

Keep With Operator's Manual

CABLE CONTROLLED VALVE & PLUMBING KIT (PARALLEL VALVE) NEW HOLLAND 46LB & CASE IH LX146 LOADER

MODEL	CAB
TM130, TM140 STANDARD	X
MXM130, MXM140 VALUE SERIES	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.

Install loader mounting brackets onto tractor before installing valve and plumbing kit. Refer to instructions provided with loader mounting kit.

Shut off engine and engage brakes during installation.



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.

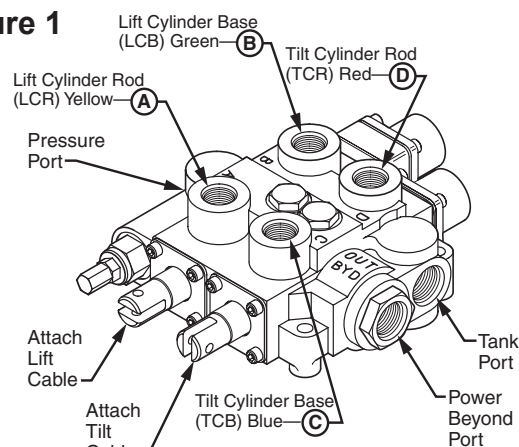
FASTENING CABLE TO VALVE (Figure 3)

1. Remove and discard clevis, clevis pin, cotter pin and 5/16 jam nut from cable assembly, leaving one jam nut in place. Install cable connector (24) on cable end where clevis was removed and tighten to jam nut (21). Slip connector (24) over end of one spool of valve. Insert clevis pin (23) and cotter pin (22) to retain spool end in connector (24). Repeat procedure to secure remaining cable to remaining valve spool.

NOTE: Do not remove protective end caps from threaded ends of cable until after cables have been routed from loader control valve to joystick assembly.

2. Remove two 1/4 x 1/2" socket head cap screws (5, Figure 6) from opposite corners of retainer plate (6, Figure 6) on each spool of control valve.
3. Fasten valve adapter strap (20) of cable assembly to valve using 1/4 x 3/4" socket head cap screws (45, Figure 2) and lock washer (46, Figure 2). Note which

Figure 1



cable is for lift spool control and which cable is for tilt spool control (see Figure 1). Mark opposite end of each cable to identify cable control function.

PLUMBING CONTROL VALVE TO TRACTOR HYDRAULICS (Figure 2)

1. Install 7/8-14 o-ring male end of straight adapter fittings (17) into four working ports of valve (1).
2. Attach 90° female end of 1/2" x 84" hoses (18) onto straight adapter fittings (17) which are assembled into working ports of valve (1).

NOTE: Hoses must be pointed toward cable control end of valve.

3. Slide 86" protective sleeve (23) over each 1/2 x 84" hose (18). Place ring-end of dust plugs (29, 30, 31, 32) over end of hoses (18) with dust plug color corresponding to hose function (see Figure 1). Attach female couplers (11) to hoses (18).
4. Remove plug and install power beyond sleeve (6) into power beyond port of valve (1). Install 1-1/16-12 o-ring male end of 90° elbow (16) into power beyond sleeve (6).

NOTE: Point 90° elbow (16) toward cable control end of valve.

