CATERPILLAR®

Service Manual

Models
TH336C, TH337C, TH406C, TH407C, TH414C, TH514C, TH417C

S/N MJR00150 & After, S/N THM00150 & After,
S/N DJB00150 & After, S/N SXJ00150 & After,
S/N GAT00150 & After, S/N RCH00150 & After,
S/N MLH00150 & After, S/N JJT00150 & After,
S/N KEK00150 & After, S/N RWW00150 & After,
S/N MWC00150 & After, S/N KKW00150 & After,
S/N RRJ00150 & After, S/N RRW00150 & After

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2.3.4 Electrical System

Battery	
Type, Rating	12 V, Negative (-) Ground, Tapered Top Post, Maintenance Free
Quantity	1 - (2 - If Equipped)
Cranking Performance	1 - 900 Cold Cranking Amps @ -18° C (0° F) (2 - If Equipped), 1800 Cold Cranking Amps @ -18° C (0° F)
Group/Series	BCI Group 31
Alternator	74.5 kW - 12V, 100 Amps 75 kW, 93.1 kW, 92.6 kW & 106 kW - 12V, 120Amps
Starter	74.5 kW, 75 kW, 93.1 kW - 12V, R4,2 KW 92.6 kW & 106 kW - 12V, R4,0 KW

2.3.5 Engine Fan Speed

Fan Type	Fan Speed - High Idle	Fan Hydraulic Pressure	Oil Temperature
Hydraulic	2225 - 2275 RPM	205 - 215 bar (2973 - 3118 psi)	45°- 55°C (113°-131°F)
Belt Driven	2525 - 2575 RPM	N/A	N/A

2.3.6 Engine Performance Specifications

a. S/N MJR00150 & After, DJB00150 & After00150 & After, GAT00150 & After, MLH00150 & After, KEK00150 & After, MWC00150 & After, RRJ00150 & After

