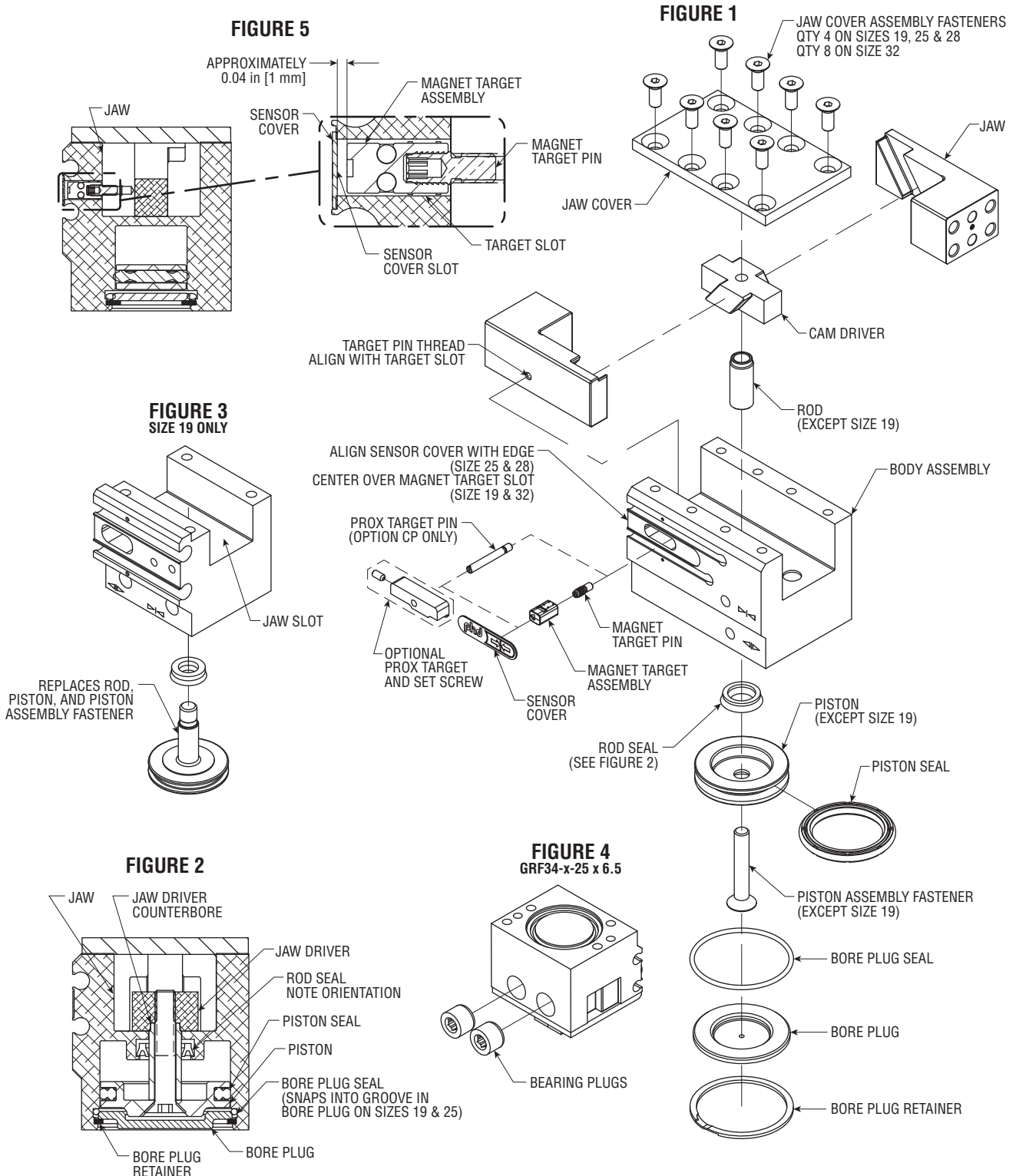


phd[®] REPAIR PROCEDURES: SERIES GRF DESIGN 2 [6] GRIPPERS

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DISASSEMBLY PROCEDURE

- 1) **WARNING:** All air pressure in the unit must be relieved prior to disassembly of gripper.
- 2) During disassembly, be careful to avoid scratching bearing or sealing areas. Refer to **Figure 1** unless otherwise noted.
- 3) **-CP units:** Remove proximity target (if attached) and prox target pin from jaw (CP proximity sensor ready option only).
- 4) **Standard units (see Figure 5):** Remove sensor cover (cannot be reused). Pulling straight out from gripper to prevent bending or breaking magnet target pin, use pliers to remove magnet target assembly (cannot be reused). Remove magnet target pin using 0.0605 in [1.5 mm] hex wrench.
- 5) Remove bore plug retainer, bore plug, and plug seal. Remove piston assembly fastener (size 25, 28, and 32). See **Figure 2**. Unscrew one-piece piston and rod on size 19. See **Figure 3**.
- 6) Remove jaw cover assembly fasteners retaining jaw cover.
- 7) Move jaws to closed position and lift jaws and jaw driver from body of gripper.
- 8) Push rod through body to press out piston and piston seal. Remove piston seal, taking care to avoid scratching sealing surface of seal groove in piston.
- 9) Remove rod seal, note orientation of seal.
- 10) Clean and inspect all components. **WARNING:** Worn or damaged components should be replaced.

