

Keep With Loader Operator's Manual

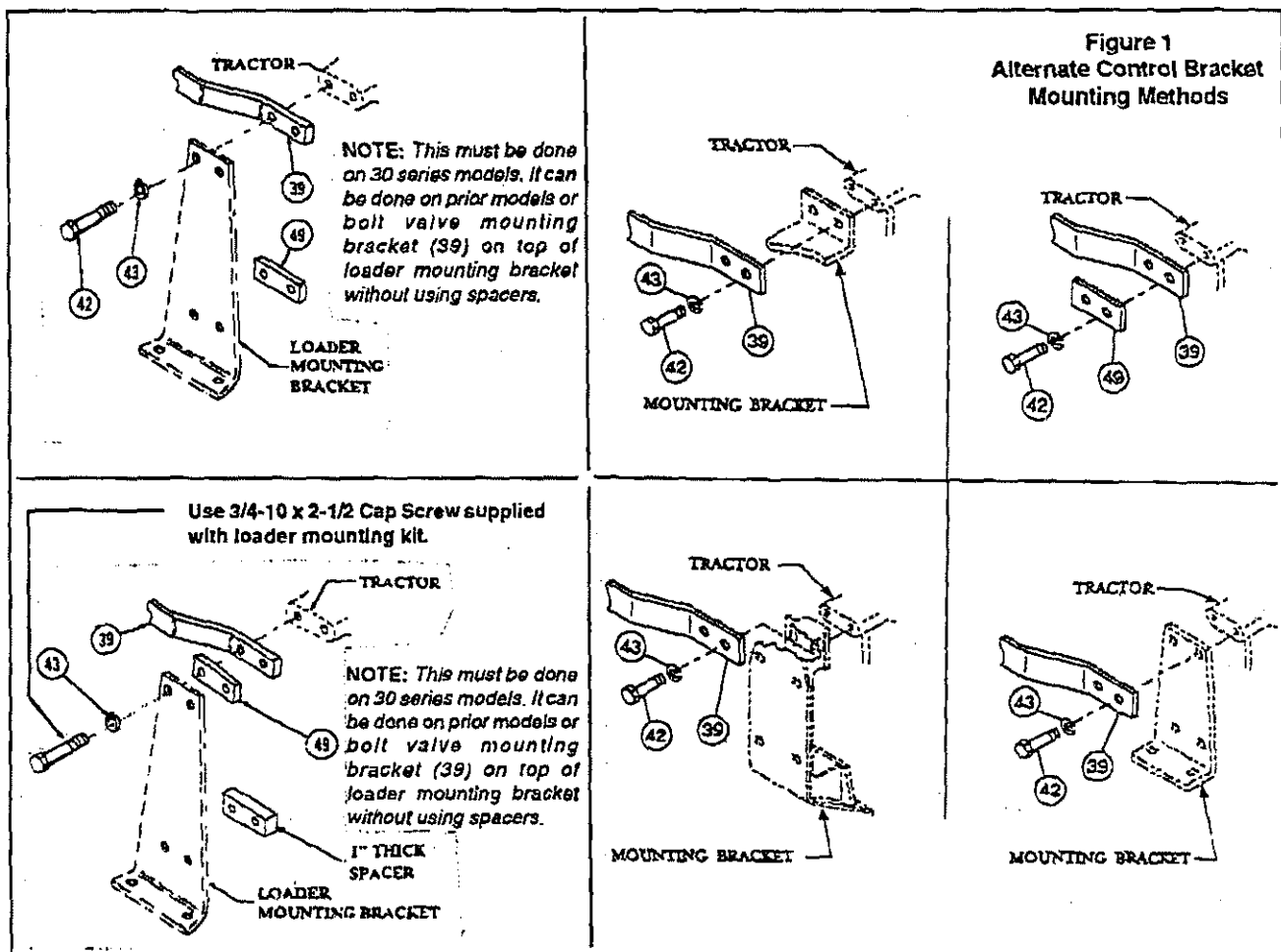
SINGLE LEVER CONTROL VALVE AND PLUMBING

NEW HOLLAND 7209, 7210, 7309 & 7310
SMC 92Q, 102QX, 2410 & 2491

Control valve and plumbing kit can be installed on tractor using tools ordinarily available. Shut off tractor engine and engage tractor 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 tape 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.

Control valve and plumbing kit allows for plumbing directly to the tractor hydraulics (requires 9613790 hydraulic pressure tapping manifold) or to tractor remote hydraulic couplers (without 9613790 hydraulic pressure tapping manifold).



ATTACHING ENCLOSED VALVE AND VALVE STAND TO TRACTOR (Figures 1&2)

Fasten valve mounting bracket (39) to upper bolting pad on right side of tractor transmission housing using 3/4 x 2" cap screws (42) and lock washers (43), or using cap screws supplied with loader mounting. Refer to illustrations in figure 1 to determine which mounting best matches your installation. Making sure surface of valve box is clean and dry, remove backing from decal (56) and apply it to box where it will be visible to operator.

