

**VALVE AND PLUMBING KIT INSTRUCTIONS
NEW HOLLAND TRACTORS
WITH TANDEM GEAR PUMP HYDRAULIC SYSTEM**

MODEL	2WD	4WD	LESS CAB	WITH CAB
TS90, TS100, TS110	X	X	X	

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

INSTALLING VALVE TO TRACTOR (Figure 1)

1. Attach valve mounting bracket (6) to clutch housing using 20mm x 40mm cap screws (10), 20mm lock washers (11), and spacer plate (5). Tractors with loader use no spacer plate, and tractors without loader use one spacer plate.

NOTE: 40 Series hand railing on right side may have to be modified to fit around valve box assembly.

NOTE: Check clearance between tractor control levers and valve handle. Handle location can be adjusted slightly by adjusting mounting bracket (6) or adjusting support flat (16) (Figure 7) on valve box.

2. Mount valve assembly to mounting bracket (6) using 8MM x 30MM cap screws (4) and 5/16 lock washers (1) and 5/16 flat washers (18).

NOTE: Flat deck tractors use either top set of holes and straddle deck tractors use bottom set of holes.

3. Route hoses under platform and back to rear of tractor. Be sure hoses do not interfere with draft control or foot pedal linkages.

INSTALLING PRESSURE LINES (Figure 7)

1. Remove fitting from front dual pump pressure line on left underside of the tractor, and replace with 13/16-16 O-ring male tee (46)(see Figure 7A). Attach 1/2 x 80 pressure hose (47) to 13/16-16 O-ring tee (46) and route rearward and up over and ahead of 3-Pt hitch rockshaft housing to right side of tractor (see figures 2, 3 and 4). Attach 1-1/16 -12 JIC tee (48) to 3/4 x 44 pressure hose (42) and connect 1/2 x 80 pressure hose (47) to opposite end of tee (48).

2. Remove rearmost elbow on top of right remote tractor valve and replace with 1-14 O-ring swivel tee (17). This is the pressure port. Connect existing tractor steel oil line to stem of swivel tee (17) and connect 1/2 x 54 pressure hose (50) to branch of swivel tee (17)(see figures 2, 3 or 4 to determine which installation matches tractor). Route pressure hose (50) forward along right side of casting. Be sure hoses do not interfere with draft control or foot pedal linkages. Connect female end of 1-1/16-12 x 7/8-14 JIC elbow (49)(figure 7) to open end of male tee (48). Attach 1/2 x 54 pressure hose (50) to male end of elbow (49).
3. Use 3/16 x 11 plastic tie straps (not shown) to hold pressure hoses (47)(50) so they do not interfere with tractor linkages.

INSTALLING LOAD SENSING LINES (Figs. 2,3,4 and 7)

1. Remove o-ring adapter fitting from front of tractor remote valve where small load sense line was connected. Screw shuttle valve (7) directly into port vacated. Make sure male tip with O-ring goes into tractor valve. Leave shuttle valve (7) loose at this time until best position is determined.
2. Screw 7/16 x 9/16 x 90 elbow (8) into female port of shuttle valve. Position this elbow so:
 - A. If short load sense line is removed, 1/4 x 16 hose (9)(Figures 4 & 5) can be connected from 7/16 x 9/16 x 90° elbow (8) to fitting where other end of load sense line was removed. Connect 1/4 x 16 hose (9) and tighten all fittings and shuttle valve.

OR:

- B. If steel load sense line is longer than 16 inches, it can be rerouted directly to 7/16 x 9/16 x 90 elbow (8). Connect this load sense line to 7/16 x 9/16 x 90 elbow (8) and tighten fittings and shuttle valve. Discard 1/4 x 16 hose (9) since it will not be used.
3. FLAT DECK TRACTORS - Connect 1/4 x 92 hose (41) from load sense port of auxiliary control valve (1) to male 7/16-20 flare end of shuttle valve. This completes the load sense circuit.

STRADDLE DECK TRACTORS - Use 7/16 elbow fitting (3) between shuttle valve and 1/4 x 92 hose.

PLUMBING VALVE TO TRACTOR (Figures 1-4)

1. A. Remove flow bolt at base of transmission filler tube at rear of tractor and replace it with 3/4 BSPP x 7/8 JIC adapter fitting (16). Install 7/8 x 7/8 x 90° elbow (2) onto adapter fitting(16). Connect 1/2 x 108 hose (40) from tank port (outlet) of auxiliary control valve (1) to elbow fitting (34).
2. Use 3/16 x 11 plastic tie straps (not shown) to hold inlet, outlet and load sensing hoses from rubbing against rotating 3-point lift arms, brake levers, shift levers, etc., on tractor to avoid hose wear.

PLUMBING LOADER TO CONTROL VALVE (Fig. 1)

NOTE: For a simplified view of Plumbing Loader to Control Valve and Self Leveling Valve see (Figure 5). Refer to Figure 6 for location of rubber straps (14) on a typical loader installation.

1. Install 1/2 x 120 hoses (13) 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.
2. Install male quick couplers (12). Do not over tighten male couplers.
3. Connect hoses as shown in Figure 1. Install colored rings (15) onto

free ends of hoses to match rings on female couplers.

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



NOTE: When cycling loader, operate loader according to operation decal (37). 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.

- 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.

