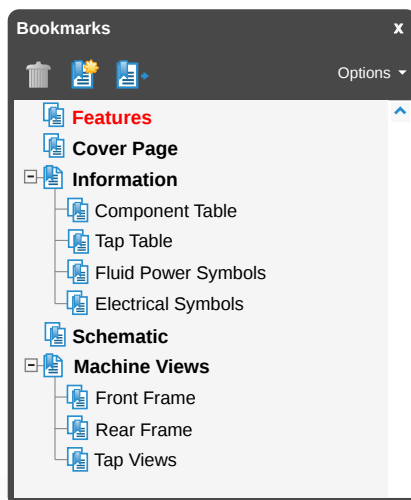


INTERACTIVE SCHEMATIC



This document is best viewed at a screen resolution of 1024 X 768.

To set your screen resolution do the following:

RIGHT CLICK on the **DESKTOP**.

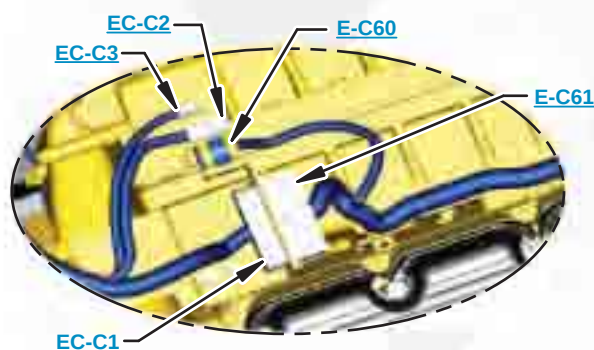
Select **PROPERTIES**.

CLICK the **SETTINGS** TAB.

MOVE THE SLIDER under **SCREEN RESOLUTION** until it shows **1024 X 768**.

CLICK OK to apply the resolution.

The Bookmarks panel will allow you to quickly navigate to points of interest.



Click on any text that is BLUE and underlined. These are hyperlinks that can be used to navigate the schematic and machine views.

VIEW ALL CALLOUTS

When only one callout is showing on a machine view this button will make all of the callouts visible. This button is located in the top right corner of every machine view page.

HOTKEYS (Keyboard Shortcuts)

	FUNCTION	KEYS
	Zoom In	"CTRL" / "+"
	Zoom Out	"CTRL" / "-"
	Fit to Page	"CTRL" / "0" (zero)
	Hand Tool	"SPACEBAR" (hold down)
	Find	"CTRL" / "F"



Schematic

980H Wheel Loader Hydraulic System

MHG1-UP
A8J1-UP
KZL1-UP
JMS1-UP

COMPONENT LOCATION

Page 1 of 2



Description	Part Number	Machine Location	Schematic Location
Accumulator GP - Brake	111-9040	1	I-7
Accumulator GP - Ride Control	325-7154	2	G-1
Actuator AS - Brake	135-5148	3	I-6
Connector	8C-0564	4	D-4
Connector - Orifice 1	128-7063	5	D-4
Connector - Orifice 2	128-7063	6	D-4
Control GP - Foot Brake	193-1448	7	I-8
Cooler AS - Axle Oil	200-4169	8	F-12
Core AS - Hydraulic Oil Cooler	240-7313	9	D-14
Cylinder GP - Lift	111-8181	10	F-3
Cylinder GP - Steering	261-4949	11	D-8
Cylinder GP - Tilt (High-Lift) (Left)	124-6227	12	G-4
Cylinder GP - Tilt (High-Lift) (Right)	124-6228	13	G-3
Cylinder GP - Tilt (Logger) (Left)	125-0617	14	G-4
Cylinder GP - Tilt (Logger) (Right)	124-0616	15	G-3
Cylinder GP - Tilt (Standard) (Left)	112-5004	16	G-4
Cylinder GP - Tilt (Standard) (Right)	112-5003	17	G-3
Filter - Magnetic (Axle Oil Cooler) (Front Axle)	251-6351	18	F-6
Filter - Magnetic (Axle Oil Cooler) (Rear Axle)	251-6351	19	F-12
Filter GP - Oil (Hydraulic)	330-6570	20	C-14
Motor GP - Auto-Reversing Fan	240-7732	21	D-13
Motor GP - Reversing Fan	255-6805	22	D-13
Pump GP - Axle Oil Cooler	215-3013	23	F-13
Pump GP - Hydraulic Fan	235-2716	24	B-13
Pump GP - Implement	292-9964	25	C-12
Pump GP - Pilot (Brake)	235-6501	26	C-11
Pump GP - Secondary Steering	150-7585	27	B-11
Pump GP - Steering	105-3635	28	C-12
Screen AS - Hydraulic Tank 1	9T-9227	29	A-12
Screen AS - Hydraulic Tank 2	9T-9227	30	A-12
Screen GP - Steering Pilot	154-2883	31	D-9
Sensor GP - Position	214-4863	32	I-8
Strainer 1	200-5978	33	D-5
Strainer 2	200-5978	34	D-5
Switch AS - Limit (Stop Light)	3E-5520	35	I-8
Switch AS - Pressure (Brake)	3E-7693	36	H-8
Switch AS - Pressure (Parking Brake Oil)	3E-6452	37	H-6

COMPONENT LOCATION

Page 2 of 2



Description	Part Number	Machine Location	Schematic Location
Tank GP - Hydraulic	234-8928	38	A-12
Valve AS - Fluid Sampling	164-5590	39	B-13
Valve GP - Accumulator Charging (Brake)	172-6144	40	H-8
Valve GP - Auto-Reversing Fan	213-1040	41	D-11
Valve GP - Brake Control (Service)	201-3200	42	I-8
Valve GP - Breaker Relief (Hydraulic Tank)	220-0814	43	B-12
Valve GP - Check	9T-3096	44	F-2
Valve GP - Check (Axle Oil Cooler Bypass) 1	130-5202	45	F-12
Valve GP - Check (Axle Oil Cooler Bypass) 2	130-5202	46	F-12
Valve GP - Check (Dead Engine, Lift Arm Lower)	164-7474	47	F-3
Valve GP - Check (Hydraulic Oil Cooler Bypass)	240-0355	48	D-14
Valve GP - Check (Ride Control)	207-1810	49	F-2
Valve GP - Check (Steering Quad)	111-7775	50	D-9
Valve GP - Control (Parking Brake)	106-1774	51	H-7
Valve GP - Demand Fan	191-8735	52	C-13
Valve GP - Diverter (Ride Control)	115-9328	53	F-1
Valve GP - Diverter (Secondary Steering)	144-5330	54	B-11
Valve GP - Lowering Control	112-1817	55	D-6
Valve GP - Main Control (2-Function)	290-6005	56	E-5
Valve GP - Main Control (3-Function)	290-6007	57	E-5
Valve GP - Pilot (2-Function)	290-8980	58	D-3
Valve GP - Pilot (3-Function)	290-8981	59	D-3
Valve GP - Pilot (Steering)	173-0439	60	C-10
Valve GP - Relief (High-Lift Tilt Cylinder) (Head)	4T-4934	61	E-5
Valve GP - Relief (High-Lift Tilt Cylinder) (Rod)	4T-4162	62	F-4
Valve GP - Relief (Logger Tilt Cylinder) (Head)	4T-4935	63	F-4
Valve GP - Relief (Logger Tilt Cylinder) (Rod)	4T-6103	64	F-4
Valve GP - Relief (Main)	114-2789	65	E-5
Valve GP - Relief (Standard Tilt Cylinder) (Head)	4T-4932	66	F-4
Valve GP - Relief (Standard Tilt Cylinder) (Rod)	4T-4933	67	F-4
Valve GP - Relief (Steering Cylinder Crossover)	9T-7419	68	C-8
Valve GP - Relief (Steering Pump Backup)	9T-7418	69	C-7
Valve GP - Reversing Fan	191-8735	70	E-13
Valve GP - Shuttle 1	8J-6875	71	C-10
Valve GP - Shuttle 2	141-1481	72	F-2
Valve GP - Solenoid (Ride Control)	152-8340	73	F-2
Valve GP - Steering	166-8495	74	D-7
Valve GP - Steering Neutralizer 1	321-5283	75	D-9
Valve GP - Steering Neutralizer 2	321-5283	76	C-9

