

## VALVE AND PLUMBING KIT INSTRUCTIONS

### 2406 LOADER

### AGCO ST25 FWA TRACTORS

Valve and plumbing kit can be installed using tools ordinarily available. Valve control handle has been factory preassembled for ease of installation.

Loader mounting kit must be installed before installing valve kit.

Reference to left and right used in these instructions refer to position when seated in operating position on tractor.

Shut off engine and engage brakes during installation.

**NOTE:** Apply sealant only to all tapered threads unless coupled with swivel adapters. When using Teflon tape, wrap tape clockwise (as viewed from end) and wrap only twice. Keep sealant away from first two threads of tapered end to prevent contamination of hydraulic fluid. Do not use sealant on O-ring or flare adapter threads.

#### ATTACHING VALVE TO LOADER MOUNTING BRACKET (Figures 1 & 3)

1. Install 3/4 x 9/16 elbow fitting (9) to power beyond port of valve (1). Install adapter fittings (22), female quick couplers (15) and 1" colored bands (16) to working ports of valve (1).
2. Fasten valve mounting plate (23) to valve mounting bracket (24) using 3/8 x 2-1/4 cap screws (2) and 3/8 lock nuts (5).
3. Fasten valve (1) with power beyond port on the bottom and decal mounting angle (4) to valve mounting plate (23), using 5/16 x 3/4 cap screws (6) and 5/16 lock washers (7)(Figures 1 & 4).
4. Making sure surface of decal mounting plate is clean and dry, remove backing from decal (20) and apply it to decal mounting plate.
5. Thread nut (13) onto handle (3). Attach handle (3) to valve (1). Slip boot (14) over handle and cover handle assembly. Attach ball (8) to handle.
6. Attach valve mounting bracket (24) to right midmounting bracket using 1/2 x 2-1/2 cap screws (32), 1/2 flat washers (11) and 1/2 lock nuts (33).

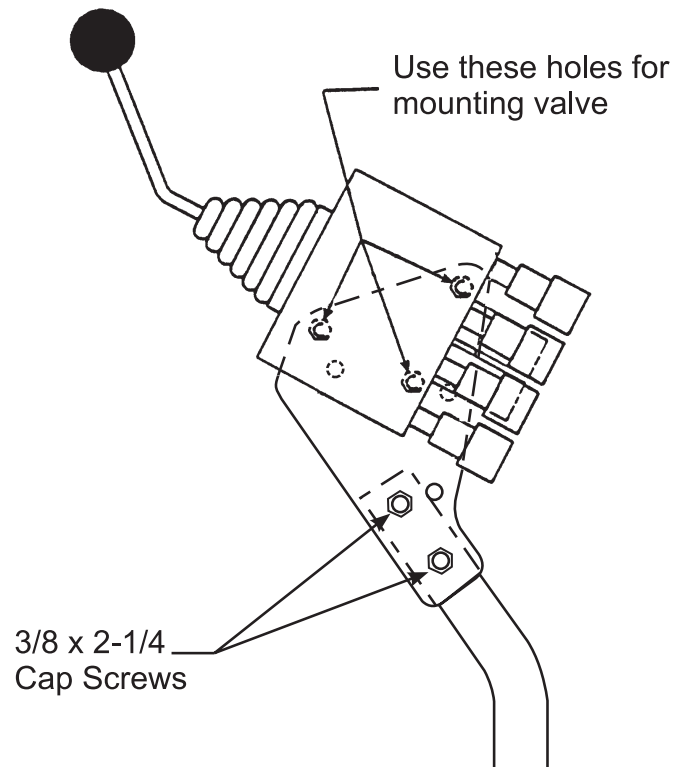


**WARNING:** Escaping hydraulic fluid under pressure can penetrate skin causing serious injury.

- DO NOT use your hands to check for leaks. Use a piece of cardboard or paper to search for leaks.
- Stop engine and relieve pressure before connecting or disconnecting lines.
- Tighten all connections before starting engine or pressurizing lines.

If any fluid is injected into skin, obtain medical attention immediately or gangrene may result.

**Figure 1**



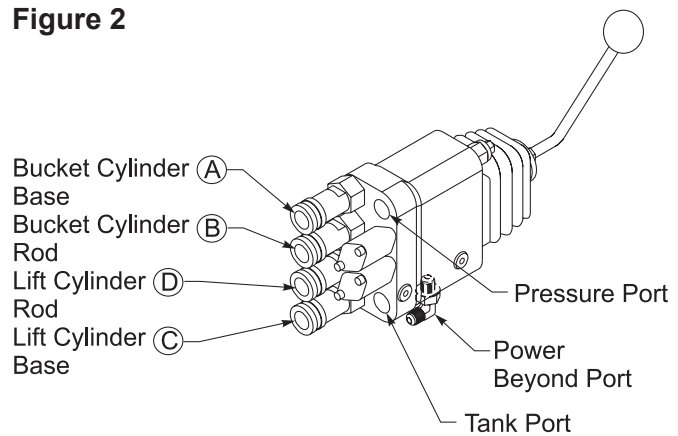
## PLUMBING CONTROL VALVE TO TRACTOR HYDRAULICS (Figures 2 & 3)

1. Remove cover from tractor hydraulic outlet, located below the tractor seat on the right side.
2. Install 9/16 x 9/16 x 90° elbow fitting (27) into power beyond port in rear face of hydraulic manifold block. Install 9/16 x 9/16 x 90° elbow fittings (27) into ports in front face (pressure) and right side (tank) of manifold block.
3. Position O-rings (30) into counterbores around holes in hydraulic manifold block (29). Fasten manifold block to the tractor hydraulic outlet using 8MM x 40MM cap screws (31) and lock washers (7).