REASSEMBLY PROCEDURE

- 1) Be careful to avoid damaging seals during reassembly.
- 2) Lubrication guidelines (only use lubricants which are compatible with pneumatic devices)
 - Standard Units: all components use petroleum-based high-pressure grease, oil wicks: petroleum-based heavy weight oil with Teflon
 - -Y4 and -V6 Units: all components use Cleanroom designated grease, oil wicks: Cleanroom designated heavy weight oil
 - -V1 Units: all components use PTFE based lubricant, oil wicks: PTFE-based heavy weight oil
- 3) Use removable threadlocker on all threaded fasteners.
- 4) Lubricate bore and grooves in body. Lubricate and install rod seal, see **Figure 2** for orientation.
- 5) Lubricate jaw slot, jaws, cam driver and jaw cover where jaws slide along cover.
- 6) **Size 19 piston and piston rod:** Replace and lubricate piston seal on one-piece piston and rod. Install piston and rod into bore, the thread at end of rod should be visible in jaw slot. See **Figure 3**. Apply small amount of liquid threadlocker to thread at end of piston and rod.
- 7) **Size 25, 28, and 32 piston rod:** Lubricate rod, install in body with narrowed section visible in jaw slot. See **Figures 1 and 2**.
- 8) **Size 19 jaws:** Install cam driver into one jaw. Place jaw and cam driver into a slot in jaw cover. Install remaining jaw into other slot in cover.
NOTE: jaws may need to be angled when inserting in cover slot. Verify that counterbore in cam driver (see **Figure 2**) is oriented to accept rod when assembled.
- 9) **Size 25, 28, and 32 jaws:** Assemble both jaws to cam driver and move jaws to closed position. Verify that counterbore in cam driver (see **Figure 2**) is oriented to accept rod when assembled. Note jaw orientation per Figure 1.
- 10) Align jaw and driver assembly with jaw slot. Slide assembly down into jaw slot. **Size 25, 28, and 32:** place lubricated jaw cover over onto body.
- 11) Apply removable threadlocker sparingly to jaw cover assembly fasteners and install in body. Torque jaw cover assembly fasteners per **Table 1**.
- 12) **Size 25, 28, and 32 piston:** Replace and lubricate piston seal. Insert piston with seal into body of gripper, see **Figure 2** for orientation.
- 13) **Size 25, 28, and 32 piston:** Apply removable threadlocker to piston assembly fastener and assemble through piston and rod into cam driver, torque per **Table 1**.
- 14) Lubricate and install bore plug seal, see **Figure 2** for location on sizes **28 and 32**. Sizes **19 and 25** lubricate and install seal into groove in bore plug.
NOTE: Bore plug seal on sizes **28 and 32** may require stretching prior to installation to allow proper installation of bore plug.
- 15) Lubricate and install bore plug, see **Figure 2** for orientation. Verify proper seating of bore plug.
- 16) Install bore plug retainer into body (sharp edges of retaining ring outward from body). Verify proper seating of retaining ring.
- 17) **Standard unit without -CP option:** Apply removable threadlocker sparingly to thread on magnet target pin and install through target slot in body into jaw, see **Figure 5**. Torque the magnet target pin in jaw per **Table 1**.
- 18) Press magnet target assembly onto magnet target pin as shown in **Figure 5** until target is approximately 0.040 in [1 mm] below sensor slot surface.
- 19) Clean sensor slot surface (see **Figure 5**) to remove any grease or dirt. Carefully remove backing from aluminum sensor cover.
(WARNING: if cover becomes bent it will not adhere or seal properly.) Install sensor cover onto sensor slot surface with cover aligned with edge as shown in **Figure 1**. Press firmly along length of cover to remove air.
- 20) **CP option:** Apply removable threadlocker sparingly to prox target pin and install through body into jaw. Torque prox target pin in jaw per **Table 1**.
- 21) **GRF34-x-25 x 6.5 only:** Apply removable threadlocker to bearing plugs on size 25. Install bearing plugs in body. See **Figure 4** for orientation. Apply air to unit and cycle at 30 psi [2.1 bar] while tightening bearing plugs. Tighten plugs until unit stops cycling, back-off screw until unit cycles freely. Allow threadlocker to cure before use of unit.

TABLE 1 - GRIPPER ASSEMBLY TORQUES

PART DESCRIPTION	SIZE 19		SIZE 25		SIZE 28		SIZE 32	
	in-lb	Nm	in-lb	Nm	in-lb	Nm	in-lb	Nm
JAW COVER ASSEMBLY FASTENER	7	0.8	9	1.0	17	1.9	17	1.9
PISTON ASSEMBLY FASTENER	7	0.8	17	1.9	17	1.9	25	2.8
MAGNET TARGET PIN (STD UNIT)	20 in-oz	0.14	20 in-oz	0.14	20 in-oz	0.14	20 in-oz	0.14
PROX TARGET PIN (CP OPTION ONLY)	40 in-oz	0.28	40 in-oz	0.28	40 in-oz	0.28	40 in-oz	0.28

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