TAP LOCATION



Tap Number	Description	Schematic Location
<u>A</u>	Brake Accumulator Pressure	<u>H-8</u>
<u>B</u>	Front Brake Pressure	<u>I-9</u>
<u>C</u>	Rear Brake Pressure	<u>I-9</u>
G1	Implement Pump Discharge Pressure	<u>E-5</u>
<u>G2</u>	Tilt Rod End Cylinder Pressure	<u>G-4</u>
<u>G3</u>	Tilt Head End Cylinder Pressure	<u>G-4</u>
<u>G4</u>	Lift Rod End Cylinder Pressure	<u>F-3</u>
<u>G5</u>	Lift Head End Cylinder Pressure	<u>F-3</u>
<u>G7</u>	Implement Pilot Pressure	<u>D-4</u>
<u>G8</u>	Steering Pump Discharge Pressure	<u>C-12</u>
<u>G9</u>	Steering Pump Load Sense Pressure	<u>B-12</u>
<u>G10</u>	Steering Pilot Supply Pressure	<u>C-10</u>
<u>G11</u>	Fan Pump Discharge Pressure	<u>C-13</u>
<u>SOS</u>	Fluid Sampling Port	<u>B-13</u>

FLUID POWER SYMBOLS



BASIC COMPONENT SYMBOLS



PUMP or MOTOR



FLUID CONDITIONER



SPRING



CONTROL VALVES



RESTRICTION



LINE RESTRICTION (FIXED)



MAIN AUX.
2-SECTION PUMP



PUMP: VARIABLE and
PRESSURE COMPENSATED



VARIABILITY



SPRING
(ADJUSTABLE)



LINE RESTRICTION
(VARIABLE)



PRESSURE
COMPENSATION



HYDRAULIC
ENERGY TRIANGLES



PNEUMATIC
ENERGY TRIANGLES



LINE RESTRICTION
VARIABLE and PRESSURE
COMPENSATED



ATTACHMENT

VALVE ENVELOPES



ONE POSITION



TWO POSITION



THREE POSITION

VALVES



TWO-WAY

VALVE PORTS



THREE-WAY

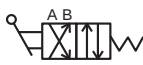


FOUR-WAY

CONTROL VALVES



NORMAL POSITION



SHIFTED POSITION



INFINITE POSITION

CHECK VALVES



BASIC
SYMBOL



SPRING
LOADED



SHUTTLE



PILOT
CONTROLLED

FLUID STORAGE RESERVOIRS



VENTED



PRESSURIZED



RETURN ABOVE FLUID LEVEL



RETURN BELOW FLUID LEVEL

MEASUREMENT



PRESSURE



TEMPERATURE



FLOW

ROTATING SHAFTS



UNIDIRECTIONAL



BIDIRECTIONAL

COMBINATION CONTROLS



SOLENOID



SOLENOID
or MANUAL



SOLENOID
and PILOT



SOLENOID and
PILOT or MANUAL



SERVO



THERMAL



DETENT

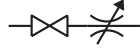
MANUAL CONTROL SYMBOLS



PUSH-PULL LEVER



MANUAL SHUTOFF



GENERAL MANUAL



PUSH BUTTON

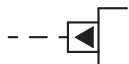


PEDAL



SPRING

RELEASED PRESSURE

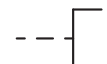


EXTERNAL RETURN



INTERNAL RETURN

PILOT CONTROL SYMBOLS



SIMPLIFIED



COMPLETE



INTERNAL
SUPPLY PRESSURE

REMOTE SUPPLY PRESSURE

ACCUMULATORS



SPRING LOADED



GAS CHARGED

CROSSING AND JOINING LINES

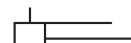


LINES CROSSING

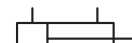


LINES JOINING

HYDRAULIC AND PNEUMATIC CYLINDERS



SINGLE ACTING



DOUBLE ACTING

HYDRAULIC PUMPS

FIXED
DISPLACEMENT



UNIDIRECTIONAL



BIDIRECTIONAL

VARIABLE DISPLACEMENT
NON-COMPENSATED



HYDRAULIC MOTORS

FIXED
DISPLACEMENT



UNIDIRECTIONAL



BIDIRECTIONAL

VARIABLE DISPLACEMENT
NON-COMPENSATED



INTERNAL PASSAGEWAYS

INFINITE
POSITIONING



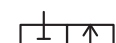
FLOW IN ONE
DIRECTION

THREE
POSITION



PARALLEL
FLOW

TWO
POSITION



FLOW ALLOWED IN
EITHER DIRECTION

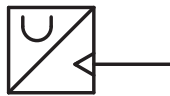
ELECTRICAL SYMBOLS



Hydraulic Symbols (Electrical)



Transducer
(Fluid)



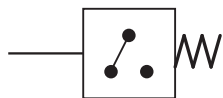
Transducer
(Gas / Air)



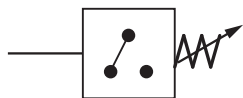
Generator



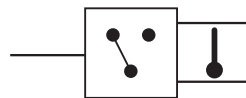
Electric Motor



Pressure Switch



Pressure Switch
(Adjustable)

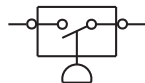


Temperature Switch

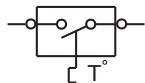


Electrical Wire

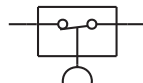
Electrical Symbols (Electrical)



