

CARCO®

INSTALLATION AND PARTS MANUAL

MODEL H90VS

FOR JOHN DEERE 850J TRACTORS

NOTE: This manual covers winch installation and parts, specific to the tractor or tractors listed above. For all other common winch parts, refer to Carco Winch Parts Manual LIT2234.

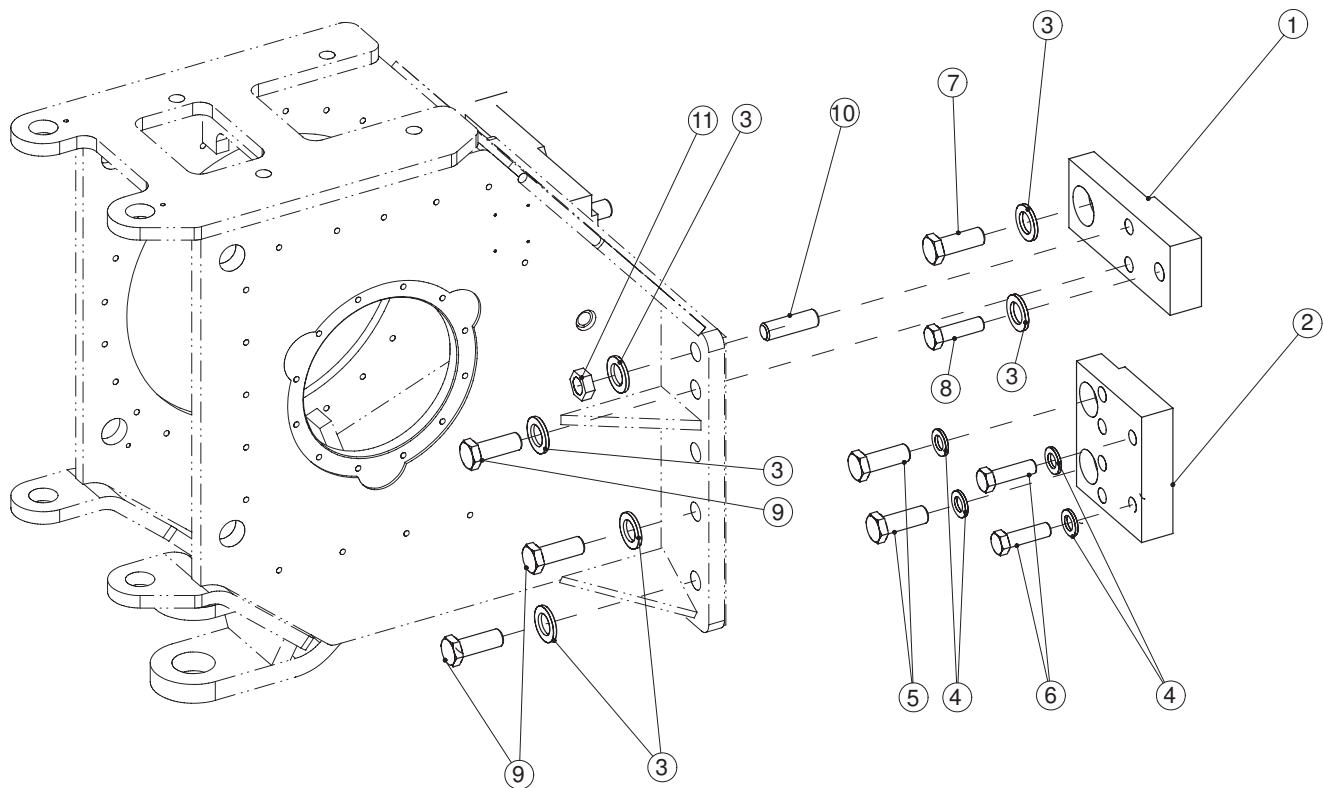
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MODEL NUMBER DESCRIPTION

H90VS	255	V	048/024	3
Basic Winch Model	Overall Gear Ratio 255:1	Motor Type V - Variable Displacement	Motor Size Cu. In. Displacement per Revolution 048 - 4.8 cu. in. (High) 024 - 2.4 cu. in. (Low)	Fairlead 3 - 3 Roller 4 - 4 Roller

