

V-2 Reconditioning Guide

TOOLS NEEDED *Top row:* 6-gallon drum, air compressor with hose for testing, CLR to clean carbonate buildup, paint thinner for general cleaning and soaking, silicone lubricant, penetrating oil for cleaning, wipes, synthetic grease (small tube, center).

Bottom row: Standard and metric Allen/hex wrenches, metal scraper, picking tools, small flathead screwdriver, adjustable crescent wrench, fixed-size wrenches (1/2", 9/16", 5/8", 11/16"), ratchet wrench with 1/2" socket, rubber gloves. Pipe, capped on one end, for soaking downhole components – recommend 2 1/2" x 40", must have at least 2" inside dimension for Model 101.

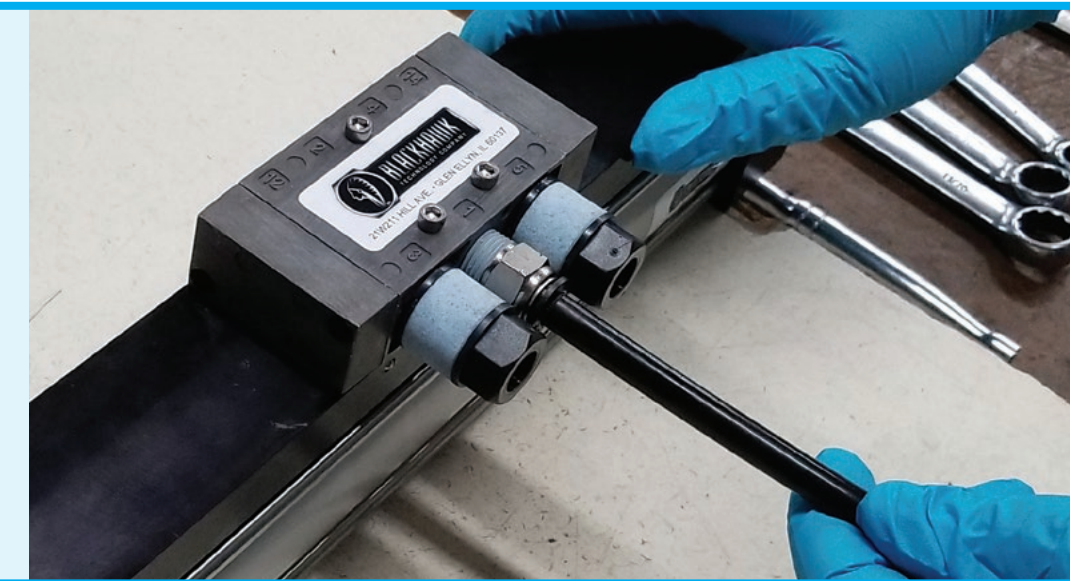
Disassemble the Blackhawk Pneumatic Driver

NOTE: Refer to Drive Motor Assembly drawing for part identification.

NOTE: New seal kits will be necessary for reassembly.

BEGIN DISASSEMBLY:

1 Attach air hose to test if pump operates (strokes). If not, diagnose problem.

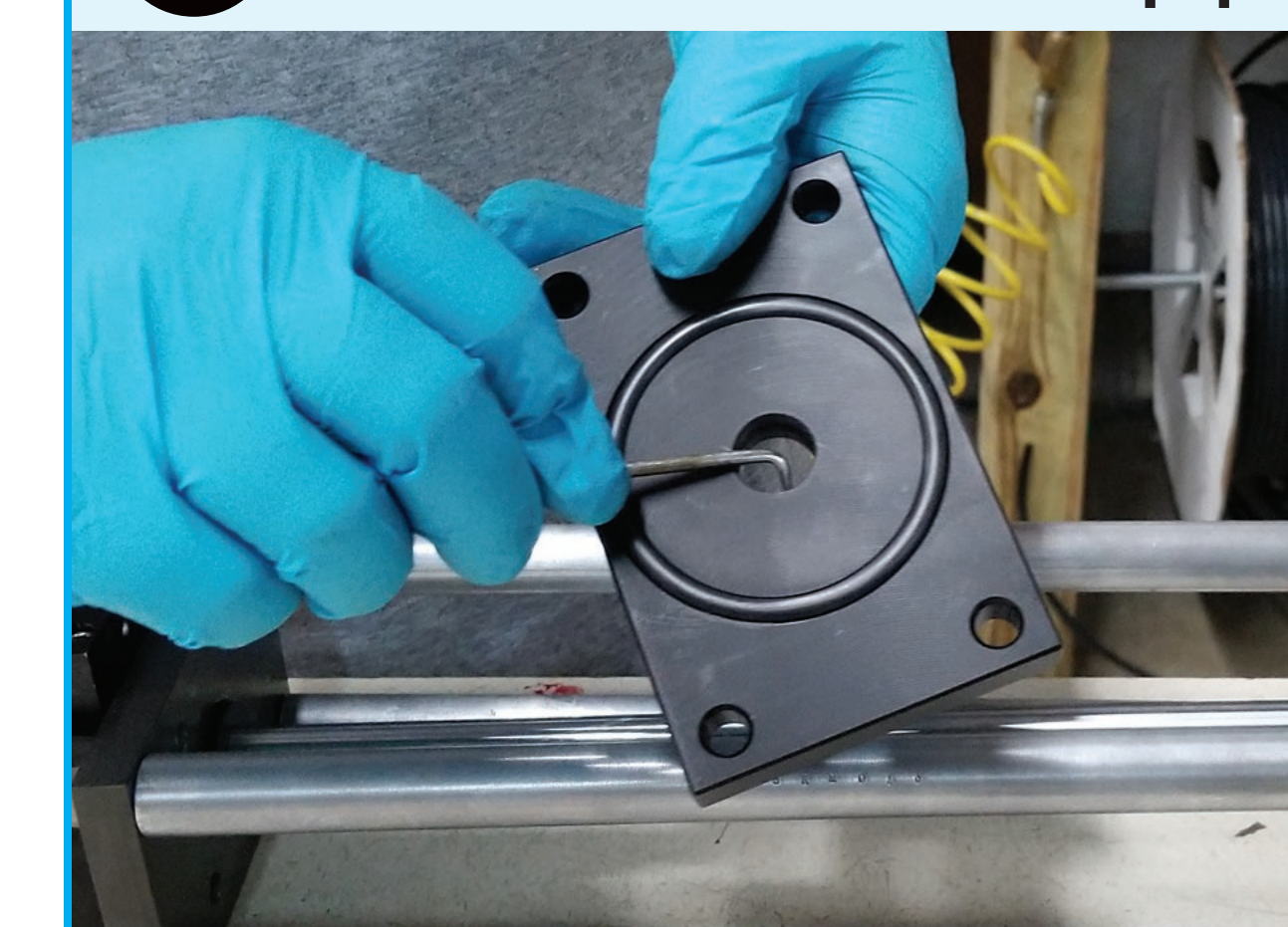


REMOVE STUFFING BOX ASSEMBLY:

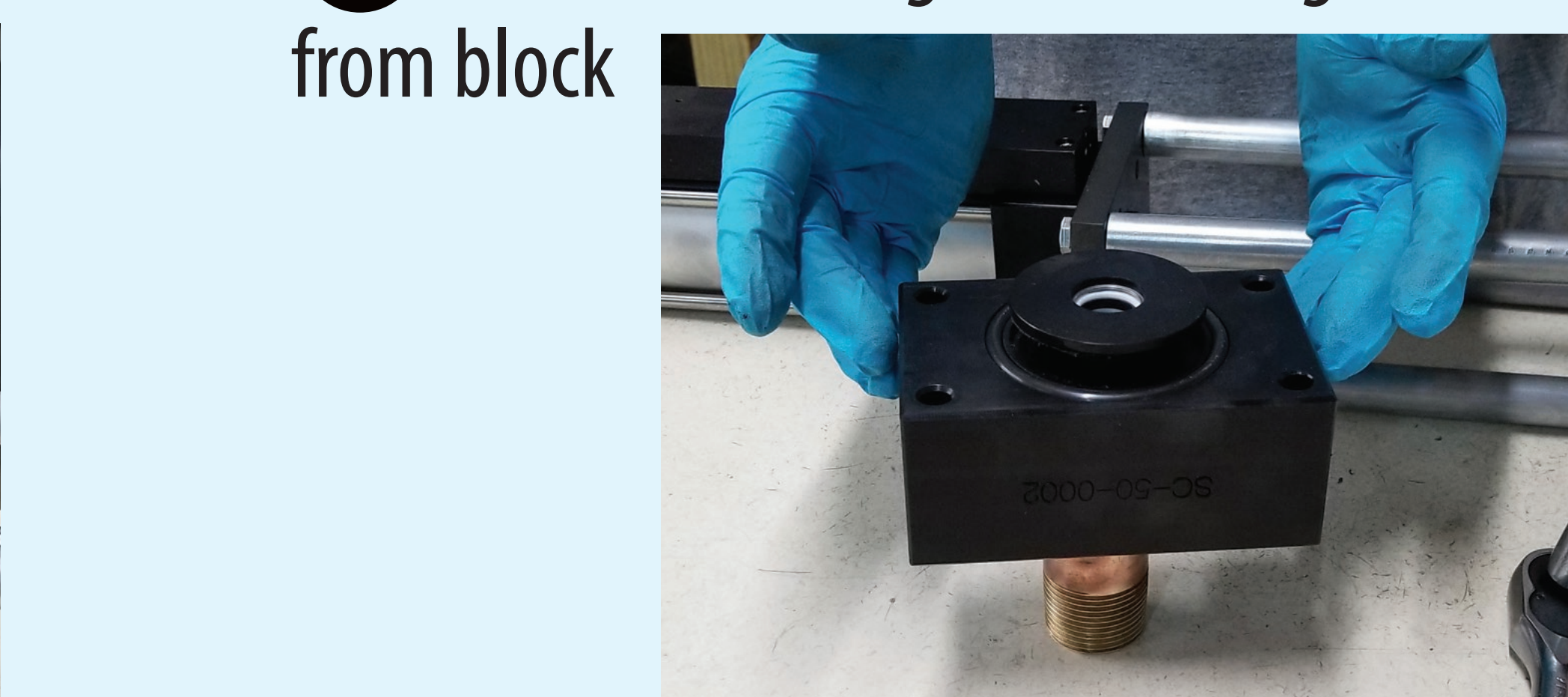
2 Using 1/2" socket, remove mounting plate, stuffing-box block and top plate.



