An important notice:

Operator must read and understand any WARNING and Caution stickers/labels supplied with equipment before connecting equipment to any primary power supply — as applicable, the following sections each have specific safety, and other, information:

- **WARNINGS and CAUTIONS**
- **DESCRIPTION**
- **SPECIFICATIONS**
- **PRINCIPLE OF OPERATION**
- **PREPARATION FOR USE**
- **PREVENTIVE MAINTENANCE**
- **OPERATION AND TOOL HANDLING**

As applicable, the disassembly and assembly sections contain specific overhaul and safety procedures.

Only persons who have read and understood all applicable manuals or received training approved by Huck International, Inc. will be able to use Huck equipment with personal safety and efficiency.

If you require additional information, contact your local Huck representative or the nearest office listed on the back cover. For a quick response, call any time during business hours.

**SAFETY GLOSSARY**

**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.

*Italic type and underlining strengthens a specific instruction.*

**WARNING**

*When operating Huck installation equipment always wear approved eye protection.*

Whenever within the working environment, wear approved eye protection, with side shields, to protect from anything that breaks on the fastening system including: Erupting fluid lines, flying fastener particles or any other dirt/debris that could cause eye injury.

Where applicable, refer to ANSI Z87.1 - 1989.

**WARNING**

*As applicable, disconnect electrical primary power source before doing ANY maintenance on POWERIG® Hydraulic Unit or on equipment connected to the unit — where compressed air is the primary power source, disconnect power source before doing ANY maintenance on equipment with an air power source. If any equipment shows signs of damage or leakage, DO NOT connect it to the primary power supply (either electrical or compressed air) — and do not continue to use equipment that develops erratic symptoms. If equipment is damaged, or there are other serious discrepancies, affected equipment may rupture violently — parts may strike the operator, and/or other personnel, and cause severe personal injury. Ensure that ALL air and/or hydraulic hose and/or electrical plugs/connectors are correctly connected before switching on power supply to equipment. If incorrectly connected, the tool may respond erratically and cause severe personal injury.*

4-5-97
WARNING
When operating Huck installation equipment, always wear approved eye protection. 

Note
Please read this manual before servicing or using the tool. Comply with WARNINGS and CAUTIONS to prevent personal injury or damage to tool. 

If you need more information, please contact your Huck representative or the nearest Huck office listed on the back cover.

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Please Note:
Refer to back of manual for improved fill and bleed procedure.
Description

The Huck Model 226 is a lightweight, high speed production tool designed to install a wide range of Huck Blind Fasteners and HUCKBOLT® Fasteners. Pull and return action of the tool pull piston is provided by a pneumatic-hydraulic (pneudraulic) intensifier system powered by 105-110 psi air pressure.

A design feature of this tool is a reservoir for hydraulic fluid that automatically keeps the hydraulic system replenished. The importance of this feature is that full stroke, both pull and return, is maintained for proper fastener installation.

The air inlet is equipped with a connector with 1/4-18 female pipe threads for accepting the user’s air hose fitting.

A Nose Assembly is required for each fastener type and size. Nose Assemblies must be ordered separately. See nose assemblies listed under Table 3, Selection Chart or under 226 in Selection Charts, Forms 639 and 640.

Specifications

<table>
<thead>
<tr>
<th>Table 1.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>12.30 lbs. (5.6 kg)</td>
</tr>
<tr>
<td>Length of Head</td>
<td>8.40 in. (213 mm)</td>
</tr>
<tr>
<td>Width of Head</td>
<td>2.25 in. (57 mm)</td>
</tr>
<tr>
<td>Edge to Centerline</td>
<td>.73 in. (19 mm)</td>
</tr>
<tr>
<td>Cylinder Diameter</td>
<td>6.13 in. (156 mm)</td>
</tr>
<tr>
<td>Height</td>
<td>14.62 in. (371 mm)</td>
</tr>
<tr>
<td>Air Pressure</td>
<td>90-100 psi (620-690 kPa)</td>
</tr>
<tr>
<td>Air Consumption</td>
<td>30 CFM (0.014 m³/s)</td>
</tr>
</tbody>
</table>

(Based on 30 fastener installations per minute.)

(1) Weight and length of head does not include nose assembly.

Figure 1. Sectional View
Principle of Operation

When tool is connected to proper air supply, air pressure holds throttle valve in the up position. Air pressure on top of piston keeps it at bottom of cylinder. Trigger is depressed and moves throttle valve to the down position. Air pressure is directed against bottom of piston. As piston moves upward, air from above piston is exhausted.

Air piston rod has a hydraulic piston attached. Pressurized fluid is forced into head moving pull piston. Attached nose assembly moves with pull piston spindle to start fastener installation.

When fastener installation is completed, trigger is released. Air pressure causes throttle valve to return to its up position. Reversed air flow moves air piston, rod and hydraulic piston downward to its starting position, exhausting air from below piston thru bottom of tool at throttle valve. As the hydraulic piston moves downward, hydraulic pressure is reversed and pull piston is returned to its starting position. Return pressure relief valve operates to keep proper amount of fluid in pull system. Reservoir replenishes hydraulic system as needed.