**H90VS
MOUNTING GROUP
JOHN DEERE 850J**



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	104388	SPACER, UPPER	2
2	104390	SPACE, LOWER	2
3	101206	WASHER, HARD(1¼ in.)	12
4	101205	WASHER, HARD (1 in.)	8
5	103332	CAPSCREW, HEX HD (1-8 X 2½, GD8, Z)	4
6	104140	CAPSCREW, HEX HD (1-8 X 3¾, GD8, Z)	4
7	105985	CAPSCREW, HEX HD (1¼-7 X 2¼, GD8, Z)	2
8	105956	CAPSCREW, HEX HD (1¼-7 X 3¾, GD8, Z)	2
9	105986	CAPSCREW, HEX HD (1¼-7 X 4¼, GD8, Z)	6
10	33460	STUD	2
11	70176	HEX NUT (1¼-7)	2
12	102628	DRAWBAR PIN (NOT SHOWN)	1
13	70148	COTTER PIN (NOT SHOWN)	2

INSTALLATION INSTRUCTIONS



Cleanliness is of utmost importance when working on hydraulic equipment. Contamination may cause damage to close tolerances of the hydraulic components which may result in erratic operation and reduced service life.

1. Clean all paint, oil, grease, rust and dirt from the mounting surfaces of the winch spacers and tractor.
2. Attach the upper spacers, item 1, to the tractor rear face using fasteners, items 7, 8 and 3. Apply Loctite 242 or equivalent and torque the bolts to 1360 lb•ft (1850 N•m).
3. Install the studs, item 10, into the top mounting holes of the upper spacers. Apply Loctite 272 or equivalent to the threads.
4. Attach the lower spacers, item 2, to the tractor rear face using fasteners, items 5, 6 and 4. Apply Loctite 242 or equivalent and torque the bolts to 680 lb•ft (900 N•m).



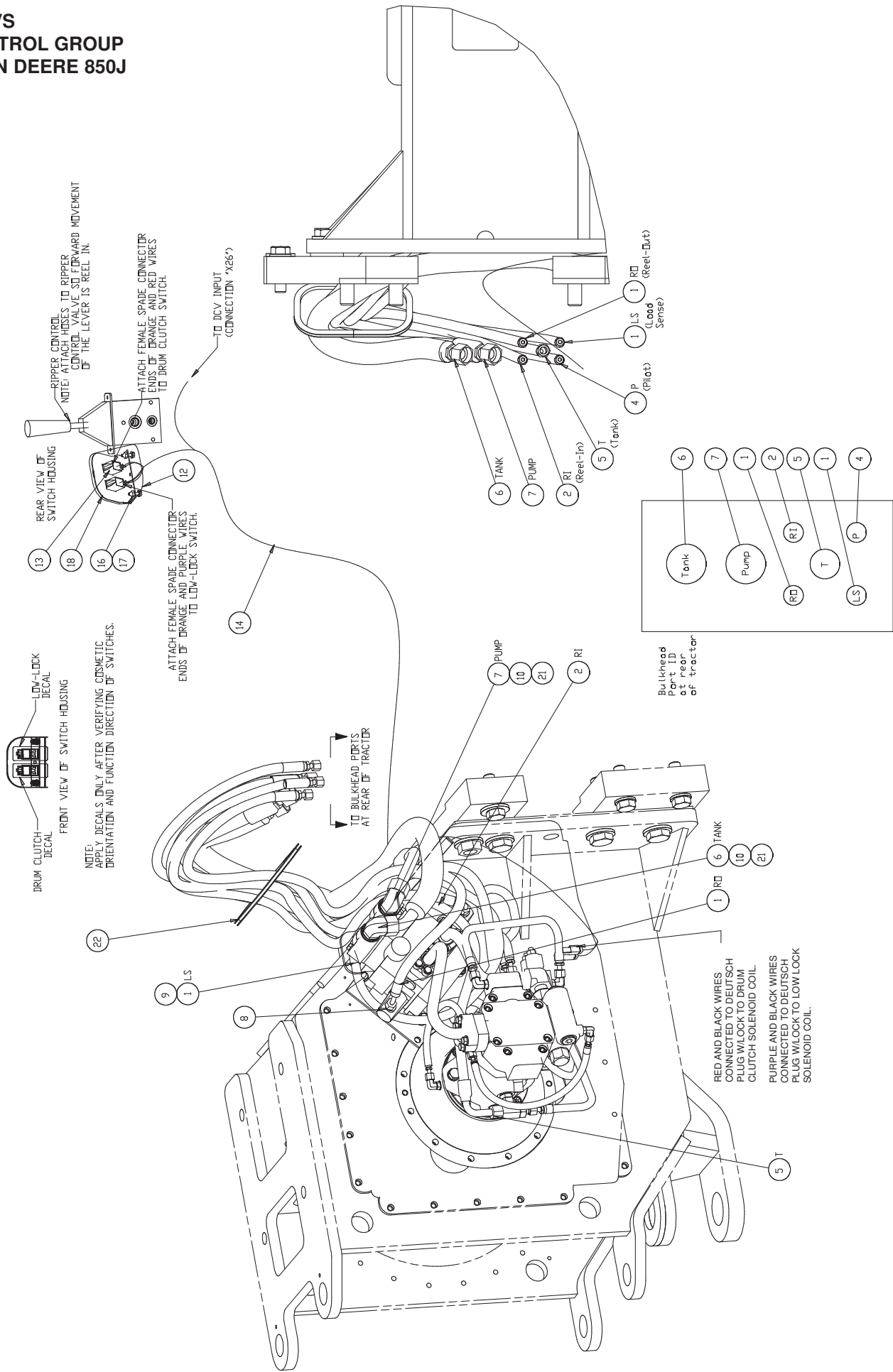
The winch weighs approximately 3,300 lbs (1,500 kg). Ensure your lifting equipment has adequate capacity and use proper lifting techniques to eliminate the possibility of damage or injury.

