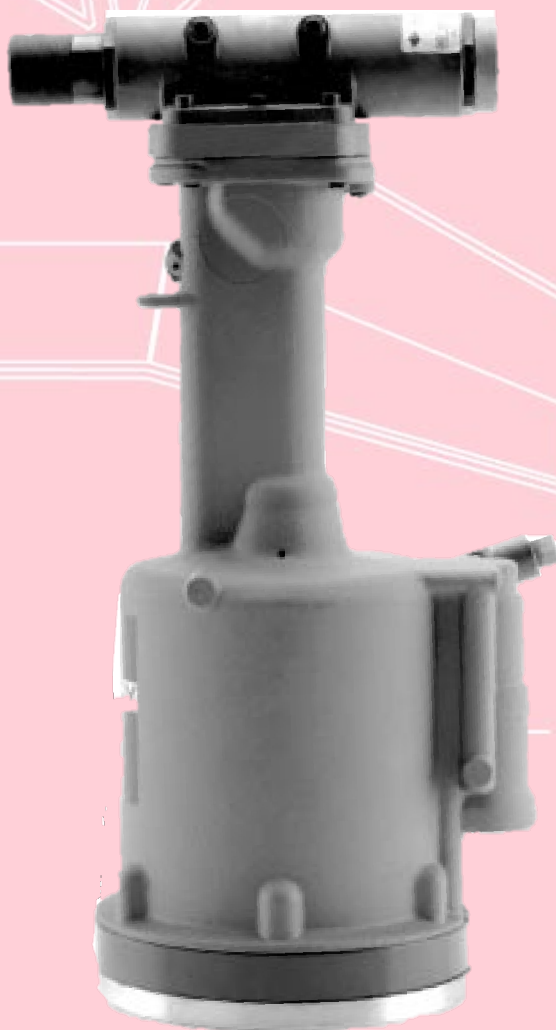


ORIGINAL INSTRUCTIONS

# G689

Hydro-Shift CherryLOCK® Riveter



**CHERRY®**  
AEROSPACE

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# THE G689 HYDRO-SHIFT RIVETER

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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.

**THE FOREGOING EXPRESS WARRANTY AND REMEDY ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES; ANY IMPLIED WARRANTY AS TO QUALITY, FITNESS FOR PURPOSE, OR MERCHANTABILITY IS HEREBY SPECIFICALLY DISCLAIMED AND EXCLUDED BY SELLER.** THIS WARRANTY IS VOID IF SELLER IS NOT NOTIFIED IN WRITING OF ANY REJECTION OF THE GOODS WITHIN ONE (1) YEAR AFTER INITIAL USE BY BUYER OF ANY POWER RIVETER OR NINETY (90) DAYS AFTER INITIAL USE OF ANY OTHER PRODUCT.

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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# THE G689 HYDRO-SHIFT RIVETER

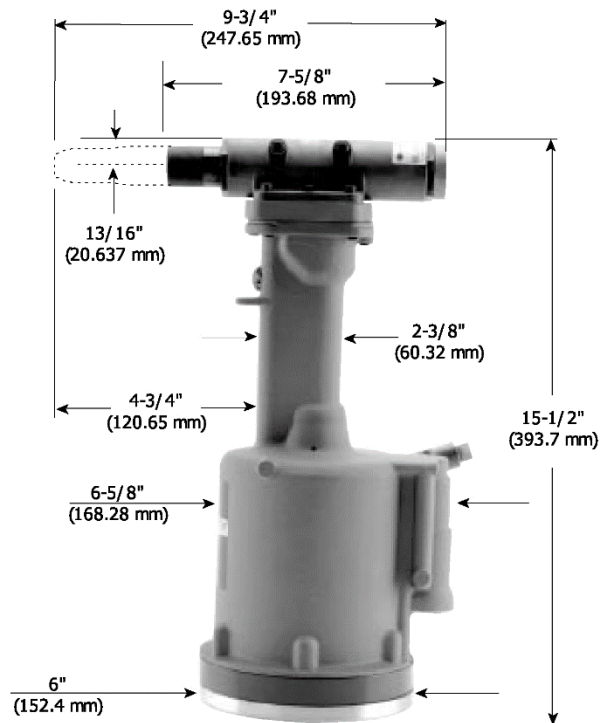
## DESCRIPTION

- The Cherry G689 Hydro-Shift Riveter is a heavy duty pneumatic-hydraulic tool designed specifically for the installation of all CherryLOCK® Rivets. The G689 is recommended primarily for 1/4" diameter CherryLOCK® rivets. It can be used to install all diameters and lengths as indicated on the tool capacity charts. Its durable, all metal housing makes this tool very robust for use in a shop environment.
- This powerful tool has been designed with many ergonomic features: low recoil, low noise and a comfortable fit in the operator's hand.
- The H681 Series pulling heads fit directly on this tool to install both bulbed and standard NAS type 2000 Series CherryLOCK® Rivets. With the proper adapters and pulling heads, this tool can install other types of rivets. See the section on "Pulling Heads" for correct pulling head and adapter part numbers.


## SPECIFICATIONS FOR G689

CHERRY® Aerospace's policy is one of continuous development. Specifications shown in this document may be subject to change which may be introduced after publication. Contact us for the latest information.

