

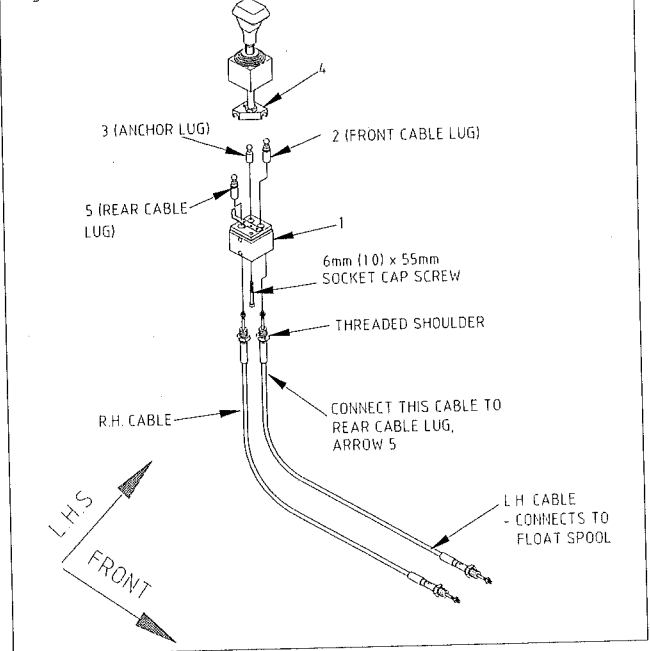
ASSEMBLY INSTRUCTIONS

MECHANICAL JOYSTICK CONTROL SYSTEM (INCLUDES WALVOIL LOAD SENSING VALVE)

1. CONNECT CONTROL CABLES TO DOUBLE JOYSTICK CONTROL - See Fig. 1

- Remove rubber cover from base of joystick control.
- Remove one 6mm (1.0) x 55mm socket cap screw from bottom of joystick base, arrow 1. This allows joystick handle to be lifted off base, releasing (2) cable lugs, arrow 2, arrow 5 and the anchor lug, arrow 3.
- Next attach cable lugs, arrow 2 and arrow 5 to end of cables. Use approximately 5/16" of thread on cable. **Do not** screw cable lug all the way on to cable. Lock cable to lug by tightening jam nut to bottom of cable lug.
- Install each cable and lug assembly through bottom of joystick base. Screw threaded shoulder of each cable into bottom of joystick base, arrow 1. Use half of the thread length on each cable. Tighten lock nut.

Fig. 1



NOTE: L.H. cable which is used for float spool of valve, must be connected to front cable lug, arrow 2.

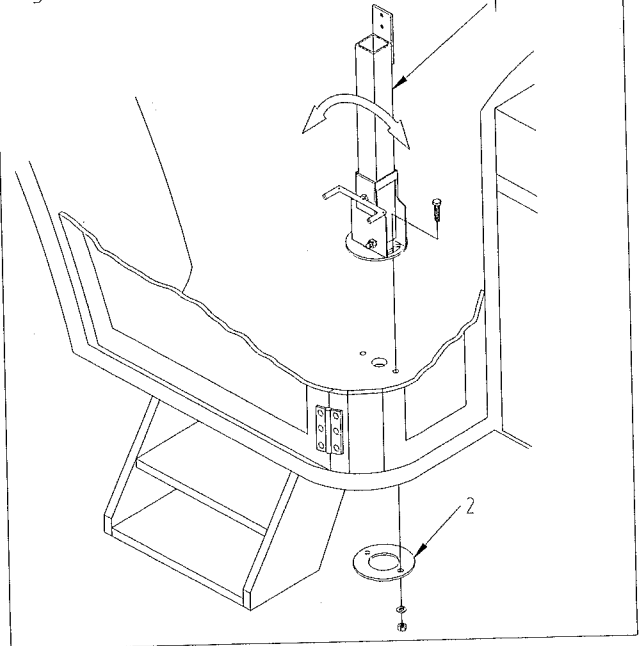
- Install anchor lug, arrow 3, and cable lugs, arrow 2 and arrow 5 in slots of handle base, arrow 4. Install anchor lug, arrow 3, in hole of joystick base. Secure anchor lug to base with one 6mm (1.0) x 55mm socket cap screw which is installed from bottom of joystick base. To prevent 6mm cap screw from coming loose, be sure special locking washer is installed.
- Install rubber cover over joystick base.

2. MOUNTING JOYSTICK CONTROL

a) FLOOR MOUNT TILT PEDESTAL - See Fig. 2

Locate pedestal, arrow 1, in R.H.S. of cab as required. Pedestal must be free to swing from a 15 degree forward position to 40 degree rear tilt position. Pedestal is designed to swing out of the way allowing operator to exit or enter cab through R.H. door. Drill holes in floor of cab. Secure pedestal to cab floor with (2) 1/2" x 2" bolts c/w nuts and lockwashers and a backing plate, arrow 2, located at bottom side of cab floor.

Fig. 2



MOUNTING JOYSTICK CONTROL CONTINUED:

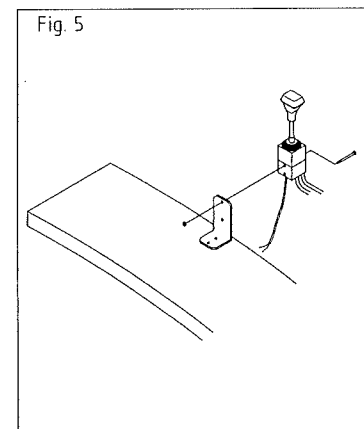
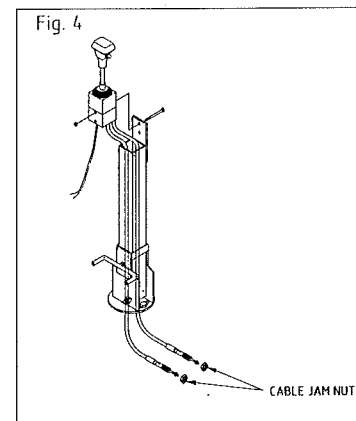
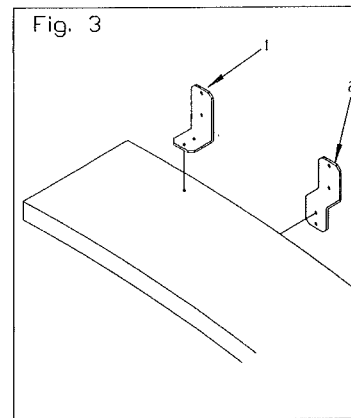
- b) FENDER MOUNT BRACKETS - See Fig. 3 (2 OR 3 FUNCTION SYSTEMS)

Determine position of joystick control on R.H. fender. Choose a 90 degree bracket, arrow 1, or "Z" type bracket, arrow 2, to secure joystick control. Fasten bracket to fender, bolts not supplied. Drill a hole in floor of cab for cables to run through. Be sure cables do not interfere with other tractor controls or operator.

- c) INSTALLING JOYSTICK CONTROL - (2 OR 3 FUNCTION SYSTEMS)

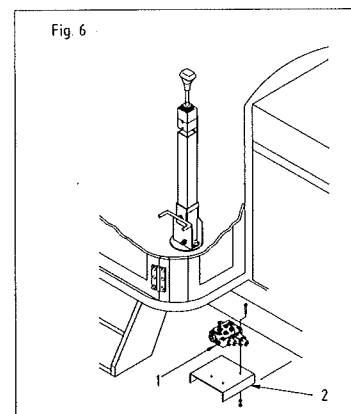
PEDESTAL MOUNT - Fig. 4. Remove cable jam nuts from end of each control cable then thread cables through center of pedestal and through floor of cab. Secure control to two holes at top of pedestal with two (2) 1/4" x 3-1/4" bolts c/w nuts and lockwashers. Control should be positioned with (red) push button at front. Replace jam nuts on end of each cable.

FENDER MOUNT - Fig. 5. Fasten control to two holes in fender bracket with two (2) 1/4" x 3-1/4" bolts c/w nuts and lockwashers. Thread control cable through cab floor.



3. MOUNTING 2 OR 3 SPOOL CONTROL VALVE - See Fig. 6

- a) Find the ideal location for control valve, arrow 1. Valve can be located ahead or behind the exit hole for control cables. **Do not** position valve in a location that will require sharp bends in control cables. Gentle cable radii will permit smooth operation of joystick control.
- b) After determining control valve position, secure valve support bracket, arrow 2, to loader mount frame or tractor frame. Bracket may be welded to loader mounts. If valve bracket must be bolted to tractor or mount bracket, fabricate attaching lug(s) as required and weld them to valve bracket.
- c) Bolt control valve, arrow 1, to valve bracket, arrow 2, with three (3) 5/16" x 2-3/4" N.C. hex bolt c/w nuts and lockwashers.

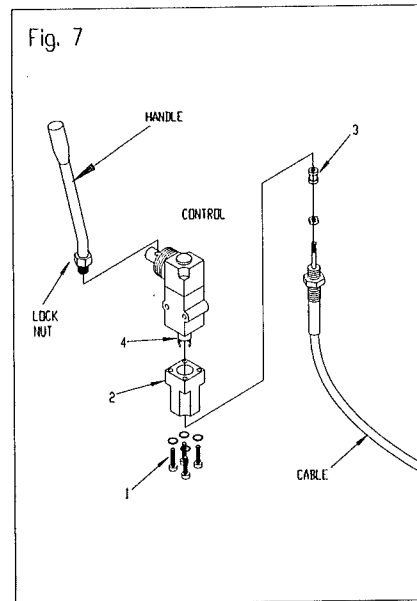


4. MOUNTING SINGLE CONTROL - (3 FUNCTION ONLY)

a) CONNECT CONTROL CABLES TO SINGLE JOYSTICK CONTROL - See Fig. 7

- a1) Remove four (4) bolts, arrow 1, which secures cable mount, arrow 2, to bottom of control.
- a2) Attach cable lug, arrow 3, to end of cable. Lock cable to lug by tightening jam nut to bottom of cable lug.
- a3) Insert cable and lug into bottom of cable mount. Screw threaded shoulder of cable in cable mount using half of the thread length. Tighten lock nut.
- a4) Install cable lug, arrow 3, into slot in shaft, arrow 4, at base of control.
- a5) Secure cable mounts, arrow 2, to bottom of control with four (4) existing bolts and washers.
- a6) Screw handle into threaded hole in control and tighten locknut.