5. Install the winch onto the spacers. Secure the winch to the tractor using fasteners, items 3, 9 and 11. Apply Loctite 242 to the fastener threads and torque the fasteners to 1360 lb•ft (1850 N•m).
6. Check winch oil level and tractor hydraulic level, and refill as required.



Fill the winch to the proper level with the recommended oil **BEFORE** operating the winch. Component damage may occur if the winch is operated without oil.

**H90VS
CONTROL GROUP
JOHN DEERE 850J**



INSTALLATION INSTRUCTIONS



Cleanliness is of utmost importance when working on hydraulic equipment. Contamination may cause damage to close tolerances of the hydraulic components which may result in erratic operation and reduced service life.

i **NOTE:** Refer to the appropriate Deere service manual(s) for additional information on tractor hydraulic system. Tractor must be equipped or retrofitted with John Deere "Winch Plumbing Installation" AT309476 as directed in John Deere instruction manual T215517.

The following steps apply to tractors which are sold as "Winch Ready", meaning all winch control components are already in place.

1. Attach pump hoses (items 6 and 7) to the winch control valve and tractor interface. The pump pressure line (item 7) will attach to the forward-most port (lowest position) on the top of the control valve. Attach the hoses to the control valve using the split flange fittings (item 10) and elbows (item 21).
2. Attach the REEL-IN (RI) and REEL-OUT (RO) hoses (items 2 and 1) to the winch control valve and tractor interface. The RO hose will be attached to the upper pilot port of the control valve. Install the ORB-ORFS adapters (item 8) into the control valve pilot ports.
3. Attach the LOAD SENSE (LS) hose (item 1) to the winch control valve and tractor interface. Install the elbow (item 9) into the -6 ORB LS port in the control valve.
4. Attach the PILOT hose (item 4) to the "P" port on the dual solenoid valve and the tractor interface.
5. Attach the TANK hose (item 5) to the end of the tee fitting at the motor case drain port and the tractor interface.
6. Locate the switch housing (item 12) in an easily accessible location on the RH console near the winch control lever. Match drill the mounting holes for 1/4 in. bolts.
7. Install the switches (item 13) into the switch housing by pressing the switches into the opening. Label one switch as LOW LOCK and label the other as DRUM CLUTCH. Attach the switch and housing assembly to the console using fasteners (items 16 and 17).
8. Install the wiring harness (item 14). Route the harness to eliminate chafing and scuffing on sharp steel edges.

Attach the 2-pin connector (Red/Black wires) to the DRUM CLUTCH solenoid valve connector (solenoid on "B" port of dual solenoid valve).

Attach the 2-pin connector (Purple/Black wires) to the LOW LOCK solenoid valve connector (solenoid on "A" port of dual solenoid valve).

Attach the spade connectors (Orange/Purple wires) to the LOW LOCK toggle switch, and attach the spade connectors (Orange/Red wires) to the DRUM CLUTCH toggle switch.