AIR PRESSURE	90 to 110 PSI (6,2 bar to 7,6 bar) Max.
STROKE	1.475 inch (37,47 mm)
PULLING FORCE	3,800 lbs. (16,9 kN) @ 90 PSI (6,2 bar),
WEIGHT	12.85 lbs. (5,90 kg)
NOISE LEVEL	74.1 dB (A)
VIBRATION	less than 2.5 m/s <sup>2</sup>
AIR CONSUMPTION	.50 SCF/cycle (14.2 L/cycle)



## GENERAL OPERATION and SAFETY WARNINGS

	<ul style="list-style-type: none"> <li>Wear proper PPE (<i>Personal Protection equipment</i>) when operating, servicing or repairing this tool</li> </ul>
	<ul style="list-style-type: none"> <li>Read Manual; operators must be trained in safety and correct tool operation</li> </ul>
	<ul style="list-style-type: none"> <li>Service and repairs shall be performed only by trained personnel.</li> </ul>
	<ul style="list-style-type: none"> <li>Do not pull rivet in the air or directed at any person.</li> </ul>
	<ul style="list-style-type: none"> <li>Do not use the tool with a damaged or missing stem deflector</li> </ul>
	<ul style="list-style-type: none"> <li>Rotate the Stem Deflector facing away from the operator or critical aircraft structure; use a Stem Catcher if possible.</li> </ul>
	<ul style="list-style-type: none"> <li>Do not pound on the rear of the tool head to force rivets into holes.</li> </ul>
	<ul style="list-style-type: none"> <li>Make sure that the air muffler is not obstructed and is directed away from people.</li> </ul>
	<ul style="list-style-type: none"> <li>Do not exceed the recommended air pressure. To ensure safety, use the pre-set air pressure regulator P/N P1505.</li> </ul>
	<ul style="list-style-type: none"> <li>Make sure to disconnect from the air supply before service or repair.</li> </ul>
	<ul style="list-style-type: none"> <li>Wash thoroughly after handling hydraulic fluid.</li> </ul>
	<ul style="list-style-type: none"> <li>Unauthorized modifications, including using substitute components will void warranty and shall be at the customer's entire responsibility.</li> </ul>
	<ul style="list-style-type: none"> <li>Do not use any substitutions as they will impact the tool safety and reliability life.</li> </ul>



## OPERATING INSTRUCTIONS

### Before using the tool:

### **CAUTION**

- Read the tool manual instructions; before first using the tool.
- Read and comply to all safety instructions given in this document in addition to the general safety rules applicable
- Make sure the tool is connected to an air source operating within the recommended pressure range
- Before installing the permanent fasteners, make sure that the structure is properly clamped with temporary fasteners
- Make sure that the correct pulling head is selected for the fastener to be installed and that the tool is in good working condition
- Do not depress the trigger while disconnecting the air bleeder and replacing the cap screws (39) when bleeding the tool.
- Do not release the trigger after installing a CherryLOCK® rivet until the tool is positioned away from the structure or personnel. Upon release of the trigger the stem will eject from the front of the pulling head with moderate force.

## HOW TO USE THE G689

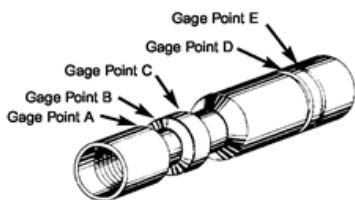
- Select the proper pulling head according to the tables below and attach it securely to the G689.
- Connect the tool to an pressurized airline and make sure the tool is properly setup for the fastener to be installed.
- Insert the rivet into the hole prepared in the structure and place the pulling head over the rivet stem, pushing the tool until the pulling head is in contact with the rivet head. Caution: make sure the tool is perpendicular to the structure!
- Push the trigger; after the stem breaks do not release the trigger!
- Point the tool toward an appropriate FOD container and release the trigger; the stem will eject via the front of the tool.

## TOOL SET-UP AND ADJUSTMENTS

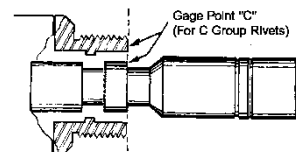
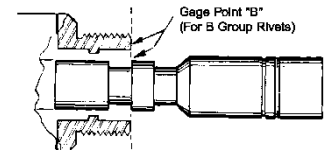
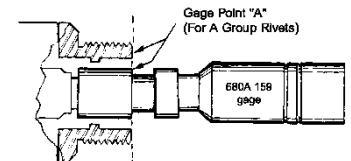
### SHIFT POINT SETTING

- This adjustment adjusts the stem break flushness of the installed fasteners.
- Before adjusting, make sure to remove the Pulling Head and the Sleeve Cap; also connect tool to a pressurized air source.

Use setting gage 680A159 (included) to make adjustments as described below:

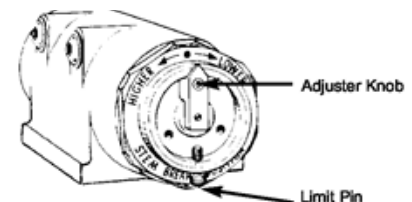


1. Thread the small end of setting gage (P/N 680A159) onto the head piston (16) until hand-tight.
2. Depress and hold trigger; observe the final position of the gage; make sure that the correct Gage surface (A, B or C) is flush with the front of the tool as shown on the right.
3. If it is necessary to change the shift point, first remove the limiting screw (34) so the Adjuster Knob (36) can be rotated freely. Rotate the Knob 6 turns and then check the shift point setting using the Setting Gage (P/N 680A159). Gage surface B should be aligned with the front of the tool.
4. To adjust for the C setting, rotate another 6 turns (for a total of 12 turns from the A setting). Make sure to check the final shift point position with the gage. Finetune as necessary and reassemble the limiting screw (34).



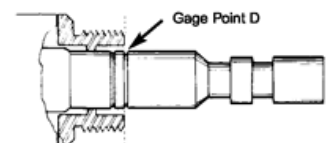
### To fine-tune the stem break position, turn the adjuster knob (39):

- Clockwise to increase gage protrusion (lower stem break)
- Counterclockwise to decrease gage protrusion (higher stem break).
- Cycle the tool after each adjustment and check the gage point; the adjustment is limited by the construction of the tool to 1/2 turn from the initial position.