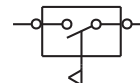
Pressure
Symbol



Temperature
Symbol



Level
Symbol

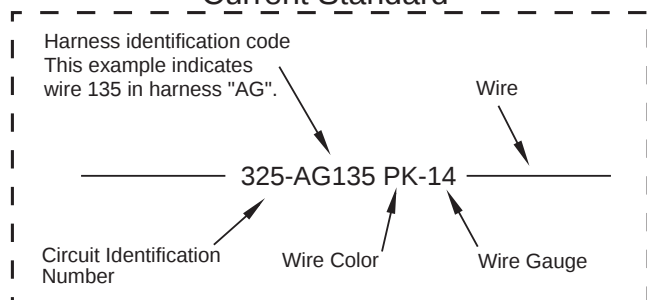


Flow
Symbol

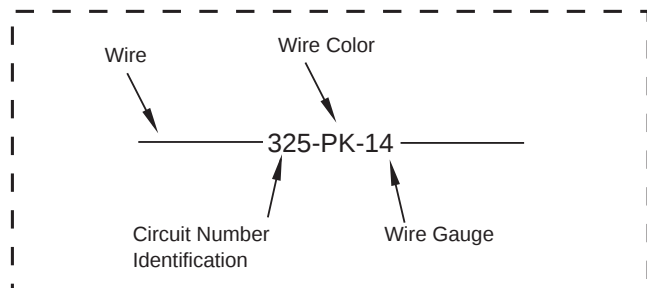
Wire Number Identification Codes

Electrical Schematic Example

Current Standard

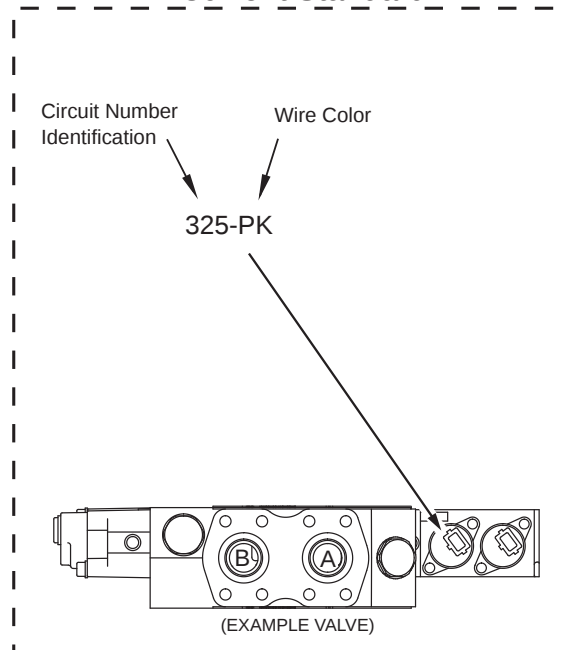


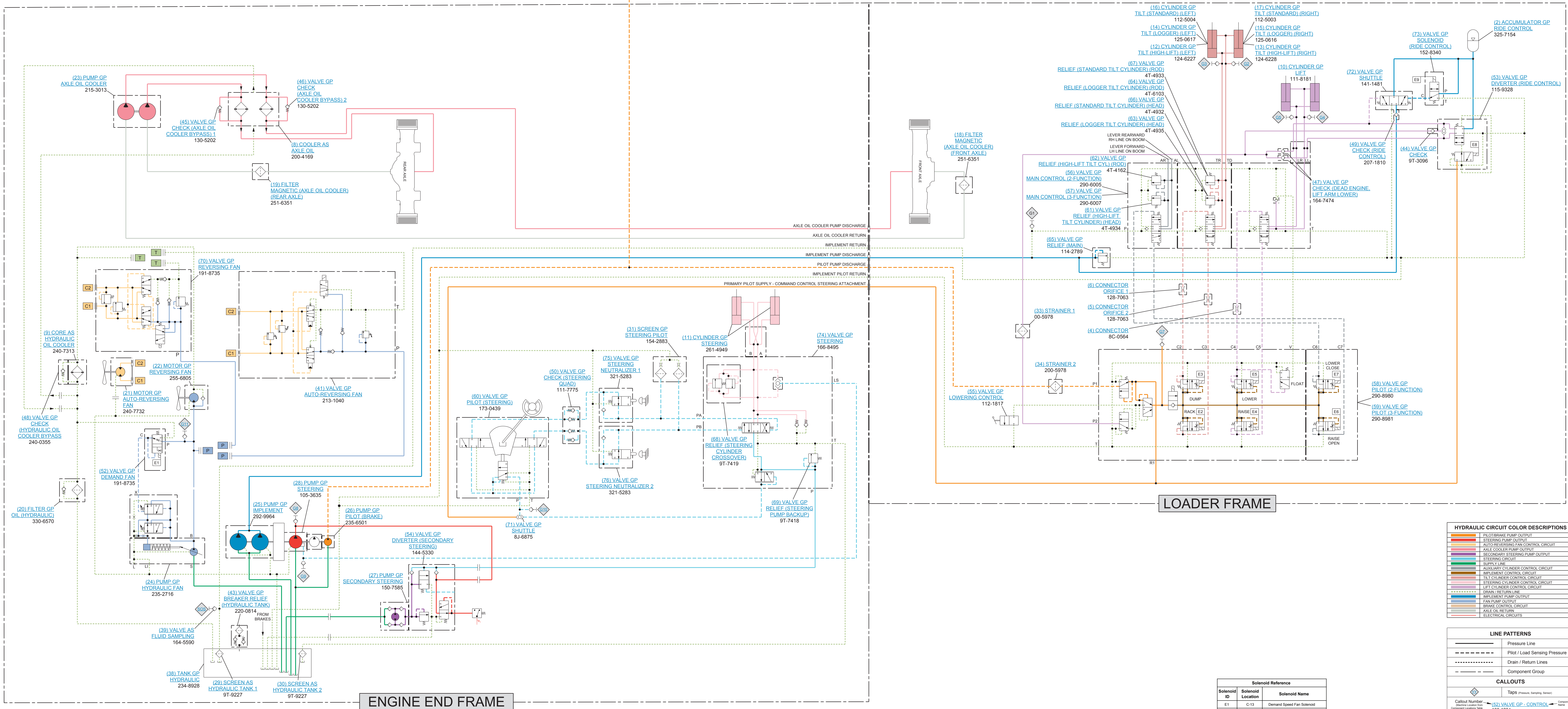
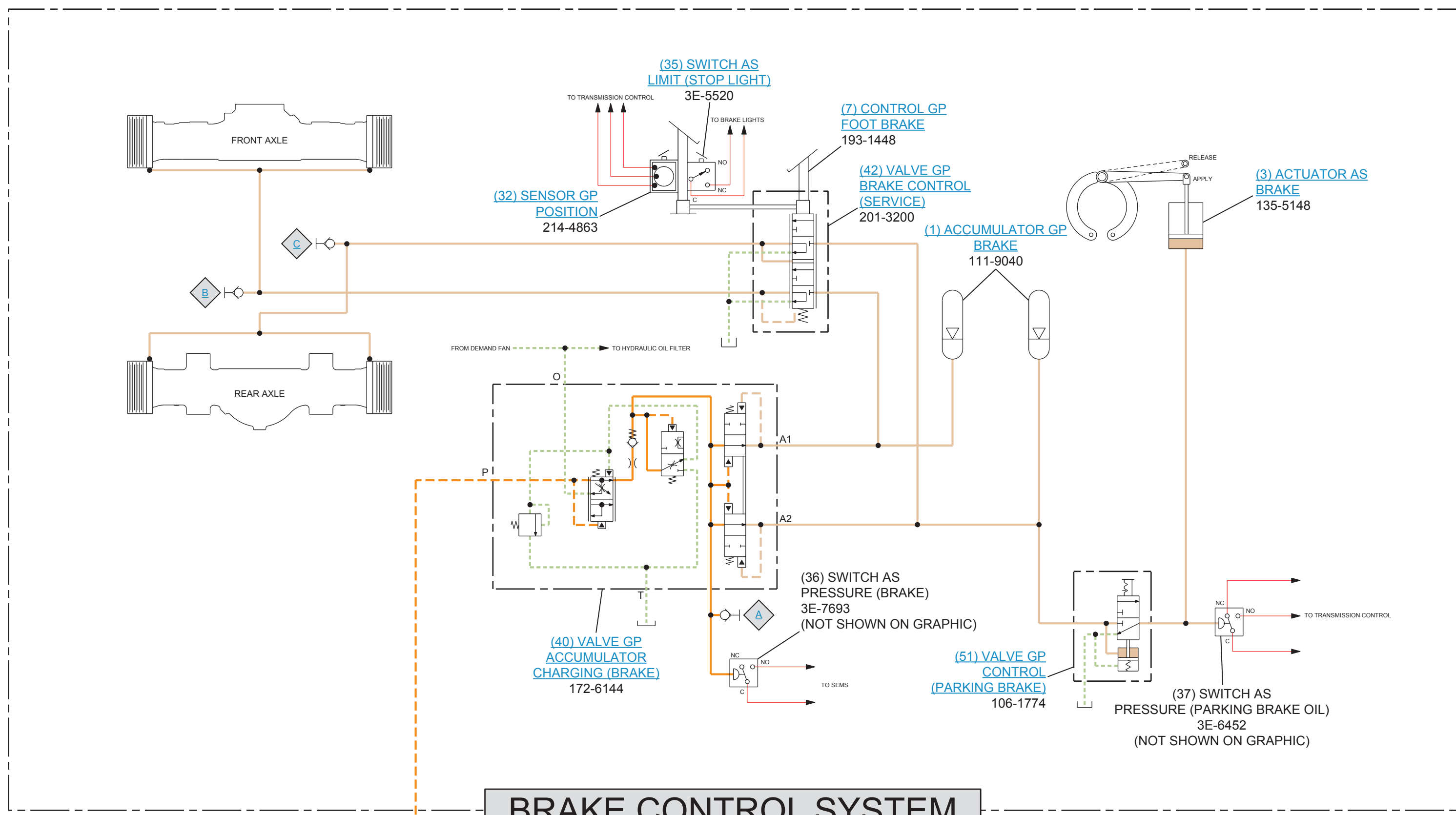
Previous Standard



