

Keep with Operator's Manual

VALVE & PLUMBING KIT (SERIES VALVE) 2408 LOADER KUBOTA TRACTORS

| MODEL | 2WD | FWA | ROPS | CAB |
|-------|-----|-----|------|-----|
| L2800 | X | X | X | |
| L3400 | X | X | X | |

VALVE AND PLUMBING GENERAL INFORMATION

This kit includes a series valve. A series valve may be preferred over a parallel valve because of relative ease with which two functions can be performed simultaneously. However, attempting to simultaneously lift and roll back will cause a reduction in power and, eventually, a stall. To prevent this, a shield (18, Figure 1) is installed onto valve, which will allow lift or roll back, but not both simultaneously. It is important that this shield (18) be in place at all times to assure maximum loader efficiency. This shield also displays important safety (20) and operation decals (19 & 21) which must be visible and legible on valve at all times.

Valve and plumbing kit can be installed on tractor using tools ordinarily available. Shut off engine and engage brakes during installation.

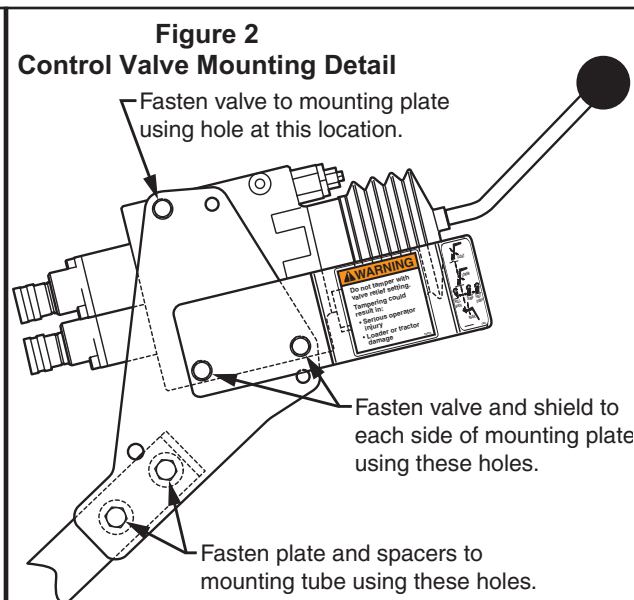
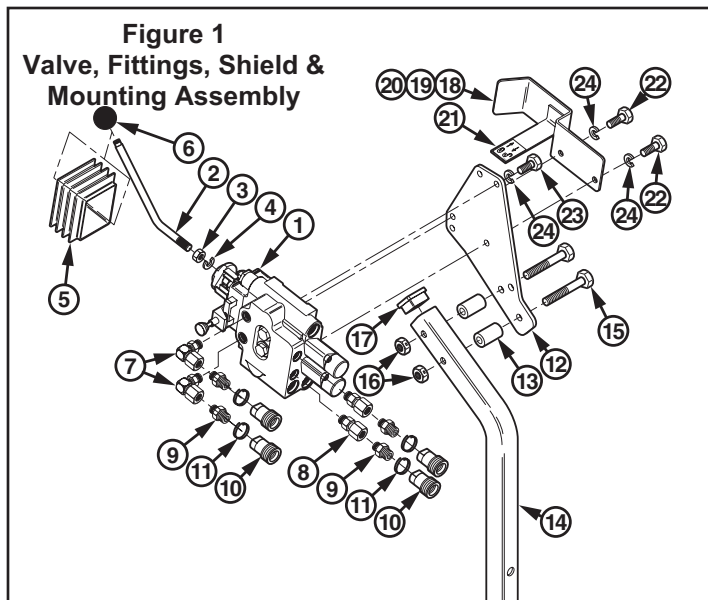
NOTE: Apply sealant only to all tapered threads unless coupled with swivel adapters. When using teflon tape, wrap tape clockwise (as viewed from end) and wrap only twice. Keep sealant away from first tow threads of tapered end to prevent contamination of hydraulic fluid. Do not use sealant on o-ring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