PLUMBING CONTROL VALVE TO TRACTOR HYDRAULICS FOR TRACTORS EQUIPPED WITH 9613790 HYDRAULIC PRESSURE TAPPING MANIFOLD - SINGLE PUMP TRACTORS OR MID MOUNT HYDRAULIC KIT INSTALLED (Figure 2)

NOTE: To plumb this valve and plumbing kit directly to tractor hydraulics requires 9613790 hydraulic pressure tapping manifold also be installed prior to installation. Otherwise, follow instructions listed under "Plumbing Control Valve to Tractor Remote Valve Couplers."

1. Install 3/4 x 3/4 x 90° elbow fitting (44) into pressure port and 3/4 x 3/4 x 45° fitting (58) into power beyond port of hydraulic pressure tapping manifold (9613790) previously installed on tractor.
2. Remove plug from hydraulic tank port on tractor rear axle and install 1-3/8 x 1/2 adapter fitting (45).

NOTE: Some older 00 series tractors may not have 1-3/8-12 threads. If not; plumb tank hose (60) into drain port underneath transmission case. Obtain necessary fittings from your dealer.

Install 1/2 street tee (46) into 1-3/8 x 1/2 adapter fitting (45). Install 1/2 x 3/4 x 90° fitting (47) into stem of tee (46) and plug other branch of tee (46) with 1/2 plug (48).

3. Route hoses (35, 36 & 34) from enclosed control valve down to tractor footrest platform. Continue to route power beyond hose (34) in front of foot rest platform, and connect it to 3/4 x 3/4 x 45° elbow fitting (58) in front port of hydraulic manifold block. Continue to route pressure hose (35) and tank hose (36) under tractor foot rest platform, then up behind foot rest platform. Connect pressure hose (35) to 3/4 x 3/4 x 90° fitting (44) in side port of hydraulic manifold block. Connect tank hose (36) to elbow fitting (47) on tank tee (46).

Use reusable tie straps (54) to secure hoses (35, 36 & 34) to tractor and foot rest platform at regular distances so they do not rub or interfere with moving parts on tractor.



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

- DO NOT use your hand 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.

PLUMBING CONTROL VALVE TO TRACTOR REMOTE VALVE COUPLERS (Figure 2 & 2A) FACTORY INSTALLED DUAL PUMP TRACTORS (2A)

NOTE: Plumbing loader control valve to tractor remote valve couplers will require one remote valve. Make sure both hoses are plumbed to couplers controlled by the same remote valve lever. Tractor remote valve lever must be engaged and placed in detent position so there is continuous oil flow to auxiliary valve. Tie or wire lever to hold it in detent position.

1. Remove plug from hydraulic tank port on tractor rear axle and install 1-3/8 x 1/2 adapter fitting (45).

NOTE: Some older 00 series tractors may not have 1-3/8-12 threads. If not; plumb tank hose (60) into drain port underneath transmission case. Obtain necessary fittings from your dealer.