Hydraulic Schematic Example

Current Standard





HYDRAULIC CIRCUIT COLOR DESCRIPTIONS	
RED	PISTON/BRAKE PUMP OUTPUT
ORANGE	STEERING PUMP OUTPUT
YELLOW	AUTO-REVERSING FAN CONTROL CIRCUIT
GREEN	AXLE COOLER PUMP OUTPUT
BLUE	SECONDARY STEERING PUMP OUTPUT
PURPLE	STEERING CIRCUIT
BROWN	SUPPLY LINE
TEAL	AUXILIARY CYLINDER CONTROL CIRCUIT
PINK	IMPLEMENT CONTROL CIRCUIT
MAUVE	TILT CYLINDER CONTROL CIRCUIT
SLATE	STEERING CYLINDER CONTROL CIRCUIT
NAVY	IMPLEMENT PUMP OUTPUT
INDIGO	DRAIN/RETURN LINE
BLACK	FAN PUMP OUTPUT
GREY	WIPER CONTROL CIRCUIT
WHITE	AXLE OIL RETURN
WHITE	ELECTRICAL CIRCUITS

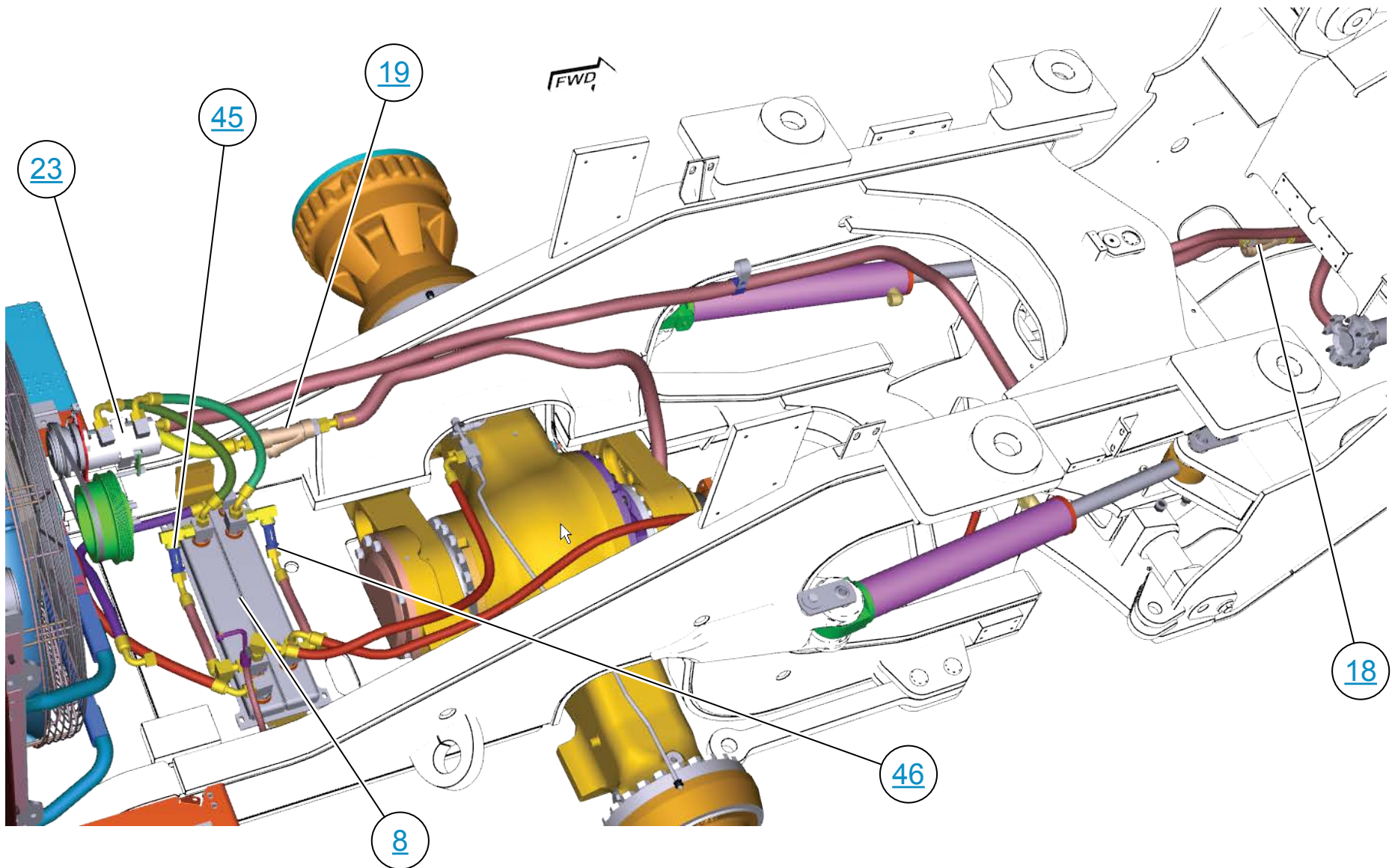
LINE PATTERNS	
Solid line	Pressure Line
Dashed line	Pilot / Load Sensing Pressure
Dotted line	Drain / Return Lines
Long dashed line	Component Group