PARTS LIST - VALVE AND PLUMBING KIT

ITEM	SMC NO.	NH NO.	DESCRIPTION	QTY.
1	G120214	000800681	WASHER, Lock, 5/16	2
2	34128-1	001822977	FITTING, Elbow, 7/8-16 JIC Swivel x 7/8-14 JIC x 90°	1
3	34128-4	86512933	FITTING, Elbow, 7/16-20 x 7/16-20 Flair x 90°	1
4	6090-46	00043128	SCREW, Cap, 8MM-1.25 x 30MM Class 8.8	2
5	46087	SML46087	SPACER, Flat	1
6	46224	SML46224	BRACKET, Mounting	1
7	40777	SML40777	SHUTTLE VALVE ASSEMBLY	1
8	40654-1	SML406541	ELBOW, 7/16-20 O-Ring x 9/16-18 Face Seal	1
9	40776-1	SML407761	HOSE, 1/4 x 16	1
10	6090 -67	SML609067	SCREW, Cap, 20MM x 40MM Class 8.8	2
11	G11500166	9847025	WASHER, Lock, 20MM	2
12	6137-6	SML61376	COUPLER, Male Quick, 1/2-14	4
13	36845-5	SML368455	HOSE, 1/2 x 120	4
14	7438-1	SML74381	STRAP, Rubber	2
	8137-3	SMC81373	STRAP, Reuseable Tie, 1/2 x 20 (not shown)	2
	8137-1	SML81371	STRAP, Reusable Tie, 3/16 11 (not show)	4
15	36240-9 thru12	SML36240	BAND, Spiral Identification, 1inch, Blue, Red, Yellow, Green	1 ea.
16	36249-2	SML362492	ADAPTER, 3/4-14 BSPP x 7/8-14 JIC	1
17	40655-1	SML406551	TEE, 1-14 O-ring Swivel - 1-14 O-ring face male	1
18	G120393	00080664	WASHER, Flat, 5/16	2

