Instruction Manual

201; 201B; 201V; 201ABR

Pneudraulic Installation Tools

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Rev. 11-4-96 - Form HK945
U.S. Patents Des.369732; Des.369733;
Des.371299; 5490311

HUCK

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EU Declaration of Conformity

Manufacturer:
Huck International, Inc., Installation Systems Division, 85 Grand Street, Kingston, NY, 12401, USA

Description of Machinery:
Model number 201 family of fastener installation tools

Relevant provisions complied with:

European Representative:
Rob Pattendon, 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: [Signature]
Full Name: Renno Budziak
Position: Vice President of Engineering, Installation Systems Division
Place: Kingston, New York, USA
Date: November, 1995
**Huck Model 201 (family) Sound Level**

SEL = 75.7 dB (A)
peak value = 104.4 dB (C)

For an eight hour work day, installing 3000 typical Huck fasteners will result in an equivalent noise level (Leq) of 65.9 dB (A).

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

\[ \text{Leq} = \text{SEL} + 10 \log \left( \frac{n}{28,800} \right) \]

where \( n \) = number of fasteners in eight hours.

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**Huck Model 201 (family) Vibration Level**

For an eight hour work day, installing 3000 typical Huck fasteners will result in an equivalent weighted RMS vibration level (Aeq) of 12.25 m/s².

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

\[ \text{Equivalent Vibration Level, Aeq (m/s}^2) = \left( \frac{n}{480} \right) \times 1.96 \]

where \( n \) = number of fasteners in eight hours, and 1.96 (m/s²) = Aeq for 60 seconds.

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Test data to support the above information is on file at Huck International, Inc., Kingston, NY, USA. Vibration measurements are frequency weighted in accordance with ISO 8041 (1990).
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An important notice:

Please read this manual before servicing or using this installation equipment - - see appropriate sections. For personal safety, comply with WARNINGS to prevent serious personal injury - - observe Cautions to avoid damaging equipment. The SAFETY GLOSSARY helps you to understand our safety procedures.

SAFETY GLOSSARY

WARNINGS must be understood to avoid severe personal injury - - also equipment may be damaged.

Cautions show conditions that will damage equipment and/or structure but not cause injury.

Notes are reminders of required procedures. Italic type and underlining strengthens a specific instruction.

The following are WARNINGS that MAY CAUSE SEVERE PERSONAL INJURY - - specific hazards and injuries are given for each dangerous condition. WARNINGS and Cautions will be repeated where appropriate.

When operating Huck installation equipment or whenever within the working environment, wear approved eye protection to protect eyes from injury. Refer to ANSI Z87.1 - 1989.

Wear other protective devices and clothing such as hearing protection, non-slip safety shoes, heavy gloves and back supporters. Nearby equipment, other than Huck, may be noisy enough for approved hearing protective devices - - refer to ANSI S3.19 - 1974. For foot protection wear ANSI approved safety shoes. Unless these precautions are taken, serious personal injury may occur.

Operator should avoid becoming over-fatigued as this may prevent using good judgement in a potentially dangerous situation. Periodic rest periods can help maintain alertness which is essential to safe tool operation. Continual over-extended use of tool may also cause/aggravate strains of various types.

Carry tool by handle - - do not use air hose as carrying handle. Damaged air hose may leak and leaking air may injure eyes. Do not use tool as a hammer or drop tool as this may damage tool. A cracked cylinder may rupture violently inflicting serious personal injury. Also, air cylinder cap may be violently expelled if loosened by accidental damage - - serious and permanent personal injury may result.

Be sure of adequate clearance for operators hands and a sufficiently clear area to operate tool in. Remove obstructions that may cause unstable footing or other unsafe conditions that hinder tool operation. Crushed hands would be the result of lack of clearance. Falling and striking body against hard objects could be the result of tripping on anything obstructing free foot movement. Twisting back ligaments could be the result of unaccustomed straining from an insecure position.
**INSPECT TOOL FOR DAMAGE BEFORE EACH USE.** In pneumatic tools check that air cylinder cover shows no evidence of being loose -- by hand, try to rotate cover, push on cover and move from side-to-side. If any looseness is observed or felt, cover must be tightened or replaced. Cover that disengages from cylinder may strike operator with great force and thereby cause severe and permanent injuries.

Be sure air hose is disconnected before cleaning or when replacing worn or damaged tool components. Tool may be actuated if not disconnected and cylinder is under pressure. Moving tool/nose assembly parts may injure hand or sever a finger.

Do not cycle tool without bleed plug tightened, or the fill and bleed unit installed in head -- fluid will spray out. Serious eye injury may occur if fluid sprays from tool.

