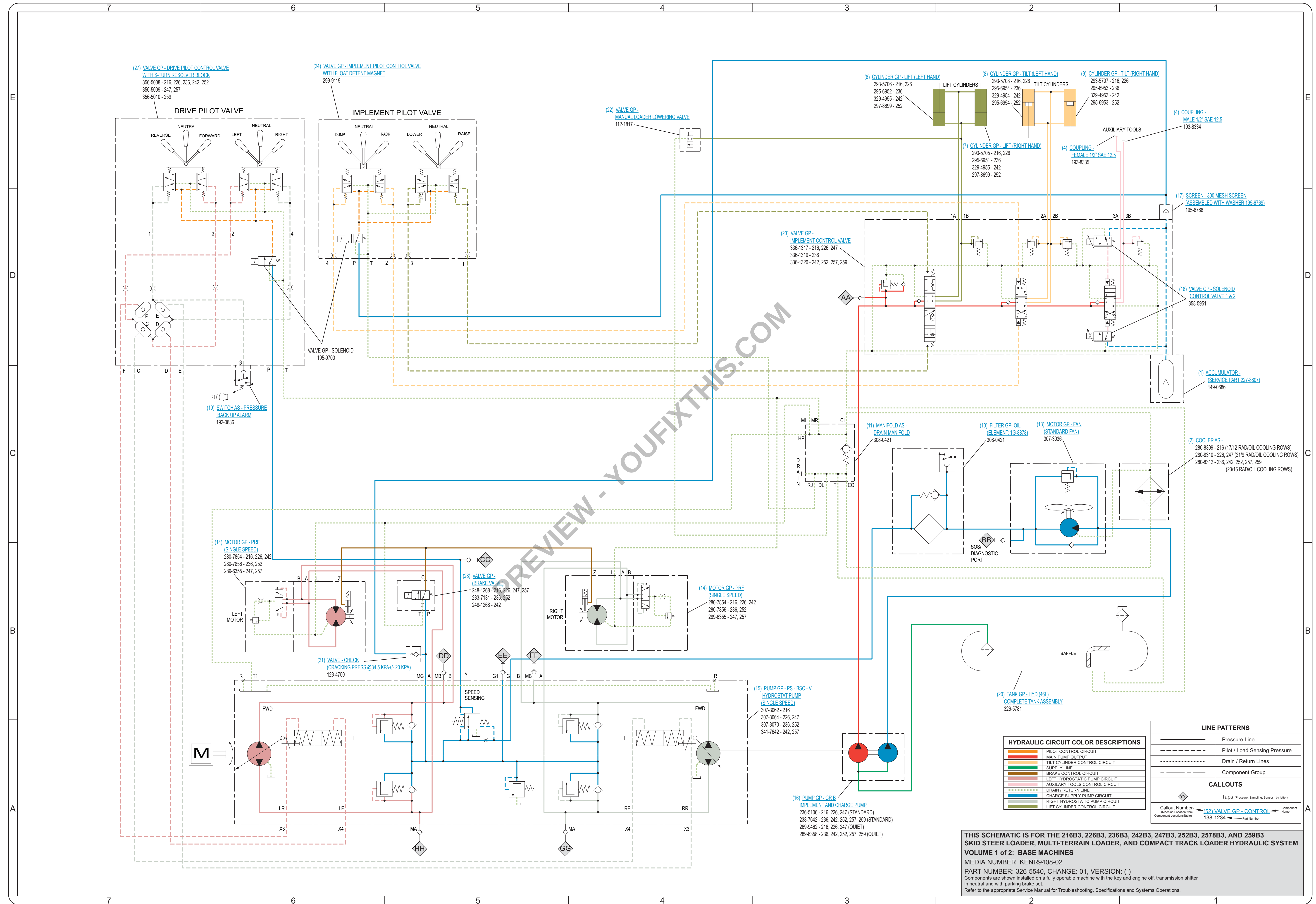




Failure Mode Identifiers (FMI) ¹	
FMI No.	Failure Description
1	Data valid but below normal operational range
2	Data valid but below normal operational range
3	Data erratic; intermittent, or incorrect
4	Signal above normal or shorted fault
5	Voltage below normal or shorted line
6	Current below normal or open circuit
7	Signal above normal or grounded fault
7	Mechanical system not responding properly
8	Abnormal frequency, pulse width, or period
9	Abnormal output
10	Abnormal rate of change
11	Failure mode not detectable
12	Bad device or component
13	Out of tolerance
14	Parameter failures
15	Parameter not available
16	Parameter not responding
18	Sensor output fault
19	Component not available
20	Parameter failures

¹ The FMI is a diagnostic code that indicates which of a list of failure modes is the cause of a fault.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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² Contact position at the contacts of the harness connector.

CONN 16 E-1

This connectors shown in this chart are for harness to harness connections. Connectors that join a harness to a component are generally local to the component. See the Component Location Chart.



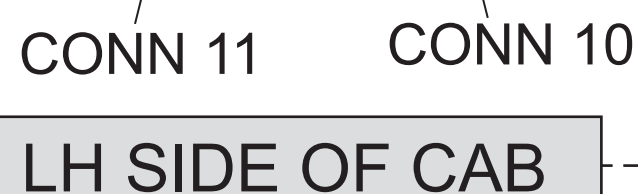
**216B3, 226B3, 236B3, 242B3,
and 252B3 Skid Steer Loader
247B3 and 257B3 Multi-Terrain Loader
259B3 Compact Track Loader
Electrical System**

Skid Steer Loader:	Multi-Terrain Loader:	Compact Track Loader:
MWD1-2398	B7H1-893	YYZ1-1542
A9H1-1479	TSL1-851	
TNK1-991		
JXM1-1960		
SRS1-1065		

Volume 1 of 2: Cab Wiring

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Harness And Wire Electrical Schematic Symbols

Symbols

Pressure Symbol

Temperature Symbol

Level Symbol

Flow Symbol

Circuit Breaker Symbol

Symbols and Definitions

Fuse: A component in an electrical circuit which will open the circuit if too much current flows through it.

Switch (Normally Open): A switch that will close at a specified point (temp, press., etc.). The circuit indicator for the component has seven terminals and will be disconnected from all.

Switch (Normally Closed): A switch that will open at a specified point (temp, press., etc.). No circuit indicators are used; it cannot be disconnected from the component.

Ground (Wire): This indicates that the component is connected to a grounded wire. The grounded area is labeled to the machine.

Ground (Circuit): This indicates that the component does have a wire connected to ground. It is grounded by being switched to the machine.

Reed Switch: A switch whose contacts are controlled by a magnet. A magnet closes the contacts if a normally open reed switch; opens the contacts if a normally closed reed switch.

Sensor: A component that is used with a temperature or pressure gauge. The sender measures the temperature or pressure. Its resistance changes to give an indication to the gauge of the temperature or pressure.

Relay (Magnetic Solenoid): A relay is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnetic can open or close a valve or operate a control part of the relay.

Solenoid: A solenoid is an electrical component that is activated by electricity. It has a coil that makes an electromagnet when current flows through it. The electromagnet can open or close a valve or operate a control part of the relay.

Magnetic Lock Solenoid: A magnetic lock solenoid is an electrical component that is activated by electricity and held locked by a permanent magnet. It has two coils (latch and unlatch) that make through it when current passes through it. It also has an internal switch that places the latch coil out of action at the time the coil unlatches.

Harness and Wire Symbols

Wires, Cables, or Harness Assembly Identifier Includes:
Harness Identification Letters
and Harness Connector Identification Codes (see sample)

Pigt Number for Connector Plug

Plug
Pin or Socket Number

Breakout Connectors: Typical representation of a breakout connector. This plug contains all sockets and the receptacles connect to other harness connectors.

Run-End Connector: Typical representation of a Run-End connector. This plug or receptacle connects both ends of the harness.

Harness Identification Letter(s)
e.g. B-C = 80 Series

Harness Connector Labeling Code:
The "A" stands for "Connector" and the number indicates which connector in the harness (e.g. DCS #1).