Fig. 7



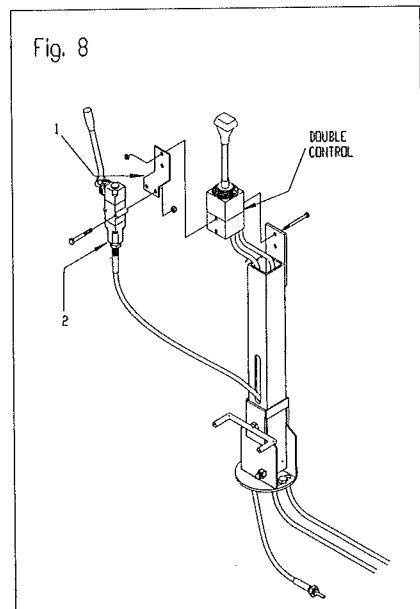
b) PEDESTAL MOUNT - See Fig. 8

Remove cable jam nut from end of cable, then thread cable through the oblong hole in side of the pedestal and through the floor of the cab. Install jam nut on end of cable.

Secure control mounting bracket, arrow 1, to the right hand side of double control. Use existing bolts which fastens double to pedestal.

Fasten single control, arrow 2, to side of bracket, arrow 1, with two (2) 1/4" x 2-1/2" bolts, c/w lockwashers and nuts.

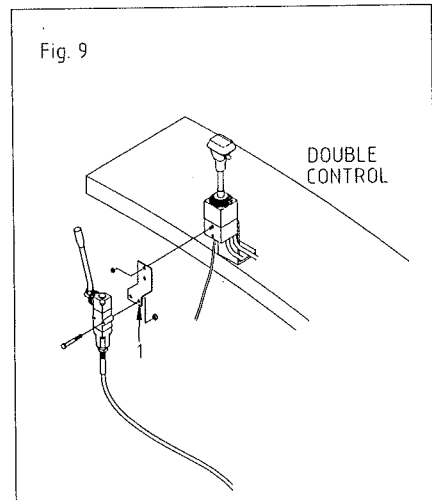
Fig. 8



c) FENDER MOUNT - See Fig. 9

Secure control mounting bracket, arrow 1, to the right hand side of double control. Use existing bolts which fastens double control to fender mounts. Fasten single control, arrow 2, to side of bracket, arrow 1, with two (2) 1/4" x 2-1/2" bolts (c/w lockwashers and nuts).

Fig. 9



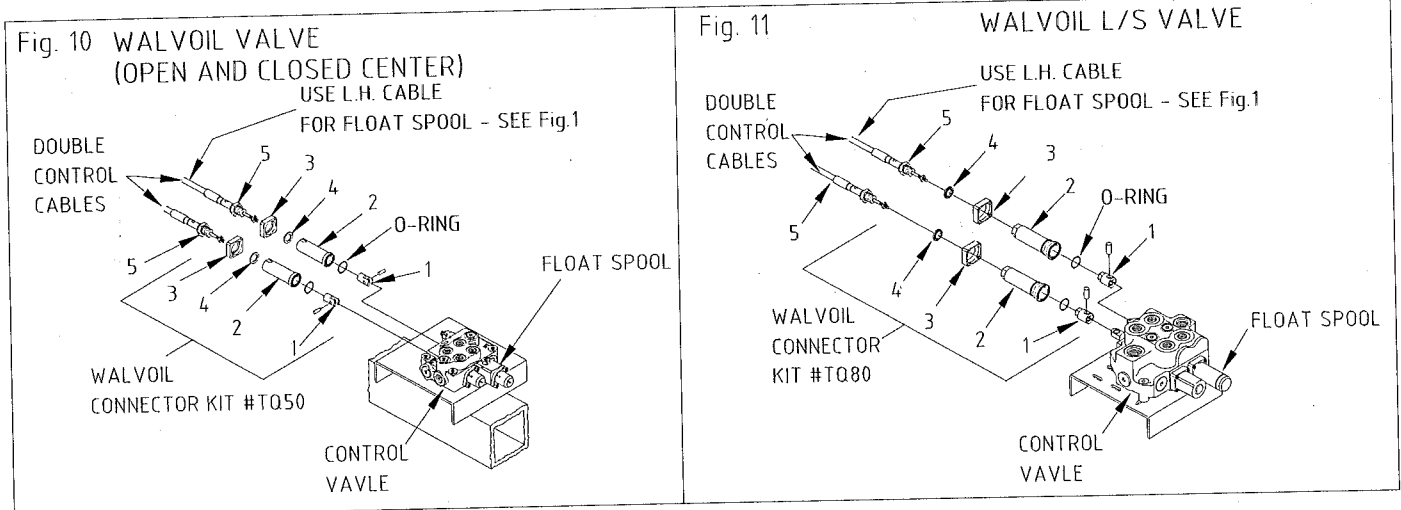
5. **CONNECTING CABLE TO CONTROL VALVE - (2 OR 3 FUNCTION SYSTEMS) - See Fig. 10 and 11**

NOTE: Walvoil Open and Closed Center Valves use connector kit #TQ50. Walvoil Load Sensing Valves use connector kit #TQ80.

- Turn cable jam nuts, arrow 5, clockwise (nut moves toward joystick) until they run off thread. Install four bolt flange, arrow 3, over each cable as shown on Fig. 7 and 8. Install cable seal, arrow 4, over thread on end of cable. Screw each connector tube, arrow 2, completely over each cable until connector tube comes off thread.
- Fasten one cable connector, arrow 1, to threaded end of each cable. The Walvoil Open and Closed Center Valve (shown in Fig. 10) uses a round lug with a slot on one end. The Walvoil Load Sensing Valve uses a round lug with a rectangular hole in one end. Use approximately 5/16" thread on cable. **Do not** screw lug all the way on to cable. Tighten locknut, arrow 5, which will place cable seal, arrow 4, tight against end of connector tube, arrow 2.
- Pin each cable to a spool on control valve. The cable from L.H. side of valve must be connected to spool with float position. (See ILL.1.)

NOTE: The pin for load sensing valve can be installed through one side of connector only. Insert pin into the side of connector that it will slide easy. Pin will need to be taped into the opposite side of connector.

- Install O-Ring in groove on outer end of each connector tube. Next slide connector to thread at end of each cable and screw connector onto thread.
- Using one flange plate, fasten each connector tube to valve. Secure each plate with four (4) 1/4" N.C. bolts. See Section 1 of "Adjustments" on page 11 before tightening bolts.



6. VALVE FITTING INSTALLATION

IMPORTANT: DO NOT USE TEFLON TAPE TO SEAL HYDRAULIC HOSES AND FITTINGS. IF PIECES OF TAPE GET INTO THE HYDRAULIC SYSTEM THEY MAY PLUG SMALL ORIFICES.

- For systems NOT EQUIPPED with optional coupler mount bracket.

a) INSTALL SPOOL PORT FITTINGS

NOTE: Before installing spool port fitting see color band installation in section B.

WALVOIL OPEN AND CLOSED CENTER VALVES - See Fig. 12. Install one (1) 3/4" - 16 male O.R.B. x 1/2" N.P.T. female swivel adapter, arrow 1, in each spool port. Then install one (1) 1/2" N.P.T. male x 1/2" N.P.T. female swivel adapter, arrow 2, in rear spool ports. Install one (1) 1/2" N.P.T. male x 1/2" N.P.T. male x 90 degree street elbow, arrow 3, in all spool ports.

Install one (1) female 1/2" of quick coupler, arrow 4, in each spool port.

WALVOIL LOAD SENSING VALVE - See Fig. 13. Install one (1) 7/8" - 14 male O.R.B. x 1/2" N.P.T. swivel adapters arrow 1, in each spool. Install one (1) 1/2" N.P.T. male x 1/2" female swivel adapter, arrow 2, in the rear spool ports. Install one (1) 1/2" N.P.T. male x 1/2" N.P.T. male x 90 degree street elbow, arrow 3, in all spool ports. Install one (1) female 1/2" of quick coupler, arrow 8, in each spool port.

NOTE: 3 function systems are supplied with two (2) 4250 Series Couplers which do not couple under pressure. Use these on the spool that the single control is connected to this coupler which is shorter than the 8200 Series Coupler. See Fig. 26.

b) INSTALLING "IN" AND "RETURN" PORT FITTINGS - See Fig. 12 and 13.

WALVOIL OPEN AND CLOSED CENTER VALVE - Fig. 12

Install one (1) 3/4" - 16 male O.R.B. x 1/2" N.P.T. female x 90 degree swivel street elbow, arrow 5 in "IN" port and arrow 6, in "RETURN" port.

WALVOIL LOAD SENSING VALVE - Fig. 13

Install one (1) 1-1/16" - 12 male O.R.B. x 1/2" N.P.T. female x 90 degree swivel street elbow, arrow 6, in "IN" port and arrow 5, "RETURN" ports. Then install one (1) 9/16" O.R.B. male x 1/4" N.P.T. female x 90 degree street elbow, arrow 7 in "LOAD SENSING PORT".