Preparation for Use
(See Good Services Practices)

Model 226 Installation Tool is shipped with plastic plug in air inlet connector. Connector has 1/4-18 female pipe threads to accept air hose fitting. Quick disconnect fittings and 1/4 inch inside diameter air hose are recommended. An air supply of 105-110 psi capable of 30 CFM must be available. Air supply should be equipped with filter-regulator-lubricator unit.

Tool Preparation
1. Before first time operation of tool, remove screw from end of reservoir—see tag attached to tool.

2. Remove plastic plug from air inlet connector and drop in a few drops of Automatic Transmission Fluid, DEXRON II, or equivalent. Screw quick disconnect fitting into air inlet connector.

3. Set air pressure on regulator to 105-110 psi. Connect air hose to tool.

4. Stake hole in head must be aligned with stake hole in piston rod. See Assembly and Filling and Bleeding Tool, paragraph 27, for aligning holes.
Attaching Nose Assembly to Tool

Remove retaining nut and stop. Select proper nose assembly from Table 3. Selection Chart for Model 225 Installation Tool. Use pintail tube as specified in Table 3.

**Nose Assemblies with lock collars:**
1. Push anvil into nose adapter of tool.
   Measure "X" dimension and record for use in steps 2. and 3. See Figure 2.

   **CAUTION**
   Installation tool piston rod must be in full forward position and tool must not be cycled to retract piston rod when attaching anvil.
   Lock collars must be staked to prevent damage to nose assembly and tool.

2. With tool piston in forward position, screw collet assembly onto piston rod. Tighten with wrench—just snug-up. Slide anvil over collet assembly. Measure "X" dimension. If "X" is greater than recorded dimension, remove collet assembly and shim. Leave shim out and reinstall collet assembly. To adjust collet when "X" is equal to recorded dimension, see step 3.

3. When "X" dimension is equal to recorded dimension, remove collet assembly and add a second shim. Reinstall collet assembly. Slide anvil over collet assembly. Measure "X" dimension again. If "X" is now greater remove one shim. Reinstall collet assembly. If "X" is equal to recorded dimension, leave second shim in and tighten collet with wrench—just snug-up.

4. Lock collars must be staked to piston rod and extension to insure proper fastener installation. (Collet assembly is locked to spindle to maintain adjustment for proper function of nose assembly and tool.) See Figures 2a and 2b. For staking operation, use staking tool, P/N 84212, which must be purchased separately. Remove anvil. Firmly support collet assembly and tool. Place staking tool against lock collar. Hit staking tool a light blow with hammer to stake lock collar to spindle. Reinstall anvil.

5. Collet assemblies and/or spindle extensions with staked lock collars can be removed with a wrench. Lock collars are generally reusable a few times.


**Nose Assemblies without lock collars:**
VIBRA-TITE was applied to collet threads at factory. VIBRA-TITE, P/N 505125, is available from Huck and must be reapplied to maintain effectiveness of compound and prevent damage to tool after removing collet a few times. Follow directions on bottle. Dry by applying heat (5 minutes at 150° F) or allow drying overnight. Threads must be at least half-full of dry VIBRA-TITE before assembling collet to spindle. Disconnect air hose and screw collet assembly onto spindle. Tighten collet assembly against spindle shoulder with wrench. Slide anvil over collet assembly.

   Slide stop and retaining nut over anvil and tighten (hand-tight). Connect tool to air supply. Install fastener in test plate of proper thickness with proper size holes. Inspect installed fastener.

---

**Figure 2. Nose Assembly Adjustment**

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**Figure 2a**
(staking collet assembly)

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**Figure 2b**
(staking collet assembly with spindle extension)
WARNING
Do not pull on pin without collar, as pin will eject forcibly when pintail breaks off and severe personal injury may result.

If deflectors are removed or damaged, broken pintails may eject forcibly from rear of tool and severe personal injury may result.

Be sure there is adequate clearance for tool and operator's hands before proceeding as severe personal injury may result without clearance.

CAUTION
Do not abuse tool by dropping it, using it as a hammer, or otherwise causing unnecessary wear and tear. Reasonable care of installation tools by operators is an important factor in maintaining tool efficiency and in reducing downtime.

Operating Instructions

HUCKBOLT® Fastener Installation:
Remove excessive gap between sheets to allow enough pintail to protrude through collar for nose assembly jaws to grab onto. Place pin in work hole and place collar over pin. (If collar has only one tapered end, that end should be out towards tool.) Hold pin and push nose assembly onto pin protruding through collar until nose assembly anvil touches collar. Depress trigger. Hold trigger depressed until collar is swaged and pintail breaks. Release trigger and tool will go into its return stroke.

Blind Fastener Installation:
Remove excessive gap between sheets to permit correct fastener installation. The fastener may be placed in work hole or in end of nose assembly. In either case, tool and nose assembly 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 and tool will go into its return stroke. The tool and nose assembly is ready for the next installation cycle.