Pigt Number for Connector Receptacle

Fuses (in Amps)

IXK-12135

Component Part Number

32P-AD135 PK-14

Wires/Cable Color



Schematic

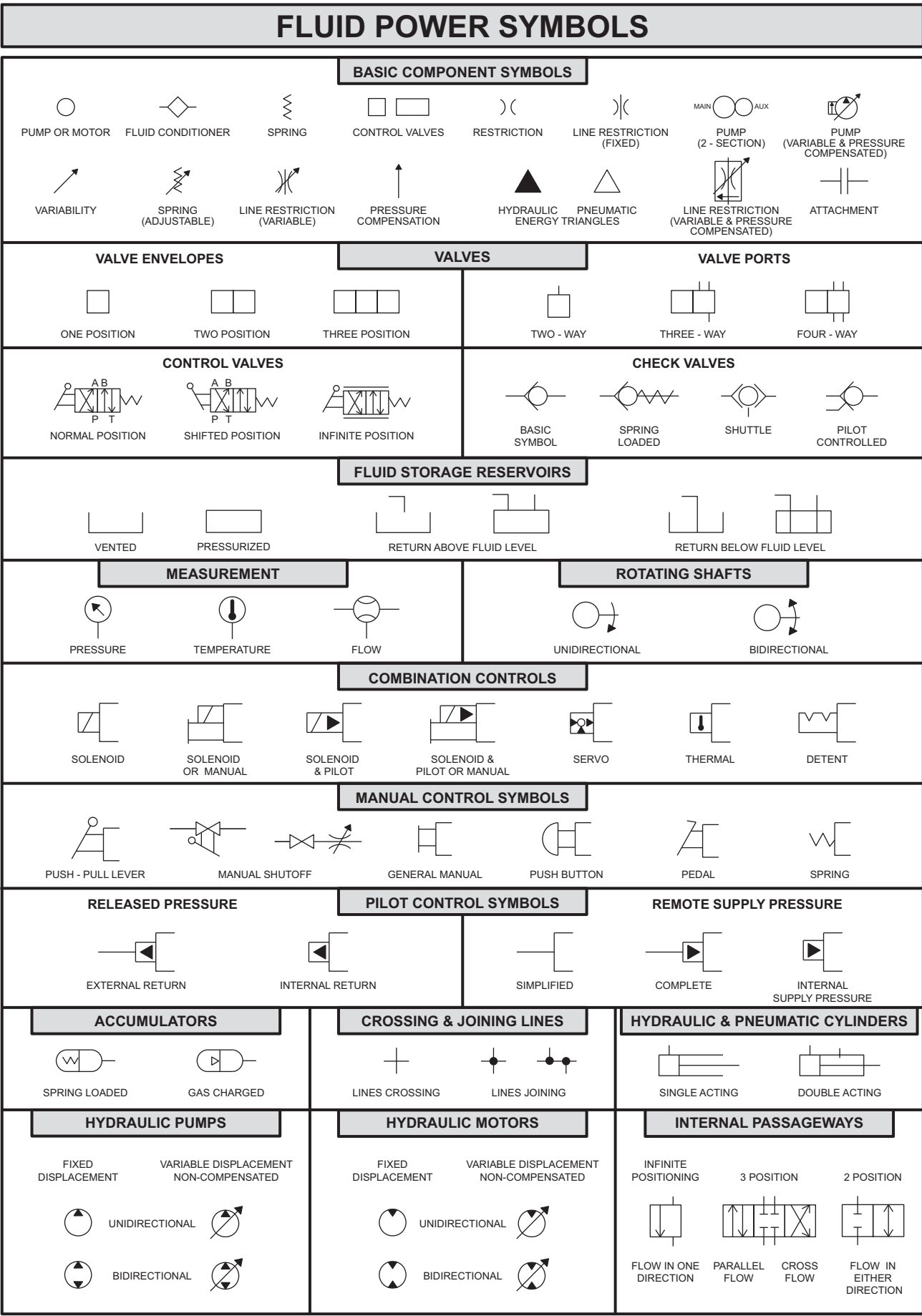
216B3, 226B3, 236B3, 242B3, 247B3, 252B3, 257B3, and 259B3 Skid Steer Loader, Multi-terrain Loader, and Compact Track Loader Hydraulic System

216B3: JXM1-1960	226B3: MWD1-2398	236B3: A9H1-1479	242B3: SRS1-1065
247B3: TSL1-851	252B3: TNK1-991	257B3: B7H1-893	259B3: YYZ1-1542