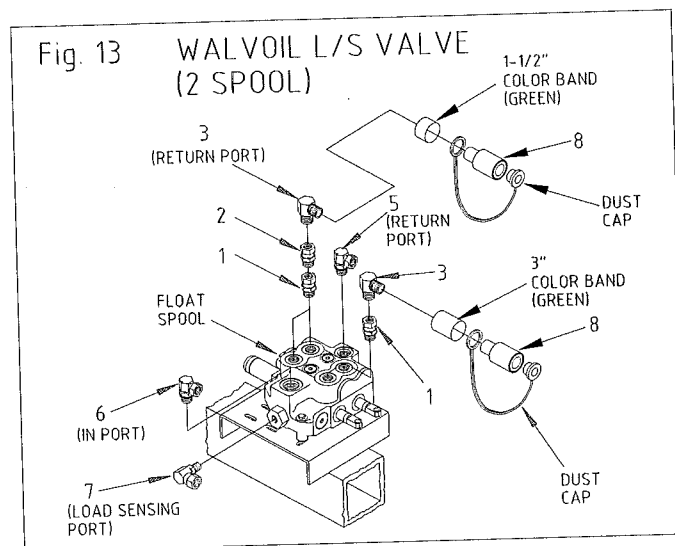
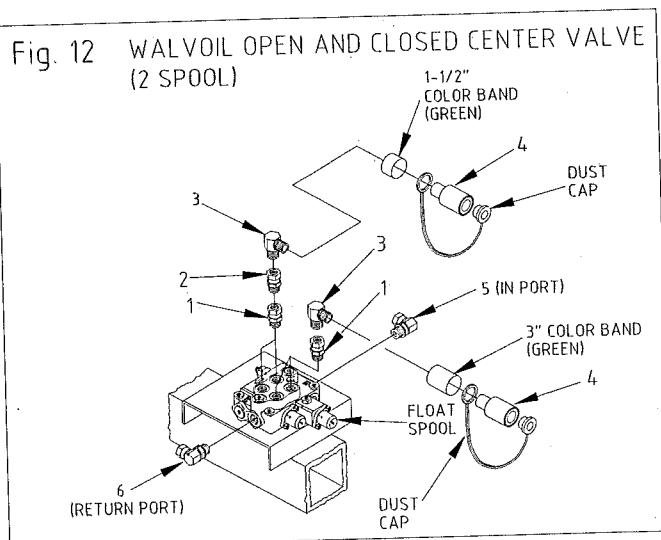
c) COUPLER COLOR CODING AND DUST CAP INSTRUCTIONS - See Fig. 12 or 13

One (1) 1-1/2" and (1) 3" color bands are supplied for couplers on each section.

Install a 1-1/2" color band between quick coupler and 90 degree elbow, arrow 5, on rear port of one spool.

Next, install a 3" color band (same color) between quick coupler and 90 degree elbow, arrow 5, on front port of same spool. Repeat above procedure for the rest of the valve spools.

NOTE: Each valve spool must have different color bands. For example the bands for float spool shown in Fig. 12 and 13 are green. Heat each band and allow to cool. Band will shrink around fittings.



VALVE FITTING INSTALLATION CONTINUED:

- c) WALVOIL VALVE - See Fig. 12 (Open center and closed center)
Install one (1) 3/4" - 16 male O.R.B. x 1/2" N.P.T. female x 90 degree swivel street elbow, arrow 6, in "IN" port and "RETURN" ports of valve.

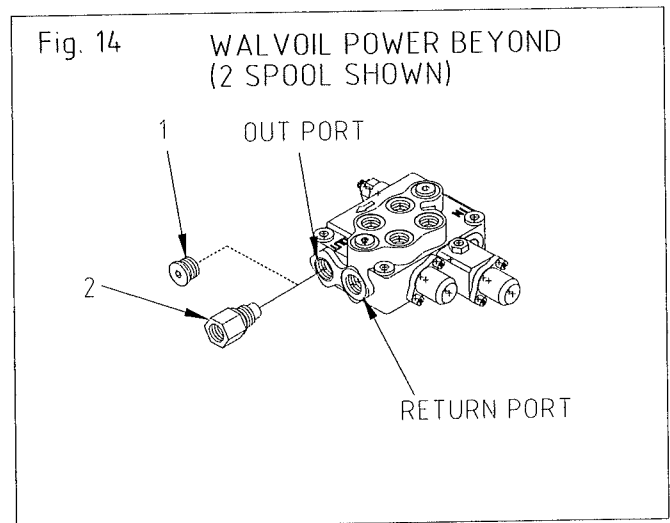
WALVOIL LOAD SENSING VALVE - See Fig. 13.

Install one (1) 1-1/16" - 12 male O.R.B. x 1/2" N.P.T. female x 90 degree swivel street elbow, arrow 6, in "IN" port and "OUT" ports of valve. Then install one (1) 7/16" - 20 male O.R.B. x 1/4" N.P.T. female x 90 degree swivel street elbow, arrow 7, in "load sensing port".

- d) INSTALLING POWER BEYOND PORT (WALVOIL VALVES ONLY) -
See Fig. 14
Remove plug, arrow 1, from "OUT" port. Next install the Power Beyond Port, arrow 2, in the "OUT" port.

NOTE: *Power beyond port may have been installed at the factory.*

Install one (1) 3/4" - 16 male O.R.B. x 1/2" N.P.T. female swivel adapter, arrow 3, in Power Beyond Port.



7. VALVE FITTING INSTALLATION

IMPORTANT: DO NOT USE TEFLON TAP TO SEAL HYDRAULIC HOSES AND FITTINGS. IF PIECES OF TAPE GET INTO THE HYDRAULIC SYSTEM THEY MAY PLUG SMALL ORIFICES.

- For systems EQUIPPED with optional coupler mount bracket.

a) INSTALLING SPOOL PORT FITTINGS

WALVOIL OPEN AND CLOSED CENTER VALVE - See Fig. 15. Install one (1) 3/4" - 16 male O.R.B. x 1/2" N.P.T. female swivel adapter, arrow 1, in each spool port. Then install one (1) 1/2" N.P.T. male x 1/2" N.P.T. female swivel adapter, arrow 2, in the rear spool ports. Install one (1) 1/2" N.P.T. male x 1/2" N.P.T. male x 90 degree street elbow, arrow 3, in all spool ports.

Install one (1) 1/2" female x 1/2" female swivel, arrow 5, in each spool port.

WALVOIL LOAD SENSING VALVE - See Fig. 16. Install one (1) 7/8" - 14 male O.R.B. x 1/2" N.P.T. female swivel adapter, arrow 1, in each spool port. Then install one (1) 1/2" N.P.T. male x 1/2" male swivel adapter, arrow 2, in the rear spool ports. Install one (1) 1/2" N.P.T. male x 1/2" N.P.T. male x 90 degree street elbow, arrow 3, in all spool ports.

Install one (1) 1/2" female x 1/2" female swivel, arrow 6, in each spool port.

b) INSTALLING "IN" AND "RETURN" PORT FITTINGS

WALVOIL VALVE - See Fig. 15 - (Open center and closed center) Install one (1) 3/4" - 16 male O.R.B. x 1/2" N.P.T. female x 90 degree swivel street elbow, arrow 4, in "IN" port and "RETURN" ports of valve.

WALVOIL LOAD SENSING VALVE - See Fig. 16. Install one (1) 1-1/16" - 12 male O.R.B. x 1/2" N.P.T. female x 90 degree swivel street elbow, arrow 4, in "IN" port and "RETURN" ports of valve. Then install one (1) 9/16" - 20 male O.R.B. x 1/4" N.P.T. female x 90 degree swivel street elbow, arrow 5, in "load sensing" port.

c) INSTALLING POWER BEYOND PORT (WALVOIL VALVE ONLY) - See Fig. 17.

Remove plug, arrow 1, from "OUT" port, next install the Power Beyond Port, arrow 2, in the "OUT" port.

NOTE: *Power beyond port may have been installed at the factory.*

Install one (1) 3/4" - 16 male O.R.B. x 1/2" N.P.T. female swivel adapter, arrow 3, in Power Beyond Port.

Fig. 15 WALVOIL OPEN CENTER AND CLOSE CENTER (2 SPOOL)

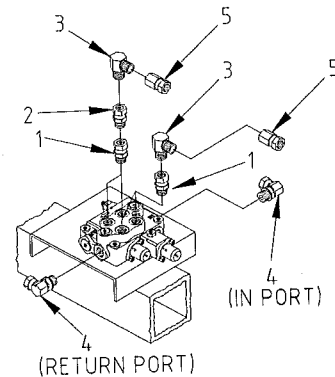


Fig. 16 WALVOIL L/S VALVE (2 SPOOL)

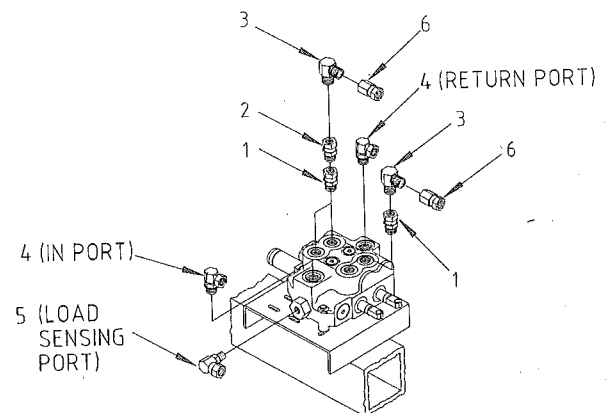
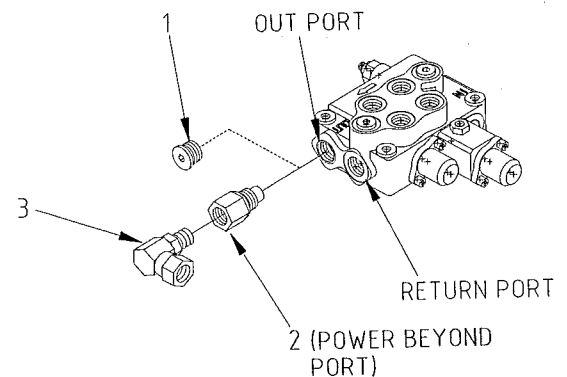