Figure 1
Installing Valve Assembly

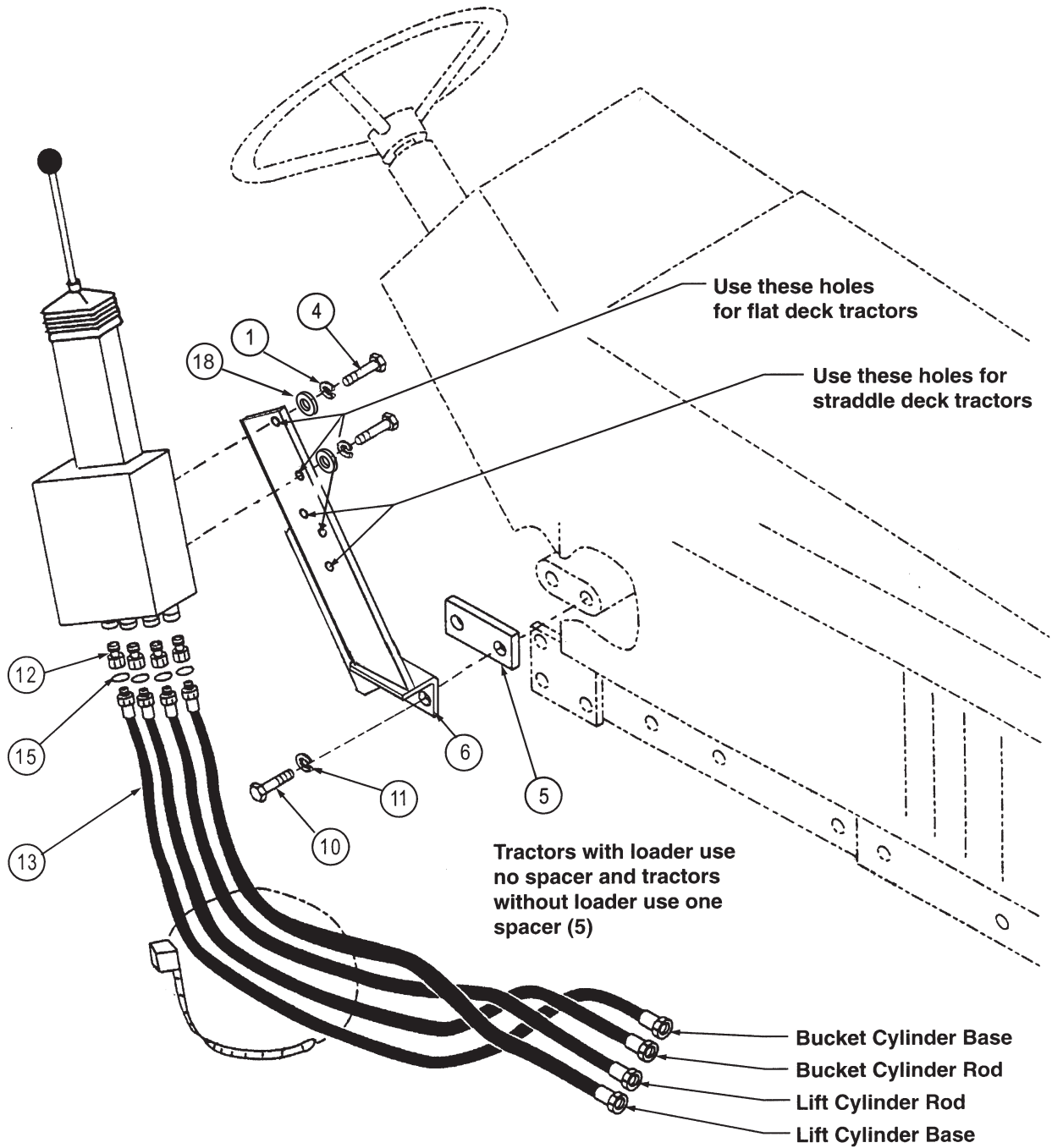


Figure 2
Plumbing Control Valve
to Single Set of
Rear Remotes