PARTS LIST – VALVE & PLUMBING KIT Figure 2

Item	SMC No.	NH No.	Case IH No.	Description	Qty.
1	52903	SML52903	SML52903	VALVE, Parallel, Cable Control (3000 psi)	1
2	51758-3	SML517583	SML517583	CABLE ASSEMBLY, 80"	2
3	51757	SML51757	SML51757	JOYSTICK ASSEMBLY	1
4	52905	SML52905	SML52905	BRACKET, Valve	1
5	52904	SML52904	SML52904	BRACKET, Mounting, Joystick	1
6	38419	SML38419	SML38419	SLEEVE, Power beyond	1
7	52311	SML52311	SML52311	BULKHEAD ANGLE	1
8	48093-1	300520	892-11018	WASHER, Lock, 18mm	2
9	52242	SML52242	SML52242	CABLE ADAPTER (Not shown. Item 15, Fig 3)	2
10	6137-10	86581680	86581680	COUPLER, Quick, Male, 1/2"	4
11	47110-1	86582375	86582375	COUPLER, Quick, Female, 1/2"	4
12	6040-16	86018680	103-11150	RETAINER RING, 1-1/2"	8
13	32844-9	86507102	218-5063	FITTING, St, 1-1/16 SAE O-ring Male x 7/8-14 JIC-Male	1
14	34128-1	182977	218-5232	FITTING, El, 90°, 7/8-14 JIC Female x 7/8-14 JIC Male	1
15	41173-1	SML411731	SML411731	FITTING, St, 22mm-1.5 O-ring Male x 7/8-14 JIC Male	1
16	32845-4	84570	218-5119	FITTING, Elbow, 90°, 1-1/16-12 O-ring x 7/8-14 JIC Male	2
17	32844-7	128819	218-5060	FITTING, Straight, 7/8-14 O-ring Male x 3/4-16 JIC-Male	4
18	52308-2	SML523082	SML523082	HOSE, 1/2 x 84"	4
19	36698-7	SML366987	SML366987	HOSE, 1/2 x 26"	1
20	52481-1	SML524811	SML524811	HOSE, 1/2 x 44"	1
21	52481-2	SML524812	SML524812	HOSE, 1/2 x 10"	1
22	48794-5	SML487945	SML487945	HOSE, 1/2 x 50"	4
23	34853-70	SML3485370	SML3485370	SLEEVE, Nylon 1-1/4 x 86"	4
24	34853-76	SML3485376	SML3485376	SLEEVE, Nylon 1-1/4 x 54"	4
25	4838-3	86581687	333721A1	DUST CAP, Quick Coupler, Red	1
26	4838-8	86581686	333717A1	DUST CAP, Quick Coupler, Blue	1
27	4838-9	86581688	333719A1	DUST CAP, Quick Coupler, Yellow	1
28	4838-10	86581689	333720A1	DUST CAP, Quick Coupler, Green	1
29	4838-4	86581710	327231A1	DUST PLUG, Quick Coupler, Red	1
30	4838-12	86581711	327227A1	DUST PLUG, Quick Coupler, Blue	1
31	4838-13	86581712	327291A1	DUST PLUG, Quick Coupler, Yellow	1
32	4838-14	86581713	327232A1	DUST PLUG, Quick Coupler, Green	1
33	8137-1	86582400	86582400	STRAP, Adjustable, 3/16 x 11"	8
34	8137-3	86581720	386170C1	STRAP, Adjustable, 1/2 x 20"	2
35	7438-1	86581718	86581718	TARP STRAP	1
36	41838-81	86507008	413-556	SCREW, Cap, 5/16-18 x 3-1/2"	2
37	41838-14	88436	413-632	SCREW, Cap, 3/8-16 x 2"	3
38	42672-6	43140	614-10030	SCREW, Cap, 10mm-1.5 x 30mm 8.8	2
39	42672-53	SML4267253	SML4267253	SCREW, Cap, 18mm-1.5 x 40mm 8.8	2
40	41838-26	87872	413-512	SCREW, Cap, 5/16-18 x 3/4"	4
41	53256	SML53256	SML53256	BRACKET, Decal	1
42	41840-2	86629544	231-4145	NUT, Lock, 5/16-18	6
43	41837-4	81547	492-11044	WASHER, Lock, 7/16	2
44	41840-3	9637692	231-4146	NUT, Lock, 3/8-16	3
45	44743-6	88961	461-42512	SCREW, Cap, Socket Hd. 1/4-20 x 3/4"	4
46	41837-1	80682	492-11025	WASHER, Lock, 1/4"	4
47	38929	SML38929	SML38929	DECAL, Loader Operation	1
48	41903-6	280251	432-616	PIN, Cotter, 3/32 x 1" (Not Shown. Item 22, Fig 3)	2
49	41902-9	439-1420	439-1420	PIN, Clevis, 1/4 x 1-1/4" (Not Shown. Item 23, Fig 3)	2
50	52907	SML52907	SML52907	CONNECTOR (Not Shown. Item 24, Fig 3)	2