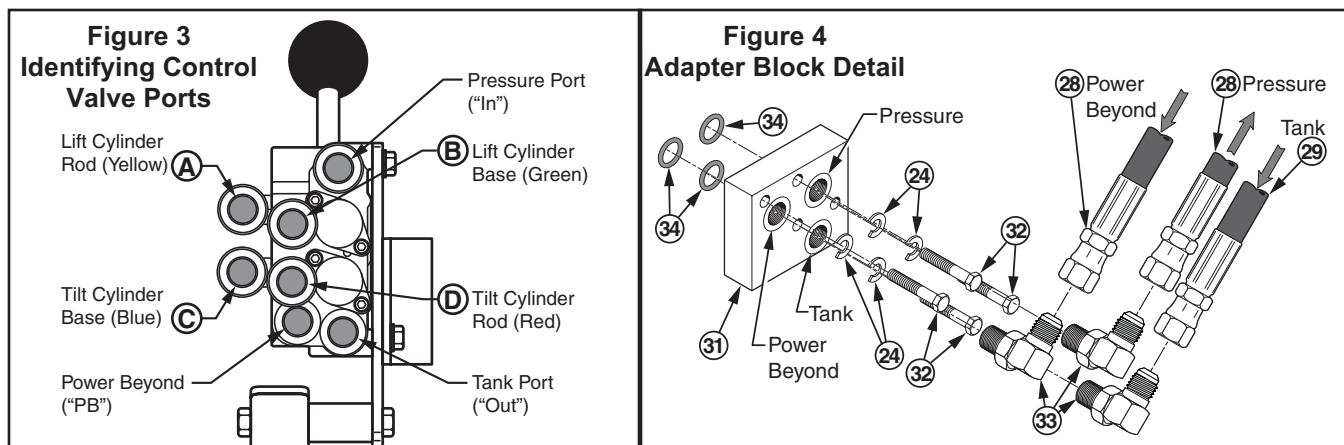


WARNING: Escaping hydraulic fluid under pressure can penetrate skin causing serious injury.

- 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.





ATTACHING VALVE TO LOADER MOUNTING BRACKETS (Figures 1, 2, 3 & 5)

1. Install 9/16 x 9/16 x 90° elbow fittings (7) into working ports A and C of valve (1). Orient elbow fittings (7) parallel with valve body to point in same direction as valve ports B and D, then tighten jam nuts to lock elbows in position. Install 9/16 x 9/16 straight fittings (8) into working ports B and D of valve (1). Install 9/16 x 3/8 straight fittings (9) into fittings (7 & 8) and install female quick couplers (10) and large identification bands (11) onto straight fittings (9).

NOTE: Be sure to attach color-coded identification bands (11) in sequence shown in Figure 3.

2. Fasten valve mounting plate (12), with spacers (13) to valve mounting tube (14) using 3/8 x 4" cap screws (15) and lock nuts (16). Insert square plug (17) into top of valve mounting tube (14).
3. Fasten valve (1) to valve mounting plate (12) with tank and power beyond ports to bottom using 5/16 x 3/4" cap screw (23) and lock washer (24) in top, front mounting hole in valve. Fasten valve shield (18) to valve (1) through mounting plate (12) using 5/16 x 1" cap screws (22) and lock washers (24) in bottom two mounting holes in valve.

NOTE: Decals (19, 20 & 21) are affixed to valve shield (18) from factory. (See Figure 2.) Replace decals if they become worn or illegible. When applying replacement decals, make sure surface of valve shield (18) is clean and dry.

4. Thread 7/16-20 nut (3) onto valve handle (2) and place 7/16" lock washer (4) onto handle. Attach handle (2) to valve (1). Slip boot (5) over handle to cover handle linkage assembly. Thread ball (6) onto end of valve handle.

NOTE: To allow valve handle to be adjusted to best position for operator, leave nut (3) with lock washer (4) loose for adjustment until valve and mounting tube is secured to loader right mounting bracket. Tighten nut (3) and secure valve handle boot (5) with plastic tie strap (35) only after valve and plumbing assembly is complete.