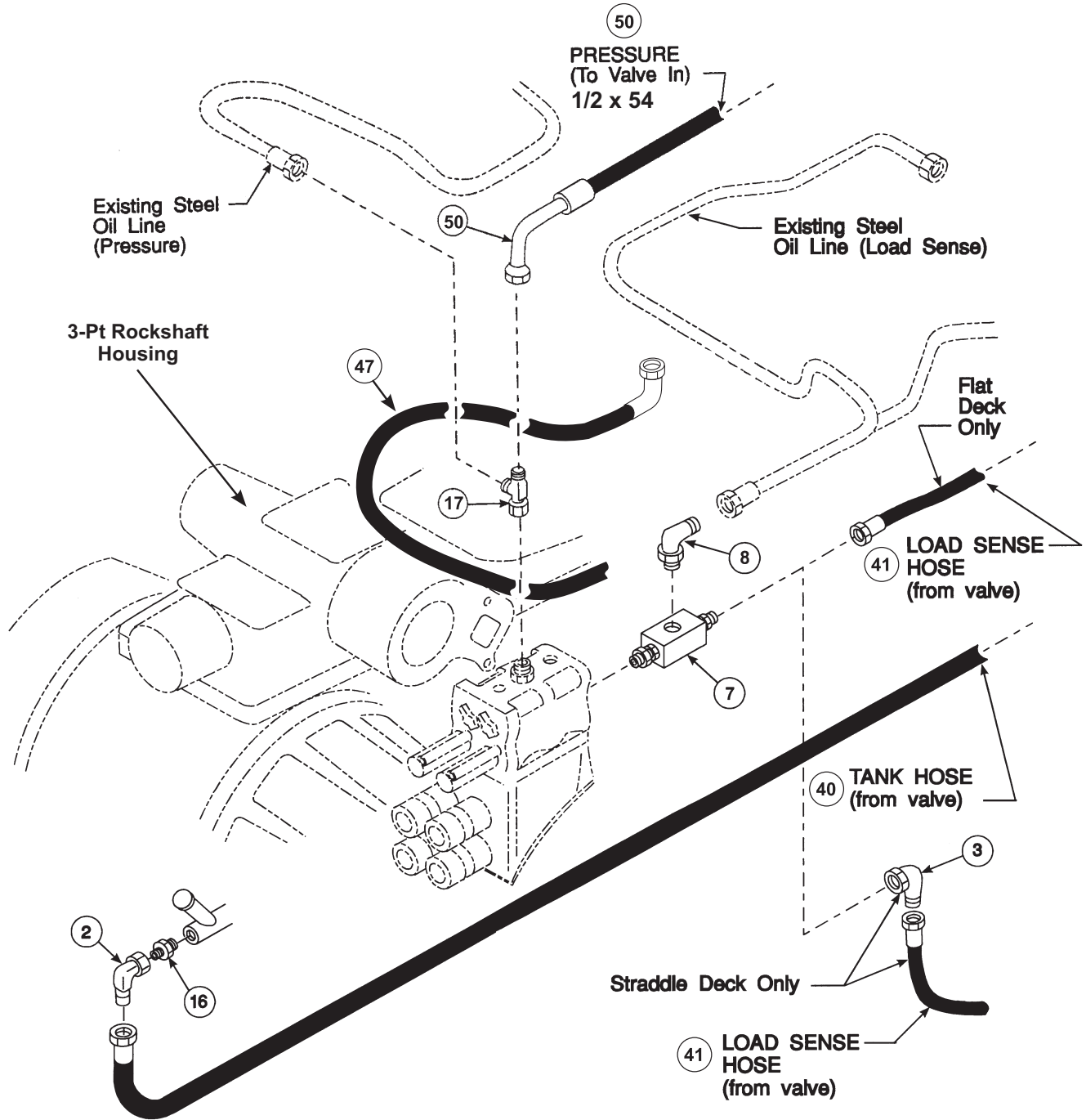


Figure 3
Alternate
Plumbing Control Valve
to Single Set of

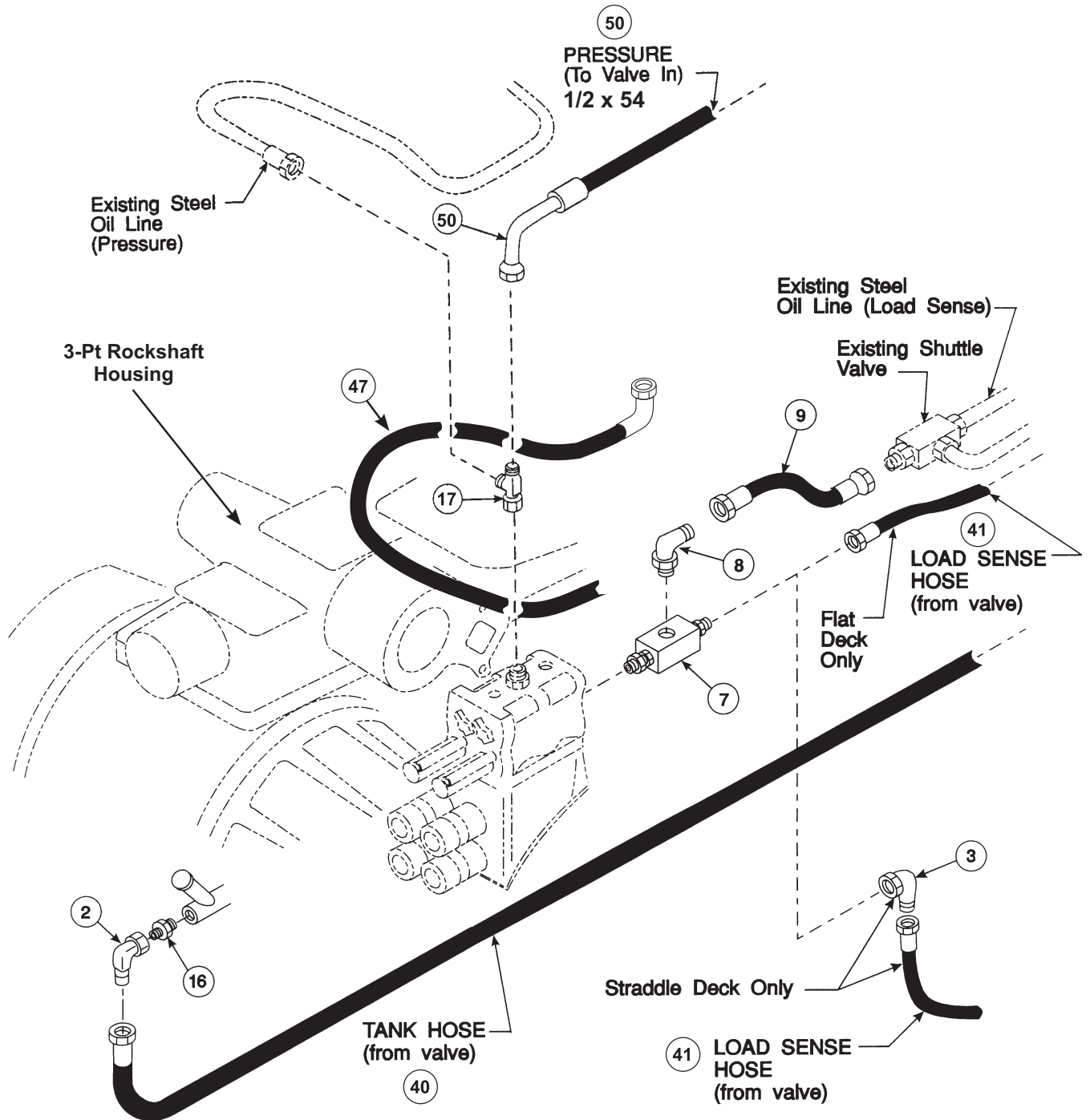