**NOTE:** Make sure O-rings do not slip out of adapter block counterbores.

4. Connect 9/16 x 9/16 x 90° elbow fittings (28) to 9/16 x 9/16 x 90° elbow fitting (27).
5. Install 3/8 x 66 hose (12) to power beyond port on valve (1). Install 3/8 x 66 hoses (10) to pressure and tank ports on valve.
6. Route hoses (10 & 12) down along valve mounting tube and under tractor foot plate to manifold block. Connect power beyond hose (12) to power beyond port on hydraulic block. Connect pressure hose (10) to pressure port on hydraulic block. Connect tank hose (10) to tank port on hydraulic block.
7. Secure hoses (10 & 12) to tractor and to valve stand tube using 3/16 x 11 plastic tie straps (21).

**Figure 2**



## PLUMBING LOADER TO CONTROL VALVE

1. Install 1/4 x 60 hoses (17) onto boom oil line tubes. Install and tighten hose fittings one at a time from the bottom up. Loosening the closest oil line clamp will ease installation.
2. Install spiral bands (18) onto free ends of hoses (17) to match bands on female quick couplers (15). Slide nylon sleeve (25) over hoses (17) and install male quick couplers (19) onto free ends of hoses.
3. Connect hoses from upper two boom oil lines to upper quick couplers and connect hoses from lower two boom oil lines to lower quick couplers. Wrap rubber strap (26) around nylon sleeve and hook on itself. Attach free end of rubber strap to hole provided in right side frame channel.
4. After all plumbing has been completed slowly cycle lift and bucket cylinders several times to purge air from hydraulic system. Retract cylinders and shut off tractor engine. Replenish tractor hydraulic system.

**NOTE:** When cycling loader, operate loader according to operation decal (20) on valve box. If direction of control lever is wrong, or loader will not lower, recheck connections shown.



**WARNING:** Escaping hydraulic fluid under pressure can have sufficient force to penetrate skin causing serious personal injury. If injured by escaping hydraulic fluid, obtain medical treatment immediately.

## PRINCE LVR VALVE SERVICE

Following is an outline procedure for disassembling and reassembling valve.



**WARNING:** The valve has a factory pre-set valve relief setting. Tampering with this setting can cause serious injury to operator and damage to tractor or loader. Unauthorized adjustments or service to valve relief will VOID WARRANTY of both loader and tractor. If adjustments or service to valve relief are required during warranty period, an authorized service department must be consulted for authorization.

### VALVE DISASSEMBLY (Figure 4)

**NOTE:** Mark or tag all parts so they are reinstalled in their proper positions.

1. Slide boot (6) to top of handle (34). Remove hex head cap screws (36) from rod ends (9 & 10). Remove handle with boot and adapter plate (8). Remove nuts (28 & 31) from spool stud (7) and rod end assemblies (10). Remove spool stud (7) and rod end assemblies (10) from valve.

**NOTE:** Spool adapters (33) are factory assembled. Removal from spools is not necessary. If replacing a damaged adapter, clean threads with loctite primer and install using loctite 262.

2. Remove hex head cap screws (13) and end caps (14) from both spools. Remove detent sleeve (12) from regen spool. Remove steel balls (20), poppet (21), and poppet spring (19) from detent retainer (24). Remove retaining flat (15) and detent spacer (16) from regen spool.
3. Secure handle end of regen spool. Using a rod through retainer ball holes, remove detent retainer (24) from regen spool.

**NOTE:** Detent retainers (18 & 24) are installed on spools using Loctite 222 or equivalent. If spool adapter comes loose instead of detent retainer, pull spool completely out of valve and secure spool using vice grips on land section of spool not machined for valve bore.

4. Remove washer (17), centering spring (26), and stop cup (23) from regen spool.
5. Holding in on float detent sleeve (22), push in float spool from handle end and remove steel balls (20) from float detent retainer (18). Remove float detent sleeve (22), poppet (21), poppet spring (19), retaining flat (15) and spacer (16) from float spool.

6. Secure handle end of float spool. Using a rod through retainer ball holes, remove detent retainer (18) from float spool.

**NOTE:** Detent retainers (18 & 24) are installed on spools using Loctite 222 or equivalent. If spool adapter comes loose instead of detent retainer, pull spool completely out of valve and secure spool using vice grips on land section of spool not machined for valve bore.

Remove washer (17), centering spring (26) and stop cup (23) from float spool.

7. Push spools in from handle end until rear spool seals (1) are exposed. Using wire hook and screwdriver remove rear spool seals. Push spools in from the rear until front spool seals (1) are exposed. Using wire hook and screwdriver remove front spool seals.
8. Clean all parts, including valve body, in suitable cleaning solvent. After cleaning parts with solvent, use air pressure to blow any dirt or excess solvent from all parts including inside of valve body.

### VALVE REASSEMBLY

1. Examine all parts for wear and damage and replace if necessary.
2. Lubricate all O-rings and spools with oil to prevent damage when assembling.
3. Lubricate all detent and spring centering parts with a light coat of grease before assembling.
4. Reassemble all parts in reverse order of disassembly.