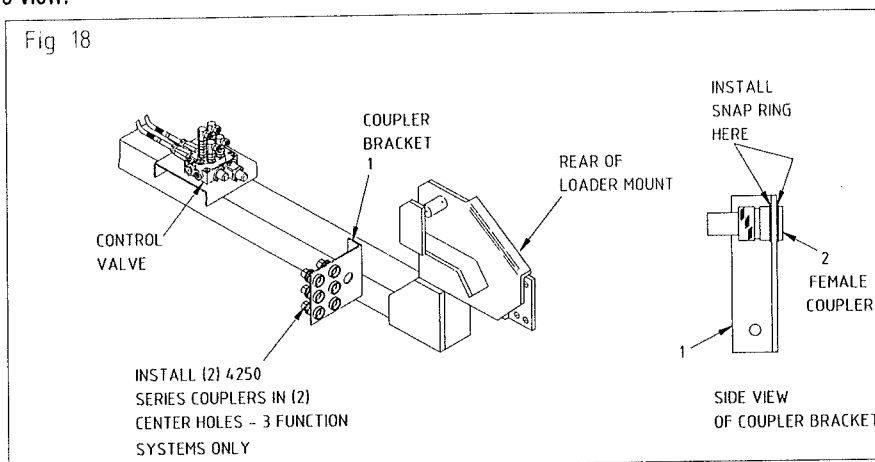
Fig. 17 WALVOIL OPEN CENTER (2 SPOOL SHOWN)



d) MOUNTING HYDRAULIC QUICK COUPLER (OPTION) - See Fig. 18

Locate quick coupler bracket, arrow 1, ahead of control valve. Bolt to loader mount bracket or tractor frame (if bolted to loader mount bracket, holes must be drilled in mount). Bracket should be in an unobstructed location to allow quick and easy hose connection. Bracket should be located to the rear and beneath loader yoke. **(NOTE: Loader yoke is the frame which slides onto mount bracket(s)).**

Install female 1/2" of quick couplers, arrow 2, in mount bracket. Two function system requires four (4) couplers, three function system requires six (6) couplers. For three function systems install the two (2) 4250 Series Couplers in the two bottom holes. Install each female coupler in a hole of bracket then lock each coupler to bracket by installing a snap ring on both the front side and back side of coupler as shown in the side view.



e) COUPLER DUST CAP INSTALLATION AND HOSE COLOR CODING -
(For System with Optional Coupler Bracket) - See Fig. 19

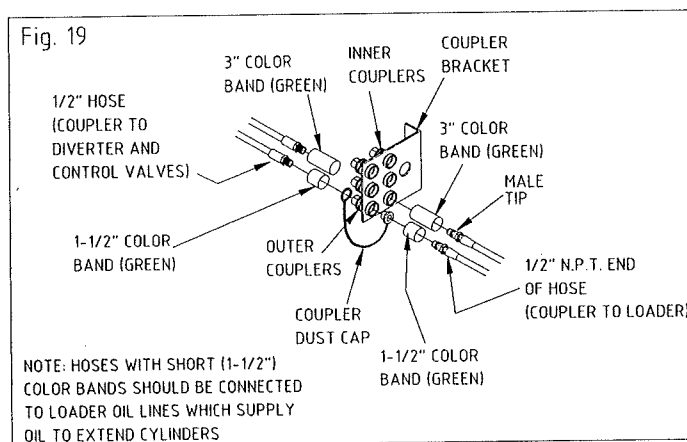
e1) Two (2) 1-1/2" and two (2) 3" color bands are supplied for hoses for each function.

Install band of same color and length on one set of hoses that run from coupler to loader and coupler to valve.

Install 1-1/2" bands on hoses that run to outer couplers only.

Install 3" bands on hoses that run to inner couplers only.

NOTE: Each set of couplers must have a different color band. For example, the bands for the bottom outer coupler and the bottom inner coupler must be white as shown in Fig. 19.



After the bands are placed over hoses, heat each band and then allow to cool. Band will shrink around hose.

NOTE: For hoses that run from couplers to loader, be sure color bands are installed on ends with 1/2" N.P.T.

e2) See Fig. 18A. Before installing hoses from couplers to control valves install ring end of coupler dust cap over threader end of coupler.

f) **CONNECTING HYDRAULIC HOSES - VALVE TO COUPLER BRACKET**

TWO FUNCTION HYDRAULIC SYSTEM (Hoses Not Supplied)

Connect one (1) 1/2" hose between each spool port of two spool control valve and quick coupler. Connect float spool hoses to lift cylinder couplers only. See Fig. 20.

THREE FUNCTION HYDRAULIC SYSTEM (Hoses Not Supplied)

Connect one (1) 1/2" hose between each port of "Float Spool" of two spool control valve and one (1) set of quick couplers. Use these couplers for lift cylinders only. See Fig. 21.

Connect one (1) 1/2" hose between each port of "Inner Non-Float" spool of three spool control valve and one (1) set of quick couplers. Use these couplers for bucket cylinders. See Fig. 21.

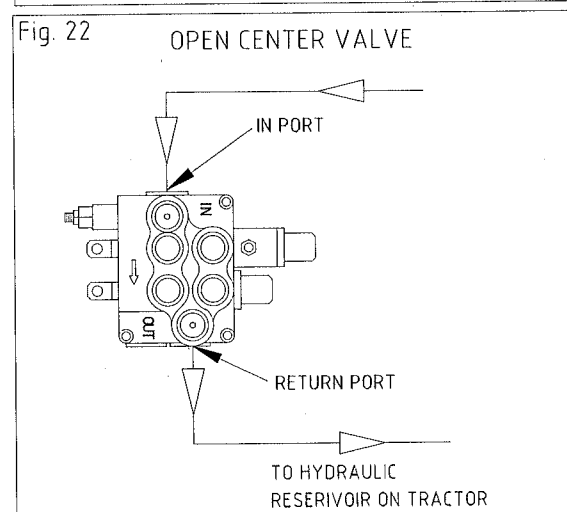
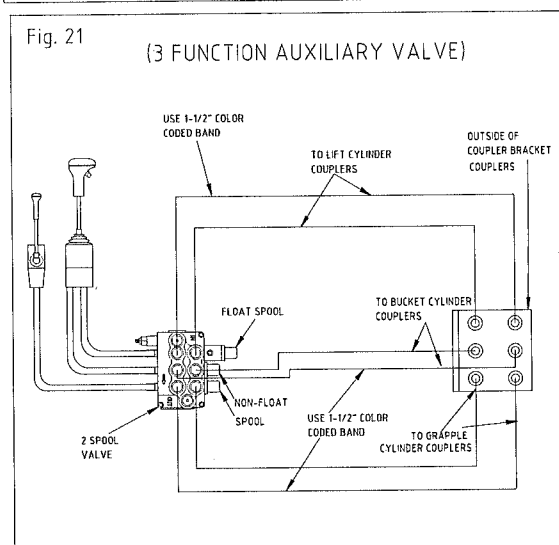
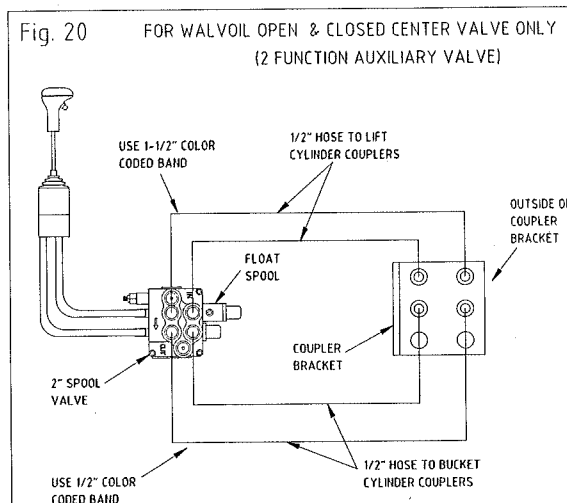
Connect one (1) 1/2" hose between each port of "Outer Non-Float" spool of three spool control valve.

8. CONNECTING TWO SPOOL CONTROL VALVE TO TRACTOR HYDRAULIC SYSTEM

a) **OPEN CENTER SYSTEM - See Fig. 22 (Walvoil Shown) (Hoses Not Supplied)**

Connect a 1/2" hose between "IN" port of two spool control valve and power beyond port of tractor hydraulic systems.

Connect a 1/2" hose between "RETURN" port of two spool control valve and hydraulic reservoir of tractor hydraulic system.



- b) CLOSED CENTER SYSTEM - See Fig. 23 (Walvoil Shown) (Hoses Not Supplied)

Connect a 1/2" hose between "IN" port of two spool control valve and pressure source of tractor hydraulic system. The pressure source can be obtained by teeing into pressure line from hydraulic pump or from a power beyond port on tractor hydraulic system.

Connect a 1/2" hose between "RETURN" port of two spool control valve and tractors' hydraulic reservoir.

- c) OPEN CENTER SYSTEM WITH POWER BEYOND - See Fig. 24 (Walvoil Shown) (Hoses Not Supplied)

Connect a 1/2" hose between "IN" port of two spool valve and pressure line from pump. (Pressure line is cut, diverting oil flow to auxiliary valve).

Connect a 1/2" hose between "Power Beyond Port" of two spool control valve and opposite end of pressure line. (Oil flow returns to pressure line)

Connect a 1/2" hose between "Return Port" of two spool control valve and hydraulic reservoir of tractor hydraulic system.

- d) PRESSURE COMPENSATED LOAD SENSING SYSTEMS - Fig. 25 (Hoses Not Supplied)

Connect a 1/2" hose between "IN" port of two spool valve and pressure source of tractor hydraulic system. The pressure source can be obtained by teeing into pressure line from hydraulic pump or from a power beyond port of tractor hydraulic system.

Connect a 1/2" hose between "RETURN" (out) port of two spool valve and hydraulic reservoir of tractor hydraulic system.

Connect a 1/4" hose between "LOAD SENSING" port of two spool valve and load sensing oil line of tractor hydraulic system.

Connect load sensing hose to tractors' load sensing line with a shuttle tee. Fig. 25 shows proper position of shuttle tee.