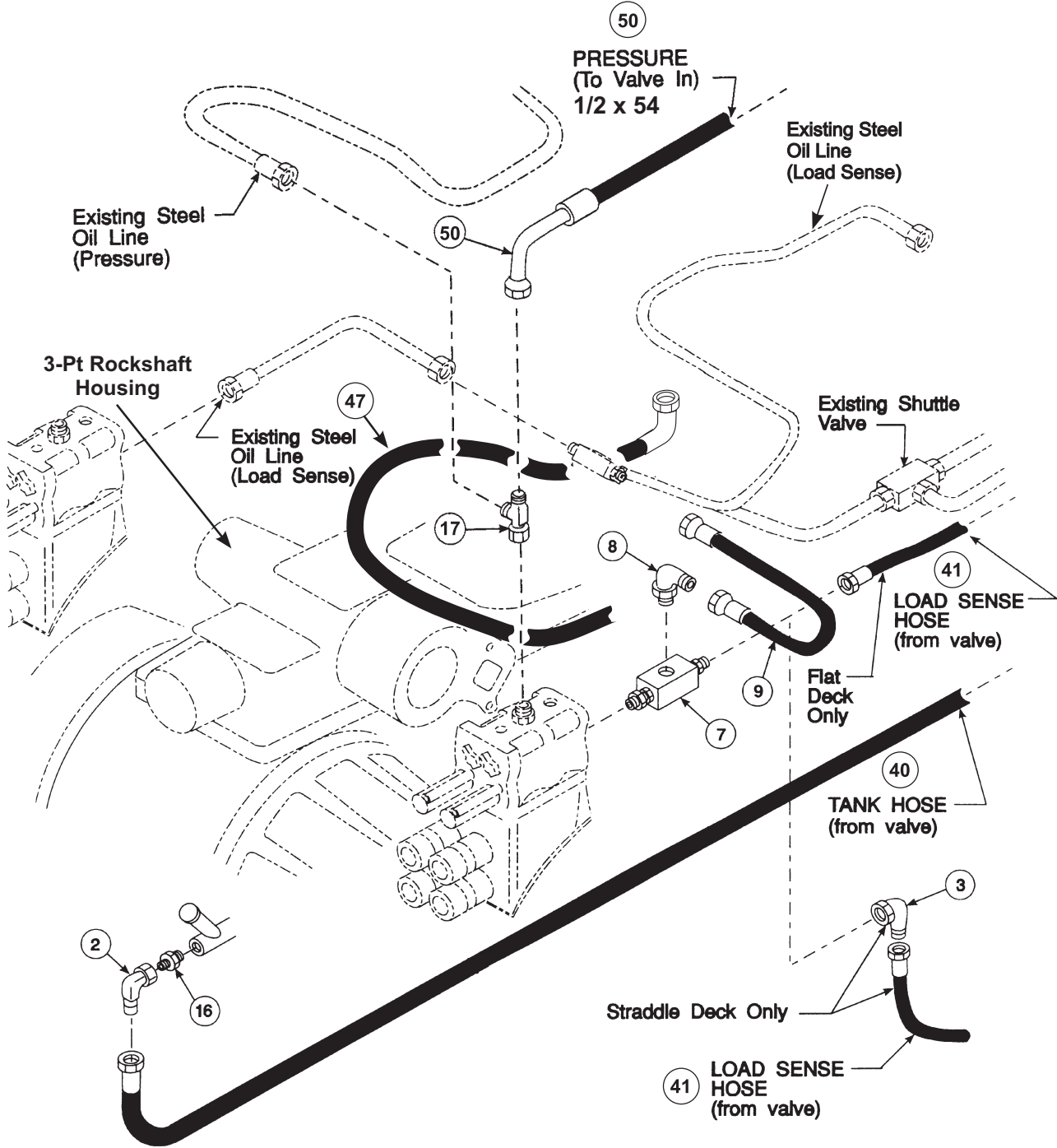
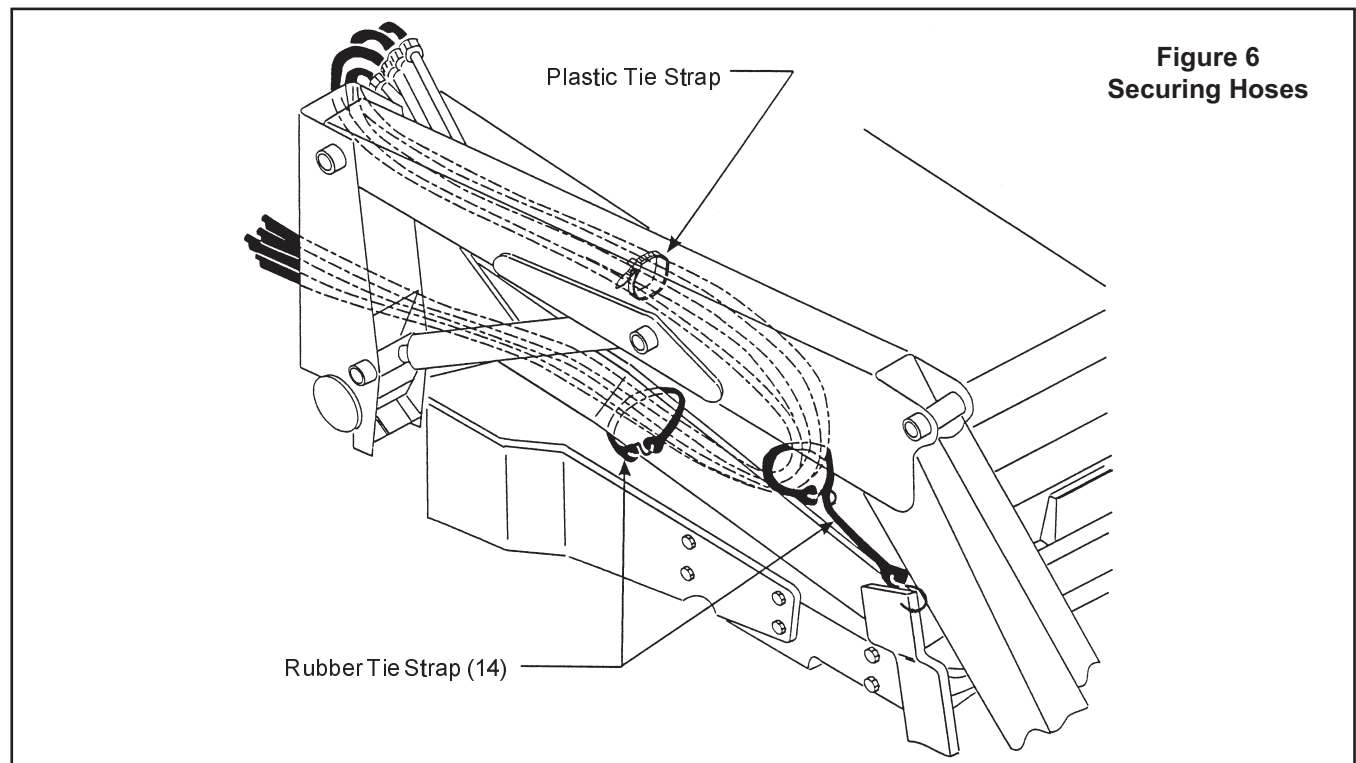
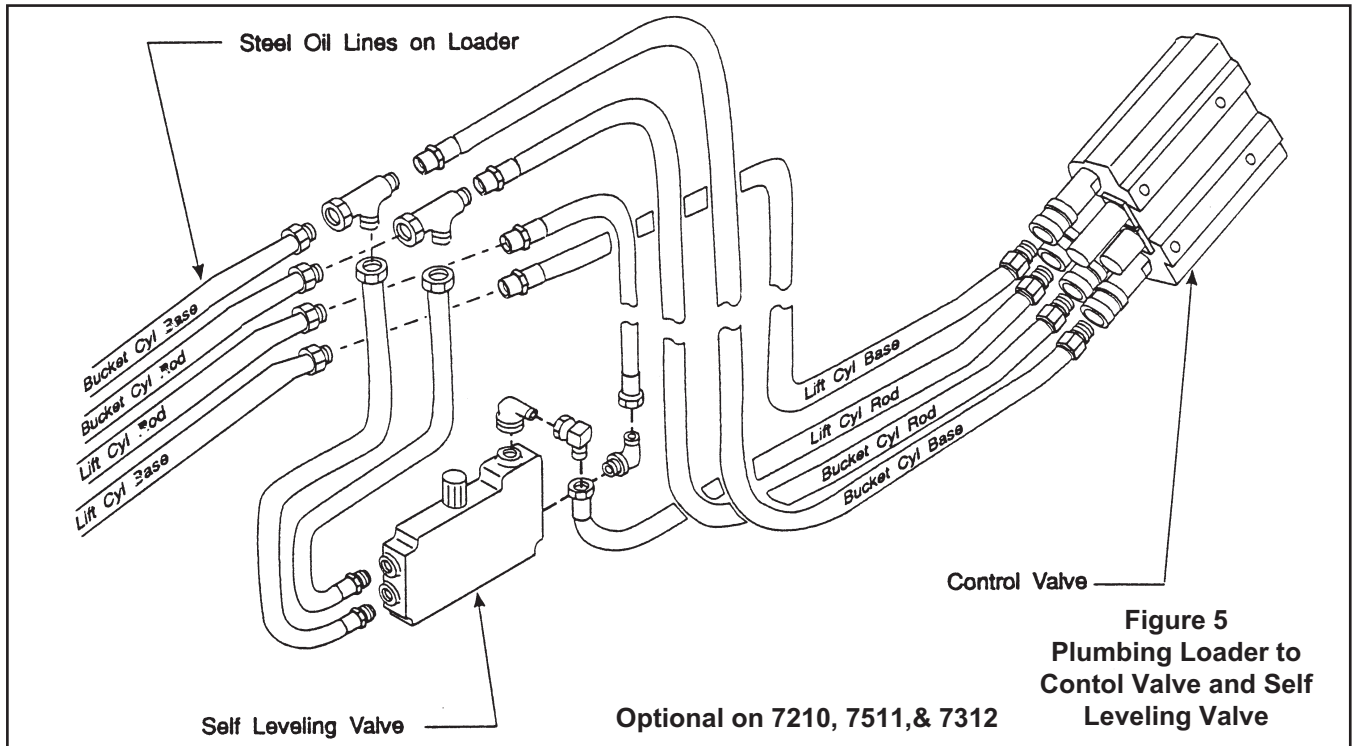


