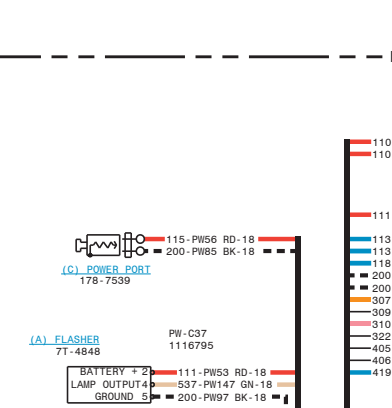
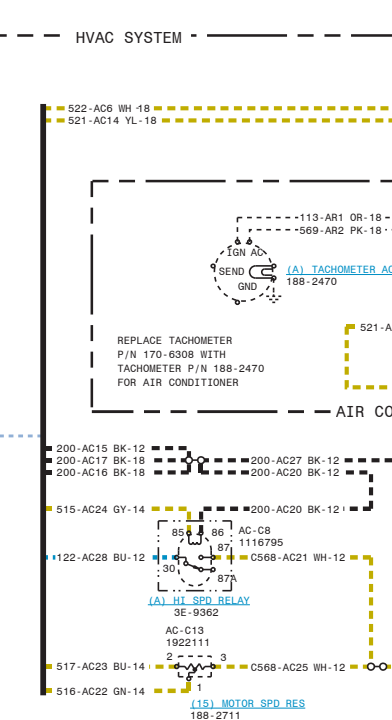
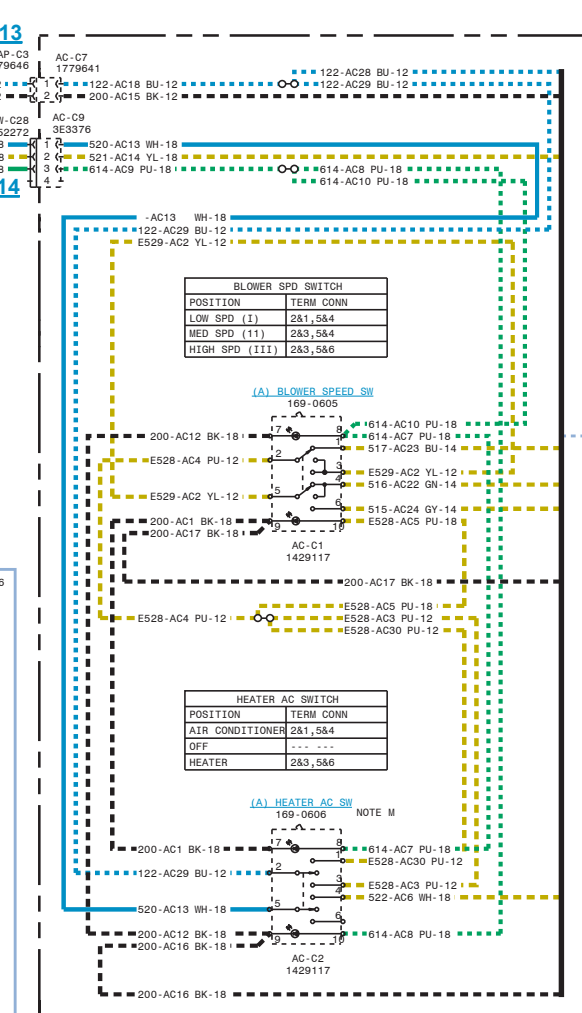
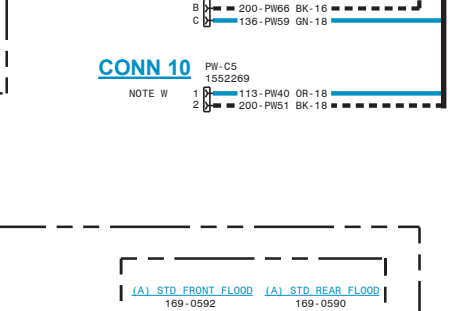
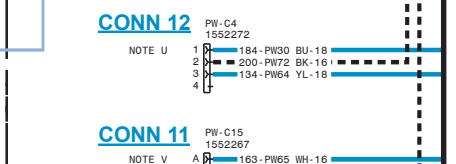
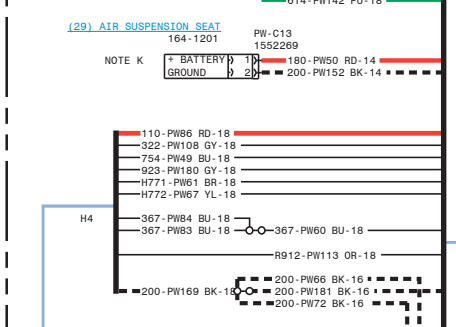
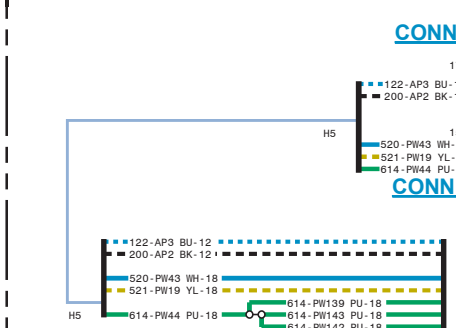
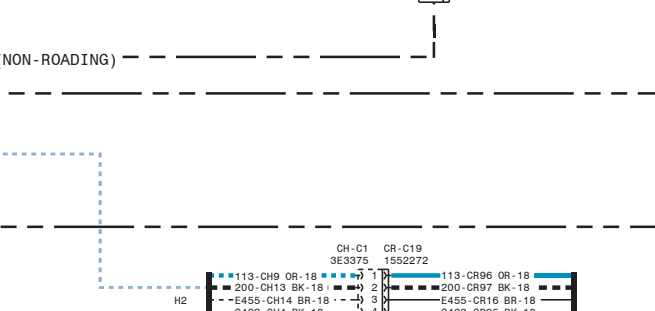
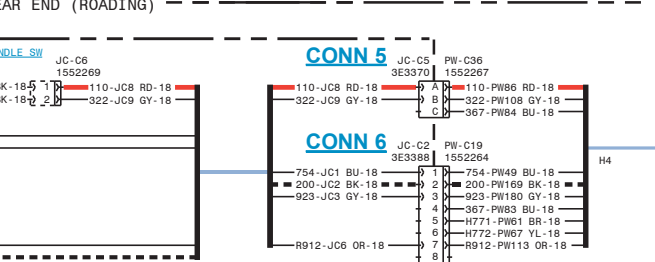
