

Keep With Operator's Manual

CABLE CONTROLLED VALVE & PLUMBING KIT (PARALLEL, OPEN CENTER VALVE) 4211 STD AND MSL LOADER FOR NEW HOLLAND AND CASE IH TRACTORS

MANUFACTURER	MODEL	CAB
NEW HOLLAND	TL80A, TL90A, TL100A	X
CASE IH	JX1080U, JX1090U, JX1100U	X

VALVE AND PLUMBING KIT GENERAL INFORMATION

Valve and plumbing kit can be installed using tools ordinarily available, including standard and metric wrenches and a torque wrench. Valve control handle has been factory pre-assembled for ease of installation.

The valve contained in this kit is an open-center parallel valve. A parallel valve allows performing two functions simultaneously, each at full valve pressure. However, the function requiring lower pressure will take priority.

Example: When simultaneously operating lift and rollback, bucket may roll back until tilt cylinders are completely retracted before lift cylinders raise loader.

Each function can be operated separately when desired.

References to left and right used in these instructions refer to position when seated in operating position on tractor. Shut off tractor engine and engage parking brake 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.



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.

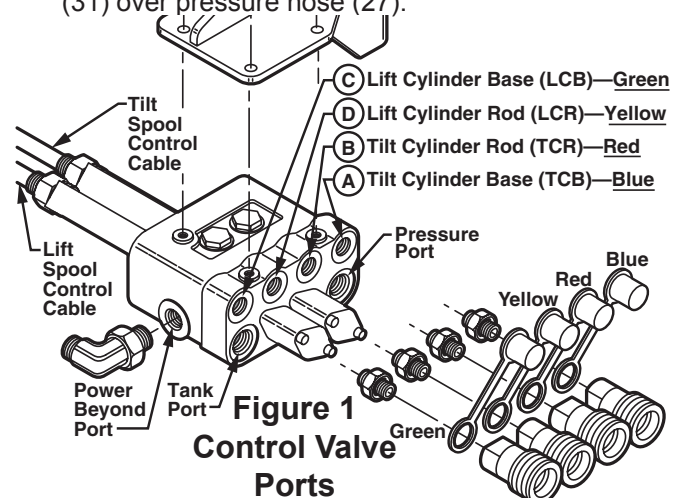
If any fluid is injected into skin, obtain medical treatment immediately or gangrene may result.

CONNECTING CONTROL CABLES TO VALVE SPOOLS (Figure 2)

1. Loosely fasten cables (16) to cable straps (20) using 3/4" jam nuts (17), 3/4" internal tooth lock washer (18), and 3/4" knurled nut (19). Attach spool clevis (24) to cable ends (16) using 5/16" jam nuts (21); one on each side. Remove protective caps on opposite end of cable (16) and attach cable adapter (15, Figure 2).
2. Fasten cable assemblies (26) to valve using 1/4-20 x 3/8 socket head cap screws (25). Note which cable is lift and which is tilt. Attach spool clevis (24) to lift and tilt spools of valve using 5/16 x 1" clevis pins (23) and cotter pins (22, Figure 2).

CABLE CONTROL VALVE ASSEMBLY (Figures 1 & 4)

