



**CHERRY®**  
**AEROSPACE**  
*SPS Fastener Division, a PCC Company*

# GHA-743 Power Riveter



## OPERATING MAINTENANCE MANUAL

USATCO U.S. Air Tool Company, Inc.

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# GHA-743

## Power Riveter

The Cherry GHA-743 is a pneumatic-hydraulic tool designed specifically for the most efficient installation of Avdel® Cherry Commercial fasteners. It weighs only 6-1/4 pounds and can be operated in any position with one hand. It has a full 3/4" rivet setting stroke and a rated pull load of 3600 pounds.

The GHA-743 riveter operates on a wide range of air pressure, with 90 to 120 psi providing the maximum efficiency. At 90 lbs. air pressure, the GHA-743 has a decibel rating of 82dB(A) and consumes 6 CFM at 20 cycles per minute.

A mandrel catcher bag may be attached to eliminate costly cleanup.

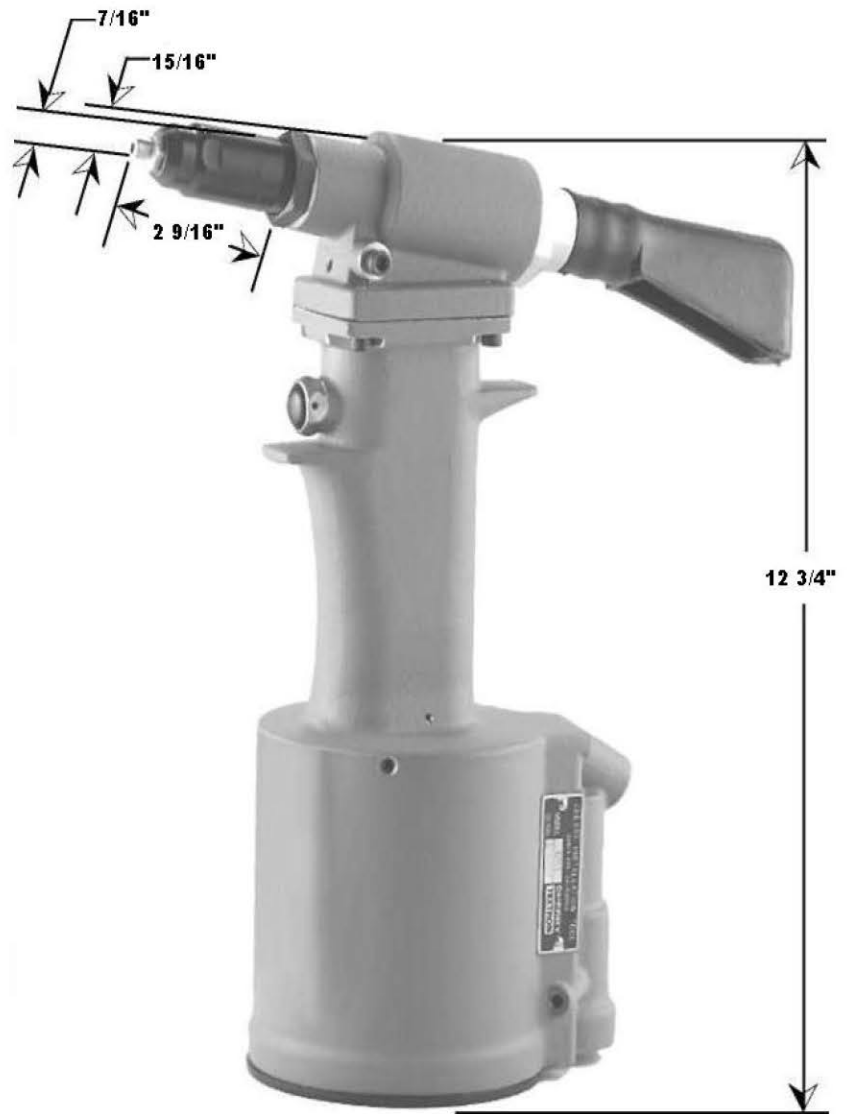
**The GHA-743 comes equipped with nose-piece 743A7-8Z ready to set:**

- Avdel® Cherry N Rivets - 1/4" diameter
- Avdel® Cherry Q Rivets - 1/4" diameter

**There is also a spare nosepiece, 743A7-5C6Z included for setting:**

- Avdel® Cherry N Rivets - 3/16" diameter
- Avdel® Cherry Q Rivets - 3/16" diameter

**MANY OTHER STYLES AND SIZES OF AVDEL® CHERRY COMMERCIAL RIVETS CAN BE SET WITH THIS TOOL. REFER TO THE NOSEPIECE SELECTION CHART ON PAGE 10 FOR APPLICABLE PART NUMBERS.**



Warning: Approved protection should be worn when operating, repairing, or overhauling this tool.

