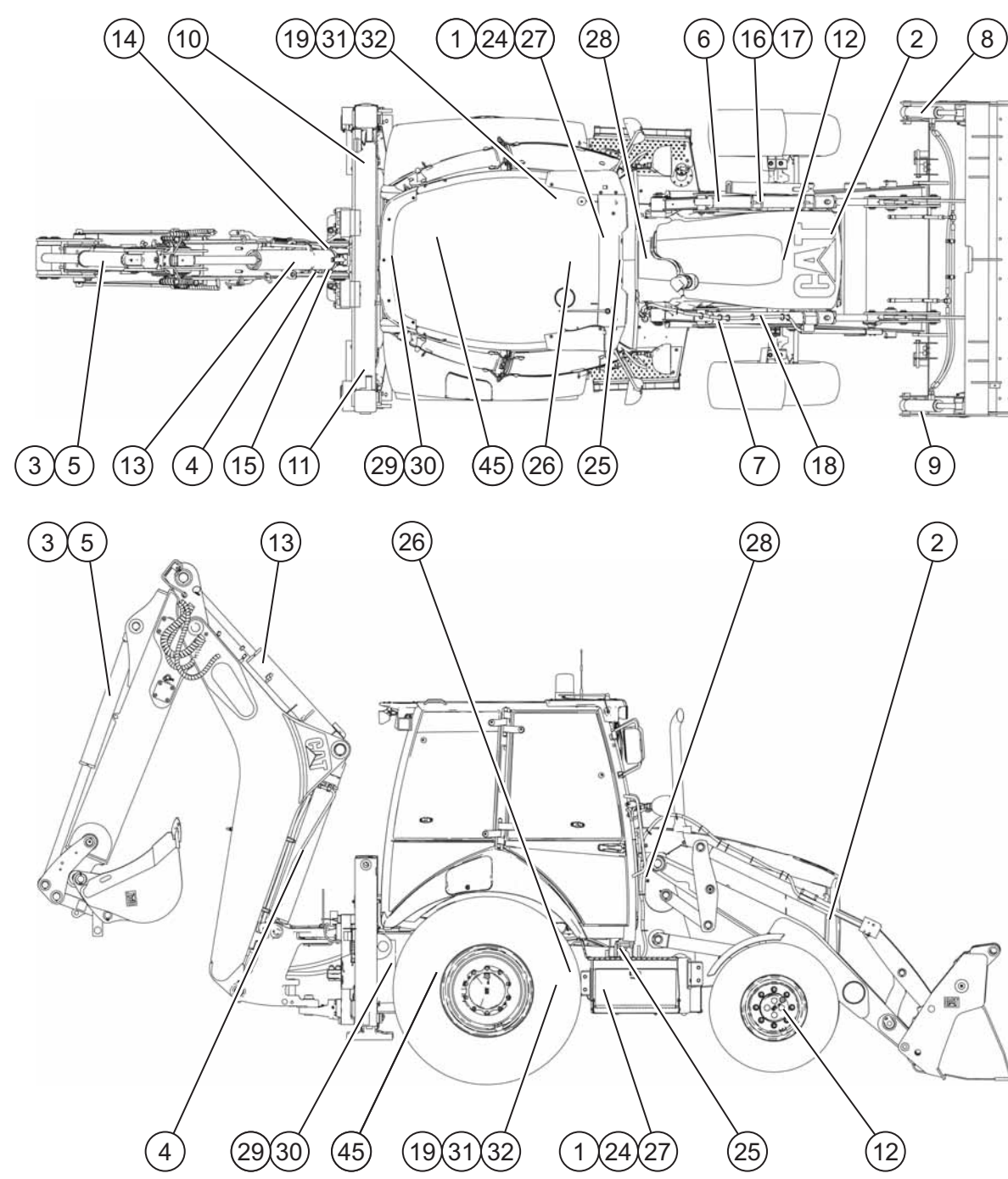
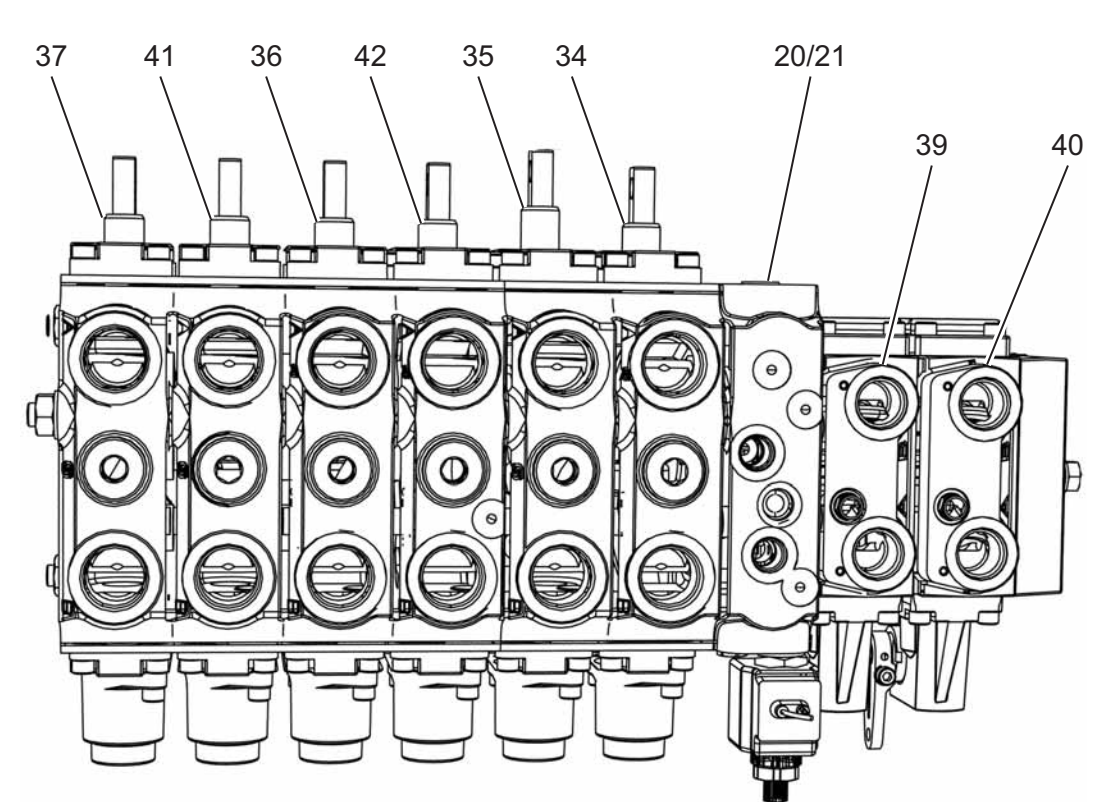
