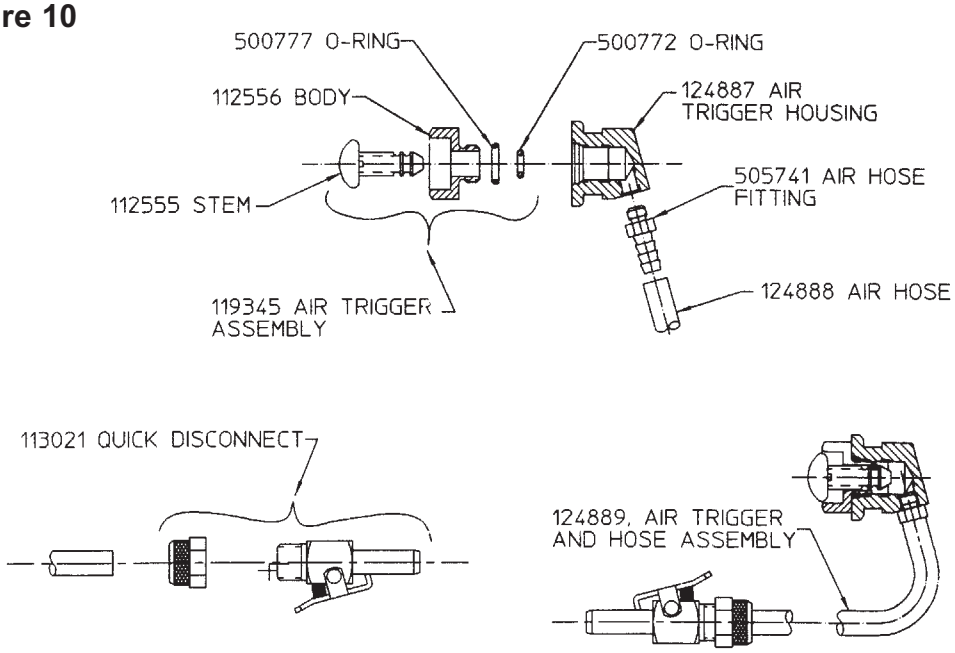


Figure 9

Figure 10



Air Trigger and Hose Assembly (Refer to fig. 10)

NOTE - For ease of assembly, heat ends of hose before pushing onto fittings. When using a new quick disconnect, remove and discard plastic ferrule from nut before attaching air hose to quick disconnect.

1. Push O-ring over threads of air trigger body.

2. Push stem through body. Stretch O-ring over stem and into groove.

3. Screw trigger into housing.

4. Screw hose fitting into housing. Push hose onto fitting.

5. Slide nut over hose. Push hose onto quick disconnect. Tighten nut.

Assembly (Continued)

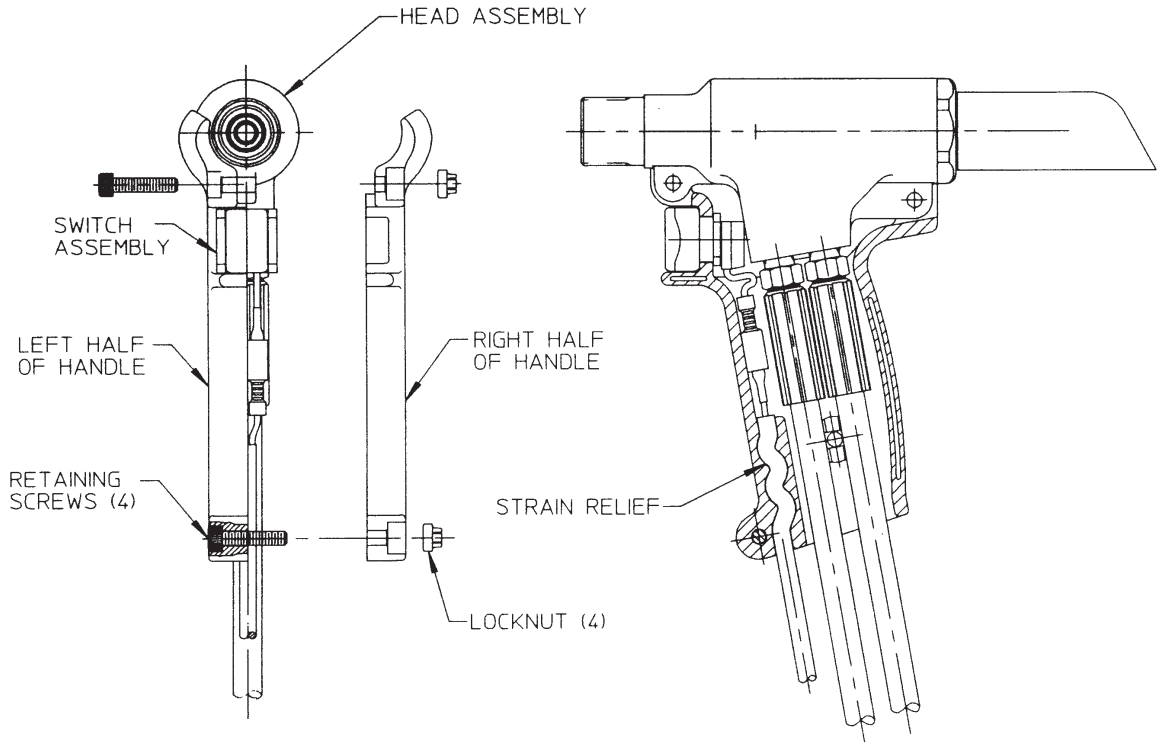


Figure 11

Handle Assembly to Assembled Tool (Refer to fig. 11)

1. **2480:** Connect switch assembly to control cord assembly with bullet con nectors. Position switch assembly into left handle half. Press control cord into handle's built-in strain relief as shown.