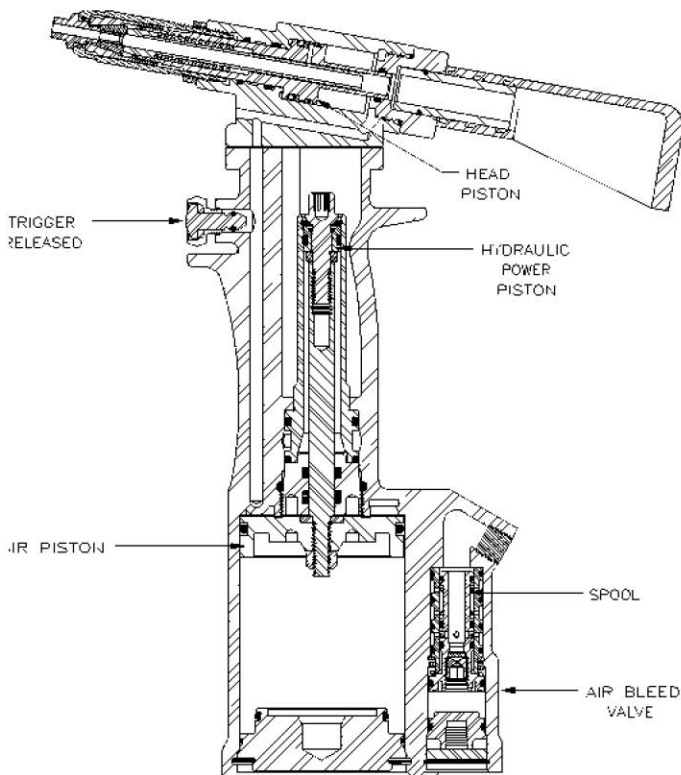
## How the GHA-743 Operates:

When the tool is pressurized by hooking up to an air line, the valve spool is forced upward. This movement aligns the port in the spool with the lower port within the handle, allowing air pressure to enter the bottom port of the power air cylinder. This forces the air piston upward.

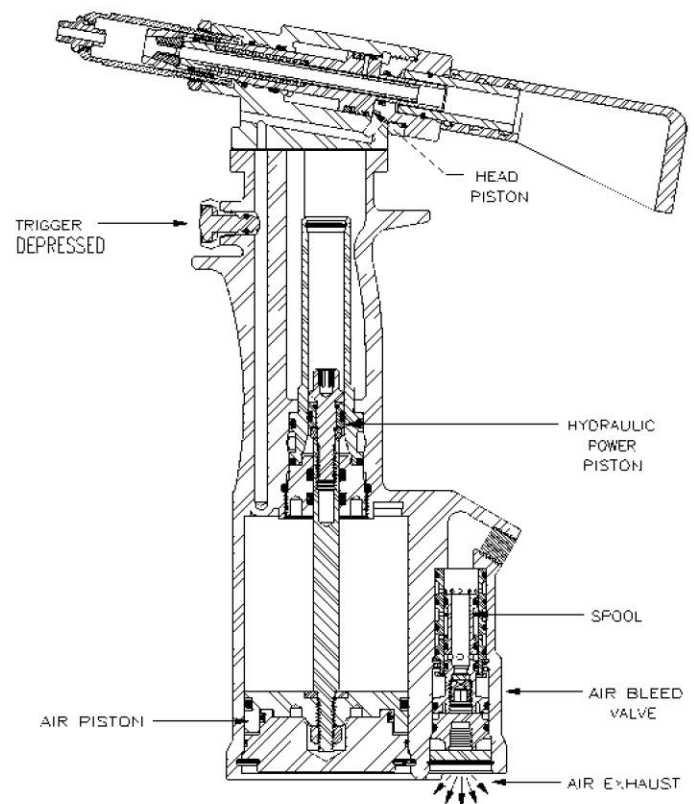
air valve, it in turn activates the hydraulic power piston. Air pressure also travels up through a port in the handle to enter the rear of the head cylinder. This air pressure forces the return of the head piston to its full forward position.

When the trigger is depressed, air bleeds out from behind the trigger, lowering air pressure against the bottom of the spool. Air pressure is now greater on top of the spool, forcing it down. This action shuts off the air path to the bottom of the power air cylinder and simultaneously opens the upper port, allowing pressure to enter directly into the top of the air cylinder. This forces the air piston downward. The air piston is connected to the hydraulic power piston with a common connecting rod. When the air piston is actuated by changes in the

The center area of the handle (that part held by the hand during riveting) contains the hydraulic system. The hydraulic power piston has its own cylinder containing the fluid which is pressurized by the downward travel of the piston. This forces the fluid up through the handle into the front of the head cylinder, thereby exerting the force needed to push the head piston back in a full 3/4" rivet setting stroke. This same fluid then returns to the power cylinder by the forward action of the head piston under air pressure.