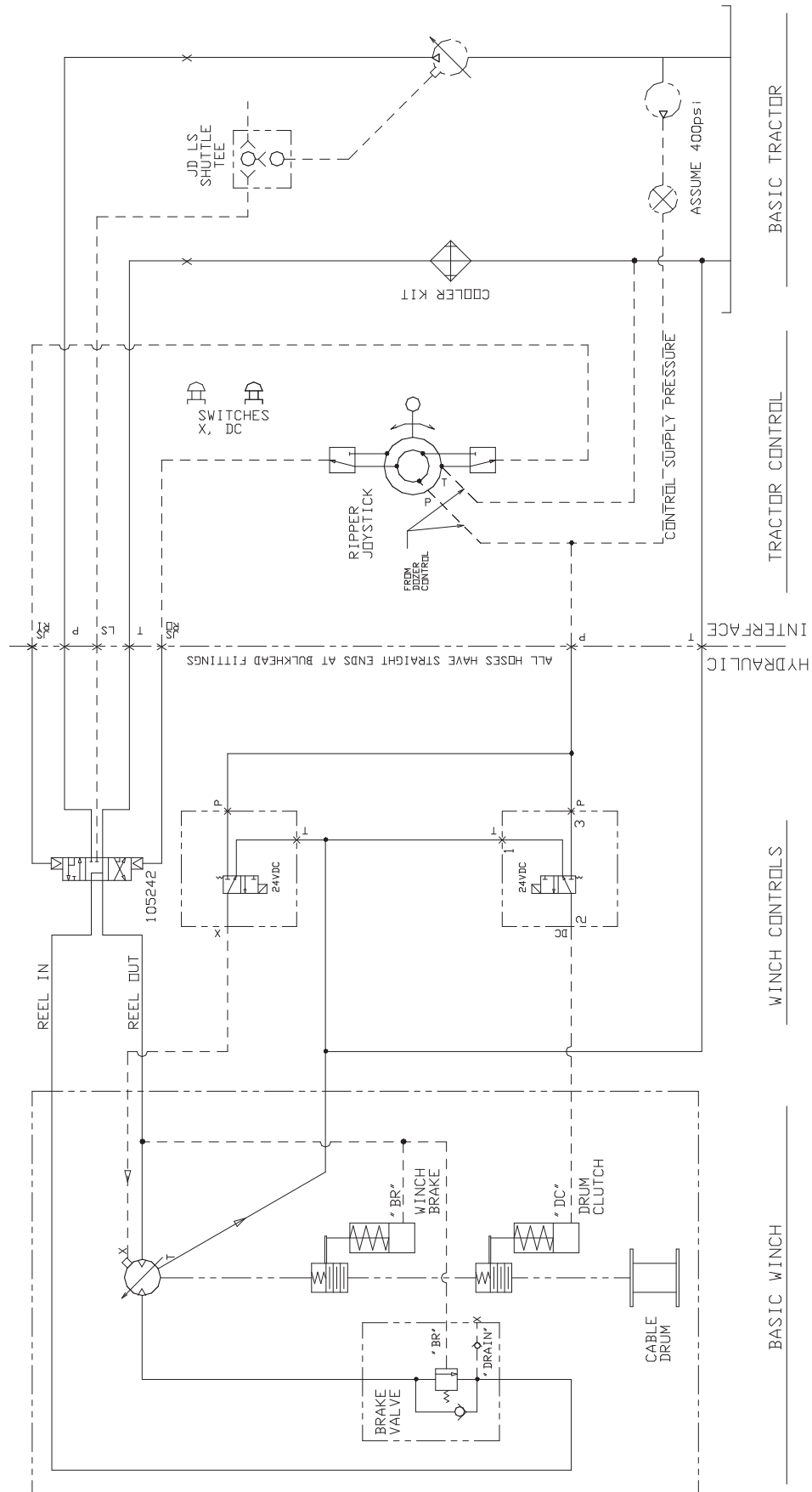
Attach the POWER leads (Orange/Black wires) to connector "X26" of the main tractor harness located below the RH console. The orange wire should be connected to power, the black to ground.

NOTE: One set of spade connectors (Orange/Blue wires) and one connector (Blue/Black wires) will remain unused.
9. Before operating the winch, purge air from the LS circuit by operating any other tractor hydraulic function (blade function, etc) to fill the LS circuit with system hydraulic fluid.
10. Confirm winch operation. Move the control lever both directions to verify lever travel versus winch drum operation, and verify proper solenoid operation of the toggle switches. Switch hoses or wires as needed for correct operation.
11. Attach the BRAKE OFF and appropriate LOW LOCK decals to the switch housing over the toggle switches. Attach the REEL-IN / REEL-OUT decal to the tractor console adjacent to the control lever.
12. Use the cable ties and straps (items 11 and 15) as needed to bundle the hoses and aid routing of the wire harness.
13. After verifying winch operation, check the tractor hydraulic fluid level, and refill as needed.