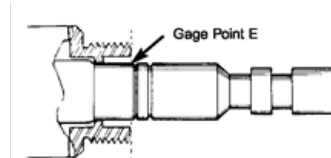


### SHIFT PISTON TRAVEL CHECK

- Push the larger (unthreaded) end of 680A159 gage over the head piston until seating it inside of the riveter as shown in the schematic in the right.
- Initially the gage point D on the setting gage must align to the front of the tool



- Depress the trigger, while pushing the gauge onto the piston; at the end of the cycle, the gage should be pushed out exposing line E off the front of the tool. Should the shift piston overshoot this line, the tool is perfectly functional and there is nothing to worry about.
- Hold the trigger for a few minutes to make sure that the piston does not drift back; if it does, the tool is not in working condition and must be serviced.



## HOW TO USE THE G784

- Select the proper pulling head for the diameter and type of fastener to be installed and attach it securely to the tool (see table below).
- Insert the rivet into the prepared hole in the structure.
- Push the pulling head onto the rivet stem, pushing the tool forward the front of the tool contacts the head of the rivet.
- While keeping the tool coaxial with the fastener, activate the trigger;
- Eject the broken stem via the front of the tool upon release of the trigger.

### PULLING HEAD SELECTION

- This Double Action Riveter is recommended primarily for 1/4" diameter CherryLOCK® rivets. However, using the H681 Series Pulling Heads it can be used to install all diameters and lengths of CherryLOCK® rivets as indicated below.
- Pulling heads are not delivered with the tool and must be ordered separately.
- Make sure the pulling head is kept clean, especially at the front active area as adhesives, chips and sealants will clog up the tool and cause malfunction.

STANDARD CHERRYLOCK® (NAS1398 & NAS1399)							
PULLING HEAD	RIVET DIA.	ALUMINUM		MONEL		CRES	
		CR2163	CR2164 CR2162 CR2262	CR2563	CR2562  CR2564	CR2643 CR2663 CR2663	CR2642 CR2652 CR2662 CR2664
		UNIV. HEAD	CTSK. HEAD	UNIV. HEAD	CTSK. HEAD	UNIV. HEAD	CTSK. HEAD
H681-3C	-3	-	-	-	-	ALL	ALL
H681-4C	-4	ALL	ALL	ALL	ALL	ALL	ALL
H681-5C	-5	ALL	ALL	ALL	ALL	ALL	ALL
H681-6C	-6	ALL	ALL	ALL	ALL	ALL	ALL
H681-8C	-8	ALL	ALL	ALL	ALL	ALL	ALL

OTHER PULLING HEADS THAT WILL FIT THIS TOOL					
PULLING HEAD P/N	TYPE	ADAPTER	RIVET	RIVET	
				DIAMETER	GRIP
H9015	Straight	680B46	MS	3/32, 1/8, 5/32, 3/16	ALL
H9055	Straight	680B46	CherryLOCK "A", MS Rivets	3/32, 1/8, 5/32, 3/16	ALL
H9040	Straight	680B57	MS Rivets	1/8, 5/32, 3/16, 1/4	ALL
H781-456	Rt. Angle	680B205	CherryMAX®	1/8, 5/32, 3/16	ALL
H753A-456	Rt. Angle	680B205	CherryMAX	1/8, 5/32, 3/16	ALL
H680B200A	Straight	-	CherryMAX	1/8, 5/32, 3/16	ALL
H680B208	Straight	-	CherryMAX	1/4	ALL

BULBED CHERRYLOCK® (NAS1738 & NAS1739)							
PULLING HEAD	RIVET DIA.	ALUMINUM		MONEL		INCONEL	
		CR2235 CR2239	CR2238	CR2539	CR2538	CR2839	CR2838
		CR2245 CR2249	CR2248	CR2545	CR2540	CR2845	CR2840
		UNIV. HEAD	CTSK. HEAD	UNIV. HEAD	CTSK. HEAD	UNIV. HEAD	CTSK. HEAD
H681-4C	-4	ALL	ALL	ALL	ALL	ALL	ALL
H681-5C	-5	ALL	ALL	ALL	ALL	ALL	ALL
H681-6C	-6	ALL	ALL	ALL	ALL	ALL	ALL

## INSTALLING H681 SERIES PULLING HEADS ON RIVETER

- Remove knurled cap (A) from front of riveter head.
- Place jaw assembly (D) inside collet (C).
- Insert spring end of jaw assembly into hole in head piston (14). Apply enough pressure to engage collet threads. Turn until collet (C) bottoms on shoulder of head piston and collet lock snaps into slot in head piston. Hand tighten. NOTE: To remove collet, push collet lock back into collet using a blunt tool while turning collet counterclockwise.
- Place sleeve assembly (B) over collet and head piston. Slip knurled cap (A) over the sleeve assembly and hand tighten onto end of riveter head. Extensions for the H681 pulling heads can be ordered in lengths of 2", 6", 12" and 24".



## RIVETER REPAIR AND MAINTENANCE

This riveter has been manufactured to give maximum service with minimum care.

In order to keep the tools in optimum operating condition, it is advisable to set-up a Preventive Maintenance check list including, at a minimum, the following:

- Visually inspect the tool to make sure it is in good working condition and there are no fluid leaks
- Make sure the tool is bled regularly (page 15)
- Check the service sticker due date; service the tools on a regular basis.

Should repair or service be necessary, follow the instructions given below.