3 Remove seal from top plate



4 Remove stuffing-box cartridge from block

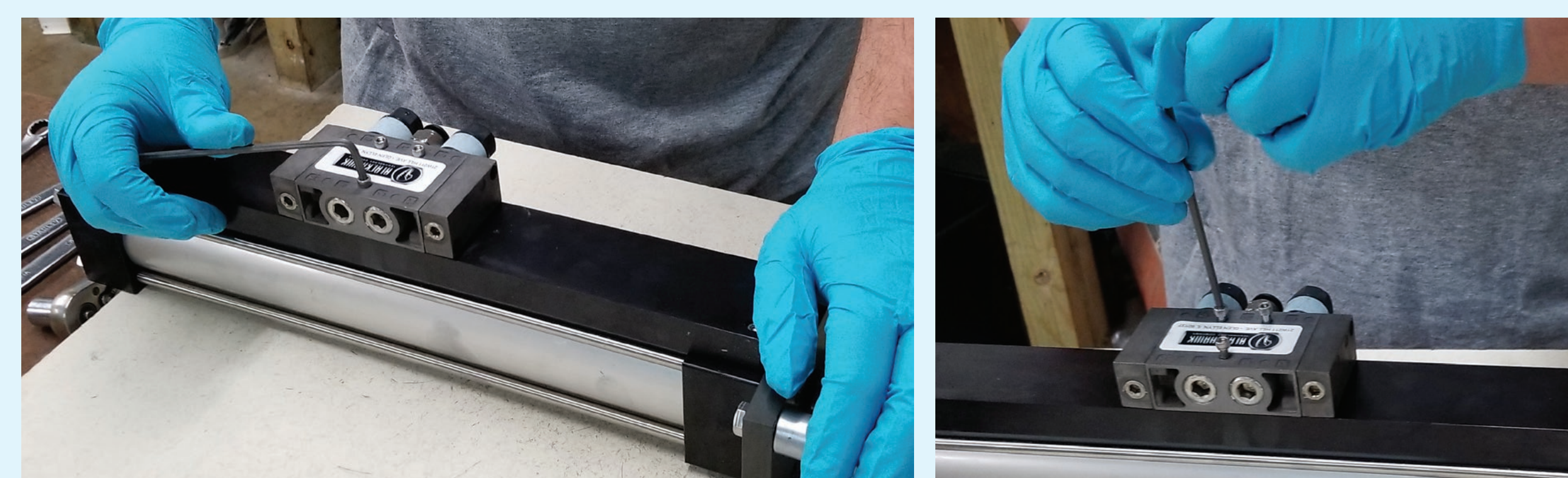


5 Using pick tool, remove seals from cartridge and discard. Inspect cartridge for wear. Place reusable parts in drum with paint thinner for cleaning soak.



REMOVE AND DISASSEMBLE FOUR-WAY VALVE:

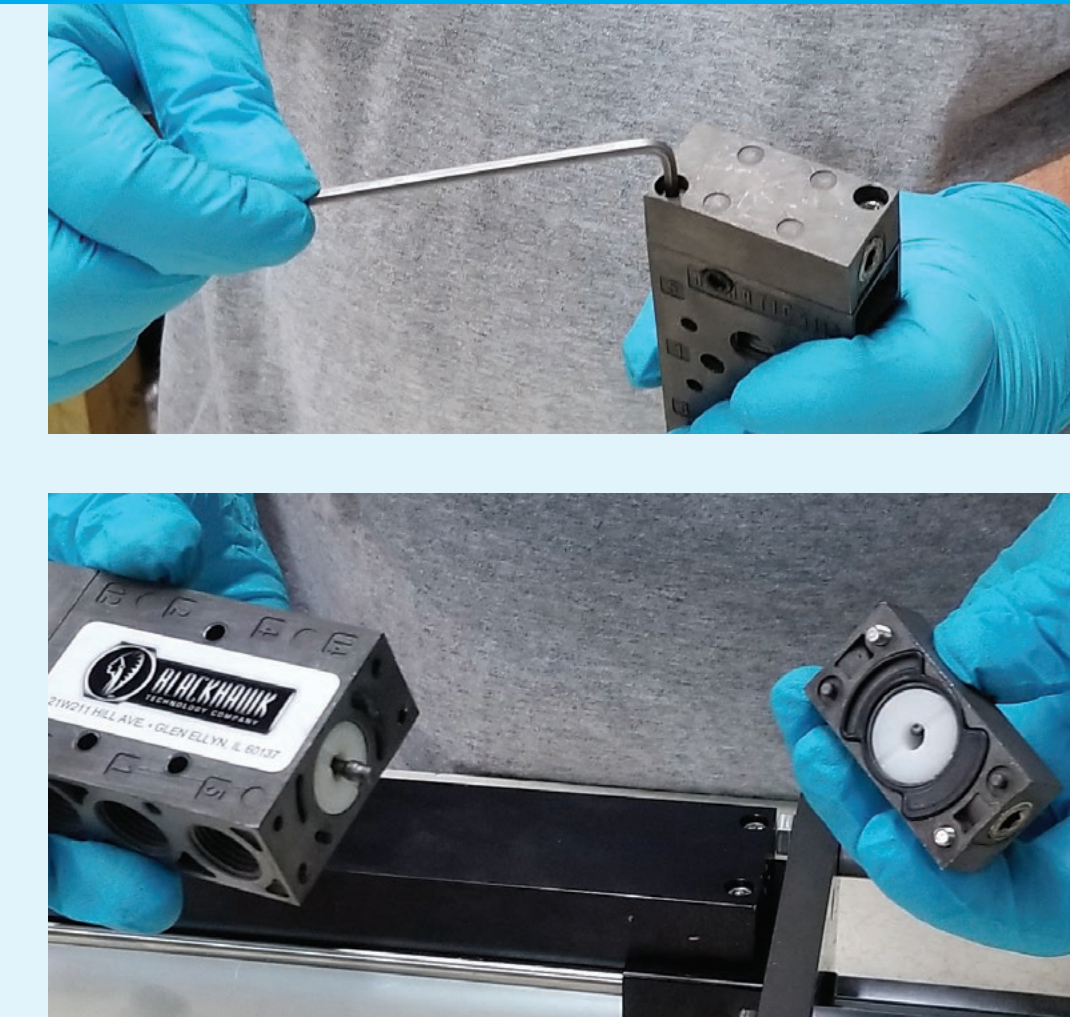
6 Unscrew valve with 9/64" hex wrench



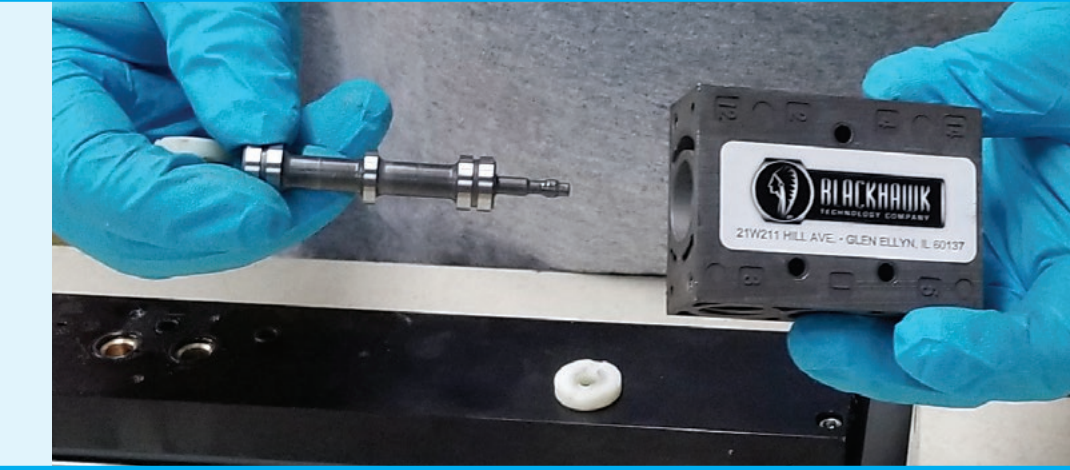
7 Remove speed mufflers and hose connection