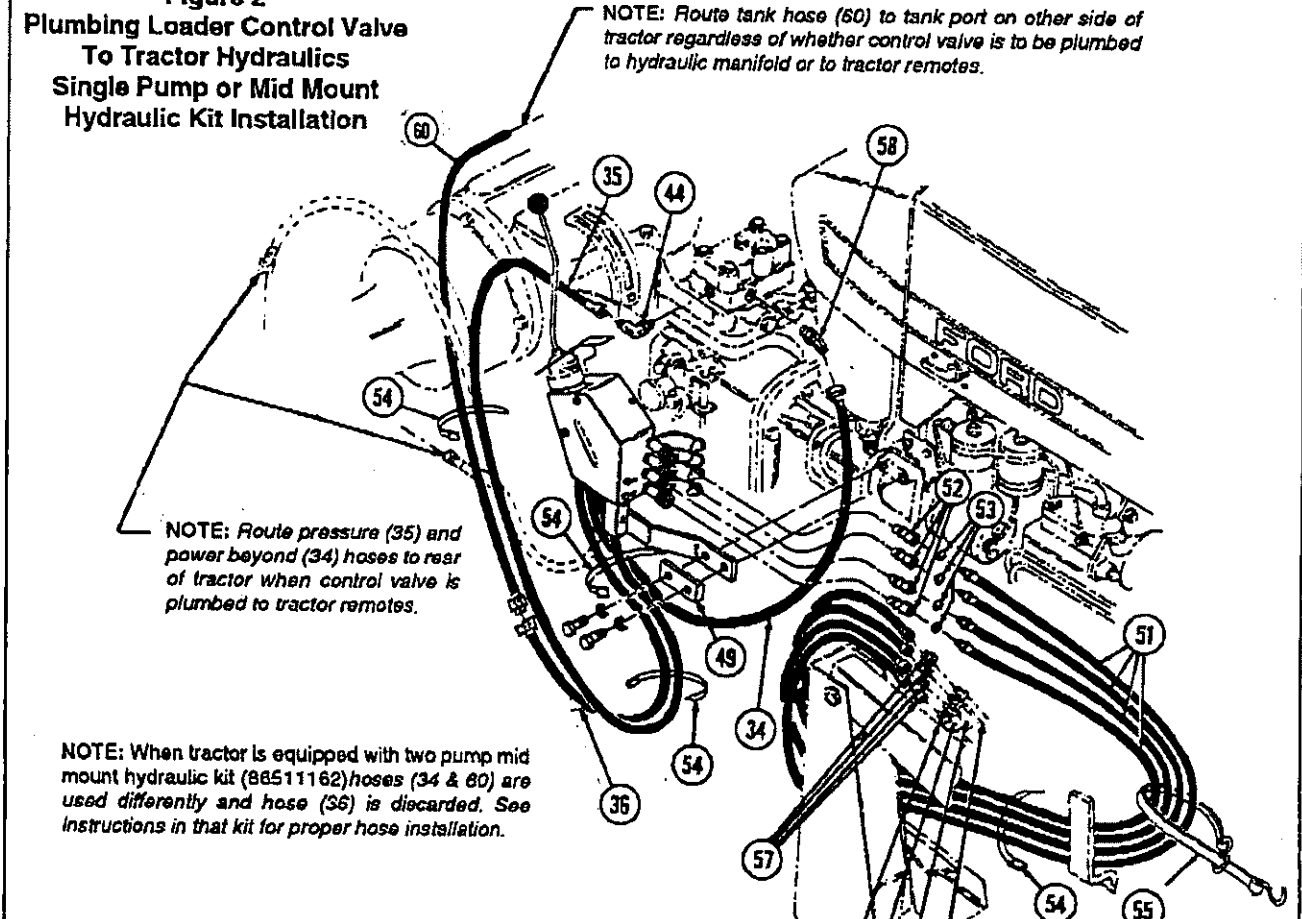
Install 1/2 street tee (46) into 1-3/8 x 1/2 adapter fitting (45). Install 1/2 x 3/4 x 90° fitting (47) into stem of tee (46) and plug other branch of tee (46) with 1/2 plug (48).

2. Install 1/2 x 14 hose (59) onto end of 1/2 x 72 pressure hose (35) and install 1/2 x 39 hose (50) onto end of 1/2 x 54 power beyond hose (34). Install male quick couplers (not supplied with this kit) onto ends of hoses (59 & 50).
3. Connect 1/2 x 39 hose (60) to 1/2 x 48 hose (36). Route hoses (35, 60, 34, 59 & 50) from enclosed valve down under tractor footrest platform and up to rear of tractor. Connect 1/2 x 39 tank hose (60) to fitting (47) in tank tee (46).

Connect pressure (35) and power beyond (34) hoses with extension hoses (59 & 50) to inlet and outlet ports of tractor remote valve.

NOTE: If tractor is equipped with optional field installed two pump mid mount hydraulics kit (86511162), refer to instructions in that kit for proper hose installation. Extra parts included in this kit (2-6227) for installation of two pump mid mount hydraulics kit are 12" hoses (61).

Figure 2
Plumbing Loader Control Valve
To Tractor Hydraulics
Single Pump or Mid Mount
Hydraulic Kit Installation



NOTE: Route tank hose (60) to tank port on other side of tractor regardless of whether control valve is to be plumbed to hydraulic manifold or to tractor remotes.

NOTE: Route pressure (35) and power beyond (34) hoses to rear of tractor when control valve is plumbed to tractor remotes.

NOTE: When tractor is equipped with two pump mid mount hydraulic kit (88511162) hoses (34 & 60) are used differently and hose (36) is discarded. See instructions in that kit for proper hose installation.

- (A) BUCKET CYLINDER BASE GREEN
- (B) BUCKET CYLINDER ROD BLUE
- (C) LIFT CYLINDER ROD RED
- (D) LIFT CYLINDER BASE YELLOW