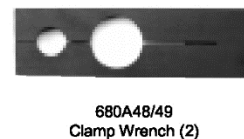
### ⚠ CAUTION ⚠

- Read the tool manual instructions; it is advised that repair is conducted only by properly trained personnel.
- Make sure the air is disconnected.
- Protect the internal tool sealing surfaces to avoid damage.

### THE G685KT TOOL KIT

#### OVERHAUL

- The instructions below describe the disassembly and assembly processes during tool service and repair.
- Use the tools found in kit G685KT to correctly service this tool (sold separately)
- Before servicing the tool, make sure that service kit G689KS (which contains a complete set of O-rings, Back-up rings, Screws, Washers and Gaskets (sold separately) is available.
- Apply an O-ring lubricant prior to reassembling O-Rings. Caution: use care handling the tool not to scratch or damage any of the sealing surfaces!



#### SERVICING THE AIR VALVE SUB-ASSEMBLY

- Make sure the tool is disconnected from the pressurized air-source.
- Remove retaining ring (81) and muffler (80). Insert a valve plug extractor (P-1178) or a 5/16-18 threaded rod or bolt into end of valve plug (79) and pull it out. Using the same procedures, pull out valve spool sub-assembly (93).
- Muffler (80) inside valve spool sub-assembly (93) may be plugged with dirt. Clean it thoroughly with normal solvent and back-blow with compressed air. NOTE: It should not be necessary to remove valve sleeve (72) unless the ports in the sleeve have become plugged from contaminated air. The O-rings on this sleeve are static and therefore are not subject to wear. If it is suspected that the ports are plugged, use needle nose pliers to grasp end of spring (73), turn clockwise and pull to dislodge from groove in handle. With spring removed, the valve sleeve (72) can be pulled out using the valve sleeve removal tool (837B530).
- To reassemble, reverse the above procedures; make sure that all O-rings are properly lubricated. To avoid damaging the O-rings, carefully install sleeve (72) using one's fingers. Gently push and wiggle sleeve to allow O-rings to slip past inner ports. Spring (73) is best installed using a valve spring installation tool (836B530) to push the large diameter coil into the groove. This requires care as the G689 will not operate if this spring (73) is not anchored firmly.



## HEAD SUB-ASSEMBLY

- Make sure that the tool is disconnected from the pressurized air and remove the pulling head from the tool
  - Remove the five socket head cap screws (89) and socket head cap screw (90). Lift head assembly from the handle (61). Remove O-rings (40), adapter (86), O-ring (87) and gasket (88). Empty the oil into a container by pouring it from the handle.
  - Remove cap screws (39) and Stat-O-Seals (38) and drain the hydraulic system. Dispose of the oil according to environmental regulations.
  - Make sure to have a flat surface with a good vise with soft jaws available. Place the head cylinder (13) in the vise with the front end cap (3) of the head cylinder (13) up. Tighten the vise securely.
  - Use the end cap socket wrench (680A173) and improvise a handle extension to 26-28". The end caps on the head cylinder have thin hex flats and a standard socket will slip over the hex corners. The end caps on the head cylinder (13) are factory tightened with a torque wrench from 150 to 180 ft.-lbs. (203 to 244 N-m) The expected breakaway torque is about 180 ft.-lbs. (244 N-m).
  - Remove the front-end cap (3) from the head cylinder (13). Remove the four piston stops (7).
  - Place the head cylinder (13) in the vise so that the rear end cap (29) can be removed from the head cylinder (13).
  - Remove the adjuster knob (36) by first removing the socket head cap screw (34) using a 3/32 hex key.
  - Remove the adjuster ring (35) by removing the other socket head cap screw (34).
  - Remove the rear end cap (29) from the head cylinder (13). The following parts will come out with it: socket head cap screw (33), index washer (32), release piston sub-assembly (28), shift screw (26), shift stop (22), and retaining ring (25).
  - Push on the head piston (14). This will allow the shift piston sub-assembly to be removed from the rear of the head cylinder (13). The shift piston sub-assembly includes the following parts: piston cap (8), O-ring (9), backup ring (10), O-ring (11), head piston (14), O-ring (15), back-up ring (16), valve spring (17), valve stem (18), O-rings (19 and 20), valve seat (21), shift stop (22), piston spring (23), and shift piston (24).
- NOTE: Valve parts (18), (21) and (22) are matched pairs and must be kept together or replaced together (P/N 680A80).

### To disassemble the Shift Piston Subassembly:

- Insert the shift piston sub-assembly into the large hole of clamp wrench (680A48/49), locating on a polished surface. Tighten the wrench's cap screws securely so that the shift piston sub-assembly cannot turn in the clamp.
- Place the clamp wrench (680A48/49) in a vise with the shift piston sub-assembly upward.
- Use the second clamp wrench (680A48/49) on the piston cap (8). Place the small hole of the clamp wrench over the piston cap (8) and tighten the cap screws on the wrench to prevent slipping.
- Place shift piston tool (700A63) over the threads and against the shoulder of the head piston (14).
- When removing the piston cap (8), push firmly on the shift piston tool (700A63) to depress the head piston (14) and overcome the tension created by the piston spring (23). Caution! The spring will pop out suddenly.
- Remove the valve seat (21) with an 11/16" wrench. Remove the valve stem (18) by pushing from front of the valve seat (21). Remove the valve spring (17).