**NOTE:** Use Loctite 222 or equivalent when installing detent retainers (18 & 24).

### RELIEF VALVE, LOAD CHECK PLUGS and POWER BEYOND SLEEVE

**NOTE:** Relief valve (3), load check plugs (27) and power beyond sleeve (2) may be removed separately to clean inspect or replace parts without removing valve spools.

**NOTE:** If repairing or replacing relief valve (3), torque larger hex nut (relief body) to 20-25 ft-lbs.

### REPLACING HANDLE PARTS

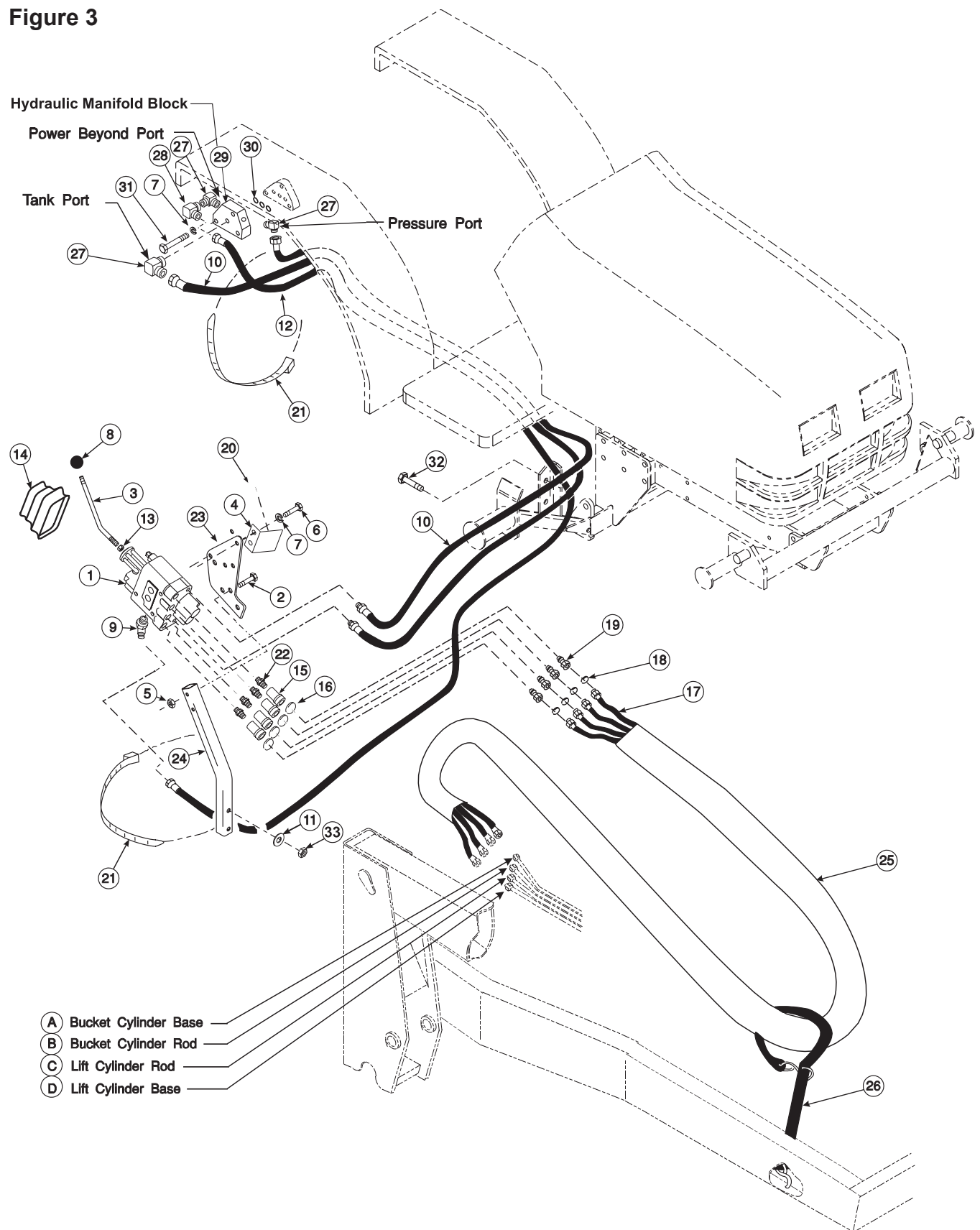
If replacing damaged handle parts, clean threads with loctite primer and install using loctite 242. Torque parts as shown in Figure 4.