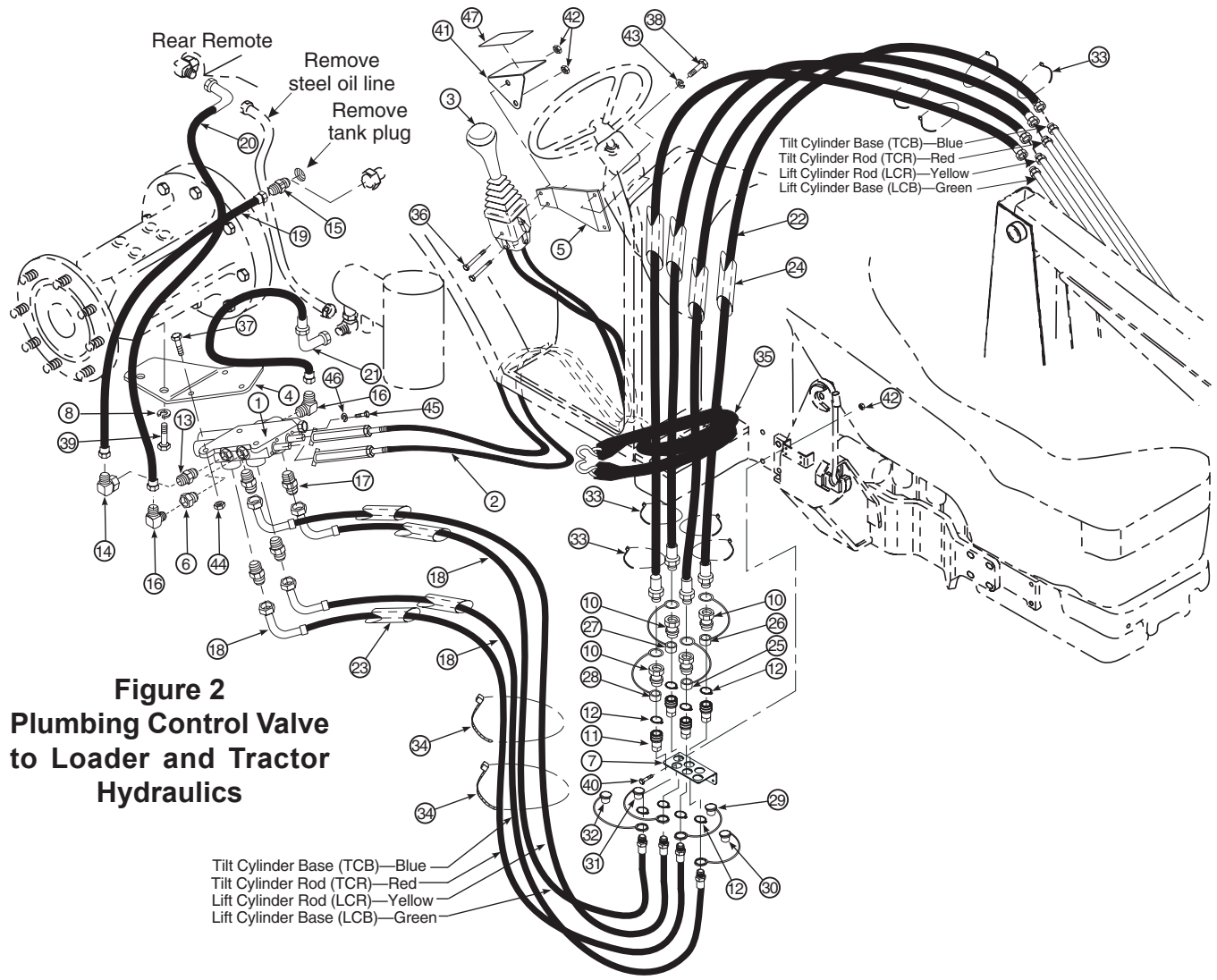
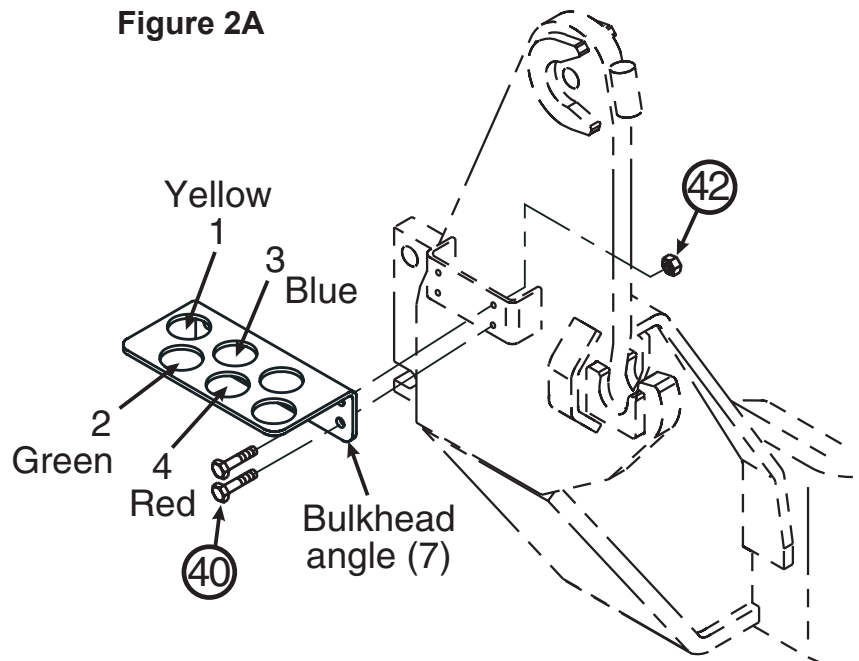


Figure 2A



PLUMBING CONTROL VALVE TO TRACTOR HYDRAULICS (Cont.)

5. Install 1-1/16-12 o-ring male end of straight adapter fitting (13) into tank port of valve (1) and attach female end of 90° elbow (14) onto straight adapter fitting (13). Point 90° elbow (14) opposite direction of four working ports.
6. Install 1-1/16-12 o-ring male end of 90° elbow (16) into pressure port of valve and point it opposite direction of working ports.

PLUMBING CONTROL VALVE TO TRACTOR HYDRAULICS (Figure 2)

1. Attach valve (1) to valve bracket (4) using three 3/8 x 2" cap screws (37) and lock nuts (44).
2. Attach valve bracket (4) with valve assembly to bottom side of right rear tractor axle, using two 18mm x 40mm cap screws (39) and 18mm lock washers (8).

NOTE: Position valve with working ports facing down.

3. Remove tractor steel oil line which connects pressure from tractor pump to tractor rear remotes. 90° elbow fitting attached to tractor pump must be turned to face away from tractor.
4. Install 90° female end of 1/2" x 10" hose (21) to 90° elbow fitting on tractor pump. Install remaining end of 1/2" x 10" hose (21) to male end of 90° elbow (16) which is attached to pressure port of valve.
4. Install 90° female end of 1/2" x 44" hose (20) to 90° elbow fitting on tractor rear remotes. Run hose down and forward over tractor rear axle, attach remaining end of hose (20) to 90° elbow (16) which is attached to power beyond port of valve (1).
5. Remove tractor tank plug from side of tractor rear end housing. Install 22mm o-ring male end of straight adapter fitting (15) into tractor rear end housing.
6. Install one end of 1/2" x 26" hose (19) onto straight adapter fitting (15). Install remaining end of 1/2" x 26" hose (19) onto 90° elbow (14) which is attached to tank port of valve.