Volume 1 of 2: Base Machines

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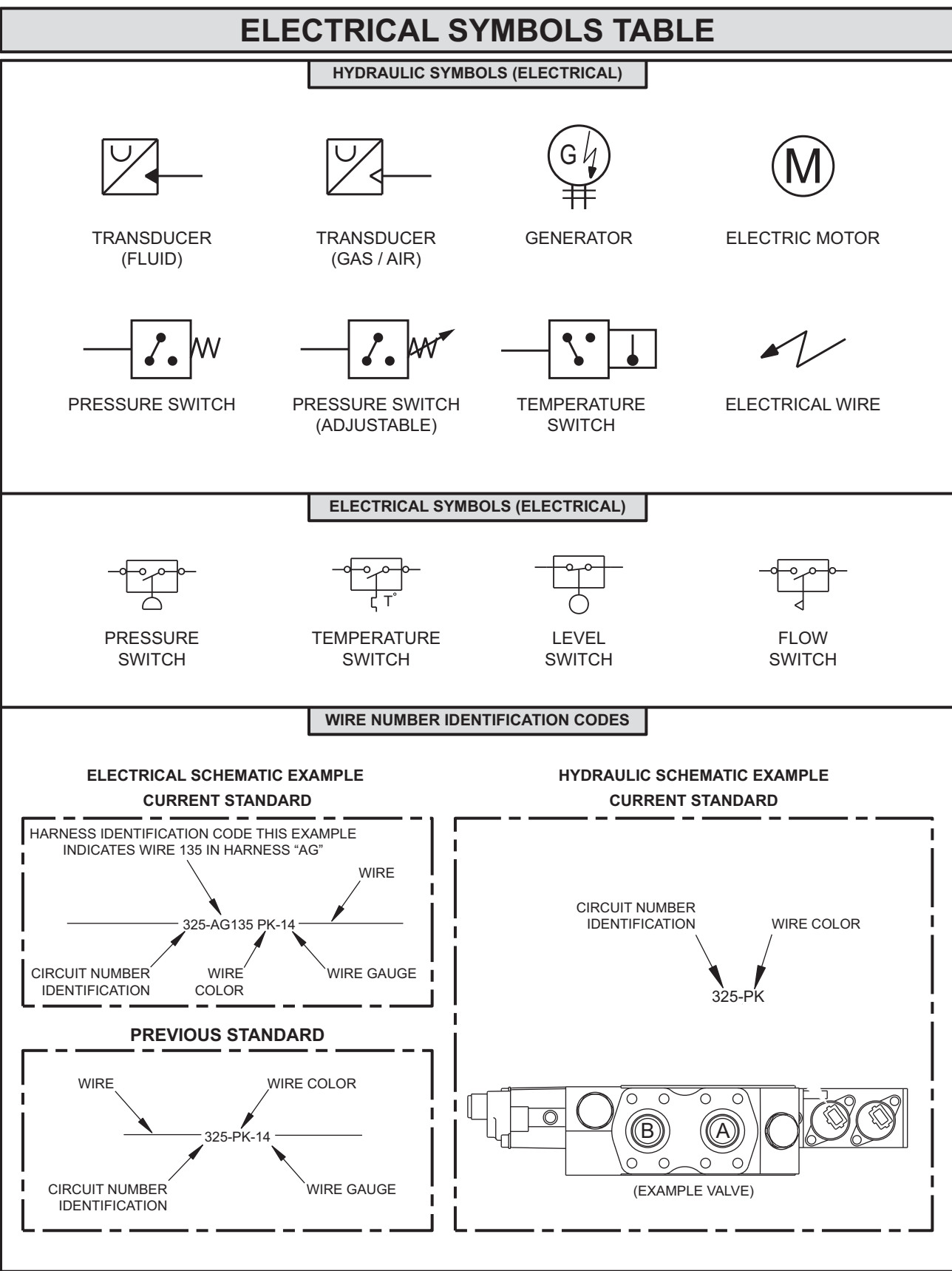
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Component Locations Volume 1							
Description	Part Number	Machine Location	Schematic Location	Description	Part Number	Machine Location	Schematic Location
Accumulator	149-0686	1	C-1	Pump GP - (Single Speed) (216)	307-3062	15	A-4, A-6
Cooler As - Radiator (216)	280-8309	2	C-1	Pump GP - (Single Speed) (226/247)	307-3064	15	A-4, A-6
Cooler As - Radiator (226/247)	280-8310	2	C-1	Pump GP - (Single Speed) (236/252)	307-3070	15	A-4, A-6
Cooler As - Radiator (236/242/252/257/259)	280-8312	2	E-2	Pump GP - (Two Speed) (236/252)	307-3068	15	Volume 2
Coupling - Female	193-8335	4	E-2	Pump GP - (Two Speed) (242)	341-7665	15	Volume 2
Coupling - Male	193-8334	4	E-1	Pump GP - (Two Speed) (257)	341-7642	15	Volume 2
Cylinder Gp - Hydraulic Coupler (Volume 3)	192-2640	5	Volume 2	Pump GP - (Two Speed) (259)	341-7669	15	Volume 2
Cylinder Gp - Lift Left Hand (216/226/247)	293-5706	6	E-2	Pump GP - Imp & Charge (216/226/247)	238-5106	18	A-3
Cylinder Gp - Lift Left Hand (236)	295-6952	6	E-2	Pump GP - Imp & Charge (236/242/252)	238-7642	18	A-3
Cylinder Gp - Lift Left Hand (242/257/259)	329-4955	6	E-2	Pump GP - Imp & Charge (216/226/247)	269-9462	18	A-3
Cylinder Gp - Lift Left Hand (252)	297-8699	6	E-2	Pump GP - Imp & Charge (236/242/252)	269-6358	18	A-3
Cylinder Gp - Lift Right Hand (216/226/247)	293-5705	7	E-2	Screen	195-6768	17	D-1
Cylinder Gp - Lift Right Hand (236)	295-6951	7	E-2	Solenoid - Control Valve (1&2)	358-5951	19	D-2
Cylinder Gp - Lift Right Hand (242/257/259)	329-4955	7	E-2	Switch As - Back Up Alarm	192-0836	19	C-6
Cylinder Gp - Lift Right Hand (252)	297-8699	7	E-2	Tank GP - Hydraulic	326-5781	20	B-2
Cylinder Gp - Tilt Left Hand (216/226/247)	293-5708	8	E-2	Valve - Check	123-4750	21	B-5
Cylinder Gp - Tilt Left Hand (236/252)	295-6953	8	E-2	Valve Gp - Ball	112-1817	22	E-4
Cylinder Gp - Tilt Left Hand (242/257/259)	329-4954	8	E-2	Valve Gp - Control (216/226/247)	336-1317	23	D-3, D-1
Cylinder Gp - Tilt Right Hand (216/226/247)	293-5707	9	E-2	Valve Gp - Control (236)	336-1319	23	D-3, D-1
Cylinder Gp - Tilt Right Hand (236/252)	295-6953	9	E-2	Valve Gp - Control (242/252/257/259)	336-1320	23	D-3, D-1
Cylinder Gp - Tilt Right Hand (242/257/259)	329-4953	9	E-2	Valve Gp - Float Detent Magnet	269-9119	24	E-5
Filter Gp - Oil	223-9974	10	C-2	Valve Gp - Hydraulic Coupler	233-7128	25	Volume 2
Manifold As - Drain Manifold	308-0421	11	C-3	Valve Gp - Diverter (Bucket Leveling) - Raise (216/226/247)	224-9418	26	Volume 2
Motor Gp - A/C Compressor (226/247)	307-6115	12	Volume 2	Valve Gp - Diverter (Bucket Leveling) - Raise (236)	224-9408	26	Volume 2
Motor Gp - Fan (Standard)	307-3036	13	C-2	Valve Gp - Diverter (Bucket Leveling) - Raise (242/252/257/259)	223-8418	26	Volume 2
Motor Gp - Fan (Demand)	258-2577	13	Volume 2	Valve Gp - S-Turn Resolver Block (216, 226, 236, 242, 252)	356-5008	27	E-7
Motor Gp - Single Speed (216/226/242)	280-7854	14	B-5, B-4	Valve Gp - S-Turn Resolver Block (247, 257)	356-5009	27	E-7
Motor Gp - Single Speed (236/252)	280-7856	14	B-5, B-4	Valve Gp - S-Turn Resolver Block (259)	356-5010	27	E-7
Motor Gp - Single Speed (247/257)	289-6355	14	Volume 2	Valve Gp - Brake (Single Speed) (216, 226, 242, 247, 257)	248-1268	28	B-5
Motor Gp - Two Speed (236/252)	307-3073	14	Volume 2	Valve Gp - Brake (Single Speed) (236, 252)	233-7131	28	Volume 2
Motor Gp - Two Speed - LH (242)	307-3071	14	Volume 2	Valve Gp - Brake (Two Speed) (236/242/252/257/259)	293-6591	28	Volume 2
Motor Gp - Two Speed (257)	307-3052	14	Volume 2				
Motor Gp - Two Speed (259)	307-3080	14	Volume 2				

Tap Locations Pressure, Sampling, and Sensor		
Tap Number	Description	Schematic Location
AA	Main Worktool System Pressure	D-3
BB	SO3	C-2
CC	Signal Pressure	B-5
DD	Main System Pressure (Pump 1 Forward)	B-5
EE	Charge Pressure	B-5
FF	Main System Pressure (Pump 2 Forward)	B-5
GG	Main System Pressure (Pump 2 Reverse)	A-5
HH	Main System Pressure (Pump 1 Reverse)	A-5

Related Manuals	
Description	Media Number
Parts Manual	
Machine System	
Specifications	UENR0249
Testing and Adjusting	UENR0250
Electrical System	
Schematic (Electrical System)	UENR0254



- (U) Normally closed temperature switch
- (V) Pressure switch
- (W) Normally open pressure switch
- (X) Normally closed pressure switch
- (Y) Toggle switch
- (Z) Flow switch
- (AA) Key switch

Resistors

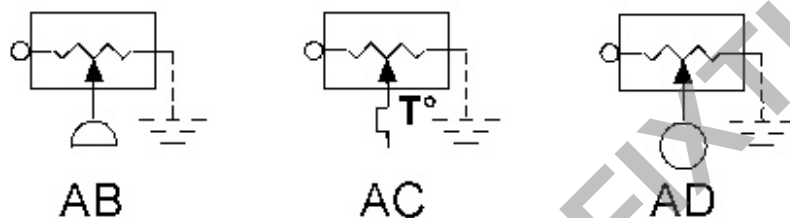


Illustration 3

g01390734

(AB) Pressure resistor

(AC) Temperature resistor

(AD) Float resistor

Wire Coloring

Red ... RD

White ... WH

Orange ... OR

Yellow ... YL

Pink ... PK

Black ... BK

Gray ... GY

Purple ... PU

Brown ... BR

[Previous Screen](#)

_Product: SKID STEER LOADER

Model: 216B3 SKID STEER LOADER JXM

Configuration: 216B3 Skid Steer Loader JXM00001-UP (MACHINE) POWERED BY C2.2 Engine

Schematic

Fluid Power and Electrical Graphic Symbols

Media Number -SEN3981-05

Publication Date -01/09/2012

Date Updated -05/09/2012

105041970

Electrical Power Graphic Symbols

SMCS - 1400

Note: Use this module as a basic reference guide for graphic symbols. Do not use this module as a comprehensive reference guide.