Maintenance

Good Services Practices

The efficiency and life of any tool depends upon proper maintenance and good service practices. Tool should be serviced by personnel who are thoroughly familiar with it and how it operates.

A clean, well-lighted area should be available for servicing the tool. Special care must be taken to prevent contamination of pneumatic and hydraulic systems.

Proper hand tools and soft materials to protect tool must be available. Only standard hand tools, brass drift and wood block are required. Vise with soft jaws should be available. See Table 2. for tools available from Huck Manufacturing Company.

All parts must be handled carefully and examined for damage or wear. Always replace O-rings, QUAD RINGS and Back-up Rings when tool is disassembled for any reason. Components should be disassembled and assembled in a straight line without bending, cocking, or undue force. Disassembly and assembly procedures outlined in this manual should be followed.

LUBRIPLATE 130AA, or equivalent lubricant should be used to facilitate assembly of O-rings, Quad Rings, Back-up Rings and other components. (LUBRIPLATE 130AA is available from Huck Manufacturing Company in a tube as P/N 502723.)

Use TEFION thread compound on pipe threads. (TEFLON thread compound is available from Huck Manufacturing Company in stick form as P/N 503237.)

Apply 3M Company's industrial adhesive #847 to Muffler (105) if replacement is required. (3M #847 is available from Huck Manufacturing Company, in a tube, as P/N 505220). Follow instructions on tube for cleaning parts and applying adhesive.

Service Parts Kit, P/N 113701, includes perishable parts and should be available at all times. Other components, as experience dictates, should also be available.

Use VIBRA-TITE on Gland (77) threads. VIBRA-TITE, P/N 505125, is available from Huck. Follow directions on bottle.
Preventive Maintenance

Note
Refer to the applicable section for Assembly or Disassembly. For supplementary information refer to Troubleshooting and Table 4. Parts List.

Tool Maintenance

The Model 226 Huck Installation Tool requires a minimum amount of maintenance. Regular inspection and correction of minor problems will keep the tool operating efficiently and prevent downtime.

If a filter-regulator-lubricator unit is not being used: (1) remove hose fitting from air inlet connector and drop in a few drops of Automatic Transmission Fluid or light oil (2) blow out air line to remove dirt and water before connecting air hose to tool.

At regular intervals, depending upon use, replace all QUAD RINGS, O-rings and Back-up rings in tool. Service Parts Kits should be kept on hand. (See Spare Parts and Service Parts Kits and Notes.) Inspect both hydraulic pistons, and their piston rods for scored surfaces, excessive wear or damage, and replace as necessary. Always replace O-rings, QUAD RINGS and Back-up Rings when tool is disassembled for any reason.

Nose Assembly Maintenance

Frequent cleaning of the nose assembly is recommended. Nose assemblies with UNITIZED jaws must be disassembled and cleaned in mineral spirits or isopropyl alcohol. Do not let UNITIZED jaws (urethane) soak in solvent. Do not use solvents that cause urethane to swell. Use a sharp pointed "pick" to remove particles packed in pull grooves of jaws. Dry components immediately after cleaning.

In nose assemblies without UNITIZED® jaws, dip nose assembly in mineral spirits, isopropyl alcohol, or other suitable solvent, to clean jaws and wash away metal chips and dirt. If more thorough cleaning or maintenance is necessary, disassemble nose assembly. Use pick to remove particles packed in jaw grooves. Reassemble per instructions on applicable Nose Assembly Data Sheet.

Table 2. Standard Tools Available from Huck and Their Use

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Used On</th>
</tr>
</thead>
<tbody>
<tr>
<td>502294</td>
<td>Hex Key, 1/8 across flats</td>
<td>48</td>
</tr>
<tr>
<td>502444</td>
<td>Hex Key, 5/64 across flats</td>
<td>51</td>
</tr>
<tr>
<td>502295</td>
<td>Hex Key, 5/32 across flats</td>
<td>103</td>
</tr>
</tbody>
</table>

Ref. No. | Part No. |
---------|----------|
88       | 504282   |
96       | 501781   |
103      | 501102   |
106      | 501267   |
Disassembly

Refer to Figures 1 and 6

For component identification, refer to Figure 6. Exploded View and Table 4. Parts List. Numbers in parenthesis ( ) are reference numbers shown in Figure 6.

WARNING

Be sure air hose is disconnected from tool before cleaning, or when replacing worn or damaged components. Severe personal injury may occur if air hose is not disconnected.

The following procedure is for complete disassembly of tool. Disassemble only components necessary to replace damaged O-rings, Quad Rings and Back-up Rings, and worn or damaged components.

1. Disconnect air hose from tool.


3. Screw Fill Tool, P/N 112465, into Plunger (39). Lock plunger out—see Figure 3.

4. Unscrew Cap Screws (103) with 5/32 Hex Key. Carefully lift Head (1) straight up from Handle (45). Remove Pull Gland (93) and Return Gland (98) from separated assemblies.