CALLOUTS	
Calout Number	Tab 05 (Pressure, Sampling, Sensor)
Component Location	138-1234
Component Name	138-1234

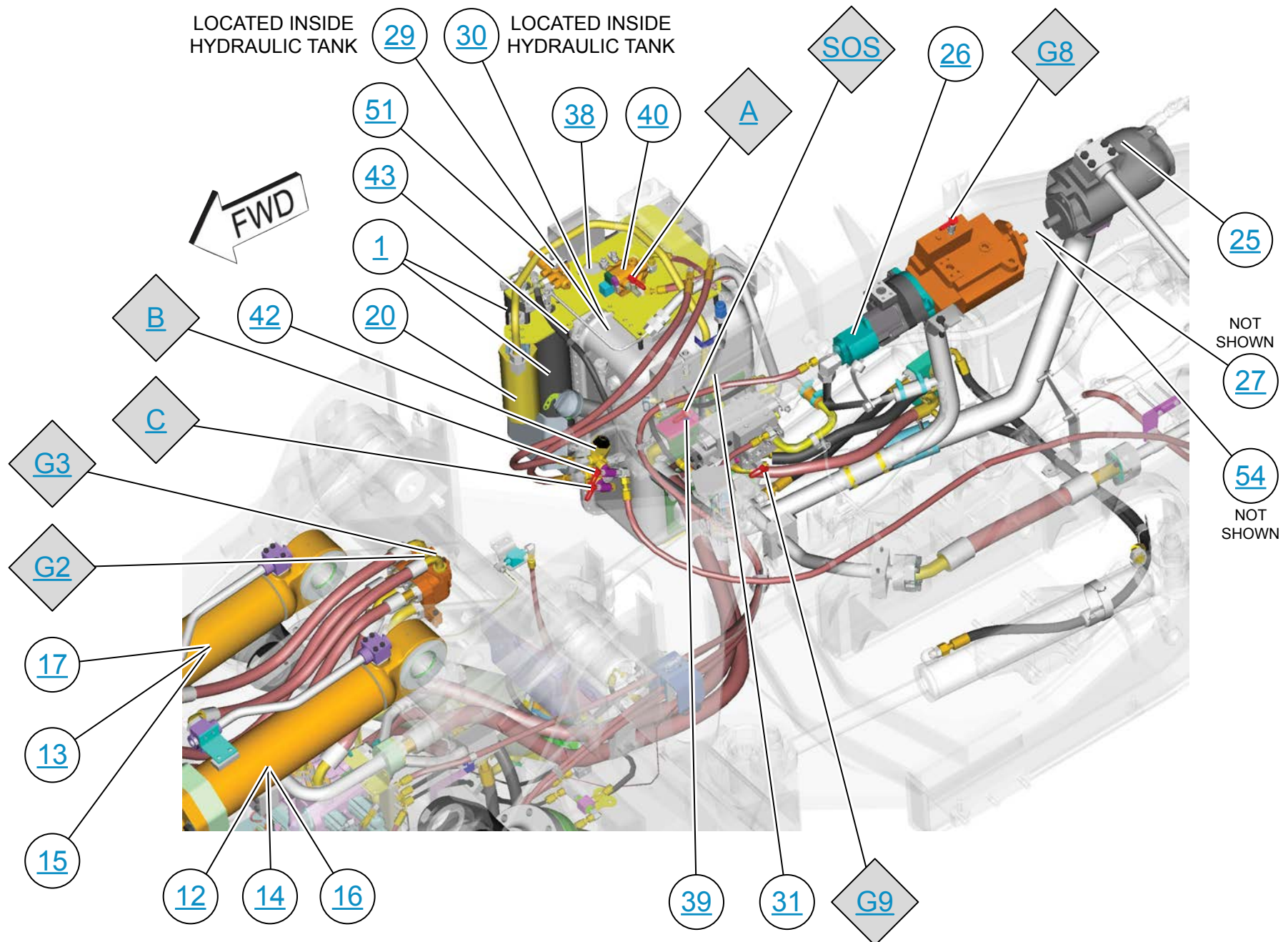
Solenoid Reference		
Solenoid ID	Solenoid Location	Solenoid Name
E1	C-13	Demand Speed Fan Solenoid
E2	D-4	Rack Solenoid
E3	D-4	Dump Solenoid
E4	D-3	Raise Solenoid
E5	D-3	Lower Solenoid
E6	D-3	3rd Function Port A Solenoid
E7	D-3	3rd Function Port B Solenoid
E8	F-1	Ride Control Solenoid
E9	F-2	Ride Control Solenoid

THIS SCHEMATIC IS FOR THE 980H WHEEL LOADER HYDRAULIC SYSTEM
MEDIA NUMBER: RENR8679-04
HYDRAULIC SCHEMATIC PART NUMBER: 242-4309, CHANGE: 05, VERSION: 01
BRAKE CONTROL SYSTEM SCHEMATIC PART NUMBER: 142-0726, CHANGE: 02, VERSION: 01
Components are shown installed on a fully operable machine with the key and engine off, transmission in neutral and with parking brake set.
Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.
Refer to the Parts Manual using a specific serial number prefix in SIS before ordering parts from this schematic.