Basic Component Symbols

(AJ) Connector label

(AK) Receptacle side of connector

(AL) Plug side of connector

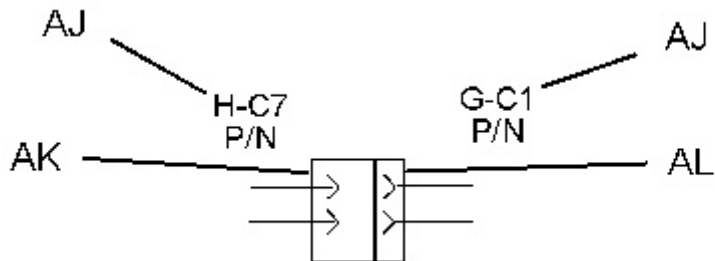


Illustration 9

g03212181

New format

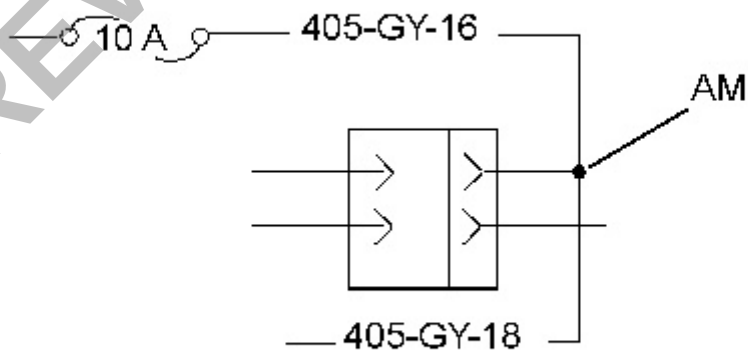
(AJ) Connector label

(AK) Receptacle side of connector

(AL) Plug side of connector

Note: "H" is the harness identification, "C" stands for the connector, and "P/N" is the receptacle connector part number.