### To disassemble the End Cap Sub-Assembly:

- Using a 5/32 hex key, turn the button head cap screw (33) counterclockwise until it stops.
- Remove retaining ring (25) from inside of release piston sub-assembly with a sharp or pointed instrument.
- With a 5/32 hex key in the same button head cap screw (33) turn clockwise until the shift stop (22) loosens from the release piston subassembly (28). Place a 3/16 hex key in the end of the shift screw (26) and a 5/32 hex key in the button head cap screw (33).
- Apply a force on both hex keys until the button head cap screw (33) is loose; remove the screw (33) and index washer (32).
- Push the shift screw (26) out of the release piston sub-assembly (28). It may be held tightly by O-ring (27).
- Remove the release piston sub-assembly (28) from the rear cap (29) and check the small hole in the release piston sub-assembly for debris. If the small hole is clogged, back-blow with compressed air. Upon re-assembly, reverse the above procedures. Make sure to protect the seals from the threaded components using the seal guides provided with the tool kit. Before placing the head subassembly onto the handle see the Fill & Bleed Instructions.
- Insert release piston sub-assembly (28) into rear cap (29), making sure index pin in release piston sub-assembly (28) drops into recess in rear cap (29).
- Insert shift screw (26) into the release piston sub-assembly (28). Slip index washer (32) onto button head cap screw (33). Engage threads of button head cap screw (33) with shift screw (26) and firmly tighten. Then turn button head cap screw (33) counterclockwise to retract shift stop (22) fully into release piston (26). Ensure that the hex of the shift stop (22) is aligned with the hex of the release piston sub-assembly (28).
- Install piston cap (8) onto piston (14), threading seal guide tool (680A114) on piston (14) to avoid damaging the O-rings as piston cap (8) is threaded into place.
- Hold the Shift Piston (24) using the large hole of Clamping Wrench (680A48/49), being careful not to mar the piston. Insert piston spring (23) and while compressing it, turn piston cap sub-assembly (8 and 14) into place with the help of the Clamping Wrench (680A48/49) and firmly tighten.
- Insert the Shift Piston assembly (24) into front of Head Cylinder (13) and thread on rear cap (29). Insert the four piston stop pins (7), choosing every other hole. Thread on front end cap (3). Place head assembly in smooth jawed vise, clamping on hex of rear cap (29),



with front end cap (3) upward. Using the end cap socket wrench (680A173) and a handle extension, tighten front end cap (3) to 150-180 ft.-lbs. (203 to 244 Nm) torque.

- Replace adjuster ring (35), socket head cap screw (34), adjuster knob (36), and then the other socket head cap screw (34) onto the back of the rear cap (29).
- Just before placing the head sub-assembly onto the handle, see Fill and Bleed Instructions. Also make sure to place O-rings (40) on top of adapter (86), O-ring (87) and gasket (88) on the top of the handle, and that they are properly oriented.
- Tighten the five socket head cap screws (89) and one socket head cap screw (90) uniformly to prevent leakage around the gasket. Be sure screw (90) is in the rear center hole.
- Purge system of air using Cherry air bleeder (700A77) according to Fill & Bleed instructions.

## HANDLE SUB-ASSEMBLY

- Disconnect tool from the pressurized airline then use the following procedures.
- Hold the tool upright and remove five socket head cap screws (89) and one (90) using a 5/32 hex key. As adapter (86) is removed, hold upper portion of tool over a pan to catch oil which will run out. Drain oil from head and inside of handle. Dispose of oil according to environmental regulations.
- Remove gasket (88) and O-ring (87).
- Remove six flat head screws (58) from base using a 3/16" hex key, and, using a screwdriver, carefully pry handle base (57) out of handle (61). Remove spacer (54) and gaskets (53).
- With the tool upright, remove retaining ring (62) from the top of the power cylinder (63). Use piston rod wrench (530A86) to push power piston and rod sub-assembly (92) down.
- Turn the tool upside down. The cotter pin (51) should now be accessible. Remove the cotter pin (51) and engage the top of the power piston and rod sub-assembly (92) with piston rod wrench (530A86) and remove slotted nut (50) using a 9/16" wrench. Unscrew power piston and rod sub-assembly (92) until it disengages from the air piston (49).
- Insert threaded end of power cylinder tool (530A88) into bottom of air piston (49). Using this as a handle, pull air piston out of the bottom of the tool. Thread seal guide (530A81) onto the end of power piston and rod sub-assembly (92) and push out through top.
- Using packing plug wrench (530A83-3) together with a 1-1/4" socket wrench, remove packing plug (46) and lift out the exposed O-Ring (45). Insert power cylinder tool (530A88) into top end of power cylinder (63) and force power cylinder with O-rings (64) out the bottom of the tool.
- To reassemble the handle, reverse the above procedures, making sure to secure the head assembly by tightening each one of the six cap screws (89 and 90) evenly. Making sure that screw (90) is at rear center.
- Most important, to prevent damage to piston threads, the above assembly instructions must be followed and the slotted nut (50) tightened between 50-59 in-lb (5.65-6.67 N-m) of torque.