## 2-7138

### PARTS LIST — VALVE AND PLUMBING KIT

| Item | Part No. | Description                                       | QTY. |
|------|----------|---------------------------------------------------|------|
| 1    | 53462    | VALVE, Prince LVR (1800 PSI)                      | 1    |
| 2    | G180132  | SCREW, Cap, 3/8-16 x 2-1/4                        | 2    |
| 3    | 43517    | HANDLE, Standard                                  | 1    |
| 4    | 43451    | ANGLE, Decal Mounting                             | 1    |
| 5    | G9413534 | NUT, Lock, 3/8-16                                 | 2    |
| 6    | G180077  | SCREW, Cap, 5/16-18 x 3/4                         | 3    |
| 7    | G120214  | WASHER, Lock, 5/16                                | 6    |
| 8    | 38902    | BALL, Handle                                      | 1    |
| 9    | 32845-7  | FITTING, Elbow, 9/16-18 JIC x 3/4-16 O-ring, 90°  | 1    |
| 10   | 43454-5  | HOSE, 3/8 X 66 (Pressure & Tank)                  | 2    |
| 11   | G120396  | WASHER, Flat, 1/2                                 | 2    |
| 12   | 36386-16 | HOSE, 3/8 x 66 (Power Beyond)                     | 1    |
| 13   | G271506  | NUT, Hex, 7/16-20                                 | 1    |
| 14   | 43635    | BOOT                                              | 1    |
| 15   | 6147-4   | COUPLER, Female                                   | 4    |
| 16   | 36240-9  | SPIRAL BAND, Plastic, Blue, 1"                    | 1    |
|      | 36240-10 | SPIRAL BAND, Plastic, Red, 1"                     | 1    |
|      | 36240-11 | SPIRAL BAND, Plastic, Yellow, 1"                  | 1    |
|      | 36240-12 | SPIRAL BAND, Plastic, Green, 1"                   | 1    |
| 17   | 36251-3  | HOSE, 1/4 x 60                                    | 4    |
| 18   | 36240-5  | SPIRAL BAND, Plastic, Blue, 5/8                   | 1    |
|      | 36240-6  | SPIRAL BAND, Plastic, Red, 5/8                    | 1    |
|      | 36240-7  | SPIRAL BAND, Plastic, Yellow, 5/8                 | 1    |
|      | 36240-8  | SPIRAL BAND, Plastic, Green, 5/8                  | 1    |
| 19   | 6137-4   | COUPLER, Male                                     | 4    |
| 20   | 43453    | DECAL, Single Handle Control                      | 1    |
| 21   | 8137-1   | STRAP, Adjustable                                 | 5    |
| 22   | 39280-7  | FITTING, Adapter, 3/4-16 O-ring x 3/8 NPT         | 4    |
| 23   | 43450    | PLATE, Valve Mounting                             | 1    |
| 24   | 43541    | BRACKET, Valve Mounting                           | 1    |
| 25   | 34853-17 | SLEEVE, Nylon                                     | 58"  |
| 26   | 7438-1   | TARP Strap                                        | 1    |
| 27   | 32845-1  | FITTING, Elbow, 9/16-18 O-ring x 9/16-18 JIC, 90° | 3    |
| 28   | 34128-3  | FITTING, Elbow, 9/16-18 x 9/16-18 JIC, 90°        | 1    |
| 29   | 36895    | MANIFOLD BLOCK, Hydraulic                         | 1    |
| 30   | 6000-20  | O-ring, 7/16 x 5/8 x 3/32                         | 3    |
| 31   | 6090-34  | SCREW, Cap, 8MM-1.25MM x 40MM                     | 3    |
| 32   | G180185  | SCREW, Cap, 1/2-13 x 2-1/2                        | 2    |
| 33   | G9414074 | NUT, Lock, 1/2-13                                 | 2    |