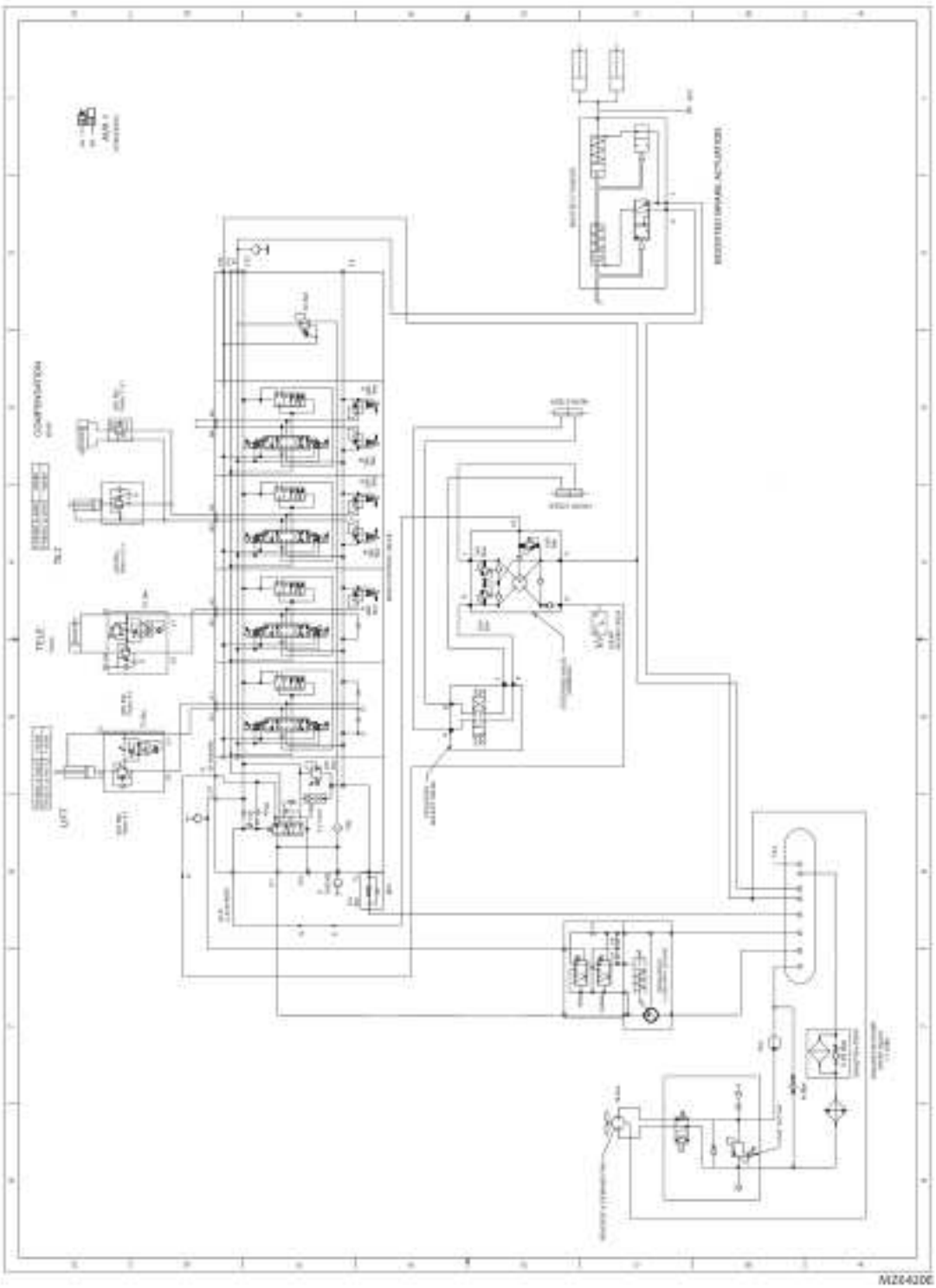
Description	75 kW	92.6 kW	106 kW
Engine Make/Model	CAT C3.4	CAT C4.4	CAT C4.4
Displacement	3,4 liters (207 in³)	4,4 liters (269 in³)	4.4 liters (269 in³)
Low Idle	845 - 855 rpm	795 - 805 rpm	795 - 805 rpm
High Idle	2295 - 2345 rpm	2295 - 2345 rpm	2295 - 2345 rpm
Power	75 kW @ 2200 rpm	92,6 kW @ 2200 rpm	106 kW @ 2200 rpm
Peak Torque	410 Nm (302 lb-ft) @ 1400 rpm	530 Nm (365 lb-ft) 1400 rpm	560 Nm (365 lb-ft) @ 1400 rpm
Fuel Delivery	Fuel Injection	Fuel Injection	Fuel Injection
Air Cleaner	Dry Type, Replaceable Primary and Safety Elements	Dry Type, Replaceable Primary and Safety Elements	Dry Type, Replaceable Primary and Safety Elements

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8.6 HYDRAULIC SCHEMATICS

Refer to Hydraulic Schematic Package (P/N 31200831)

8.6.1 TH336C, TH337C, TH406C & TH407C



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9.20.2 74.5 kW - S/N MJR00150, DJB00150, GAT00150, MLH00150, KEK00150, MWC00150 & RRJ00150

Fault Code Description	DTC/Code (SPN)	SYMPTOM (FMI)
Very Low Aftertreatment 1 Diesel Particulate Filter NMHC Conversion Efficiency (Level 2)	5310	17
Aftertreatment 1 Diesel Particulate Filter Regeneration too Frequent (emissions non compliance)	5397	31
Diesel Particulate Filter Active Regeneration Inhibited Due to Temporary System Lockout High	3714	15
Diesel Particulate Filter Active Regeneration Inhibit Status - Current Below Normal	3702	5