Splices



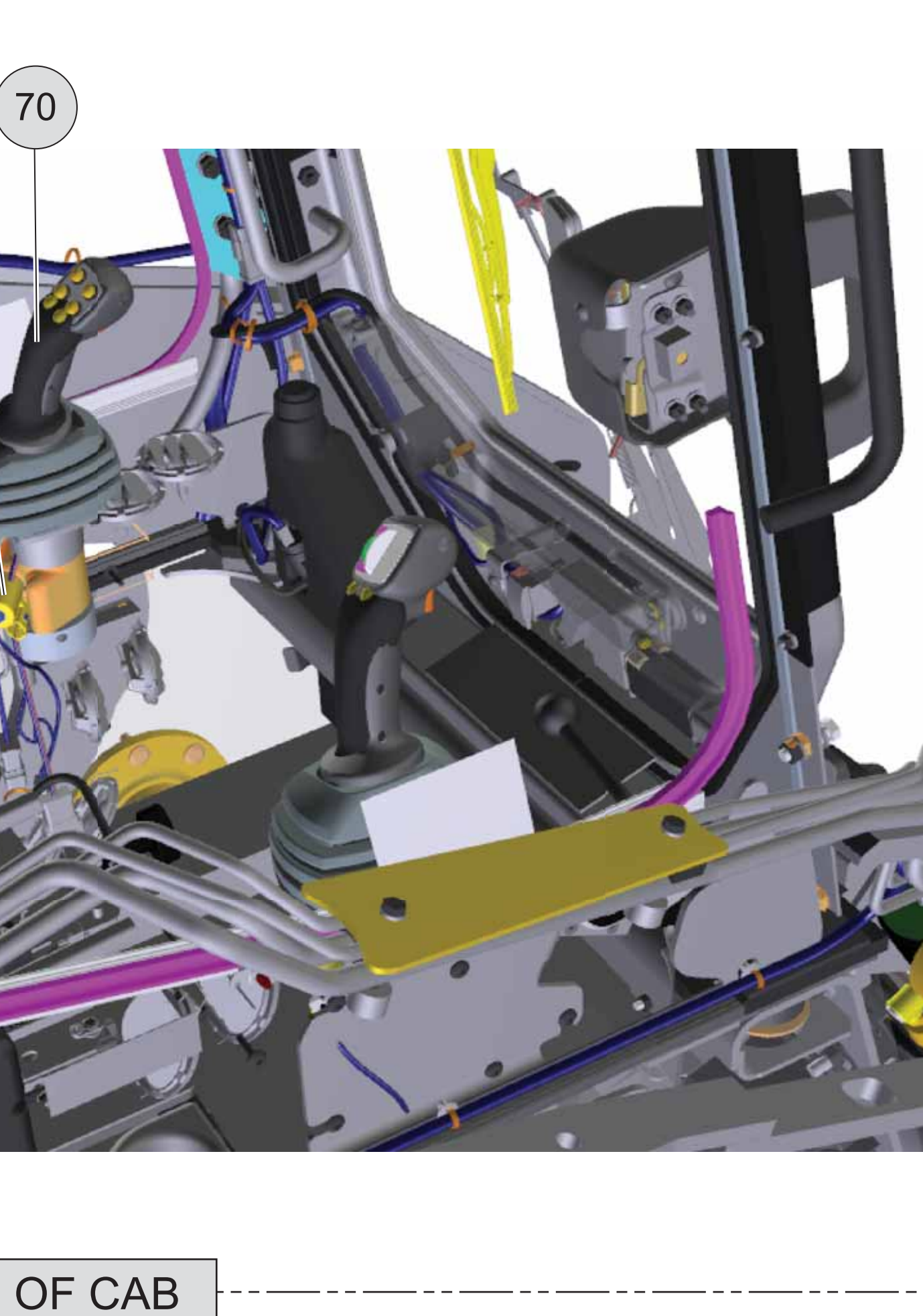
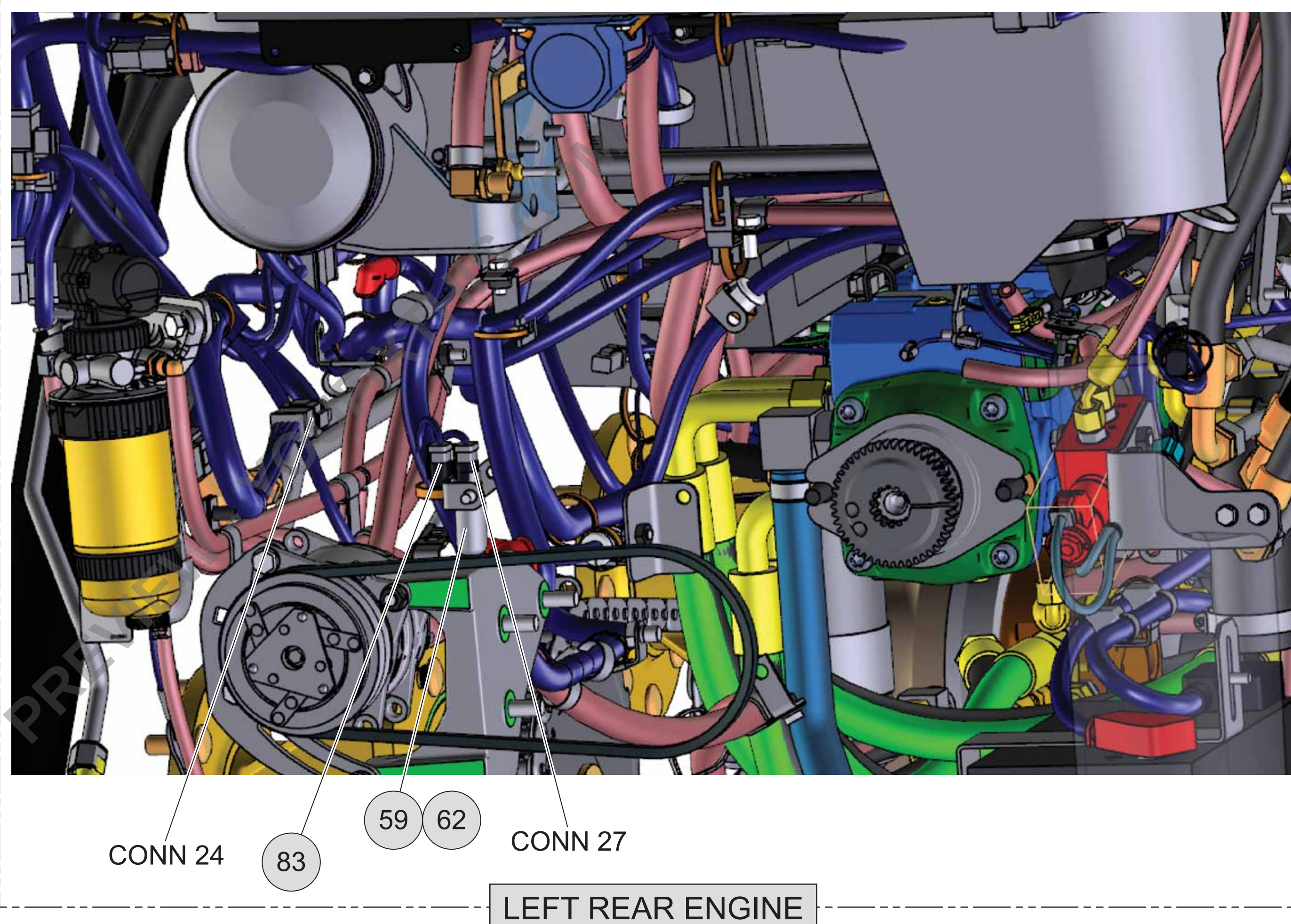
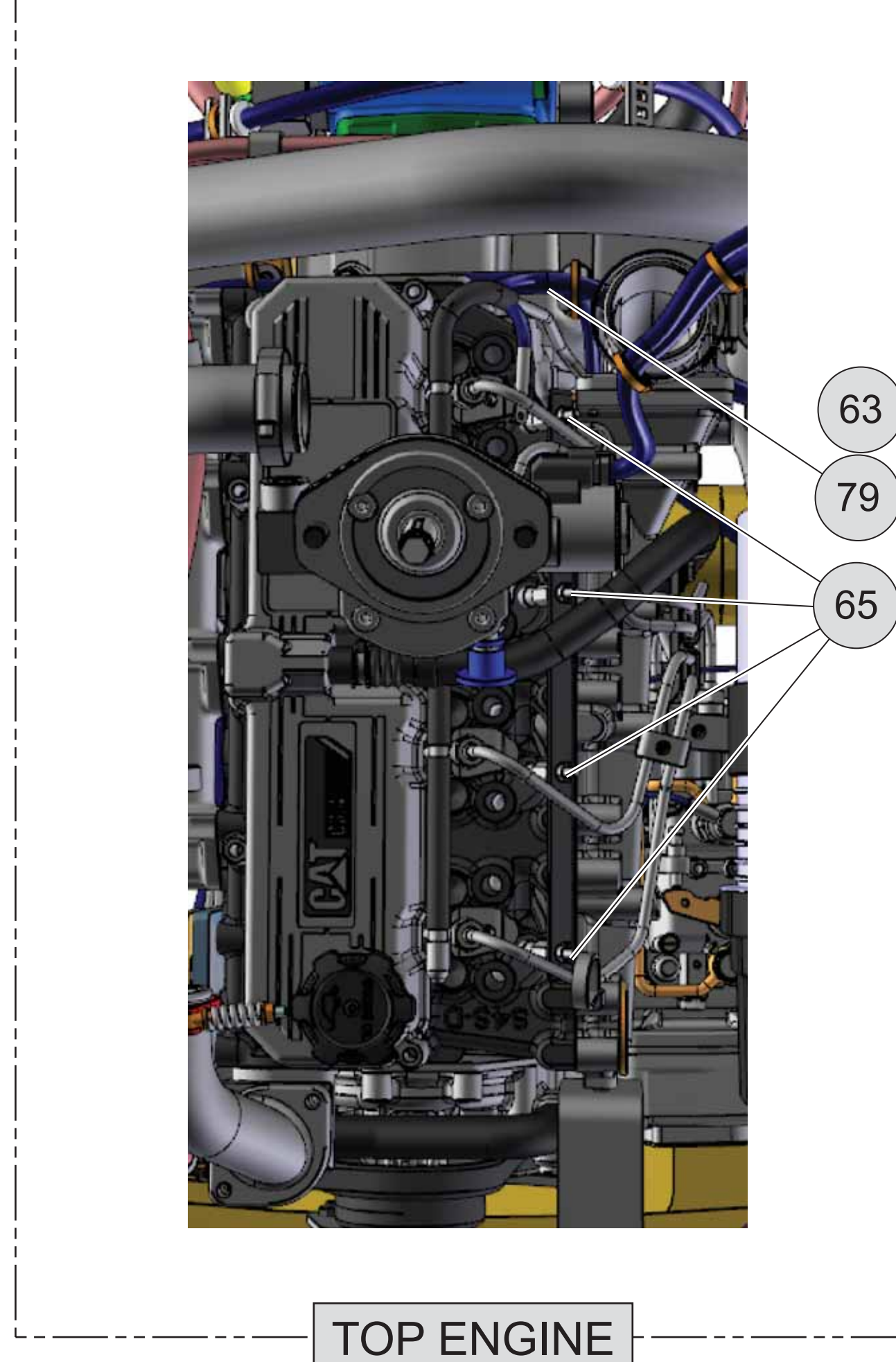
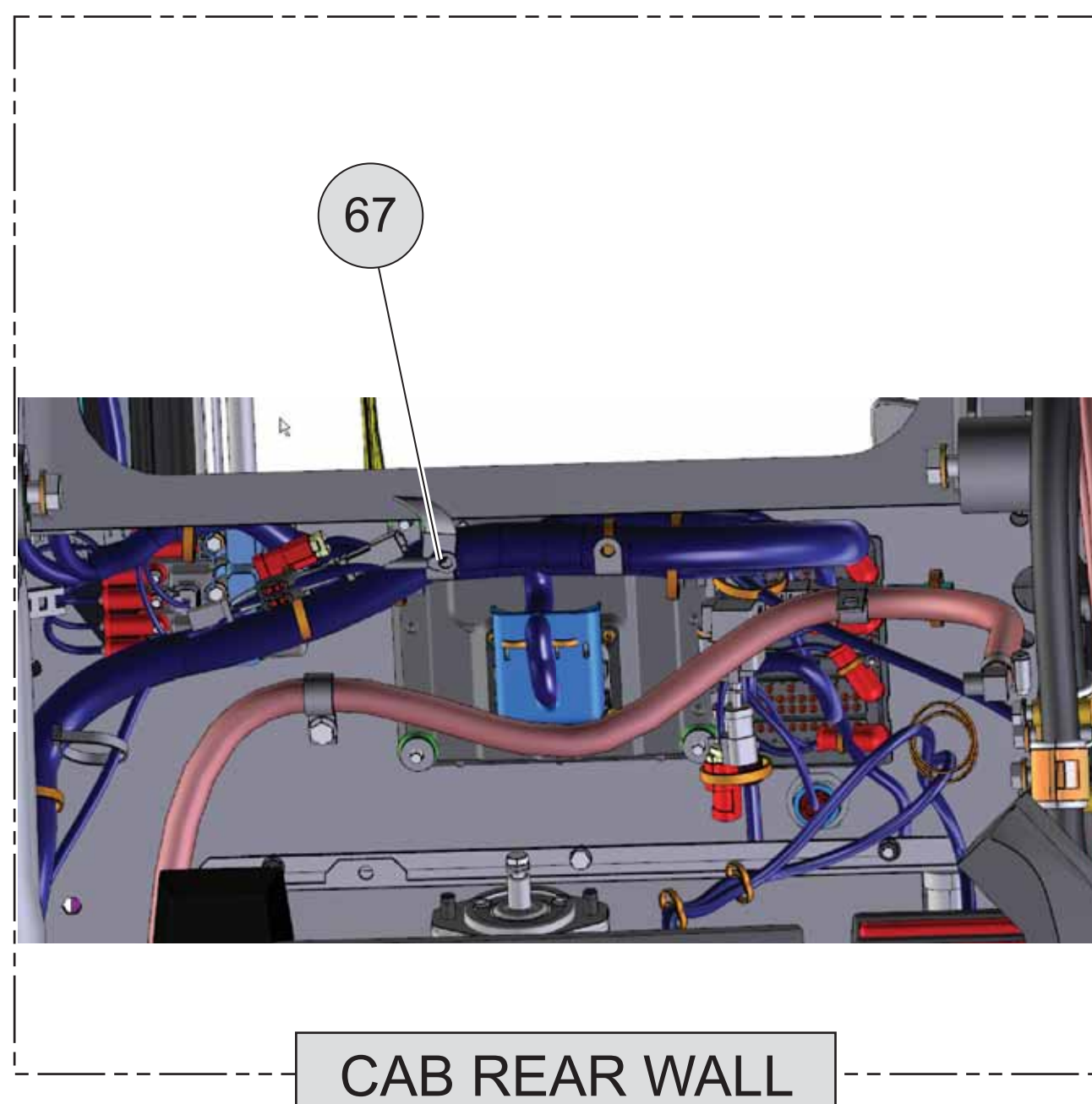
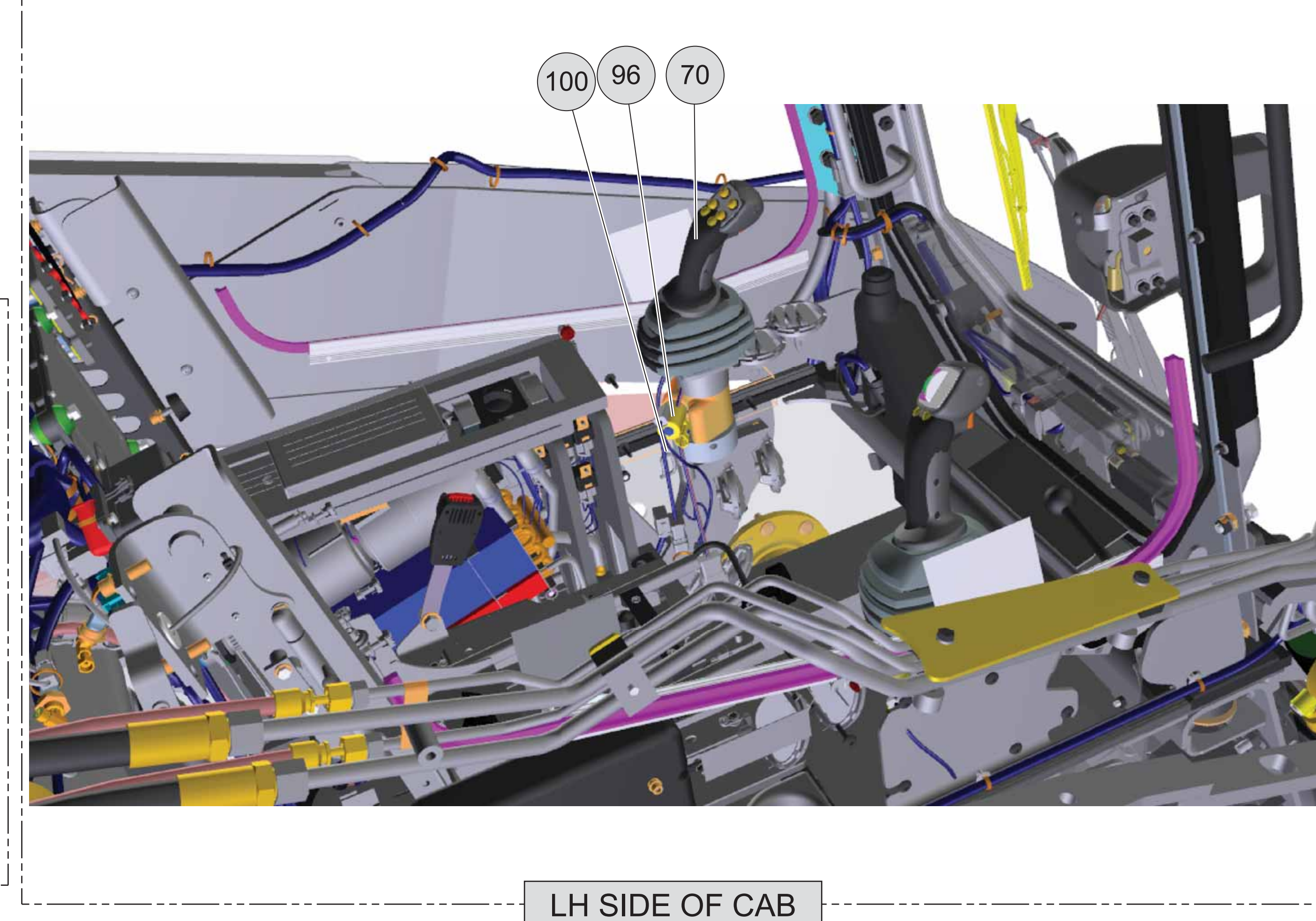