   A2480: Position trigger assembly into left handle half. Press air hose into handles built-in strain relief.

2. Position assembled cylinder and hoses in left handle half. Align right handle half with left (locators help align halves).

3. Insert locknuts and screws into han dle. Tighten screws.

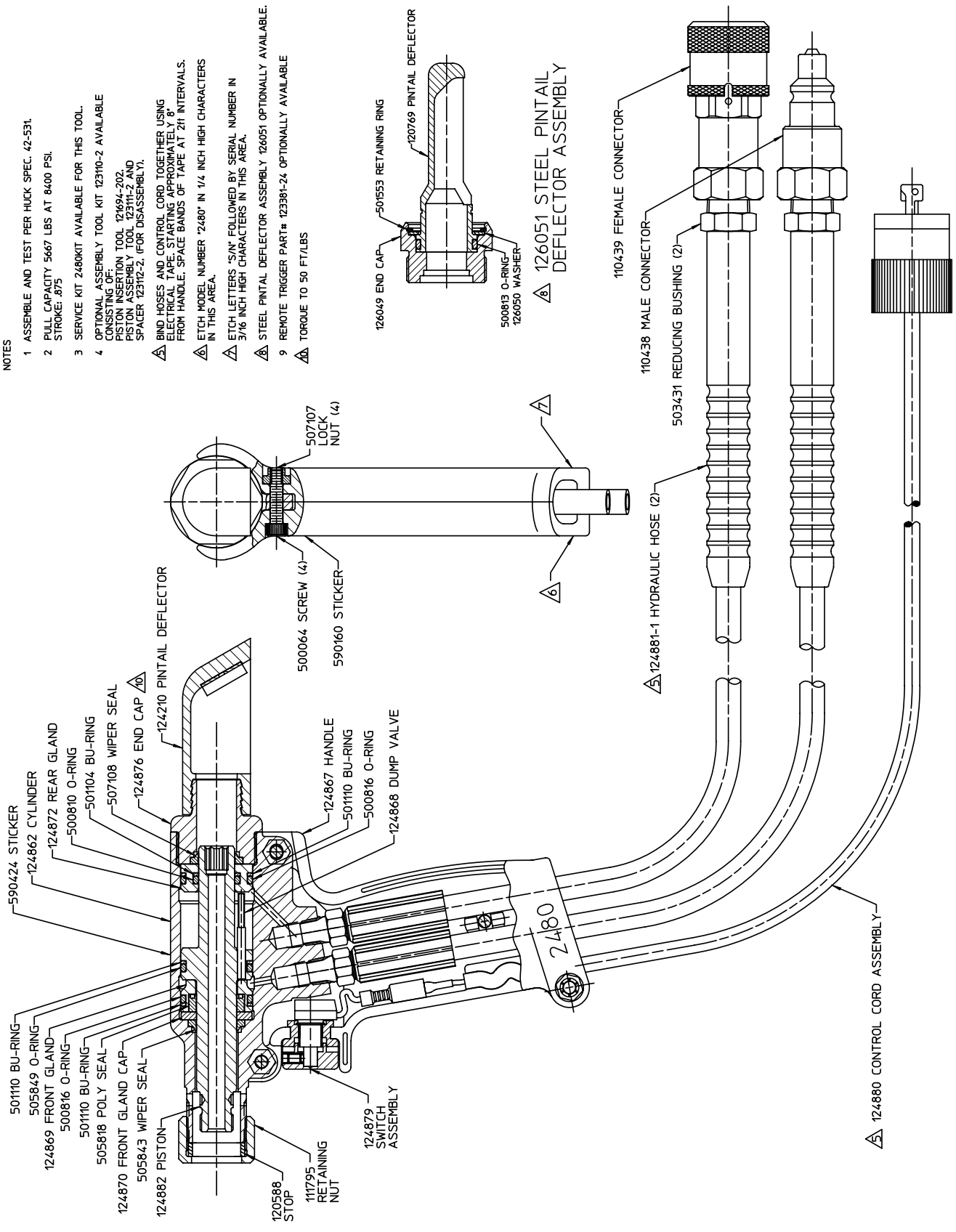