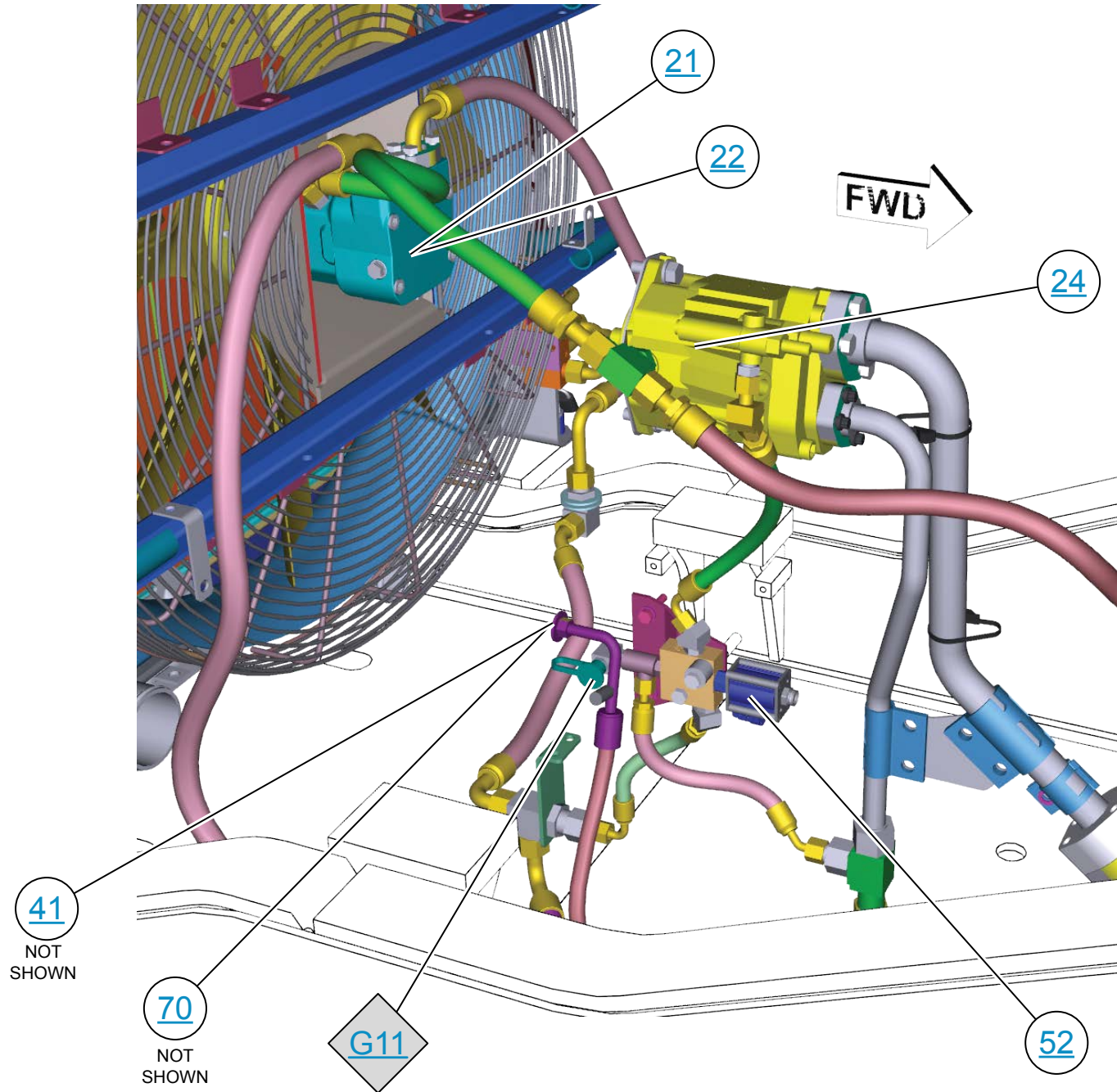
AXLE COOLING



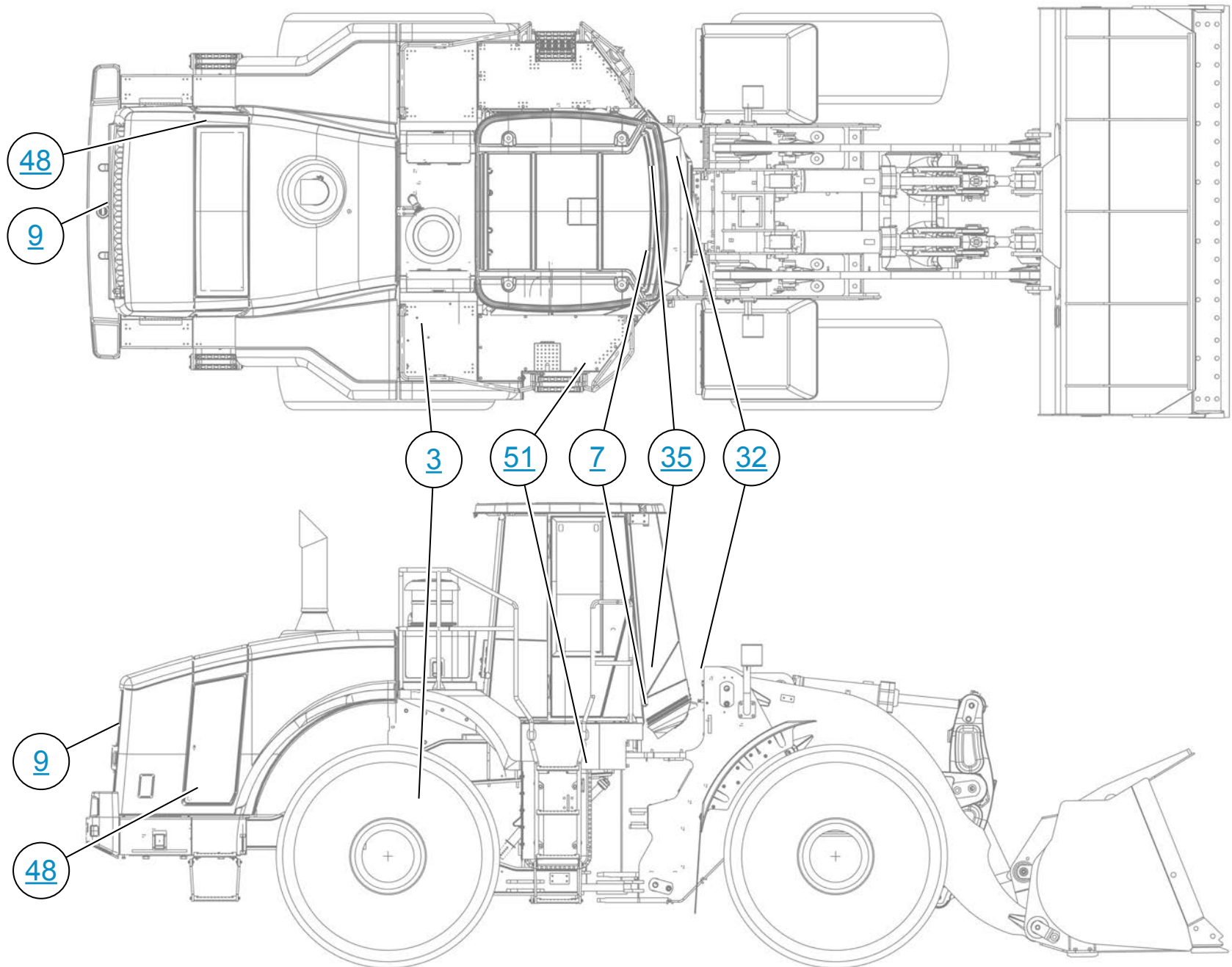
HYDRAULIC AND BRAKE CONTROL SYSTEM



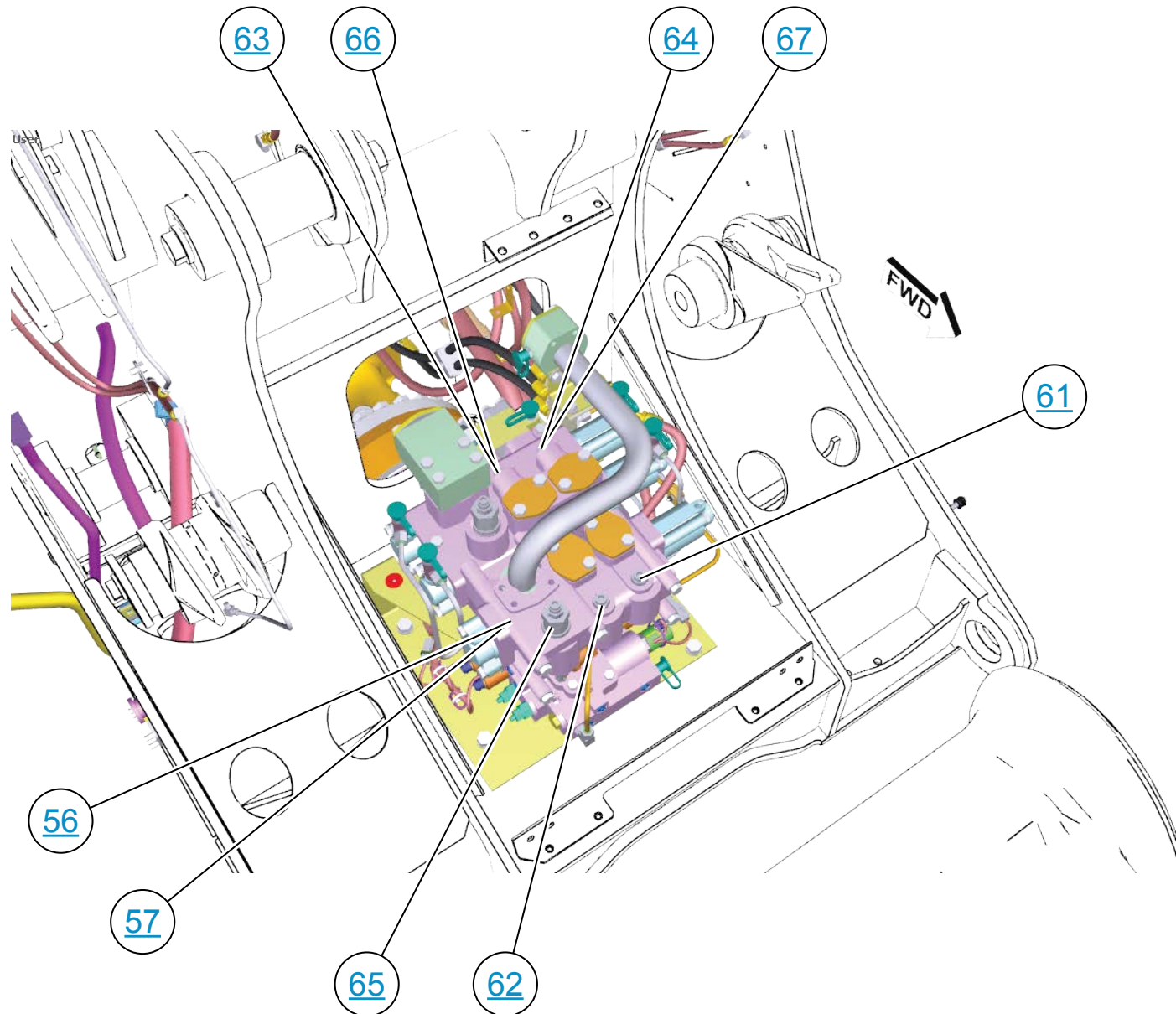
HYDRAULIC FAN



