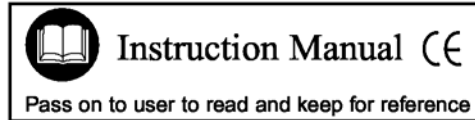


ORIGINAL INSTRUCTIONS

# G-689

Hydro-Shift CherryLOCK® Riveter



# MANUAL



**CHERRY**®  
AEROSPACE

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# THE G689 HYDRO-SHIFT RIVETER

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# THE G689 HYDRO-SHIFT RIVETER

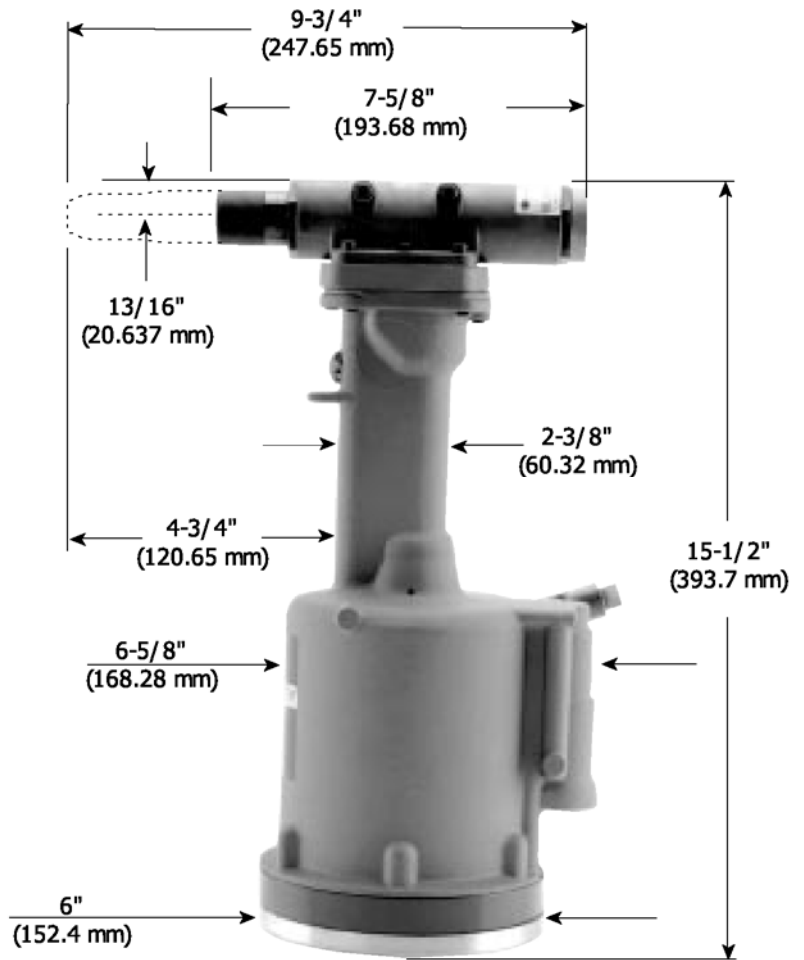
## DESCRIPTION

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 extremely powerful tool has been designed with many ergonomic features: low recoil, low noise and a comfortable fit in the operator's hand. It can be operated in any position with one 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)

## SAFETY WARNINGS

- Approved eye protection should be worn when operating, repairing, or overhauling this tool.
- Do not use beyond the design intent.
- Do not use substitute components for repair.
- Any modification to the tool, pulling heads, accessories or any component supplied by CHERRY® Aerospace, or their representatives, shall be the customer's entire responsibility. **CHERRY® Aerospace will be pleased to advise on any proposed modification.**
- The tool must be maintained in a safe working condition at all times and examined at regular intervals for damage.
- Before disassembling the tool for repair, refer to the maintenance instructions. All repairs shall be undertaken only by personnel trained in CHERRY® Aerospace installation tools. **Contact CHERRY® Aerospace with your training requirement.**
- Always disconnect the air line from the tool inlet before attempting to service, adjust, fit or remove any accessory.
- Do not operate the tool when it is directed at any person.
- Ensure that the vent holes do not become blocked or covered and that air line hoses are always in good condition.
- Excessive contact with the hydraulic oil should be avoided to minimize the possibility of rashes. Care should be taken to wash thoroughly.
- Operating air pressure should not exceed 110 psi (7,6 bar).
- Do not operate the tool without pulling head in place.
- Do not operate the tool unless the handle base (57) is fully secured by the six flat head cap screws (58).
- All retaining rings, screwed end caps, air fittings, trigger valves and pulling heads should be attached securely and examined at the end of each working shift.
- Do not pull rivet in the air.
- The precautions to be used when using this tool must be explained by the customer to all operators. **Any question regarding the correct operation of the tool and operator safety should be directed to CHERRY® Aerospace.**
- Do not pound on the rear of the tool head to force rivets into holes as this will damage the tool.
- 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 pulling head for the correct shank diameter and head style of CherryLOCK® rivet and attach it securely to the G689. For proper installation of the pulling head, see the pulling head tool sheet. Connect the air line to the tool.