Diesel Particulate Filter Active Regeneration Inhibit Status - Current Above Normal	3702	6
Diesel Particulate Filter Active Regeneration Inhibit Status - Current Above Normal	3702	6
Diesel Particulate Filter Active Regeneration Inhibit Status - Current Below Normal	3702	5
Exhaust System High Temperature Lamp Command Current Below Normal	3698	5
Exhaust System High Temperature Lamp Command Current Above Normal	3698	6
Exhaust System High Temperature Lamp Command Current Above Normal	3698	6
Exhaust System High Temperature Lamp Command Current Below Normal	3698	5
Diesel Particulate Filter Lamp Command Current Below Normal	3697	5
Diesel Particulate Filter Lamp Command Current Above Normal	3697	6
Diesel Particulate Filter Lamp Command Current Above Normal	3697	6
Diesel Particulate Filter Lamp Command Current Below Normal	3697	5
Low Aftertreatment 1 Diesel Particulate Filter NMHC Conversion Efficiency (Level 1).	5310	17
High Diesel Particulate Filter 1 Soot Load Percent (2)	3719	16
Very High Diesel Particulate Filter 1 Soot Load Percent (3)	3719	0
Aftertreatment 1 Diesel Particulate Filter Incomplete Regeneration	5319	31
High Aftertreatment 1 Diesel Particulate Filter Differential Pressure (1)	3251	15
High Aftertreatment 1 Diesel Particulate Filter Differential Pressure (2)	3251	16
Diesel Particulate Filter Active Regeneration Inhibited Due to Inhibit Switch Intermittent	3703	2
Diesel Particulate Filter 1 Conditions Not Met for Active Regeneration	3750	31
Customer or System Parameters Incorrect	630	2