Do not operate tools without pintail deflectors if these are specified by the instruction manual -- undamaged deflectors must be in use under normal conditions. Some tools have instructions for use of tools without deflectors -- there must be structure behind ejecting pintails or tool must be pointed in a safe direction. Use of tools without deflectors must be avoided if at all possible. Unshielded eyes, especially, may be permanently injured -- other severe injuries may be caused by flying pintails. When deflector is in place on tool, broken pintails will still eject with speed and force. Be sure pintail deflector is directed safely. *As there is always a chance of a projectile-like ejection, always point rear of tool in a safe direction, or be sure there is some structure that will stop ejecting pintails.*

Pulling on a pin (fastener) without a collar may result in the pin becoming a high speed projectile when pin grooves are stripped or pintail breaks off. *Fatal or severe injury is possible to anyone in the pins line of flight -- this includes pins that ricochet.*

Do not pull on a fastener’s pintail without first placing the fastener in a workpiece. The pin will eject from front with great force and become a high speed projectile when the pintail breaks off. For this reason, do not ever point tool at anyone with a fastener in nose assembly and then activate tool. Fatal or severe injury is possible to anyone in the pins line of flight -- this includes pins that ricochet.

Broken pintails eject from deflector with speed and force. *Be sure pintail deflector is directed safely away as ejecting pintails can cause severe eye or other injury.*

During tool operation keep hands away from front of nose assembly -- there are two distinct movements that cause pinch points.

1. Nose assembly/tool rests against collar while pulling on pin -- collar presses against sheet and pin/collar pull sheets together. Sheets being squeezed together is one pinch point to avoid.
2. After sheets come together, front of nose assembly keeps moving toward sheet until collar is swaged. Nose assembly moving toward sheet is another pinch point to avoid. Identifying these two pinch points is required. If hands are caught, or in danger of being pinched, releasing trigger will instantly stop action of tool.

Keep fingers out of anvil openings and front of nose assembly -- if tool is activated, a finger may be severed.

**NOTE:** The trigger on tool is operator’s direct link to controlling swaging movement. To stop swaging and disengage tool at any time, release the trigger.
The following are **Cautions** that may cause damage to the tool - - no personal hazards.

**Disassembled parts must be kept away from dirty work areas.**

**Do not use** TEFLOm tape on pipe threads - - particles of shredded tape cause valve to malfunction in POWERIG Hydraulic Unit. Use SLIC-TITE (Markal Co.) TEFLOm thread compound, or equivalent, to prevent leaks and for ease of assembly. Huck part number, 503237.

Always use new seals, O-rings and back-up rings whenever any part of tool is disassembled - - never reuse damaged parts. Good parts may be reused as required by conditions of expediency.

**Disassembled/reassembled tools must be filled and bled before being used.**

Be sure to use correct fastener with proper grip. Remove excessive gap from sheets.

---

**CONDED LISTING OF SAFETY PROCEDURES**

The following is a list of **Do's** and **Don'ts** that are part of the general environment encompassing the use of the tool. This is a summary - - the full text of specific items will be repeated where appropriate.

The following are **WARNINGS** that may cause severe personal injury - - also equipment damage in some instances.

**Do** wear approved eye protection when operating the installation system.

**Do** wear other protective devices and clothing.

**Do** check for adequate clearance for operators hands and a sufficiently clear area to operate tool in.

**Do** check condition of tool for damage or excessive wear to any of systems components.

**Don't** perform maintenance before disconnecting air supply.

**Don't** pull on a pin without a collar - - pin will eject with velocity and force if pin breaks or strips.

**Don't** pull on a fastener's pintail without first placing fastener in a workpiece.

**Don't** put hands near activated nose assembly.

The following are **Cautions** that may cause damage to the tool.

**Do** use a clean work area to disassemble and assemble tool.

**Don't** reuse seals, O-rings or back-up rings.

Always replace with new items.

**Don't** use tool after disassembly/assembly without bleeding tool of air.

**Don't** use wrong fastener or wrong grip.

**Don't** allow excessive gap between sheets.
notes
DESCRIPTION

The Models 201, 201B, 201V and 201ABR are lightweight, high speed production tools designed to install 3/16 and smaller HUCK blind fasteners.

The 201V, with vacuum boost selector switch ON, has two functions:
1. With tool in any position, vacuum holds fastener firmly in nose assembly.
2. Vacuum expels broken pintail into pintail collector.

Pulling action of the pull piston is provided by a pneumatic-hydraulic (pneudraulic) intensifier system powered by 90 psi air pressure. The air inlet is equipped with a connector with 1/4-18 female pipe threads to accept your air hose or quick connect fitting. The piston return stroke is spring actuated.

A nose assembly is required for each fastener type and size. Nose assemblies must be ordered separately.