Figure 2A
Tractor Tank Port
and Remotes
Factory Dual
Pump Installation

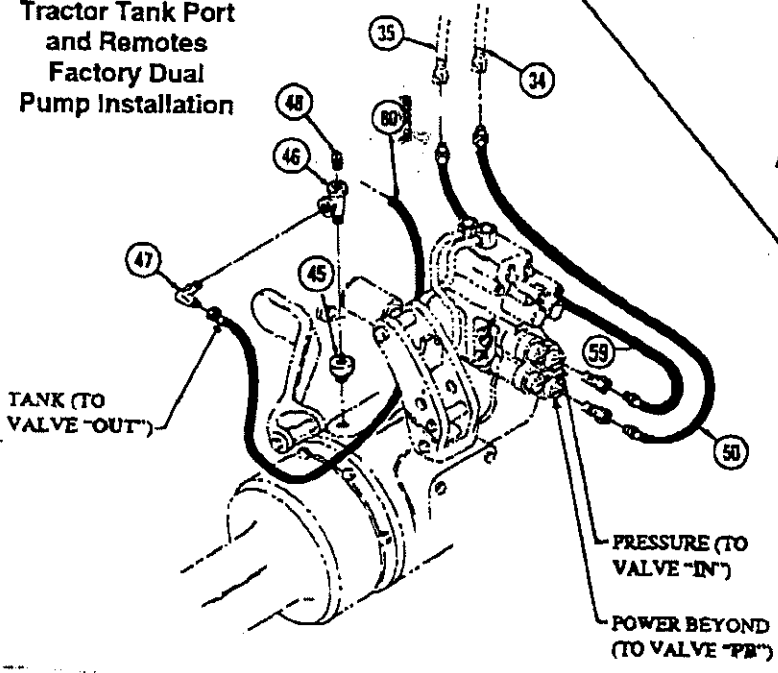
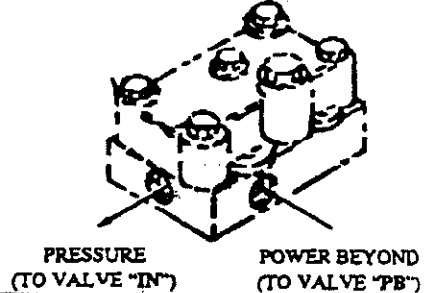


Figure 2B
Hydraulic Pressure Tapping
Manifold - Single Pump or Mid
Mount Hydraulic Kit Installation



PLUMBING LOADER TO CONTROL VALVE

1. Install 1/2 x 120 hoses (51) onto boom oil line tubes. Install and tighten hose fittings one at a time from bottom up. Loosening closest oil line clamp will ease installation.

NOTE: Adapter fittings (57) required on some model loaders.

2. Install 1" spiral bands (53) onto free ends of hoses (51) to match bands (25) on female quick couplers. Install male quick couplers (52) onto free ends of hoses (51).
3. Connect hoses from upper two boom oil line tubes to lower female quick couplers (26) on valve box, and connect hoses from lower boom oil lines to upper quick couplers (26). Wrap one end of rubber strap (55) around hoses and hook it onto itself. Hook other end of rubber strap (55) to a convenient place on loader or mounting bracket: see loader operator's

manual for suggested locations. Use rubber strap (55) to hold 1/2 x 120 hoses (51) away from tractor front wheels and axles, and any moving loader parts.

4. After all plumbing has been completed, start tractor engine and slowly cycle lift and bucket cylinders several times to purge any air out of hydraulic system, then retract cylinders and shut off engine. Add additional tractor hydraulic fluid, as specified in tractor operator's manual to bring level of hydraulic fluid up to full.

NOTE: When cycling loader, operate loader according to operation decal (56) 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 penetrate skin causing serious injury. If injured by escaping hydraulic fluid, obtain medical treatment immediately.

PARTS LIST

| Item | Part No. | Description | Qty. |
|------|----------|--|------|
| *1 | 40294 | VALVE, DFP Model 1627 JE | 1 |
| *2 | 38903 | ANGLE, Handle Attachment | 1 |
| *3 | 38911-1 | SCREW, Flat Head Socket, 5/16-24 x 3/4 | 1 |
| *4 | 38910-2 | SCREW, Socket Head Cap, 5/16-24 x 3/4 | 1 |
| *5 | 40349 | LEVER, Valve Handle | 1 |
| *6 | 26009-3 | BALL JOINT, Male | 2 |
| *7 | 38900-5 | BALL JOINT, Female | 1 |
| *8 | 38904-1 | STUD, Ball Joint | 1 |
| *9 | 38910-1 | SCREW, Socket Head Cap, 1/4-28 x 3/4 | 3 |
| *10 | G120392 | WASHER, Flat, 1/4 | 3 |
| *11 | G120380 | WASHER, Lock, 1/4 | 2 |
| *12 | G120367 | NUT, Hex, 1/4-28 | 2 |
| *13 | G9416430 | NUT, Lock, 1/4-28 | 2 |
| *14 | 36584 | FITTING, Power Beyond Sleeve | 1 |
| *15 | 32845-5 | ELBOW 9/16 SAE x 3/4 JIC x 90 | 1 |
| *16 | 38928-1 | HOSE, 3/8 x 6 7/8 Long | 1 |
| *17 | 38928-2 | HOSE, 3/8 x 7 7/8 Long | 1 |
| *18 | 38928-3 | HOSE, 3/8 x 8 1/2 Long | 1 |
| *19 | 38928-4 | HOSE, 3/8 x 13 Long | 1 |
| *20 | 38926 | BOX, Valve Mounting | 1 |
| *21 | 38927 | COVER, Valve Box | 1 |
| *22 | G180044 | SCREW, Cap 1/4 - 20 x 2 | 2 |
| *23 | G9424215 | NUT, Lock 1/4 - 20 | 2 |
| *24 | 38912 | SPACER, Quick Coupler | 4 |