MOUNTING AND ASSEMBLING JOYSTICK ON TRACTOR (Figure 2).

1. Attach joystick mounting bracket (5) to threaded inserts in right tractor cab post using two 10mm x 30mm cap screws (38) and 7/16" lock washers (43).

2. Attach joystick assembly (3) and decal bracket (41) to mounting bracket (5) using two 5/16 x 3-1/2" cap screws (36) and lock nuts (42).

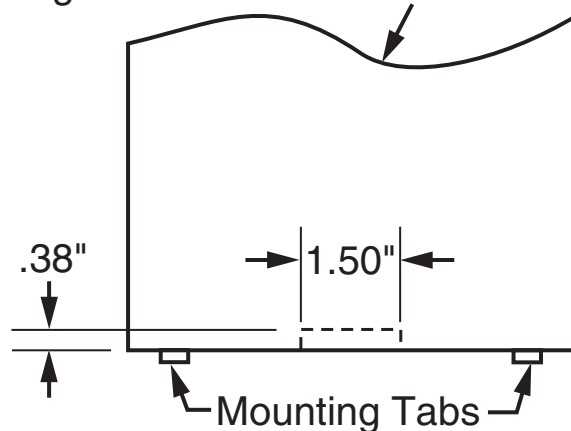
NOTE: Joystick lockout knob must be facing toward front of tractor.

3. Making sure surface of decal bracket (41) is clean and dry, remove backing from decal (47) and apply it to decal bracket (41).

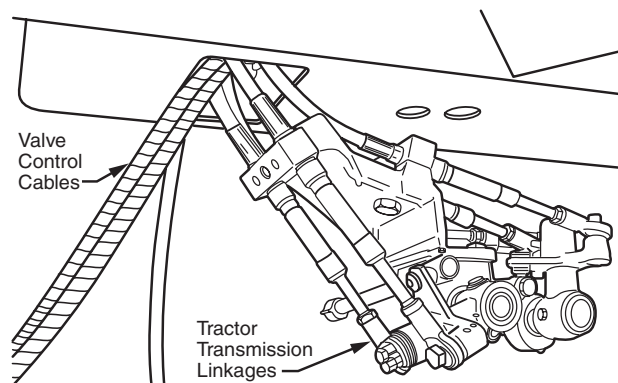
CONNECTING VALVE CONTROL CABLE TO JOYSTICK ASSEMBLY - (Figures 3 & 4)

1. Remove right front fender console panel. Cut a 3/8 x 1-1/2" slot on bottom of panel. Center slot between two mounting tabs at bottom of panel. This slot allows control cables to pass under panel.

Right Front Fender Console Panel



2. Pass control cables through floor hole that is just forward of where tractor control cables in console pass through cab floor.



3. Route cables under floor mat, inside cab, forward to front of cab on right side. Put a hole in the floor mat rearward 6 inches from cab glass and 3 inches to right of front console. Route cables up through this hole to joystick assembly.

4. Disassemble handle (1) and boot (3) from joystick assembly by loosening set screw (2) in handle (1) and lifting handle (1) and boot (3) from joystick lever.
5. Remove socket head screw (13) and lock washer (12) from under side of base (11).
6. Slide cable (16) for lift control and cable adapter (15) through front hole on bottom of base (11). Attach cable adapter (15) to rod end (7) with pin (27) and retaining ring (28).
7. Slide cable (16) for tilt control and cable adapter (15) through rear hole on bottom of base (11). Attach cable adapter (15) to rod end (6) with pin (27) and retaining ring (28). Reinstall socket head cap screw (13) and lock washer (12).

CONNECTING VALVE CONTROL CABLE TO JOYSTICK ASSEMBLY (Cont.)

8. Lock lift and tilt cables into place by installing socket head screw (29) and lock nut (10) through lower side hole in base (11).
9. Slide boot (3) onto joystick handle assembly and reinstall handle (1) and tighten set screws (2).
10. Reinstall console panel and secure floor mat.
11. Adjust cables at valve to attain desired performance from joystick.
12. Make sure cables and hose are not binding or coming into contact with any moving part.
13. Use plastic plugs provided with joystick to fill unused holes in joystick base.

PLUMBING LOADER TO CABLE CONTROLLED VALVE (Figure 2)

1. Fasten bulkhead angle (7) in rear-most position to bracket on right loader mounting bracket using 5/16 x 3/4" cap screws (40) and 5/16 lock nuts (42) See Figure 2A.
2. Install retaining ring (12) in first groove on hose side of female couplers (11). Slide female coupler (11) attached to hose (18) into bulkhead angle (7) with hole plug color corresponding to color assigned to holes in bulkhead angle (7) as shown in Figure 2A. Couplers will occupy rear four holes in bulkhead angle (7).
3. Use tie straps (34) to secure 1/2 x 84" hoses (18) to tractor away from moving parts. Tie each end of

nylon sleeve (24) with tie strap (33). Bundle 1/2 x 54" hoses (22) with tarp strap (35). Tarp strap will be used to secure hoses to cab handrail once loader is mounted.