Specifications

<table>
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<tr>
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<th>Value 2</th>
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</thead>
<tbody>
<tr>
<td>Weight of 201 (1)</td>
<td>4.2 lbs.</td>
<td>(1.9 kg)</td>
</tr>
<tr>
<td>Weight of 201ABR (1)</td>
<td>4.4 lbs.</td>
<td>(2.0 kg)</td>
</tr>
<tr>
<td>Weight of 201B and 201V (1)</td>
<td>4.9 lbs.</td>
<td>(2.2 kg)</td>
</tr>
<tr>
<td>Air Pressure</td>
<td>80-90 psi</td>
<td>(550-620 kPa)</td>
</tr>
<tr>
<td>Air Consumption (2)</td>
<td>6 CFM</td>
<td>(0.003 m 3/s)</td>
</tr>
<tr>
<td>Min. Effective Stroke</td>
<td>.743</td>
<td>(19 mm)</td>
</tr>
<tr>
<td>Minimum Pull Force @80 psi</td>
<td>2.121 lbs.</td>
<td>(9.43 kN)</td>
</tr>
<tr>
<td>Minimum Pull Force @90 psi</td>
<td>2.386 lbs.</td>
<td>(10.61 kN)</td>
</tr>
</tbody>
</table>

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

(2) Based on 30 fastener installations per minute.

Fasteners installed: Consult your Hück representative or available FASTENER SELECTION CHARTS


*DEXRON II is a registered trademark of General Motors Corporation.
201V

Figure 2 - 201V Outline Dimensions
PRINCIPLE OF OPERATION

When tool is connected to proper air supply, air pressure holds throttle valve in the up position -- air pressure is directed to the top of piston keeping it down. Depressing trigger moves throttle valve to the down position -- air is directed to the bottom of the piston moving it upward, air from above piston is exhausted downward thru the throttle valve and exits the muffler at bottom of tool. Air piston rod is a hydraulic piston. Pressurized fluid is forced into head moving pull piston rearward.

When fastener installation is completed, trigger is released. Air pressure causes throttle valve to return to its up position, reversing the air flow. The air piston and rod move down to their starting position, exhausting air from below piston through the muffler at bottom of tool. As rod moves downward and hydraulic pressure is released from pull piston, a spring behind pull piston returns it to its starting position.

Figure 3 - Main Components
PREPARATION FOR USE

WARNING
If deflectors are removed or damaged, separated pintails may eject forcibly from rear of tool. Unshielded eyes, especially, may be permanently injured - other severe injuries can be caused by flying pintails. If there is any chance of a projectile-like ejection, always point rear of tool in a safe direction, or be sure there is some structure that will stop ejecting pintails.

WARNING
To avoid pinch points, be sure there is adequate clearance for tool and operator's hands before proceeding. Tool moving toward structure may crush hands or fingers between tool and structure if clearance is limited.

201 is shipped with plastic plug in air inlet connector. Connector has 1/4-18 female pipe threads to accept hose fitting. Quick connect fittings and 1/4 inch inside diameter air hose are recommended. An air supply of 90-100 psi capable of 6 CFM must be available. Air supply should be equipped with a filter-regulator-humidifier unit that provides clean dry air.

1. Remove Plastic Plug from air inlet Connector and drop in a few drops of Automatic Transmission Fluid, DEXRON II, or equivalent.

2. Screw quick-connect fitting into air inlet connector.

3. Set air pressure on regulator to 80 - 90 psi.

4. Connect air hose to tool.

5. Cycle tool a few times by depressing and releasing trigger.

6. Disconnect air hose from tool.

7. Remove Retaining Nut.

8. Select correct nose assembly from the available SELECTION CHARTS or see your Huck representative.

(1) Quick disconnect fittings and air hoses are not available from Huck.
OPERATING INSTRUCTIONS

NOTE: 201\textsuperscript{V} is sold with the ribbed vacuum control ON/OFF slide in the forward, or OFF, position. See Figure 12 for slide's location which is shown in the ON (rear) position. While tool is not being used, move slide to the OFF (forward) position to prevent unnecessary air loss.

**Blind Fastener and MAGNA-LOK\textsuperscript{®} Fastener Installation:**

The fastener may be placed, either in the work hole or, in the end of the nose assembly. In either case, tool and nose assembly must be held against work and at right angles to it. Depress trigger and hold it depressed until fastener is installed and pintail breaks. Release trigger.

**MAGNA-GRIP\textsuperscript{®} Fastener Installation:**

Place pin in work-hole and place collar over pin - - see **WARNINGS.** (If collar has only one tapered end, that end **MUST** be out toward tool.) Hold pin in hole. Push nose assembly onto pin protruding from collar until anvil touches collar. Press trigger and hold down until collar is swaged and pintail breaks. Release trigger.

**WARNINGS**

Inspect tool for damage before each use. Do not operate if damaged as severe personal injury may occur.

Pulling on a pin (fastener) without a collar, or with collar chamfer against workpiece, may result in pin becoming a high speed projectile when pin grooves are stripped or pintail breaks off. **Fatal or severe injury is possible to anyone in the pins line of flight** - - this includes pins that ricochet.

Broken pintails eject from deflector with speed and force - - **be sure pintail deflector is directed safely as ejecting pintails striking anyone may cause serious personal injury.**

Do not abuse tool by dropping it or using it as a hammer. Care of installation tools by operators is an important factor in maintaining tool efficiency, in eliminating downtime and in preventing damage to tool. Damaged tool can rupture and cause severe personal injuries.