5. Unscrew Plug (27) of Return Pressure Relief Valve from front of head. Remove Spring (30) and Spring (31) Remove Valve Guide (32) and Steel Ball (33).


7. Unscrew Housing and Cover Assembly (41) from head. Remove two Springs (40). Slide Reservoir Plunger (39) from head. Remove Cover (42) from housing.

8. Unscrew Plug (19) of Check Valve from side of head. Remove Spring (21), Check Valve Guide (22) and Stainless Steel Ball (23).

9. Place brass drift against end of Piston (7) spindle. Tap or press spindle until piston is back against Spacer (10).

10. Loosen Hose Clamp (17) until Pintail Deflector (18) can be pulled off deflector tube.

11. Hold a spanner wrench, or .25 inch bar, in slots of Cylinder Head (16), and unscrew cylinder head.

12. With brass drift, tap or press piston out of head.

13. Pull Cylinder Head Gland (11) and Spacer (10) off piston.

14. Inspect Ballcheck Seat (24) and Relief Valve Seat (35).

15. Unscrew Cap Screws (106) with 5/32 Hex Key. Pull Throttle Arm Cover (104) away from handle.

16. Do not remove Mufflers (105) from Cover (104) unless Replacement mufflers and 3M #847 adhesive is on hand.

17. See step 14. of Assembly for cleaning mufflers.

18. Loosen Set Screw (51) with 5/64 Hex Key, in Adjustable End (52).

19. Unscrew Button Head Screw (48) with 1/8 Hex Key. Slip Bushing (47) from throttle arm. Swing throttle arm as far as it will go. Pull Throttle Valve (61) from cylinder.

20. Loosen Set Screw (56) with 5/64 Hex Key, in Wire Link (55). Slide throttle arm from wire link. Slide Throttle Wire (54) from wire link.

21. Pull throttle wire from handle.
22. Remove Cotter Pin (49) from Throttle Pin (50). Pull throttle pin from ears of handle and Trigger (53).

23. Hold tool with bottom up and drain fluid from handle. Remove four Flat Head Screws (88) with 1/8 Hex Key. Remove Plate (87).

24. Remove Retaining Ring (86) from Cylinder (64).

25. Screw flat head screws thru wear plate and into Cylinder Head (84). Carefully pry under plate to remove head.

26. Screw 1/4-20 UNC screws into Piston (81).

27. Push piston assembly into cylinder until it stops. Unscrew Flat Head Screw (68).

28. Pull evenly on 1/4 inch screws in piston to remove piston assembly from cylinder. Remove 1/4 inch screws.

29. Hold hex of Piston Rod (80) with wrench. Do not scratch piston rod. Unscrew Self Locking Nut (83), and pull rod from piston.

30. Unscrew Lower Gland (77) with Spanner Wrench, P/N 411807. \_\_\_\_\_\_\_\_\_\_\_\_\_.

31. Push Hydraulic Piston (69) with Upper Gland (72) out of handle, from the top, with a soft rod.

**WARNING**

Relief Valve (57) is set at the factory and must not be adjusted. If installation tool loosens excessive stroke and fails to break pintail replace the entire relief valve. Severe personal injury may result if the relief valve is adjusted rather than replaced. Refer to Troubleshooting page 14, item 2.

32. To replace Relief Valve Assembly (57), screw 7/32-20 ANF bolt into bottom of valve. Pull on bolt until valve slides from handle.

33. Use wrench to unscrew Swivel Bolt (89) from Cylinder (64). Remove O-ring (91), and push swivel bolt from Connector (92).

34. Lower Bushing (67) and Upper (66) may be pressed out of cylinder if damaged. Use flat end brass rods that are at least six inches long. Press out lower bushing first, with rod having diameter between .38 and .43 inches. Press out upper bushing with rod having diameter between .48 and .55 inches.

35. Discard hydraulic fluid drained from head and handle.

---

**Assembly, and Filling and Bleeding Tool**

Refer to Figures 1, 2, 3, 4, 5, 6 and 7

Clean all components with mineral spirits, and inspect for wear or damage. Replace as necessary. Replace all seals on/in disassembled components. Use O-rings, Quad Rings and Back-up Rings supplied in Service Parts Kit 113701—see Notes. Smear LL-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PLATE 130AA or PARKER-O-LUBE on O-rings, Quad Rings, Back-up Rings and mating components to facilitate assembly. Assemble tool taking care not to damage O-rings, Quad Rings or Back-up Rings.


2. Carefully push Hydraulic Piston (69) into top of Handle (45) with screw countersink facing up.

3. Hold handle in vise with soft jaws, with bottom up. O-ring (73) and Back-up Ring (74) of Upper Gland (72) must be positioned as shown. Push gland into handle.
4. Push Relief Valve Assembly (57) into handle.

5. Place Cylinder (64) on handle with Pin (65) positioned in matching hole. See VIBRA-TITE note on P.7. Screw in Lower Gland (77). Tighten to 140 ft. lbs. torque using Spanner Wrench, P/N 1138927.