8 Unscrew valve ends with #3 metric hex wrench



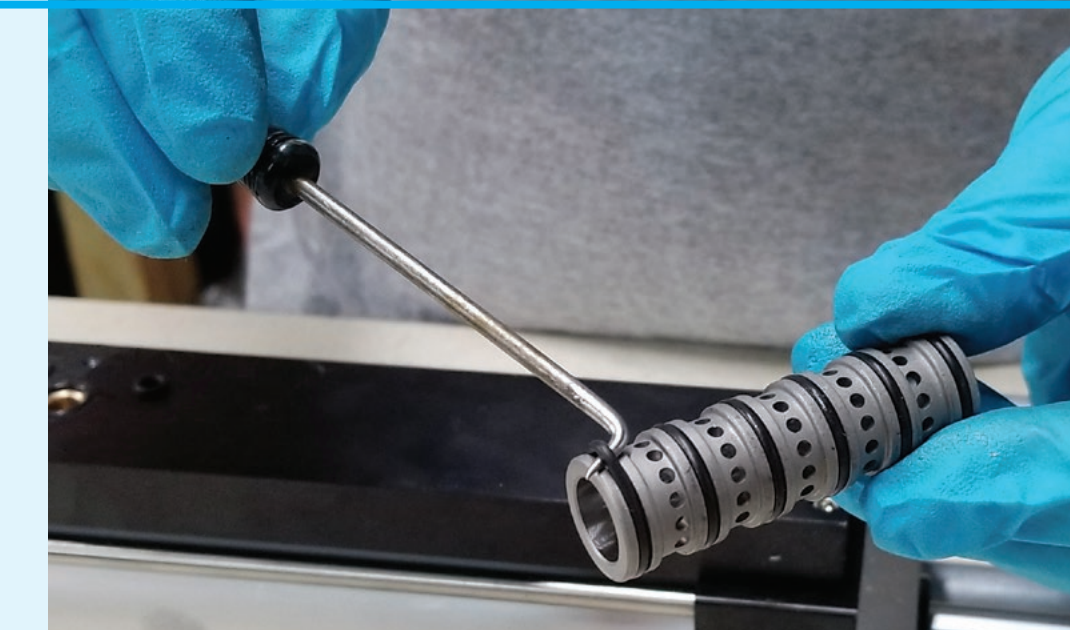
9 Remove center slider



10 Remove center core

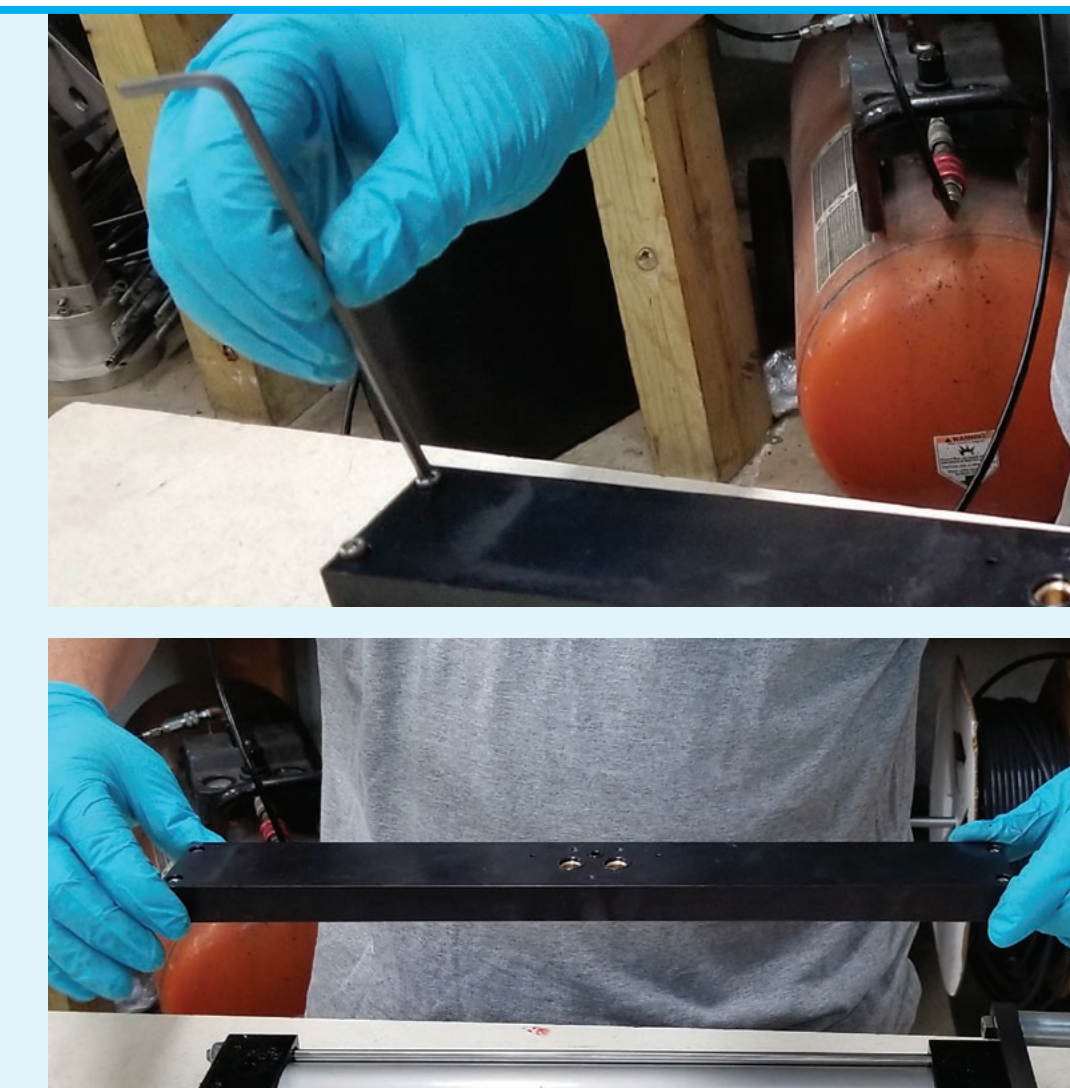


11 Remove six O-rings from core and discard; place parts in drum with paint thinner to soak

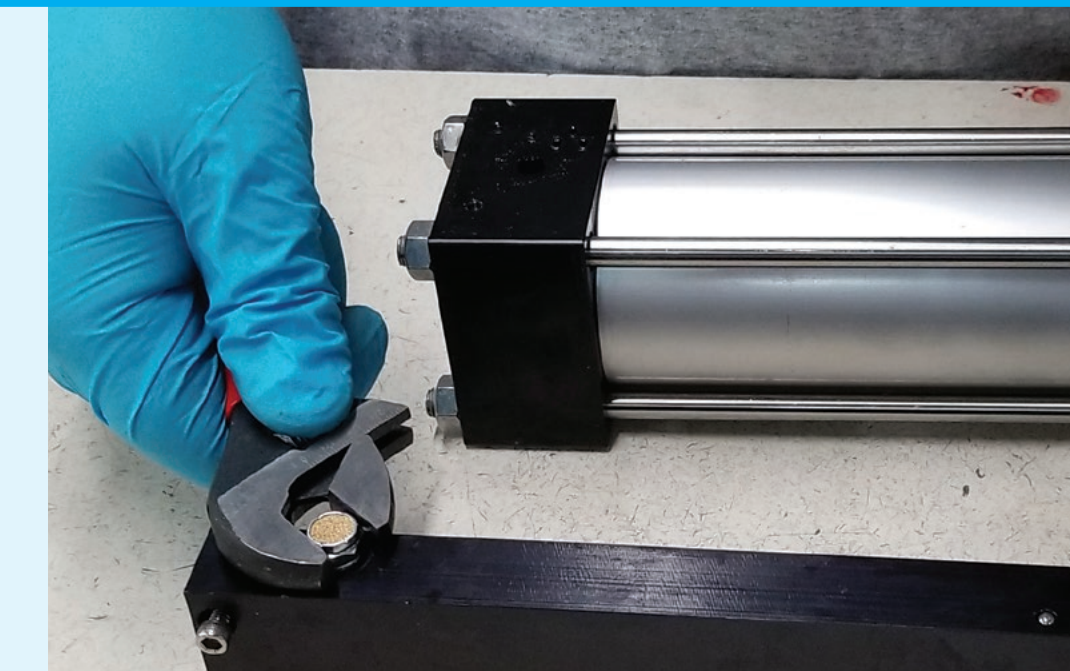


REMOVE AND DISASSEMBLE MANIFOLD:

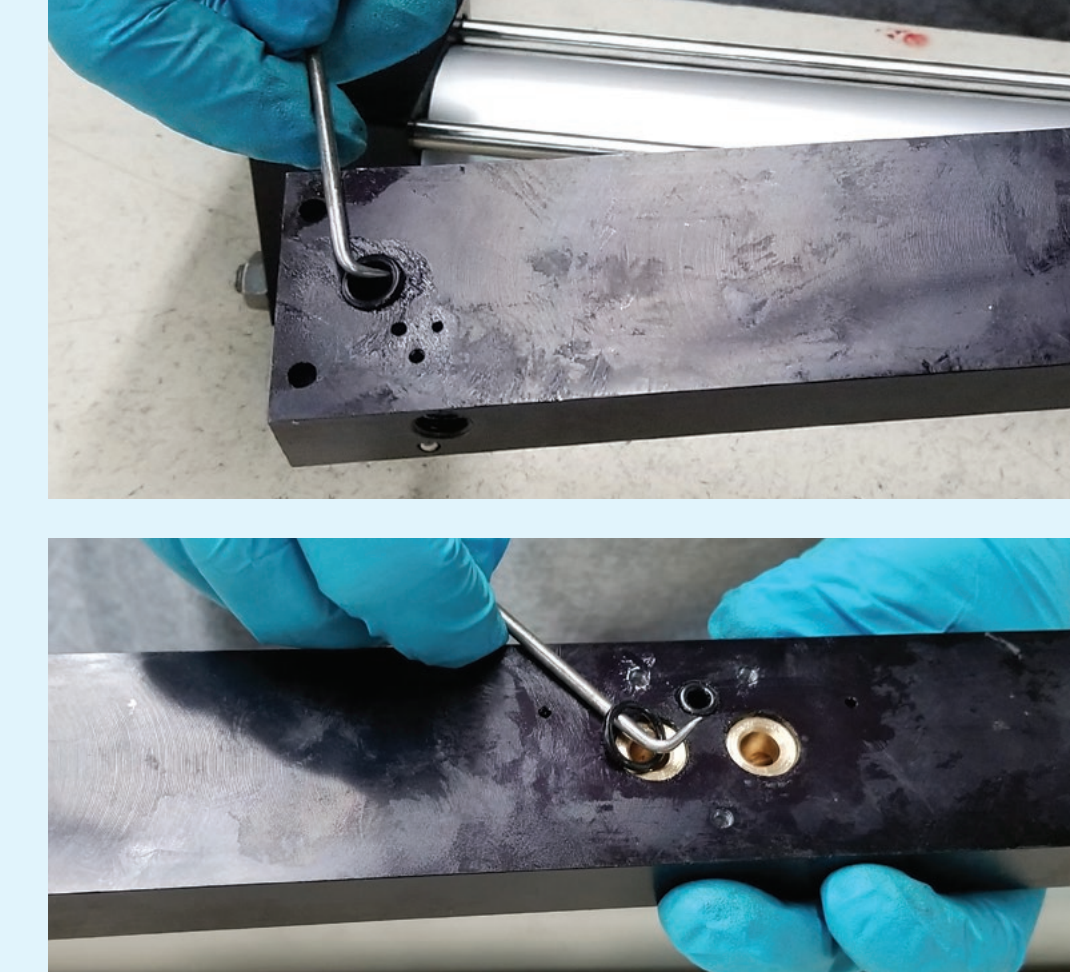
12 Remove manifold from assembly using 9/64" hex wrench