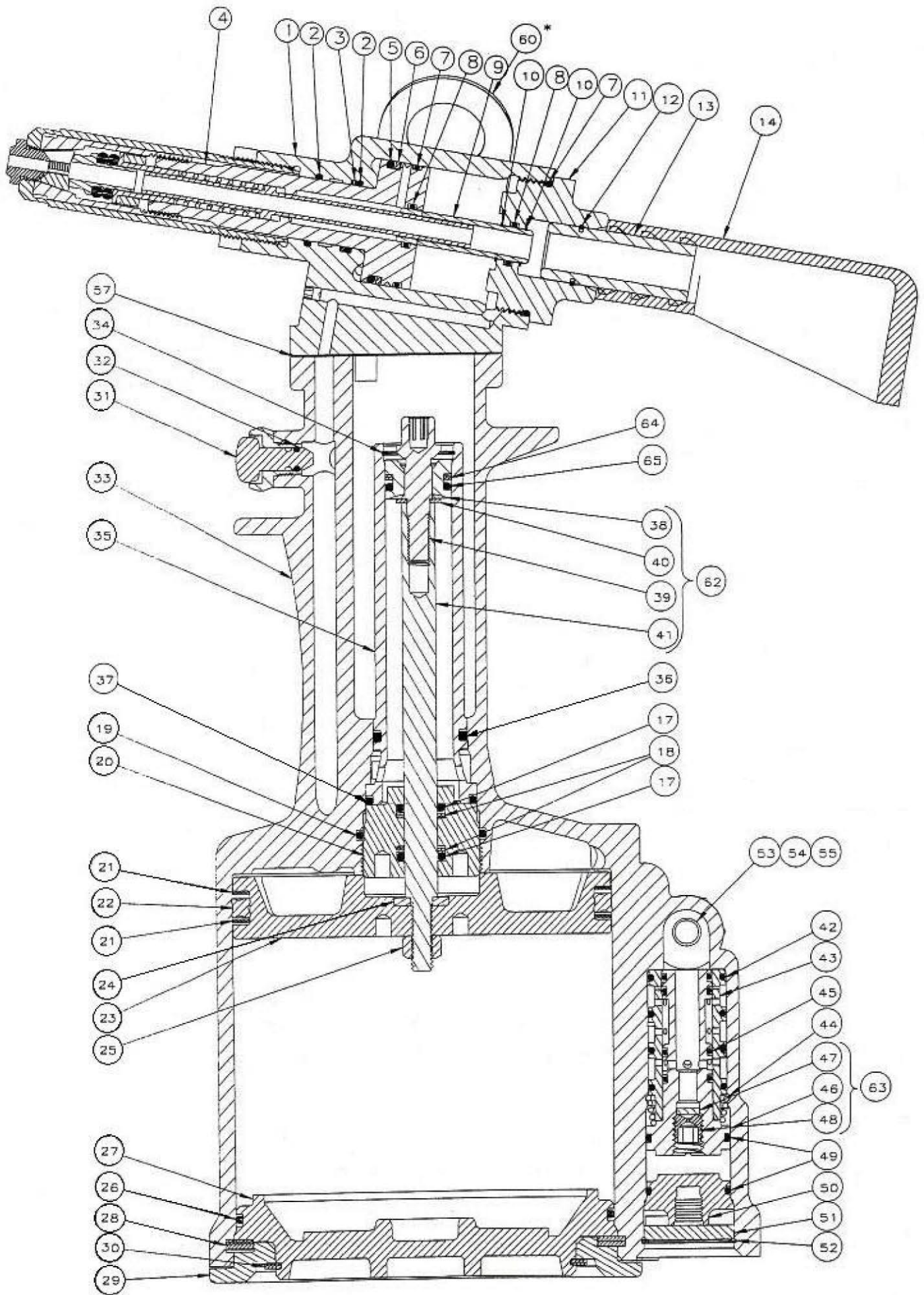


RELATIVE POSITION OF WORKING PARTS WHEN TOOL IS FIRST PRESSURIZED. SPOOL, AIR PISTON AND HYDRAULIC PISTON ARE UP. HEAD PISTON IS FORWARD, RIVET CAN ENTER JAWS FREELY.