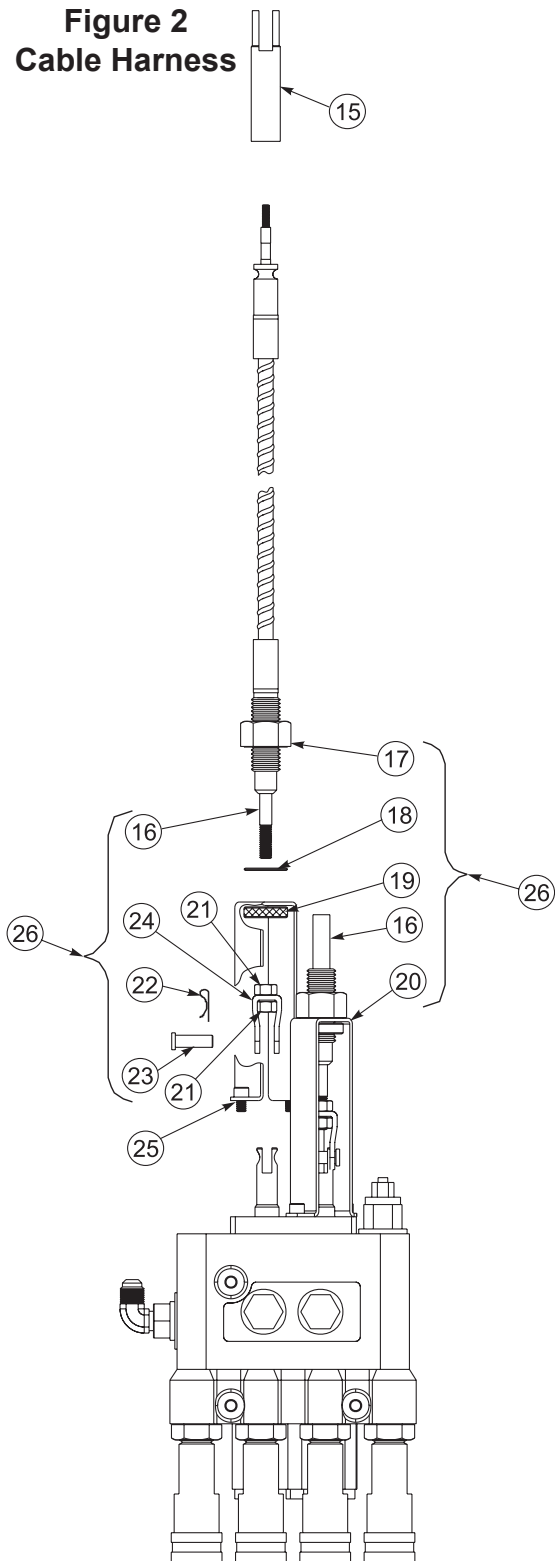
1. Install 90° elbow fitting (22) into power beyond port of valve (1). Install adapter fittings (21), female couplers (19), and dust plugs (24) to working ports of valve (1). (See Figure 1.)
2. Install 44" power beyond hose (26, Figure 4) to 90° elbow fitting (22) in power beyond port of valve (1). Slide 44" nylon sleeve (30) over power beyond hose (26).
3. Attach 60" tank hose (28) and 54" pressure hose (27) to tank and pressure ports of valve (1). Slide 60" sleeve (32) over tank hose (28) and slide 54" sleeve (31) over pressure hose (27).