13 Using adjustable wrench, remove manifold muffler bolts

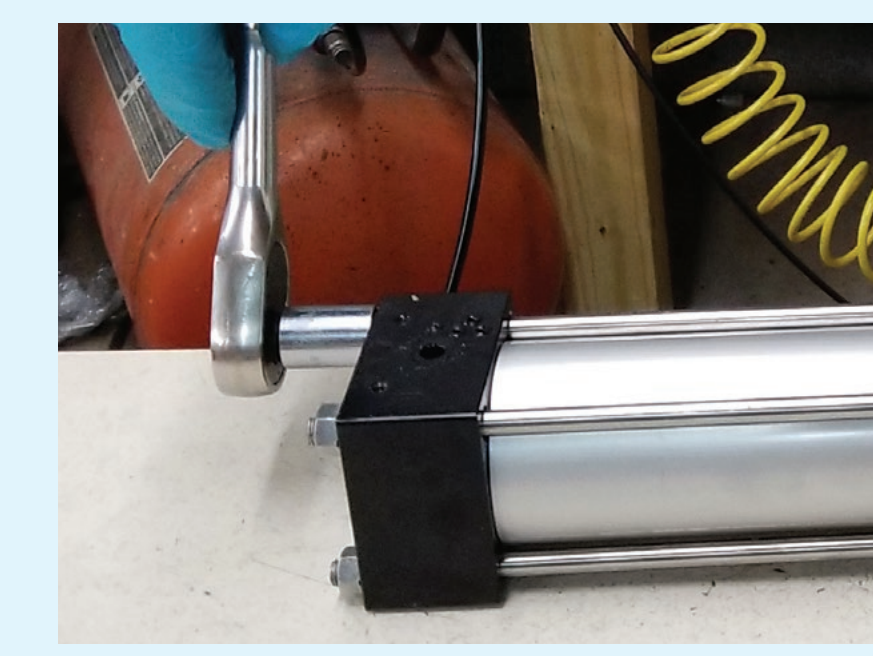


14 Remove and discard manifold seals/O-rings from either side; place manifold in soaking tank

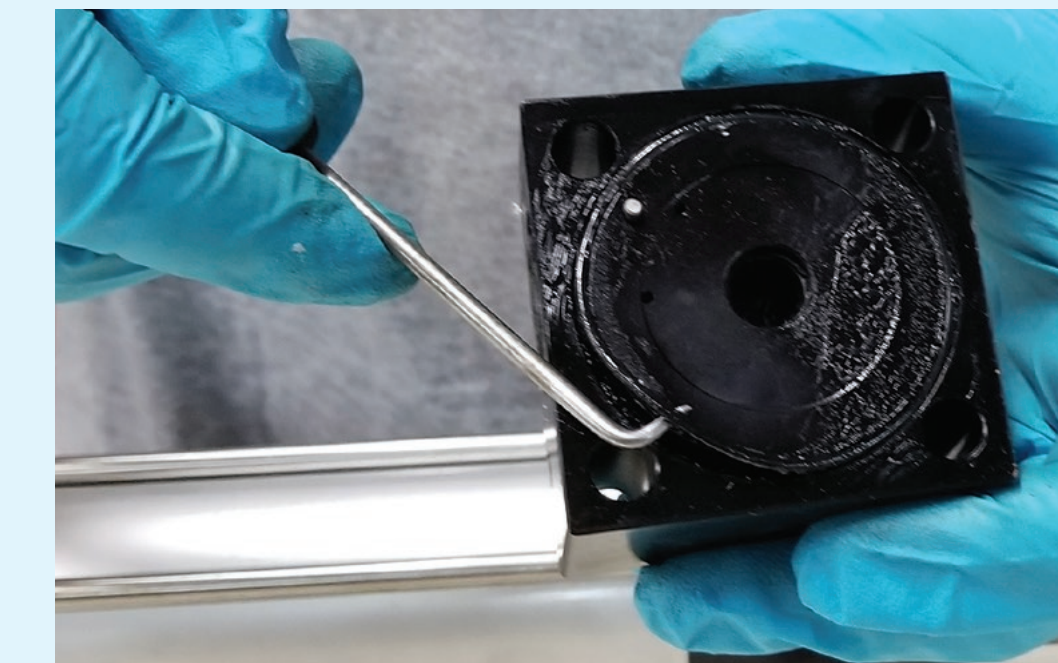


REMOVE & DISASSEMBLE CYLINDER:

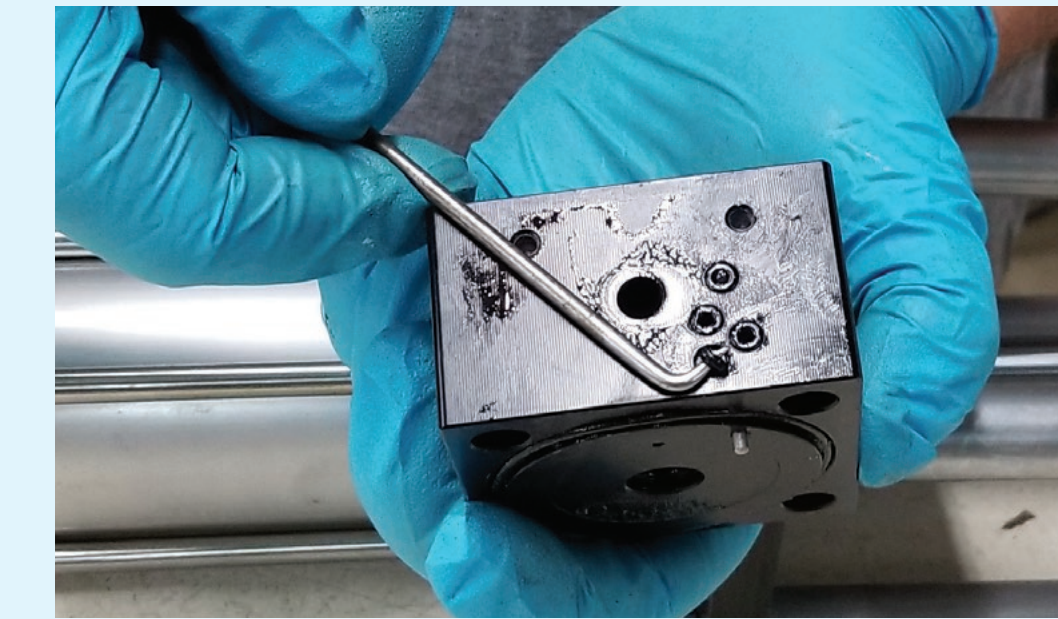
15 Using 1/2" socket, unscrew four bolts from cylinder cap



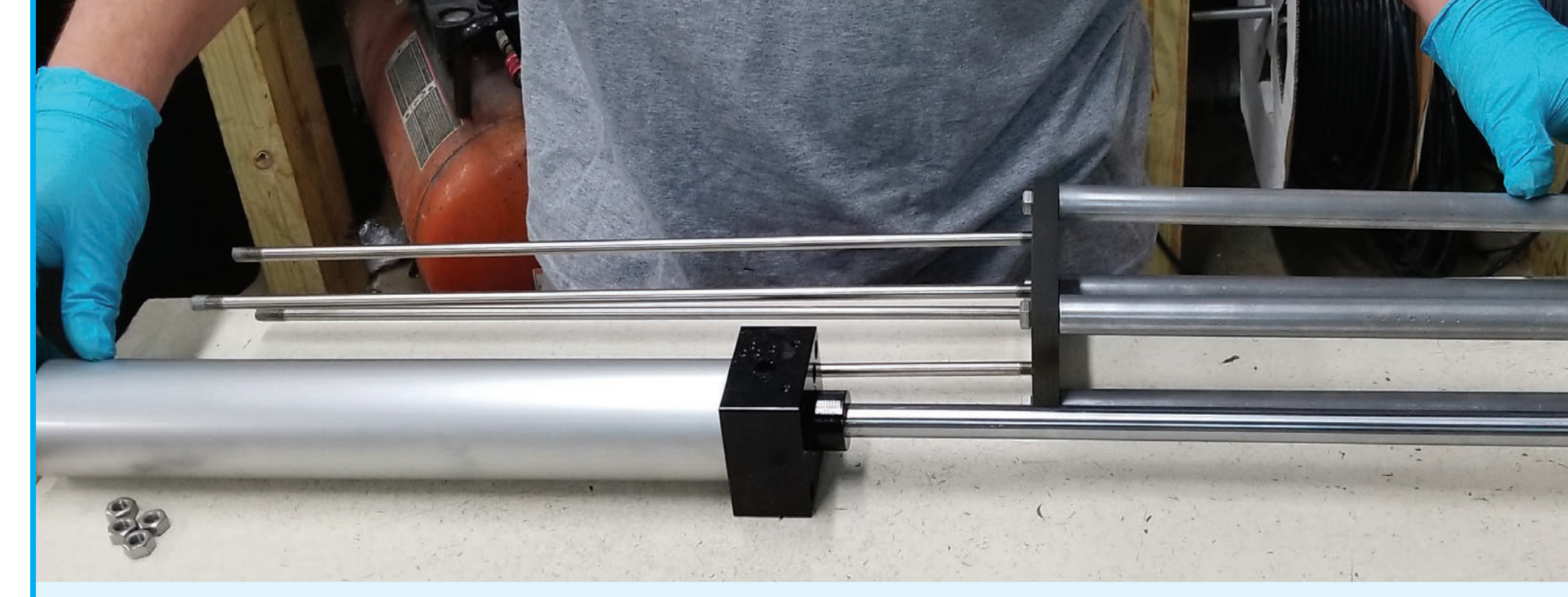
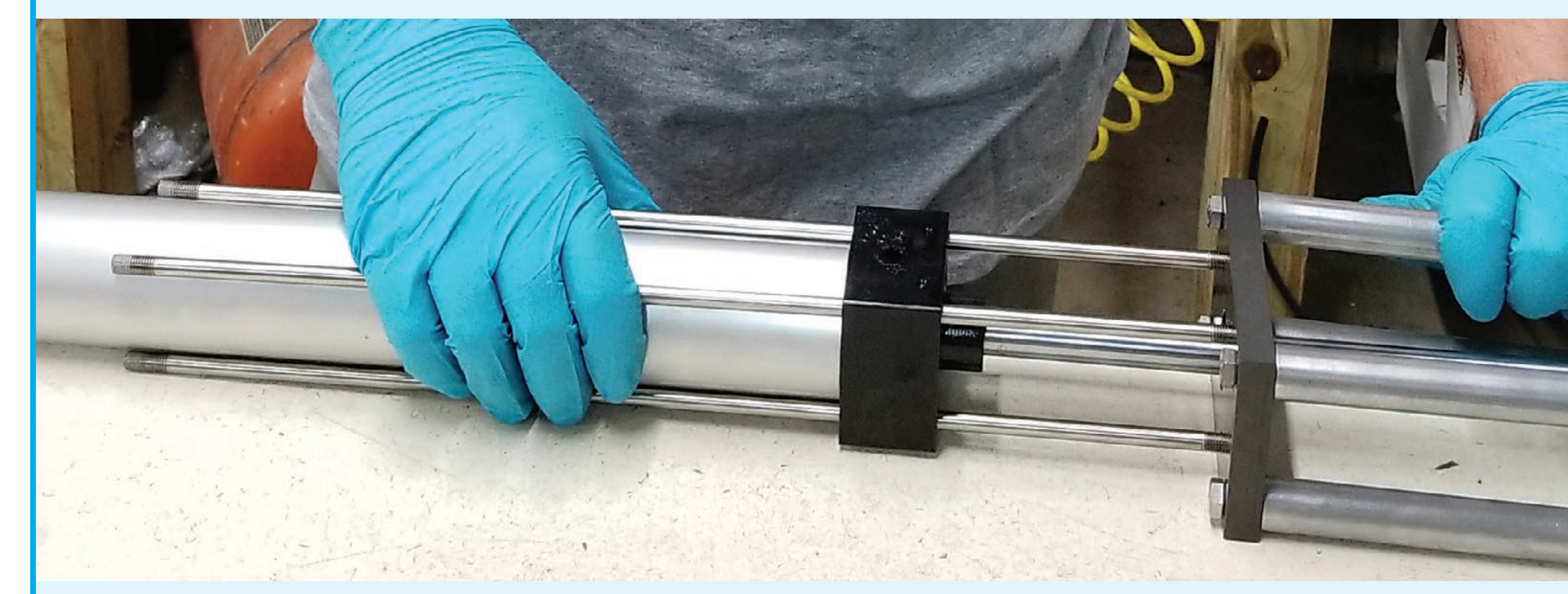
16 Remove seals from cap and discard