Figure 3

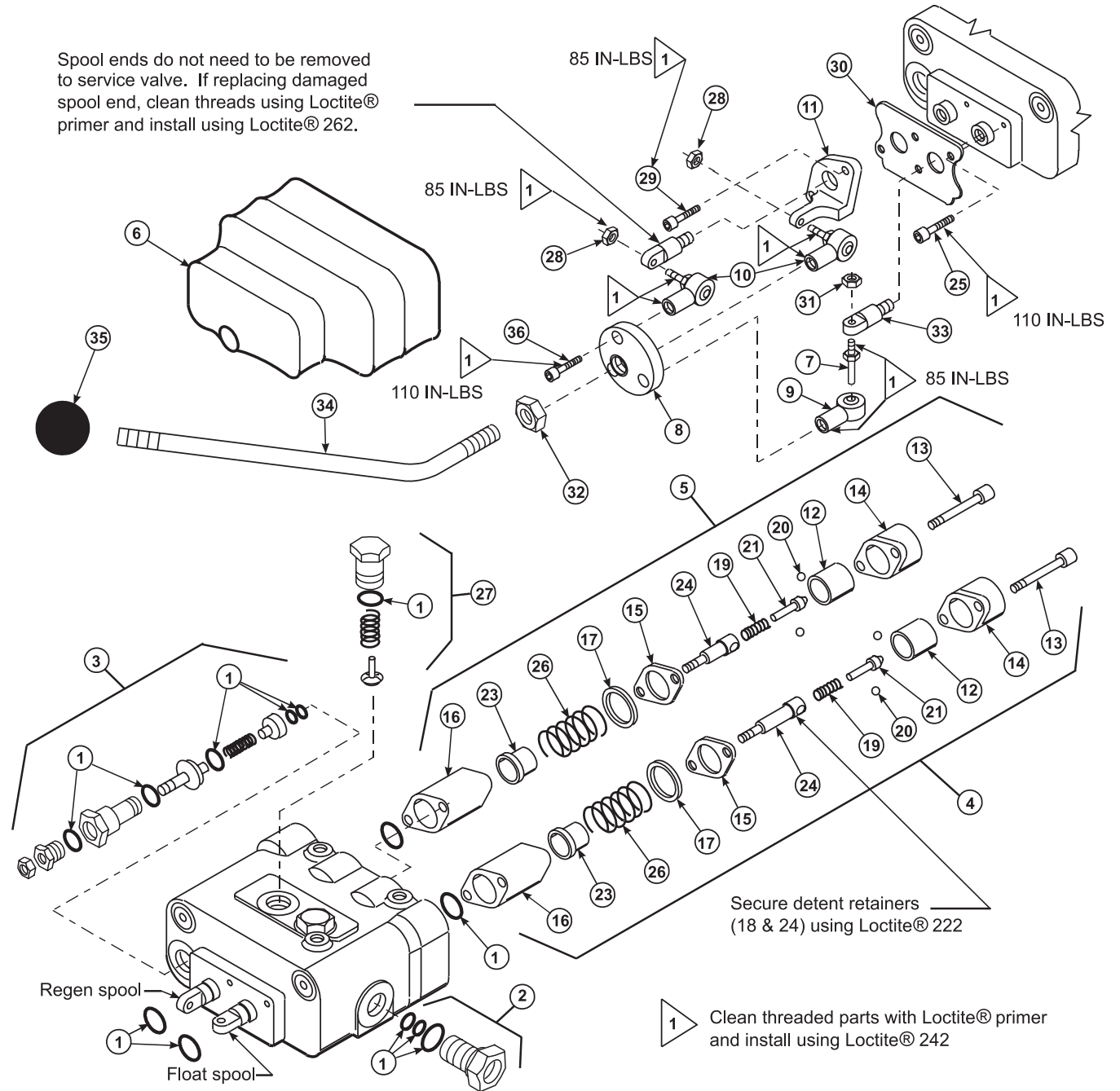


## PARTS LIST – PRINCE LVR VALVE

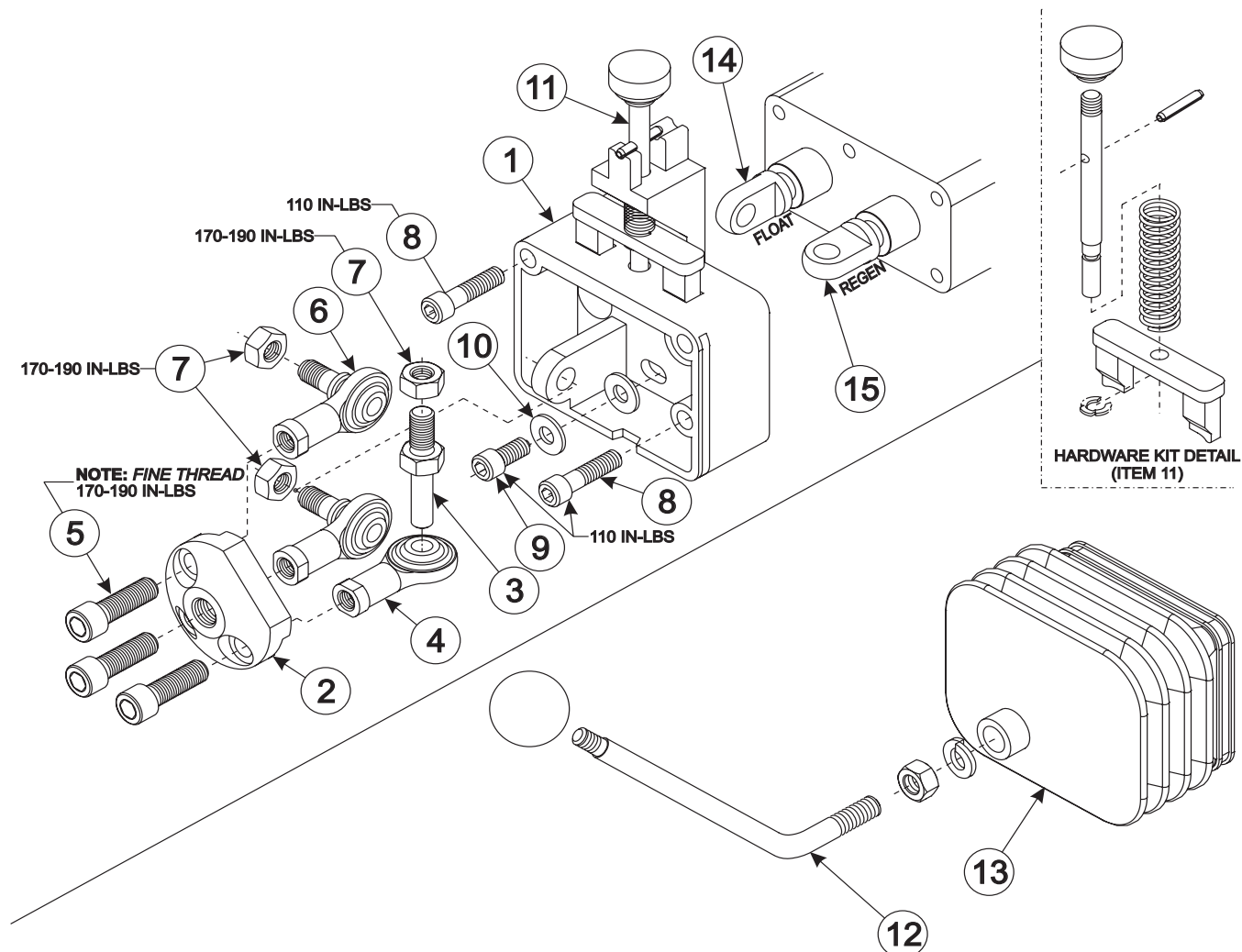
| Item | Part No. | Description                                                                                             | Qty. |
|------|----------|---------------------------------------------------------------------------------------------------------|------|
| 1    | 43633    | SEAL KIT                                                                                                | 1    |
| 2    | 43636    | POWER BEYOND SLEEVE                                                                                     | 1    |
| 3    | 43637-4  | RELIEF VALVE (1800 PSI)                                                                                 | 1    |
| 4    | 43638    | FLOAT KIT, (Includes 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 26)                                | 1    |
| 5    | 43639    | REGEN KIT, (Includes items 12, 13, 14, 15, 16, 17, 19, 20, 21, 24, and 26)                              | 1    |
| 6    | 43635    | BOOT, Rubber, Valve Handle                                                                              | 1    |
| 7    | 51076    | STUD, Spool                                                                                             | 1    |
| 8    | 51078    | ADAPTER PLATE                                                                                           | 1    |
| 9    | 38900-4  | ROD END                                                                                                 | 1    |
| 10   | 51075    | ROD END, Assembly                                                                                       | 2    |
| 11   | 51079    | CLEVIS                                                                                                  | 1    |
| 14   | 44476-2  | END CAP (Manufacturer's part number (HC-V-AA26) stamped on end cap identifies valve and relief setting) | 2    |
| 25   | 44743-5  | SCREW, Cap, Socket Head, 1/4-20 x 1/2"                                                                  | 2    |
| 26   | 44460    | PLUG, Load Check                                                                                        | 2    |
| 28   | 41836-2  | NUT, Hex, 5/16"                                                                                         | 3    |
| 29   | 44743-3  | SCREW, Cap, Socket Head, 1/4-20 x 7/8"                                                                  | 2    |
| 30   | 51080    | PLATE                                                                                                   | 1    |
| 31   | 51081    | WASHER, Shim, 5/16"                                                                                     | 1    |
| 32   | G271506  | NUT, Hex, 7/16-20                                                                                       | 1    |
| 33   | 51077    | END, Spool                                                                                              | 2    |
| 34   | 43517    | HANDLE, Valve, Standard                                                                                 | 1    |
| 35   | 38902    | BALL, Handle                                                                                            | 1    |
| 36   | 44743-4  | SCREW, Cap, Socket Head, 5/16-24 x 3/4"                                                                 | 3    |
| 37   | G120383  | WASHER, Lock, 7/16"                                                                                     | 1    |