Insert the rivet into the application. Place the pulling head over the rivet stem, pushing the tool until the pulling head is in contact with the rivet head. This will ensure full engagement between the jaws and the rivet stem. When pushing down on the rivet stem, make certain the tool is perpendicular to the application.

After activating the trigger, the tool will cycle, installing the rivet. After the stem breaks, point the tool toward an appropriate receptacle and release the trigger. The stem will eject from the front of the tool with a moderate force.

## MAINTENANCE AND REPAIR

The G689 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 air supply to prevent wear of air valve, air cylinder and air piston.
3. Tool should be routinely inspected for oil leaks. Oil leaking around screws (39) indicates that a screw is loose or a Stat-O-Seal (38) needs replacing. Oil leaking around the small by-pass hole near the base of the handle grip (61) indicates worn or damaged O-Rings (64).

Use automatic transmission fluid Type "A" (no substitutes). CHERRY® Aerospace recommends using ATF, Dexron III.

### DEXRON III OIL SAFETY DATA

#### FIRST AID

*Skin:* Wash thoroughly with soap and water as soon as possible. Casual contact requires no immediate attention. If irritation develops, consult a physician.

*Ingestion:* Seek medical attention immediately. DO NOT INDUCE VOMITING.

*Eyes:* Flush with copious amounts of water. If irritation develops, consult a physician.

*Inhalation:* No significant adverse health effects are expected to occur on short term exposure. Remove from contaminated area. Apply artificial respiration if needed. If unconscious, consult physician.

#### FIRE

*Suitable extinguishing media:* CO<sub>2</sub>, dry powder, foam or water fog. DO NOT use water jets.

#### ENVIRONMENT

*Waste Disposal:* In accordance with local, state and federal regulations.

*Spillage:* Prevent entry into drains, sewers and water courses. Soak up with diatomaceous earth or other inert material. Store in appropriate container for disposal.

#### HANDLING

Eye protection required. Protective gloves recommended. Chemically resistant boots and apron recommended. Use in well ventilated area.

#### COMBUSTIBILITY

It is slightly combustible when heated above flash point.

It will release flammable vapor which can burn in open or be explosive in confined spaces if exposed to source of ignition.

#### STORAGE

Avoid storage near open flame or other sources of ignition.

#### PROPERTIES

*Specific gravity* 0.863

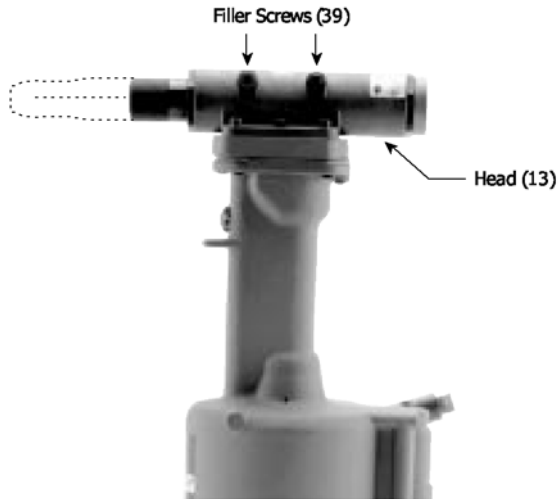
*Weight per gallon* 7.18 lbs.

*Open flash point* >200°C (392°F)

## FILL AND BLEED INSTRUCTIONS

To replace a small amount of oil in 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.

Should it become necessary to completely refill the tool (such as would be required after the tool has been dismantled and re-assembled), 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 oil can filled with Dexron III ATF (or equivalent), force the fluid into the front hole until it flows freely from the rear hole. Reverse the procedure until air bubbles cease appearing at either hole.
5. Replace both cap screws (39), cycle the trigger several times and then repeat steps 3 and 4 above.
6. To ensure the positive removal of all air from the hydraulic system, we recommend the use of Cherry air bleeder (700A77). Follow the instructions for the air bleeder above.