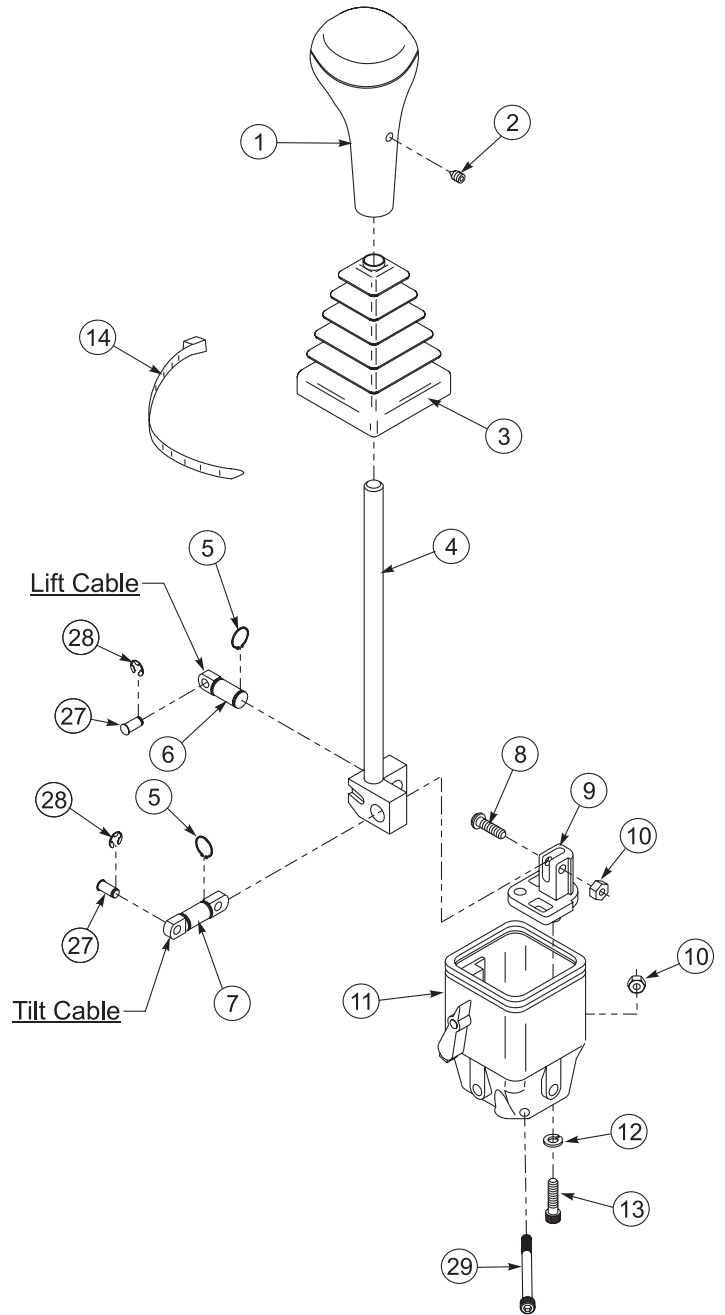
PARTS LIST - JOYSTICK AND CABLE HARNESS

ITEM	PART NO.	DESCRIPTION	QTY.
1	51814	HANDLE, Plastic	1
2	G11506909	SCREW, Set, 6mm-1.00 x 8mm LG	1
3	51805	BOOT	1
4	*	HANDLE ASSEMBLY, Joystick	1
5	*	RETAINING RING, External 15/16"	3
6	*	ROD END, Single	1
7	*	ROD END, Double	1
8	51894	BOLT, Pan Head Slotted, 6mm-1.00 x 22mm LG	1
9	*	CLEVIS	1
10	**	NUT, Lock, Nylon Insert, 6mm-1.00	1
11	54740	BASE W/LOCK MECHANISM	1
12	41837-1	WASHER, Lock, 1/4"	1
13	51812-1	SCREW, Socket Head, 6mm-1.00 x 30mm	1
14		CABLE TIE, 3/16" (not available as service part)	1
15	52242	CABLE ADAPTER	2
16		CABLE (not available as service part, see Item 26)	1
17	48948-18	NUT, Jam, 3/4"-16	1
18	51798	WASHER, Lock, Internal Tooth, 3/4"	1
19	51799-1	NUT, Knurled, 3/4"-16	1
20	51800	STRAP, Valve Adapter	1
21	48948-12	NUT, Jam, 5/16"-24	2
22	41903-15	PIN, Cotter, 3/32" x 3/4"	1
23	41902-20	PIN, Clevis, 5/16" x 1"	1
24	51804	CLEVIS	1
25	44743-1	SCREW, Socket Head, 1/4"-20 x 3/8"	4
26	51758-2	CABLE ASSEMBLY 60", (Includes Items 16 - 24)	1
27	**	PIN, 1/4"	2
28	**	RETAINING RING, External, 1/4"	2
29	**	SCREW, Socket Head, 6mm-1.00 x 75mm	1
30	55578	* KIT, ASSY REPAIR (Includes Items 4-7 & 9)	1
31	22279	** KIT, PIN/CABLE RETAINER (Includes Items 10 & 27-29)	1
	51757	JOYSTICK ASSEMBLY (Includes Items 1-14 & 27-29)	1

