

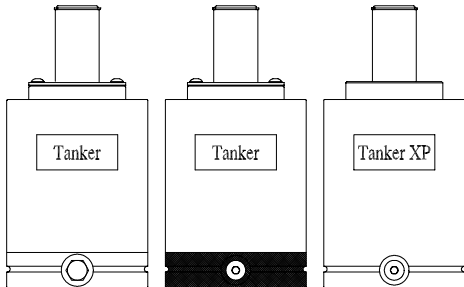
Service Tools

Model	Seal Kit P/N	Spanner Wrench	Socket Wrench	Valve Tool*	Service Gauge Assembly*	Service Fitting*	Adapter Block	Torque Fixture
TNK 3	57-150-7000	FS-100	SW-150	T2TK-IN	MGA-3000	T2-770-4	56-150-2006	56-TNK-5000
TNK 5.5	57-209-7000	FS-300	SW-209	T2TK-IN	MGA-3000	T2-770-4	56-209-5000	56-TNK-5000
TNK 9	57-262-7000	FS-434	SW-262	T2TK-IN	MGA-3000	T2-770-4	56-262-5000	56-TNK-5000

*Not valid for original Tanker with silver base. Use SGA 2000 service gauge assembly that includes SF-2000 service fitting.

Warnings

- Failure to exhaust all gas pressure prior to disassembly could result in serious injury.
- Maximum charging pressure is 138 bar (2000 psi).
- Never clamp the tank directly in a vise. Clamp only on the adapter block or torque fixture.



Identifying Tanker/ Tanker XP models

Silver base Black base Tanker XP

Discharging self-contained springs

1. Remove the charge port plug (21).
2. **For the black base TNK and TNK XP:** Close the bleed down valve on the MGA-3000 service gauge assembly. Thread the T2-770-4 service fitting into the charge port. Attach the MGA-3000 to the T2-770-4 to depress the valve. *Alternative method: Thread the T2TK-IN inlet valve tool into the charge port to depress the valve.*
For the original silver base TNK: Close the bleed down valve on the SGA-2000 service gauge assembly. Connect

the SF-2000 service fitting to the SGA-2000. Thread the SF-2000 into the charge port to depress the valve.

3. To verify all pressure has been exhausted, manually depress the piston rod (1) into the tank by striking the top of the rod with a rubber mallet.

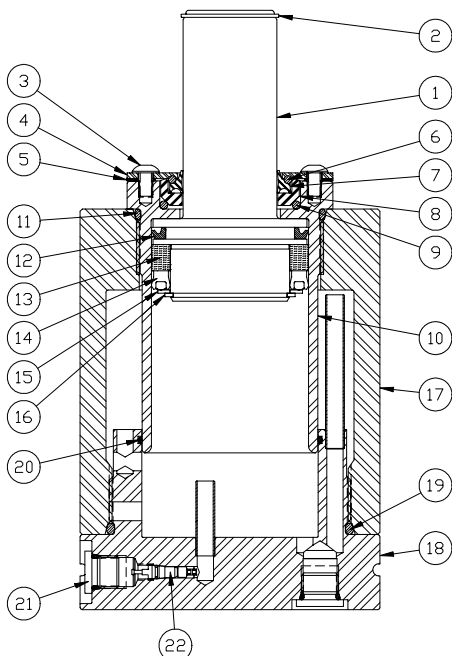
Charging self-contained springs

1. **For the black base TNK and TNK XP:** Close the bleed down valve on the MGA-3000 service gauge assembly. Thread the T2-770-4 service fitting into the charge port. Attach the MGA-3000 to the T2-770-4.
For the original silver base TNK: Close the bleed down valve on the SGA-2000 service gauge assembly. Connect the SF-2000 service fitting to the SGA-2000. Thread the SF-2000 into the charge port.
2. Open the valve on the nitrogen bottle and slowly charge the spring to the desired pressure.
3. Close the valve to the nitrogen bottle. Disconnect the service gauge assembly and unscrew the service fitting from the spring.
4. Thread the charge port plug (21) into the port.

Verification of assembly (Leak test)

1. Charge the gas spring to at least 500psi (35bar). Refer to charging instructions.
2. Slip the test o-ring supplied in the seal kit over the piston rod and position it against the bottom of the rod retainer (2).
3. Pour lightweight oil on the test o-ring and the rod scraper (7). If bubbles appear, nitrogen is leaking past the seal (14). **Note:** It may take several minutes for a small leak to be seen. If a leak is found, the spring would need to be discharged, disassembled, and inspected. A scratch on the cylinder tube surface or seal could be the cause.