## TROUBLESHOOTING

1. Check the air pressure: it must be within the range of 90 to 110 psi (6,2 to 7,6 bar).
2. Check for oil leakage:
  - Oil leaking around the cap screws (39) in the head indicates that the screws are loose or the Stat-O-Seals (38) need replacing.
  - If oil should leak through the by-pass hole at the base of the handle (61) the O-rings (64) are worn or damaged.
  - Oil leaking from the front of the head (13) indicates that O-rings (5 and 11) are worn or damaged; replace.
3. Check for excessive air leakage from the air valve:
  - If spring (73) is broken or dislodged, air will bleed directly through the bottom of the air valve and the head piston retreats to its full stroke without returning. See air valve instructions on Page 5.
  - If O-ring (78) on valve plug (79) is worn or damaged, replace.
  - If O-rings (74) on valve spool (75) are worn or damaged, replace.
4. Check movement of head piston (14). If it does not move freely or is slow in operation:
  - Valve stem (18) may be held off its seat (21) by contaminants, allowing oil to by-pass. Drain tool, flush thoroughly and refill with new oil.
  - O-rings (15) or (66) may be damaged and require replacement.
  - Head piston (14) may be mechanically locked due to damaged parts.
  - Muffler (80) or air filter (76) inside valve spool sub-assembly (93) may be plugged with dirt. Clean them thoroughly with normal solvent and back-blow with compressed air.
  - Hole in metering screw (77) in valve spool sub-assembly (93) may be blocked or damaged. Hole diameter should be .028" (.7112 mm). Clear and size or replace valve spool sub-assembly (93). Valve spool (75), metering screw (77) and filter (76) are not sold separately.
5. Check movement of shift piston (24). If it does not move freely:
  - The small hole in release piston sub-assembly (28) may be plugged preventing oil flow. Drain gun, flush thoroughly and refill with fresh oil. See Fill and Bleed instructions.
  - Hole through valve stem (18) may be plugged by contaminants. Drain gun, flush thoroughly and refill with fresh oil.
  - Pulling head components may need maintenance. Disassemble the pulling head, clean and replace worn parts. Re-assemble following instructions on page 10.

## CROSS SECTION DRAWING G689

## PART LIST FOR THE G689 (689D1) HYDRO-SHIFT RIVETER

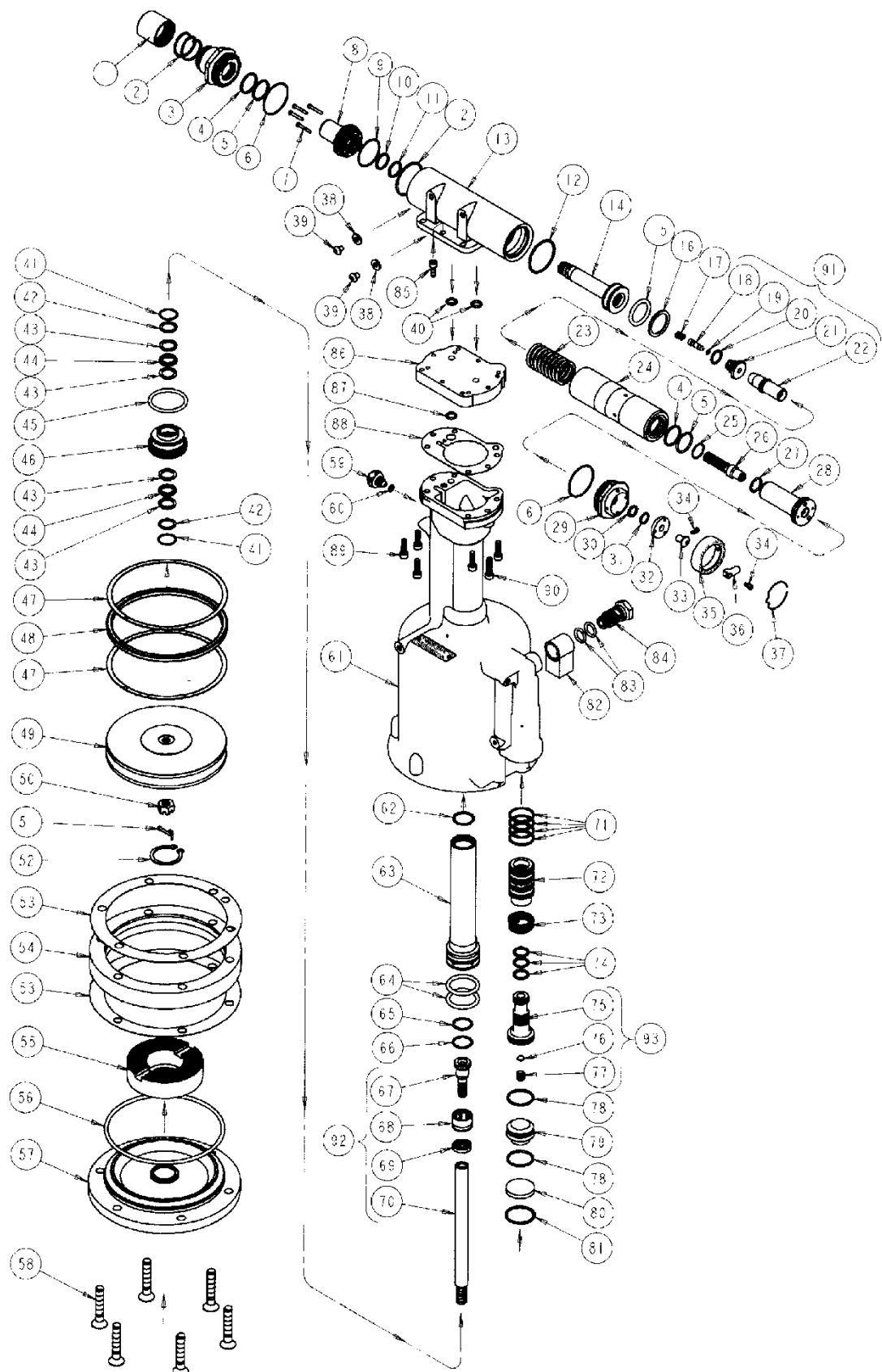
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	680A103	CAP, SLEEVE	1
2	680A105	SPRING	1
3	680B107	CAP, FRONT	1
4	P-906	RING, BACK-UP (.874, .768, .053)	2
5	P-826**	O-RING, DISOGRIN (.879, .739, .070)	2
6	P-903**	O-RING, DISOGRIN (1.254, 1.114, .070)	2
7	680A21	STOP, PISTON	4
8	680B110	CAP, PISTON	1
9	P-266	O-RING (1.191, 1.051, .070)	1
10	P-883	RING, BACK-UP (.686, .580, .053)	1
11	P-828**	O-RING, DISOGRIN (.691, .551, .070)	1
12	P-904**	O-RING, DISOGRIN (1.441, 1.301, .070)	2
13	680C71	BODY, HEAD	1
14	680B153	PISTON, HEAD	1
15	P-901**	O-RING, DISOGRIN (1.137, .859, .139)	1
16	P-210	RING, BACK-UP (1.117, .875, .121)	1
17	680A111	SPRING, VALVE	1
91	680A80 SUB-ASSEMBLY, VALVE		
	18	680A20*	STEM, VALVE 1
	19	P-706	O-RING (.192, .116, .038) 1
	20	P-298	O-RING (.566, .426, .070) 1
	21	680A18*	SEAT, VALVE 1
	22	680A77*	STOP, SHIFT 1
23	680A79	SPRING, PISTON	1
24	680C72	PISTON, SHIFT	1
25	P-768	RING, RETAINING (INT. 0.625)	1
26	680A109	SCREW, SHIFT	1
27	P-830**	O-RING, DISOGRIN (.629, .489, .070)	1
28	689A108	SUB-ASSEMBLY, RELEASE PISTON	1
29	680B93	CAP, REAR	1
30	P-829**	O-RING, DISOGRIN (.504, .364, .070)	1
31	P-905	RING, BACK-UP (.485, .375, .055)	1
32	680A92	WASHER, INDEX	1
33	P-554	SCREW, BUTTON HD. CAP, 1/4-28 X 3/8	1
34	P-356	SCREW, SOC. HD. CAP, 4.40 X 1/4	2
35	680A112	RING, ADJUSTER (IN CLUDES 680A112-2)	1
36	680A113	KNOB, ADJUSTER	1
37	680A112-2	SPRING, FRICTION	1
38	P-5725	STAT-O-SEAL (.430, .180, .12	2
39	P-573	SCREW, BUTTON HD. SOC., 10-32 X 1/4	2
40	P-827**	O-RING, DISOGRIN (.301, .441, .070)	2
41	P-204	RING, RETAINING (INT. 0.687)	1
42	530-A21-3	WASHER	2
43	P-213	RING, BACK-UP, (.676, .500, .088)	4
44	P-215	RING, QUAD (.693, .487, .103)	2
45	P-196	O-RING (1.574 1.296, .139)	1
46	530B14	PLUG, PACKING	1