17 Remove and discard seals; place cylinder cap in soaking tank

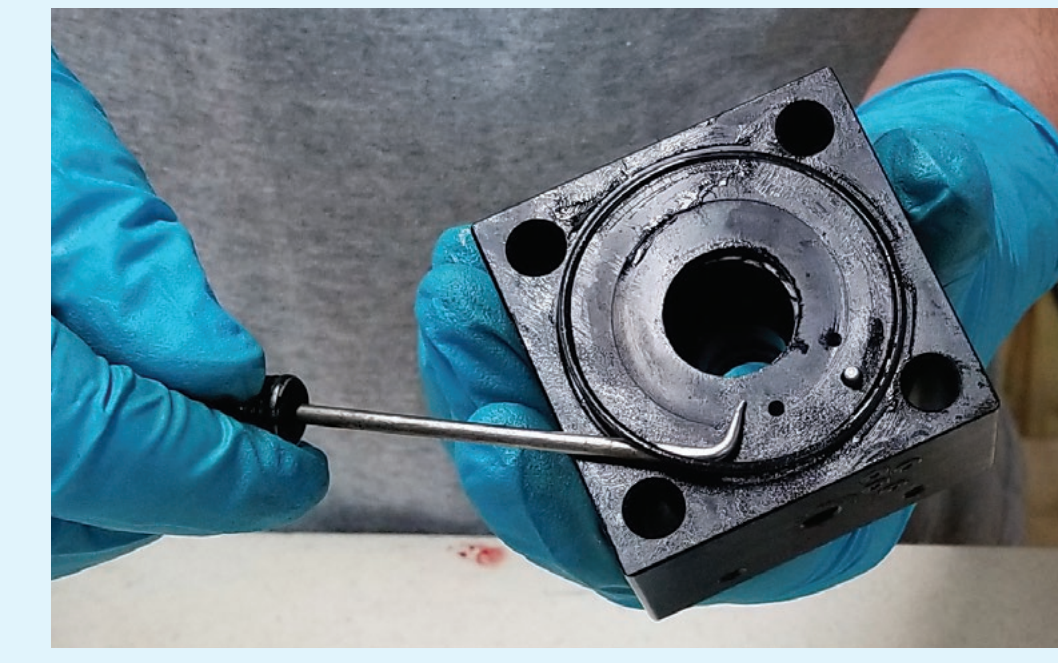


18 Remove cylinder, drive rod and cylinder head



19 Remove head from actuator drive rod

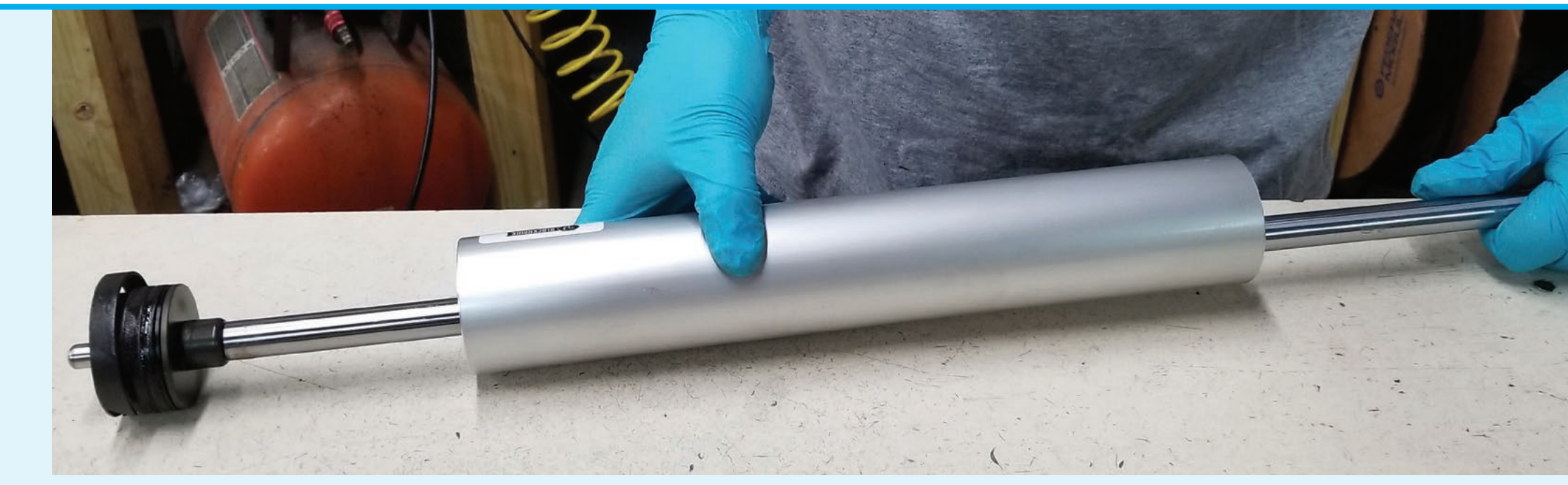
20 Remove seals from head and discard



21 Remove nose assembly from head; discard seal assembly



22 Remove cylinder from piston



23 Remove piston wear band



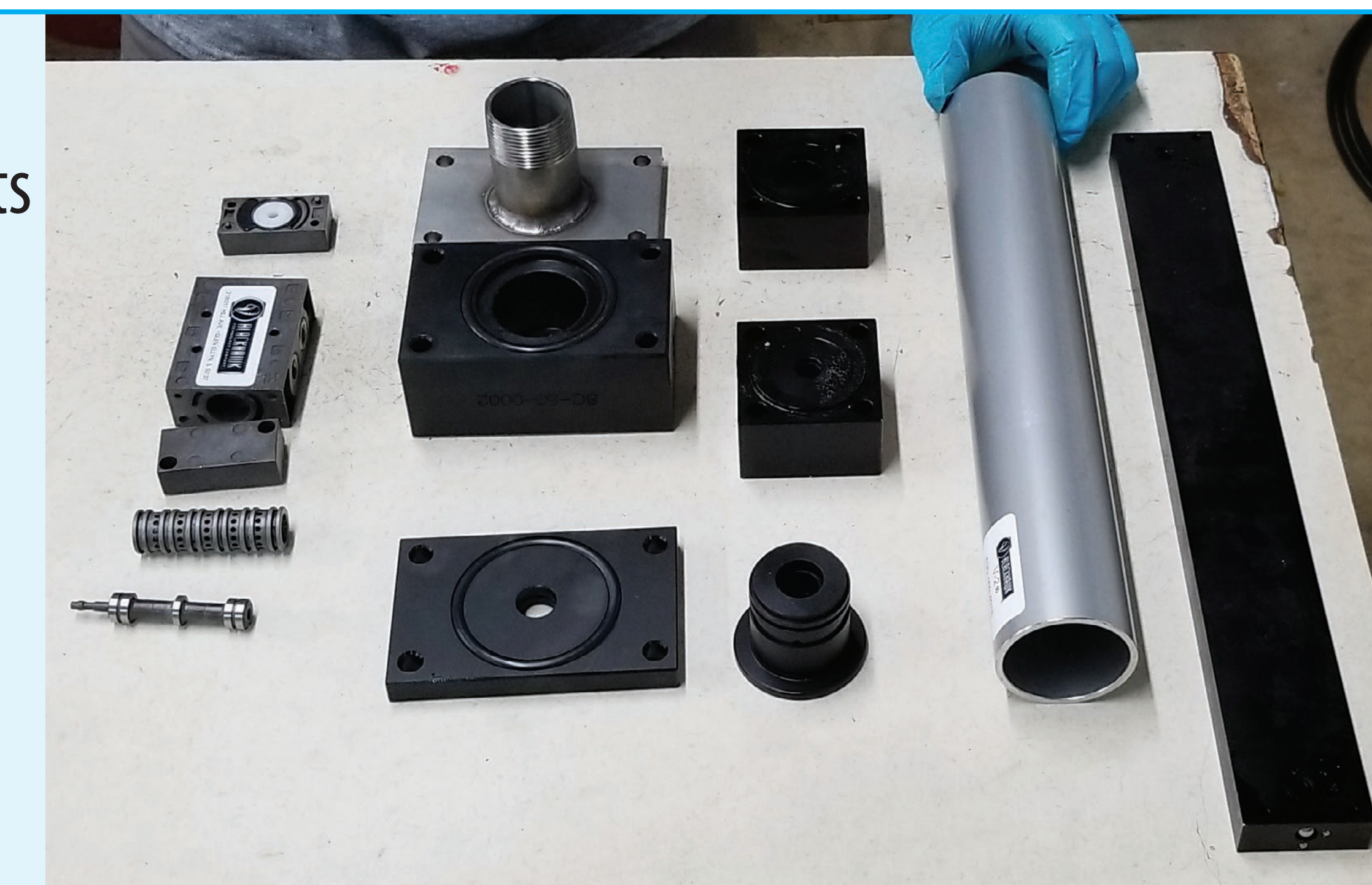
24 Remove piston seals and discard



CLEAN PARTS:

25 Place remaining parts in soaking tank.

NOTE: Soak overnight in paint thinner.



26 After soaking, further clean parts with wire scraper, CLR & penetrating oil as needed



When parts are clean, the driver is ready to reassemble.