5. Attach valve mounting tube (14) to right loader mid mounting bracket using 1/2 x 2-1/2" cap screws (25), flat washers (26), and lock nuts (27).

PLUMBING CONTROL VALVE TO TRACTOR HYDRAULICS (Figures 3, 4 & 5)

1. Install 3/8 x 34" hose (29) into tank port of valve (1) and slide hose sleeve (30) over hose (29), securing sleeve over hose crimp with plastic tie strap (35).
2. Install 3/8 x 36" hoses (28) into pressure and power beyond ports of valve (1) and slide hose sleeve (30) over hoses (28), securing sleeves over hose crimps at valve with plastic tie straps (35).
3. Remove hydraulic cover plate and attaching hardware from right side of tractor.
4. Install adapter block (31) with o-rings (34) in place of cover plate using 8mm x 40mm cap screws (32) and 5/16" lock washers (24).
5. Install 9/16 x 9/16 x 90° elbow fittings (33) into ports in adapter block (31), pointing upward and forward as shown in Figure 4.
6. Connect power beyond hose (28) to elbow (33) in power beyond port of hydraulic adapter block (31). Connect pressure hose (28) to elbow (33) in pressure port of hydraulic adapter block (31). Connect tank hose (29) to elbow (33) in tank port of hydraulic adapter block (31). (See Figure 4.) Use plastic tie straps (35) to secure hose sleeves to elbow fittings (33) and to secure hoses and sleeves away from moving parts.

**PLUMBING LOADER TO CONTROL VALVE
(Figures 3 & 5)**

1. Install 3/8 x 72" hoses (36) onto boom oil line tubes. (See Figure 5.) Install and tighten hose fittings one at a time from the bottom up. Loosening the closest oil line clamp will ease installation.
2. Install small identification bands (39) onto free ends of hoses (36) to match bands on female quick couplers (10). Slide hose sleeves (37) over hoses (36). Install male quick couplers (38) onto free ends of hoses (36).
3. Connect hoses (36) from upper two boom oil lines to lower female quick couplers on valve and connect hoses (36) from lower two boom oil lines to upper female quick couplers on valve. Wrap tarp strap (40) around hoses (36) and hook on itself. Attach free end of rubber strap to loader right side frame. (See Figure 5.)
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 (19) on valve shield (18). If direction of control lever is wrong or loader will not lower, recheck connections shown.*