#	PART NUMBER	DESCRIPTION	QTY
47	P214	RING, BACK-UP (4.745, 4.375, .185)	2
48	P222	RING, QUAD (4.770, 4.350, .210)	1
49	530B15	PISTON, AIR	1
50	P302	NUT, SLOTTED 3/8-16	1
51	P301	PIN, COTTER, 3/32 DIA. X 3/4	1
52	P537	RING, RETAINING (EXT. 0 1.125)	1
53	689B8	GASKET	2
54	689B7	SPACER	1
55	530B92	CUSHION, BONDED	1
56	P-197	O-RING (4.762, 4.484, .139)	1
57	530C141	BASE, HANDLE	1
58	P896	SCREW, FLAT HD. CAP, 5/16-18 X 1-3/4	6
59	703A33	SUB-ASSEMBLY, TRIGGER (INC. P-896)	1
60	P223	O-RING (.285, .145, .070)	1
61	689R3	HANDLE	1
62	P897	RING, RETAINING (INT. .812)	1
63	689B4	CYLINDER, POWER	1
64	P910**	O-RING, DISOGRIN (1.324, 1.046, .139)	2
65	P270	RING, BACK-UP (.776, .670, .053)	1
66	P268	O-RING (.816, .676, .070)	1
92	689A5 SUB-ASSEMBLY, POWER PISTON AND ROD		
67	560A65	CAP, PISTON ROD	1
68	560A64	PISTON, POWER	1
69	560A63	STOP, PISTON	1
70	689A6	ROD, POWER PISTON	1
71	P848	O-RING, (.941, .801, .070)	4
72	530B179	SLEEVE, VALVE	1
73	530A178	SPRING	1
74	P701	O-RING (.692, .489, .070)	1
93	530B143 SUB-ASSEMBLY, VALVE SPOOL		
75	530B143-1*	SPOOL, VALVE	1
76	700A18*	FILTER	1
77	700A69*	SCREW, METERING	1
78	P244	O-RING (1.066, .926, .070)	2
79	530A144	PLUG, VALVE	1
80	530A145	MUFFLER	1
81	P699	RING, RETAINING (INT. 0 1.125)	1
82	530A34	SWIVEL	1
83	P195	O-RING (.630, .424, .103)	2
84	530B35	BOLT, SWIVEL	1
85	P91	SCREW, SOC. HD. CAP. 10-24 X 1/2	6
86	680C27	ADAPTER	1
87	P194	O-RING (.441, .301, .070)	1
88	530B8	GASKET, HEAD	1
89	P73	SCREW, SOC. HD. CAP. 10-24 X 5/8	5
90	P64	SCREW, SOC. HD. CAP. 10-24 X 3/4	1

\*These parts cannot be purchased separately.

\*\* No Substitutions.

EXPLODED VIEW OF G689



# PRIMING THE HYDRAULIC SYSTEM

## RECOMMENDED HYDRAULIC FLUID

The riveter is supplied with **Dexron® III ATF type “A”**.