Figure 4
Plumbing Control Valve to Dual
Set of Rear Remotes





SECURING HOSES USING RUBBER TARP STRAPS (Figure 6)

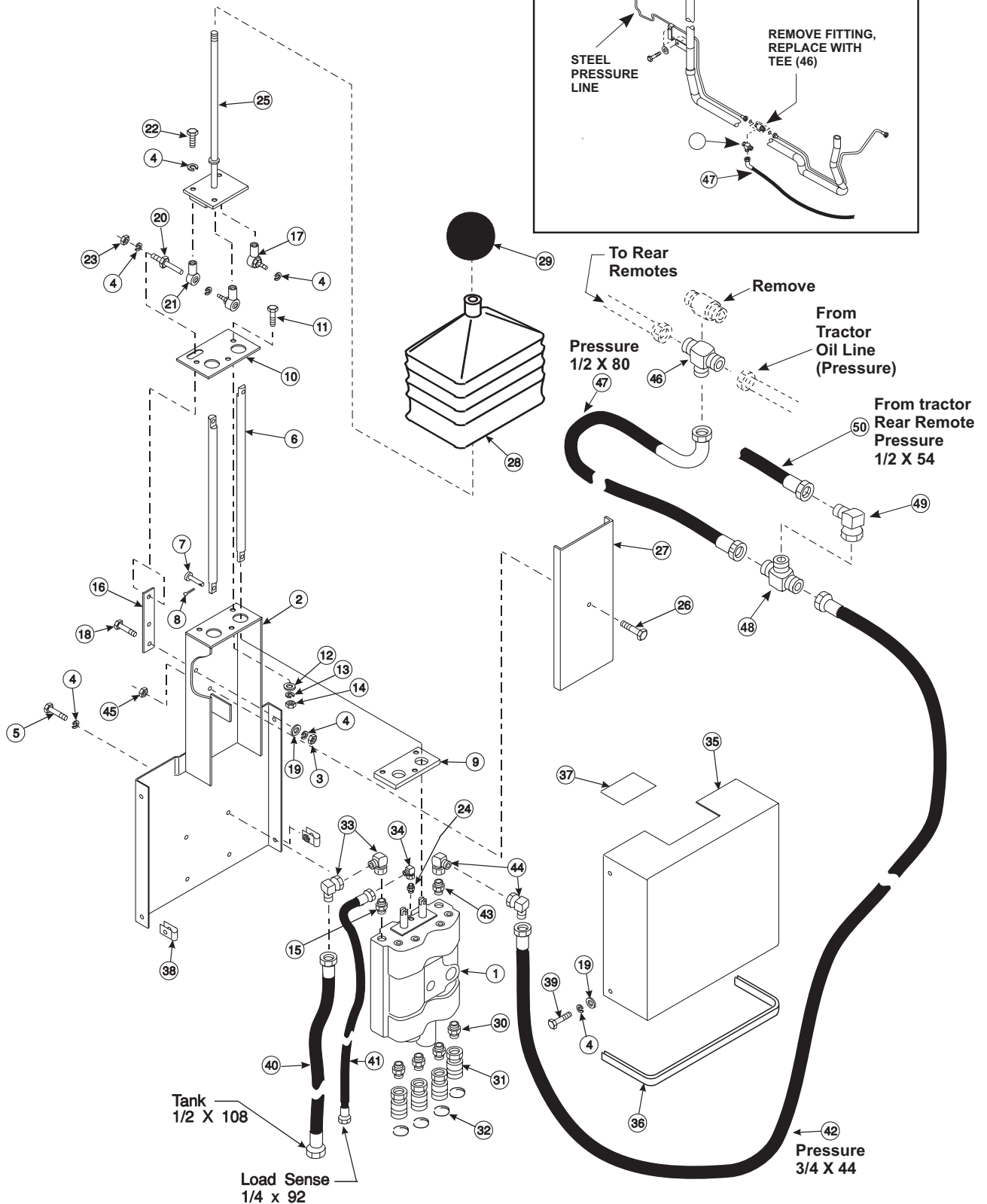
Install loader onto tractor according to instructions included with mounting kit. Use larger plastic tie strap (not shown) to bundle 1/2 x 120 hoses together. Loop