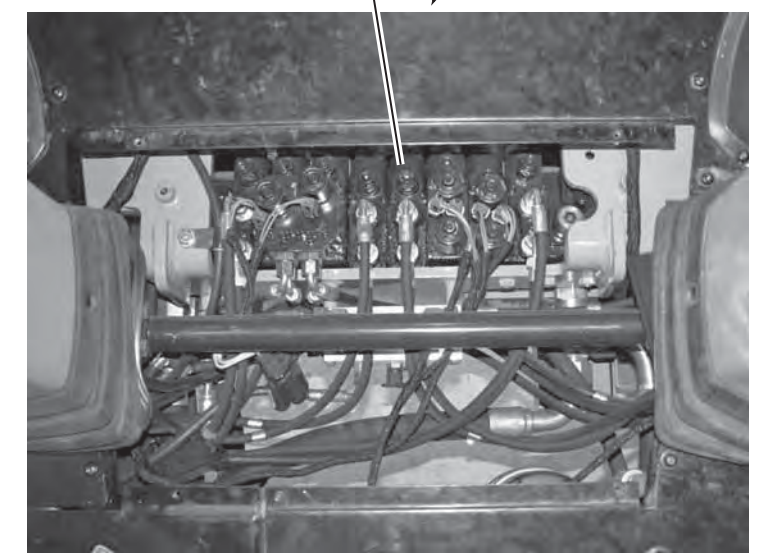
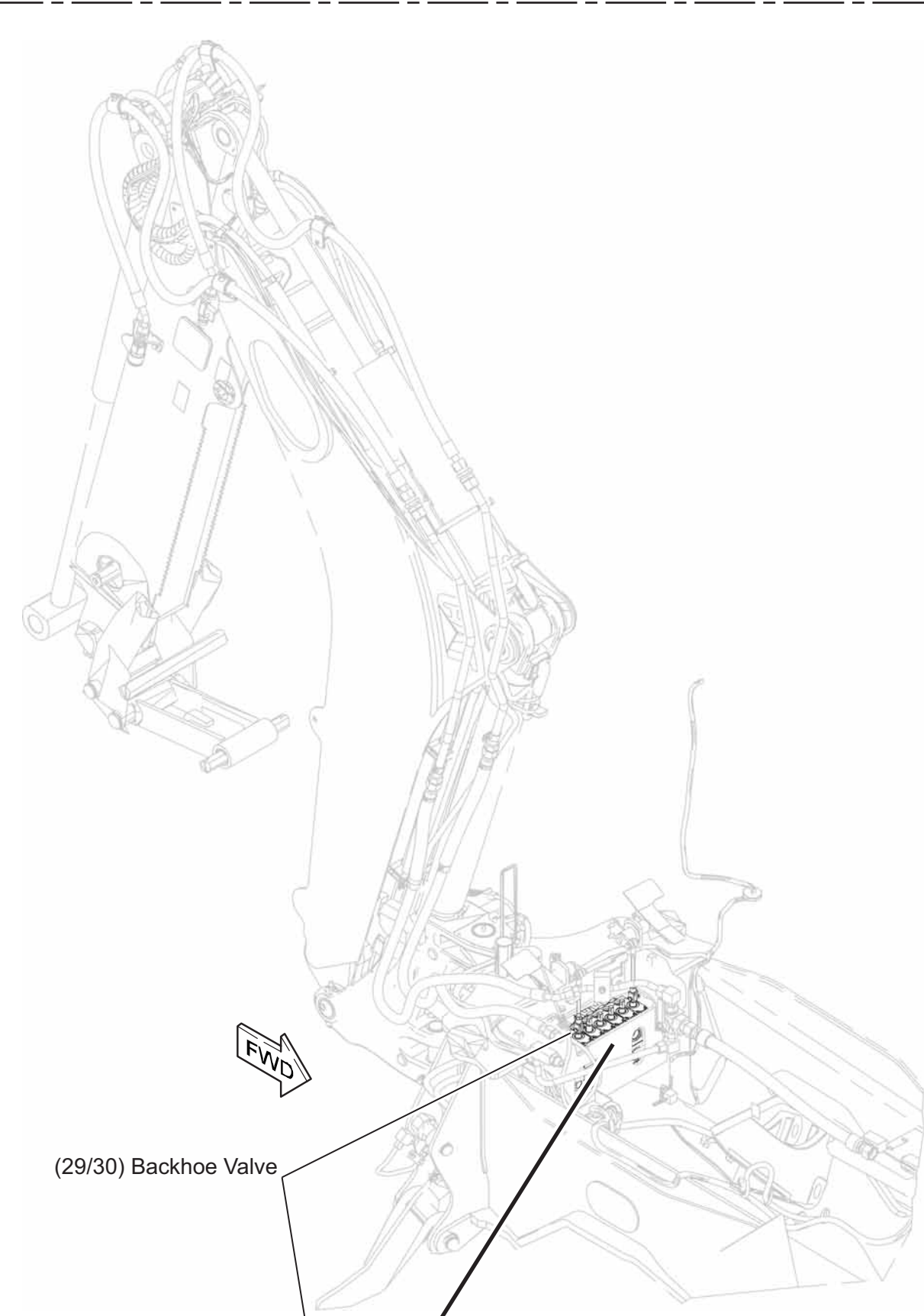