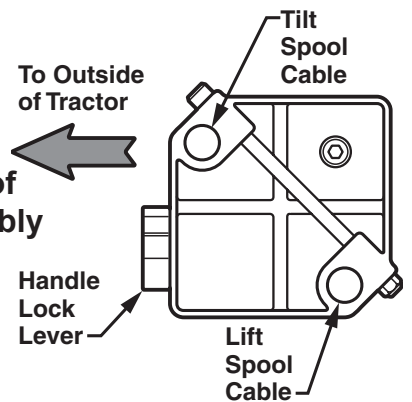
**Figure 2
Cable Harness**



**Figure 3
Joystick Control Assembly**



**Figure 3A
Bottom View of
Joystick Assembly**



ATTACHING VALVE TO TRACTOR (Figure 4)

1. Remove rear two 16mm bolts securing cab platform support plate on right side of tractor. Fasten valve mounting bracket (7) to tractor using 16mm x 80mm cap screws (14) and 5/8" lock washers (15).
2. Attach valve (1) to mounting bracket (7) using 5/16 x 3/4" cap screws (12) and lock washers (13).
3. Remove plugs in lower right fender and push cable ends through. Bundle cables with a tie strap (34) and secure to tractor, taking care to avoid rear tire and to not twist cables.
4. Remove hard-line hydraulic turnaround tube near right rear axle to access tractor hydraulics. Connect 42" power beyond hose (26) to lower oil line. Connect pressure hose (27) to upper oil line, forward and above right rear axle. Remove cap and connect tank hose (28) to tractor tank port.
5. Slide cable (16, Figure 3) for tilt operation and cable adapter (15) through rear hole on bottom of base (11). Attach cable adapter (15) to rod end (7) with pin (27) and retaining ring (28).
6. Slide cable (16, Figure 3) for tilt control and cable adapter (15) through rear hole in bottom of base (11). Attach cable adapter (15) to rod end (7) with pin (27) and retaining ring (28).
7. Lock lift and tilt cables (16, Figure 3) into place by reinstalling socket head screw (29) and lock nut (10) through lower side hole of base (11). Use plastic plugs provided with joystick to fill unused holes in joystick base.
8. Slide boot (3, Figure 3) onto joystick handle assembly and reinstall handle (1) with set screw (2).
9. Loosely attach joystick (2, Figure 4) and decal bracket (5) to joystick mounting bracket (4) using 5/16 x 3-1/4" cap screws (10) and lock nuts (11). Adjust joystick (2) for comfort and tighten 5/16 x 3-1/4" cap screws (10) and lock nuts (11).

INSTALLING JOYSTICK MOUNTING BRACKET (Figure 4A)

1. Drill a 3/8" pilot hole through tractor right fender wheel housing inside cab at dimensions shown in Figure 4A. Look for threaded holes in mounting bracket underneath fender. Referencing threaded hole centers, enlarge holes in fender to 7/8" maximum diameter.
2. Insert 7/8" diameter x 1-1/4" round spacers (8) into both holes. Fasten joystick bracket (4) and spacers (8) to threaded holes in fender mounting bracket using 16mm x 80mm cap screws (14) and 5/16" lock washers (15).

NOTE: Decal (6, Figure 4) is affixed to mounting plate (5) from factory. Replace decal if it becomes worn or illegible. When applying replacement decal, make sure surface of mounting plate (5) is clean and dry.

10. Adjust cables at valve to obtain desired motion at joystick. Make sure cables and hose under cab are not binding or contacting any moving parts, and secure away from moving parts using tie straps (34).