one rubber strap (14) around hoses onto itself, and secure other end near front mounting. Wrap remaining rubber strap around bundled hoses and loader side frame. Make sure rubber straps secure hoses away from tractor axle, wheel or moving loader parts.

VALVE ASSEMBLY - PREASSEMBLED

1	44753	SML44753	VALVE, Walvoil	1
2	45222	SML45222	BRACKET, Valve Mounting	1
3	G120376	09635082	NUT, Hex, 5/16-18	2
4	G120214	00080681	WASHER, Lock, 5/16	14
5	6090-30	00120104	SCREW, Cap, 8MM-1.25 x 20MM Class 8.8	2
6	45218	SML45218	ROD, Spool Extension	2
7	6021-16	SML602116	PIN, Clevis, 5/16 x 1	2
8	G121222	SMLG121222	PIN, Cotter, 3/32 x 3/4	2
9	40811	SML40811	GUIDE, Extension Rod, Plastic	1
10	40828	SML40828	PLATE, Bellows Mounting	1
11	G180022	00088146	SCREW, Cap, 1/4-20 x 1	3
12	G120392	00087361	WASHER, Flat, 1/4	3
13	G120380	00080682	WASHER, Lock, 1/4	3
14	G120375	00007770	NUT, Hex, 1/4-20	3
15	32844-9	86507102	FITTING, Adapter, 1-1/16-12 O-ring x 7/8-14-JIC	1
16	40817	SML40817	FLAT, Support	1
17	26009-4	SML260094	ROD END	2
18	G122017	09635884	SCREW, Cap, 5/16-18 x 1	2
19	G120393	00080664	WASHER, Flat, 5/16	6
20	38904-2	SML389042	STUD, Ball Joint, 5/16-24	1
21	38900-4	SML389004	BALL JOINT	1
22	G181608	00280483	SCREW, Cap, 5/16-24 x 1	3
23	G120368	00012628	NUT, Hex, 5/16-24	1
24	32844-12	00139398	FITTING, Adapter, 9/16-18 O-ring x 7/16-20 JIC	1
25	45219	SML45219	HANDLE ASSEMBLY	1
26	G180048	00087405	SCREW, Cap, 1/4-20 x 2-1/2	1
27	40822	SML40822	COVER, Valve Enclosure	1
28	36077	SML36077	BOOT	1
29	38902	SML38902	KNOB, Valve Handle	1
30	39280-10	SML3928010	FITTING, Straight, 7/8-14 O-Ring x 1/2-14 NPTF	4
31	6147-8	SML61478	COUPLER, Female Quick, 1/2-14	4
32	36240-9thru12	SML36240	BAND, Spiral Identification, 1 inch, Blue, Red, Yellow, Green	1ea.
33	34128-1	00182977	FITTING, Elbow, 7/8-14 JIC Swivel x 7/8-14 JIC x 90	2
34	34128-4	86512933	FITTING, Elbow, 7/16-20 x 7/16-20 Flare x 90	1
35	45220	SML45220	COVER, Weldment	1
36	24765-3	SML247653	TRIM, Plastic, 15 inches	1
37	38929	SML38929	DECAL, Valve Operation	1
38	6067-1	09626645	NUT, Speed Clip, 5/16-18	4
39	G180077	00087872	SCREW, Cap, 5/16-18 x 3/4	4
40	36698-12	SML3669812	HOSE, 1/2 x 108 (Tank)	1
41	40656-3	SML406563	HOSE, 1/4 x 92 (Load Sense)	1
42	41304-5	SML413045	HOSE, 3/4 x 44 (Pressure)	1
43	32844-15	00322896	FITTING, Adapter	1
44	34128-5	SML341285	FITTING, 1-1/16-12 JIC x 1-1/16-12 JIC, 90	2
45	G9424215	00280129	NUT, Lock, 1/4-20	1
46	46317-1	SML463171	TEE, Male, 13/16-16 O-ring Face (not assembled)	1
47	46333-1	SML463331	HOSE, 1/2 x 80 (not assembled)	1
48	36665-4	SML366654	TEE, Male, 1-1/16-12 JIC (not assembled)	1
49	34128-8	SML341288	FITTING, 1-1/16-12 JIC Swivel x 7/8-14 JIC x 90 (not assembled)	1
50	40653-1	SML406531	HOSE, 1/2 x 54 (not assembled)	1