Component Locations			
Machine Location	Schematic Location	Description	Part Number
1	C-7	ACCUMULATOR GP - RIDE CONTROL	416E 422E 428E 162-3980
2	B-1	COOLER - TRANSMISSION HYDRAULIC OIL	214-2252
3	F-2	CYLINDER GP - BACKHOE BUCKET	210-7086
4	F-3	CYLINDER GP - BACKHOE BUCKET (WITH SENSOR)	210-7088
5	F-1	CYLINDER GP - ROOM	210-7074
6	C-7	CYLINDER GP - EXTENDABLE STICK (WITH SENSOR)	210-7097
7	B-7	CYLINDER GP - LIFT (RH)	228-3668 215-7291 N/A
8	A-7	CYLINDER GP - MULTIPURPOSE BUCKET (LH)	185-1839
9	A-7	CYLINDER GP - MULTIPURPOSE BUCKET (RH)	185-1839
10	F-4	CYLINDER GP - STABILIZER (LH)	262-7049 173-4565
11	F-6	CYLINDER GP - STABILIZER (RH)	262-7050 173-4565
12	A-3	CYLINDER GP - STEERING	210-7078 210-7080
13	F-2	CYLINDER GP - STICK (WITH SENSOR)	210-7077
14	F-3	CYLINDER GP - SWING (LH)	278-1971
15	F-3	CYLINDER GP - SWING (RH)	278-1971 278-1973
16	B-7	CYLINDER GP - TILT (LH)	296-3550 N/A
17	B-7	CYLINDER GP - TILT (RH)	N/A 192-3884
18	B-7	CYLINDER GP - TILT (RH)	N/A 192-3884
19	B-1	FILTER GP - OIL	210-6243
20	D-5	MANIFOLD GP - CONTROL (BACKHOE)	259-6742 N/A
21	D-7	MANIFOLD GP - CONTROL (BACKHOE)	N/A 259-6744
22	C-5	MANIFOLD GP - CONTROL (LOADER)	259-6745 N/A
23	C-5	MANIFOLD GP - CONTROL (LOADER)	N/A 259-6742
24	C-6	MANIFOLD GP - RIDE CONTROL	243-8780
25	B-4	PUMP GP - METERING	247-7988
26	B-2	PUMP GP - PISTON (IMPLEMENT AND STEERING)	296-5714
27	C-7	SWITCH AS - PRESSURE (RIDE CONTROL)	304-9599
28	A-3	TANK GP - HYDRAULIC	248-8777
29	E-1 thru E-5	VALVE GP - BANK (BACKHOE) (B BANK)	248-0483 N/A
		VALVE GP - BANK (BACKHOE) (T BANK)	248-0484 N/A
		VALVE GP - BANK (BACKHOE) (S BANK)	248-0485 N/A
		VALVE GP - BANK (BACKHOE) (B BANK)	N/A 248-0486
30	E-1 thru E-5	VALVE GP - BANK (BACKHOE) (T BANK)	N/A 248-0487
		VALVE GP - BANK (BACKHOE) (S BANK)	N/A 248-0488
31	A-5 thru C-5	VALVE GP - BANK (LOADER) (2 BANK)	248-0481 N/A
		VALVE GP - BANK (LOADER) (3 BANK)	248-0482 N/A
		VALVE GP - BANK (LOADER) (1 BANK)	N/A 247-9555
32	A-5 thru C-5	VALVE GP - BANK (LOADER) (3 BANK)	N/A 247-9556
		VALVE GP - BANK (LOADER) (1 BANK)	N/A 247-9558
33	A-5	VALVE GP - CONTROL (AUXILIARY) (LOADER)	259-6729
34	E-4	VALVE GP - CONTROL (AUXILIARY) (BACKHOE)	259-6733
35	C-3	VALVE GP - CONTROL (ROOM)	259-6739
36	D-2	VALVE GP - CONTROL (BUCKET)	259-6737
37	D-1	VALVE GP - CONTROL (EXTENDABLE STICK)	259-6734
38	C-5	VALVE GP - CONTROL (LIFT)	259-6732
39	D-4	VALVE GP - CONTROL (STABILIZER) (LH)	259-6746
40	D-6	VALVE GP - CONTROL (STABILIZER) (RH)	259-6746
41	D-2	VALVE GP - CONTROL (STICK) (B BANK)	259-6736
		VALVE GP - CONTROL (STICK) (T BANK)	259-6738
42	D-3	VALVE GP - CONTROL (SWING)	259-6738
43	B-5	VALVE GP - CONTROL (TILT) (2 BANK)	259-6731 N/A
		VALVE GP - CONTROL (TILT) (3 BANK)	259-6730 N/A
44	B-5	VALVE GP - CONTROL (TILT) (3 BANK)	N/A 259-6740
		VALVE GP - CONTROL (TILT) (1 BANK)	N/A 259-6741
45	D-6	VALVE GP - SHUTTLE	84-6875