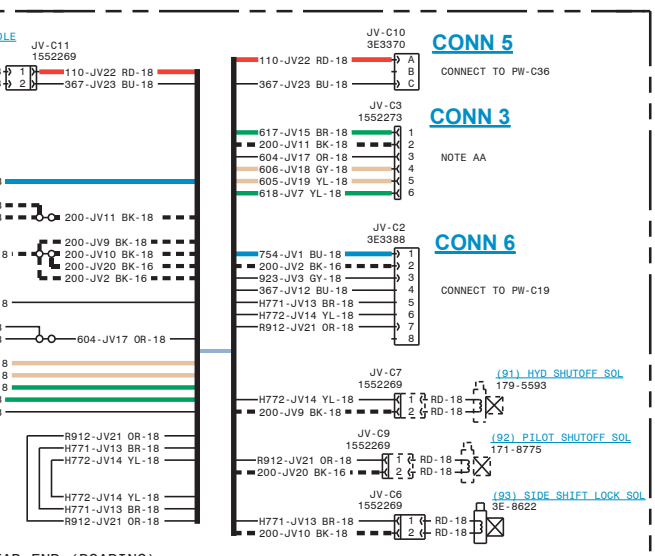
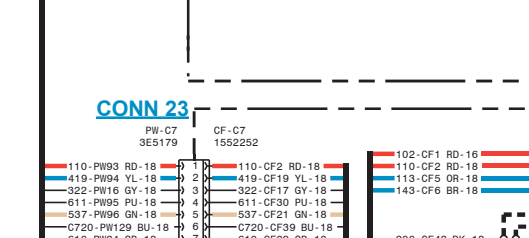
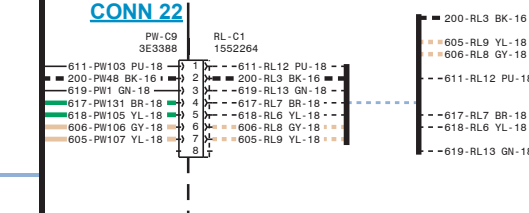
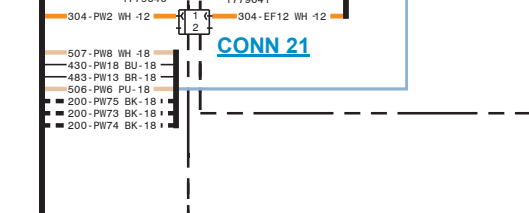
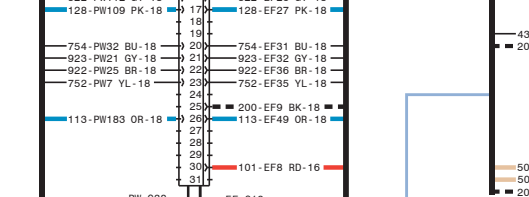
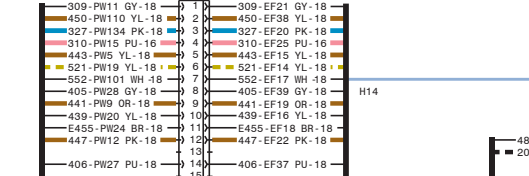
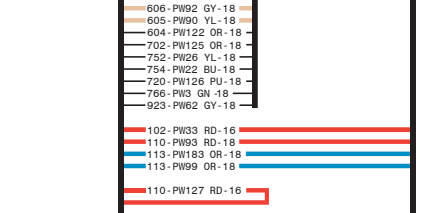
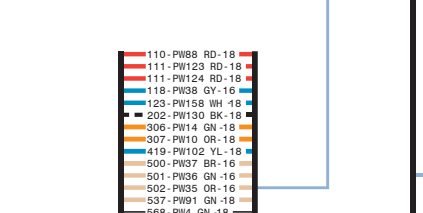