Fig. 23 CLOSED CENTER VALVE

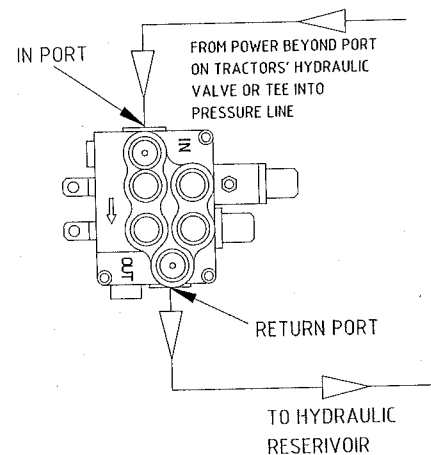


Fig. 24 POWER BEYOND VALVE

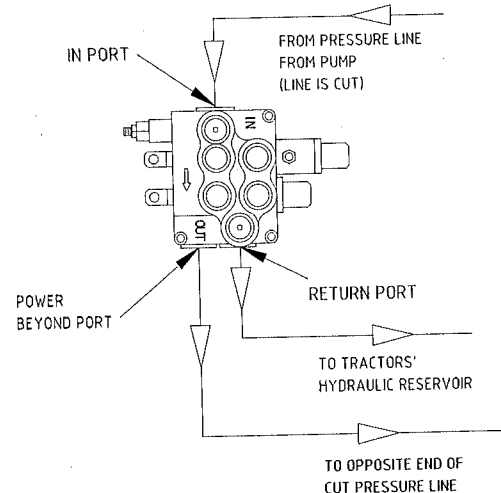
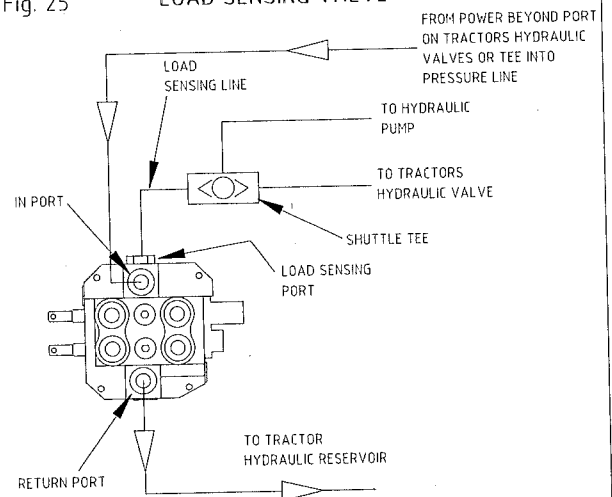


Fig. 25 LOAD SENSING VALVE



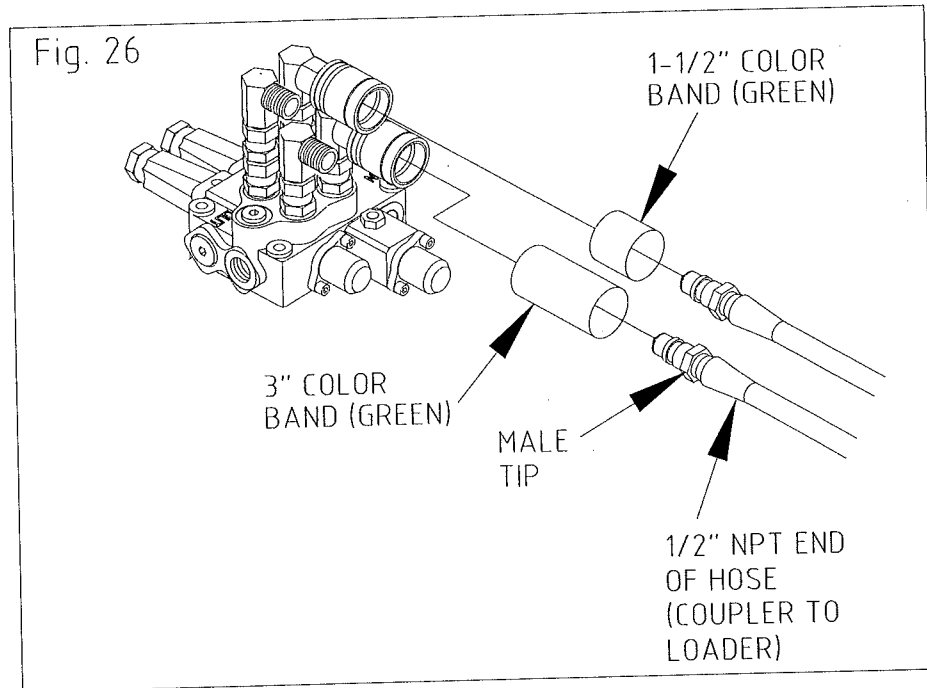
9. COLOR CODING COUPLER TO LOADER HOSES

(For systems with couplers mounted on valve) See Fig. 26

- a) One (1) 1-1/2" and one (1) 3" color bands are supplied for 1/2" x 12" hoses (loader to coupler) for each function.

Install one (1) 1-1/2" band and one (1) 3" band of same color on hoses for each function.

After each band is placed over hoses, heat band then allow to cool. The band will shrink around hose.



10. CONNECTING 12" HOSES TO REAR OF LOADER

(For systems with optional coupler bracket and valve mounted coupler)

Connect one (1) 1/2" x 12" hose to each oil line at rear of loader. Next, fasten one male coupler tip to each 1/2" x 12" hose. See Fig. 19 or 26.

Before connecting hoses to oil lines at rear of loader, check hose color code. Each color identifies a function. Hoses with short bands must be matched with short bands of same color or rear side of coupler. Hoses with long bands must also be matched with long bands of same color on rear side of coupler.

Hoses with short bands should be connected to oil lines on loader that supply oil to extend cylinders. Be sure hoses for lift cylinders are connected to float spool couplers. Float spool is shown in Fig. 27 and 28.

11. CONNECTING HOSES TO QUICK COUPLERS

- a) FOR SYSTEMS EQUIPPED WITH OPTIONAL QUICK COUPLER BRACKETS

For two function systems connect four hoses to couplers in coupler bracket. Fig. 20 on page 9 shows couplers used for lift and bucket functions.

For three function systems, connect six hoses to couplers in coupler bracket. Fig. 21 on page 9 shows couplers used for lift, bucket and grapple functions.

CONNECTING HOSES TO QUICK COUPLERS CONTINUED:

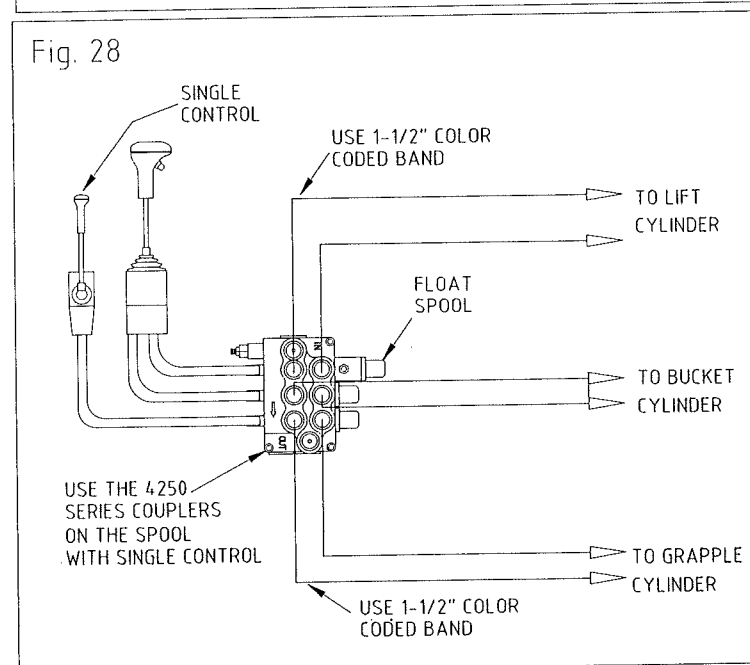
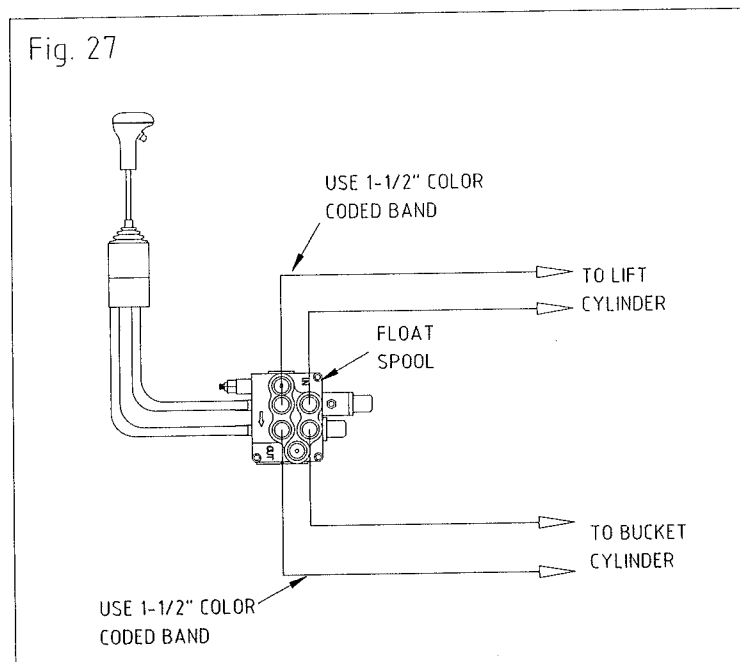
b) FOR SYSTEMS WITH QUICK COUPLERS MOUNTED ON THE VALVE

For two function systems connect four (4) hoses to couplers on the valves. Fig. 27 shows couplers used for lift and bucket functions.

For three function systems connect six (6) hoses to couplers on the valves. Fig. 28 shows couplers used for lift, bucket and grapple functions.

NOTE: After hoses have been connected the color coded bands on hoses and quick couplers must match up by length and color.

NOTE: 3 function systems are supplied with two (2) 4250 Series Couplers which do not couple under pressure. Use these on the spool that the single control is connected to, this coupler is shorter than the 8200 Series Coupler. See Fig. 28.