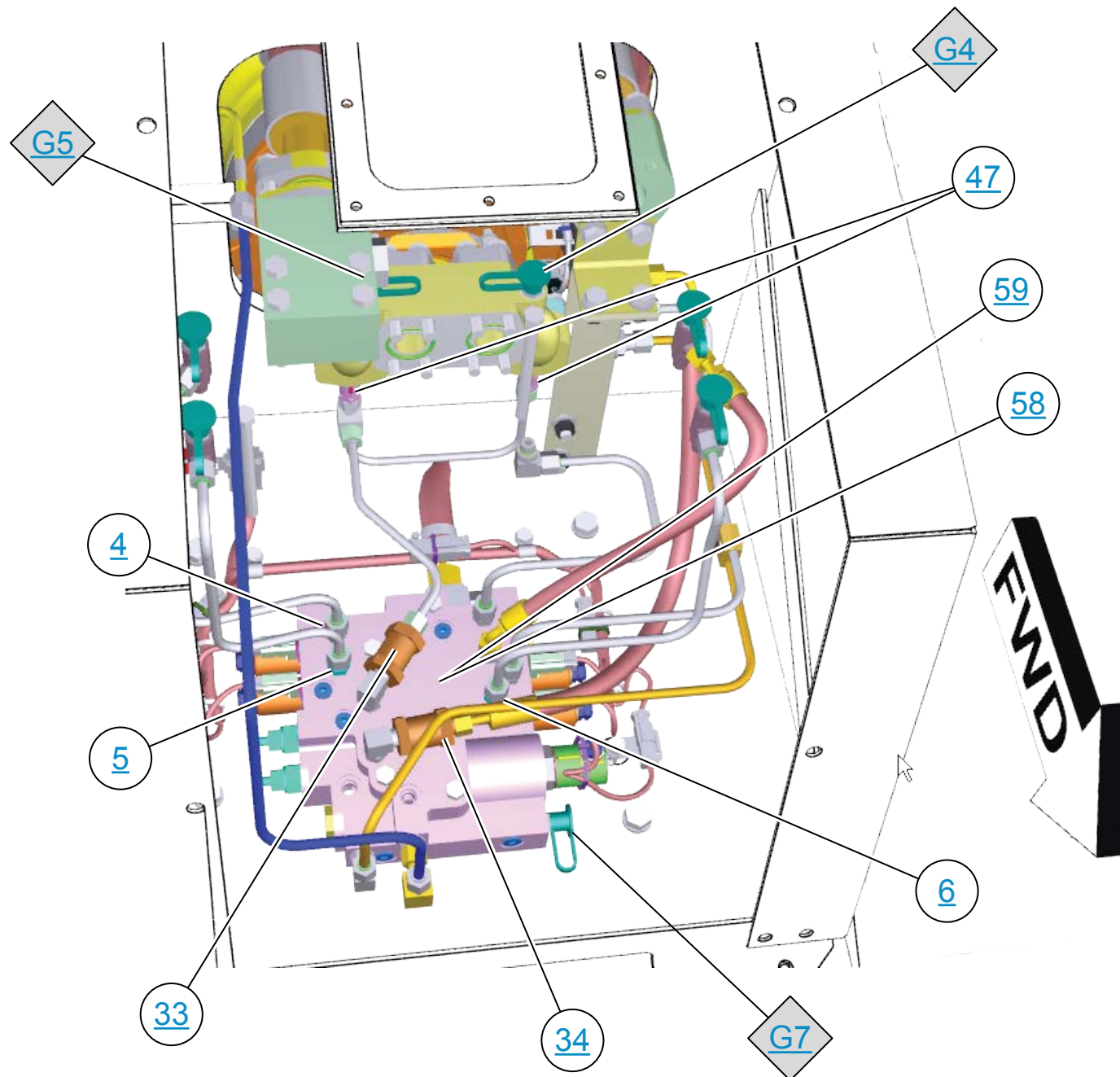
MACHINE COMPONENT LOCATIONS



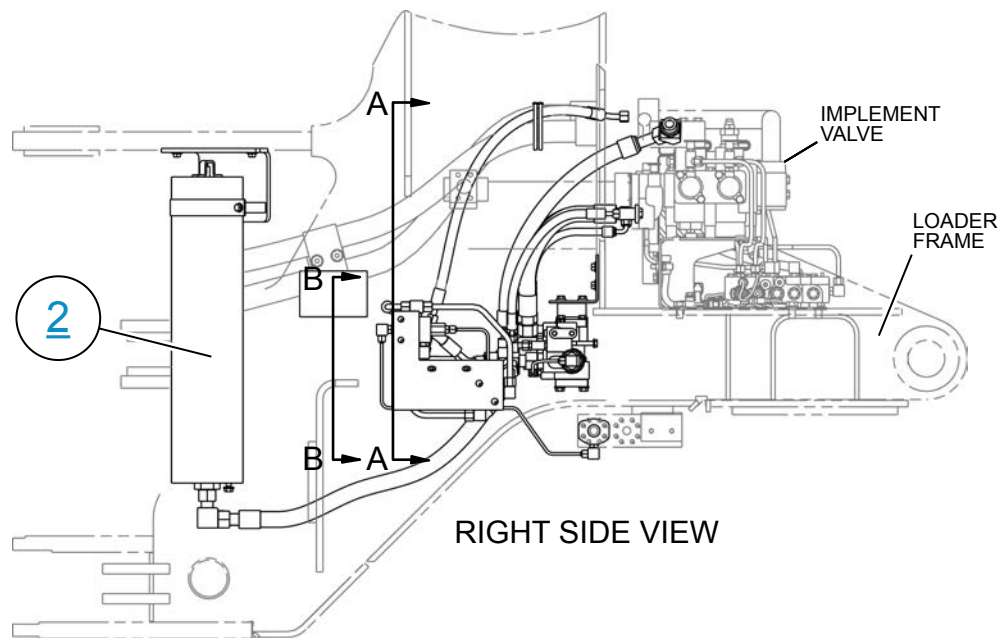
MAIN CONTROL VALVE



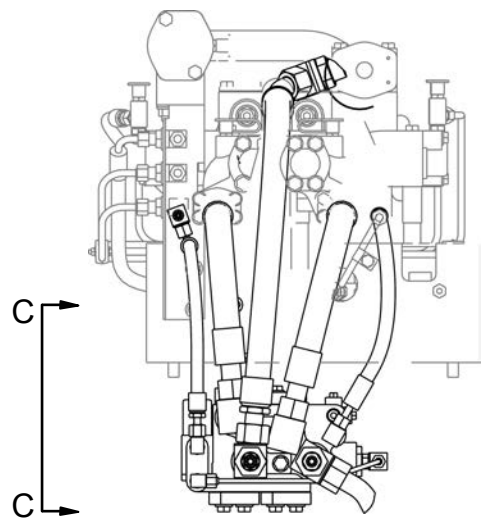
PILOT VALVE



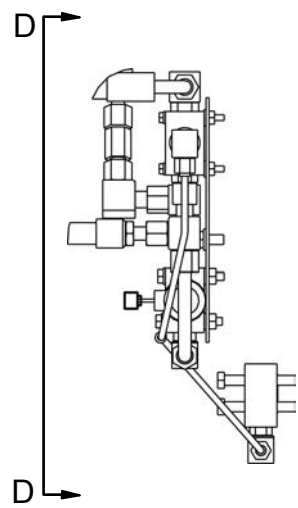