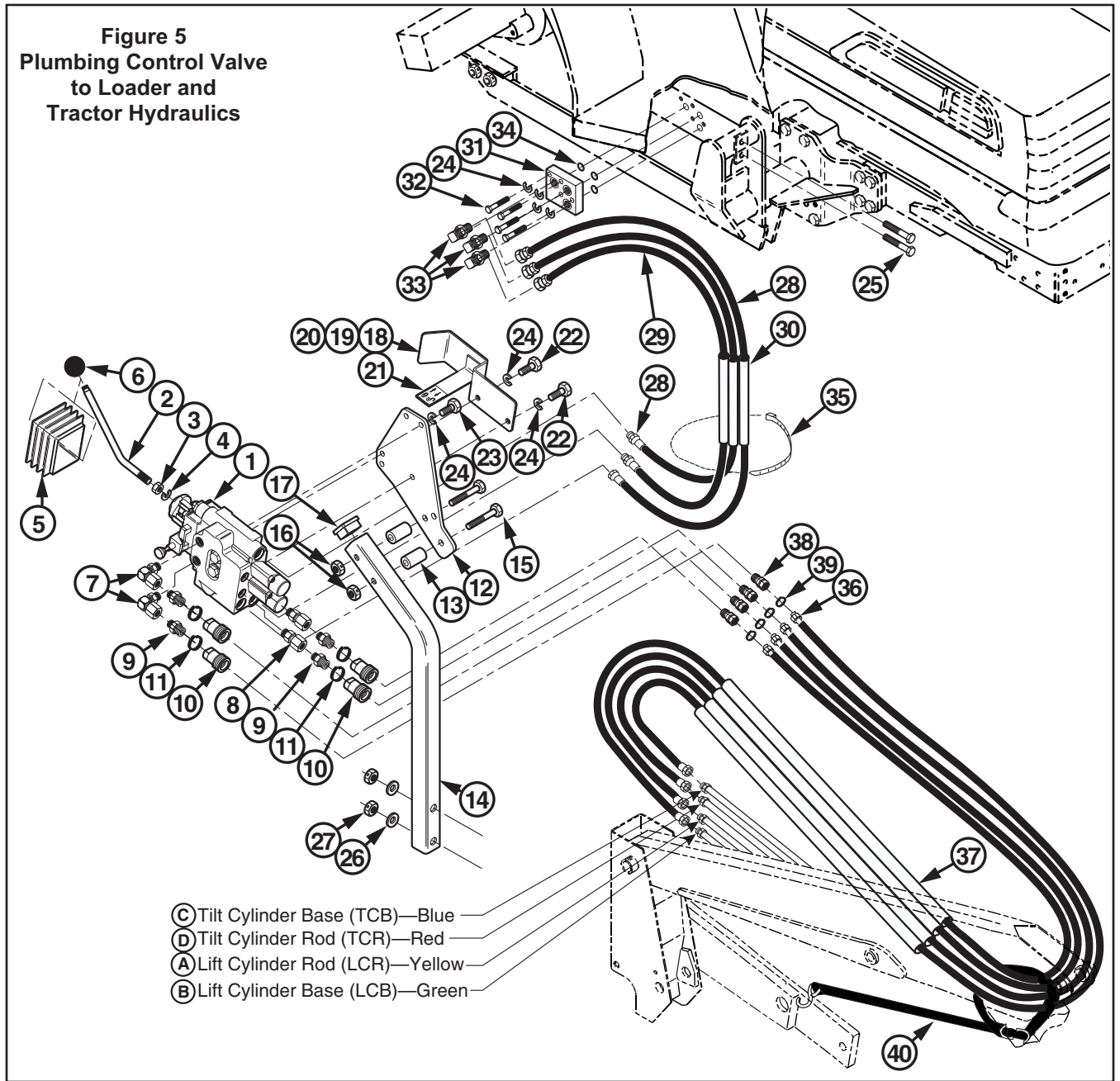


WARNING: *Escaping hydraulic fluid under pressure can have sufficient force to penetrate skin causing serious personal injury. If injured by escaping hydraulic fluid, obtain medical treatment immediately.*