PLUMBING LOADER TO CABLE CONTROLLED VALVE (Figure 4)**JOYSTICK ASSEMBLY AND MOUNTING ON TRACTOR (Figures 3 & 4)**

1. Locate knockouts or drill 3/8" holes into tractor right fender at flat near foot platform as shown in Figure 4A. Push ends of cables (3) through tractor fender, making sure cables are not twisted. (Figure 4.)
2. Disassemble handle (1, Figure 3) and boot (3) from joystick assembly by loosening set screw (2) in handle (1) and lifting handle (1) and boot (3) from joystick lever.
3. Remove socket head screw (29, Figure 3) and lock nut (10) from lower side hole of base (11).
4. Slide cable (16, Figure 3) for lift operation and cable adapter (15) through rear hole in bottom of base (11). Attach cable adapter (15) to rod end (6) with pin (27) and retaining ring (28).
1. Install 1/2 x 63" loader control hoses (29) onto boom oil line tubes. Install and tighten hose fittings one at a time from the bottom up. Temporarily loosening closest oil line clamp will ease installation.
2. Install 1" spiral identification bands (25) onto free ends of hoses (29) to match dust plugs (24) at female quick couplers (19). Slide one 68" hose sleeve (33) over hoses (29) to lower two boom oil line tubes, and slide other 68" hose sleeve (33) over hoses (29) to upper two boom oil line tubes. Secure hose sleeves (33) to hoses over hose crimps using plastic tie straps (34).
3. Install 1/2 x 1/2 x 90° elbow fittings (18) and male quick couplers (20) onto free ends of hoses.
4. Couple loader hoses to corresponding female couplers (19) on valve (1). It is important to make sure color coding corresponds between spiral bands and dust plugs on each nose.

5. Bundle loader hoses (29) and sleeves (33) with tarp strap (26) and secure to loader right mid mounting bracket.
6. 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 engine. Replenish tractor hydraulic system.

NOTE: *When cycling loader, operate loader according to operation decal on joystick. If directional control is wrong or loader will not lower, recheck connections.*



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 AND PLUMBING KIT

Item	Part No.	Description	Qty.
1	51813	VALVE, Prince LVR (Parallel), 3000 PSI	1
2	51757	JOYSTICK ASSEMBLY, Cable Controlled Valve	1
3	51758-1	CABLE ASSEMBLY	2
4	53074	BRACKET, Mounting, Joystick, Cable-Controlled Valve	1
5	53256	BRACKET, Decal Mounting, Joystick Operation	1
6	38929	DECAL, Joystick Loader Operation	1
7	53071	BRACKET, Mounting, Valve, Cable-Controlled, Under Platform	1
8	53073-1	SPACER, Round, 7/8 O.D. - 5/8 I.D. x 1-1/8" Long	2
9	52242	CLEVIS, Cable End Adapter, To Handle, 6mm-1.00 x 13mm EFF Thread	2
10	41838-80	SCREW, Cap, 5/16-18 x 3-1/4"	2
11	41840-2	NUT, Lock, 5/16-18	2
12	41838-26	SCREW, Cap, 5/16-18 x 3/4"	3
13	41837-2	WASHER, Lock, 5/16"	3
14	42672-77	SCREW, Cap, 16mm-2.00 x 80mm	2
15	41837-7	WASHER, Lock, 5/8"	2
16	42672-95	SCREW, Cap, 10mm-1.5 x 60mm	2
17	41837-4	WASHER, Lock, 7/16"	2
18	23487-2	FITTING, Elbow, 90°, 1/2-14 Female x 1/2-14 Male	4
19	6147-8	COUPLER, Quick, Female	4
20	6137-6	COUPLER, Quick, Male	4
21	39280-8	FITTING, Straight, 3/4-16 SAE O-ring Male x 1/2-14 NPT Male	4
22	32845-15	FITTING, Elbow, 90°, 7/8-14 JIC Male x 3/4-16 SAE O-ring Male	1
23	34128-8	FITTING, Elbow, 90°, 7/8-14 JIC Male x 1-1/16-12 JIC Female Swivel	3
24	4838-4	DUST PLUG, Quick Coupler, Red	1
	4838-12	DUST PLUG, Quick Coupler, Blue	1
	4838-13	DUST PLUG, Quick Coupler, Yellow	1
	4838-14	DUST PLUG, Quick Coupler, Green	1
25	36240-9	BAND, Plastic Spiral, Color Identification, 1", Red	1
	36240-10	BAND, Plastic Spiral, Color Identification, 1", Blue	1
	36240-11	BAND, Plastic Spiral, Color Identification, 1", Yellow	1
	36240-12	BAND, Plastic Spiral, Color Identification, 1", Green	1
26	51353-3	HOSE, 1/2 x 42" (Power Beyond)	1
27	48550-4	HOSE, 1/2 x 54" (Pressure)	1
28	48550-3	HOSE, 1/2 x 60" (Tank)	1
29	41053-8	HOSE, 1/2 x 63" (Loader Control)	4
30	34853-61	SLEEVE, Nylon Hose, 1-1/4 x 44"	1
31	34853-76	SLEEVE, Nylon Hose, 1-1/4 x 54"	1
32	34853-42	SLEEVE, Nylon Hose, 1-1/4 x 60"	1
33	34853-25	SLEEVE, Nylon Hose, 2 x 68"	2
34	8137-3	STRAP, Plastic Tie, Adjustable, 1/2 x 20"	4
35	7438-1	STRAP, Tarp, Rubber with S-Hooks	1