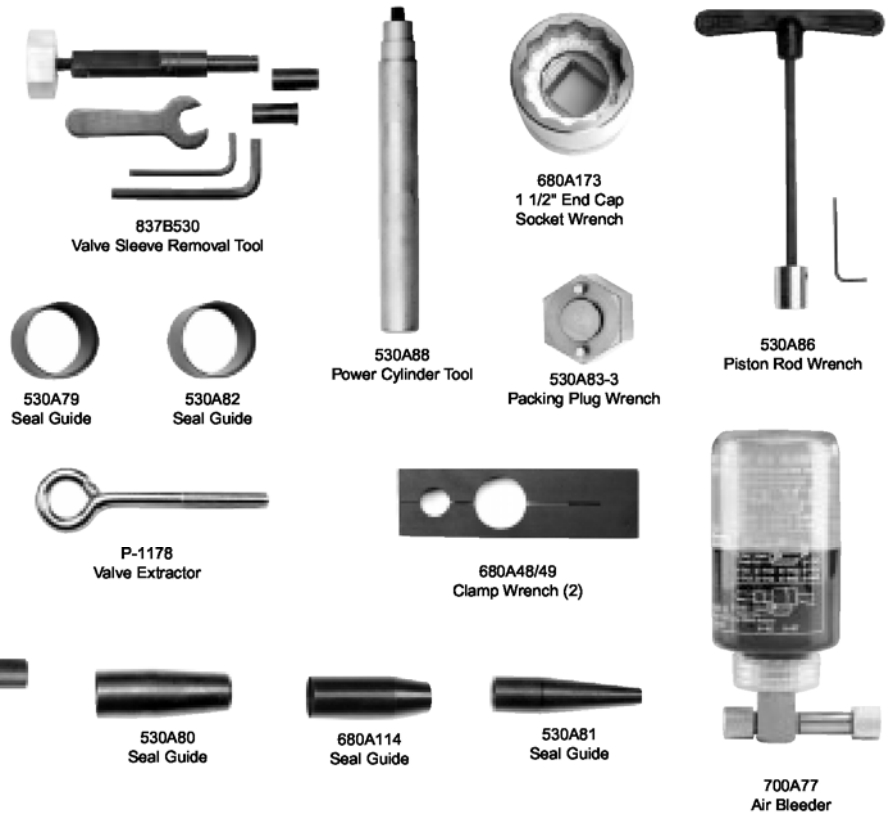
## TROUBLESHOOTING

1. Check the air line for correct pressure at the tool. It must be 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.

## THE G685KT TOOL KIT

### OVERHAUL

The disassembly and re-assembly procedures can be accomplished by following the instructions and the drawings on pages 11 and 13. **Use extreme care during disassembly and re-assembly not to mar, nick or burr any smooth surface that comes in contact with O-rings.** Before installing O-rings, be sure to apply an O-ring lubricant such as Lubriplate® 630-A. It is recommended that special assembly tools, which can be ordered under part number **G685KT**, be used to overhaul this tool. Service kit, **G689KS**, which contains a complete set of O-rings, back-up rings, screws, washers and gaskets should be ordered. The 680A159 setting gage is included with the G689 tool.



### AIR VALVE SUB-ASSEMBLY

- To disassemble, first disconnect tool from its 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 never 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 do not 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 re-assemble, reverse the above procedures being certain that all O-rings are properly lubricated. To avoid damaging the O-rings, carefully install sleeve (72) with your 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

- Always remove the complete pulling head from the tool before attempting to disassemble the head assembly. Disconnect tool from air source.
- 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 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.

- Select a work table with a good vise. 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 break away torque will be high - approximately 180 ft.-lbs. (244 N-m) or slightly higher.
- 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 parts and must be kept together or replaced as a complete unit by purchasing valve sub-assembly (680A80).

#### **To disassemble the Shift Piston Sub-Assembly:**

- 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 should be used as spring will pop out if precautionary measures are not taken.**
- 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) inside of release piston sub-assembly with a sharp or pointed instrument.
- After retaining ring (25) is removed, use a 5/32 hex key in the same button head cap screw (33). Turn clockwise until the shift stop (22) can be removed from the release piston sub-assembly (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 you loosen the button head cap screw (33) which is threaded into the end of the shift screw (26).
- Remove the button head cap screw (33) and the index washer (32).
- Push the shift screw (26) out of the release piston sub-assembly (28). It may be held slightly 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. Be sure to install O-rings and back-up rings using seal guides, where appropriate, to avoid cutting them. Always lubricate all O-rings. Just before placing the head sub-assembly onto the handle, see Fill and 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 shift piston (24) using the large hole in clamp wrench (680A48/49), being careful not to mar the smoothly ground surfaces of the piston. Insert piston spring (23), and while compressing it, turn piston cap sub-assembly (8 and 14) into place with clamp wrench (680A48/49) and firmly tighten.
- Insert shift piston assembly (24) into front of head cylinder (13) and thread on rear cap (29). Insert the four piston stops (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 and Bleed instructions.