6. Push Piston Rod (80) thru Piston (81) from flat side, and screw Self Locking Nut (83) onto rod. Do not scratch piston rod. Hold hex of rod with wrench, and tighten nut to 190 in. lbs.

7. Push piston rod thru glands until it stops. Push Flat Head Screw (68) thru hydraulic piston, and screw into top of piston rod. Hold Nut (83) and tighten screw.

8. Push Cylinder Head (84) squarely into cylinder. Install Retaining Ring (86).

9. Place Plate (87) in cylinder and against retaining ring. Screw in four Flat Head Screws (88) and tighten with 1/8 Hex Key.

10. Turn tool upright. Push Throttle Valve (61) into cylinder. Drop Throttle Wire (54) into handle. Slide Wire Link (55) over wire and hold wire even with bottom of link. Tighten Set Screw (56) with 5/64 Hex Key.

11. Slide Throttle Arm (46) into wire link. Swing arm until other end fits into slot in throttle valve. Slide Bushing (47) into arm. Push Button Head Screw (48) thru bushing, and tighten with 1/8 Hex Key. Install Cotter Pin (60) thru valve and arm.

12. Drop Trigger (53) over throttle wire. Slide Adjustable End (52), with Set Screw (51), over wire. Hold adjustable end at end of wire, and tighten screw with 5/64 Hex Key. Push Throttle Pin (50) thru ears of handle and trigger. Install Cotter Pin (49) thru throttle pin.


14. Clean Mufflers (105) with mineral spirits and forced air while assembled to Throttle Arm Cover (104). Replacement mufflers are glued to cover with 3M #847 adhesive—follow instructions on tube.

15. Fasten Throttle Arm Cover (104) to Cylinder (64) and Handle (45) with Cap Screws (106). Use 5/32 Hex Key.

16. Push O-ring (91) onto Swivel Bolt (89) threads. Slide Connector (92) over swivel bolt. Screw assembled bolt and connector into cylinder. Tighten bolt.

17. Relief Valve Seat (35) and Check Valve Seat (24) can be polished with a fine India stone. If Seat (24) must be replaced, remove with broken screw extractor (Besly EZY-OUT).

18. Hold Head (1) in vise with soft jaws. Push Piston (7) into head. Slip Spacer (10) over piston skirt and into head. Slide Gland (11) into head. Quad Ring (12) must be against spacer. Screw in Cylinder Head (16) with spanner wrench or bar .25 thick.


20. Push Cover (42) onto Housing (41). Slide Quad Ring (38) and Plunger (39) into head. Push one Spring (40) into head, and the other Spring (40) into housing. Screw Housing (41) into head.


23. **Filling tool manually:** With handle and head separated, push hydraulic piston down. Fill pull and return holes in handle. Allow time for air to circulate out of fluid in handle before assembling.

   **To fill head:**
   a. Screw Stall Nut, P/N 84213, or nose assembly collet onto pull piston spindle.
   b. With pull and return holes up, hold head submerged in container of clean hydraulic fluid.
   c. Use stall nut or collet to slowly cycle piston 15-20 times. **Piston must be returned to full forward position.**
   d. Lift head from fluid with pull and return holes up. Hold head in this position. Push Return Gland (98) and Pull Gland (93) into head. Align glands with handle and press head into place.
   e. Push Cap Screws (103) thru handle and screw into head. Tighten to 40 in. lbs. torque.

24. **Filling tool reservoir:** Fill when red fluid level line on Plunger (39) is below midpoint of sight gauge housing—see Figure 3.
   a. Unscrew Bleed Plug (25), and remaining fluid will drain out of reservoir.
   b. Screw Fill Tool, P/N 112465, into plunger—see Figure 4. Pull plunger into housing, and lock in full position by tilting handle.
   c. Fill reservoir, using Fill Bottle, P/N 100931. Push rod into bleed hole to allow air to escape. Screw in bleed plug.
   d. Unlock fill tool. Loosen Plug (19) and allow a few drops of fluid to drain out. Tighten plug. Refill reservoir and unlock fill tool.
   e. Filling procedure must be repeated until plunger stays in full position after unlocking fill tool. Remove fill tool.

25. **Filling tool with 970-100 Fill and Bleed Unit:** (See Figure 5.)
   a. Unscrew Bleed Plugs (25) in head and (43) in handle.
   b. Remove Plug (27), Springs (30) and (31), Valve Guide (32), and Steel Ball (33). Reinstall Plug (27).
c. Use the two hydraulic lines with identical fittings. Attach hose assembly to PULL PRESSURE outlet of unit and bleed port in handle.

d. Attach hose assembly to RETURN PRESSURE outlet of unit and bleed port in head.

e. Operate unit for approximately ten minutes. Reinstall return pressure relief valve and bleed plugs. Fill reservoir—see paragraph 24.

26. Connect air hose to tool. Adjust air pressure to 105-110 psi.

CAUTION
Stake hole in head and piston rod must be aligned to prevent damage to nose assembly and tool. Do not install fasteners until all instructions, including paragraph 27, are followed.