Figure 3 - 2480 - Sectional View with Part Numbers

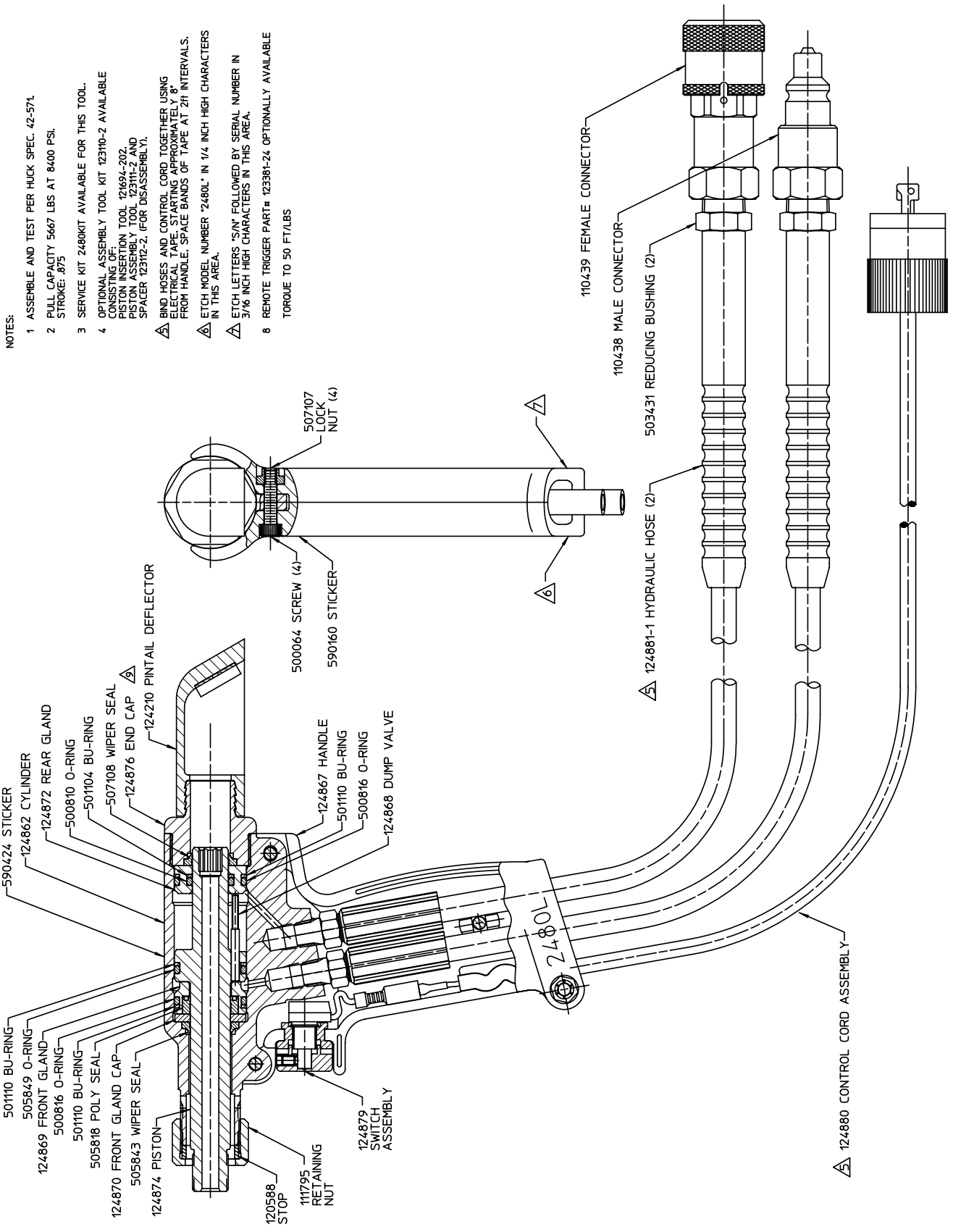


Figure 3a - 2480L - Sectional View with Part Numbers

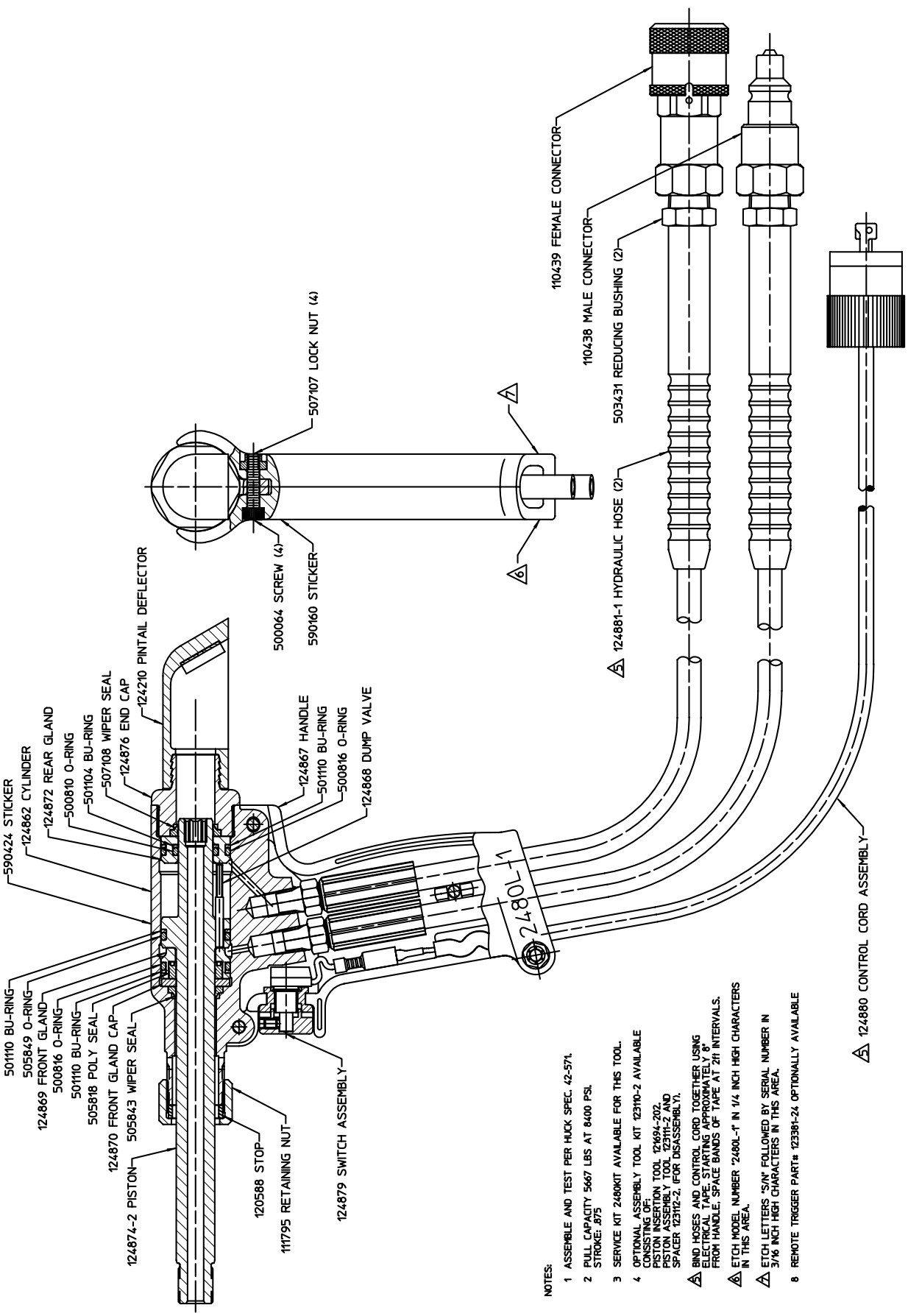
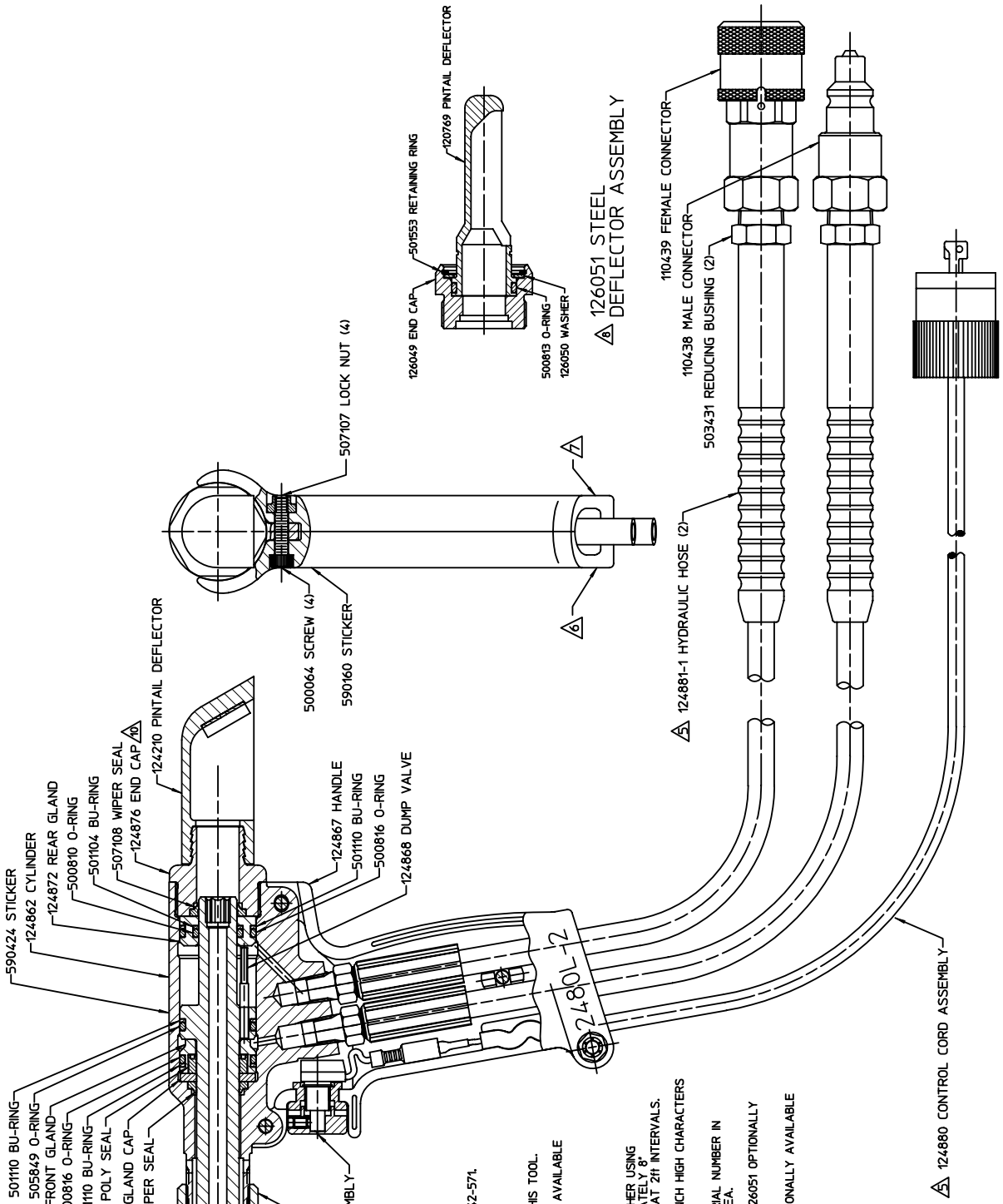


Figure 3b - 2480L-1 - Sectional View with Part Numbers



NOTES:

1 ASSEMBLE AND TEST PER HUCK SPEC. 42-571.

2 PULL CAPACITY 5667 LBS AT 8400 PSI.
STROKE: .875

3 SERVICE KIT 2480KIT AVAILABLE FOR THIS TOOL.

4 OPTIONAL ASSEMBLY TOOL KIT 123110-2 AVAILABLE CONSISTING OF:
PISTON INSERTION TOOL 121694-202.
PISTON ASSEMBLY TOOL 123111-2 AND
SPACER 123112-2, (FOR DISASSEMBLY).

5 BIND HOSES AND CONTROL CORD TOGETHER USING ELECTRICAL TAPE, STARTING APPROXIMATELY 8" FROM HANDLE, SPACE BANDS OF TAPE AT 2" INTERVALS.