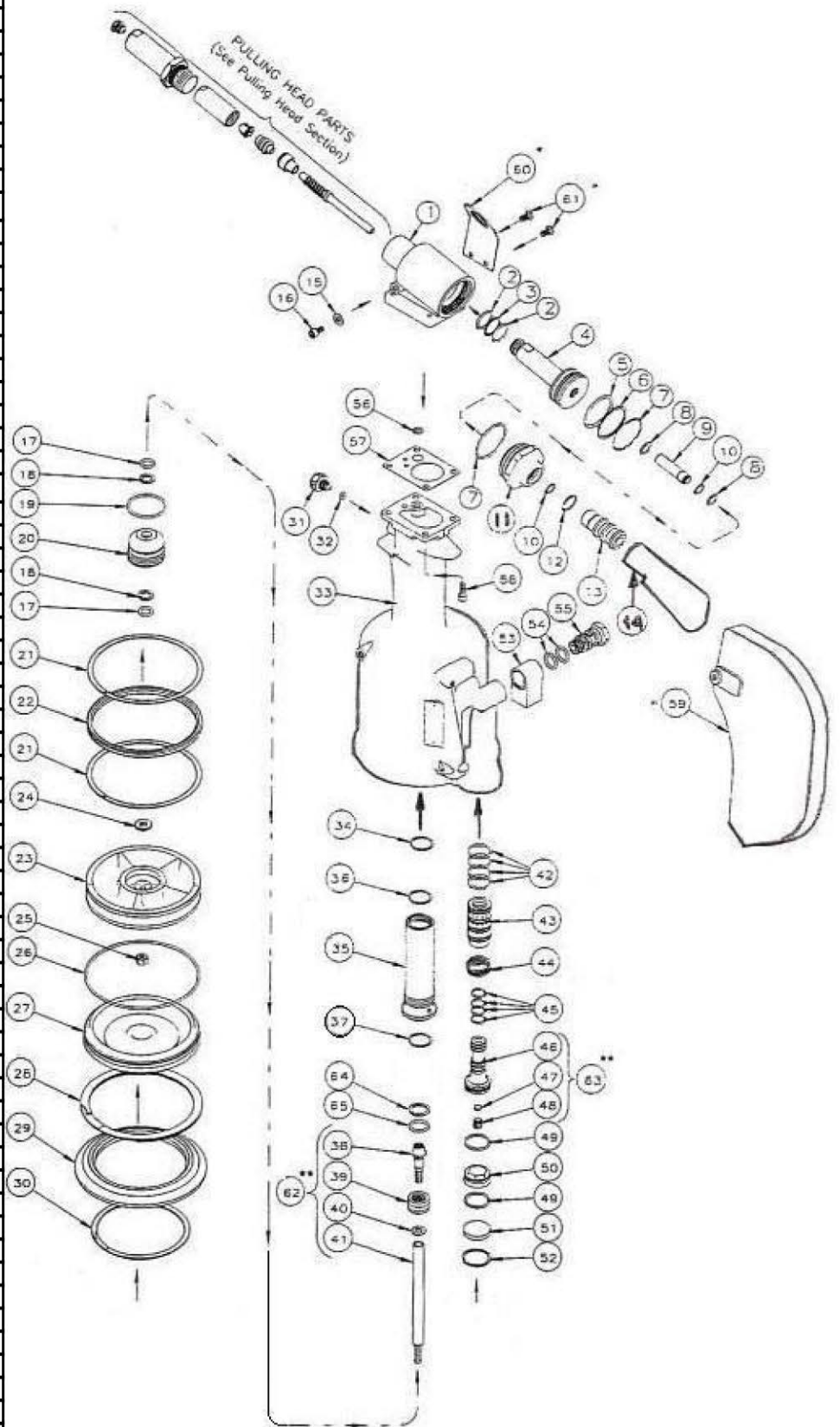


RELATIVE POSITION OF WORKING PARTS AFTER DEPRESSING TRIGGER. SPOOL, AIR PISTON AND HYDRAULIC PISTON ARE DOWN. HEAD PISTON IS BACK. RIVET HAS BEEN PULLED.

**SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE**



ITEM NO.	DESCRIPTION	QTY
743B1 Sub-Assembly, Head		
1	743C2 Body Head	1
2	P-722 O-Ring (.816, .676, .070)	2
3	P-860 Ring, Back-Up (.794, .685, .053)	1
4	743B3 Piston, Head	1
5	P-877 O-Ring (1.380, 1.174, .103)	1
6	P-878 Ring, Back-Up (1.379, 1.207, .103)	1
7	P-553 O-Ring (1.379, 1.230, .070)	2
8	P-112 O-Ring (.514, .364, .070)	2
9	703A5 Seal Tube	1
10	P-109 Ring, Retaining (1.074, .796, .138)	2
11	743B4 Cap	1
12	P-880 Ring, Retaining	1
13	703A13 Fitting, Deflector	1
14	530A16 Pin, Deflector	1
15	P-126 Washer	1
16	P-90 Screw, Soc.Hd Cap 10-32 x 3/8	1
740C30 Sub-Assembly, Handle		
17	P-838 O-Ring (.568, .362, .103)	2
18	P-115 Ring, Back-Up (.551, .375, .103)	2
19	P-889 O-Ring (1.505, 1.299, .103)	1
20	740B13 Plug, Packing	1
21	P-909 Ring, Back-Up (4.245, 3.875, .185)	2
22	P-887 Ring, Quad (4.270, 3.850, .210)	1
23	740B6 Piston, Air	1
24	700A21 Washer	1
25	P-737 Nut, Conelock 1/4-20	1
26	P-890 O-Ring (4.193, 3.987, .103)	1
27	740C4 Base, Handle	1
28	P-886 Ring, Retaining (Int. 4.000 Dia.)	1
29	740B5 Cover, Base	1
30	P-884 Ring, Retaining, Ext. 3.000 Dia	1
31	703A33 Asub-Assembly, Trigger	1
32	P-223 O-Ring (.285, .145, .070)	1
33	743A11 Handle	1
34	P-885 Ring, Retaining	1
35	740C7 Cylinder, Power	1
36	P-833 O-Ring (1.068, .862, .103)	1
37	P-892 O-Ring (1.255, 1.049, .103)	1
38	740A11 Cap, Piston Rod	1
39	740A9 Piston, Power	1
40	740A12 Stop, Piston	1
41	740A10 Rod, Power Piston	1
42	P-268 O-Ring (.816, .676, .070)	4
43	740B14 Sleeve, Valve	1
44	740A18 Spring	1
45	P-891 O-Ring (.566, .426, .070)	3
46	740B15-1 Spool, Valve	1
47	700A18 Filter	1
48	700A69 Screw, Metering	1
49	P-848 O-Ring (.941, .801, .070)	2
50	740B16 Plug, Valve	1
51	740A17 Muffler	1
52	P-321 Ring, Retaining (Int. 1.000 Dia.)	1
53	530A34 Swivel	1
54	P-195 O-Ring (.630, .424, .103)	2
55	530A35 Bolt, Swivel	1
56	P-832 O-Ring (.379, .239, .070)	1
57	700A22 Gasket	1
58	P-91 Screw, Soc. Hd Cap 10-24 x 1/2	4
59	670A20 BAG, MANDLREL CATCHER	1
60	703A22 HANGER	1
61	P-881 Screw, But Hd Soc. 10-32 x 3/8	2
62	740A8 Sub-Assy, Power Piston & Rod	1
63	740A15 Sub-Assy, Valve Spool	1
64	P-908 Ring, Back-Up (.738, .562, .088)	1
65	P-508 O-Ring (.755, .549, .103)	1