## **HANDLE SUB-ASSEMBLY**

For complete disassembly, disconnect tool from air line then use the following procedures.

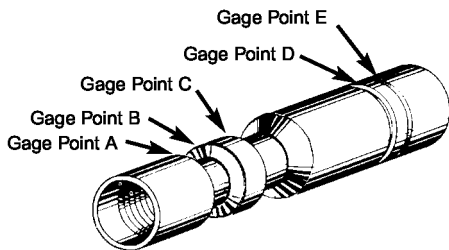
- Hold the tool upright and remove five socket head cap screws (89) and one (90) using a 5/32 hex key. As adapter (86) is removed, hold upper portion of tool over a pan to catch oil which will run out. Drain oil from head and inside of handle. Dispose of oil according to environmental regulations.
- 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 re-assemble the handle**, reverse the above procedure being certain that all the O-rings are properly lubricated before installation.

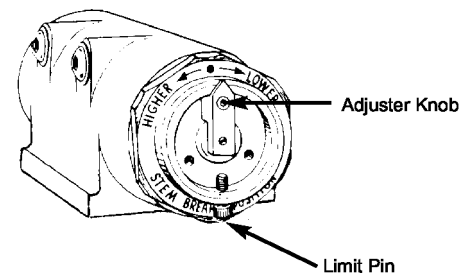
- Insert power cylinder (63) with O-ring (64) into bottom of handle by installing seal guide (530A82) over the O-ring so that the tapered end of the seal guide is adjacent to the uppermost flange of the power cylinder. This will hold O-ring (64) snugly in its groove and prevent its being pinched against sharp edges of the handle bore as power cylinder (63) is forced into position. Push the power cylinder (63) into position using power cylinder tool (530A88) as a pusher.
- Insert second O-ring (64) and O-ring (45) into position. Install quad rings (44), back-up rings (43), washers (42) and retaining rings (41) into the packing plug (46). Seat packing plug sub-assembly into position with the packing plug shoulder against the bottom of the power cylinder (63) and tighten securely using packing plug wrench (530A83-3).
- Thread seal guide (530A81) onto small end of power piston and rod sub-assembly (92). Slip seal guide (530A79), with tapered end down, over O-ring (66) and back-up ring (65) on power piston. Feed this assembly into top of power cylinder (63) forcing small end through packing plug (46).
- Remove seal guide (530A81) from the end of the power piston and rod sub-assembly (92).
- Using power cylinder tool (530A88), push air piston (49) with quad ring (48) and back-up rings (47) into air cylinder until it engages threaded end of power piston and rod sub-assembly (92).
- Using piston rod wrench (530A86), tighten power piston and rod sub-assembly (92) into air piston (49). Install and tighten slotted nut (50) and set cotter pin (51).
- Add one gasket (53), spacer (54), then other gasket (53) to bottom of handle (61). Assemble to handle base (57) and O-ring (56). Attach to handle with six flat head cap screws (58) and tighten evenly.
- Using piston rod wrench (530A86), push the power piston and rod sub-assembly (92) to the bottom of the tool. Replace retaining ring (62) in the top of the power cylinder (63). Fill handle with oil to about 1/8" above top of power cylinder (63).
- Install adapter (86) and O-rings (40) onto handle after first placing gasket (88) and O-ring (87) into position between the two parts. Secure manifold with six cap screws (89 and 90) making sure screw (90) is at rear center. Tighten evenly.

**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.**

## ADJUSTMENT INSTRUCTIONS



**680A159 Setting Gage**

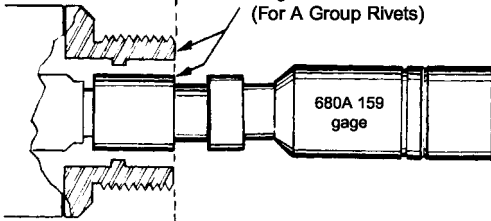


**689C50 Head Assembly**

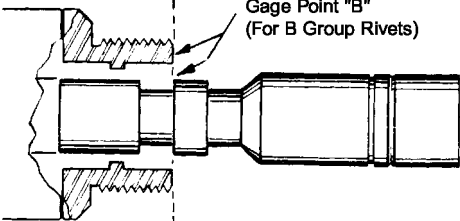
## SHIFT POINT SETTING

This adjustment determines the flushness of break of the rivet stem. The setting controls the point at which the reaction load is transferred from the rivet head to the lock ring of the rivet. After the lock ring is inserted the rivet stem will break flush. Setting gage (680A159) is included with the tool.