Figure 7
Preassembled Control Valve



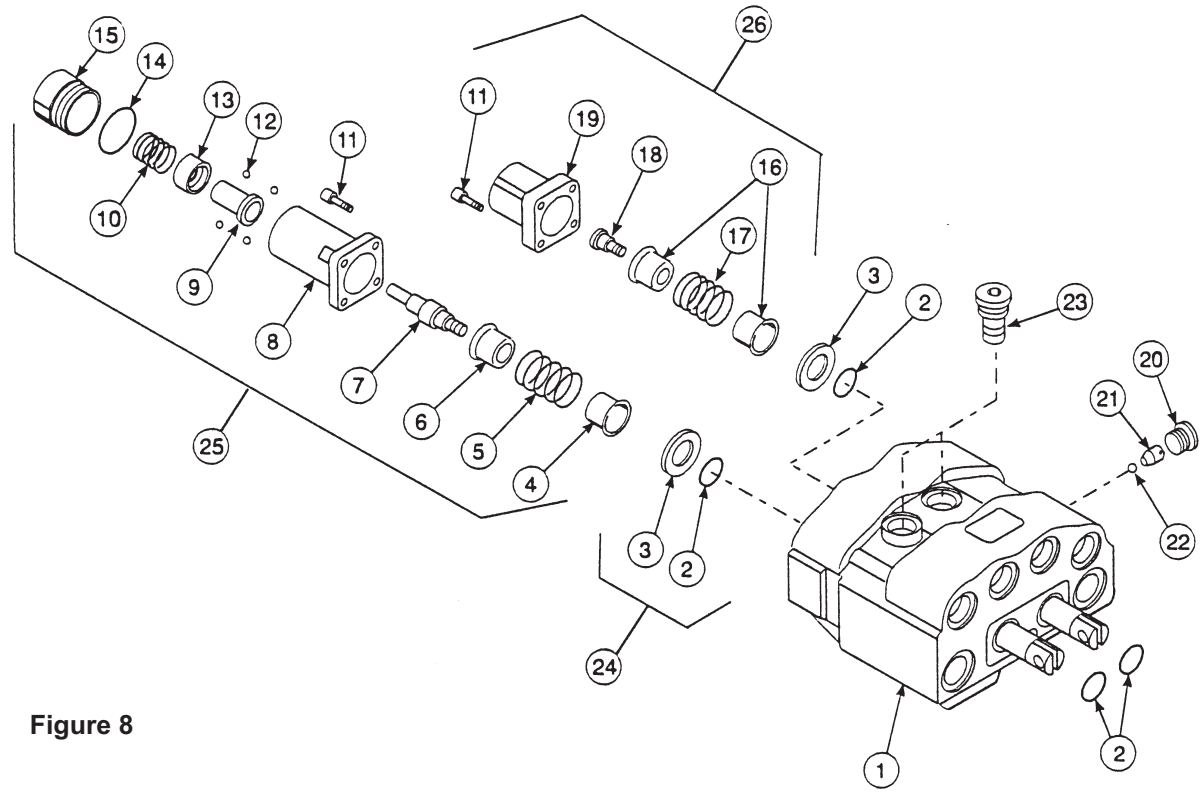


Figure 8

PARTS LIST - WALVOIL VALVE - 44753

ITEM	SMC NO.	NH NO.	DESCRIPTION	QTY.
1	*		VALVE BODY (Includes spools)	1
2	*		SEAL, O-Ring	4
3	*		WASHER, 18MM x 34MM x 4MM	2
4	45024	SML45024	BUSHING	1
5	45025	SML45025	SPRING	1
6	45026	SML45026	BUSHING	1
7	45027	SML45027	PIN, Spool Anchor	1
8	*		COVER	1
9	45029	SML45029	BUSHING, Carrier	1
10	45030	SML45030	SPRING	1
11	45028	SML45028	SCREW, Cap, Socket Head, 5MM x 16MM	8
12	45032	SML45032	BALL BEARING	4
13	45033	SML45033	RING, Thrust	1
14	45031	SML45031	O-Ring	1
15	*		END CAP	1
16	45034	SML45034	BUSHING	2
17	45035	SML45035	SPRING	1
18	45036	SML45036	SCREW, Spool Control	1
19	*		ENDCAP	1
20	45041	SML45041	PLUG,	1
21	45042	SML45042	PLUG, with seat	1
22	45043	SML45043	BALL BEARING	1
23	45023	SML45023	LOAD CHECK PLUG, VR10	2
24	45020	SML45020	SEAL KIT, Body [item #2 (Qty. 4) and item #3 (Qty. 2)]	1
25	45021	SML45021	REPAIR KIT [items 4, 5, 6, 7, 9, 10, 11 (Qty. 4), 12 (Qty. 4), 13, 14 & 15]	1
26	45022	SML45022	REPAIR KIT [items 11 (Qty. 4), 16 (Qty. 2), 17, 18 & 19]	1

* Not available as repair part. Order appropriate repair kit or complete valve (44753).

INSTALLATION INSTRUCTIONS