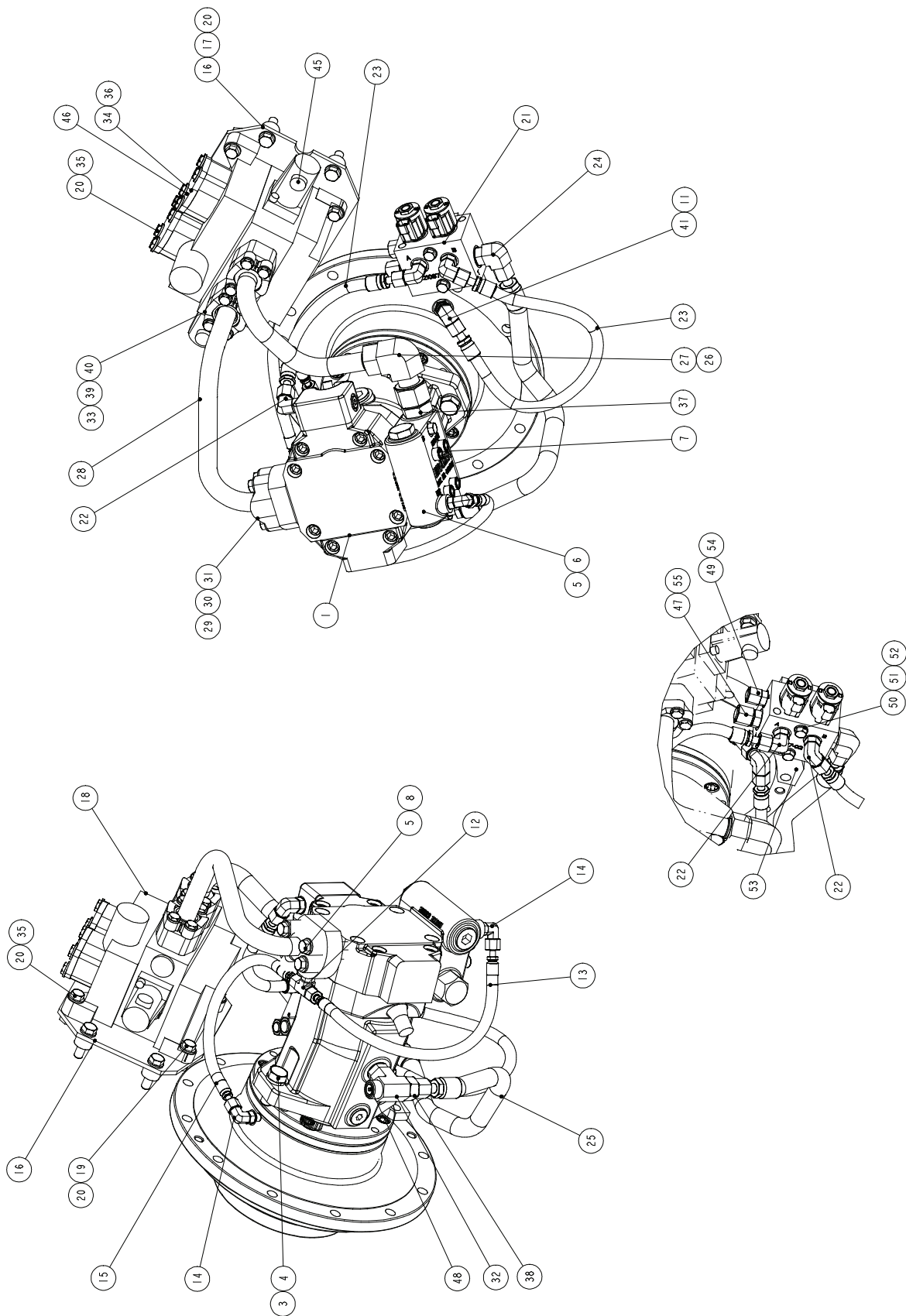
NOTE: On initial startup, winch control and operation may be slow or unstable until all air has been purged from the hydraulic control circuits. Clearing all air from the system may require several minutes of operation. In extreme conditions, it may be desirable to manually "bleed" the various hydraulic control connections.

**H90VS
CONTROL GROUP
JOHN DEERE 850J**

ITEM	PART NO.	DESCRIPTION	QTY.
1	106289	HOSE ASSEMBLY - LS and RO (93.0 in.)	2
2	106288	HOSE ASSEMBLY - RI (65.0 in.)	1
4	105948	HOSE ASSEMBLY - PILOT (86.0 in.)	1
5	106285	HOSE ASSEMBLY - TANK (96.0 in.)	1
6	106286	HOSE ASSEMBLY - TANK (62.0 in.)	1
7	106287	HOSE ASSEMBLY - PUMP (58.0 in.)	1
8	100946	ADAPTER, ORB, ORS	2
9	101286	ELBOW, 45° ORB/ORS	1
10	106175	ELBOW, 90° S.F.	2
11	103079	CABLE TIE	4
12	105957	SWITCH HOUSING	1
13	105672	SWITCH	2
14	106461	WIRING HARNESS	1
15	32489	STRAP	5
16	11767	CAPSCREW, HEX HD (5/16 - 18 X 1, GD8, Z)	2
17	100858	WASHER, HARD (5/16, Z)	2
18	105680	DECAL, CONTROL	1
21	106174	ELBOW, 90° ORB/ORFS	2
22	70198	TRIM - 24 in.	1