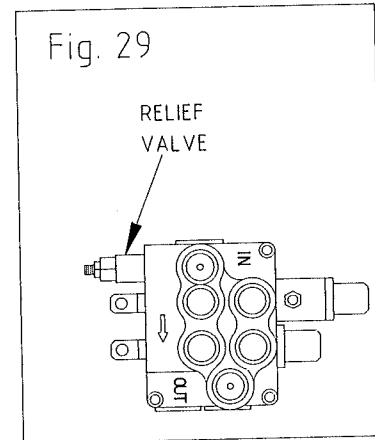


ADJUSTMENTS

1. ADJUSTING CONTROL CABLES - See Fig. 10 or 11
(Double Control Lever Only)

Adjusting joystick handle so it is centered on joystick base. This is done by turning the cable connectors, arrow 2, (on valve) "IN" or "OUT". After cable adjustments are complete tighten flange bolts for each cable connector and lock each cable to connector by tightening jam nut, arrow 5, against end of connector.

2. See Fig. 29. The Walvoil open center or open center power beyond valve has an adjustable relief valve. If hydraulic pressure coming out of valve is less than the pressure or tractors' hydraulic system, the pressure can be increased by turning screw on relief valve "IN". Turn screw $\frac{1}{2}$ turn and take a pressure test. If more pressure is required screw "IN" another $\frac{1}{2}$ turn. Continue this process until desired pressure is obtained.



OPERATIONS

1. JOYSTICK OPERATION - See Fig. 30

a) 2 FUNCTION SYSTEM

Move joystick forward to raise loader.
Pull joystick back to lower loader.

Move joystick towards L.H.S. to dump bucket.
Move joystick towards R.H.S. to roll back bucket.

b) 3 FUNCTION SYSTEM

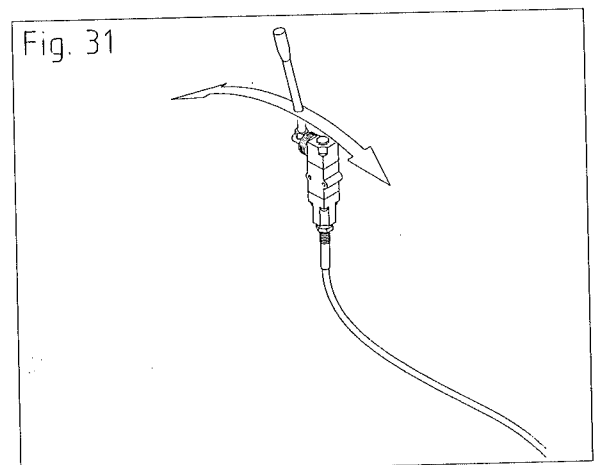
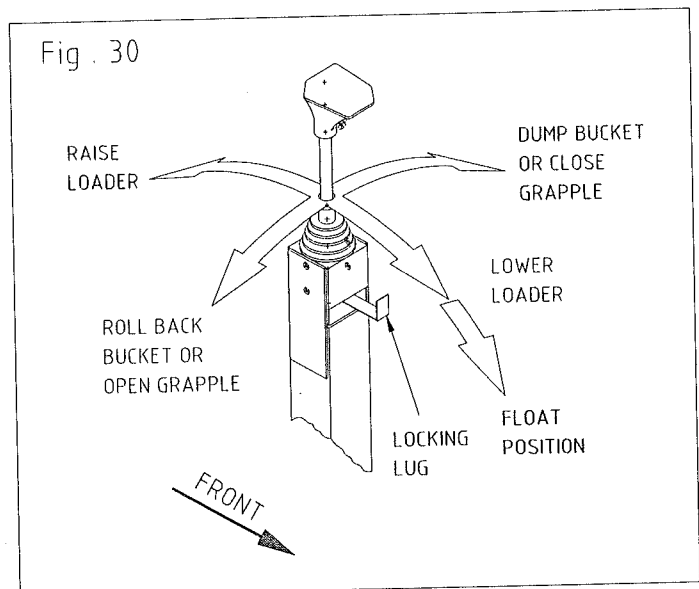
Bucket, lift and float operation in the same as two function system. See Fig. 30.

To operate grapple use single control lever. Lever is moved backward and forward to activate grapple. See Fig. 31.



CAUTION: ACTIVATE FLOAT ONLY WHEN LOADER IS IN DOWN POSITION. LOADER WILL DROP WHEN VALVE IS PLACED IN FLOAT POSITION.

IMPORTANT: LOADER TO COUPLER HOSES MUST BE CONNECTED PROPERLY FOR JOYSTICK TO OPERATE AS DESCRIBED ABOVE. IF HOSES ARE CROSSED OR CONNECTED TO A DIFFERENT SET OF COUPLERS, JOYSTICK WILL OPERATE



OPERATIONS CONTINUED:

IMPORTANT: IF JOYSTICK IS NOT BEING USED WHILE OPERATING TRACTOR, JOYSTICK HANDLE SHOULD BE LOCKED IN NEUTRAL POSITION. TO LOCK CONTROL PUSH LOCKING LUG "IN". LOCKING THE JOYSTICK CONTROL WILL PREVENT OPERATOR FROM ACCIDENTALLY MOVING JOYSTICK CAUSING LOADER OR BUCKET TO DROP.

2. **FLOOR MOUNT PEDESTAL** - See Fig. 32

When operating loader, pedestal can be tilted towards operator up to 40 degrees. To exit R.H. cab door pedestal can be moved to forward position up to 15 degrees past vertical. To adjust, loosen clamp level and move pedestal as required, tighten clamp lever when pedestal is in desired position.

3. **FLOAT POSITION** - All valve types have a float spool. This spool must be connected to lift cylinders. To place loader in "FLOAT" position push joystick control forward until lever locks into float position.

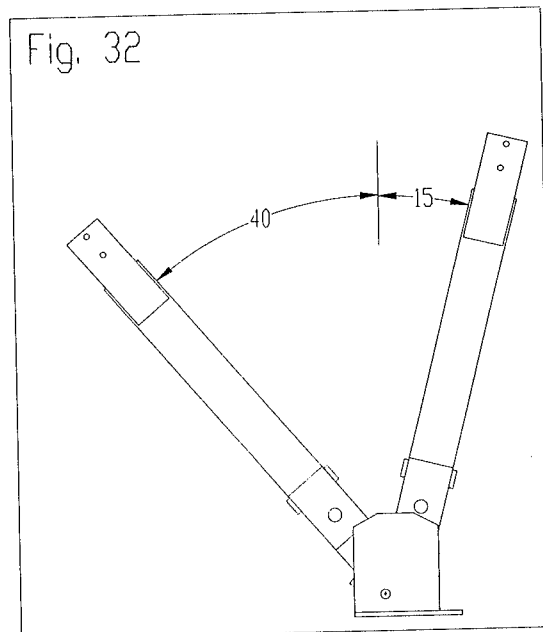


CAUTION: ACTIVATE FLOAT ONLY WHEN LOADER H-FRAME IS IN DOWN POSITION. LOADER WILL DROP WHEN VALVES ARE PLACED IN FLOAT POSITION.

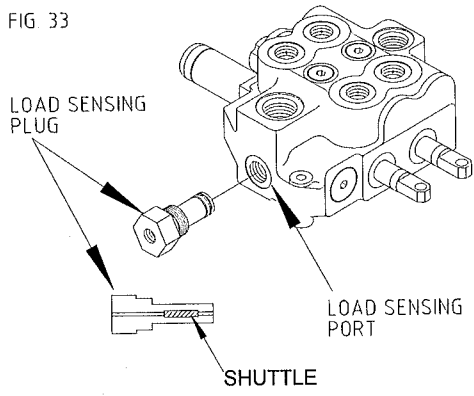
4. **CONNECTING HOSES FROM LOADER TO QUICK COUPLERS**

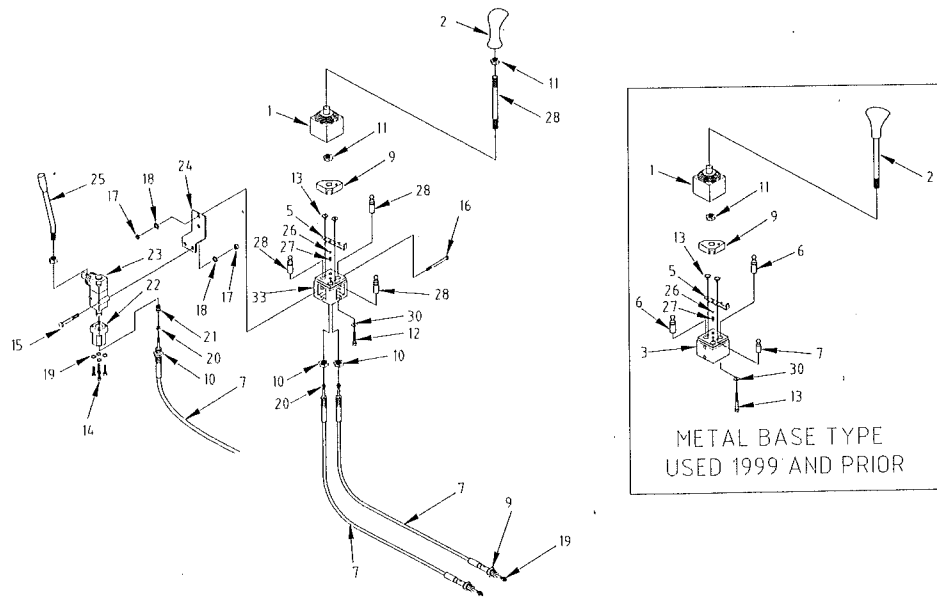
Hoses from valves to couplers and couplers to loader are color coded, with short and long color bands. The color and length of band must be matched. For example a loader hose with a short green band must be connected to the coupler with hose that has a short green band.