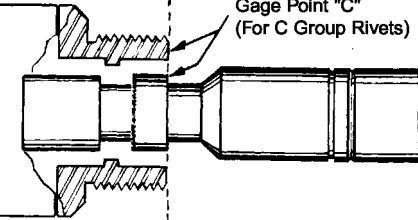
Gage Point "A"  
(For A Group Rivets)



Gage Point "B"  
(For B Group Rivets)



Gage Point "C"  
(For C Group Rivets)



#### TO ADJUST SETTING:

1. Connect tool to air hose with a minimum of 90 psi and remove pulling head and sleeve cap (1).
2. Screw small end of setting gage (680A159) onto head piston (14) until hand-tight.
3. Cycle tool and hold trigger so that the gage is pulled into the tool head. Gage Point "A" should be flush with the front of tool head as shown in the sketch.
4. Release the trigger and turn the adjuster knob (36) clockwise to increase gage protrusion or counterclockwise to decrease gage protrusion. Cycle the tool after each adjustment and check the gage point until it lines up flush with the tool head. A limit pin (34) restricts adjustment to one-half turn of the knob in either direction from the factory setting.

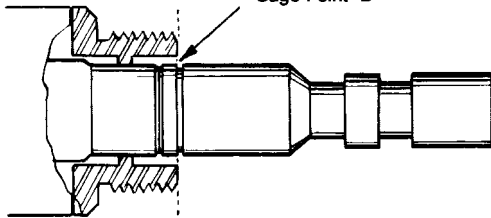
**Note:** The above procedure will adjust the tool to install "A" group rivets properly. When "B" group rivets are to be installed, adjust the head as above, and then turn the adjuster knob (36), six turns counterclockwise. (To turn the shift point adjusting screw more than 1 turn, remove the limit pin (34) and then replace it approximately diametrically opposite the adjuster knob.) Gage point "B" should be flush with the front of tool head as shown in sketch. When "C" group rivets are to be installed, again follow the outlined procedure and then turn the adjuster knob (36) 12 turns counterclockwise. Gage point "C" should now be flush with the front of tool head as shown in sketch.

**CAUTION:** Always release the tool trigger before turning knob and never back off more than 12 turns or the shift screw (26) may become disengaged from the shift stop (22) requiring a complete disassembly of the head to replace.

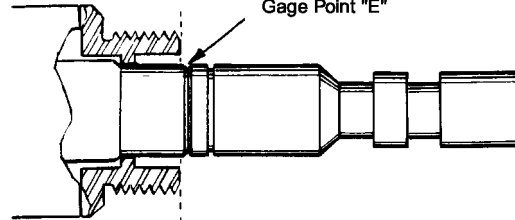
#### SHIFT PISTON CHECK

The shift piston check is made to ascertain that the movement of the piston is not restricted in any manner. It must be free to move the amount indicated below in order to obtain proper installation.

Gage Point "D"



Gage Point "E"



1. Connect the tool to an air hose with a minimum of 90 psi and remove the pulling head and sleeve cap (1).
2. Insert the large (unthreaded) end of 680A159 gage over the head piston (14) until it seats in the tool head. With trigger released, the front of the tool head must be within the gage groove recess, Gage Point "D", as shown in the sketch.
3. Cycle the tool and hold the trigger. The gage should move forward at the completion of the cycle and in this position the single gage line, Gage Point "E", must be visible or forward of the front of the tool head as shown in the sketch. The tool may be cycled while holding the gage in position.
4. If the gage points do not align, try bleeding the tool. No other outside adjustments can be made to correct any deviations from the above gage positions. Failure of the tool to comply with these gage relationships indicates incorrect tool performance and it should be sent to the CHERRY® Service Department for correction.

## PULLING HEADS

Pulling heads are not furnished and must be ordered separately. Make certain the pulling head is kept clean, especially around the riveting end, as adhesives, chips, sealants, etc., will clog up the serrations of the jaws and may cause slippage of the stem. Please refer to the pulling head charts below for the proper selection.

## TOOL CAPACITY CHART

The G689 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.