PARTS LIST – VALVE & PLUMBING KIT

| Item | Part No. | Description | Qty. |
|------|--|--|------|
| *1 | 52209 | VALVE, Prince LVS, Series, 2-Spool (2500 PSI) | 1 |
| *2 | 43517 | HANDLE, Valve, Standard | 1 |
| *3 | 41836-14 | NUT, Hex, 7/16-20 | 1 |
| *4 | 41837-4 | WASHER, Lock, 7/16" | 1 |
| *5 | 52172 | BOOT, Valve Handle Linkage | 1 |
| *6 | 38902 | BALL, Valve Handle | 1 |
| 7 | 44277-2 | FITTING, Elbow, 90°, 9/16-18 SAE O-Ring Male x 9/16-18 JIC Female | 2 |
| 8 | 42062-6 | FITTING, Straight, 9/16-18 SAE O-Ring Male x 9/16-18 JIC Female | 2 |
| 9 | 31221-4 | FITTING, Straight, 3/8 NPT Male x 9/16-18 JIC Male | 4 |
| 10 | 6147-4 | COUPLER, Female Quick, 3/8" | 4 |
| 11 | 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 |
| 12 | 52202 | PLATE, Valve Mounting | 1 |
| 13 | 46303-5 | SPACER, Tube, 1" O.D. x 1/2" I.D. x 1-3/4" Long | 2 |
| 14 | 43541 | TUBE, Valve Mount | 1 |
| 15 | 41838-87 | SCREW, Cap, 3/8-16 x 4" | 2 |
| 16 | 41840-3 | NUT, Lock, 3/8-16 | 2 |
| 17 | 44274-1 | PLUG, Square Tube | 1 |
| 18 | 52189 | SHIELD, Series Valve, With Decals | 1 |
| 19 | 52204 | DECAL, Single Handle Control | 1 |
| 20 | 52074 | DECAL, WARNING: Do Not Tamper With Valve Relief Setting | 1 |
| 21 | 52203 | DECAL, Lock/Unlock | 1 |
| 22 | 41838-60 | SCREW, Cap, 5/16-18 x 1" | 2 |
| 23 | 41838-26 | SCREW, Cap, 5/16-18 x 3/4" | 1 |
| 24 | 41837-2 | WASHER, Lock, 5/16" | 8 |
| 25 | 41838-25 | SCREW, Cap, 1/2-13 x 2-1/2" | 2 |
| 26 | 42502-10 | WASHER, Flat, 1/2" | 2 |
| 27 | 41840-5 | NUT, Lock, 1/2-13 | 2 |
| 28 | 43454-2 | HOSE, 3/8 x 36", 3/4-16 O-Ring x 9/16 JIC Swivel (Pressure & Power Beyond) | 2 |
| 29 | 43454-16 | HOSE, 3/8 x 34", 3/4-16 O-Ring x 9/16 JIC Swivel (Tank) | 1 |
| 30 | 34853-33 | SLEEVE, Hose, 38" Long | 3 |
| 31 | 51298 | ADAPTER, Block | 1 |
| 32 | 42672-64 | SCREW, Cap, 8MM-1.25 x 40MM | 4 |
| 33 | 32845-1 | FITTING, Elbow, 9/16-18 JIC Male x 9/16-18 SAE O-Ring Male | 3 |
| 34 | 6000-20 | O-RING, 5/8" O.D. x 7/16" I.D. x 3/32" Nominal Section Diameter | 3 |
| 35 | 8137-1 | STRAP, Plastic, Adjustable, 3/16" wide x 11" long | 5 |
| 36 | 36336-3 | HOSE, 3/8 x 72", 3/8 NPTF x 3/4 JIC Swivel (Loader Control) | 4 |
| 37 | 34853-74 | SLEEVE, Hose, 1 1/4" x 72" Long | 4 |
| 38 | 6137-4 | COUPLER, Male Quick, 3/8 | 4 |
| 39 | 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 |
| 40 | 7438-1 | TARP Strap | 1 |
| * | Items 2 through 6 are included with valve, item 1. | | |

Figure 5
Plumbing Control Valve
to Loader and
Tractor Hydraulics



PRINCE LVS (SERIES) VALVE SERVICE (Figure 6)

Following is an outline procedure for disassembling and reassembling valve.



WARNING: *This valve has a valve relief setting preset at the factory. Tampering with this setting can cause serious injury to operator and damage to tractor, valve, 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 HANDLE DISASSEMBLY

NOTE: *It is advisable to mark or tag all parts so they will be reinstalled in their proper position.*

1. Remove ball (23, Figure 6) from valve handle (19) by twisting ball (23) counterclockwise, unthreading it from handle (19).
2. Remove tie strap (24) and slide boot (22) off end of valve handle (19) to remove boot (22) and expose linkage components.
3. Remove handle (19) from linkage disk (25) by unjamming 7/16" hex nut (20) and lock washer (21) from linkage disk (25), then unthreading handle (19) from disk (25).
4. Remove three 5/16-24 x 3/4" socket head cap screws (26) to remove handle linkage disk (25) from rod ends (27 & 28). Remove 5/16-24 hex nuts (30) from spool stud (29) and rod end assemblies (27) to remove spool stud (29) and rod end assemblies (27) from spool ends.

NOTE: *Handle linkage parts, 5/16 x 3/4" socket head cap screws (26) and 5/16-24 hex nuts (30), have been assembled using Loctite® 680 or equivalent.*

NOTE: *Valve spools are one-piece construction. Spool ends are not separable from spools.*

5. Remove clevis housing (31) and spool lock assembly from valve by removing two 1/4 x 1-3/4" socket head cap screws (32) and one 1/4 x 3/4" socket head cap screw (33) with flat washer (34).