5. When loader has been removed from tractor be sure to install dust caps in quick couplers. See Fig. 12, 13 or 19.



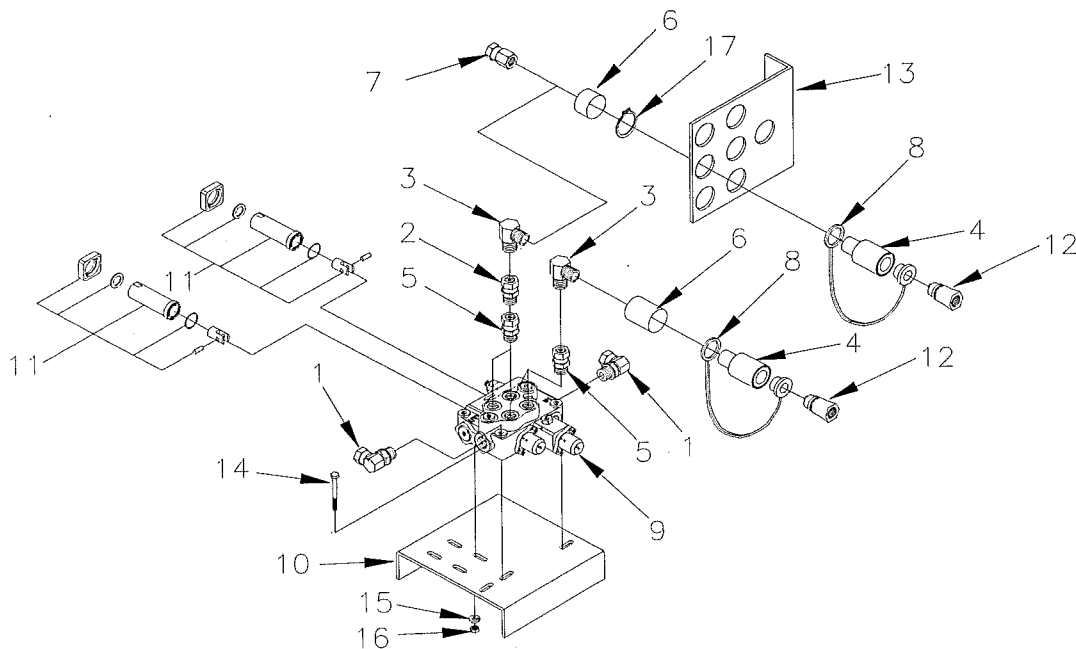
TROUBLE SHOOTING

PROBLEM	CAUSE AND REMEDY
Joystick control will not move	- Release control locking lug - See Fig. 30
Joystick control will not move freely	- Sharp bends in control cable. Route cables differently
Joystick control will not fully activate valve spool	- Joystick control not centered properly. See adjustments.
Open Center Valve Only - hydraulic pressure coming out of valve is less than pressure going into valve	- Increase hydraulic pressure by increasing relief valve pressure - See Fig. 29.
Load Sensing Valve Only - loader will not operate at high pressure high volume when joystick control is moved	- Shuttle tee is not installed properly or is not installed at all, install as shown in Fig. 25 - O-Ring mounted on inner end of load sensing plug may be damaged causing a loss in oil pressure. See Fig. 33 - Shuttle inside load sensitive plug is stuck in "IN" position, not allowing oil to go into the load sensitive line
Load Sensing Valve Only - Tractor's high pressure pump will not shut down when valve is in neutral position	
	- Bleed off orifice in (shuttle inside load sensing plug) is plugged, not allowing oil pressure to drop in load sensing line. - Shuttle inside load sensing plug is stuck in "OUT" position which allows high pressure oil to come into load sensing line preventing pump from shutting down.
	FIG 33 
Can not keep bolt tight that secures anchor lug (see fig. 1) to base of double joystick control	- 6mm x 55mm Allen head cap screw used to fasten anchor lug is missing special locking washer.
Open Center Control - valve leaks on front spools	- Control valve is connected to tractor's hydraulic system between hydraulic pump another control such as tractors' control valves. (The open center valve is feeding oil to another function causing back pressure in valve). - Convert open center valve to open center power beyond valve. See Fig. 17 and Fig. 24.



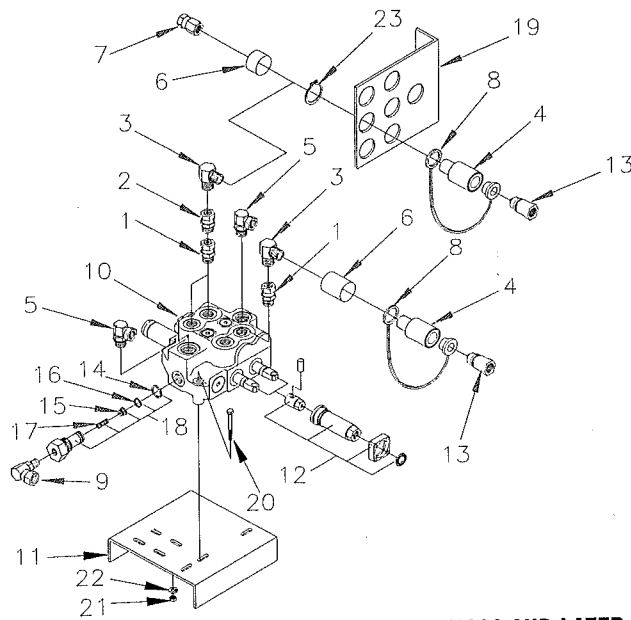
**WALVOIL JOYSTICK CONTROL ASSEMBLY - 2 Spool and 3 Spool
(MECHANICAL)**

REF. NO	PART NO.	DESCRIPTION	QTY. REQ'D	
			2 SPOOL	3 SPOOL
1	L3728	Rubber Cover - Double Control	1	1
2	L3785	Handle - For Hydra- Mechanical Double Control Only	1	1
3	L3786	Base - Double Control (Metric Type)	1	1
4	L3784	Base - Double Control	1	1
5	L3787	Locking Lug - Double Control	1	1
6	L3744	Cable Lug - Double Control w/Metal Base	2	2
7	L3745	Anchor Pivot Post - Double Control w/Metal Base	1	1
8	LB3691	Cable - 1-1/2 meter c/w Nuts	2	3
	LB3693	Cable - 2 meter c/w Nuts	2	3
9	L3756	Handle Base (Fulcrum) - Double Control	1	1
10	L3779	16mm (1.5) Jam Nut - Cable	4	6
11	L3778	14mm (1.5) Jam Nut	2	2
12	L3727	6mm (1.0) x 55mm Allen Head Cap Screw	1	1
13	L3769	3/16" x 5/16" Bolts (Special)	2	2
14	L3795	5/32-32 x 1" Allen Head Cap Screw	-	4
15	--	1/4" N.C. x 2-1/2" Hex Bolt (Plated)	-	2
16	--	1/4" N.C. x 3-1/4" N.C. Hex Bolt (Plated)	2	2
17	--	1/4" N.C. Hex Nuts (Plated)	2	4
18	--	1/4" Lockwasher (Plated)	2	4
19	--	5/32" Lockwasher (Plated)	-	4
20	L4034	6mm (1.0) Hex Nut	4	6
21	L3795	Cable Lug - Single Control	-	1
22	L3796	Cable Mount Body - Single Control	-	1
23	L3797	Single Control Assembly	-	1
24	L3757	Mount Bracket - Single Control	-	1
25	L3736	Handle - Single Control	-	1
26	L3742	Ball For Locking Lug - Double Control Valve	1	1
27	L3743	Spring For Locking Lug - Double Control Valve	1	1
28	L3652	Cable Lug & Anchor Lug - Double Control (New Plastic Base)	3	3
29	L3682	6mm (1.0) x 20mm Allen Head Cap Screw	1	1
30	L4060	6mm I.D. Schnorr Washer (Serrated)	1	1



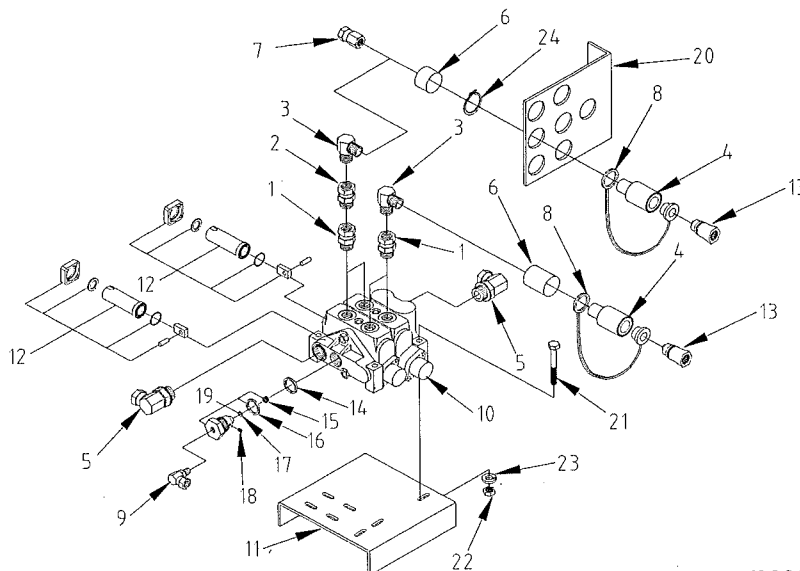
WALVOIL OPEN AND CLOSED CENTER VALVE (MECHANICAL)