H90VS
HYDRAULIC MOTOR GROUP
JOHN DEERE 850J



CURRENT PRODUCTION

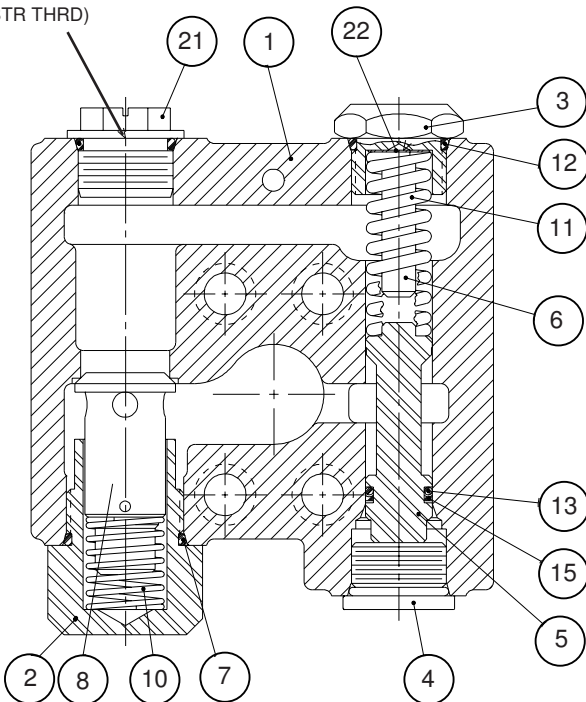
(For Units Built Prior to January 2007, See Page 11 and 12)

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	104394	HYD MOTOR (049/022)	1
2	10330	O-RING	1
3	103249	CAPSCREW	2
4	102423	LOCKWASHER	2
5	25366	O-RING	3
6	82133	BRAKE VALVE ASSY (Ref. page 10)	1
7	21134	CAPSCREW	4
8	29395	ADAPTER BLOCK	1
10	102985	GASKET	1
11	100945	ELBOW	1
12	101268	TEE	1
13	101271	HOSE ASSY	1
14	27430	ADAPTER	2
15	101919	HOSE	1
16	106391	MOUNTING PLATE ASSEMBLY	1
17	104323	CAPSCREW	4
18	105242	VALVE	1
19	21253	CAPSCREW	2
20	101432	WASHER	12
21	104372	DUAL SOLENOID VALVE	1
21a	106518	VALVE CARTRIDGE	2
21b	29821	VALVE SEAL KIT	1
21c	106378	VALVE SOLENOID COIL	2
22	40107	ELBOW	1
23	101435	HOSE ASSY	2
24	101282	ELBOW	1
25	106270	HOSE	1
26	106291	TUBE ASSY	1

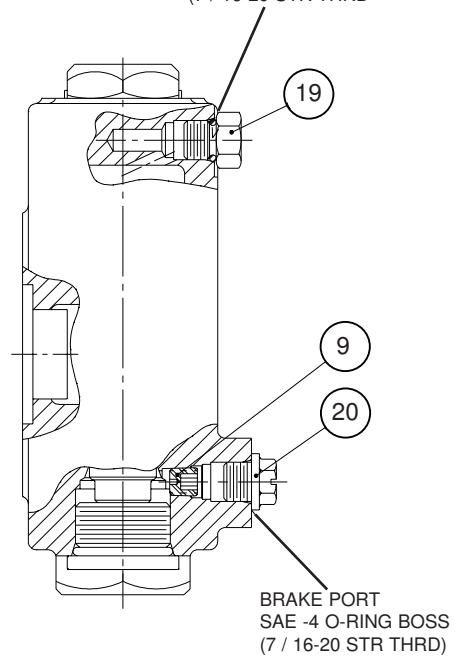
ITEM NO.	PART NO.	DESCRIPTION	QTY.
27	106308	ELBOW	1
28	105830	TUBE ASSEMBLY	1
29	100623	SPLIT FLANGE KIT	1
30	104319	CAPSCREW	4
31	101432	WASHER	12
32	106305	TEE	1
33	62702	SPLIT FLANGE KIT	2
33a	102199	O-RING	1
33b	104132	CAPSCREW	4
33c	27152	LOCKWASHER	4
35	104318	CAPSCREW	10
36	103357	O-RING	2
37	40115	ADAPTER	1
38	106545	REDUCER	1
39	104139	CAPSCREW	8
40	101440	WASHER, HARD	8
41	102194	ADAPTER	1
45	69325	PLUG	2
46	25665	PLUG	1
47	101274	CAP	1
48	105963	CAP	1
49	101581	CAP	1
50	102220	CAPSCREW	2
51	101440	WASHER, HARD	4
52	11780	NUT-HEX	2
53	106387	BRACKET	1
54	101222	ADAPTER, ORFS/ORB	1
55	101284	ADAPTER	1