Tap Locations Pressure, Sampling, and Sensor		
Tap Number	Schematic Location	Description
T1	C-3	STEERING AND IMPLEMENT PUMP DISCHARGE
T2	C-2	LOAD SENSING
SOS	B-1	OIL SAMPLING



COMPONENT LOCATIONS



- (37) Extendable Stick Control Valve
- (41) Stick Control Valve
- (36) Bucket Control Valve
- (42) Swing Control Valve
- (35) Boom Control Valve
- (34) Auxiliary Control Valve
- (20/21) Control Manifold
- (39) Left Stabilizer Control Valve
- (40) Right Stabilizer Control Valve

BACKHOE VALVE

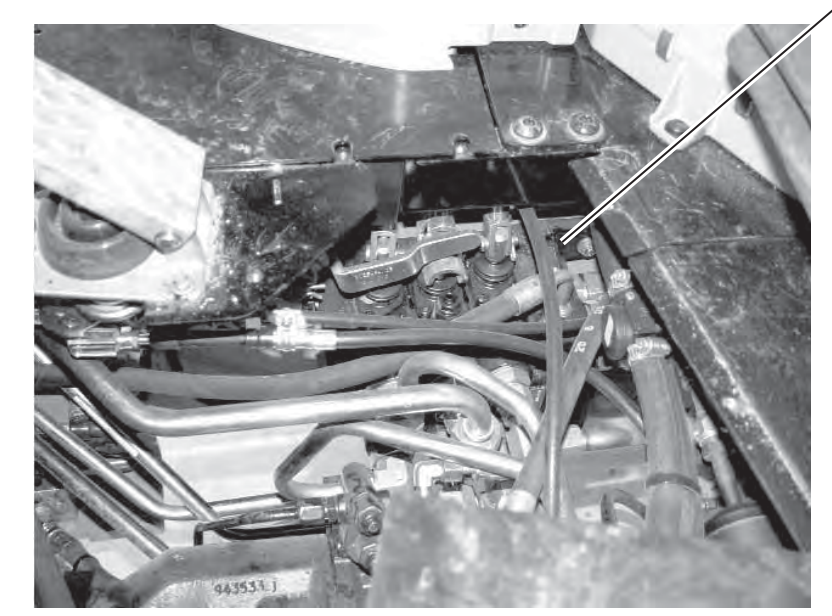
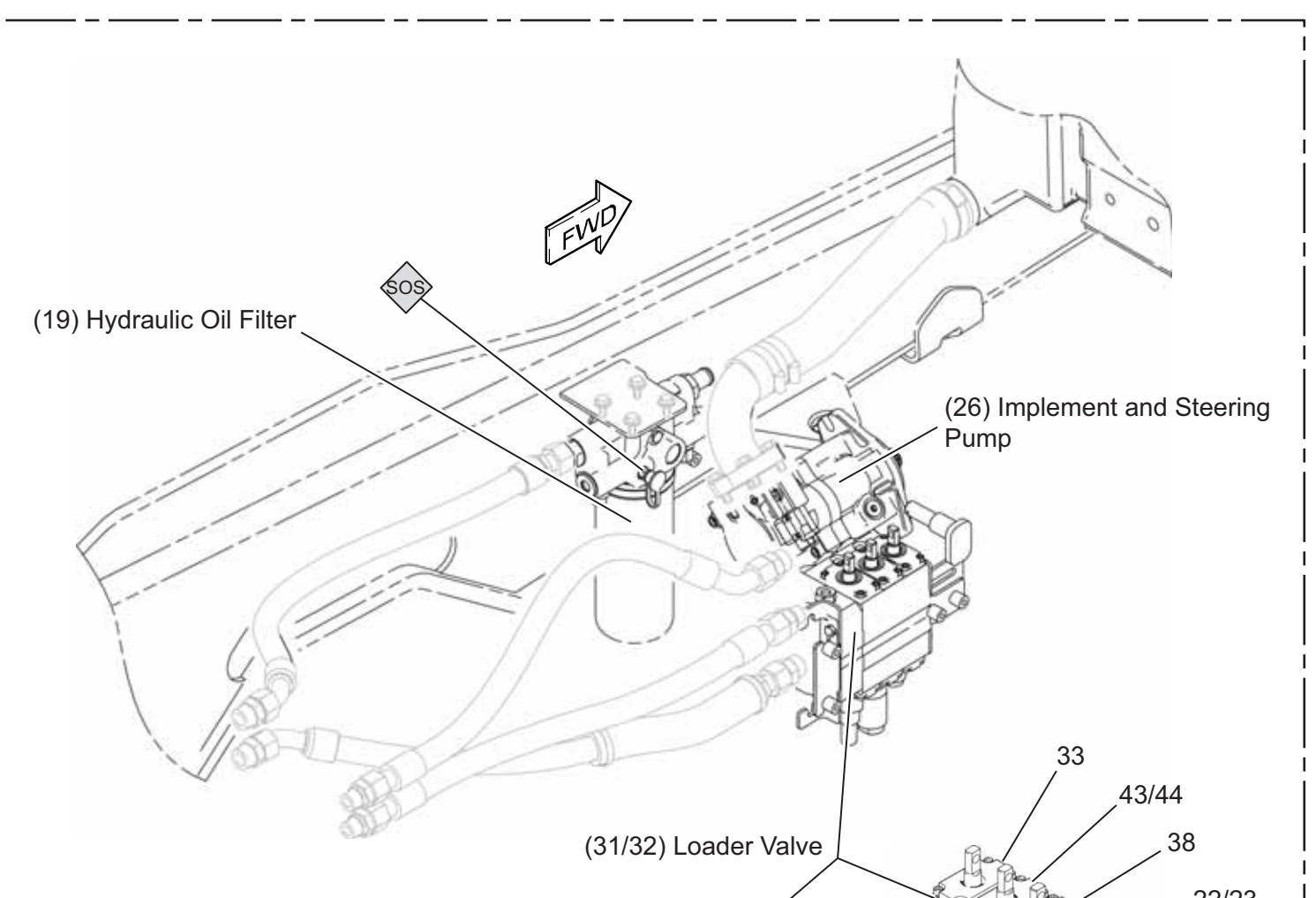
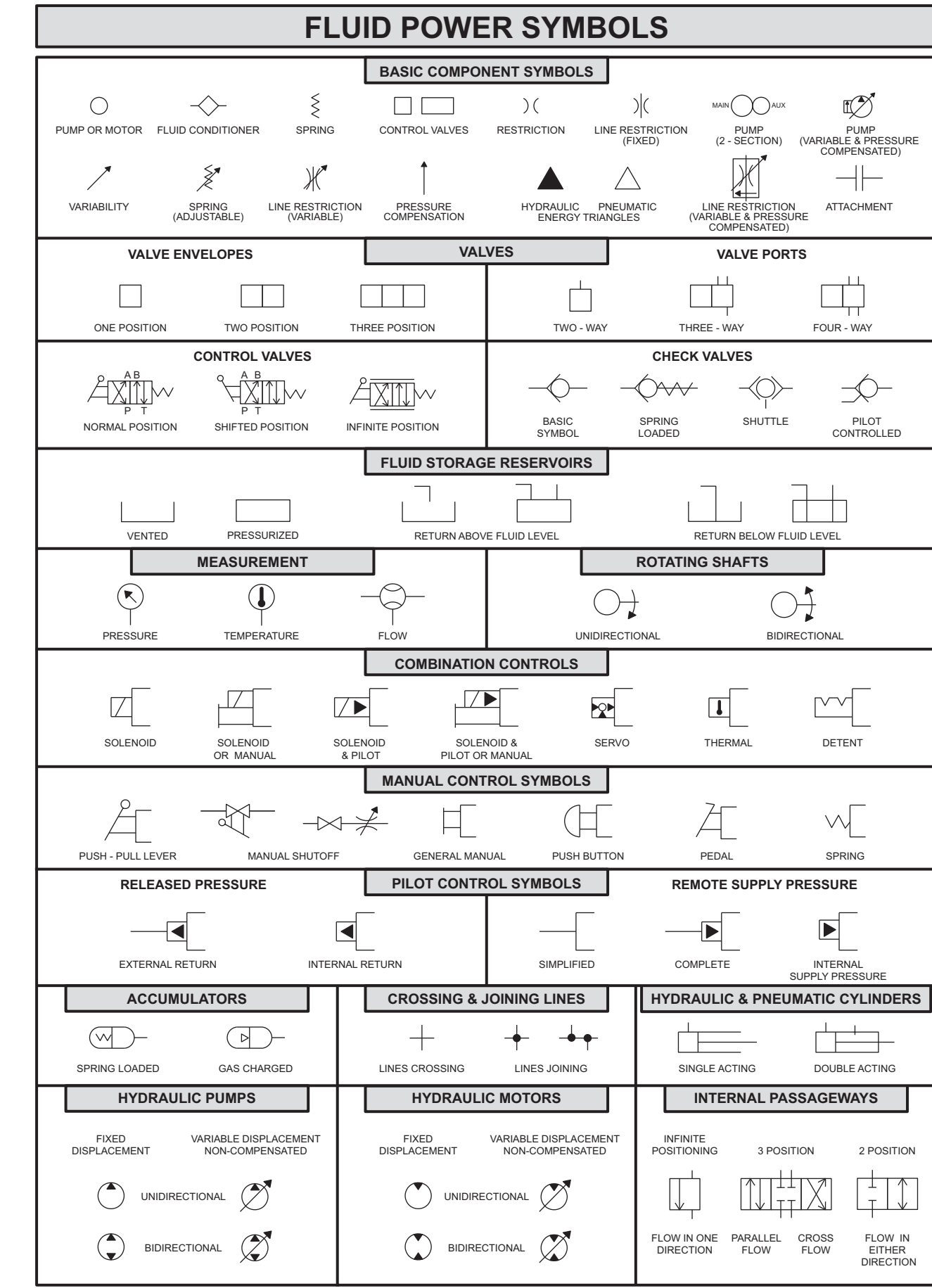
The 416E, 422E, and 428E machines are equipped with a mechanically controlled backhoe valve that is visible with the floor plate at the rear of the cab removed.