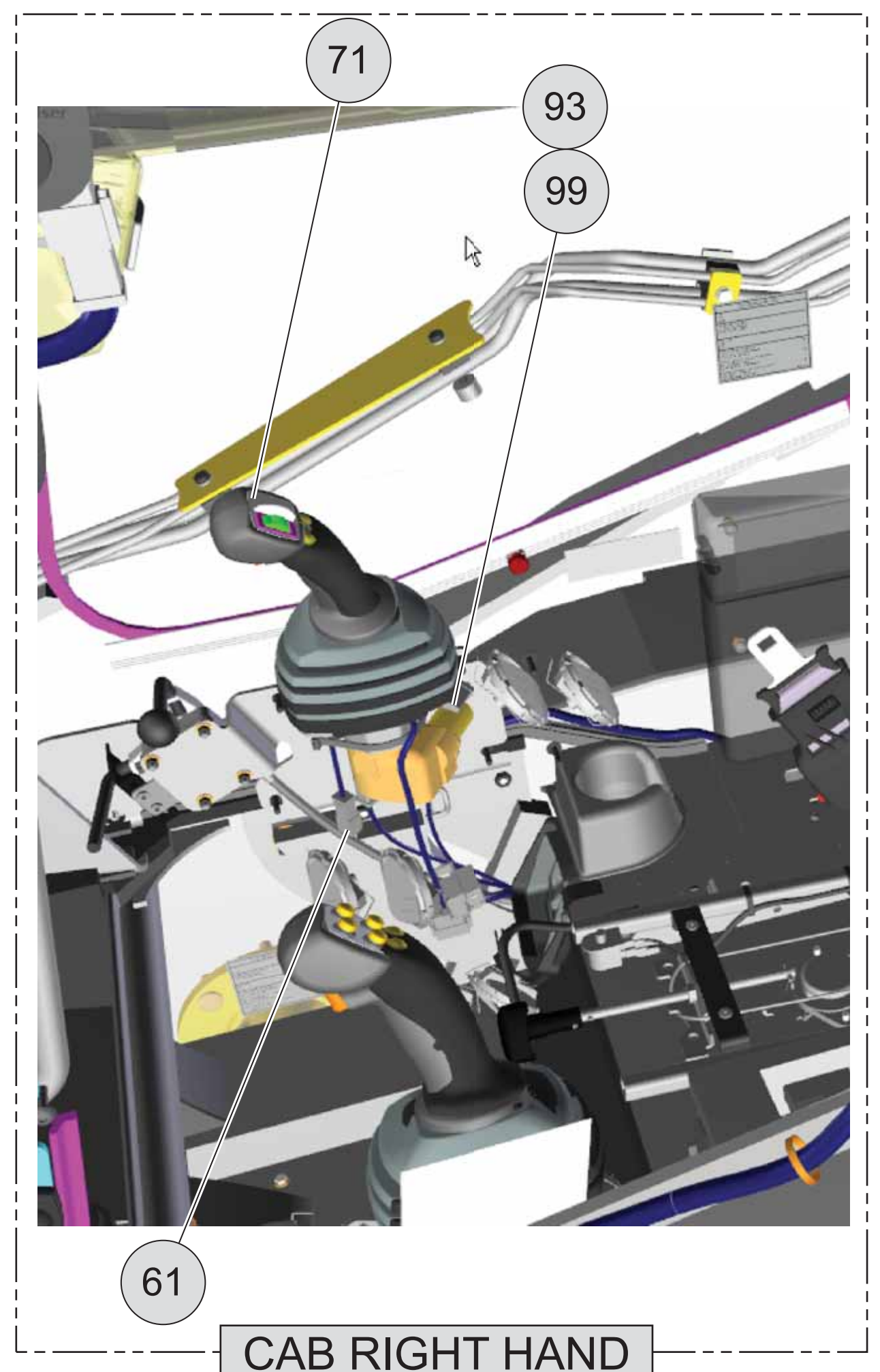
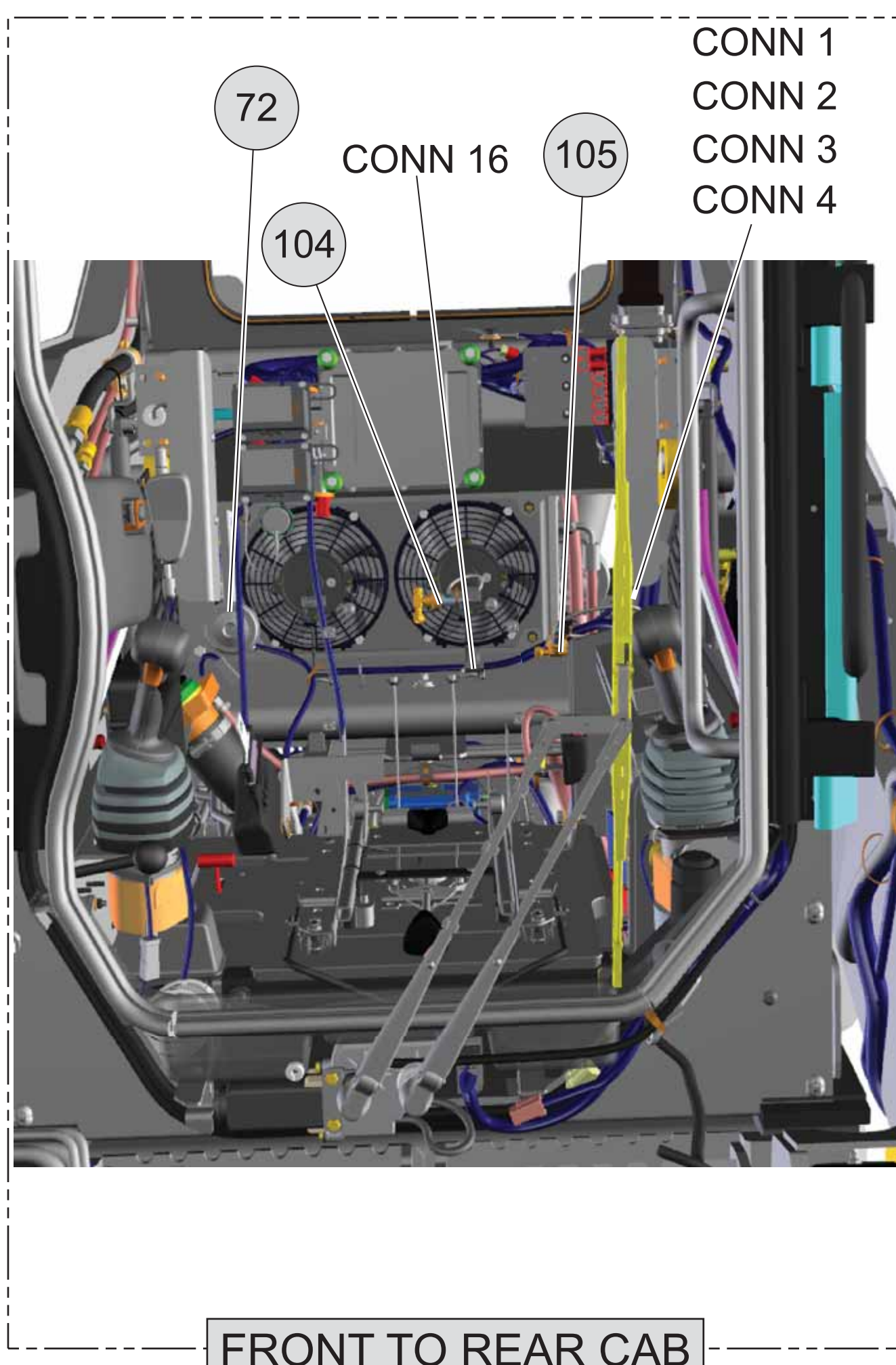
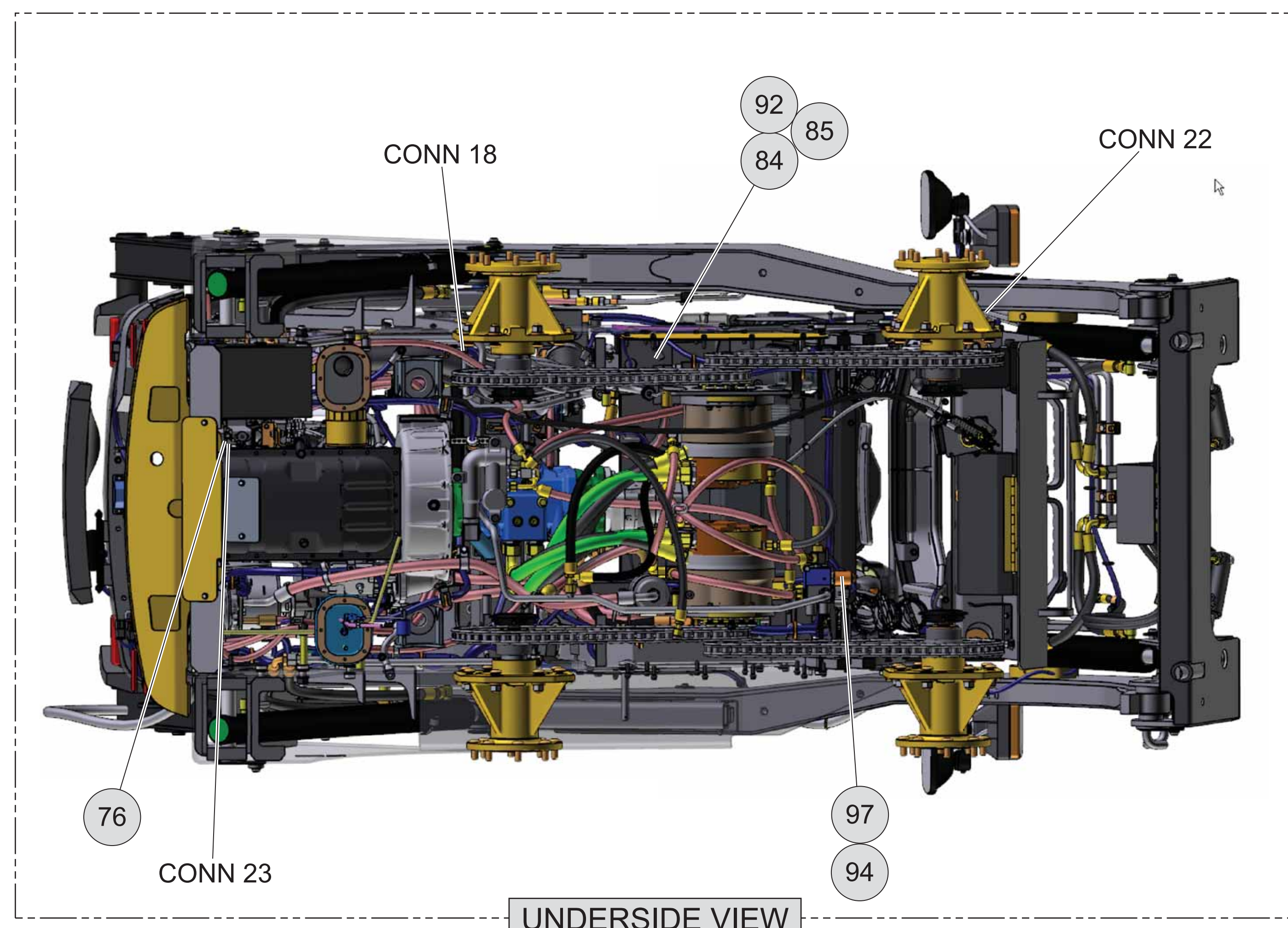
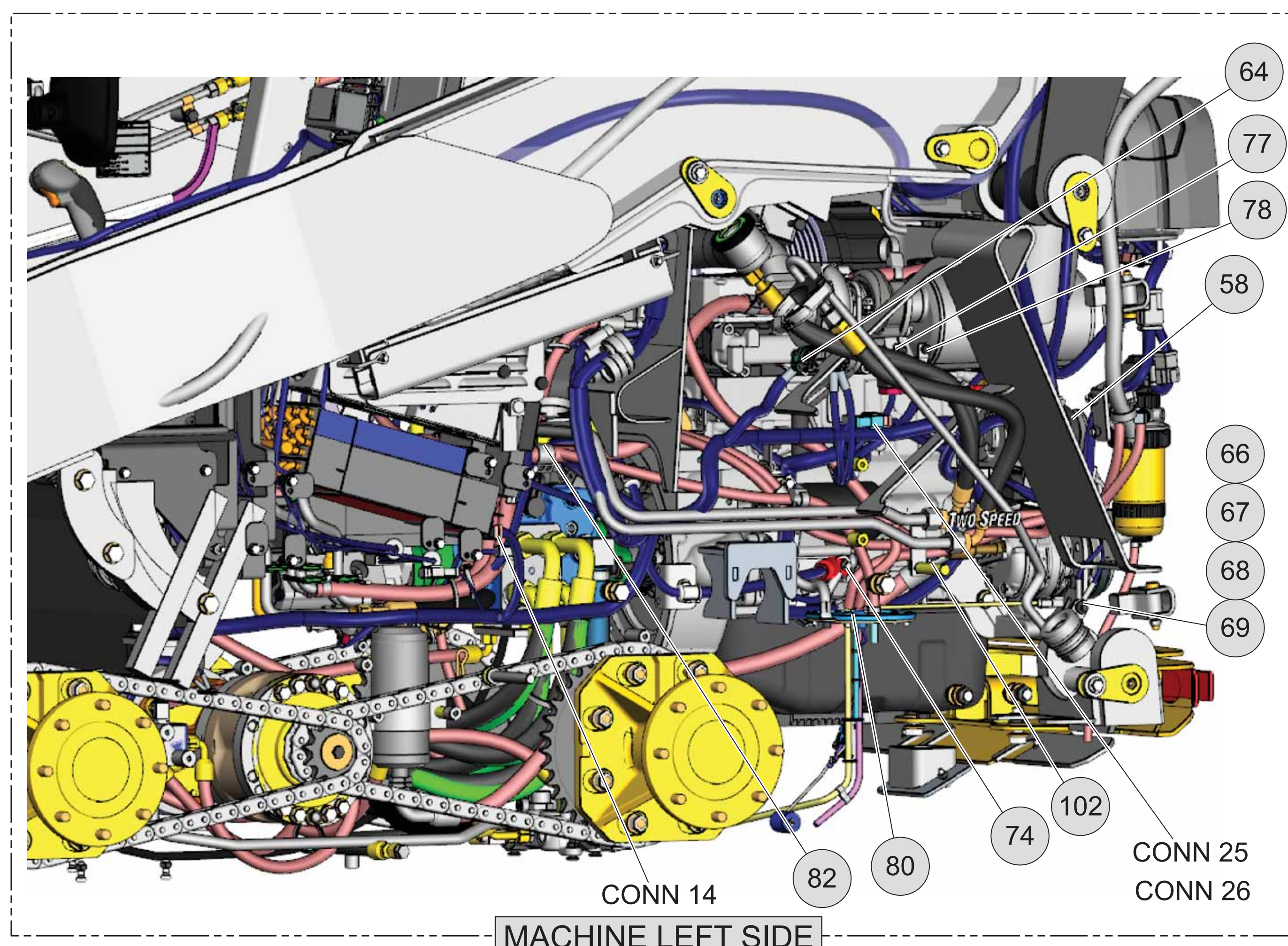
Part No.	Function	Actuate	Deactuate	Contact Position
184-1564	Stop Pressure (1)	375.9 (+ 37.9) - 68.6 kPa 54.2 (+5.0) - 9.9 psi	263 kPa MIN 381 psi	Normally Closed
192-0836	Stop Pressure (2)	517 (+ 41.6) - 68.6 kPa 75 (+6.0) - 10.0 psi	389.1 (+ 41.4) - 68.6 kPa 561 (+6.0) - 10.0 psi	Normally Open