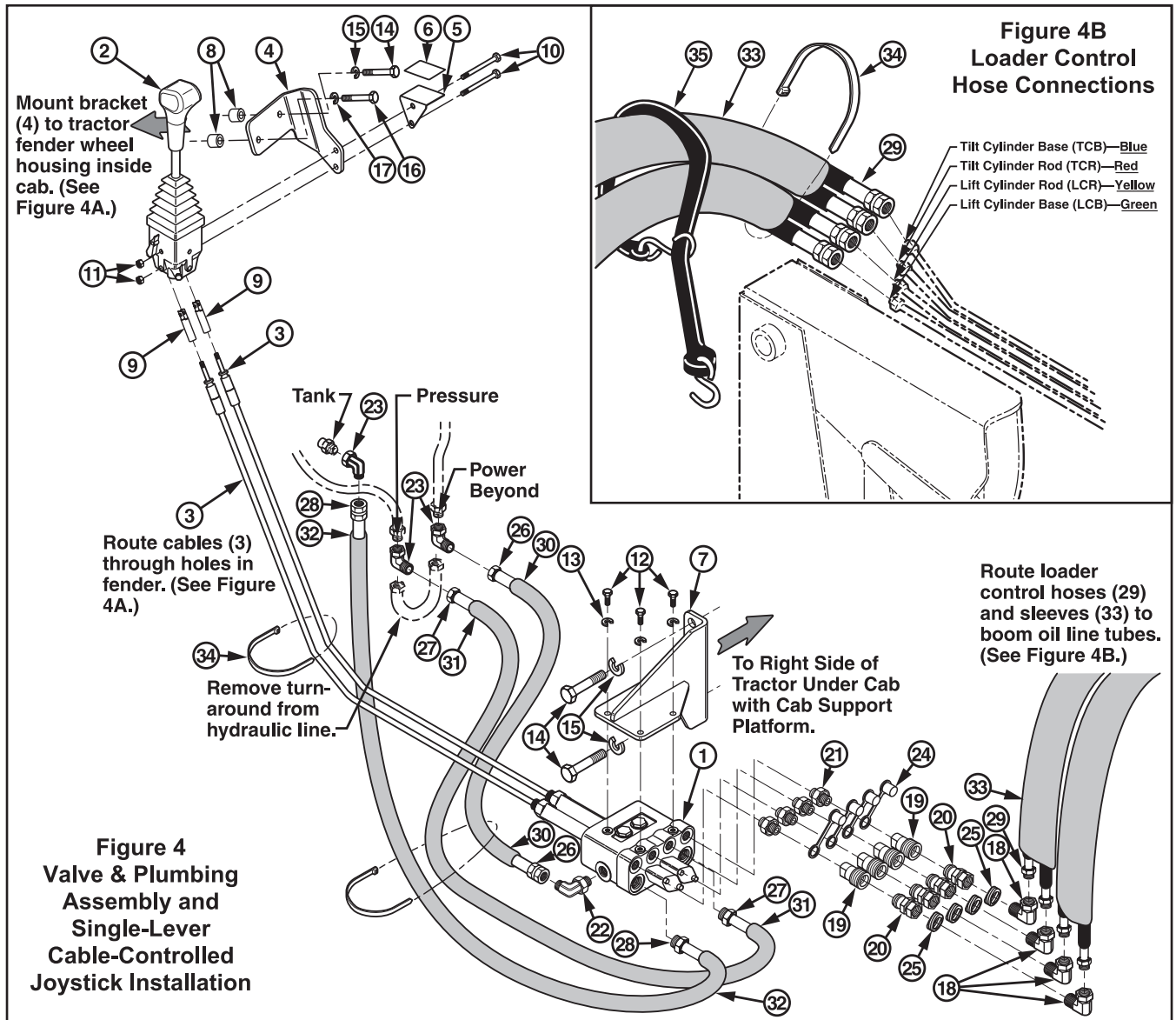


Figure 4
Valve & Plumbing
Assembly and
Single-Lever
Cable-Controlled
Joystick Installation

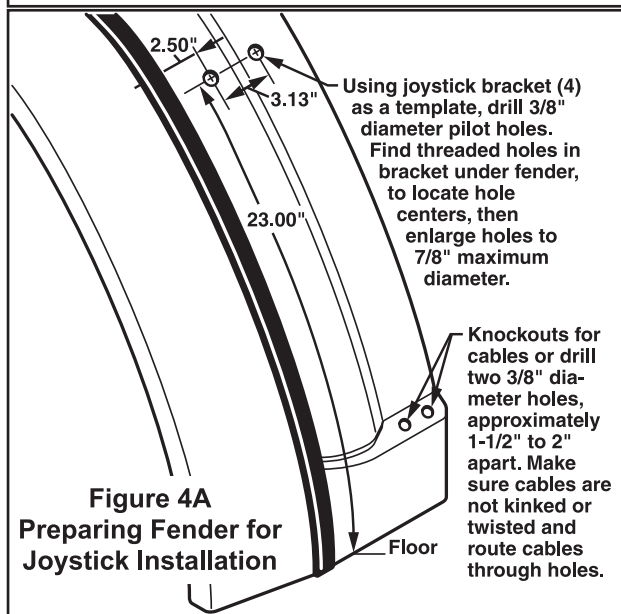
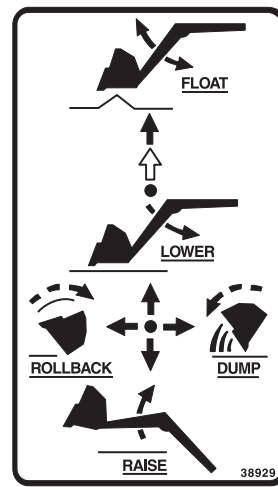


Figure 4A
Preparing Fender for
Joystick Installation



38929 — Item 6
Single-Handle Control Decal

PRINCE LVR SERVICE (Figure 5)

Following is an outline procedure for disassembling and reassembling valve.



WARNING: Valve has a relief setting preset 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 hex head cap screws (13) and detent 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.
2. 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 clamping pliers on land section of spool which is not machined for valve bore.

3. Remove washer (17), centering spring (26), and stop cup (23) from regen spool.
4. Holding in on float detent sleeve (22), push in on 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.
5. 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 clamping pliers on land section of spool which is not machined for valve bore.

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

6. Push spools in from cable end until rear spool seals (1) are exposed. Using wire hook and screwdriver, remove rear spool seals. Push spools in from rear until front spool seals (1) are exposed. Using wire hook and screwdriver, remove front spool seals.
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 reassembling.
4. Reassemble all parts in reverse order of disassembly.