REF. NO	PART NO.	DESCRIPTION	QTY. REQ'D	
			2 SPOOL	3 SPOOL
1	L3767	3/4" - 16 O.R.B. Male x 1/2" N.P.T. Female x 90 Degree Swivel Street Elbow	6	9
2	DC27	1/2" N.P.T. Male x 1/2" N.P.T. Female Swivel Adapter	2	3
3	L3715	1/2" N.P.T. Male x 1/2" N.P.T. Male x 90 Degree Elbow	4	6
4	L4036	8250 Quick Coupler - Female Half	4	6
5	L4043	3/4" - 16 Male O.R.B. x 1/2" N.P.T. Female Swivel Adapter	2	2
6	LB3721	Hose Identification Kit (Green and Yellow) - 4 Hoses	1	1
	LB3760	Hose Identification Kit (White) - 2 Hoses	-	1
	L4061	Hose Identification Sleeve - Green 3" Long	2	2
	L4062	Hose Identification Sleeve - Yellow 3" Long	2	2
	L4066	Hose Identification Sleeve - White 3" Long	-	2
	L4063	Hose Identification Sleeve - Green 1-1/2" Long	2	2
	L4064	Hose Identification Sleeve - Yellow 1-1/2" Long	2	2
	L4065	Hose Identification Sleeve - White 1-1/2" Long	-	2
7	L29	3/8" N.P.T. Female Swivel Adapter (Optional)	4	6
8	L3750	Dust Cap	4	6
9	LB3702	Walvoil Control Valve - 2 Spool Open Center	1	-
	LB3704	Walvoil Control Valve - 2 Spool Closed Center	1	1
	LB3703	Walvoil Control Valve - 2 Spool Power Beyond	1	1
	LB4005	Walvoil Control Valve - 3 Spool Open Center	1	1
	LB3627	Walvoil Control Valve - 3 Spool Closed Center	1	1
	LB3628	Walvoil Control Valve - 3 Spool Power Beyond	-	1
10	L3694	Valve Bracket	1	1
11	LB3697	Connector Kit (Walvoil)	2	3
12	L397	8250 Male Tip - Hydraulic Coupler	4	6
13	L3696	Coupler Bracket (Optional)	1	1
14	-	5/16" x 2-3/4" N.C. Hex Bolt	3	3
15	-	5/16" N.C. Hex Nut	3	3
16	-	5/16" Lockwasher	3	3
17	L3716	Snap Ring (Option)	8	12
18	L4052	Cap - Spool	2	3
***	LB3726	Seal Kit - Walvoil Control Valve - 2 Spool	-	-
***	LB3709	Seal Kit - Walvoil Control Valve - 3 Spool	-	-



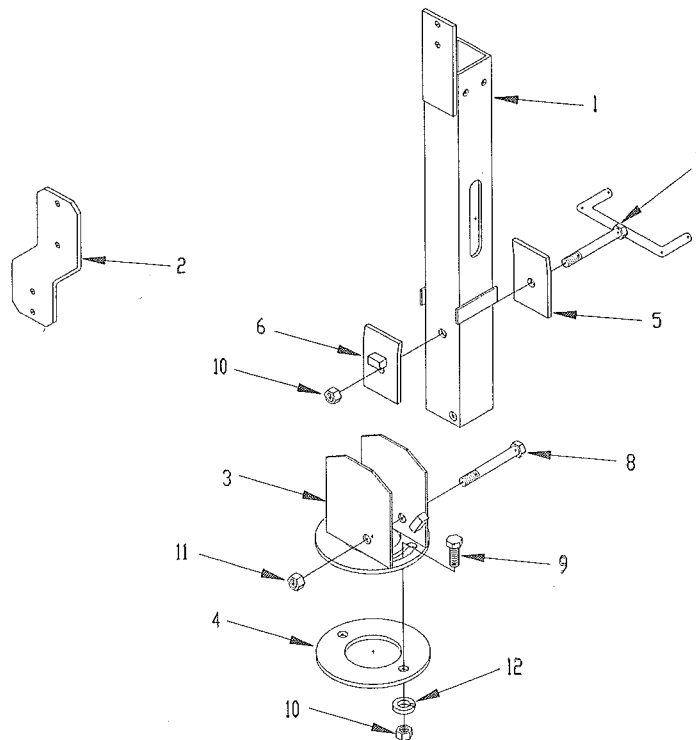
WALVOIL LOAD SENSING VALVE USED JULY/2000 AND LATER

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D	
			2 SPOOL	3 SPOOL
1	L3730	7/8" - 14 O.R.B Male x 1/2" N.P.T. Female Swivel Adapter	7	9
2	DC27	1/2" N.P.T. Male x 1/2" N.P.T. Female Swivel Adapter	2	3
3	L3715	1/2" N.P.T. Male x 1/2" N.P.T. Male x 90 Degree Elbow	4	6
4	L4036	8250 Quick Coupler - Female Half	4	6
5	L3739	1-1/16" - 12 O.R.B. Male x 1/2" N.P.T. Female x 90 Degree Swivel Adapter	2	2
6	LB3721	Hose Identification Kit - (Green and Yellow) - 4 Hoses	1	1
	LB3760	Hose Identification Kit - (White) - 2 Hoses	--	1
	L4061	Hose Identification Sleeve - Green 3" Long	2	2
	L4062	Hose Identification Sleeve - Yellow 3" Long	2	2
	L4066	Hose Identification Sleeve - White 3" Long	--	2
	L4063	Hose Identification Sleeve - Green 1-1/2" Long	2	2
	L4064	Hose Identification Sleeve - Yellow 1-1/2" Long	2	2
	L4065	Hose Identification Sleeve - White 1-1/2" Long	--	2
7	L29	3/8" N.P.T. Female Swivel Adapter (Optional)	4	6
8	L3750	Dust Cap	4	6
9	L3600	9/16" Male O.R.B. x 1/4" N.P.T. Female x 90 Degree Swivel Street Elbow	1	1
10	LB3601	Walvoil L/S Control Valve - 2 Spool	1	--
	LB3602	Walvoil L/S Control Valve - 3 Spool	--	1
11	L3694	Valve Bracket	1	1
12	LB3603	Cable Connector Kit #TQ80	2	3
13	L397	8250 Male Tip - Hydraulic Coupler	2	3
14	L3604	Outer O-Ring (Big)	1	1
15	L3606	Threaded End Cap - Socket	1	1
16	L3605	Outer O-Ring (Small)	1	1
17	L3619	Shuttle Valve	1	1
18	L3629	Load Sensing Port	1	1
19	L3696	Coupler Bracket	1	1
20	L4042	5/16" x 2-1/2" N.C. Hex Bolt	5	5
21		5/16" N.C. Hex Nut	5	5
22		5/16" Lockwashers	5	5
23	LB3716	Snap Ring	8	12
24		Shuttle Tee (Installed on L/S Line on Tractor)	1	1
***	LB4006	Seal Kit - Walvoil L/S Control Valve - 2 Spool	--	--
***	LB4008	Seal Kit - Walvoil L/S Control Valve - 3 Spool	--	--



GRESEN LOAD SENSING VALVE - (MECHANICAL) USED PRIOR TO JULY/2000

REF. NO	PART NO.	DESCRIPTION	QTY. REQ'D	
			2 SPOOL	3 SPOOL
1	L3730	7/8" - 14 O.R.B Male x 1/2" N.P.T. Female Swivel Adapter	6	9
2	DC27	1/2" N.P.T. Male x 1/2" N.P.T. Female Swivel Adapter	2	3
3	L3715	1/2" Male x 1/2" Male x 90 Degree Elbow	4	6
4	L4036	8250 Quick Coupler - Female Half	4	6
5	L3739	1-1/16" - 12 O.R.B. Male x 1/2" N.P.T. Female x 90 Degree Swivel Adapter	2	2
6	LB3721	Hose Identification Kit (Green and Yellow) - 4 Hoses	1	1
	LB3760	Hose Identification Kit (White) - 2 Hoses	-	1
	L4061	Hose Identification Sleeve - Green 3" Long	2	2
	L4062	Hose Identification Sleeve - Yellow 3" Long	2	2
	L4066	Hose Identification Sleeve - White 3" Long	--	2
	L4063	Hose Identification Sleeve - Green 1-1/2" Long	2	2
	L4064	Hose Identification Sleeve - Yellow 1-1/2" Long	2	2
	L4065	Hose Identification Sleeve - White 1-1/2" Long	--	2
7	L29	3/8" N.P.T. Female Swivel Adapter (Optional)	4	6
8	L3750	Dust Cap	4	6
9	L3775	7/16" - 20 Male O.R.B. x 1/4" N.P.T. Female x 90 Degree Swivel Street Elbow	1	1
10	LB2689	Gresen Control Valve - 2 Spool	1	-
	LB2691	Gresen Control Valve - 3 Spool	-	1
11	L3694	Valve Bracket	1	1
12	LB3701	Connector Kit #TC/GK (Gresen)	2	3
13	L397	8250 Male Tip - Hydraulic Coupler	2	3
14	L4037	11/16" I.D. x 7/8" O.D. x 1/8" Outer O-Ring	1	1
15	L4038	Threaded End Cap - Socket	1	1
16	L4039	7/8" I.D. x 1-1/8" O.D. x 1/8" Outer O-Ring	1	2
17	L4040	Back-Up Washer	2	1
18	L3689	Bleed Off Screw	1	1
19	L3662	Load Sensing Port Assembly c/w Item 18	1	1
20	L3696	Coupler Bracket (Optional)	1	1
21	-	5/16" x 2-3/4" N.C. Hex Bolt	3	3
22	-	5/16" N.C. Hex Nut	3	3
23	-	5/16" Lockwashers	3	3
24	L3716	Snap Ring (Option)	8	12
25		Shuttle Tee (Installed on L/S Line on Tractor)	1	1
26	L3609	Cap - Float Spool	1	1
27	L4051	Cap - Non-Float Spool	1	1
***	LB3733	Seal Kit - Gresen Control Valve - 2 Spool	-	-
***	LB3734	Seal Kit - Gresen Control Valve - 3 Spool	-	-



**JOYSTICK MOUNT
(WALVOIL CONTROLS)**

REF. NO.	PART NO.	DESCRIPTION	QTY. REQ'D
1	LA3804	Pedestal - Floor Mount	1
2	L3798	Fender Mount Bracket - Double Control	1
3	LA3800	Base Floor Mount	1
4	L3801	Backing Plate - Floor Mount	1
5	L3802	L.H. Clamp Plate - Floor Mount	1
6	L3803	R.H. Clamp Plate - Floor Mount	1
7	LA3772	Clamp Crank - Floor Mount	1
8	-	1/2" x 3-1/2" N.C. Hex Bolt	1
9	-	1/2" x 1-1/4" N.C. Hex Bolt	1
10	-	1/2" N.C. Hex Nut	2
11	-	1/2" N.C. Hex Nylon Locknut	1
12	-	1/2" Lockwasher	2