Turn this poster OVER for instructions on how to Assemble the Blackhawk Pneumatic Driver

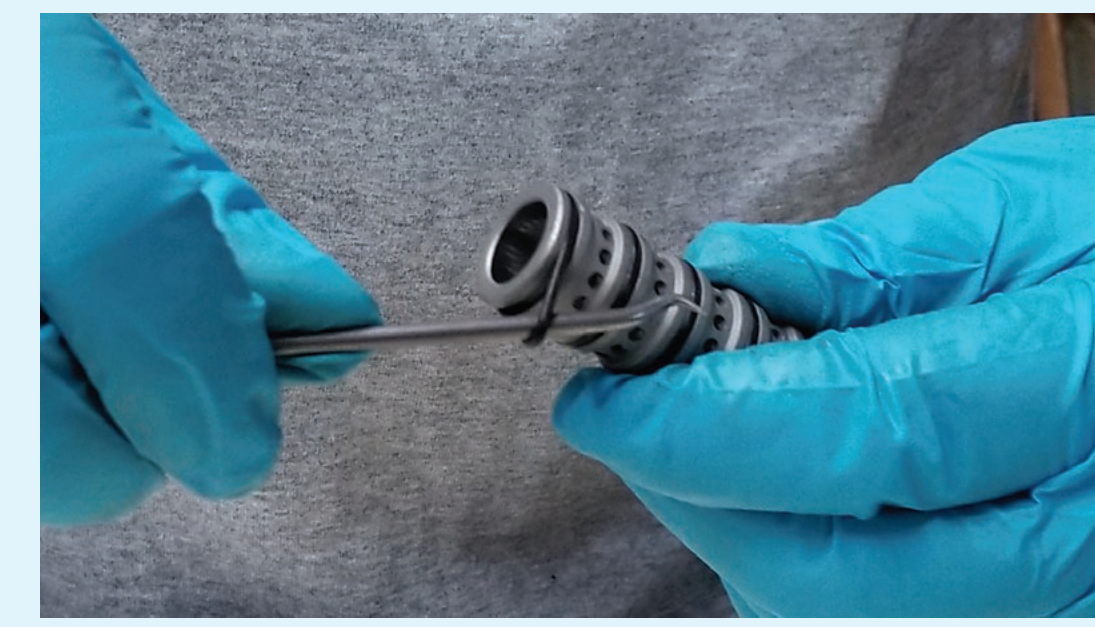
V-2 Reconditioning Guide

Assemble the Blackhawk Pneumatic Driver

NOTE: New seals/ O-rings required

REBUILD THE FOUR-WAY VALVE:

- Using pick tool if necessary, insert six O-rings on core
- Reinsert core
- Lubricate core center with silicone spray
- Insert slider into core