NOTE: *1/4" socket head cap screws (32 & 33), which fasten clevis housing (31) to valve body, have been assembled using Loctite 680 or equivalent.*

6. Remove spool lock assembly from clevis housing (31) by removing retaining ring (38) and sliding handle (36) away from valve, taking care to not lose spring (39). Remove lock blade (37). Unthread knob (35) to remove it from handle (36). Remove 1/8 x 3/4" spring pin (40) with a hammer and pliers.

RELIEF VALVE AND LOAD CHECK PLUGS

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

NOTE: *If repairing or replacing relief valve (2), torque larger hex nut (relief body) to 20-25 ft.·lbs. If repairing or replacing load check plugs (3), torque to 20-25 ft.·lbs.*

SPOOL POSITIONER DISASSEMBLY

Positioner assemblies (4 & 5) for float and regen spools are nearly identical, with the exception of positioning sleeve (8 & 9), for which float spool requires a float detent sleeve (8, which has an internal groove for detent hold) and the regen spool requires a regen detent sleeve (9, which has a smooth bore with a step). The same procedure describes how to disassemble both positioners.

1. Remove socket head cap screws (6) and detent end caps (7) from both spools. Being careful not to lose small spring-loaded parts, steel balls (13), poppet (11), and spring (12), remove detent sleeve (8 & 9) from each spool.



CAUTION: *Compression spring (12) maintains pressure on poppet (11), which in turn maintains pressure on steel balls (13), which are all held within detent retainer (10) by detent sleeve (8 or 9). Steel balls (13), poppet (11) and spring (12) may spring out when detent sleeve (8 or 9) is removed. Wear safety glasses.*

2. Remove steel balls (13), poppet (11), and poppet spring (12) from detent retainer (10). Remove retainer flat (14) and detent spacer (15) for each spool.
3. Secure handle end of each spool and, using a rod through retainer ball holes, remove detent retainer (10) from each spool.

NOTE: *Detent retainers (10) are installed on spools using Loctite 222 or equivalent.*

4. Remove washer (16), centering spring (17) and stop cup (18) from each spool.

SPOOL SEAL REMOVAL

To remove spool seals (1), push spool in until seal (1) is exposed. Use a wire hook and screwdriver to remove exposed spool seals.

NOTE: *Removing or replacing spool seals near handle ends of valve spools will destroy spool seals near positioner ends. Replace positioner-end spool seals after replacing handle-end spool seals.*

BEFORE REASSEMBLING

Clean all parts, including valve body, in a suitable cleaning solvent. After cleaning parts with solvent, use air pressure to blow any dirt or excess solvent from all parts, including valve body. Examine all parts for wear or damage and replace if necessary.

VALVE REASSEMBLY

Reassemble all parts in reverse order of disassembly.

1. Lubricate all o-rings and spools with oil to prevent damage when assembling.

NOTE: *When replacing spool seals (1), install seal in handle end first and then replace seal in positioner end.*

2. Lubricate all detent and spring centering parts with a light coat of grease when assembling.

NOTE: *When fastening detent retainers (10) onto valve spools, clean threads thoroughly and install with Loctite 222 or equivalent, following instructions provided with thread locking compound, and tighten to 5-7 ft.·lbs.*

When installing detents, install spring (12) and poppet (11) into detent retainer (10) and compress spring (12). Install steel balls (13) and slide detent sleeve (8 or 9) over detent retainer (10), capturing steel balls (13).