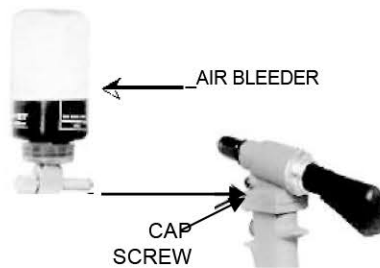
\*\*Components cannot be ordered separately. Sold as an assembly only.

\*Furnished on special order,

## Maintenance and Repair:

The GHA-743 Power Riveter has been manufactured to give maximum service with minimum care. In order that this may be accomplished, the following recommendations should be followed:

1. The hydraulic system should be full of oil and free from air at all times.
2. Keep excessive moisture and dirt out of the air supply to prevent wear.
3. Do not pound on the rear of the tool head to force rivets into holes, as this will damage the tool.
4. Make sure the pulling head is correctly and securely attached.



### To Fill the Riveter With Oil:

1. Remove the head body assembly from the handle assembly.
2. Fill the handle assembly with automatic transmission fluid, ATF DEXRON® or equivalent, to within 1/8" of the top of the handle casting.
3. Replace the head body assembly, being sure gasket (57) (see diagram) and O-ring (56) are properly in place. Tighten cap screws (58) uniformly to prevent leakage around the gasket.
4. Connect tool to air line and cycle ten times to fully circulate hydraulic system with oil.
5. With the tool connected to the air line, remove cap screw (16) being sure NOT to cycle the tool. Attach Cherry air bleeder 700A77 according to instructions included with the bleeder and purge system of air by cycling the tool until oil flow is free of air bubbles.
6. Remove air bleeder and allow excess oil to drain from the screw hole.
7. Reinstall cap screw (16) and Stat-O-Seal washer (15) and test tool for proper function by installing rivets.

NOTE: Steps 1 through 4 may be eliminated when replacing just a small amount of oil.

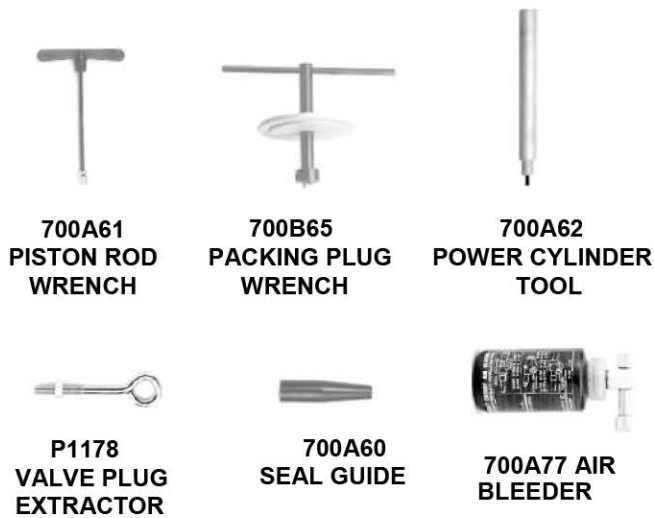
## Troubleshooting:

1. Check air line for correct pressure at the tool. It must be 90 to 120 psi.
2. Check the tool for lack of hydraulic fluid (see oil filling instructions).
3. Check for oil leakage.
  - a. Oil leaking around cap screw (16) in the head indicates that the screw is loose or washer gasket (15) needs replacing.
  - b. If oil should leak through the bypass hole at the base of handle (33), O-rings (18) are worn or damaged.
  - c. Oil leakage from the front of head (1) indicates that O-rings (2) are worn or damaged.
4. Check for excessive air leakage from the air bleed valve.
  - a. If spring (44) is broken or dislodged, replace per instruction on page 7.
  - b. If O-ring (49) on plug (50) is worn or damaged, replace.
  - c. If O-rings (45) on valve spool (63) are worn or damaged, replace.
5. Check movement of piston (4). If it does not move freely or is slow in operation:
  - a. O-rings (2), (5) or (7) may be damaged and require replacement.
  - b. Piston (4) may be mechanically locked due to damaged parts.
  - c. The power piston may be held off its seat on rod (41) allowing oil to bypass. Drain the tool, flush thoroughly, and refill with fresh fluid.
  - d. Muffler (51) or air filter inside the spool (63) may be plugged with dirt. Clean them thoroughly with normal solvent and back-blow with compressed air.
  - e. The hole in metering screw in valve spool (63) may be blocked or damaged. The hole diameter should be .028". Clear and size or replace the valve spool.
6. If the tool cycles repeatedly, even though the trigger has not been pulled, this indicates that the spring (44) which holds valve sleeve (43) is broken or dislodged. See air bleed valve instructions on page 7.
7. If the mandrel sticks in the pulling head:
  - a. Pulling head components need maintenance. Disassemble the pulling head, clean and replace worn parts. Reassemble following instructions on page 8.
  - b. There may be excess oil in front of the head piston. With the tool attached to the air line, remove the cap screw (16) and allow excess oil to run out. Replace the cap screw and tighten.
  - c. The mandrels are wedged side by side in ejector tube (3 or 10) from failure to eject the spent mandrel from tool prior to inserting the next rivet. Disassemble pulling head, clear ejector tube and reassemble following instructions on page 8.
8. If the mandrel breaks above designed break-notch:
  - a. Jaws (2) are not seating on mandrel properly due to wear. Replace if worn.
  - b. Jaws (2) are not seating properly due to worn jaw spring. Replace if spring is less than 2" long.

## Overhaul:

The disassembly and reassembly procedure can be accomplished by utilizing the following instructions and the drawings on pages 4 and 5. Use extreme care during disassembly and reassembly not to mar, nick, or burr any smooth surface that comes in contact with the O-rings. Before installing O-rings, be sure to apply a good rubber lubricant, such as Lubriplate®, to the surfaces. It is recommended that the special assembly tools shown here be used to facilitate overhaul.

Virtually all of the moving parts in this tool ride on O-rings, protected by backup rings where high pressure dictates. This means no metal to metal wear. By use of close tolerances and low micro inch surfaces against which the O-rings seal, a long life can be expected before any overhaul becomes necessary. At that time, a complete overhaul can be achieved by the use of Service Kit G743KS, which contains a complete set of O-rings, backup rings, screws, washers, and gaskets.



## Air Bleed Valve:

To disassemble, first disconnect the tool from its air source. Remove retaining ring (52) and muffler (51). Insert a 5/16-18" threaded rod or bolt into the end of the valve plug (50) and pull it out. Using the same procedure, pull out the spool (63).

NOTE: It should never be necessary to remove the valve sleeve (43) unless the ports in the sleeve are plugged up tightly from contaminated air. The O-rings on this sleeve are static and hence do not wear. If it is suspected that the ports are plugged up, use needle nose pliers to grasp the end of the spring (44), turning clockwise and pulling to dislodge it from the groove in the casting. With the spring removed, the valve sleeve (43) can be pulled out using an 837B10 valve sleeve removal tool.

To reassemble, reverse this procedure, being certain that all O-rings are properly lubricated before installation. The spring (44) is best installed using an 836B10 spring inserting tool to push the large diameter coil into the casting groove. This requires care, as the tool will not operate if this spring is not anchored firmly.

## Handle:

To inspect the air cylinder bore, remove only parts 26 through 30. Any further disassembly will require removal of the head assembly first.

For this complete disassembly, start by removing parts 26 through 30. Next, holding tool upright, remove four socket-head cap screws (58). Lift the head assembly from the handle (33) and set aside the O-ring (56) and gasket (57). Empty all hydraulic fluid into a container by pouring from the handle.

Place piston rod wrench 700A61 down into the top of the handle, then onto the hex head of the power piston (62). While holding this wrench, remove the conelock nut (25) using a 7/16" socket wrench. Still holding the piston rod wrench, remove the air piston (23) using packing plug wrench 700B65, by turning counterclockwise. When the air piston is completely freed from the piston rod, tap or push on the piston rod wrench to eject the piston from the bottom of the handle.