4. Attach female end of 1/2 x 50" hose (22) to oil lines on loader starting with bottom line and working up. Slide 54" protective sleeve (24) over each 1/2 x 54" hose (22). Place the ring-end of green dust cap (28) onto 1/2 x 54" hose (22) which is attached to bottom oil line. Install male coupler (10) to 1/2 x 54" hose (22) with green dust cap (20). Working from the bottom oil line up, continue installing the yellow (27), red (25) and blue (26) dust caps and male couplers (10) to 1/2 x 54" hoses (22).
5. Couple loader hoses to corresponding female couplers (11) on bulkhead angle (7). It is important to make sure color coding corresponds between dust caps and dust plugs on each hose.
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 located near joystick. If directional 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 – JOYSTICK AND CABLE HARNESS - Figure 2 & 3

Item	Part No.	Description	Qty.
1	51814	HANDLE, Plastic, Joystick	1
2	G11506909	SCREW, Set, 6mm-1.00 x 8mm Long	1
3	51805	BOOT, Handle Linkage, Cable-Control Joystick	1
4	*	HANDLE, Cable Control 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 Long	1
9	*	CLEVIS, Cable Control Handle	1
10	**	NUT, Lock, Nylon Insert, 6mm-1.00	1
11	54740	BASE, Cable Control, with 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 separate repair part*)	1
15	52242	CABLE ADAPTER	2
16		CABLE (not available as individual service part, see Item 26)	1
17	48948-18	NUT, Jam, 3/4-16	1
18	51798-1	WASHER, Lock, Internal Tooth, 3/4"	1
19	51799-1	NUT, Knurled, 3/4-16	1
20	51800	STRAP, Valve Adapter	1
21	48948-2	NUT, Jam, 5/16-18	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, Spool, for Cable Control	1
25	44743-1	SCREW, Cap, Socket Head, 1/4-20 x 3/8	4
26	51758-2	CABLE ASSEMBLY, 80" (Includes Items 16, 17, 18, 19, 20, 21, 22, 23 & 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, HANDLE ASSY REPAIR (Includes items 4-7 & 9)	1
31	55579	** KIT, PIN/CABLE RETAINER (Includes items 10 & 27-29)	1
	51757	JOYSTICK ASSEMBLY (Includes Items 1 -14 & 27 -29)	1