6 ETCH MODEL NUMBER "2480L-2" IN 1/4 INCH HIGH CHARACTERS IN THIS AREA.

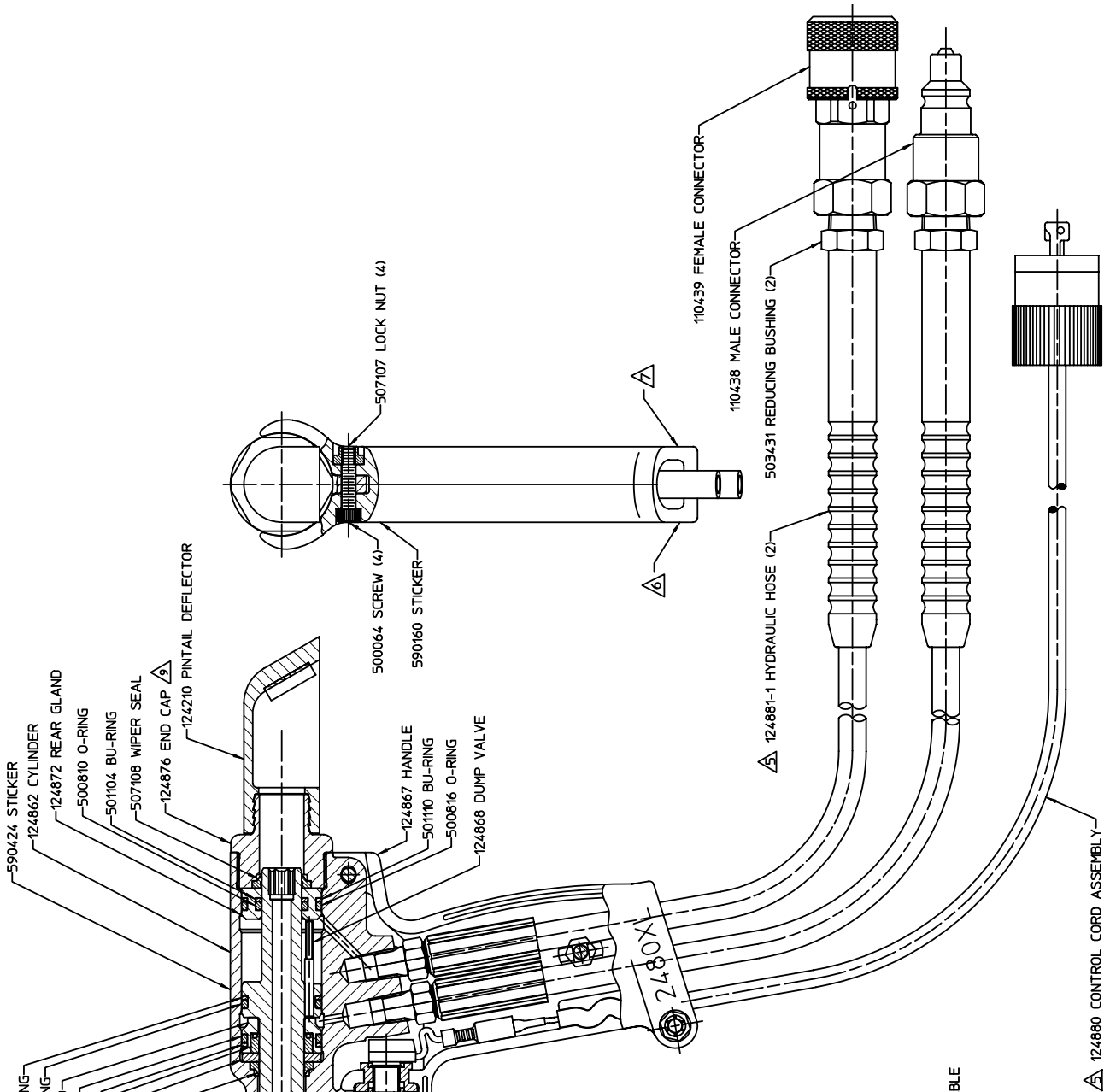
7 ETCH LETTERS "S/N" FOLLOWED BY SERIAL NUMBER IN 3/16 INCH HIGH CHARACTERS IN THIS AREA.

8 STEEL PINTAIL DEFLECTOR ASSEMBLY 126051 OPTIONALLY AVAILABLE.

9 REMOTE TRIGGER PART# 123381-24 OPTIONALLY AVAILABLE

10 TORQUE TO 50 FT/LBS

Figure 3c - 2480L-2 - Sectional View with Part Numbers



NOTES:

1 ASSEMBLE AND TEST PER HUCK SPEC. 42-571.

2 PULL CAPACITY 5667 LBS AT 8400 PSI.
STROKE: .875

3 SERVICE KIT 2480KIT AVAILABLE FOR THIS TOOL.

4 OPTIONAL ASSEMBLY TOOL KIT 123110-2 AVAILABLE CONSISTING OF:
PISTON INSERTION TOOL 121694-202.
PISTON ASSEMBLY TOOL 123111-2 AND
SPACER 123112-2, (FOR DISASSEMBLY).

5 BIND HOSES AND CONTROL CORD TOGETHER USING ELECTRICAL TAPE, STARTING APPROXIMATELY 8" FROM HANDLE, SPACE BANDS OF TAPE AT 2ft INTERVALS.