NOTE: *For proper valve operation, float detent sleeve (8) must be installed onto detent retainer for float spool, and regen detent sleeve (9) must be installed on detent retainer for regen spool. Float detent sleeve (8) has an internal groove for detent hold. Regen detent sleeve (9) has a smooth bore with a step. Refer to Figure 6 for location of float spool and regen spool.*

NOTE: *When fastening 5/16" and 1/4" hardware for clevis housing and handle linkage, clean all threads thoroughly with alcohol, apply Loctite primer T, and install with Loctite 680, following instructions provided with thread locking compound. Tighten 1/4" hardware (coarse thread) to 110 in.·lbs. and tighten 5/16" hardware (fine thread) to 170-190 in.·lbs.*

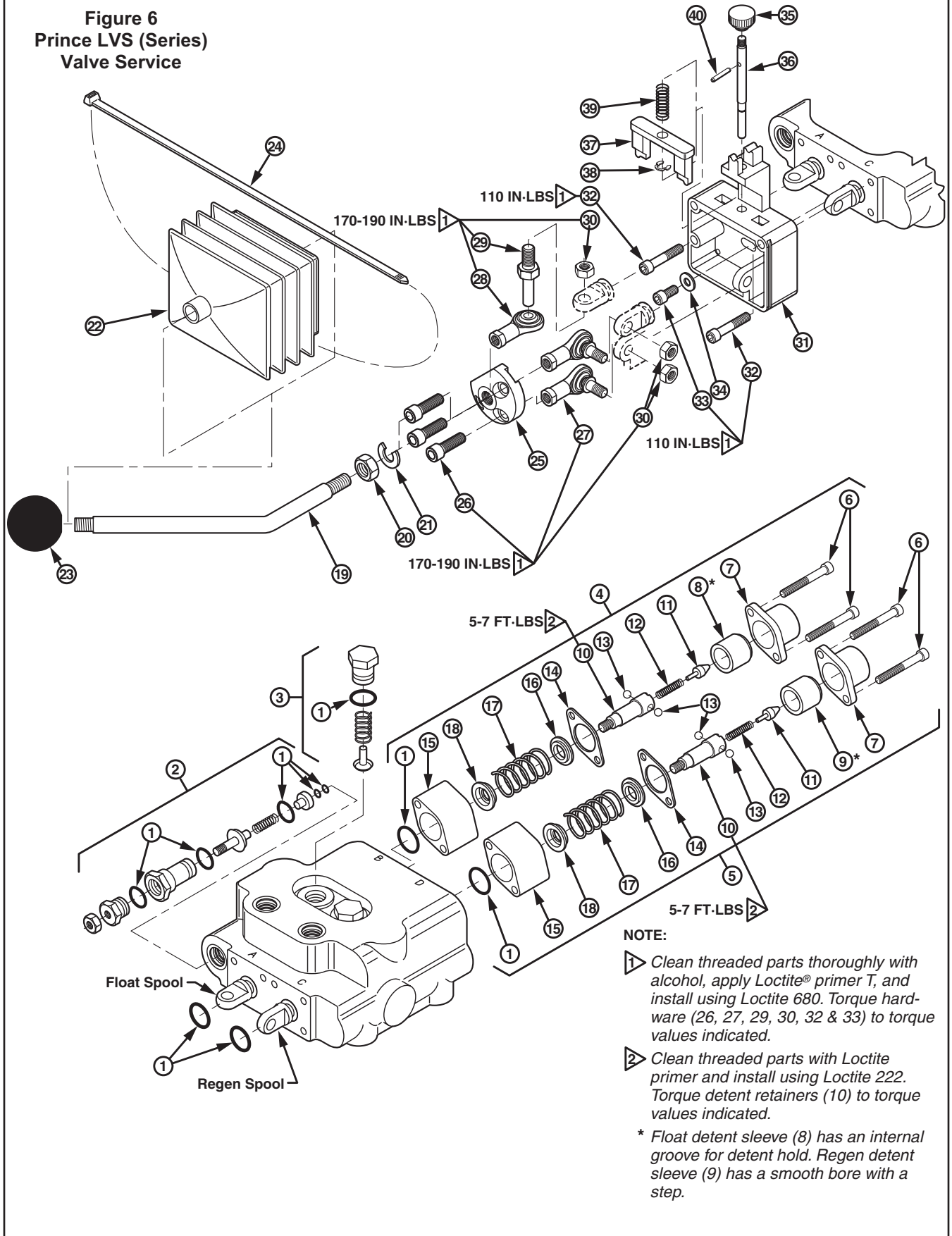
2-7417

PARTS LIST – PRINCE LVS (SERIES) VALVE

| Item | Part No. | Description | Qty. |
|------|----------|--|------|
| 1 | 52253 | SEAL KIT, Prince LVS Valve | 1 |
| 2 | 43637-2 | RELIEF VALVE (2500 PSI) | 1 |
| 3 | 52255 | PLUG, Load Check | 2 |
| 4 | 52254 | FLOAT KIT (Includes items 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, and 18) | 1 |
| 5 | 52255 | REGEN KIT (Includes items 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18) | 1 |
| 7 | 44476-3 | END CAP, Manufacturer's part number (HC-V-AA25) stamped on end cap identifies valve and relief setting.) | 2 |
| 19 | 43517 | HANDLE, Valve, Standard | 1 |
| 20 | 41836-14 | NUT, Hex, 7/16-20 | 1 |
| 21 | 41837-4 | WASHER, Lock, 7/16" | 1 |
| 22 | 52172 | BOOT, Rubber, Valve Handle | 1 |
| 23 | 38902 | BALL, Handle | 1 |
| 24 | ----- | TIE STRAP, 3/16" wide x 13" long | 1 |
| 25 | 52251 | DISK, Adapter, Handle to Linkage | 1 |
| 26 | 44743-4 | SCREW, Cap, Socket Head, 5/16-24 x 3/4" | 3 |
| 27 | 51075 | ROD END, Assembly | 2 |
| 28 | 38900-4 | ROD END | 1 |
| 29 | 51076 | STUD, Spool | 1 |
| 30 | 41836-12 | NUT, Hex, 5/16-24 | 3 |
| 31 | 52252 | CLEVIS, Lock, Housing | 1 |
| 32 | 44743-7 | SCREW, Cap, Socket Head, 1/4-20 x 1-3/4" | 2 |
| 33 | 44743-6 | SCREW, Cap, Socket Head, 1/4-20 x 3/4" | 1 |