**CAUTIONS**

Remove excessive gap from between sheets for enough of the pintail to stick out of the collar for **all of the jaw teeth to grip into the pintail grooves.** Jaws not fully gripping pintail grooves will be stripped or broken.
notes
MAINTENANCE

Good Service Practice

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 tools must be available. Use only standard hand tools, brass drift and wood block. Vise with soft jaws should be available. Unsuitable hand tools will cause installation tool damage.

**ALWAYS REPLACE O-RINGS AND BACK-UP RINGS WHEN TOOL IS DISASSEMBLED FOR ANY REASON.**

All parts must be handled carefully and examined for damage and/or wear. 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. If Huck recommended procedures are not followed, the tool may be damaged.

Rub SLIC-TITE TEFLON* thread compound or equivalent on pipe plug threads and quick connect fitting.

**CAUTION: Do not use TEFLON tape on pipe threads. Pipe threads may cause tape to shred, resulting in tool malfunction.** (SLIC-TITE is available in stick form, as 503237, from Huck.)

Smear LUBRIPLATE 130AA*, or equivalent lubricant on O-rings and mating surfaces to aid assembly and to prevent damage to O-rings. (LUBRIPLATE 130AA is available in a tube, as 502723, from Huck.)

Use VIBRA-TITE* on End Cap (four variations) threads and Gland Housing Assembly, 116173, threads. VIBRA-TITE, 505125, is available from Huck. Follow directions on bottle. Torque to 75-80 ft. lbs.

Apply LOCTITE #271 Adhesive/Sealant to Lock Nut, 505420. (LOCTITE is available from Huck, in a tube, as 503657.) Torque to 25-30 ft. lbs.

Service Kit 201KIT (for 201 and 201B) and 201VKIT include perishable parts and should be on hand at all times. Other components, as experience dictates, should also be kept for replacements.

* LUBRIPLATE is a trademark of Fiske Brothers Refining Co.
* TEFLON is a trademark of E.I. DuPont de Nemours & Co.
* VIBRA-TITE is a trademark of the Oakland Corporation.
* LOCTITE is a trademark of Loctite Corp.
* TRUARC is a trademark of Waldes Kohinoor, Inc.

Standard Tools Available from Huck

1/8 hex key, 502294, used on button head screw, 504127
5/32 hex key, 502295, used on socket cap screw, 123756
(0400) TRUARC pliers, 502866, used on (N5100-100) retaining ring, 501007
PREVENTIVE MAINTENANCE

Tool Maintenance

The 201 series tools require a minimum amount of maintenance. Regular inspection and correcting minor problems will keep tool operating efficiently and prevent downtime.

Using filter-regulator-lubricator unit is highly recommended for safe and reliable tool operation. If a filter-regulator-lubricator unit is not being used in the air supply: (1) remove hose fitting from air inlet connector and drop in a few drops of automatic transmission fluid (2) blow out air line to remove dirt and water before connecting air hose to tool.

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

Nose Assembly Maintenance

Frequently cleaning 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. Jaw teeth can be damaged (stripped) if matching pintail teeth do not seat properly. Air 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.

FILLING AND BLEEDING PROCEDURE
See Figure 4

1. Fill container up to fluid level line (about half-full). Use DEXRON II automatic transmission fluid, or equivalent.

2. Disconnect air supply from tool. Lay tool on its side with fill/bleed port up.

3. Remove bleed plug from tool's head.

WARNING
Do not cycle tool without bleed plug tightened, or the fill and bleed unit installed in tool head. Fluid will spray out and severe eye injury may occur.

4. Screw fill bottle assembly into bleed port. Screw stall nut 124090-1 onto piston.

5. Set air supply line pressure to 40 psi. Connect air line to tool.

6. Leave tool lying on its side with fill bottle pointing upwards. While actuating trigger slowly, cycle tool from 20 to 30 cycles.

7. Disconnect air supply from tool with pull piston in full forward position. (Trigger released; piston to idle position.)

8. Lay tool on its side and unscrew fill and bleed unit. Screw in fill plug.

9. Connect air supply to tool. Measure tool stroke (piston travel). If stroke is less than .743, remove bleed plug and top off oil. Reinstall plug and cycle again - - - measure stroke again. Continue with this process until min. stroke is .743.
Figure 4 - Filling and Bleeding Components
Troubleshooting

WARNING
Do not use equipment that continues to operate improperly. Use chart to help correct problem. Operating problems not corrected may lead to serious personal injury.

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 operating problem is located. Where possible, substitute known good parts for suspected bad parts. Use this chart to help locate and correct malfunction:

1. Tool fails to operate when triggered.
   a. Throttle valve O-rings (3) worn or damaged.

2. Tool does not complete fastener installation or break pintail.
   a. Air pressure too low.
   b. Hydraulic fluid low causing short stroke.
   c. Air piston O-ring worn or damaged.
   d. Air in hydraulic system (see FILLING AND BLEEDING PROCEDURE).

3. Hydraulic fluid exhausts with air.
   a. Worn or damaged O-rings, POLY-SEAL and/or QUAD ring in Gland Assembly, 116134.

   a. Worn or damaged Pull Piston POLY-SEAL.