# Schematic

## 416E, 422E, and 428E Backhoe Loader Hydraulic System

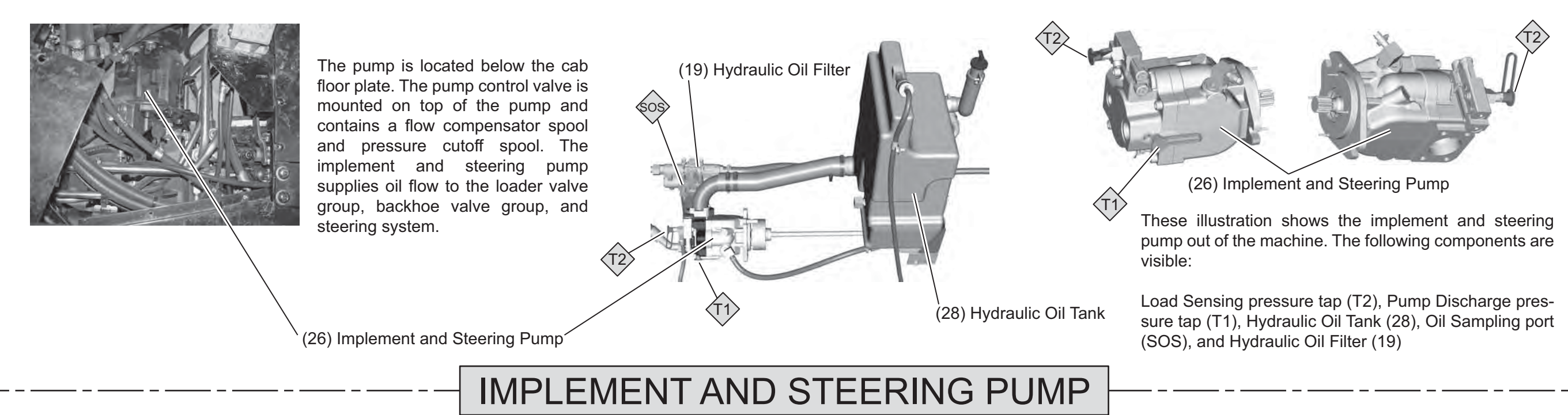
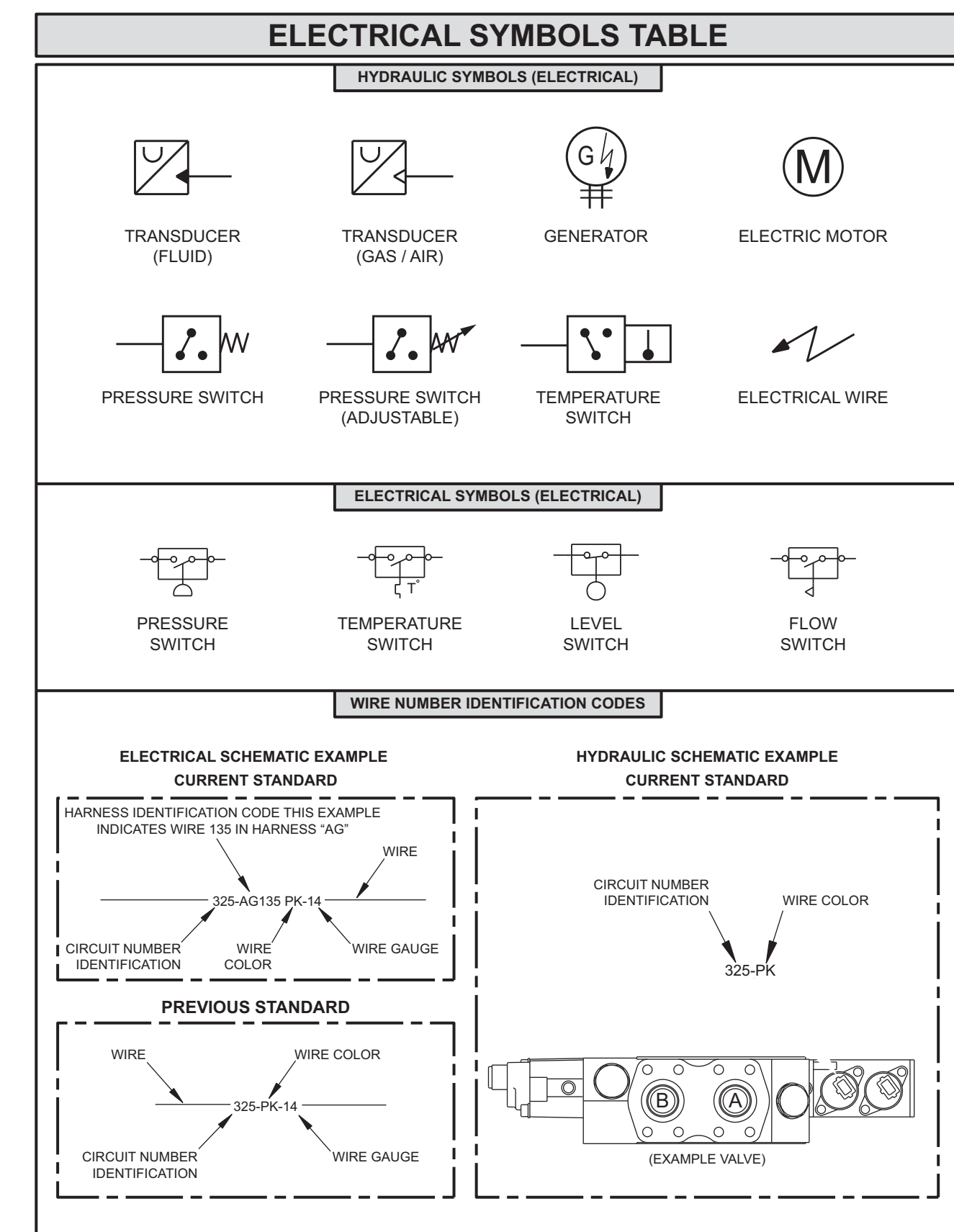
- 416E: SHA1-UP, CBD1-UP
- 422E: HBE1-UP
- 428E: SNL1-UP