PARTS LIST - Continued

| Item | Part No. | Description | Qty. |
|------|-------------------|---|------|
| *25 | 36240 - 9 thru 12 | SPIRAL BANDS (1") | 4 |
| *26 | 6147-8 | QUICK COUPLER (F) | 4 |
| *27 | 38440-1 | PANEL, J Clip | 2 |
| *28 | 38653 | BOOT | 1 |
| *29 | 38930-1 | CAP NUT | 1 |
| *30 | 38902 | KNOB, Valve Handle | 1 |
| *31 | G9426105 | SCREW, Pan Head, Type AB, #10 - 16 x 1/2 | 2 |
| *32 | G144216 | FITTING, Reducer Bushing, 1/2 NPT x 3/8 NPT | 4 |
| *33 | 4838-4 | DUST CAP, 1/2 | 4 |
| *34 | 40350-1 | HOSE 1/2 x 54.00", 3/4-16 JIC, Female, Swivel (both ends) | 1 |
| *35 | 40350-2 | HOSE 1/2 x 72.00", 3/4-16 JIC, Female, Swivel (both ends) | 1 |
| *36 | 41794-2 | HOSE 1/2 x 48.00", 3/4-16 JIC Male x 3/4-16 JIC Female, Swivel | 1 |
| *37 | 32844-2 | FITTING, Straight, 9/16 - 18 x 3/4 - 16 | 2 |
| *38 | 38226-2 | FITTING, 45 3/4-16 JIC | 1 |
| *39 | 40357 | BRACKET, Valve Mounting | 1 |
| *40 | G180132 | SCREW, Cap, 3/8-16 x 2-1/4 | 2 |
| *41 | G9413534 | NUT, Lock, 3/8-16 | 2 |
| 42 | G271771 | SCREW, Cap, 3/4-10 x 2.00 | 2 |
| 43 | G131046 | WASHER, Lock, 3/4 | 2 |
| 44 | 32845-2 | FITTING, Elbow, 3/4-16 O-Ring x 3/4-16 Flare x 90 | 1 |
| 45 | 34643 | FITTING, Straight, 1-3/8-12 UNF x 1/2-14 NPT | 1 |
| 46 | 37050-4 | FITTING, Tee, Street 1/2-14 x 1/2-14 x 1/2-14 NPT | 1 |
| 47 | 39609-4 | FITTING, Elbow, 1/2-14 NPT x 3/4-16 Flare x 90 | 1 |
| 48 | G103868 | FITTING, Plug, 1/2-14 NPT | 1 |
| 49 | 36772-6 | SPACER .50 Thick x 1.50 Wide x 4.50 Long | 1 |
| 50 | 40351-3 | HOSE, 1/2 x 39", 1/2-14 NPT x 3/4-16 JIC | 1 |
| 51 | 41053-1 | HOSE, 1/2 x 120", 1/2-14 NPT x 3/4-16 JIC Female Swivel | 4 |
| 52 | 6137-6 | COUPLER, Male Quick | 4 |
| 53 | 36240-9 | BAND, Spiral, 1, Blue | 1 |
| | 36240-10 | BAND, Spiral, 1, Red | 1 |
| | 36240-11 | BAND, Spiral, 1, Yellow | 1 |
| | 36240-12 | BAND, Spiral, 1, Green | 1 |
| 54 | 8137-1 | STRAP, Reusable Tie, 3/16 x 11 | 4 |
| 55 | 7438-1 | STRAP, Rubber Tie | 1 |
| 56 | 38929 | DECAL, Valve Operation | 1 |
| 57 | 41054-1 | ADAPTER (Used With 7/8-14 JIC Oil Lines Only) | 4 |
| 58 | 31213-7 | FITTING, Elbow 3/4-16 O-Ring x 3/4-16 Flare 45 | 1 |
| 59 | 40351-1 | HOSE, 1/2 x 14", 1/2-14 NPT x 3/4-16 JIC | 1 |
| 60 | 40350-9 | HOSE, 1/2 x 39", 3/4-16 JIC, Female Swivel (both ends) | 1 |
| 61 | 40350-8 | HOSE, 1/2 x 12", 3/4-16 JIC, Female Swivel (both ends) (not shown) used in optional two pump hydraulics kit (8651162) | 2 |

Items 1 through 41 have been preassembled.

CONTROL VALVE SERVICE (Figure 3)

Enclosed control valve is designed to be reliable and easy to service. If valve or any part of valve, handle linkage or enclosure should malfunction during warranty period, return complete assembly, without disassembling to your authorized service department or contact your authorized service department for instructions. Unauthorized disassembly of valve in warranty period will VOID WARRANTY.

If it is necessary to remove valve or replace any component of valve enclosure or handle linkage, use following as an outline to disassemble valve, enclosure, or handle until damaged part can be removed and replaced.

NOTE: *It is advisable to mark or tag all hoses and parts before disassembly, so parts can be easily identified for reassembly.*

QUICK COUPLER REMOVAL

It is not necessary to open enclosure to remove quick couplers (26), dust caps (33), or spiral bands (25). Quick couplers can be unscrewed from 1/2 x 3/8 reducer bushings (32) for removal.