5. Hydraulic fluid leaks at Pull Piston Rod.
   a. Worn or damaged Front Gland POLY-SEAL and Wiper, and/or O-ring.

6. Pull Piston will not return.
   a. Broken or weak Return Spring.

7. Air leaks at Air Cylinder Head.
   a. Air Piston O-ring damaged.

Spare Parts and Service Kits
The quantity of spare parts that should be kept on hand varies with application and number of tools in service. Service kits containing perishable parts such as POLY-SEALS, O-rings, back-up rings, etc., should be kept on hand at all times. See listing of SERVICE KITS.
DISASSEMBLY

Refer to MAINTENANCE: GOOD SERVICE PRACTICE and illustrations.

WARNING

Air hose must be disconnected before:

- Removing or attaching nose assembly.
- Cleaning tool and/or nose assembly.
- Replacing worn or damaged tool components.

Tool may be activated if not disconnected and cylinder is under pressure. Fingers may be severely pinched/lacerated. Other severe personal injury may result.

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

1. Disconnect tool from air source.

2. Unscrew Retaining Nut and remove nose assembly.

3. Unscrew Bleed Plug, including O-ring, from top of Handle/head. Turn tool bottom up and hold over container. Allow hydraulic fluid to drain out of tool - tool may be cycled to eject fluid more completely. Discard fluid.

4. Pull Pintail Deflector off End Cap.

5. Remove Trottle Arm Pivot Screw and lift out throttle arm. Disconnect ball end of Cable Assem. from Throttle arm.

6. Hold tool in vise with bottom up. Remove Button Head Screws (3) with 1/8 hex key. Remove End Cap and Gasket. Remove Muffler from end cap. Remove Spring from Throttle Valve.

7. To loosen Cylinder Head Retaining Ring in Cylinder, tap Cylinder Head with mallet.

8. **NOTE:** Screw Button Head Screws back into Cylinder Head. Carefully pull or pry on screws to remove cap.

9. To remove air piston from cylinder, pull on Lock Nut with VISE-GRIP pliers.

**NOTE:** Air piston and rod should not be disassembled and reassembled. If lock nut loosens, apply LOCTITE #271 and tighten to 25-30 ft. lbs.

**CAUTION**

**DO NOT SCRATCH PISTON ROD.**


11. Remove SPIRO-LOX Retaining Ring from gland. Pull out Spacer and POLYSEAL.

12. Lift cylinder from handle/head.

13. Turn handle/head over - - drain fluid into container. Discard fluid.


15. **Service on Oil Damper Valve not normally required.** See page 37, FIGURES 16 and 17 for instructions and illustrations.

Oil Damper Valve Housing, 123767, and Oil Damper Valve, 123149-1 (both unlabeled), in handle, can be removed with Damper Valve Removing Tool (123769).
16. Lift cylinder from handle/head.

17. Turn handle/head over - - drain fluid into container. Discard fluid.

18. Pull Throttle Valve out of cylinder.

19. Head/handle Disassembly using:
   Optional Assembly Tool Kit, 123110-3, which includes:
   • POLYSEAL Insertion and Removal Tool, 121694-201
   • Piston Assembly (bullet) Tool, 123111-3
   Kit is used for disassembly and assembly.

   CAUTION
   If Piston Seals and Gland Seals must be reused, help prevent damaging them at disassembly by installing OPTIONAL POLYSEAL Insertion/removal Tool (121694-201) in rear of Handle/head.

   If replacement seals are not available, use seal insertion/removal tool to help prevent seal damage - - used seals are not a personal safety problem.

20. See FIGURE 14 - REMOVAL OF PISTON AND FRONT GLAND

20.1 Thread POLYSEAL Insertion/removal Tool, 121694-201, into Handle/head.

20.2 Thread Piston Assembly (bullet) Tool, 123111-3 onto piston.

20.3 Push complete piston from front using brass drift. Allow clearance, with stand-off, for piston as it leaves tool.

20.4 Remove Piston Assembly Bullet, Spacer and POLYSEAL Insertion/removal Tool.

21. Remove Retaining Ring, Washer and POLYSEAL from piston.

   NOTE: Inspect hydraulic piston for wear, scoring or damage. Replace when necessary.

22. Unscrew Adapter, 123761-1, with wrench.

23. Inspect all seals and parts.

24. Remove trigger cable assembly by removing pin with parallel punch. Remove dowel pin to disconnect cable from trigger.
ASSEMBLY

See MAINTENANCE: GOOD SERVICE PRACTICE and illustrations.

Clean all components with mineral spirits, and inspect for wear or damage. Replace as necessary.

CAUTION
Always replace all seals, wipers and back-up rings on/in disassembled components. These parts wear from friction and deteriorate with age -- replacement prevents potential leakage.

Use seals, wipers and back-up rings supplied in Service Kit, 201KIT (201 and 201B) or 201VKIT -- see NOTES. Smear LUBRIPLATE 130AA or PARKER-O-LUBE on seals.