Instructions for Silver & Black Base Tanker Models Only



Disassembly

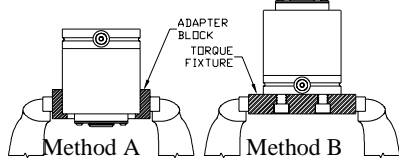
1. Verify all pressure has been exhausted from the spring by following the discharging instructions above.
2. Unthread the base (18) from the tank (17). It is not

necessary to remove the sleeve (10) from the tank (17).

Method A: Attach the adapter block to the rod end of the tank. Invert the assembly and install in a vise clamping on the adapter block. Using the spanner wrench, unscrew the base (18) from the tank (17). (Option: If the spring is tapped with bottom mounting threads, thread two bolts into the base and use a leverage bar to unscrew the base.)

Service Instructions for Tanker Gas Springs (TNK 3, 5.5 & 9)

Method B: (For springs with tapped mounting holes in base.) Screw the torque fixture onto the base. Clamp the torque fixture in a bench vise with the rod facing up. Using the socket wrench, unscrew the base (18) from the tank (17).



- Unwrap the rod retaining ring (2) from the piston rod (1). Remove the piston rod from the tank (17).
- Remove the seal retainer ring (16). The washer (15), seal (14), and piston bearing (13) can now be removed. **Note:** If using a screwdriver to pry the seal off the piston, be careful not to scratch the piston.
- Remove the scraper (12) from the piston.
- Unscrew the button head cap screws (3). Remove the retaining cap (4), gasket (5), upper o-ring (6), scraper (7), scraper retainer (8), and lower o-ring (9). **Note:** TNK 3 consists of only retainer cap, gasket, upper o-ring, and scraper.
- Save the tank (17)/ sleeve (10) assembly, base (18), piston rod (1), valve (22), port plug (21), and retainer cap (4). All other parts are included in the seal kit and can be discarded.

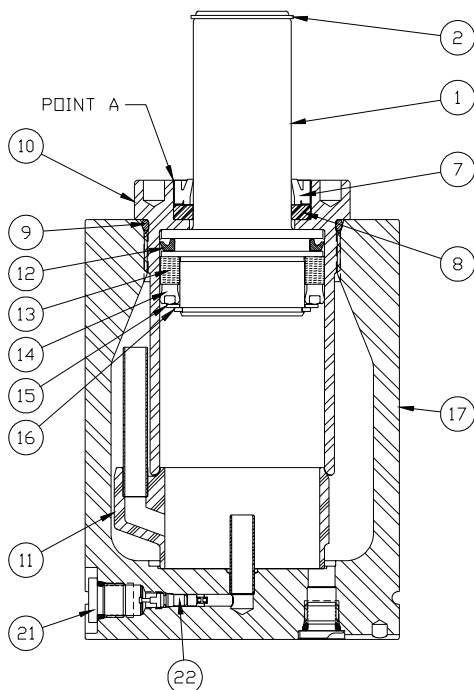
Inspection

- Clean the tank (17)/ sleeve (10) assembly, base (18), piston rod (1), port plug (21), and retainer cap (4).
- Visually inspect all components. The inner diameter of the sleeve and the surface of the piston where the seal rests are critical. Any scratches or dents will lead to premature leakage. If defects exist, replace the parts.

Assembly

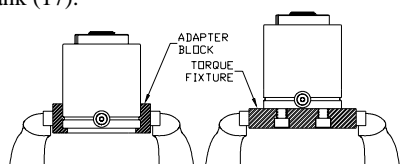
- Unpack the seal kit. The seal kit part number includes components to rebuild the original Tanker and Tanker XP. Therefore some components will not be used.

Instructions for Tanker XP Models only



Disassembly

- Verify all pressure has been exhausted from the spring by following the discharging instructions.
- Unthread the sleeve (10) from the tank (17). **Method A:** Attach the adapter blocks to the tank. Using the socket wrench, unscrew the sleeve (10) from the tank (17). **Method B:** (For springs with tapped mounting holes in base.) Screw the torque fixture onto the bottom of the tank. Clamp the torque fixture in a bench vise with the rod facing up. Using a socket wrench, unscrew the sleeve (10) from the tank (17).