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- (33) Auxiliary Loader Control Valve (43/44) Tilt Control Valve
- (38) Lift Control Valve
- (22/23) Control Manifold

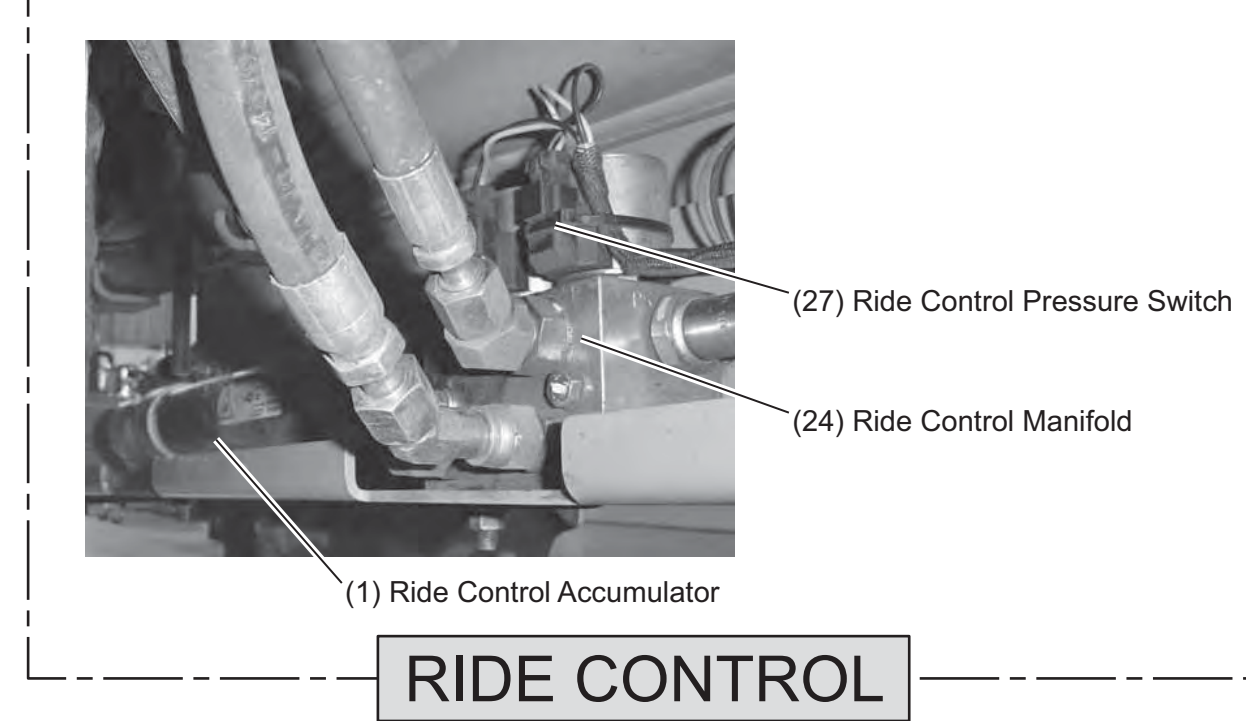
LOADER VALVE



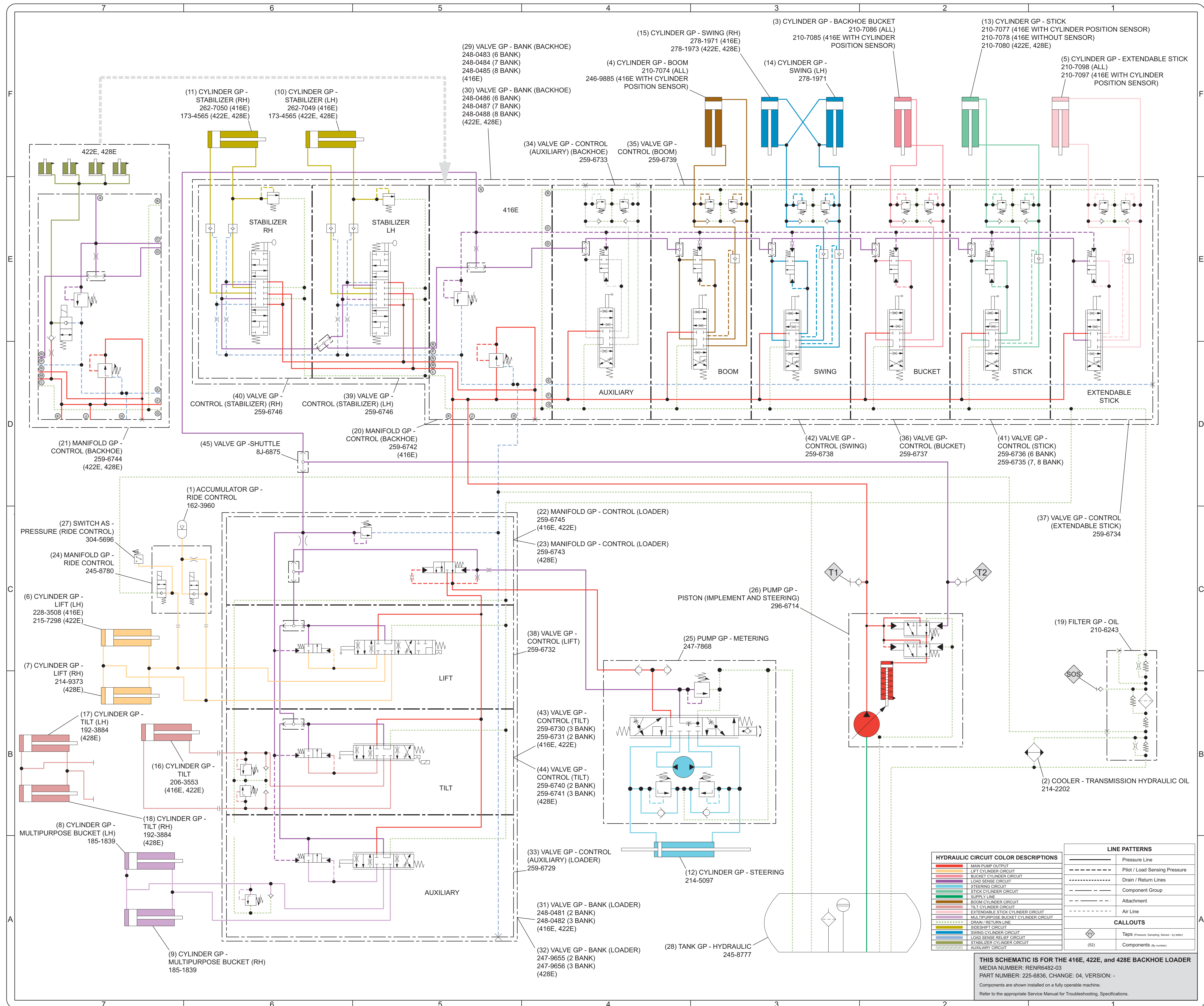
The pump is located below the cab floor plate. The pump control valve is mounted on top of the pump and contains a flow compensator spool and pressure cutoff spool. The implement and steering pump supplies oil flow to the loader valve group, backhoe valve group, and steering system.

This illustration shows the implement and steering pump out of the machine. The following components are visible:  
Load Sensing pressure tap (T2), Pump Discharge pressure tap (T1), Hydraulic Oil Tank (28), Oil Sampling port (SOS), and Hydraulic Oil Filter (19)

IMPLEMENT AND STEERING PUMP



RIDE CONTROL



HYDRAULIC CIRCUIT COLOR DESCRIPTIONS	
Red	MAIN PUMP OUTPUT
Blue	LIFT CYLINDER CIRCUIT
Green	BUCKET CYLINDER CIRCUIT
Orange	LOAD SENSE CIRCUIT