6 ETCH MODEL NUMBER '2480XL' IN 1/4 INCH HIGH CHARACTERS IN THIS AREA.

7 ETCH LETTERS 'S/N' FOLLOWED BY SERIAL NUMBER IN 3/16 INCH HIGH CHARACTERS IN THIS AREA.

8 REMOTE TRIGGER PART# 123381-24 OPTIONALLY AVAILABLE

9 TORQUE TO 50 FT/LBS

Figure 3d - 2480XL - Sectional View with Part Numbers

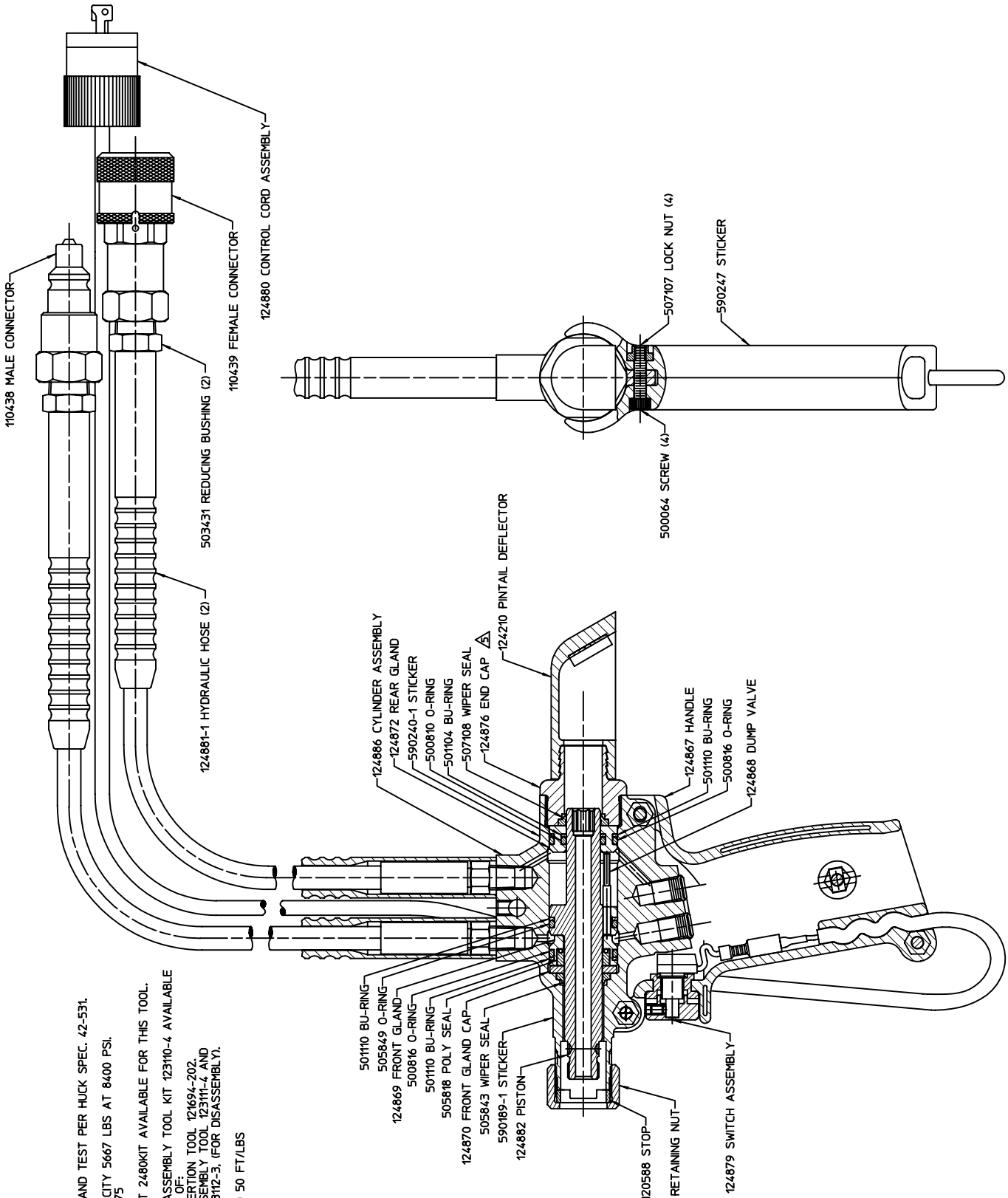


Figure 3e - 2481 - Sectional View with Part Numbers

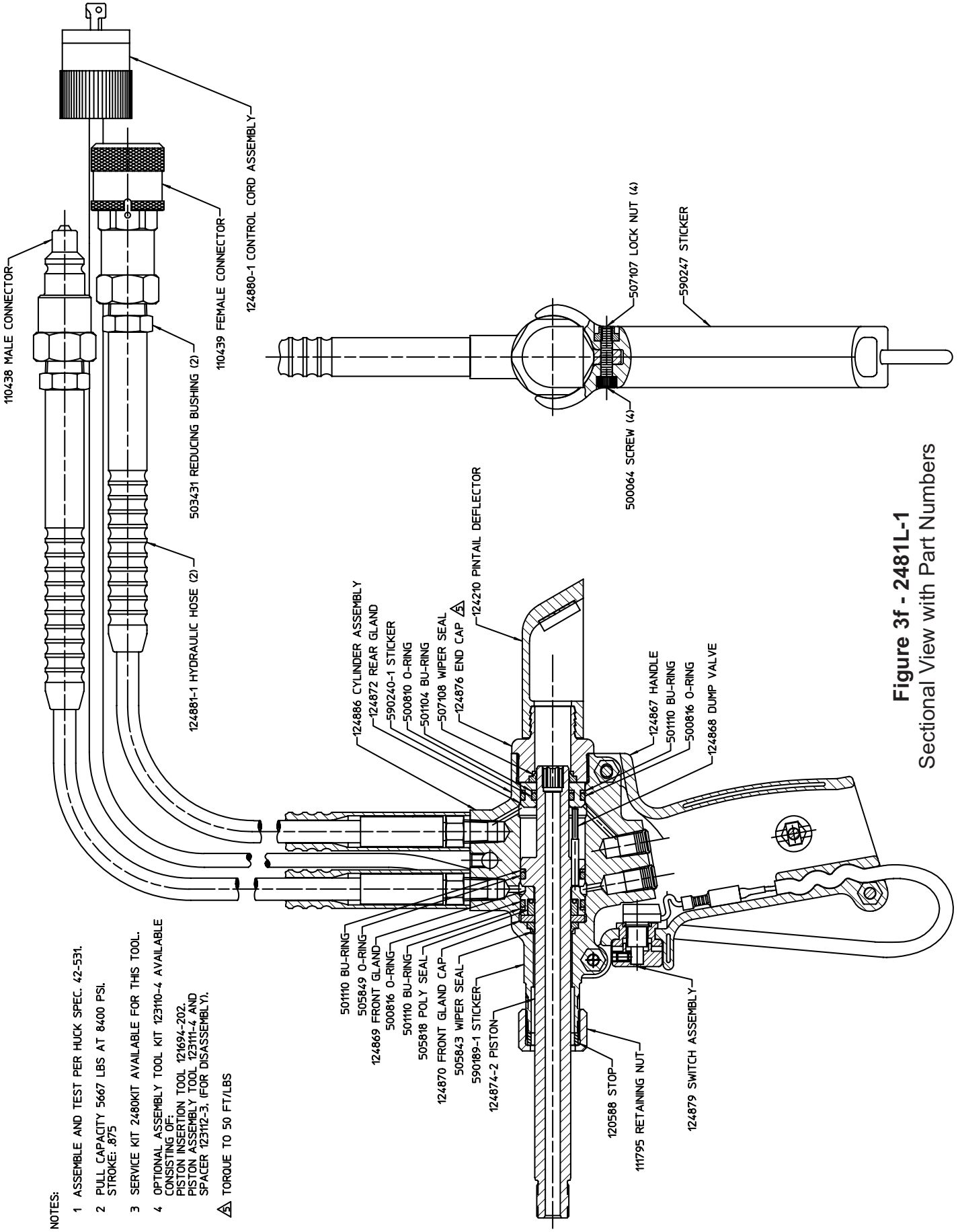


Figure 3f - 2481L-1
Sectional View with Part Numbers

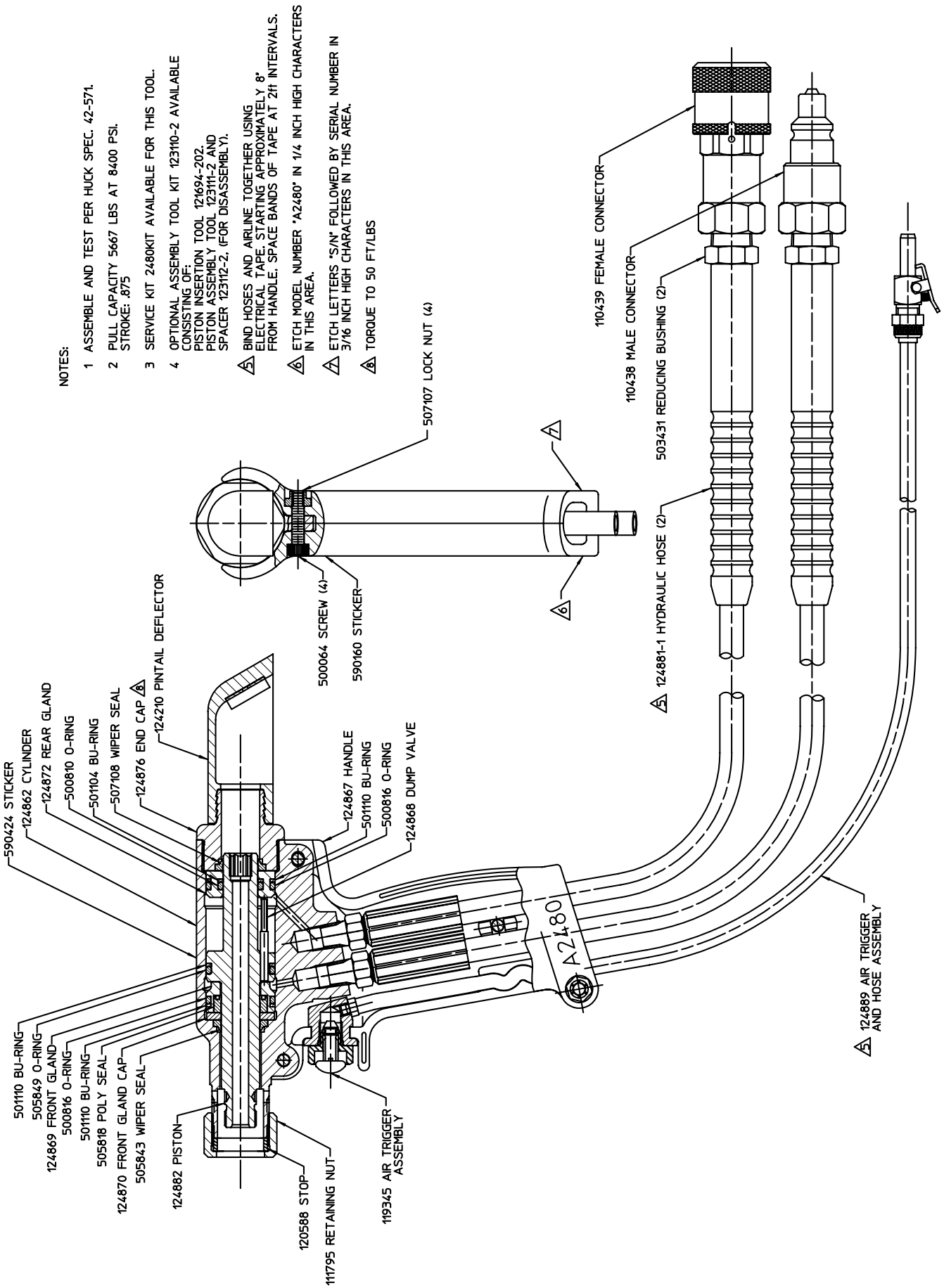


Figure 3g - A2480 - Sectional View with Part Numbers

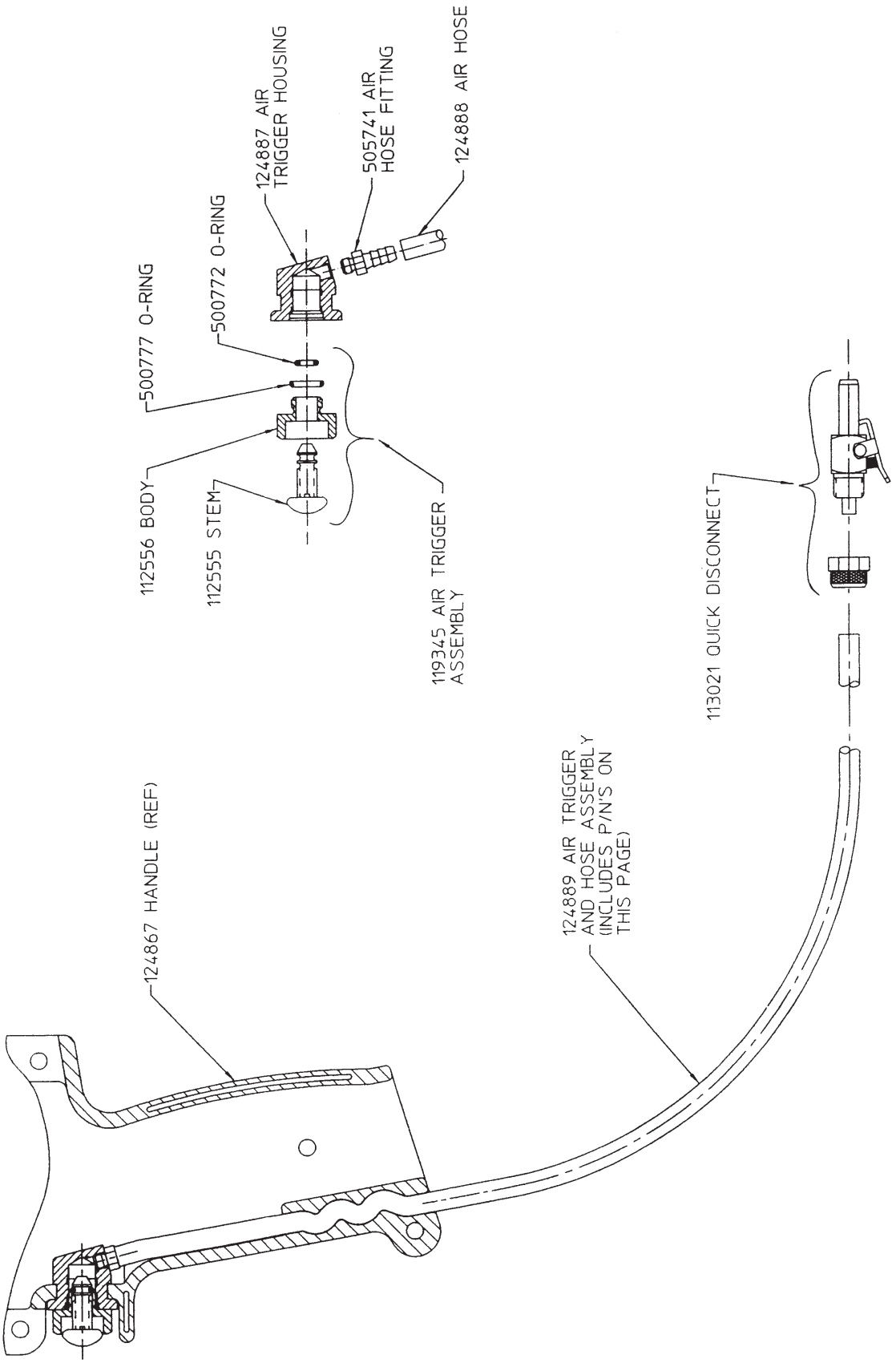


Figure 4 - A2480 - Air Trigger and Hose Assembly

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Tooling Warranty: Huck warrants that tooling and other items (excluding fasteners, and hereinafter referred as "other items") manufactured by Huck shall be free from defects in workmanship and materials for a period of ninety (90) days from the date of original purchase.

Warranty on "non standard or custom manufactured products": With regard to non-standard products or custom manufactured products to customer's specifications, Huck warrants for a period of ninety (90) days from the date of purchase that such products shall meet Buyer's specifications, be free of defects in workmanship and materials. Such warranty shall not be effective with respect to non-standard or custom products manufactured using buyer-supplied molds, material, tooling and fixtures that are not in good condition or repair and suitable for their intended purpose.

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Huck Installation Equipment should be serviced by trained service technicians only.

Always give the Serial Number of the equipment when corresponding or ordering service parts.

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Contact your nearest Huck International Office, see back cover.

In addition to the above repair facilities, there are Authorized Tool Service Centers (ATSC's) located throughout the United States. These service centers offer repair services, spare parts, Service Parts Kits, Service Tools Kits and Nose Assemblies. Please contact your Huck Representative or the nearest Huck office listed on the back cover for the ATSC in your area.

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