- Insert white discs into ends

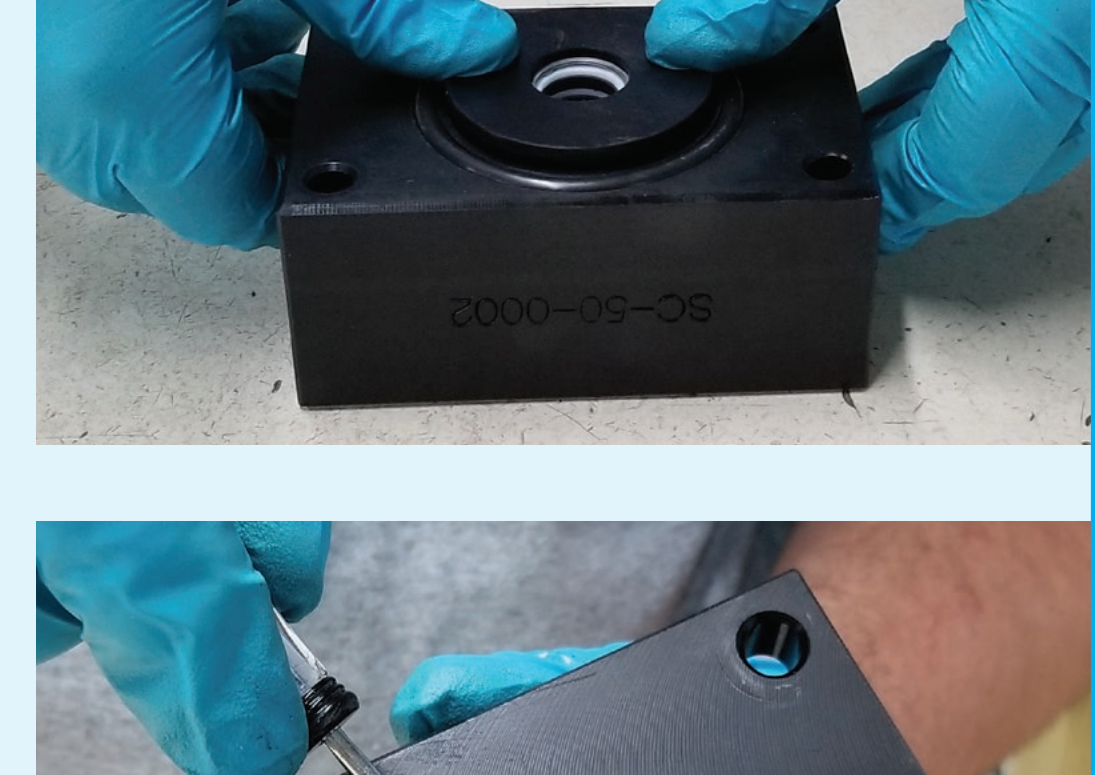


- Using #3 metric hex, attach valve end caps on both sides



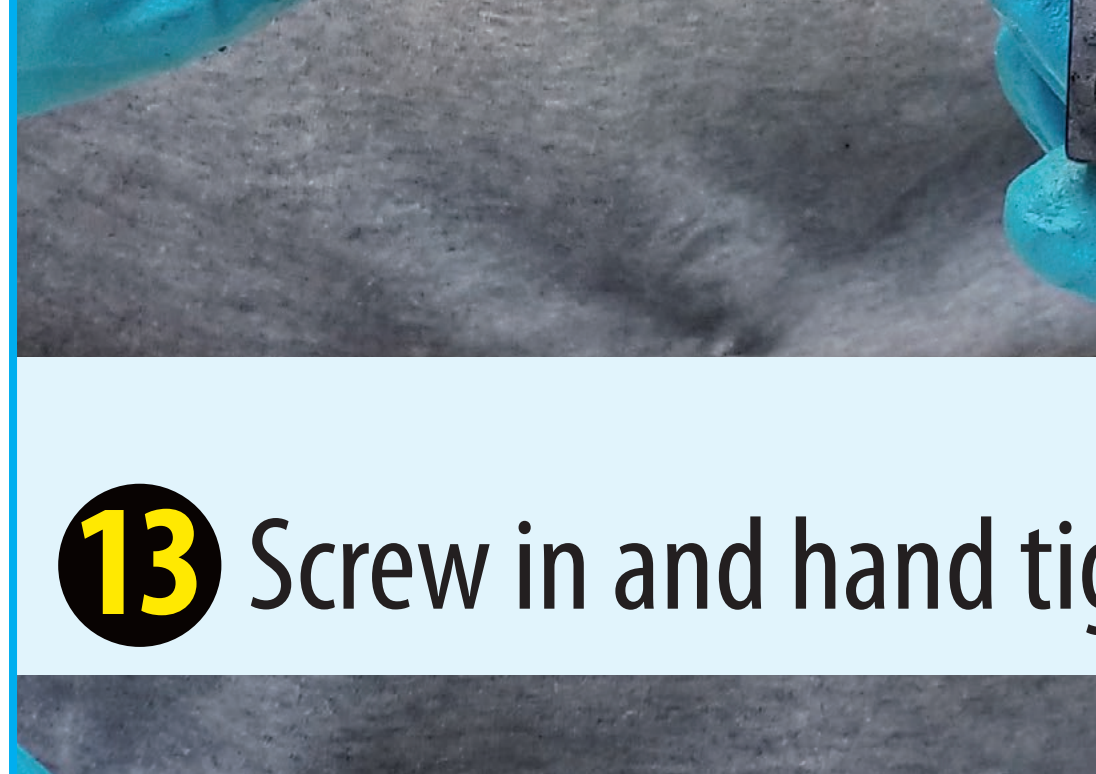
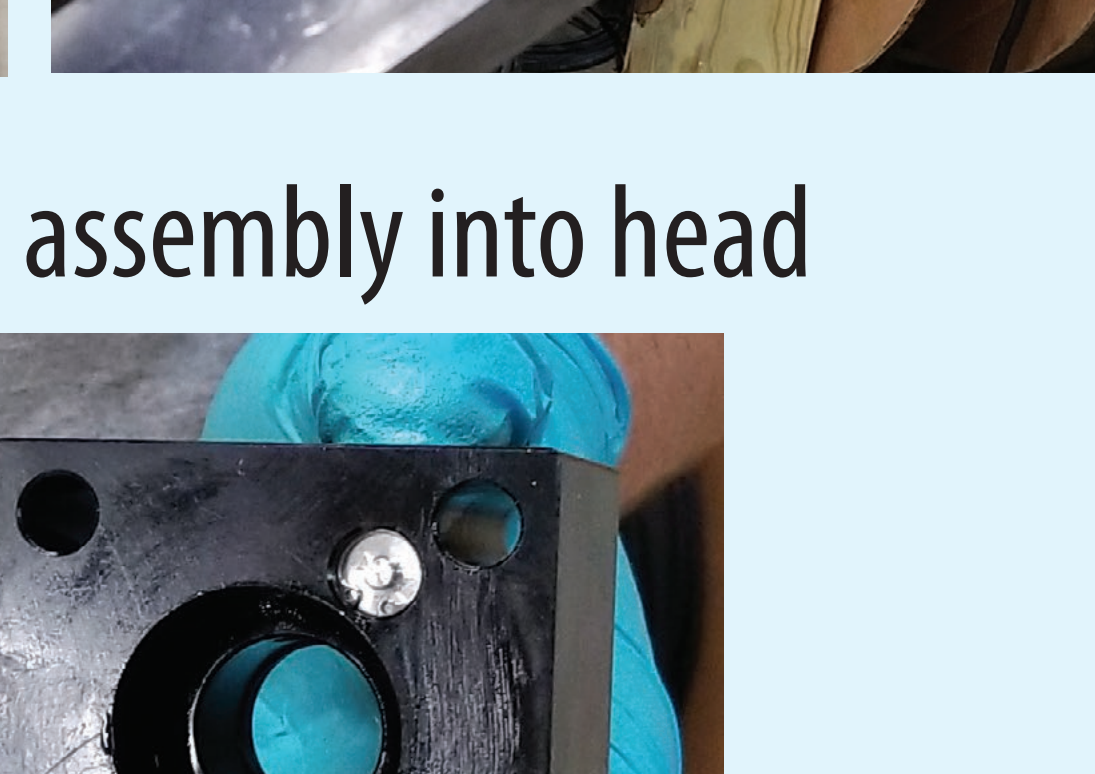
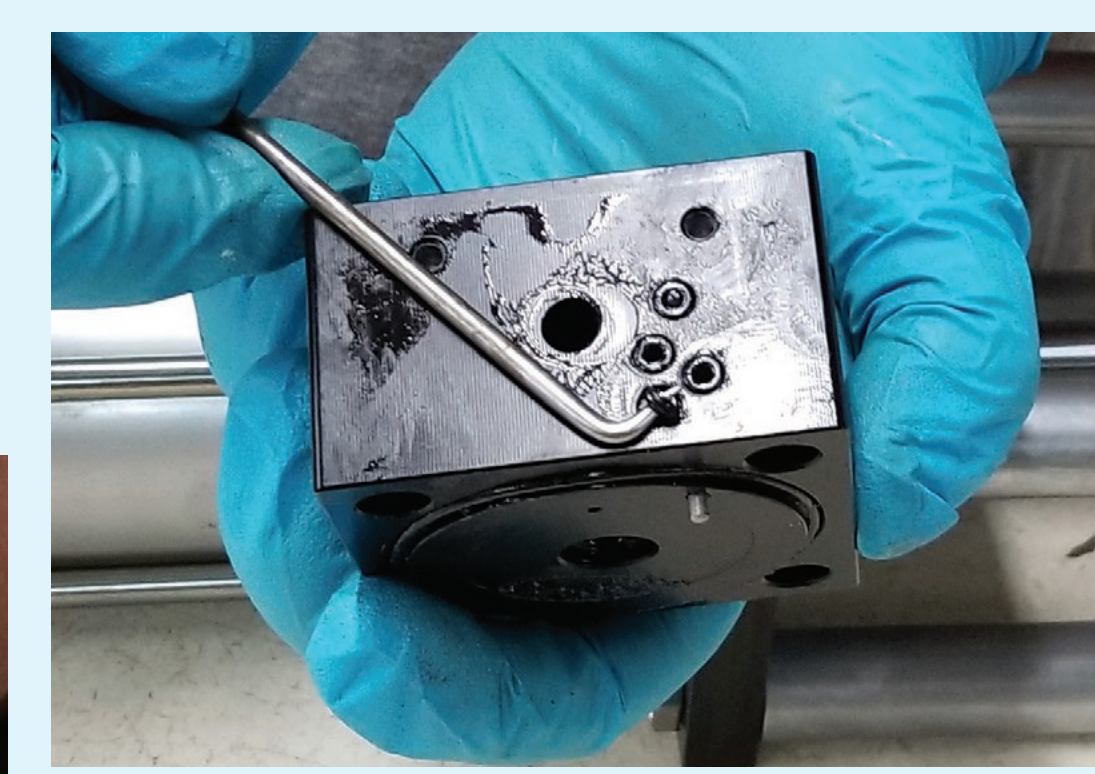
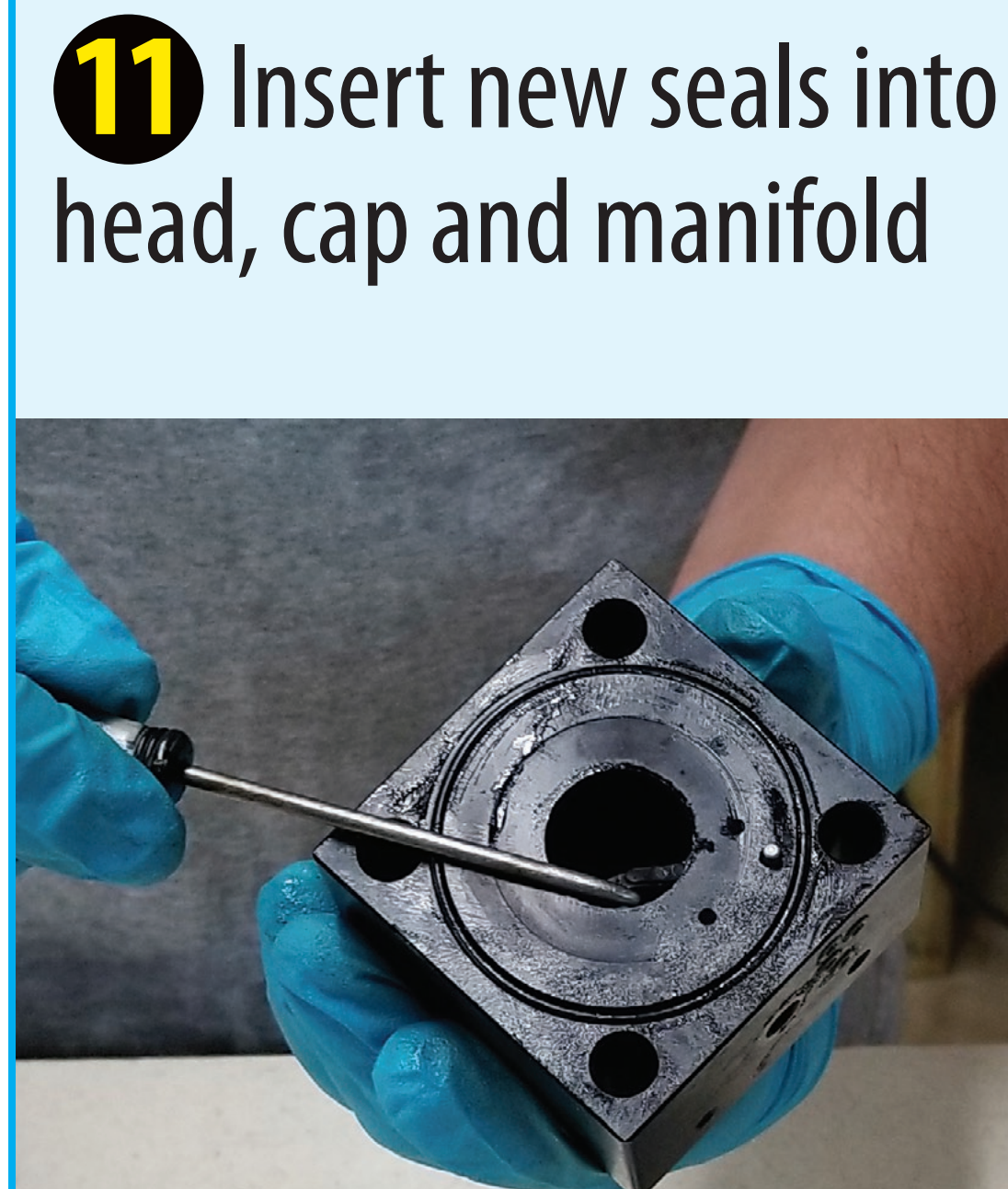
REBUILD THE STUFFING BOX ASSEMBLY:

- Insert new seals into stuffing-box cartridge
- Lubricate the exterior of cartridge with silicone spray
- Insert cartridge into stuffing-box block
- Insert new seal into auxiliary seal plate



REBUILD THE MANIFOLD ASSEMBLY:

- Insert new seals into head, cap and manifold
- Insert new nose-seal assembly into head
- Screw in and hand tighten manifold mufflers



REBUILD PISTON & CYLINDER:

- Place wear band, new seals on piston
- Using synthetic grease (small tube), lubricate both ends inside cylinder
- Insert rod and piston partway into cylinder; leave piston showing
- With synthetic grease, lubricate around piston seal
- Insert piston and rod fully into cylinder – with force if necessary, using rubber floor mat; do not strike on bare concrete