**NOTE:** Individual items not listed in repair parts listing are not available separately.

Figure 4



**Figure 5**  
**VALVE EQUIPPED WITH LOCKOUT FEATURE**



**PARTS LIST - JOYSTICK SUB-ASSY WITH DUAL SPOOL LOCK**

| Item | Part No. | Description                        | Qty. |
|------|----------|------------------------------------|------|
| 1    | *        | CLEVIS, Spool Lock                 | 1    |
| 2    | *        | PLATE, Adapter                     | 1    |
| 3    | 55821    | STUD, Spool                        | 1    |
| 4    | 55822    | END, Rod                           | 1    |
| 5    | *        | SCREW, Cap                         | 3    |
| 6    | 55823    | ASSY, Rod End                      | 2    |
| 7    | *        | NUT, Hex                           | 3    |
| 8    | *        | SCREW, Cap                         | 2    |
| 9    | *        | SCREW, Cap                         | 1    |
| 10   | *        | WASHER, Flat                       | 1    |
| 11   | 55824    | KIT, Spool Lock Hardware           | 1    |
| 12   | 56004    | KIT, Bent Handle                   | 1    |
| 13   | 55826    | KIT, Boot/Cable Tie                | 1    |
| 14   | 55917    | ADAPTER, Float Spool               | 1    |
| 15   | 55918    | ADAPTER, Regen Spool               | 1    |
| 16   | 55827    | KIT, Sub-Assy, Includes Items 1-11 | 1    |

**\* NOTE:** Individual items not listed in repair parts listing are not available separately.  
**For valve block service parts, see previous page.**