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Neutral Into First Gear (End of Shift) (FORWARD)

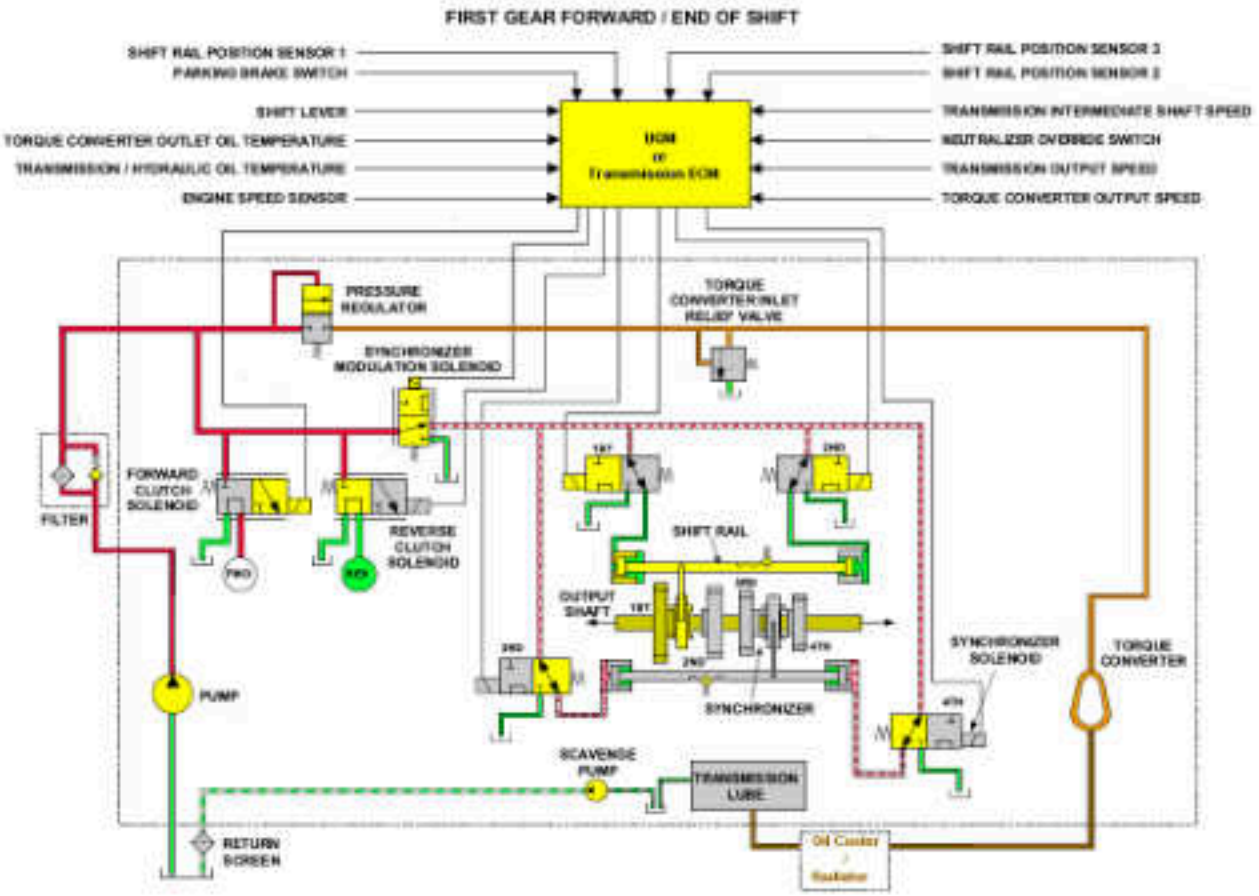


Illustration 51

The position sensor detects the position of the shift rail. When the shift rail is in the ENGAGED Position, the solenoid for the synchronizer that is on the opposite end of the same shift rail is energized. The oil that is on that end of the shaft is sent to the tank. The gear is kept in the engaged position by the spring and ball detents that are in the synchronizers.

When a gear change is made, all energized solenoids for the synchronizer are de-energized. Oil is then sent to both ends of the shift rail and the shift rail is moved to the NEUTRAL Position. There is a double piston arrangement on each end of each shift rail. The smaller piston is used to push the shift rail into gear and the larger piston is used to shift that particular shift rail into neutral.

For example, the port for the small piston is blocked on the "in gear end" of the shift rail and the oil acts on the large piston. The oil on the other end of the shift rail is acting on the small piston. This imbalance pushes the shift rail to the Neutral Position. As the shift rail gets closer to the NEUTRAL Position, less oil acts on the large piston and more oil acts on the small piston. When neutral for that particular shift rail is attained, oil on both ends of the shaft acts on the small piston and the shaft stops moving. The spring and ball detents hold the shift rail in the NEUTRAL Position.

When the transmission control lever is placed into the NEUTRAL Position, only the direction clutch is disengaged and the synchronizers stay in gear.

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Systems Operation Section

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Graphic Color Codes

SMCS Code: 4000

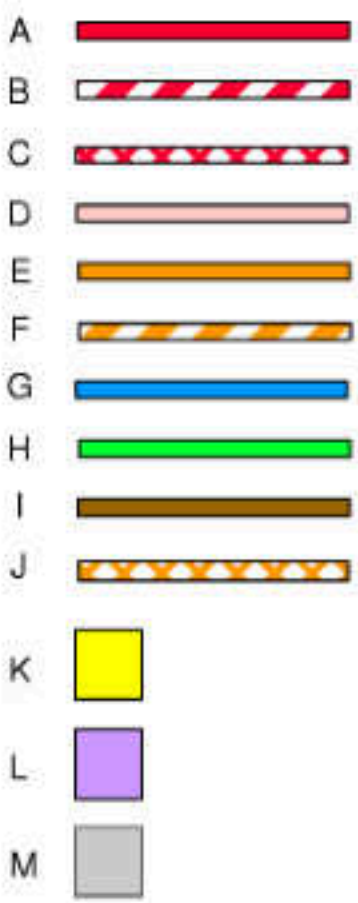


Illustration 1 g01023555

(A) Red ..... High pressure oil

(B) Red Stripes and White Stripes ..... First pressure reduction

(C) Red Crosshatch ..... Second pressure reduction

(D) Pink ..... Third pressure reduction

(E) Orange ..... Pilot, signal or torque converter oil

(F) Orange Stripes and White Stripes ..... Reduced pilot, signal or torque converter oil

(G) Blue ..... Trapped oil

(H) Green ..... Tank, sump or return oil

(I) Brown ..... Lubricating oil

(J) Orange Crosshatch ..... Second reduction in pilot, signal or torque converter oil