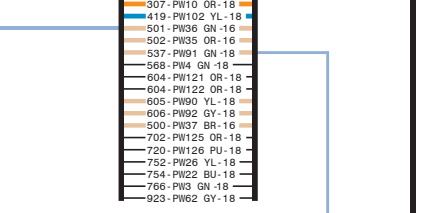
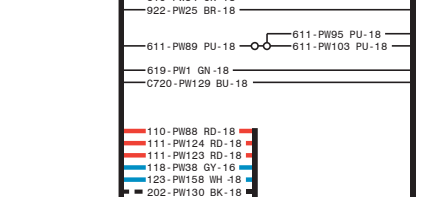
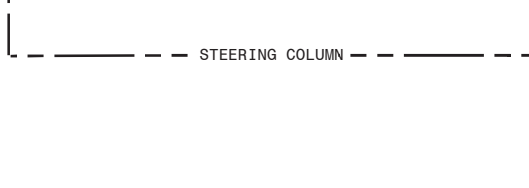
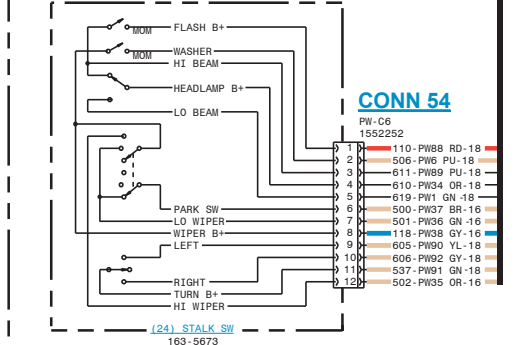
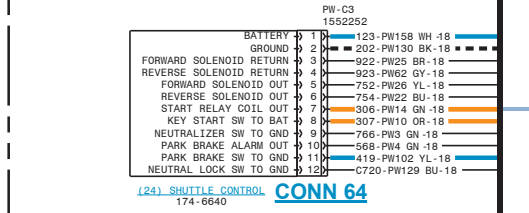
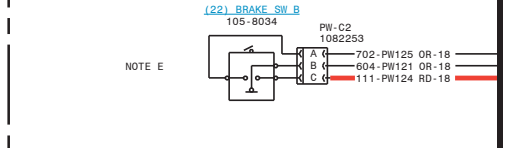
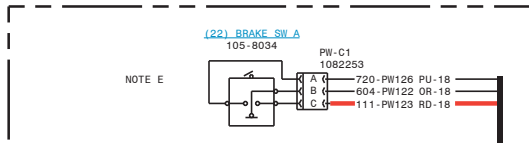
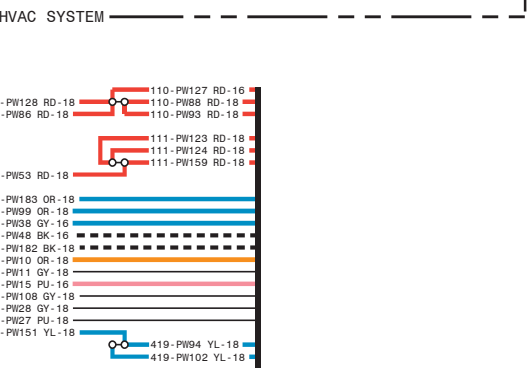
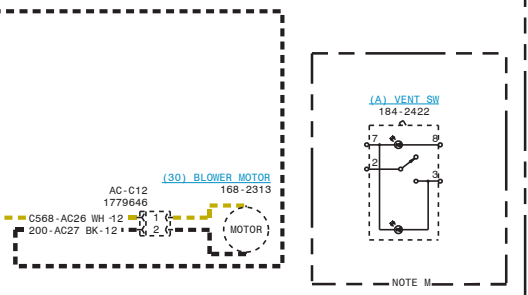