- The seal kit contains Nitro-Dyne[®] Tanker Lube XP-33. There is a line drawn on the bottle indicating 25% of the oil volume. The 25% (above the line) is used as assembly oil. The remaining oil is poured into the tank.
- Insert the bore scraper (12) onto the piston rod (1) so the open end faces the rod. (Refer to drawing on previous page) **Note:** The bore scraper is a design upgrade and replaces the felt wiper.
- Liberally lubricate the piston rod and all components you will install on the piston. Insert the piston bearing (13), seal (14), washer (15), and retainer ring (16).
- Liberally oil the inner diameter of the sleeve (10). Push the piston rod (1) into the sleeve to the fully extended position.
- Assemble the rod scraper assembly. Lubricate the lower o-ring (9), scraper retainer (8), and upper o-ring (6). Place the lower o-ring (9) into the counter-bored pocket located at the top of the sleeve (10). Place the scraper retainer (8) over the o-ring. Insert the scraper (7) over the rod and press it into the scraper retainer using a flat edge screwdriver. Place the upper o-ring (6) onto the scraper sleeve. Position the gasket (5) on the top surface of the sleeve. Attach the retaining cap (4) using the new nylon patch screws (3). **Note:** TNK 3 consists of only retainer cap, gasket, upper o-ring, and scraper.
- Attach the rod retainer (2) in the groove located at the top of piston rod. Push the rod down and tighten the screws (3).
- Lubricate the upper and lower o-ring (19 & 20) and install them onto the base. Be careful not to cut the o-rings on the threads.
- Invert the spring and pour the remaining ¾ of XP-33 lubricant into the gas spring.
- Thread the base (18) into the spring. Tighten by hand until the base contacts the tank (17). Using Method A or B (defined in step 2) tighten the base to the specified torque value.
TNK 3: 150 lb-ft, TNK 5.5: 200 lb-ft, TNK 9: 300 lb-ft

Method A

Method B

- Remove the o-ring (9) from the sleeve (10).
- Remove the lubrication pump (11) from the tank (17).
- Unwrap the rod retaining ring (2) from the piston rod (1). Remove the piston rod from the sleeve (10).
- Remove the seal retainer ring (16). The washer (15), seal (14), and piston bearing (13) can now be removed. **Note:** If using a screwdriver to pry the seal off the piston, be careful not to scratch the piston.
- Remove the bore scraper (12) from the piston.
- Insert the end of a flat blade screwdriver between the sleeve (10) and the rod scraper (7) at point (A). Strike the screwdriver towards the center of the cylinder to deform the rod scraper (7). The scraper can then be pried out. **Note:** A new scraper will be supplied in the seal kit.
- Save the tank (17), sleeve (10), lubrication pump (11), valve (22), port plug (21) and piston rod (1). All other parts are included in the seal kit and can be discarded.

Inspection

- Clean the tank (17), sleeve (10), lubrication pump (11), port plug (21), and piston rod (1).
- Visually inspect all components. The inner diameter of the sleeve and the surface of the piston where the seal rests are critical. Any scratches or dents will lead to premature leakage. If defects exist, replace the parts.

Assembly

- Unpack the seal kit. The seal kit part number includes components to rebuild the original Tanker and Tanker XP. Therefore some components will not be used.
- The seal kit contains Nitro-Dyne Tanker Lube XP-33. There is a line drawn on the bottle indicating 25% of the oil volume. The 25% (above the line) is used as assembly oil. The remaining oil is poured into the tank.

Service Instructions for Tanker Gas Springs (TNK 3, 5.5 & 9)

19. Install the bearing (8) into the sleeve (10). Press the rod scraper (7) into the sleeve (10).
20. Insert the bore scraper (12) onto the piston rod so the open end faces the rod. (Refer to drawing)
21. Liberally lubricate the piston rod and all components you will install on the piston. Insert the piston bearing (13), seal (14), washer (15), and retainer ring (16).
22. Liberally oil the inner diameter of the sleeve (10) and o-ring (9). Press the piston rod (1) into the sleeve to the fully extended position. Install the o-ring (9) on the sleeve (10).
23. Attach the rod retainer (2) in the groove located at the top of piston rod (1).
24. Position the lubrication pump (11) into the tank. The smaller diameter side of the pump should rest in the machined groove at the bottom of the tank.
25. Pour the remaining $\frac{3}{4}$ of XP-33 lubricant into the tank (17). Thread the sleeve (10) into the tank (17). Tighten by hand until the sleeve contacts the tank. Using Method A or B (defined in step 2), tighten to the specified torque value.
TNK 3: 300 lb-ft, TNK 5.5: 400 lb-ft, TNK 9: 600 lb-ft