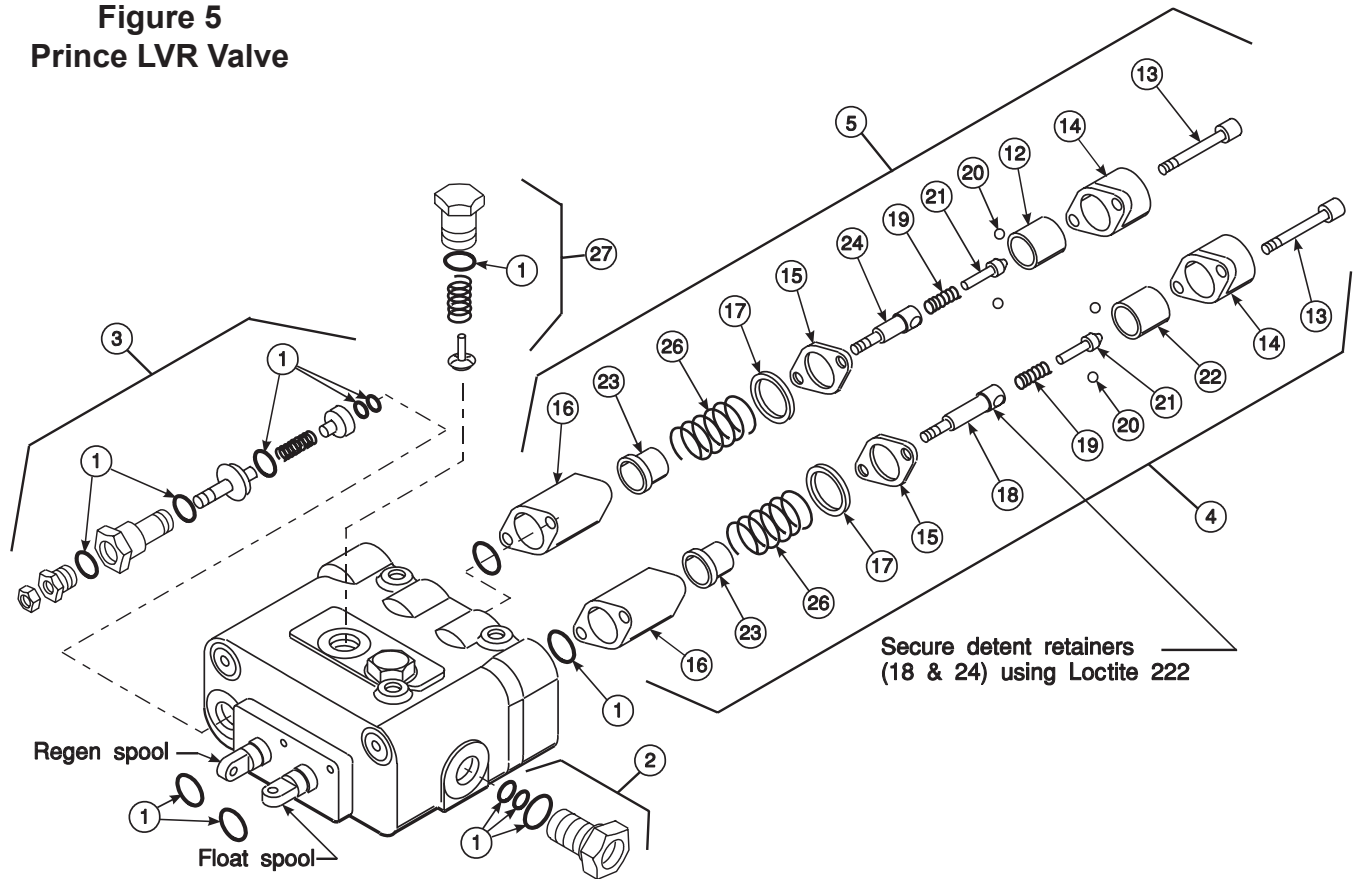
NOTE: Use Loctite 222 or equivalent when installing detent retainers (18 & 24).

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.

Figure 5
Prince LVR Valve



PARTS LIST - Prince LVR Valve

ITEM	PART NO.	DESCRIPTION	QTY.
1	43633	SEAL KIT, Valve, Prince LVR (3000 psi)	1
2	43636	POWER BEYOND SLEEVE	1
3	51813	RELIEF Valve (3000 psi)	1
4	43638	FLOAT KIT (Includes items 13,14, 15, 16, 17, 18, 19, 20, 21, 22, 23 & 26)	1
5	43639	REGEN KIT (Includes items 12, 13, 14, 15, 16, 17, 19, 20, 21, 24, & 26)	1
14	44476-6	END CAP (MFR's P/N, HC-V-AA23, stamped on end cap with valve & relief setting)	2

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

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	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.								
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 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 _r ·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