Failure Mode Identifier (FMI) ¹		Failure Description
FMI No.		
1	One valve did not achieve its intended setpoint or range.	
2	Data valid but below normal operating range.	
3	Data errors, inconsistent, or impossible.	
4	Voltage above normal or abnormal high.	
4	Voltage below normal or abnormal low.	
5	Current below normal or current abnormally low.	
6	Current above normal or grounded circuit.	
7	Mechanical failure or abnormal vibration.	
8	Abnormal frequency, pulse width, or period.	
9	Abnormal speed.	
10	Abnormal rate of change.	
11	Failure mode not identifiable.	
12	Bad device or component.	
13	Out of calibration.	
14	Parameter failure.	
15	Parameter failure.	
16	Parameter not available.	
17	Module not responsive.	
18	Sensor supply fault.	
19	Controller not ready.	
20	Parameter failure.	

¹The FMI is a diagnostic code that indicates what type of failure has occurred.

Vol 2 Component Location				
Component	Reference Location	Component	Reference Location	
AC Compressor - HVAC	B1.11 56	Sensor - Engine Coolant Temperature	B1.16 56	
Alternator	B1.12 56	Sensor - Hydraulic Temperature	B1.17 56	
Battery	B4.20 60	Sensor - AC Compressor Clutch	B1.18 56	
Brake Master	B1.13 56	Sensor - A2	B1.19 56	
Cool Antenna	B1.21 61	Sensor - A1	B1.20 56	
Door - Bidding	B1.22 62	Sensor - Chiller Start Activation	B1.21 56	
Door - Locking	B1.23 62	Sensor - Chiller Stop Activation	B1.22 56	
Door - Master Pressure	B1.24 64	Sensor - Chiller Start	B1.23 56	
Flame	B1.25 66	Sensor - Fuel Flow Switch	B1.24 56	
Ground - Lower Frame	B1.26 68	Sensor - High Flow Valve	B1.25 56	
Ground - Lower Plate	B1.27 68	Sensor - Ignition, P1.1	B1.26 56	
Ground - Upper Frame	B1.28 68	Sensor - Park Brake	B1.27 56	
Ground - Upper Plate	B1.29 69	Sensor - Quick Closure	B1.28 56	
Handle - Lift	B1.30 70	Sensor - Temperature	B1.29 56	
Handle - Roll	B1.31 71	Sensor - Trip Switch	B1.30 56	
Non - Forward	B1.32 72	Sensor - Valve Driver	B1.31 56	
Indicator - Air Flow	B1.33 74	Sensor - Engine Coolant Temperature	B1.32 56	
Master - Starter	B1.34 74	Sensor - Engine Coolant Temperature	B1.33 56	
Master - Stop	B1.35 75	Sensor - Engine Oil Pressure	B1.34 56	
Pump - Fuel	B1.36 76	Switch - Hydraulic Fluid Pressure	B1.35 56	
Relay - Chiller Start	B1.37 77	Switch - Stop Pressure 1	B1.36 56	
Relay - Stop	B1.38 78	Switch - Stop Pressure 2	B1.37 56	
Relay - Overhaul	B1.39 79			
Sensor - Fuel Level	B1.40 80			

Check Part Numbers in the Parts Manuals for your Specific Machine.



UENR2643-03
October 2013

**216B3, 226B3, 236B3, 242B3,
and 252B3 Skid Steer Loader
247B3 and 257B3 Multi-Terrain Loader
259B3 Compact Track Loader
Electrical System**

Skid Steer Loader:	Multi-Terrain Loader:	Compact Track Loader:
SNA1-UP	B7H894-UP	YYZ1543-UP
MWD2399-UP	ESL1-UP	
A9H1480-UP	TSL852-UP	
TNK992-UP	KB31-UP	
JXM1961-UP		
DSN1-UP		
SRS1066-UP		
AS21-UP		
CD31-UP		

Volume 2 of 2: Chassis and Engine Wiring

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**Caterpillar 216B3, 226B3, 236B3, 242B3, 247B3, 252B3, 257B3,
259B3 Service Manual**



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