1. If Bushings have been removed from cylinder:
   Use an arbor press and apply LOCTITE #609, (503377) on bushings before being pressed into cylinder. Place chamfered end of Upper Bushing in top of Cylinder. Carefully press bushing squarely into cylinder. Repeat procedure for Lower Bushing.

   Note: After new bushings are installed they will have to be reamed, lapped or honed to bring them back to size for correct fit and alignment with throttle valve.

2. Assemble Gland Assembly -- see FIGURE 9.

   NOTE: Cup of POLYSEAL must face toward top of tools when installed in Gland.

   Replace POLYSEAL, Spacer and SPIRO-LOX Retaining Ring.

3. Assemble Handle/Head Assembly
   (using optional Piston Assembly Kit, 123110-2) as follows:

   3.1 Install Adapter into cylinder handle/head.

   See FIGURE 15 - INSTALLING PISTON AND FRONT GLAND

3.2 Thread POLYSEAL Insertion/removal Tool, 121694-202, into handle/head.

3.3 Thread Piston Assembly (bullet) Tool, 123111-2, onto piston assembly.

3.4 Push front gland assembly onto piston, as shown.

3.5 Slide wiper onto piston, as shown.

3.6 Push assembled components in gently from rear of tool using a press, or a soft mallet and wood or brass drift.

3.7 Remove Piston Assembly (bullet) and POLYSEAL Insertion/removal Tool.

4. Assemble Spring, Spacer, Rear Wiper Seal and End Cap into handle/head.

5. See FIGURE 5 - - position Cable Assembly in Trigger slot and push Linkage Pin through holes in trigger and cable assembly. Position assembled trigger in handle and push Slotted Pin through holes in handle and trigger.
6. Install Bleed Screw.

7. Hold handle/head in vise with lower end pointing up. Turn cylinder bottom up, and position on handle by lining up cylinder pin with handle hole.


9. Push Bumper firmly over gland -- face of bumper with two slots must face toward bottom of tool.

10. Pour hydraulic fluid into handle/head until just below chamfer in gland.

11. Note: Be sure to check that bleed plug is installed. Lubricate piston rod. Press assembled air piston/piston rod into cylinder just enough to allow installation of cylinder head.

12. Push Cylinder Head squarely into cylinder taking care not to damage O-ring. Install spiral Retaining Ring.


14. Carefully position Muffler End Cap on cylinder -- be certain that muffler is properly positioned in recess of muffler end cap.

15. Muffler end cap is secured with three Button Head Screws -- tighten with 1/8 hex key.


17. Place ball end of Throttle Cable in end of Throttle Arm.

18. Slide Throttle Arm into slot on Cylinder.

19. Install Pivot Screw in cylinder to retain throttle arm.

20. Screw Stall Nut (124090-1) completely onto piston rod.

21. Follow FILL AND BLEED PROCEDURE to fill tool -- see appropriate section and FIGURE 4.
Sub-assembly Part Numbers and Notes
Refer to illustrations

1 123775-1 - Front Gland Sub-assembly includes:
      (1) - Front Gland Housing
      500812 - O-ring
      501106 - back-up ring
      506879 - VARISEAL
      122432-1 - Gland Cap
      506817 - wiper

2 123774-2 - Piston Sub-assembly (201 & 201B)
123774-3 - Piston Sub-assembly (201V) both include:
      (1) - Piston
      505818 - POLYSEAL
      506880 - washer
      506881 - retaining ring

3 123777-1 - Air Piston and Rod Sub-assembly includes:
      (1) - Air Piston
      501451 - QUAD ring
      112414-1 - Piston Rod
      506493 - flat washer - Bokers
      505420 - self-locking nut - .38-24 thin SS

4 104293 - Bleed Plug Sub-assembly includes:
      (1) - Bleed Plug
      505438 - O-ring

5 123778-1 - Cylinder Head Sub-assembly includes:
      (1) - Cylinder Head
      500864 - O-ring

6 123779-1 - Throttle Valve Sub-assembly includes:
      (1) - Throttle Valve
      504408 - O-ring
      504407 - O-ring

7 109780 - Swivel and Swivel Bolt Sub-assembly includes:
      (2) 100933 - Swivel and Sleeve Assembly
      (2) 123763 - Swivel Bolt
      500778 - O-ring
      500808 - O-ring

8 CAUTION: Install cups of POLY-SEALS positioned as shown; position wipers as shown.

      (1) Purchase sub-assembly when this part is required.
      (2) Purchase sub-assembly when both these parts are required.
123761-2 ADAPTOR
124446-1 EXTENSION
\[ 125083 \text{ PINTAIL TUBE} \]

Figure 4A - Model 201ABR
Partial view shows components that vary from the standard 201.

\[ \text{ADAPTER 84401 REVISION 'P' AND PRECEDING PINTAIL TUBE 125083 MUST BE USED} \]

\[ \text{ADAPTER 84401 REVISION 'R' OR LATER DO NOT USE PINTAIL TUBE 125083} \]

⚠️ See above illustrations and instructions for adapter, 84401, when using the following nose assemblies:
79663; 79664; 79665;
99-1022; 99-1023; 99-1024.
ASSEMBLY TOOL KIT 123110-3 OPTIONALLY AVAILABLE CONSISTING OF:
PISTON/POLYSEAL INSERTION TOOL 121694-201
PISTON ASSEMBLY TOOL 123111-3
DAMPER VALVE REMOVAL TOOL 123769 OPTIONALLY AVAILABLE.
SUSPENSION SPRING 124447 OPTIONALLY AVAILABLE.
SHIP TOOL WITH FILL AND BLEED BOTTLE 120337
AND AIR HOSE ASSEMBLY 115436.