## GENERAL TORQUE SPECIFICATIONS

USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES ARE NOT GIVEN

### Standard American and Metric Cap Screws

| AMERICAN STANDARD CAP SCREWS |                                                                                   |      |      |      |                                                                                   |     |      |      | METRIC CAP SCREWS                                                                                                                                                                                                         |                                                                                                                                                                         |      |      |      |                                                                                                                                                                         |      |      |      |
|------------------------------|-----------------------------------------------------------------------------------|------|------|------|-----------------------------------------------------------------------------------|-----|------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|
| SAE Grade                    | 5                                                                                 |      |      |      | 8                                                                                 |     |      |      | Metric Class                                                                                                                                                                                                              | 8.8                                                                                                                                                                     |      |      |      | 10.9                                                                                                                                                                    |      |      |      |
| Typ. Head Markings           |  |      |      |      |  |     |      |      | Typ. Head Markings                                                                                                                                                                                                        |   |      |      |      |   |      |      |      |
| Cap Screw                    | TORQUE                                                                            |      |      |      | TORQUE                                                                            |     |      |      | Cap Screw                                                                                                                                                                                                                 | TORQUE                                                                                                                                                                  |      |      |      | TORQUE                                                                                                                                                                  |      |      |      |
| Size                         | FT-LBS                                                                            |      | N-m  |      | FT-LBS                                                                            |     | N-m  |      | Size                                                                                                                                                                                                                      | FT-LBS                                                                                                                                                                  |      | N-m  |      | FT-LBS                                                                                                                                                                  |      | N-m  |      |
| Inches                       | MIN                                                                               | MAX  | MIN  | MAX  | MIN                                                                               | MAX | MIN  | MAX  | Millimeters                                                                                                                                                                                                               | MIN                                                                                                                                                                     | MAX  | MIN  | MAX  | MIN                                                                                                                                                                     | MAX  | MIN  | MAX  |
| 1/4 - 20                     | 6.25                                                                              | 7.25 | 8.5  | 10   | 8.25                                                                              | 9.5 | 11   | 13   | M6 x 1.00                                                                                                                                                                                                                 | 6                                                                                                                                                                       | 8    | 8    | 11   | 9                                                                                                                                                                       | 11   | 12   | 15   |
| 1/4 - 28                     | 8                                                                                 | 9    | 11   | 12   | 10.5                                                                              | 12  | 14   | 16   | M8 x 1.25                                                                                                                                                                                                                 | 16                                                                                                                                                                      | 20   | 21.5 | 27   | 23                                                                                                                                                                      | 27   | 31   | 36.5 |
| 5/16 - 18                    | 14                                                                                | 15   | 19   | 20   | 18.5                                                                              | 20  | 25   | 27   | M10 x 1.50                                                                                                                                                                                                                | 29                                                                                                                                                                      | 35   | 39   | 47   | 42                                                                                                                                                                      | 52   | 57   | 70   |
| 5/16 - 24                    | 17.5                                                                              | 19   | 23   | 26   | 23                                                                                | 25  | 31   | 34   | M12 x 1.75                                                                                                                                                                                                                | 52                                                                                                                                                                      | 62   | 70   | 84   | 75                                                                                                                                                                      | 91   | 102  | 123  |
| 3/8 - 16                     | 26                                                                                | 28   | 35   | 38   | 35                                                                                | 37  | 47.5 | 50   | M14 x 2.00                                                                                                                                                                                                                | 85                                                                                                                                                                      | 103  | 115  | 139  | 120                                                                                                                                                                     | 146  | 163  | 198  |
| 3/8 - 24                     | 31                                                                                | 34   | 42   | 46   | 41                                                                                | 45  | 55.5 | 61   | M16 x 2.50                                                                                                                                                                                                                | 130                                                                                                                                                                     | 158  | 176  | 214  | 176                                                                                                                                                                     | 216  | 238  | 293  |
| 7/16 - 14                    | 41                                                                                | 45   | 55.5 | 61   | 55                                                                                | 60  | 74.5 | 81   | M18 x 2.50                                                                                                                                                                                                                | 172                                                                                                                                                                     | 210  | 233  | 284  | 240                                                                                                                                                                     | 294  | 325  | 398  |
| 7/16 - 20                    | 51                                                                                | 55   | 69   | 74.5 | 68                                                                                | 75  | 92   | 102  | M20 x 2.50                                                                                                                                                                                                                | 247                                                                                                                                                                     | 301  | 335  | 408  | 343                                                                                                                                                                     | 426  | 465  | 577  |
| 1/2 - 13                     | 65                                                                                | 72   | 88   | 97.5 | 86                                                                                | 96  | 116  | 130  | M22 x 2.50                                                                                                                                                                                                                | 332                                                                                                                                                                     | 404  | 450  | 547  | 472                                                                                                                                                                     | 576  | 639  | 780  |
| 1/2 - 20                     | 76                                                                                | 84   | 103  | 114  | 102                                                                               | 112 | 138  | 152  | M24 x 3.00                                                                                                                                                                                                                | 423                                                                                                                                                                     | 517  | 573  | 700  | 599                                                                                                                                                                     | 732  | 812  | 992  |
| 9/16 - 12                    | 95                                                                                | 105  | 129  | 142  | 127                                                                               | 140 | 172  | 190  | M27 x 3.00                                                                                                                                                                                                                | 637                                                                                                                                                                     | 779  | 863  | 1055 | 898                                                                                                                                                                     | 1098 | 1217 | 1488 |
| 9/16 - 18                    | 111                                                                               | 123  | 150  | 167  | 148                                                                               | 164 | 200  | 222  | M30 x 3.00                                                                                                                                                                                                                | 872                                                                                                                                                                     | 1066 | 1181 | 1444 | 1224                                                                                                                                                                    | 1496 | 1658 | 2027 |
| 5/8 - 11                     | 126                                                                               | 139  | 171  | 188  | 168                                                                               | 185 | 228  | 251  | <b>NOTE:</b> These values apply to fasteners as received from supplier, dry or when lubricated with normal engine oil. They do not apply if special graphite or molsulphide greases or other extreme lubricants are used. |                                                                                                                                                                         |      |      |      |                                                                                                                                                                         |      |      |      |
| 5/8 - 18                     | 152                                                                               | 168  | 206  | 228  | 203                                                                               | 224 | 275  | 304  |                                                                                                                                                                                                                           |                                                                                                                                                                         |      |      |      |                                                                                                                                                                         |      |      |      |
| 3/4 - 10                     | 238                                                                               | 262  | 322  | 355  | 318                                                                               | 350 | 431  | 474  |                                                                                                                                                                                                                           |                                                                                                                                                                         |      |      |      |                                                                                                                                                                         |      |      |      |
| 3/4 - 16                     | 274                                                                               | 305  | 371  | 409  | 365                                                                               | 402 | 495  | 544  |                                                                                                                                                                                                                           |                                                                                                                                                                         |      |      |      |                                                                                                                                                                         |      |      |      |
| 7/8 - 9                      | 350                                                                               | 386  | 474  | 523  | 466                                                                               | 515 | 631  | 698  |                                                                                                                                                                                                                           |                                                                                                                                                                         |      |      |      |                                                                                                                                                                         |      |      |      |
| 7/8 - 14                     | 407                                                                               | 448  | 551  | 607  | 543                                                                               | 597 | 736  | 809  |                                                                                                                                                                                                                           |                                                                                                                                                                         |      |      |      |                                                                                                                                                                         |      |      |      |
| 1 - 8                        | 537                                                                               | 592  | 728  | 802  | 716                                                                               | 790 | 970  | 1070 |                                                                                                                                                                                                                           |                                                                                                                                                                         |      |      |      |                                                                                                                                                                         |      |      |      |
| 1 - 14                       | 670                                                                               | 740  | 908  | 1003 | 894                                                                               | 987 | 1211 | 1337 |                                                                                                                                                                                                                           |                                                                                                                                                                         |      |      |      |                                                                                                                                                                         |      |      |      |