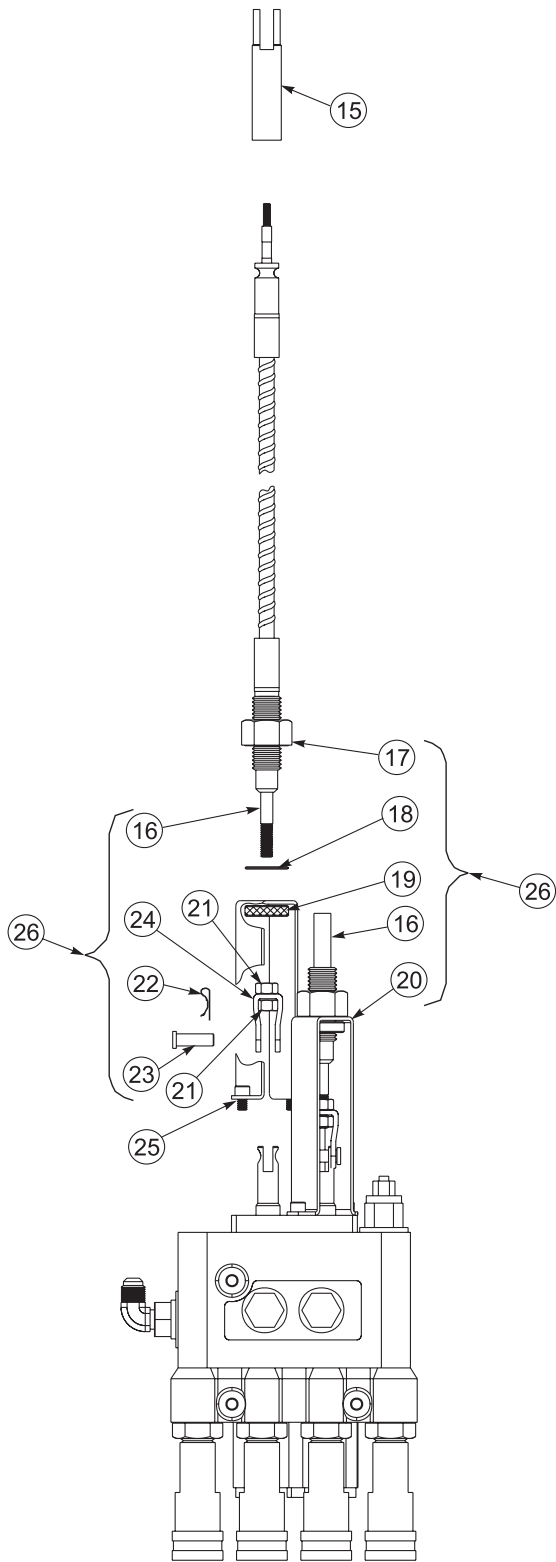


Figure 2

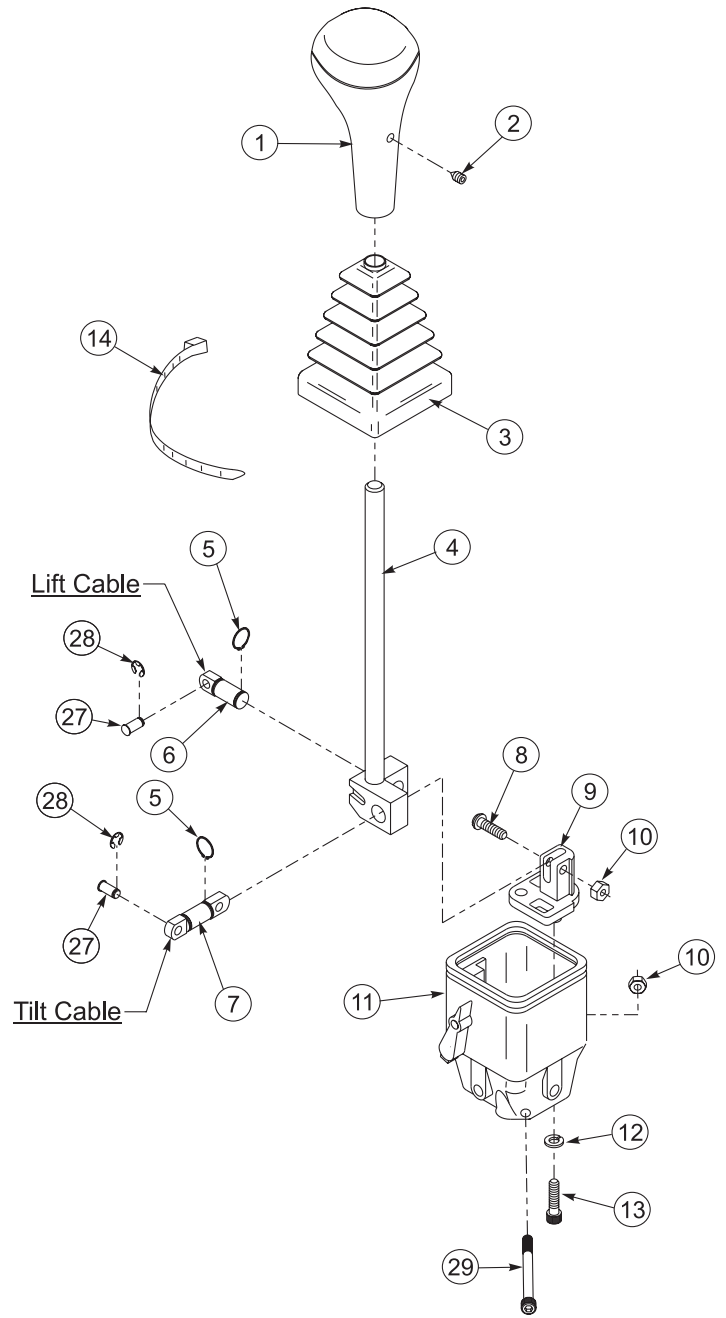


Figure 3

VALVE SERVICE

Following is an outline procedure for disassembling and reassembling valve.



WARNING: Valve has a valve 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.

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

VALVE SPOOL SEAL REPLACEMENT

IMPORTANT: Replacement of spool seals is a delicate operation and must be carefully performed to prevent damage to new seals or scoring of spool bores. If spools or spool bores are scored or damaged in any way, complete valve must be replaced, because valve body and spools are not sold separately.

- Remove four screws (42) securing retainer plate (21) to valve body (41).
- Remove screws (38) and end cap (31) from valve body (41). Remove cap screws (37), washer (36), stop cup (33) and retainer plate (21) from valve spool.
- Remove screws (32) and end cap (31) from valve body (41). Slowly remove float sleeve while cupping hand around sleeve to catch detent balls (29) and springs (28). Remove detent retainer (27), retainer plate (26), float spacer (25), washer (24), centering spring (23), stop cup (22) and retainer plate (21) from valve spool.
- Push spools into valve body (41) from rear until rear spool seals (20) and o-rings (19) are exposed. Remove seals and o-rings by using a wire hook and screwdriver. Push spools back into valve body (41) from front until front spool seals and o-rings are exposed. Remove front spool seals and o-rings with wire hook and screwdriver.
- Clean all parts in a suitable cleaning solvent and the use air pressure to blow any dirt or excess solvent from all parts. Examine all parts for wear or damage and replace if necessary.
- Lubricate all o-rings and spools with oil to prevent DAMAGE when assembling.
- Lubricate all detent and spring centering parts with a light coat of grease before assembling.
- Reassemble all parts in reverse order of disassembly.

RELIEF VALVE SERVICE

NOTE: The relief valve and load check sections of control valve may be removed separately to clean, inspect, or replace parts without removing valve spools.