RIDE CONTROL ATTACHMENT



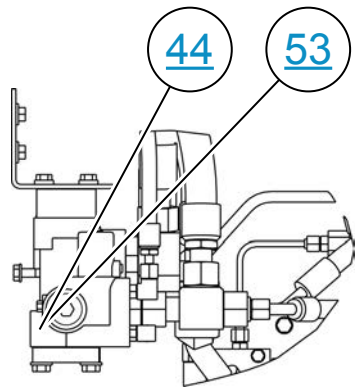
RIGHT SIDE VIEW



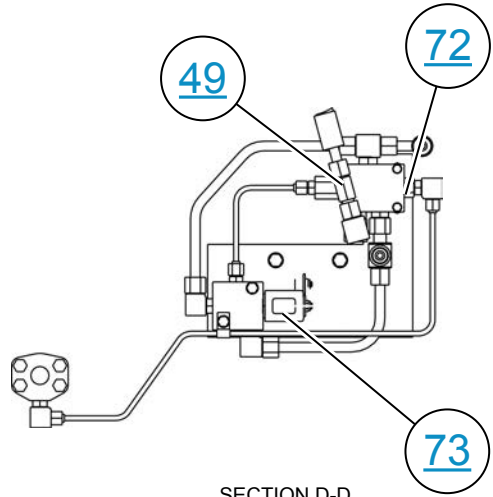
VIEW A-A



SECTION B-B



VIEW C-C



SECTION D-D

STEERING