### STANDARD CHERRYLOCKS (NAS 1398 & 1399)

PULLING HEAD	RIVET DIA.	ALUMINUM		MONEL		ST. STEEL	
		CR2163	CR2162	CR2563	CR2562	CR2643 CR2663 CR2663	CR2642 CR2652
		CR2263	CR2164 CR2262		CR2564		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

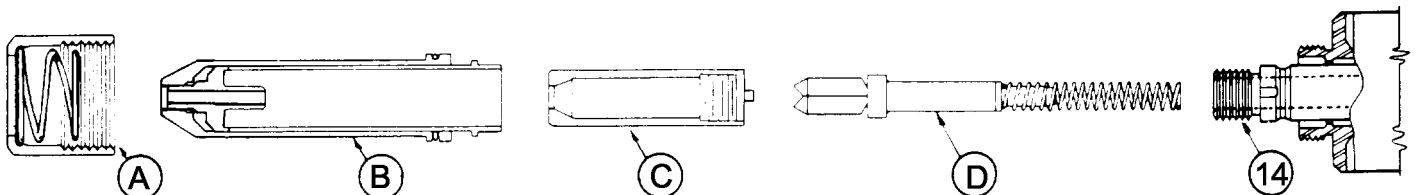
### BULBED CHERRYLOCKS (NAS 1738 & 1739)

PULLING HEAD	RIVET DIA.	ALUMINUM		MONEL		INCONEL	
		CR2235 CR2239	CR2238 CR2248	CR2539	CR2538 CR2540	CR2839 CR2845	CR2838 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

### OTHER PULLING HEADS THAT WILL FIT THIS TOOL ARE SHOWN ON THE CHART BELOW

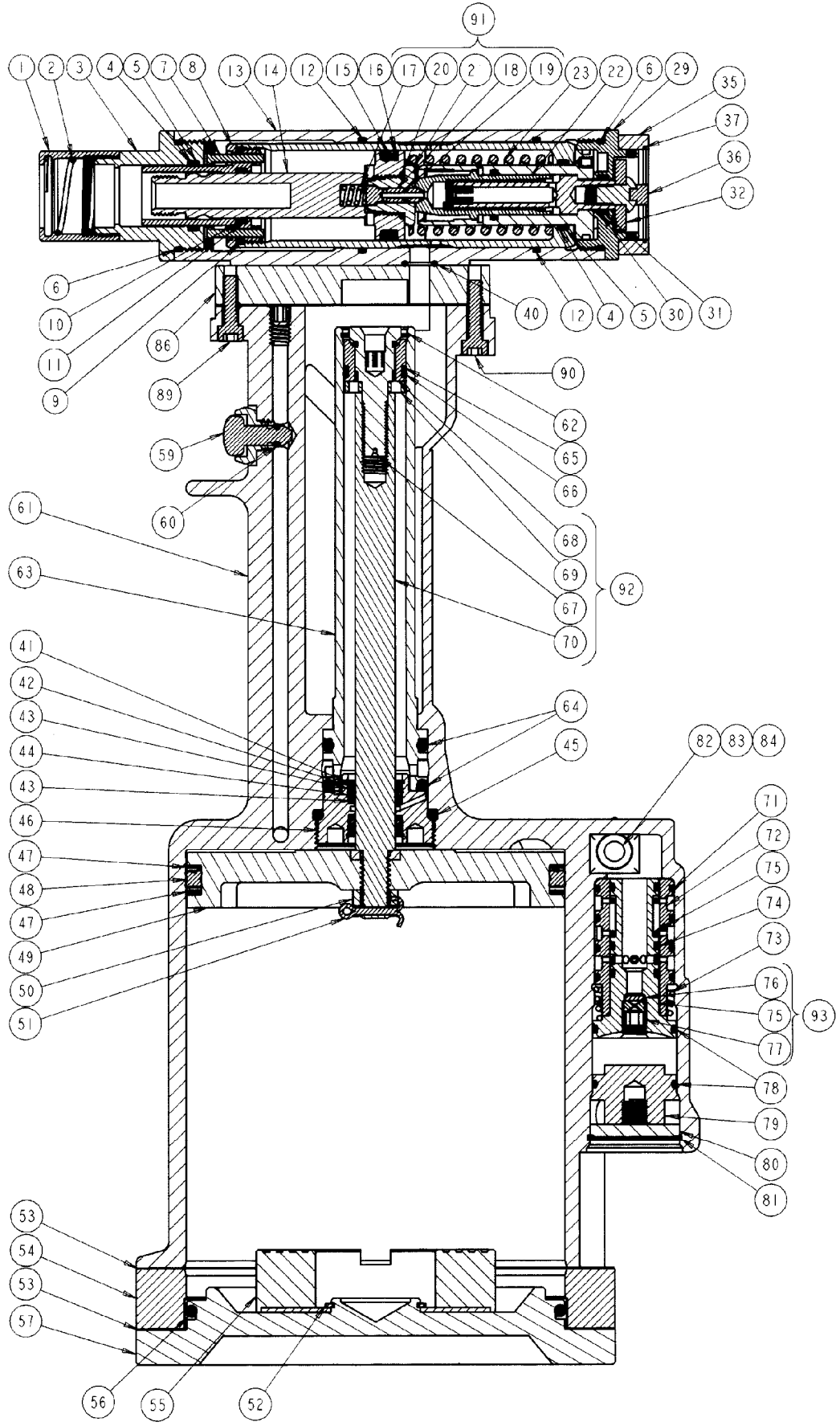
PULLING HEAD	TYPE	ADAPTER	RIVET	RIVET DIAMETERS	MAXIMUM GRIP
H9015	Straight	680B46	MS	3/32, 1/8, 5/32, 3/16	ALL
H9055	Straight	680B46	CherryLOCK "A", MS	3/32, 1/8, 5/32, 3/16	ALL
H9040	Straight	680B57	MS	1/8, 5/32, 3/16, 1/4	ALL
H781-456	Rt. Angle	680B205	CherryMAX®	1/8, 5/32, 3/16	ALL
H753A-456	Rt. Angle	680B205	CherryMAX	1/8, 5/32, 3/16	ALL
H827-8	Offset	680B210	CherryMAX	1/4	ALL
H828-8	Rt. Angle	680B210	CherryMAX	1/4	ALL
H828-5MB/H828-6MB	Rt. Angle	680B210	Maxibolt	5/32, 3/16	ALL
H680B200A	Straight	-	CherryMAX	1/8, 5/32, 3/16	ALL
H680B208	Straight	-	CherryMAX	1/4	ALL