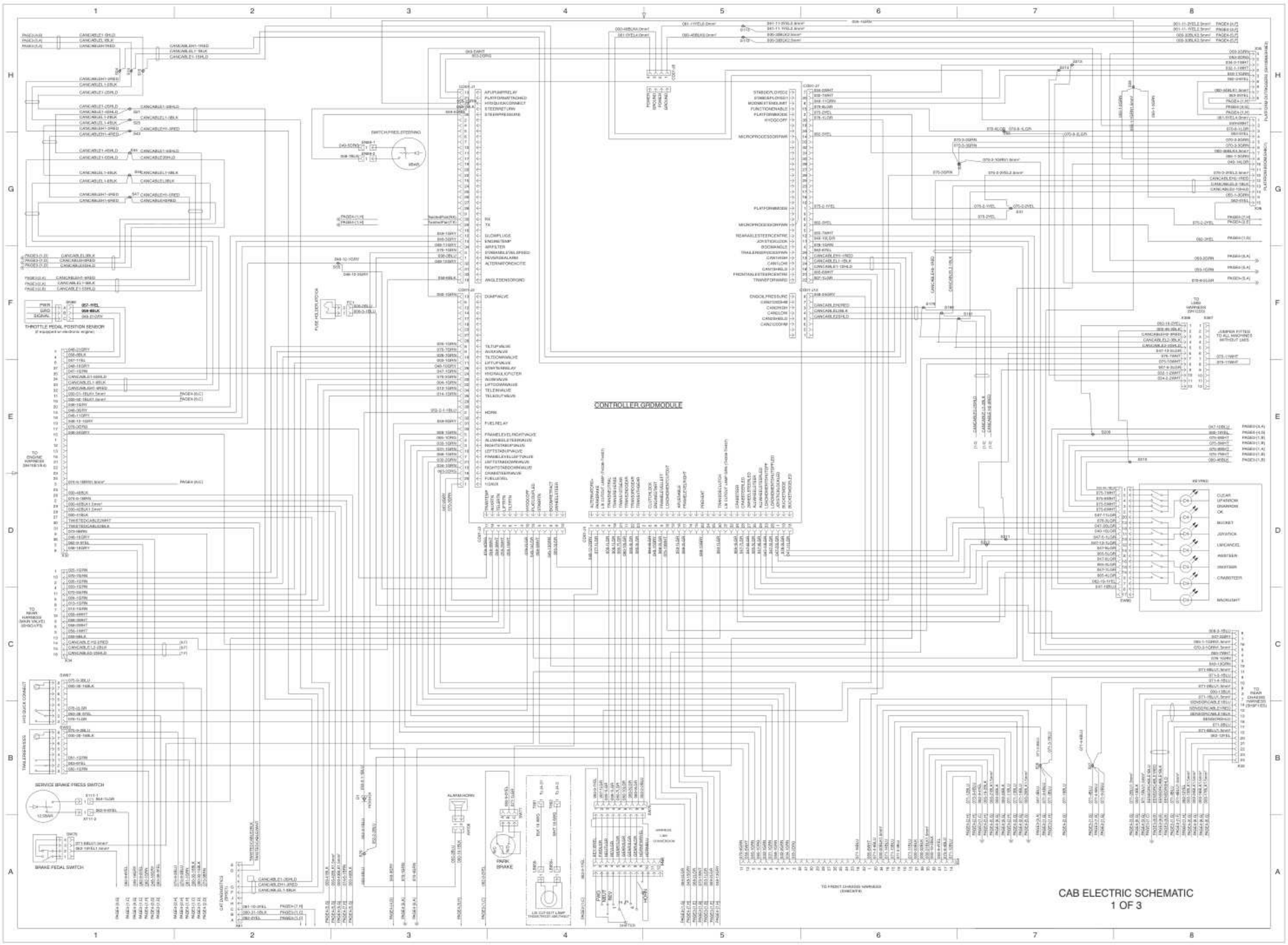
(K) Yellow ..... Moving or activated components

(L) Purple ..... Pneumatic pressure

(M) Light Gray ..... Surface color

Note: The information that is covered in this manual may not require all of the colors in Illustration 1.

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S/N TDE00337 & After including TDE00297-313, 328 & 332
S/N TDF00329 & After including TDF00297, 299-302, 317, 320, 321, 323, 324 & 327
S/N TBX00454 & After
S/N TBY01110 & After excluding TBY01121, 1122 & 1128
S/N TBZ00561 & After
S/N TBW00201 & After
S/N TBT00216 & After

TH336, TH337, TH406, TH407, TH414, TH514, TH417
Electrical Schematic
31200720

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