VALVE HANDLE DISASSEMBLY

1. Remove cap nut (29) from threaded end of ball joint stud (8) and unscrew handle knob (30) from end of valve handle (5). Slip rubber boot (28) off ball joint stud (8) and slide rubber boot off valve handle (5).
2. Unscrew 1/4 x 3/4 socket head cap screws (9) from ball joints (6 & 7) to remove valve handle lever (5).

NOTE: *Valve with hoses and fittings may be removed from enclosure without further disassembly of handle linkage. Skip ahead to VALVE ENCLOSURE, HOSE AND FITTING DISASSEMBLY instructions if further disassembly of handle mechanism is not required.*

3. Remove 1/4-28 hex nuts (12), lock washers (11) and flat washers (10) which fasten male ball joints (6) onto spools of valve (1).

NOTE: *Rotate tilt spool (spool without float) approximately 45° to ease removal of nut (12) and lock washer (11) from male ball joint (6).*

4. Slide female ball joint (7) off stud (8) and remove ball joint stud (8) from handle attachment angle (2) by removing 1/4-28 lock nut (13).
5. Remove handle attachment angle (2) from valve (1) by removing 5/16 x 3/4 flat head cap screw (3) and socket head cap screw (4).

VALVE ENCLOSURE, HOSE AND FITTING DISASSEMBLY

1. Remove cover (21) from valve box (20) by removing #10 x 1/2 pan head screws (31) and J-clips (27).
2. Remove female quick couplers (26), spiral bands (25), dust caps (33), reducer fittings (32), and spacers (24) from ends of hoses (16, 17, 18 & 19). Remove hoses (16, 17, 18 & 19) from working ports of valve (1).
3. Remove valve mounting bracket (39) from valve box (20) by removing 3/8 x 2-1/4 cap screws (40) and lock nuts (41).
4. Remove 1/4 x 2 cap screws (22), flat washers (10) and lock nuts (23) to remove valve (1) with attached fittings and hoses from box (20).

REASSEMBLING VALVE, HOSES & FITTINGS IN ENCLOSURE (Figure 3)

1. Install 9/16 x 3/4 straight fittings (37) into inlet (marked "IN") and outlet (marked "OUT") ports of control valve (1). Install 9/16 x 3/4 x 90 elbow fitting (15) into power beyond sleeve (14) in valve port marked "PB."
2. Install 1/2 x 72 hose (35) onto straight fitting (37) in inlet port of valve (1). Install 1/2 x 86 hose (36) onto 3/4 x 3/4 x 45 elbow fitting (38) in outlet port. Install 1/2 x 54 hose (34) onto 9/16 x 3/4 x 90 elbow fitting (15) in power beyond port.
3. Install 3/8 x 6-7/8 hose (16) into port "D" of valve (1). Install 3/8 x 7-7/8 hose (17) into port "C", install 3/8 x 8-1/2 hose (18) into port "B" and install 3/8 x 13 hose (19) into port "A".
4. Fasten valve mounting bracket (39) to valve box (20) using 3/8 x 2-1/4 cap screws (40) and lock nuts (41). Fasten valve (1) and attached fittings into valve box (20) using 1/4 x 2 cap screws (22), flat washers (10) and lock nuts (20). Put ends of working port hoses (16, 17, 18 & 19) through holes in valve box as shown.
5. Install spacer (24), reducer bushing (32), ring end of dust cap (33) and female quick coupler (26) onto end of each hose. Place one 1" colored spiral band (25) onto each female quick coupler (26) for coupler identification.
6. Slide "J" clips (27) onto valve box cover (21) and fasten cover (21) to valve box (20) using #10 x 1/2 pan head cap screws (31). Slide rubber boot (28) over handle (5) and press around bottom so threaded end of ball joint stud (8) protrudes through hole. Fasten cap nut (29) onto protruding threads. Screw valve handle knob (30) onto end of valve handle.

REASSEMBLING SINGLE LEVER CONTROL ONTO VALVE

1. Fasten handle attachment angle (2) to valve (1) using 5/16 x 3/4 flat head cap screw (3) and socket head cap screw (4).
 2. Fasten ball joint stud (8) to handle attachment angle (2) with 1/4-28 lock nut (13), then slide female ball joint (7) onto stud (8). Fasten both male ball joints (6) onto both spools of valve (1) with 1/4-28 hex nuts (12) and lock washers (11). One quarter-inch washer (10) may be used between valve lift spool (spool with float) and ball joint (6) to change angle of handle lever (5).
- NOTE:** Rotate tilt spool (spool without float) approximately 45° to ease installation of male ball joint (6), lock washer (11) and nut (12).
3. Fasten valve handle lever (5) to ball joints (6 & 7) using 1/4-28 x 3/4 socket head cap screws (9).