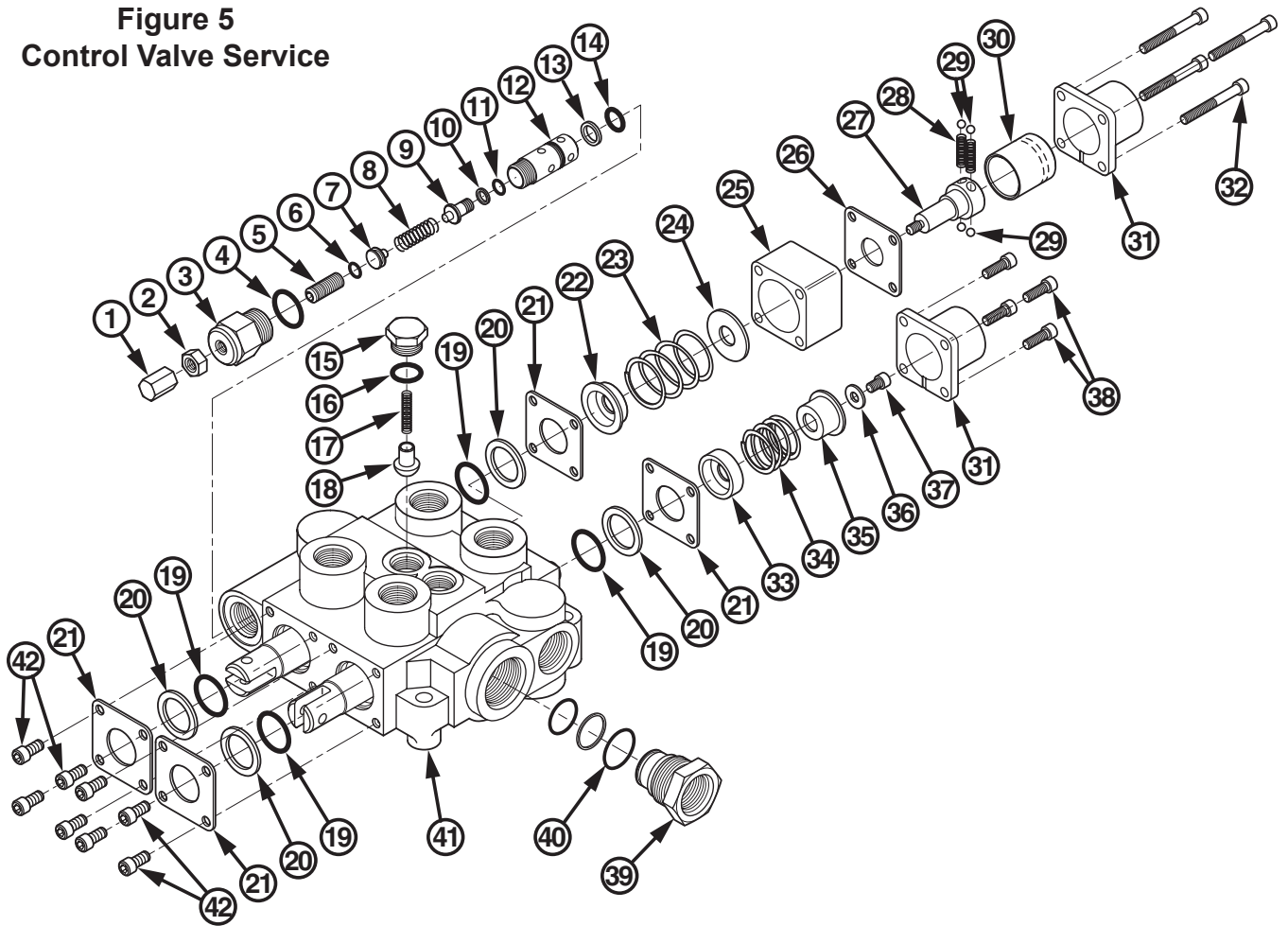
- Remove retainer plug (3) from valve body (41). Unscrew relief cartridge (12) from retainer plug (3). Remove spring (8), spring retainer (7) and piston (9).



WARNING: Do not remove or adjust acorn nut (1), jam nut (2) or set screw (5) on retainer plug (3).

- Remove o-ring (4) from retainer plug (3) and o-ring (6) from spring retainer (7). Remove o-ring (11) and backup (10) from piston (9). Remove o-ring (14) and backup (13) from relief cartridge (12).
- Remove load check plugs (15), springs (17) and load check poppets (18). Remove o-rings (16) from load check plugs (15).
- Clean all parts in a suitable cleaning solvent and the use air pressure to blow any dirt or excess solvent from all parts. Examine all parts for wear or damage and replace if necessary.
- Lubricate all o-rings and seals with oil to prevent DAMAGE when assembling.
- Reinstall load check poppets (18), springs (17), o-rings (16) and load check plugs (15) into top of valve body (41).
- Install o-ring (4) onto retainer plug (3) and o-ring (6) onto spring retainer (7). Install backup (10) and o-ring (11) onto piston (9). Install backup (13) and o-ring (14) onto relief cartridge (12).
- Install piston (9) and spring (8) into relief cartridge (12) and spring retainer (7) into retainer plug (3). Install relief cartridge into retainer plug and tighten to 10-20 ft.-lbs. of torque.
- Install retainer plug (3) into valve body (41) and tighten.