27. To prevent malfunctions, staking holes in Head (1) and Piston (7) spindle must be aligned and stroke must not be less than .850 inch. Pull piston and air piston must be at end of their strokes at the same time to be in phase and have full stroke of pull piston. When stake hole in head lines up with stake hole in spindle, both pistons are in phase:

To align stake holes:

a. Screw Stall Nut, P/N 84213, or nose assembly collet onto spindle. Loosen Return Pressure relief Valve Plug (27) until fluid seeps out.

b. Pull on piston until it stops. Piston must be in full forward position. Tighten relief valve plug.

c. Reservoir plunger will be in the empty position. Refill reservoir—see paragraph 24.


29. Final check. Stake holes in piston and head must be in alignment. See Figure 7. If holes are not aligned, repeat paragraph 27.
Troubleshooting

Always check out the simplest possible cause of a malfunction first. For example, an air hose not connected. Then proceed logically, eliminating each possible cause until the defective part is located. Where possible, substitute known good parts for suspected bad parts. Use Troubleshooting chart as an aid in locating and correcting malfunction.

1. Tool fails to operate when trigger is depressed.
   a. Throttle Valve O-ring (62), or O-ring (63) worn or damaged.
   b. Throttle Wire (54) not adjusted properly.

2. Tool does not complete fastener installation and break pintail. (Tool does not have full stroke.)
   a. Stake hole in head and piston rod not aligned. See Assembly, and Filling and Bleeding Tool, paragraph 27, for aligning stake holes.
   b. Air pressure too low.
   c. Air Piston Quad Ring (62) worn or damaged.
   d. Reservoir empty. See Assembly, and Filling and Bleeding Tool, paragraph 24, for refilling.
   e. Air in hydraulic system.
   f. Damaged Springs (30) and (31) or damaged Steel Ball (33) in Return Pressure Relief Valve.
   g. Reservoir Spring(s) (40) damaged
   h. Throttle Wire (54) not adjusted properly.
   i. Loose collet assembly.

3. Pintail stripped and/or swaged collar not ejected.
   a. Stake hole in head and piston rod not aligned. See Assembly, and Filling and Bleeding Tool, paragraph 27, for aligning stake holes.
   b. Worn or damaged O-ring (2) and Back-up Ring (3) at front of head.
   c. Worn or damaged O-ring (14) and Back-up Ring (15) or Quad Ring (12) and Back-up Ring (13) at rear gland.
   d. Worn or damaged O-ring (73) and Back-up Ring (74) or Quad Ring (75) and Back-up Ring (76) in upper gland. O-ring (79) damaged in lower gland.
   e. Worn or damaged O-ring (9) and Back-up Rings (8) on pull piston, or worn or damaged O-ring (71) and Back-up Rings (70) on hydraulic piston.
   f. See 2., d. and f.
   g. Loose anvil Retaining Nut (5).

4. Hydraulic fluid exhausts with air, or leaks at base of handle.
   a. See 3. d.

5. Hydraulic fluid leaks at hydraulic cylinder Head (16).
   a. See 3. c.

6. Hydraulic fluid leaks at Pull Piston Spindle (7).
   a. See 3. b.

7. Pull Piston (7) will not return.
   a. See 2.
   b. Throttle Valve (61) stuck. (Lubricate O-rings (62) and (63).
   c. Throttle Lever (46) binding.

8. Air leaks at air Cylinder Head (84).
   a. O-ring (85) damaged.

9. Hydraulic fluid leaks between base of handle and top of cylinder.
   a. Worn or damaged O-ring (73) and Back-up Ring (74) on upper gland.
   b. Worn or damaged O-ring (59) and Back-up Ring (58) on Relief Valve (57).
   c. High pressure opened Relief Valve (57). See 3. e.
   d. Low pressure opened Relief Valve (57).
      (This is a malfunction of the relief valve and it should be replaced with a factory set valve.) See Assembly, and Filling and Bleeding Tool, paragraph 3.

10. Staking holes not aligned. See Figure 7.
    To align stake holes:
    a. Screw stall nut, P/N 84213, or nose assembly collet onto piston rod. Loosen Return Pressure Relief Valve Plug (27) until fluid seeps out.
    b. Pull on stall nut until piston stops. Piston should be in full forward position. Tighten relief valve plug.
    c. Reservoir will be empty position. Refill reservoir.

Spare Parts and Service Parts Kit

The quantity of spare parts that should be kept on hand varies with application and number of tools in service. Service parts kit containing perishable parts such as O-rings, back-up rings, etc., should be kept on hand at all times.
Parts included in Service Parts Kit, P/N 113701, are indicated by asterisks (*) in Parts List—Table 4.
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(2) When Bleed Plug, P/N 104293, has been removed and reinstalled in tool 5 times, NYLOK locking element in plug becomes worn out, therefore, worn out bleed plug must be replaced with new bleed plug to prevent hydraulic fluid loss.
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Notes

Specifications for Tables

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

2. Asterisks (*) indicate parts in Service Parts Kit, P/N 113701.

3. O-ring sizes are specified AS 568 dash numbers (AS 568 is an Aerospace Size Standard for O-rings and formerly was known as ARP).