After the removal of the air piston, slide the piston rod (62) back up to the end of its travel. Using the packing plug wrench, remove the packing plug (20). It may be necessary to hold the handle upside down in a vise while loosening the packing plug. With the packing plug removed, the power cylinder (35) can be tapped out by lowering the power cylinder tool down into the top of the handle and onto the top of the cylinder. The O-rings and backup rings (17 and 18) are best removed (and replaced) by using a thin bent hook. (Care must be taken not to damage the O-ring grooves or cylinder).

## Head:

Always remove the complete pulling head from the tool before attempting disassembly of the head body.

Remove the end cap (11). The seal tube (9) comes out with the cap as it is held in place by two retaining rings (10). These need not be removed.

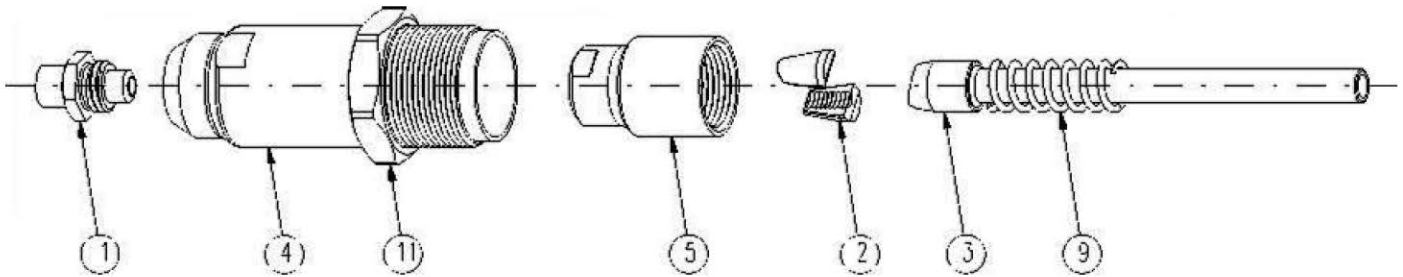
Push against the threaded end of the head piston (4) to slide it out of the head body (1). Be careful not to damage threads or cause burrs on polished piston rod surface. O-rings (2) and backup ring (3) can now be removed using a bent hook. O-rings (8) can be removed in the same manner.

Upon reassembly, be sure to install the O-rings and backup rings carefully to avoid cutting them. Also, always lubricate any O-rings with Lubriplate®. The reassembly sequence is the opposite of disassembly. This includes filling the handle (33) with hydraulic fluid before replacing the gasket (57) and O-ring (56), just prior to replacing the head assembly. (See oil filling instructions).

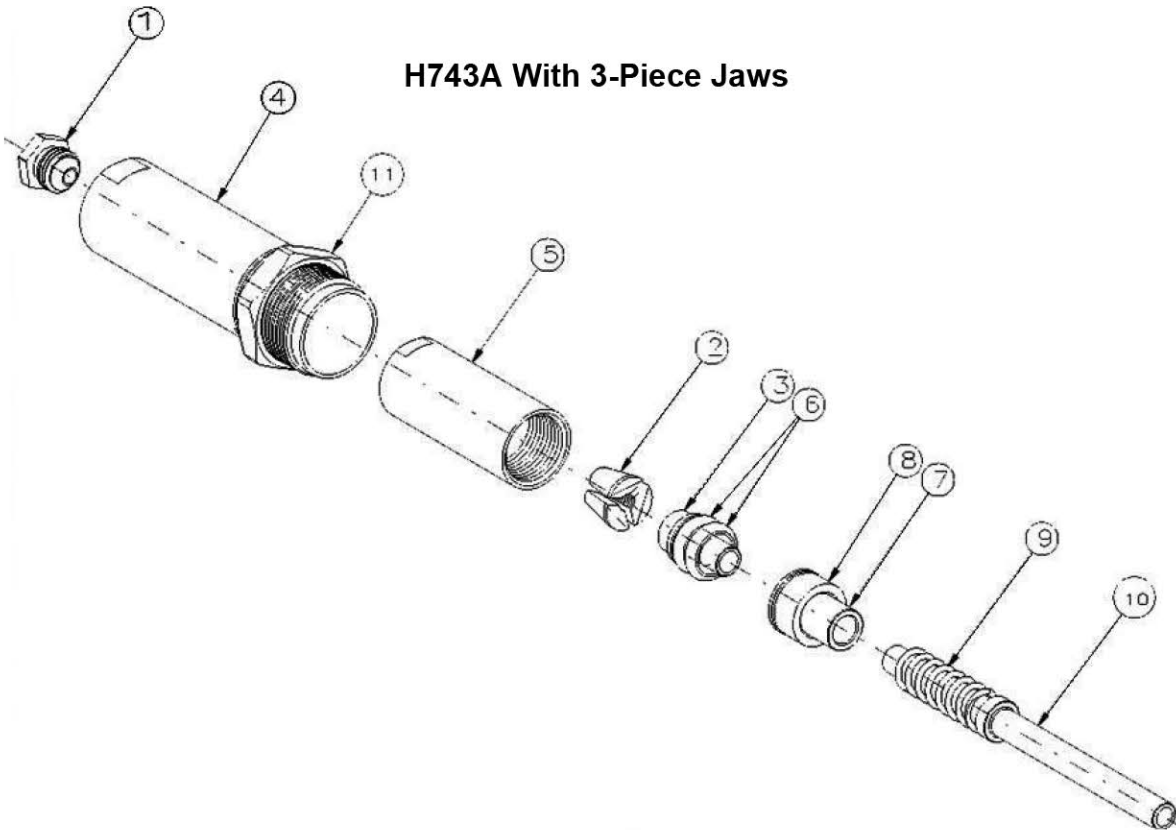
Tighten the four socket-head cap screws (58) uniformly to prevent leakage around the gasket. When assembled, purge the system of air by using Cherry air bleeder 700A77 according to instructions included with the bleeder. (See oil filling instructions).