## INSTALLING H681 SERIES PULLING HEADS ON RIVETER



1. Remove **knurled cap** (A) from front of riveter head.
2. Place **jaw assembly** (D) inside **collet** (C).
3. 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.
4. 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".

# CROSS SECTION DRAWING G689



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

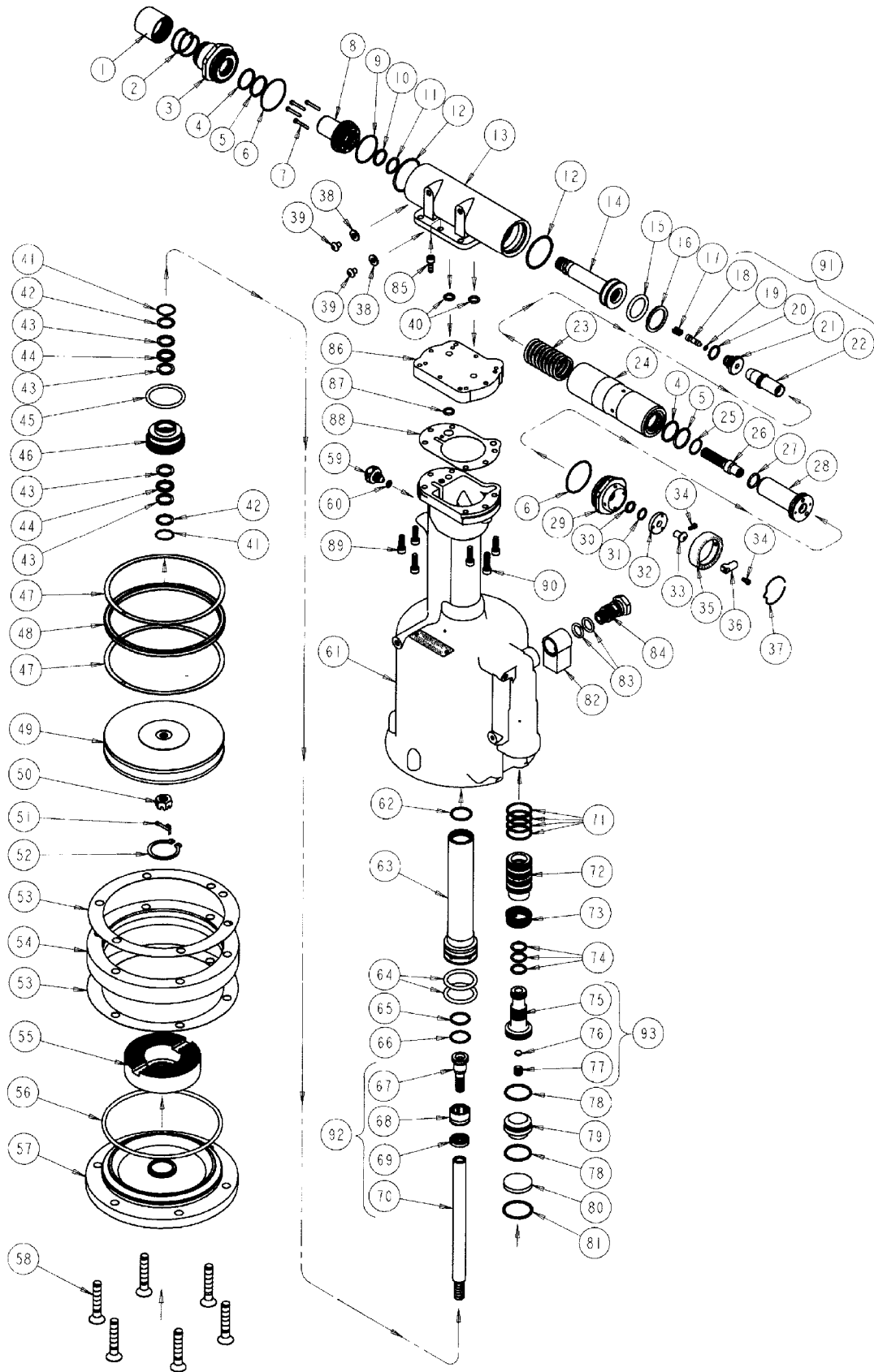
ITEM NO.	PART NUMBER	DESCRIPTION	QTY
689C50 SUB-ASSEMBLY, HEAD			
1	680A103	CAP, SLEEVE	1
2	680A105	SPRING	1
3	680B107	CAP, FRONT	1
4	P-906	RING, BACK-UP (.874, .768, .053)	2
5	P-826**	O-RING, DISOGRIN (.879, .739, .070)	2
6	P-903**	O-RING, DISOGRIN (1.254, 1.114, .070)	2
7	680A21	STOP, PISTON	4
8	680B110	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 DLUDES 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
689D2 SUB-ASSEMBLY, HANDLE			
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