**H90VS
BRAKE VALVE ASSEMBLY
JOHN DEERE 850J**

SAE -12 O-RING BOSS
(1 1/16-12 STR THRD)



SAE -4 O-RING BOSS
(7 / 16-20 STR THRD)



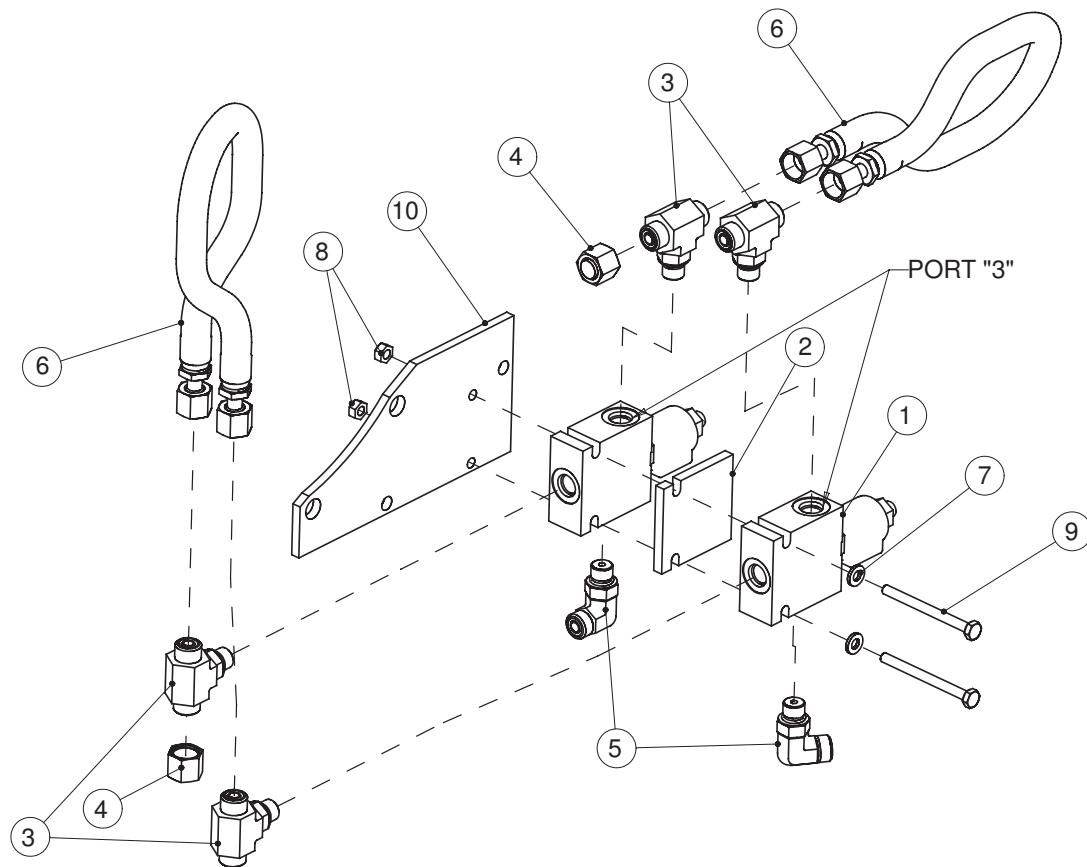
ASSEMBLY INSTRUCTIONS:

1. Tighten plug, item 19, to 25 lb•ft (34 N•m) torque.
2. Tighten plugs, items 2, 3 & 4 to 40 lb•ft (54 N•m) torque.

ITEM NO.	PART NO.	DESCRIPTION	QTY.
--	82133	BRAKE VALVE ASSEMBLY	1
1	NSS	BRAKE VALVE HOUSING	1
2	24424	VALVE SPRING RETAINER	1
3	104733	SPRING RETAINER	1
4	22450	PLUG	1
5	NSS	MAIN SPOOL	1
6	NSS	SPOOL STOP	1
7	24186	O-RING	1
8	24423	CHECK VALVE POPPET / RELIEF VALVE 6000 PSI (41,400 kPa)	1
9	24200	PILOT ORIFICE	1
10	24190	CHECK POPPET SPRING	1
11	104732	SPOOL SPRING	1
12	23601	O-RING	2
13	24193	O-RING	1
15	24195	BACK-UP RING	1
19	25663	PLUG	1
20	25403	SHIPPING PLUG	1
21	75288	SHIPPING PLUG	1
22	25661	SHIM, VALVE SPRING	AR