## Installing the H703 and H743A Pulling Heads:

### H703



### H743A With 3-Piece Jaws



1. Connect the tool to the air supply. Without depressing the trigger, place the spring (9) over the tube (10 or 3) as shown, and insert as far as possible in head piston.
2. Place jaws (2) inside collet (5). Place 2 O-rings (6) over the jaw follower (3) and the cushion (8) over the spring follower (7). Assemble the jaw follower (3) and spring follower (7) and insert into the collet (5). Screw this assembly onto the head piston making sure the tapered end of the jaw follower (3) is properly aligned in bevel in back end of jaws (2).
3. Thread nosepiece (1) completely into sleeve (4) and place this assembly over the collet and jaw assembly. Screw sleeve (4) into end of head body while depressing the trigger. Tighten snugly.
4. Tighten jam-nut (11) securely.
5. These pulling heads will give long life if properly maintained. This includes keeping the head clean and dry and all the parts securely tightened. The only lubrication required is a little Lubriplate® inside the cone of the collet to assure a sliding action against the back of the jaws.
6. In case of damage or wear to pulling head parts, dismantle and replace with parts selected from the following list:



REF. NO.	QTY. REQ.	NOSEPIECE PART NUMBER USING LISTED PULLING HEADS		RIVET DIAM.	STYLE OF AVDEL® CHERRY COMMERCIAL FASTENER									
		H703	H743A		N RIVET	Q RIVET	C-M RIVET	T RIVET	MONO-BOLT	KT RIVET	G RIVET			
1	1	*728A9-3Z	-	3/32	ALL									
		*728A9-4	-	1/8	ALL	ALL								
		*728A9-104	-	5/32	ALL	ALL								
		*728A9-4	-	3/16			ALL							
		*72BA9-6	*743A7-5C6Z		ALL	ALL								
		*703A25-6T	*703A25-6T						BSPT					
		*703A25-6TA	*703A25-6TA						BAPTS					
		-	*743B35A							ALL			ALL	
		-	*743C53									ALL(1)		
		*728A9-6	743A7-5C6Z		1/4				ALL					
		-	743A7-8Z			ALL	ALL							
		-	*743A25-8T							BSPT				
		-	*743A25-8TA							BAPTS				
		-	*743B32A							ALL			ALL	
		-	*743C51									ALL(1)		
		4	1	*703B7		743B91	SLEEVE							
11	1	*743A18	*743A18	JAM NUT										
5	1	*703A8	743B92	COLLET										
2	1 SET	*728B4 (2PC)	743C55 (3PC)	JAWS										
3	1	743A8-8Z	743B93	JAW FOLLOWER										
6	2	-	P1195	O-RING										
8	1	-	743A95	CUSHION										
7	1	-	743B94	SPRING FOLLOWER										
9	1	732A8	732A8	JAW SPRING										
10	1	-	743A14-8Z	EJECTION TUBE										

\* MUST BE ORDERED SEPARATELY

1- REQUIRES (2) PULLING STROKES TO SET RIVET.

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**WARRANTY**

Seller warrants the goods conform to applicable specifications and drawings and will be manufactured and inspected according to generally accepted practices of companies manufacturing industrial or aerospace fasteners. In the event of any breach of the foregoing warranty, Buyer's sole remedy shall be to return defective goods (after receiving authorization from Seller) for replacement or refund of the purchase price, at the Seller's option. Seller agrees to any freight costs in connection with the return of any defective goods, but any costs relating to removal of the defective or nonconforming goods or installation of replacement goods shall be Buyer's responsibility. SELLER'S WARRANTY DOES NOT APPLY WHEN ANY PHYSICAL OR CHEMICAL CHANGE IN THE FORM OF THE PRODUCT IS MADE BY BUYER.

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Seller shall not be liable under any circumstances for incidental, special or consequential damages arising in whole or in part from any breach by Seller, AND SUCH INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES ARE HEREBY EXPRESSLY EXCLUDED.

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