<i>Specific gravity:</i>	0.863
<i>Weight per gallon:</i>	7.18 lbs.
<i>Open flash point:</i>	>200°C (392°F)














## COMPATIBLE ALTERNATE FLUIDS

- **Automatic Transmission Fluids:** DEXRON IV, MERCON, Allison C4 or equivalent.
- **Hydraulic Fluids:** Hyspin® VG32 , Aeroshell fluid 4

## ⚠ CAUTION ⚠

- DO NOT MIX DIFFERENT TYPES OF HYDRAULIC OILS AND TRANSMISSION; HYDRAULIC AND TRANSMISSION FLUIDS ARE NOT COMPATIBLE, DIFFERENT TYPES OF FLUIDS MAY NOT BE COMPATIBLE WITH EACH OTHER.
- PHYSICAL PROPERTIES AND MATERIAL SAFETY DATA SHEETS FOR DIFFERENT FLUIDS MAY DIFFER FROM THE ONE GIVEN BELOW, BUT THE SAFETY INFORMATION STILL APPLIES; CHECK WITH THE FLUID MANUFACTURER FOR ADDITIONAL MSDS AND SPECIFIC PROPERTIES.

## FLUID HANDLING SAFETY

 ENVIRONMENTAL		<ul style="list-style-type: none"> <li>• Waste Disposal in accordance with the applicable regulations</li> </ul>
		<ul style="list-style-type: none"> <li>• Soak up spills with diatomaceous earth or other inert materials.</li> <li>• Keep from drains, sewers and water courses.</li> <li>• Filter and recycle used fluid; otherwise store and dispose of according to the applicable regulations.</li> </ul>
 HANDLING		<ul style="list-style-type: none"> <li>• Eye protection is required.</li> <li>• Protective gloves, chemically resistant boots and apron are recommended.</li> </ul>
 FIRST AID		<ul style="list-style-type: none"> <li>• Flush eyes thoroughly with water.</li> <li>• If irritation develops, consult a physician.</li> </ul>
		<ul style="list-style-type: none"> <li>• To prevent inhalation, use in well-ventilated area.</li> <li>• Short term exposure should pose no adverse health effects.</li> <li>• If inhalation occurs, remove the affected person from the contaminated area and apply artificial respiration if needed.</li> </ul>
		<ul style="list-style-type: none"> <li>• DO NOT INDUCE VOMITING.</li> <li>• Seek medical attention immediately.</li> </ul>
		<p>In case of skin contamination:</p> <ul style="list-style-type: none"> <li>• Wash thoroughly with soap and water as soon as possible.</li> <li>• Brief skin contact requires no immediate attention.</li> <li>• If irritation develops, consult a physician.</li> </ul>
 COMBUSTIBILITY		<ul style="list-style-type: none"> <li>• It is slightly combustible when heated above flash point.</li> <li>• It will release flammable vapors which can burn in open or be explosive in confined spaces if exposed to source of ignition.</li> <li>• Do not store near open flames or other sources of ignition.</li> </ul>
		<ul style="list-style-type: none"> <li>• In case of fire, use only suitable extinguishing media: CO2, dry powder, foam or water fog.</li> <li>• CAUTION: DO NOT USE WATER JETS.</li> </ul>

## **PRIMING THE TOOL**

After service, the riveter must be primed with hydraulic fluid before re-assembling the head cylinder.

**What is needed:** 1/8" and 9/64" Hex Keys; 700A77 Bleed Bottle

### **FILL AND BLEED INSTRUCTIONS**

Should it become necessary to completely refill the tool (prime it), take the following steps:

1. After removing the head assembly, fill handle (61) with the recommended oil to within 1/8" (3.175 mm) of the top of the handle casting.
  2. Replace the head assembly, being sure gasket (88) and O-Ring (87) are properly in place. Tighten cap screws (89 and 90) uniformly to prevent leakage around gasket.
  3. Connect tool to air line and remove both cap screws (39) from the side of the head assembly.
  4. Using a pressurized fluid source force the fluid into the front hole until it flows freely from the rear hole. Reverse the procedure until the fluid flows out free of air bubbles
  5. Replace both cap screws (39), cycle the trigger several times and then repeat steps 3 and 4 above.
  6. To ensure optimal fluid levels and optimal tool function, regular tool bleeding is recommended. system, we recommend the use of Cherry air bleeder (700A77). Follow the instructions for the air bleeder above.
- To bleed the tool, remove rear cap screw (39) located on the side of the head (13) being sure NOT to cycle the tool. Attach the Cherry air bleeder (700A77), connect the tool to the air line and slowly cycle several times.
  - This will ensure the removal of any air from the hydraulic system and its replacement with fluid.



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

## Declaration of Conformity

We, **Cherry Aerospace**

Located at **1224 East Warner Avenue, Santa Ana, CA 92705-0157, USA,**

In accordance with the provisions of

**Machine Directive 2006/42/EC**

Hereby declare under our sole responsibility that:

Equipment: Pneumatic Hydraulic Hand Riveter

**Model Number: G689**

Serial Number: \_\_\_\_\_ Date: \_\_\_\_\_

Is in conformity with the applicable requirements of the following standards:

EN ISO 12100:2010	Safety of Machinery; General Principles; Risk Assessment and Reduction
ISO/TR 14121-1&2:2007	Safety of Machinery, Risk assessment
EN 792-1:2000 + A1:2008	Safety requirements; Assembly power tools for non-threaded mechanical fasteners
ISO 8662-11	Hand-held portable power tools -- Measurement of vibrations at the handle
ISO 3744	Acoustics – Determination of sound power levels of noise sources
ISO 4413:2010.	Hydraulic fluid power - General Rules of safety
ISO 4414:2010.	Pneumatic fluid power - General Rules of safety

Signed by:  \_\_\_\_\_

Cris Cobzaru,  
Technical Manager  
M.S. Mechanical Engineering

**The Technical documentation for the machinery is available from:**

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