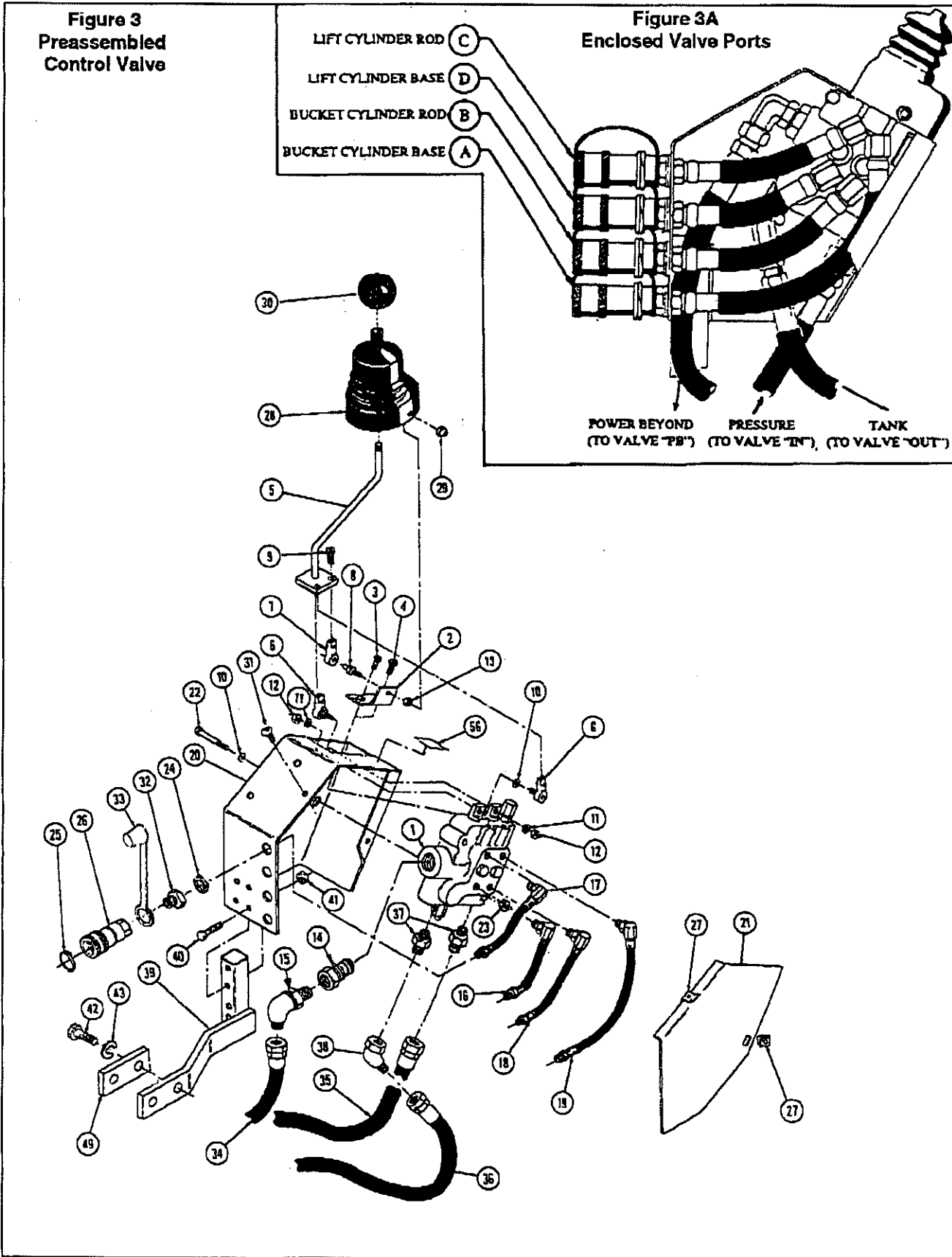
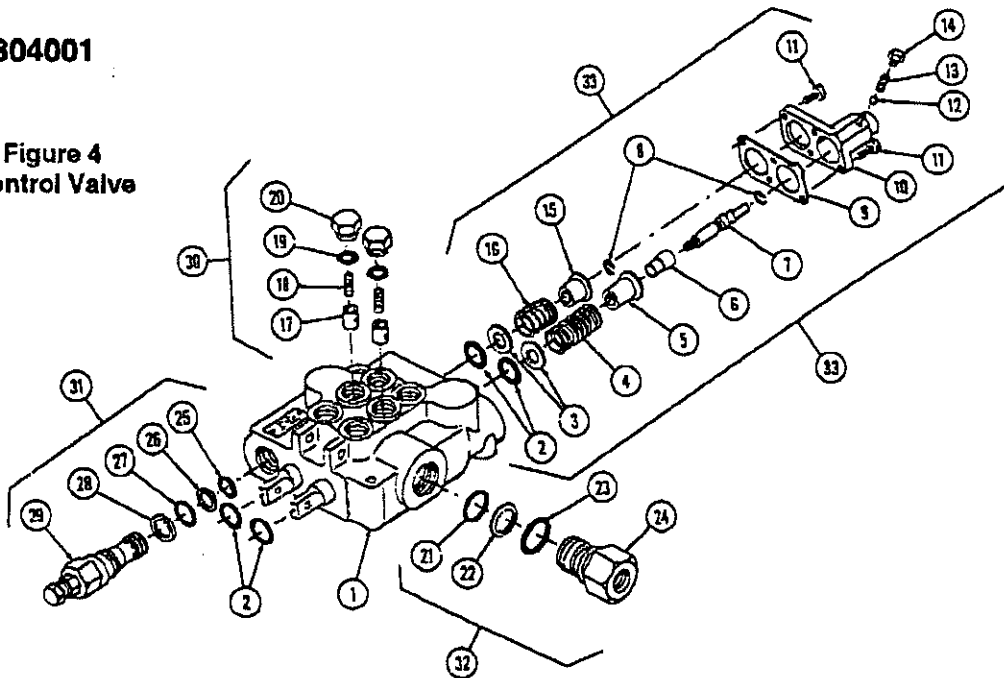