Figure 6
201, 201B, 201V and 201ABR
Air Cylinder

123756 PIVOT SCREW
116408 BUMPER
124440 CYLINDER ASSEMBLY
112414-1 PISTON ROD

123753-1 PISTON
111959-2 CYLINDER HEAD
506493 WASHER
505420 LOCK NUT
501451 QUAD RING
500864 O-RING
506878 RETAINING RING
116291-2 GASKET
504127 SCREW (3)
116585-2 END CAP
115554-2 MUFFLER
Figure 7
Throttle Valve Sub-assembly and Related Components
Figure 8 - Swivel and Swivel Bolt Sub-assembly; Fill Plug and O-ring Sub-assembly
Figure 9 - Gland Sub-assembly, 116173 (1)

(1) Assemble gland to cylinder with VIBRATITE, 505125. Torque gland to 75 - 80 ft. lbs.

(2) POLYSEAL is installed, as shown, with U facing up.
Figure 10 - 201B Head/Handle
Figure 11 - 201V Head/handle
Figure 13 - Exploded View of Vacuum Attachment
DISASSEMBLY and ASSEMBLY of 201B Pintail Collector and 201V Collector/vacuum Boost

The following paragraphs from one through eight are for 201V. Paragraphs two and three are for both 201B and 201V. Remaining instructions are in the general DISASSEMBLY and ASSEMBLY sections. Paragraph numbers below match the exploded view’s reference numbers.

Always replace seals, wipers and back-up rings of disassembled sub-assemblies.

1. Disconnect air line at cylinder.

2. **201B and 201V:**
   Use 0100 TRUARC pliers, 502857, to remove retaining ring - - reach through window of pintail bottle. Remove washer.

3. **201B and 201V:**
   Remove pintail bottle.

4. Remove bottle adapter and vacuum ON/OFF slide.

5. Remove end cap assembly and spring.

6. Remove washer and O-ring from spring side of end cap.

7. Remove retaining ring on bottle side of end cap. Remove spacer, wiper seal, washer and O-ring.

8. Remove O-rings from ON/OFF slide.

Reverse the order of disassembly for assembling components.
Notes and Specifications for Standard Parts

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

2. 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 -). The listings of SERVICE KIT, 202KIT and SERVICE KIT, 202VKIT have specific material and durometer just after the identifying AS 568 - dash numbers.

3. QUAD ring sizes are specified Q4 plus 3 digits. The last 3 digits correspond to O-ring dash numbers. QUAD rings are manufactured by Minnesota Rubber Co. unless otherwise specified.

4. Back-up rings are W. S. Shamban & Co. series S-11248, single turn Teflon (MS-28774), or equivalent. The dash numbers correspond to the O-ring AS 568 - dash numbers.
Service Kit, 201KIT (201 and 201B)

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Service Kit, 201VKIT

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Optional Assembly Tool Kit, 123110-3, includes:
POLYSEAL Insertion/removal Tool, 121694-201;
Piston Assembly (bullet) Tool, 123111-3,
*Kit is used for disassembly and assembly.*

Optional Damper Valve Removal Tool, 123769, is available for valve maintenance.
*Tool is used for disassembly and assembly.*

---

**Disassembly of Piston from tool -- see Figure 14 - Piston Removal**

1. Thread POLYSEAL Insertion/removal Tool, 121694-201, into Handle/head.

2. Push complete piston from front using brass drift. Allow clearance, with standoff, for piston as it leaves tool.


---

**Disassembly of Piston to tool -- see Figure 15 - Piston Assembly**

1. Thread Piston Insertion/removal Tool, 121694-201, into handle/head.

2. Slide Piston Assembly (bullet) Tool, 123111-3, onto piston assembly.

3. Push front gland assembly, including wiper, onto piston, as shown.

4. Remove Piston Assembly (bullet) Tool from piston. Thread extension onto piston.

5. Push assembled components in gently from rear of tool using a press, or a soft mallet and drift.

6. Remove Piston Assembly (bullet) Tool and POLYSEAL Insertion/removal Tool.

---

**Disassembly and Assembly of Damper to 201 series -- see Figures 16 and 17**

1. **Disassembly:**
   Removal tool is screwed into damper valve housing as shown. **Tighten nut to pull damper assembly out -- magnet in tool will hold damper.**

2. **Assembly:**
   Turn nut out to protect threads. Screw housing onto tool. Place damper in housing and against magnet. Set angle of handle as shown -- press in assembled damper.
Figure 14
Piston/extension, Front Gland, Wiper Removal
Figure 15
Piston/extension, Front Gland, Wiper Assembly
Figure 16 - Damper Removal
Warranties

THE NINETY DAY WARRANTY HEREIN EXPRESSED SHALL BE THE EXCLUSIVE WARRANTY ON ITEMS MANUFACTURED BY SELLER AND SHALL BE IN THE PLACE AND stead of ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Seller shall not be liable for any loss or damage resulting from delays or nonfulfillment of orders owing to strikes, fires, accidents, transportation companies of for any reason or reasons beyond the control of the Seller or its suppliers.