NSS - NOT SERVICED SEPARATELY
AR - AS REQUIRED

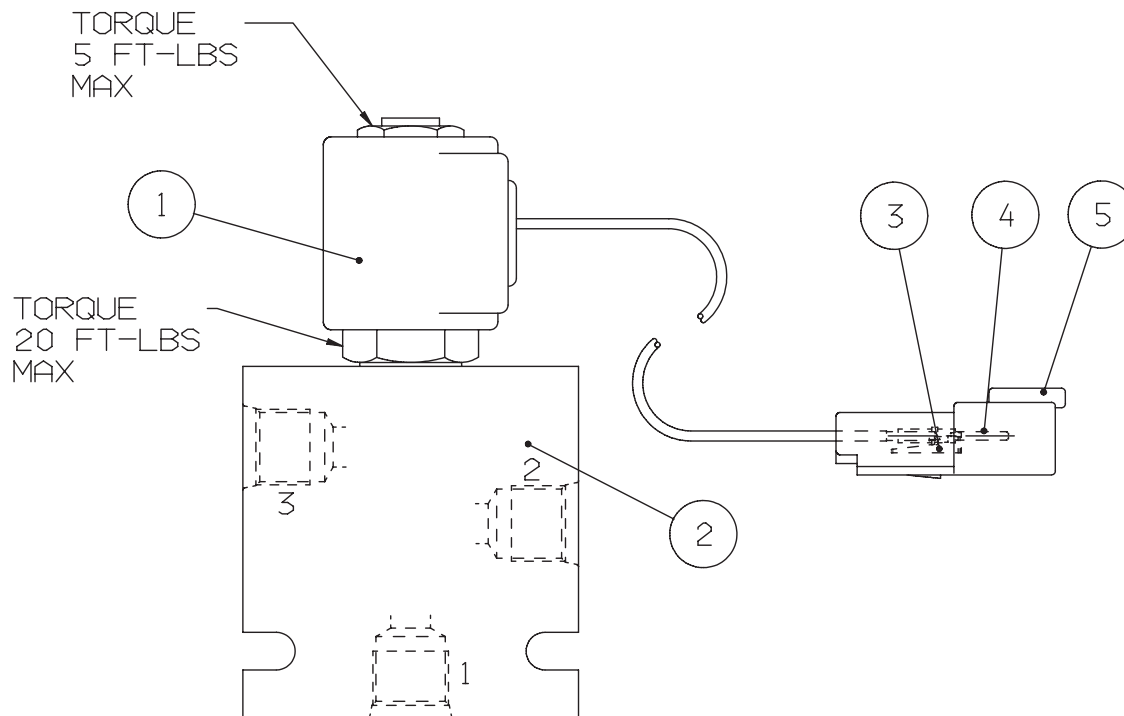
EARLY PRODUCTION
(Before January 2007)



ITEM NO.	PART NO.	DESCRIPTION	QTY.
--	83373	SOLENOID VALVE ASSEMBLY	1
1	83299	CARTRIDGE & VALVE ASSEMBLY (Refer to Page 12)	2
2	105738	SPACER PLATE	1
3	101283	TEE	4
4	101581	CAP	2
5	40107	ELBOW, 90° ORB/ORS	2
6	101435	HOSE ASSEMBLY (16.0 in.)	2
7	100857	WASHER, HARD (1/4, Z)	2
8	105012	HEX NUT (1/4-20, GD8, Z)	2
9	27997	CAPSCREW, HEX HD (1/4-20 X 3, GD8, Z)	2
10	105931	BRACKET	1

**H90VS
CARTRIDGE AND VALVE ASSEMBLY
JOHN DEERE 850J**

**EARLY PRODUCTION
(Before January 2007)**



ITEM NO.	PART NO.	DESCRIPTION	QTY.
--	83299	CARTRIDGE & VALVE ASSEMBLY	2
1	29820	CARTRIDGE, SOLENOID (24 VDC)	1
1A	29821	SEAL KIT	1
1B	29822	COIL (24 VDC)	1
2	100793	VALVE HOUSING	1
3	100210	WEDGE, CONNECTOR	1
4	100209	CONTACT PIN	2
5	100208	RECEPTACLE	1