| 34 | 42502-6 | WASHER, Flat, 1/4" | 1 |
| 35 | 52250 | KNOB, Spool Lock | 1 |
| 36 | 52247 | HANDLE, Spool Lock | 1 |
| 37 | 52246 | BLADE LOCK | 1 |
| 38 | 52249-1 | RING, Retaining, External | 1 |
| 39 | 52248 | SPRING | 1 |
| 40 | G273625 | ROLL PIN | 1 |

NOTE: Valve spools are one-piece construction, which includes spool ends for connecting handle linkage. Valve spools and body are matched parts and are not available separately. Individual items not listed in repair parts listing are not available separately.

Figure 6
Prince LVS (Series)
Valve Service



NOTE:







- 1 Clean threaded parts thoroughly with alcohol, apply Loctite® primer T, and install using Loctite 680. Torque hardware (26, 27, 29, 30, 32 & 33) to torque values indicated.
- 2 Clean threaded parts with Loctite primer and install using Loctite 222. Torque detent retainers (10) to torque values indicated.

* Float detent sleeve (8) has an internal groove for detent hold. Regen detent sleeve (9) has a smooth bore with a step.

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 | | | | | | | | | |
|--|------|--------|------|------|--|--------|------|------|-----|--|-------------|--------|------|--|------|--------|------|------|------|
| 5 | | | | | 8 | | | | | Metric Class 8.8 | | | | 10.9 | | | | | |
| Typ. Head Markings  | | | | | Typ. Head Markings  | | | | | Typ. Head Markings   | | | | Typ. Head Markings   | | | | | |
| TORQUE | | | | | TORQUE | | | | | 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 | 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 | | | | | | | | | | | |
| 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 | | | | | | | | | | | |

NOTE: 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 moly sulphide greases or other extreme lubricants are used.

37° JIC Fittings

| Size | Thread Size | Assembly Torque | | Tube Connection F. F. F. T. | Swivel Nut or Hose Connection 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·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