All warranty claims must be submitted to the Seller in writing within 90 days from the date of shipment, and no returns will be accepted without written permission.

Other provisions hereof notwithstanding, Seller shall not be liable for any loss of business, profits or any incidental or consequential damages incurred by Buyer or any third person in connection with the items or use thereof, however caused.

Tool Warranty
Seller expressly disclaims any warranty expressed or implied, as to the condition, design, operation, merchantability or fitness for use of any tool or part(s) thereof not manufactured by Seller. The only warranties made with respect to such tool or part(s) thereof are those made by the manufacturer thereof and Seller agrees to cooperate with Buyer in enforcing such warranties when such action is necessary. Seller agrees to repair or replace F.O.B. Seller's plant, any tool or part(s) thereof manufactured by it and proved to Seller to be defective due to faulty workmanship or material.

Warranty on "Other Items"
With regard to items other than FASTENERS and TOOLS ("OTHER ITEMS"), Seller expressly disclaims any warranty, expressed or implied, as to the condition, design, operation, merchantability or fitness for use of any "OTHER ITEMS," or part(s) thereof not manufactured by Seller. The only warranties made with respect to such "OTHER ITEMS" or part(s) thereof are those made by the manufacturer thereof and Seller agrees to cooperate with Buyer in enforcing such warranties when such action is necessary.

Seller agrees to repair or replace F.O.B. Seller's plant, any "OTHER ITEMS" or part(s) thereof manufactured by it and proved to Seller to be defective due to faulty workmanship or material.

Huck Installation Equipment

Huck International, Inc. reserves the right to make changes in specifications and design and to discontinue models without notice.

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.

Complete repair facilities are maintained by Huck International, Inc. Please contact one of the offices listed below.

Eastern
85 Grand Street, Kingston, New York 12401-0250 Telephone (914) 331-7300 FAX (914) 334-7333

Western
900 Watson Center Road, Carson California 90745 Telephone (310) 830-8200 FAX (310) 830-1436

Canada
326 Humber College Boulevard, Rexdale, Ontario M9W 5P4, Canada. Telephone (416) 675-3400 FAX (416) 675-5917

Outside USA and Canada
Contact your nearest Huck International Office, see hack 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.
Huck Acceptance is Worldwide

Huck International, Inc. maintains company offices throughout the United States and Canada with subsidiary offices in many foreign countries. Sales engineers and systems specialists located in your area can help you in solving your fastener problems.

**Huck International, Inc. worldwide locations:**

### Americas

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<td>PO Box 2270</td>
<td>85 Grand Street</td>
<td>Kingston, NY</td>
<td>12401</td>
<td>(800) 544-3011 (602) 747-9898</td>
<td>(602) 748-2142</td>
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<tr>
<td>Huck International, Inc. Aerospace Fastener Division</td>
<td>3724 East Columbia</td>
<td>Tucson, AZ</td>
<td>85714</td>
<td>(800) 544-3011 (602) 747-9898</td>
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<td>Huck International, Inc. Aerospace Fastener Division, Lakewood Operation</td>
<td>PO Box 5268</td>
<td>900 Watsoncenter Road</td>
<td>Carson, CA</td>
<td>90749</td>
<td>(800) 421-1459 (310) 830-8200</td>
<td>(310) 830-1436</td>
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<tr>
<td>Huck International, Ltd.</td>
<td>6150 Kennedy Road, Unit 10</td>
<td>Mississauga, Ontario</td>
<td>L5T214, Canada</td>
<td>(905) 584-1825</td>
<td>(905) 564-1963</td>
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<td>06-372-9346</td>
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<td>Singapore</td>
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<td>Rowville, Victoria</td>
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<td>Unit C, Stafford Park 7</td>
<td>Telford, Shropshire</td>
<td>England</td>
<td>TF3 3BQ</td>
<td>0952-290011</td>
<td>0952-290459</td>
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<td>Huck International GmbH H</td>
<td>Postfach 12 60</td>
<td>37520 Osterode Am Harz</td>
<td>Germany</td>
<td>05522-505-300</td>
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<tr>
<td>Huck S.A.</td>
<td>Clos D’Asseville</td>
<td>BP4</td>
<td>95450 Us Par Vigny</td>
<td>France</td>
<td>34-66-07-00</td>
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