### 37° JIC Fittings

| Size | Thread Size | Assembly Torque |          | Tube Connection<br>F. F. F. T. | Swivel Nut or Hose Connection<br>F. F. F. T. |
|------|-------------|-----------------|----------|--------------------------------|----------------------------------------------|
|      |             | in.·lb.         | ft.·lb.  |                                |                                              |
| -4   | 7/16 - 20   | 140 ± 10        | 12 ± 1   | 2                              | 2                                            |
| -5   | 1/2 - 20    | 180 ± 15        | 15 ± 1   | 2                              | 2                                            |
| -6   | 9/16 - 18   | 250 ± 15        | 21 ± 1   | 1 1/2                          | 1 1/4                                        |
| -8   | 3/4 - 16    | 550 ± 25        | 45 ± 5   | 1 1/2                          | 1                                            |
| -12  | 1 1/16 - 12 | 1000 ± 50       | 85 ± 5   | 1 1/4                          | 1                                            |
| -16  | 1 5/16 - 12 | 1450 ± 50       | 120 ± 5  | 1                              | 1                                            |
| -20  | 1 5/8 - 12  | 2000 ± 100      | 170 ± 10 | 1                              | 1                                            |
| -24  | 1 7/8 - 12  | 2400 ± 150      | 200 ± 15 | 1                              | 1                                            |
| -32  | 2 1/2 - 12  | 3200 ± 200      | 270 ± 20 | 1                              | 1                                            |

### O-Ring Face Seal Tube/ Hose Swivel Nut

| Metric Tube O.D. (mm) | Dash Size | Thread Size (in.) | Swivel Nut Hex Size (in.) | Swivel Nut Torque |                     |
|-----------------------|-----------|-------------------|---------------------------|-------------------|---------------------|
|                       |           |                   |                           | N-m               | lb <sub>f</sub> ·ft |
| 5                     | -3        | --                | --                        | --                | --                  |
| 6                     | -4        | 9/16 - 18         | 11/16                     | 16                | 12                  |
| 8                     | -5        | --                | --                        | --                | --                  |
| 10                    | -6        | 11/16 - 16        | 13/16                     | 24                | 18                  |
| 12                    | -8        | 13/16 - 16        | 15/16                     | 50                | 37                  |
| 16                    | -10       | 1 - 14            | 1-1/8                     | 69                | 51                  |
| 20                    | -12       | 1-3/16 - 12       | 1-3/8                     | 102               | 75                  |
| 22                    | -14       | 1-3/16 - 12       | --                        | 102               | 75                  |
| 25                    | -16       | 1-7/16 - 12       | 1-5/8                     | 142               | 105                 |
| 32                    | -20       | 1-11/16 - 12      | 1-7/8                     | 190               | 140                 |
| 38                    | -24       | 2 - 12            | 2-1/4                     | 217               | 160                 |
| 50.8                  | -32       | --                | --                        | --                | --                  |

### SAE O-Ring Fittings

| Size | Swivel Nut or Hose | Assembly Torque |           | F. F. F. T. |
|------|--------------------|-----------------|-----------|-------------|
|      |                    | in.·lb.         | ft.·lb.   |             |
| 2    | 5/16 - 24          | 90 ± 5          | 7.5 ± 0.5 | 1 ± .25     |
| 3    | 3/8 - 24           | 170 ± 10        | 14 ± 1    | 1 ± .25     |
| 4    | 7/16 - 20          | 220 ± 15        | 18 ± 1    | 1 ± .25     |
| 5    | 1/2 - 20           | 260 ± 15        | 22 ± 1    | 1 ± .25     |
| 6    | 9/16 - 18          | 320 ± 20        | 27 ± 2    | 1.5 ± .25   |
| 8    | 3/4 - 16           | 570 ± 25        | 48 ± 2    | 1.5 ± .25   |
| 10   | 7/8 - 14           | 1060 ± 50       | 90 ± 5    | 1.5 ± .25   |
| 12   | 1 1/16 - 12        | 1300 ± 50       | 110 ± 5   | 1.5 ± .25   |
| 14   | 1 3/16 - 12        | 1750 ± 75       | 145 ± 6   | 1.5 ± .25   |
| 16   | 1 5/16 - 12        | 1920 ± 125      | 160 ± 6   | 1.5 ± .25   |
| 20   | 1 5/8 - 12         | 2700 ± 150      | 225 ± 12  | 1.5 ± .25   |
| 24   | 1 7/8 - 12         | 3000 ± 150      | 250 ± 12  | 1.5 ± .25   |
| 32   | 2 1/2 - 12         | 3900 ± 200      | 325 ± 15  | 1.5 ± .25   |

# INSTALLATION INSTRUCTIONS