Figure 5
Control Valve Service



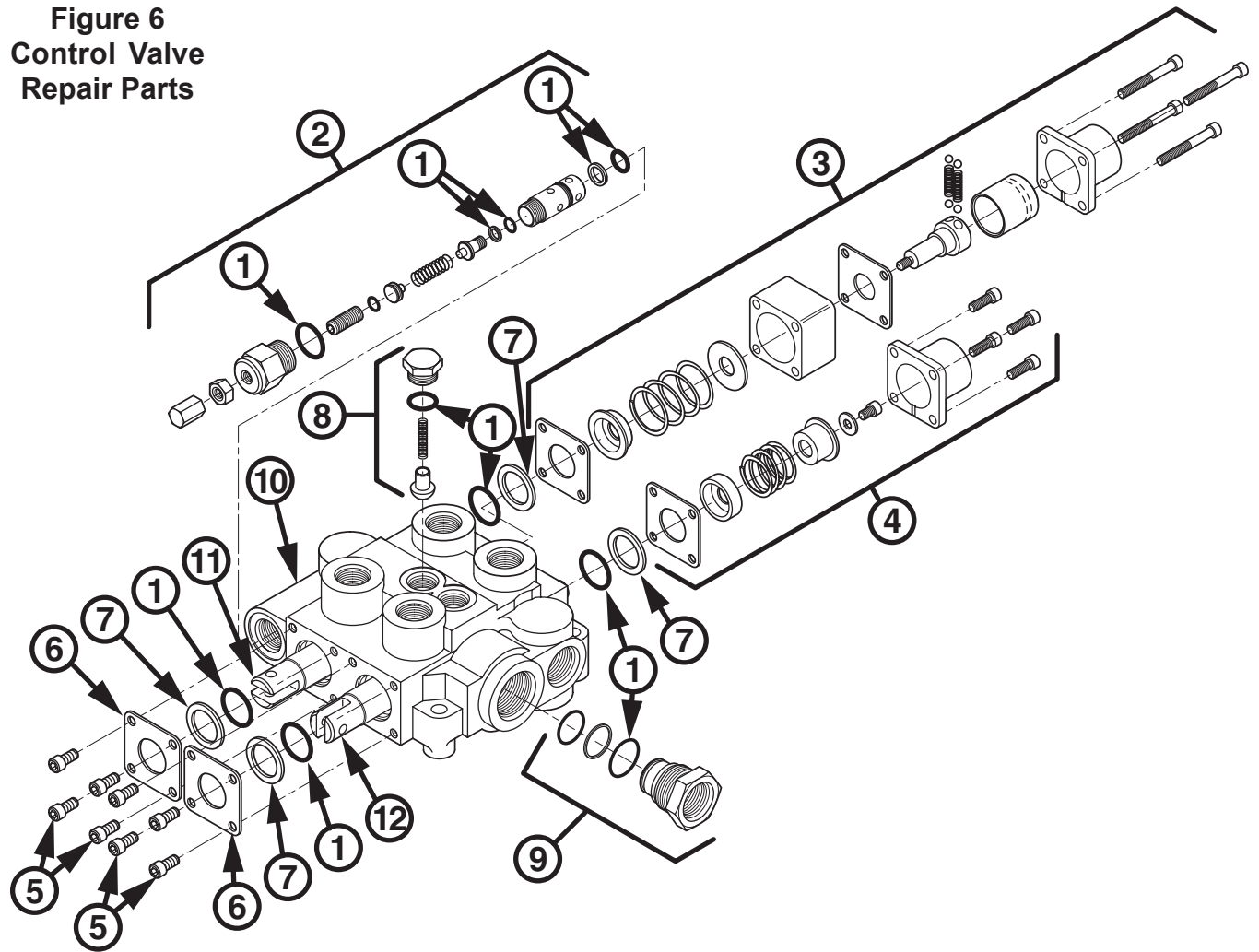
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PARTS LIST - CONTROL VALVE REPAIR PARTS

Item	SMC No.	NH No.	Case IH No.	Description	Qty.
1	36071	SML36071	SML36071	REPAIR KIT, Seal	1
2	36072	SML36072	SML36072	REPAIR KIT, Relief Valve	1
3	36073	SML36073	SML36073	REPAIR KIT, Detent Spring Centering	1
4	36074	SML36074	SML36074	REPAIR KIT, Spring Centering	1
5	44743-5	81960	61-3258	SCREW, Cap, Socket Head. 1/4-20 x 1/2"	8
6	52917	SML52917	SML52917	PLATE, Retainer	2
7	36218	SML36218	SML36218	BACKUP, Spool Seal	4
8	36220	SML36220	SML36220	REPAIR KIT, Load Check	2
9	38419	SML38419	SML38419	SLEEVE, Power Beyond	1
10	*	*	*	2-SPOOL VALVE BODY	1
11	*	*	*	FIRST SPOOL	1
12	*	*	*	SECOND SPOOL	1

* Not available as repair part - Order complete valve (SML52903).

Figure 6
Control Valve
Repair Parts



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	<p>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.</p>								
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 _f ·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