4. QUAD RING sizes are specified Q4 plus 3 digits. The last three digits correspond to O-ring dash numbers. Quad Rings are manufactured by Minnesota Rubber Co.

5. Back-up Rings, except ref. nos. 6, 11 and 15 are W.S. Shamban & Co. series S-11248, single turn TEFLOX (MS-28774), or equivalent. The dash numbers correspond to the O-ring AS 568 dash numbers.

6. Material for O-rings:
   (a) All ref. nos. except 60 and 61, are Nitrile or Buna N (Minnesota Rubber Co., compound 366Y, or equivalent), 70 durometer.

   (b) Ref. nos. 60 and 61 are Minnesota Rubber Co. compound 525EX, 70 durometer, or equivalent.

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<td>502723</td>
<td>LUBRIPLATE 130AA - Tube</td>
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<td>970-100</td>
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IMPROVED FILL AND BLEED PROCEDURE

Refill tool only when red line on plunger (40) drops below the red line on the reservoir housing (42) or when tool is rebuilt.

REFILL: AUTOMATIC TRANSMISSION FLUID
DEXRON II OR EQUIVALENT

Step 1
Screw Fill Tool P/N 112465 (92) into Plunger (40). Pull Plunger into Housing (43) and lock Fill Tool in full forward position by tilting handle (long side of tool) and locking in place (see Figure 1- Page 3).

Step 2
Remove Plug (28), Spring (31), Guide (33), & Ball (34). Reinstall Plug (28) in Head (1).

Step 3
Screw retaining nut (5) onto Head Assembly(1) Screw Stall Nut (100) on to Piston (8), be sure to tighten stall nut to engage all threads. Back off Retaining Nut until it engages stall nut. Check piston location. Stake hole in piston and head must be aligned.

Step 4
Lay tool on on left side (facing tool) with reservoir check valve facing up. Remove Plug (20), Spring (22), Guide (23) and Ball (24).
STEP 5

Screw Fill and Bleed Bottle P/N 120337 (99) into Head (1)
(NOTE: Fill Bottle should be half full see indicator on bottle FIGURE 1
Pg 3). Tighten enough to seal against Head (1).

Step 6

Connect tool to shop air (90-100 psi). Cycle tool 10-15 times
watch for air bubbles escaping from the tool into bottle. (You
may rock the tool to free trapped air in the tool. Do not allow
air to re-enter the tool.

Step 7

a. Lay tool back down on left side and remove the fill bottle and replace
the reservoir check valve assembly (see step 4).

CAUTION DO NOT CYCLE TOOL
If tool is cycled, this will cause the high pressure relief
valve to blow. Oil will leak from the base of the
handle and it will be necessary to disassemble the
tool and replace the Relief Valve (58), then reassemble and
re-bleed the tool.

b. Lay tool on bench with front of Head facing up. Remove Plug (28).
   Install Ball (34), Ballguide (33), Spring (31) and Plug (28)
   (See Step 2).

Step 8

Unlock Fill Tool and check Reservoir red line. At this point cycle tool
with Stall Nut attached and retaining nut locked in the full forward
position("Dead Stall"). Reservoir should not drop below the red line on
Housing, and the Stall nut should now be removable by hand. If not the
Tool must be re-bled --- begin with Step 1.

Step 9

Filling procedure must be repeated until Plunger stays in full forward
position after unlocking the Fill Tool.
Step 10:

**WARNING:** Fill tool must be re-locked. If not, fluid will be ejected from the head under pressure during topping off of reservoir. Severe personal injury may result.

Re-lock fill tool. On a bench, lay tool on its right side. Remove Bleed Plug (26) in head and top off reservoir -- place a few drops of hydraulic fluid in fill hole and wait for air bubbles to escape. Push a pin or a scribe into hole to check for, and release, trapped air bubbles. Replace Plug (26).

---

**Figure 1**
FILLING RESERVOIR

<table>
<thead>
<tr>
<th>REF. NO.</th>
<th>DESCRIPTION</th>
<th>REF. NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HEAD ASSEMBLY</td>
<td>28</td>
<td>PLUG AND RING</td>
</tr>
<tr>
<td>5</td>
<td>RETAINING NUT</td>
<td>31</td>
<td>SPRING</td>
</tr>
<tr>
<td>8</td>
<td>PISTON ASSEMBLY</td>
<td>33</td>
<td>GUIDE</td>
</tr>
<tr>
<td>20</td>
<td>PLUG AND RING</td>
<td>34</td>
<td>BALL</td>
</tr>
<tr>
<td>22</td>
<td>SPRING</td>
<td>40</td>
<td>PLUNGER</td>
</tr>
<tr>
<td>23</td>
<td>GUIDE</td>
<td>42</td>
<td>HOUSING</td>
</tr>
<tr>
<td>24</td>
<td>BALL</td>
<td>92</td>
<td>FILL TOOL</td>
</tr>
<tr>
<td>26</td>
<td>PLUG AND RING</td>
<td>100</td>
<td>STALL NUT</td>
</tr>
</tbody>
</table>
226 SERIES TOOLS
SERVICE, REPAIR AND UPDATE KITS

Huck Model 226 pneudraulic tools that are used in high volume applications have experienced "Piston Drift" (stroke loss). Product Engineering has come up with a kits to improve on this problem.