- With 9/64" hex wrench, screw manifold into cap



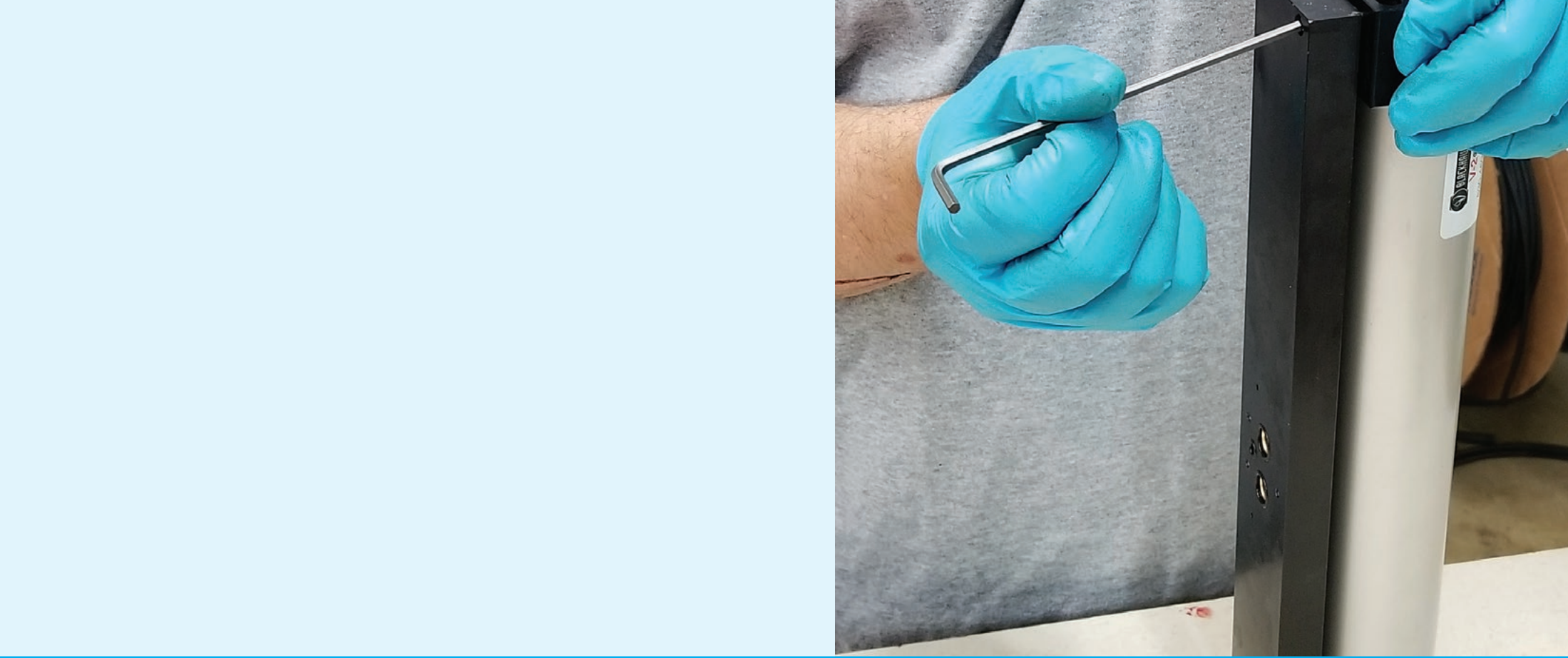
- Place cylinder on O-ring of cap



- Place head on cylinder

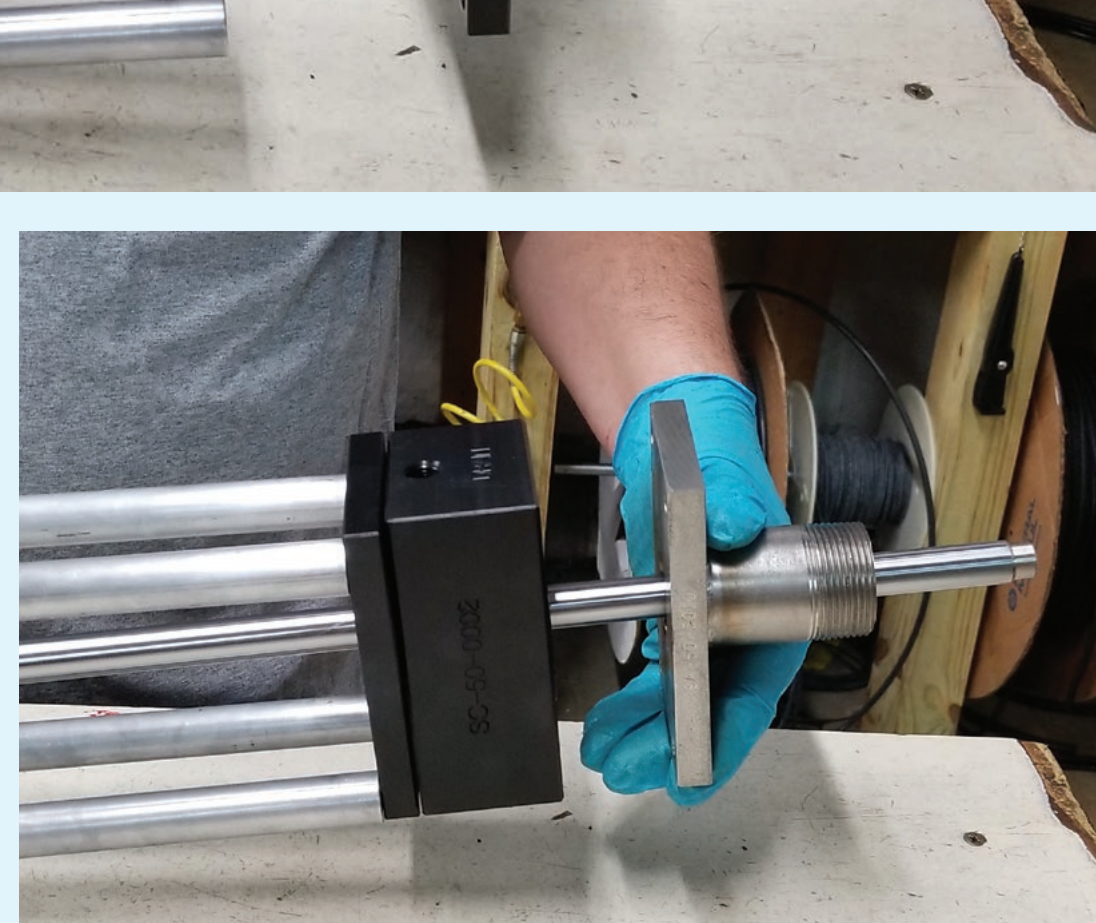
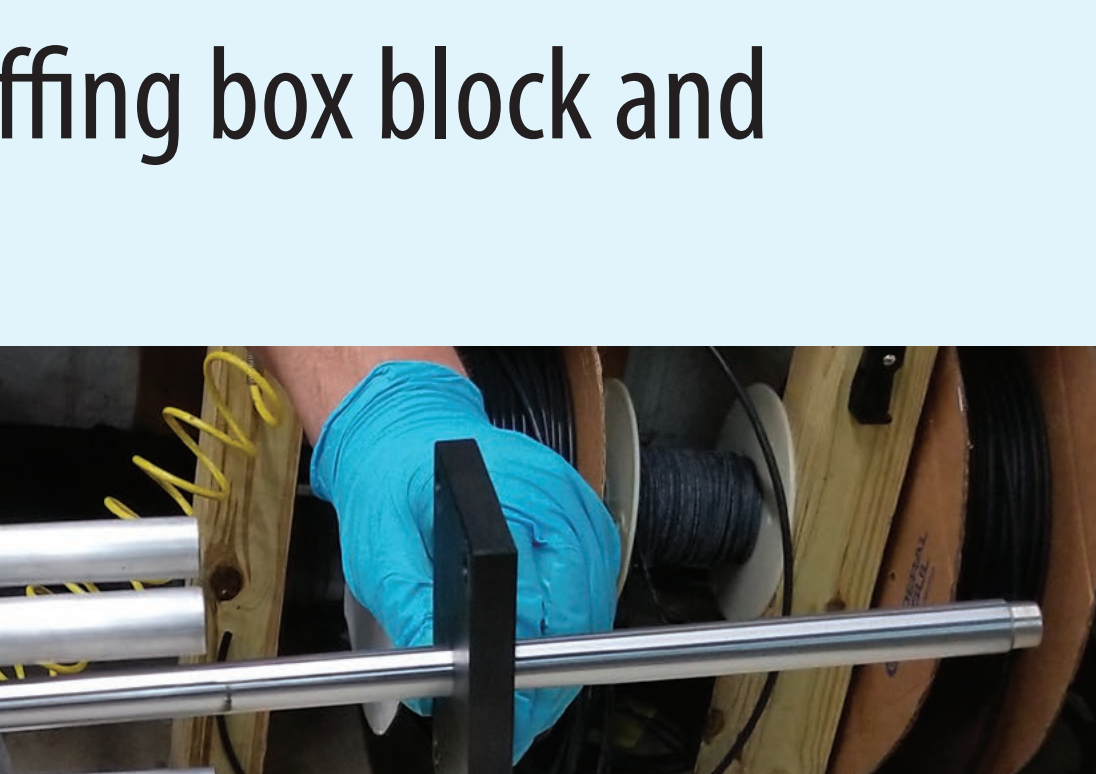


- With 9/64" hex, screw cap onto manifold



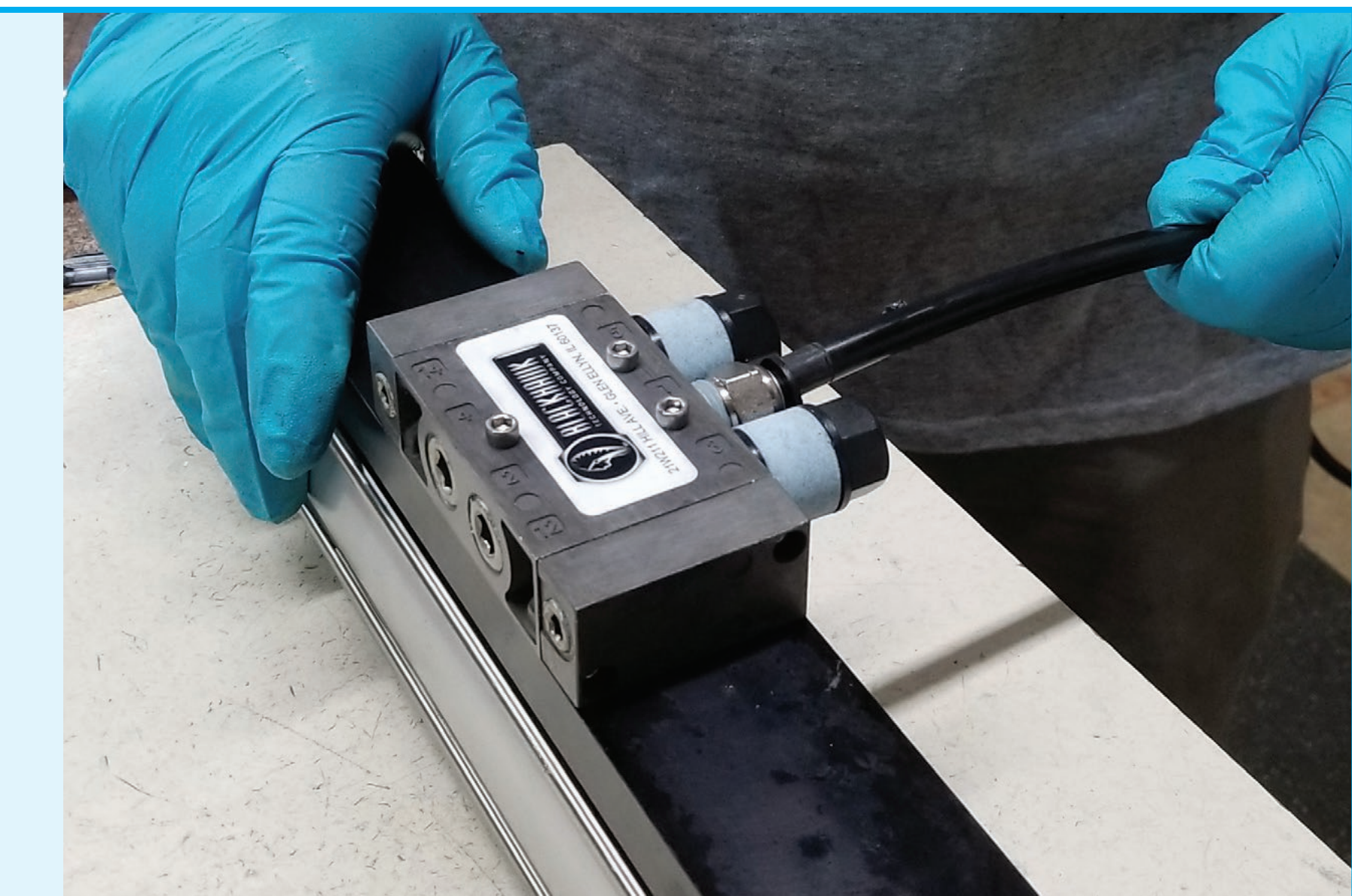
REBUILD TIE-ROD SUPPORT CAGE:

- Insert cylinder & manifold into support cage
- Attach valve with 9/64" hex
- Attach speed mufflers and air hose connection
- Attach seal plate, stuffing box block and mounting plate
- Bolt assembly together with 1/2" socket



COMPLETE ASSEMBLY:

- Attach airline and test operation



NOTE: Refer to Drive Motor Assembly drawing for part identification.
NOTE: New seal kits will be necessary for reassembly.