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	
47	P-214	RING, BACK-UP (4.745, 4.375, .185)	2	
48	P-222	RING, QUAD (4.770, 4.350, .210)	1	
49	530B15	PISTON, AIR	1	
50	P-302	NUT, SLOTTED 3/8-16	1	
51	P-301	PIN, COTTER, 3/32 DIA. X 3/4	1	
52	P-537	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	P-896	SCREW, FLAT HD. CAP, 5/16-18 X 1-3/4	6	
59	703A33	SUB-ASSEMBLY, TRIGGER (INC. P-223)	1	
	60	P-223	O-RING (.285, .145, .070)	1
61	689R3	HANDLE	1	
62	P-897	RING, RETAINING (INT. .812)	1	
63	689B4	CYLINDER, POWER	1	
64	P-910**	O-RING, DISOGRIN (1.324, 1.046, .139)	2	
65	P-270	RING, BACK-UP (.776, .670, .053)	1	
66	P-268	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	560A61	ROD, POWER PISTON	1
71	P-848	O-RING, (.941, .801, .070)	4	
72	530B179	SLEEVE, VALVE	1	
73	530A178	SPRING	1	
74	P-701	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	P-244	O-RING (1.066, .926, .070)	2	
79	530A144	PLUG, VALVE	1	
80	530A145	MUFFLER	1	
81	P-699	RING, RETAINING (INT. 0 1.125)	1	
82	530A34	SWIVEL	1	
83	P-195	O-RING (.630, .424, .103)	2	
84	530B35	BOLT, SWIVEL	1	
85	P-91	SCREW, SOC. HD. CAP. 10-24 X 1/2	6	
86	680C27	ADAPTER	1	
87	P-194	O-RING (.441, 301, .070)	1	
88	530B8	GASKET, HEAD	1	
89	P-73	SCREW, SOC. HD. CAP, 10-24 X 5/8	5	
90	P-64	SCREW, SOC. HD. CAP, 10-24 X 3/4	1	

\*These parts cannot be purchased separately.

\*\* No Substitutions.

EXPLODED VIEW OF G689



## Declaration of Conformity

We, Cherry Aerospace LLC, 1224 E. Warner Ave., Santa Ana, CA 92705

declare under our sole responsibility that the product

type G689

Serial No. \_\_\_\_\_

to which this declaration relates is in conformity with the following standards

EN ISO 12100- parts 1 & 2

ISO 8662 part 1

I S O 3 7 4 4

following the provisions of the Machine Directive 2006/42/EC

Santa Ana, CA - date of issue \_\_\_\_\_

Original certification and signature on file

## 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.

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