Available kits as follows:

1. PART NUMBER 113701 Service kit is available for older tools in the field that have not been updated to 1988 Specifications

   Huck manufacturing Co. recommends that all tools be updated using kit PART NO. 226-RETKIT.

2. PART NUMBER 226-RETKIT This kit will update all 226 installation tools to 1988 Specifications, it includes all parts and hardware items required for the change see page 2.

3. PART NUMBER 226KIT services all tools that have been updated to 1988 Specifications as well as those manufactured after November 1988.

NOTE: REFER TO 226 INSTALLATION TOOL MANUAL FOR ADDITIONAL INFORMATION. (FORM HK 631)
226 RETKIT INCLUDES THE FOLLOWING ITEMS:

ALL O-RINGS, BACK-UP RINGS, AND SERVICE PARTS USED IN CURRENT PRODUCTION OF MODEL 226 INSTALLATION TOOLS, INCLUDING:

Part No. 120128 - Ball Guide (A)
Part No. 502506 - Ball (B)
Part No. 505863 - Spring (BB)
Part No. 120127 - Sleeve (C)
Part No. 121197 - Spacer (CC)
Part No. 113341 - Gland (D)
Part No. 112427 - Gland (E)
Part No. 117773 - Screw (G)
Part No. 117775 - Piston (H)
Part No. 505864 - Spring (2) (I)

DRAWINGS ARE PROVIDED TO SHOW THE POSITION OF ALL NEW COMPONENTS INCLUDED IN THIS KIT (SEE PAGES 3 & 4).
D 113341

GLAND
501090 B/U RING
500784 O-RING
113532
PULL GLAND ASSEMBLY

E 112427 GLAND
501084 B/U RING
500778 O-RING
112502
RETURN GLAND ASSEMBLY

G 117773 SCREW
118866
PISTON ASSEMBLY

H 500773 O-RING
501086 B/U RING (2)
117775 PISTON

500784 O-RING
501090 B/U-RING
123908 SPACER
500779 O-RING
123907 GLAND

506565 RETAINING RING
505903 VARI SEAL
500786 O-RING

△ 120374 GLAND ASSEMBLY

△ ASSEMBLE WITH VIBRATITE P/N 505125 AND TORQUE GLAND TO 100-120 FOOT POUNDS.

4 OF 5

P/U 287
Return Pressure Relief Valve
Ball Guide Kit, 121196
IMPORTANT NOTICE
MODEL 246
PNEUDRAULIC INSTALLATION TOOL

The Huck Model 246 installation tool is a lightweight, high production tool that has been available for many years identified as model 226.
The specifications are identical to 226. Some of the components have changed which required the model number change to provide service parts control. The Model 246 has been redesigned to reduce the frequency of hydraulic fluid refills which will enable the tool to maintain maximum stroke for a longer period of time.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>12.30 lbs.</th>
<th>5.6 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight*</td>
<td>8.37 in.</td>
<td>213 mm</td>
</tr>
<tr>
<td>Length Of Head*</td>
<td>2.25 in.</td>
<td>58 mm</td>
</tr>
<tr>
<td>Width Of Head</td>
<td>6.13 in.</td>
<td>156 mm</td>
</tr>
<tr>
<td>Diameter Of Cylinder</td>
<td>.73 in.</td>
<td>19 mm</td>
</tr>
<tr>
<td>C/L To Top Edge Of Head</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Height</td>
<td>14.63 in.</td>
<td>372 mm</td>
</tr>
<tr>
<td>Air Pressure Req.</td>
<td>105/110 psi</td>
<td>720-760 kpa</td>
</tr>
<tr>
<td>Air Consumption</td>
<td>30 CFM</td>
<td>0.014 m3/s **</td>
</tr>
<tr>
<td>Pull Capacity</td>
<td>11000 lbs.</td>
<td>75900 kpa</td>
</tr>
<tr>
<td>Stroke</td>
<td>.875 in.</td>
<td>22 mm</td>
</tr>
</tbody>
</table>

** Based on 18-20 Fastener installations per minute.
* Without Nose Assembly

Note: all Nose Assemblies for Model 226 will fit Model 246 installation tool.
Relief Valve, 112612, is Obsolete for Specific 225/245 Type Tools

Any 225; 225BE; 226; 245; 246; 247 tools may have the latest style handle. If the base of your tool's handle looks like Figure 1, use Plug Assembly, 124189, in place of Relief Valve, 112612.

Some 225, 225BE and 226 tool's handle bases look like Figure 2. Relief Valve, 112612, is still required in these handles.

Figure 1
(current since 1988)

Figure 2
(obs. since 1988)