Purple	STEERING CIRCUIT
Light Blue	STICK CYLINDER CIRCUIT
Light Green	SUPPLY LINE
Light Purple	BOOM CYLINDER CIRCUIT
Light Orange	TILT CYLINDER CIRCUIT
Light Yellow	EXTENDABLE STICK CYLINDER CIRCUIT
Light Cyan	MULTIPURPOSE BUCKET CYLINDER CIRCUIT
Light Magenta	DRAIN/RETURN LINE
Light Blue-Gray	SWING CYLINDER CIRCUIT
Light Green-Gray	NO-SHIFT CIRCUIT
Light Yellow-Gray	LOAD SENSE RELIEF CIRCUIT
Light Cyan-Gray	STABILIZER CYLINDER CIRCUIT
Light Magenta-Gray	AUXILIARY CIRCUIT

LINE PATTERNS	
—	Pressure Line
- - - -	Pilot / Load Sensing Pressure
· · · · ·	Drain / Return Lines
— · — · —	Component Group
- · - · -	Attachment
- · - · - ·	Air Line

CALLOUTS	
⊕	Taps (Pressure, Suction, Sensor, to Return)
(S2)	Components (by number)

**THIS SCHEMATIC IS FOR THE 416E, 422E, and 428E BACKHOE LOADER**  
 MEDIA NUMBER: REN6482-03  
 PART NUMBER: 225-6836, CHANGE: 04, VERSION: -  
 Components are shown installed on a fully operable machine.  
 Refer to the appropriate Service Manual for Troubleshooting, Specifications.