Figure 4
Control Valve



DUKES DV-27 VALVE SERVICE (Figure 4)

Following is an outline procedure for disassembling and reassembling valve.

WARNING:

The valve has a valve relief setting pre-set at the factory. 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

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

1. Remove detent screws (14), detent springs (13) and steel balls (12) from both sides of detent end cap (10). Remove end cap (10) and gasket (9) from rear of valve body (1) by removing four screws (11).
2. Compress return springs (4 & 16) to expose and remove retaining rings (8). Remove sleeve (6) from detent spool. Remove spring spacers (5 & 15), return springs (4 & 16) and return washers (3) from spools.

NOTE: If centering parts are not damaged it is not necessary to remove them from spools. Detent stud (7) is installed with thread locking compound to 3 ft.-lb. torque.

3. Push spools into valve body (1) from rear until rear spool o-rings (2) are exposed, then remove o-rings (2) by using a wire hook and screw driver.
4. Remove power beyond sleeve (24) from power beyond port of valve body (1). Remove o-rings (21 & 23) and backup washer (22) from power beyond sleeve (24) only if they are to be replaced.
5. Remove load check plugs (20), load check springs (18) and load check poppets (17) from top of valve body. Remove load check plug o-rings (19) from plugs only if o-rings are to be replaced.
6. Remove pilot operated relief cartridge (29) from front of valve body (1). Remove o-rings (25 & 27) and backup washers (26 & 28) only if they are to be replaced.

CAUTION: Do not remove or adjust smaller nuts of relief cartridge (29).

7. 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.

PARTS LIST - DUKES DV-27 VALVE, 40294

| ITEM | PART NO. | DESCRIPTION | QTY. |
|------|----------|---|------|
| 1 | * | VALVE | 1 |
| 2 | * | O-RING, Spool | 4 |
| 3 | * | WASHER, Return | 2 |
| 4 | * | SPRING, Return | 1 |
| 5 | * | SPACER, Spring | 1 |
| 6 | * | SLEEVE | 1 |
| 7 | * | STUD, Detent | 1 |
| 8 | * | RING, Retaining | 2 |
| 9 | - | GASKET, End Cap | 1 |
| 10 | - | CAP, End | 1 |
| 11 | * | SCREW, Slotted | 1 |
| 12 | * | BALL, Steel | 2 |
| 13 | * | SPRING, Detent | 2 |
| 14 | * | SCREW, Detent | 2 |
| 15 | - | SPACER, Spring | 1 |
| 16 | * | SPRING, Return | 1 |
| 17 | * | POPPET, Load Check | 2 |
| 18 | * | SPRING, Load Check | 2 |
| 19 | * | O-RING, Load Check Plug | 2 |
| 20 | * | PLUG, Load Check | 2 |
| 21 | * | O-RING, Power Beyond | 1 |
| 22 | * | WASHER, Backup | 1 |
| 23 | * | O-RING, Power Beyond | 1 |
| 24 | * | SLEEVE, Power Beyond | 1 |
| 25 | * | O-RING, Relief | 1 |
| 26 | * | WASHER, Backup | 1 |
| 27 | * | O-RING, Relief | 1 |
| 28 | * | WASHER, Backup | 1 |
| 29 | - | CARTRIDGE, Relief | 1 |
| 30 | 33101 | REPAIR KIT, Load Check | 1 |
| 31 | 36583 | REPAIR KIT, Pilot Operated Relief | 1 |
| 32 | 36584 | SLEEVE KIT, Power Beyond | 1 |
| 33 | 41201 | REPAIR KIT, Spring Centering | 1 |
| | 41199 | REPAIR KIT, Valve Seals (Contains items 2, 9, 19, 21, 22, 23, 25, 26, 27, & 28) | 1 |

* Parts are included in appropriate repair kit.

NOTES

INSTALLATION INSTRUCTIONS