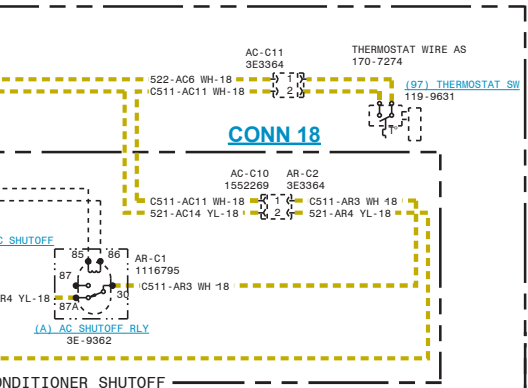


LAMP FUNCTION	
L1	LOW OIL PRESSURE
L2	HIGH COOLANT TEMP

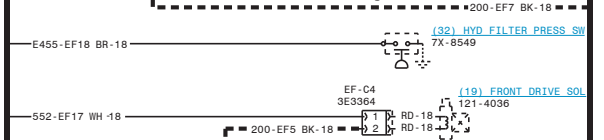
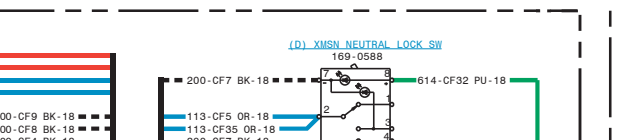
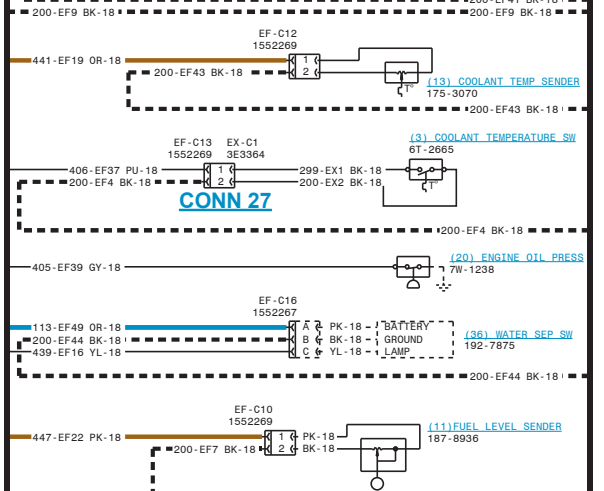
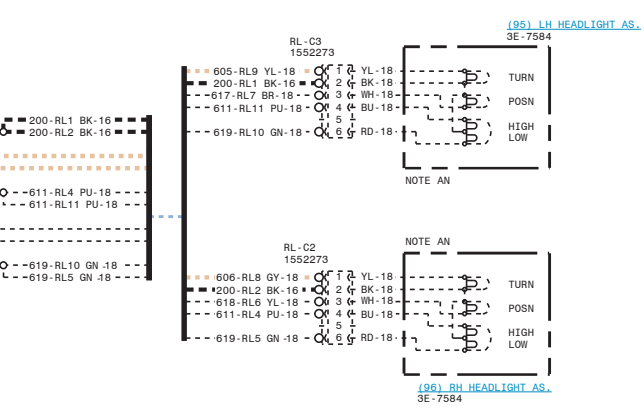
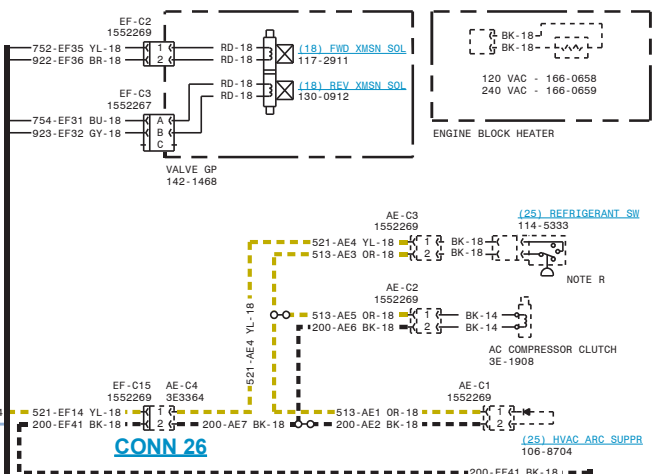
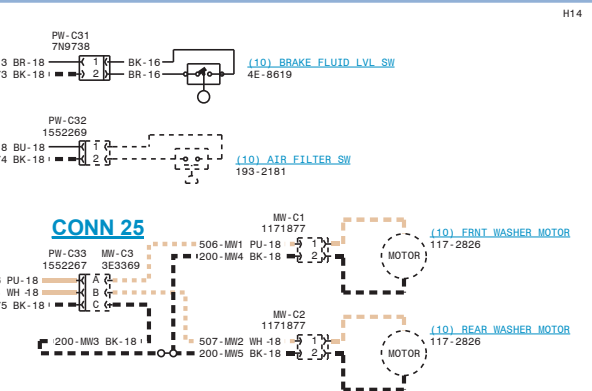




3

2

1

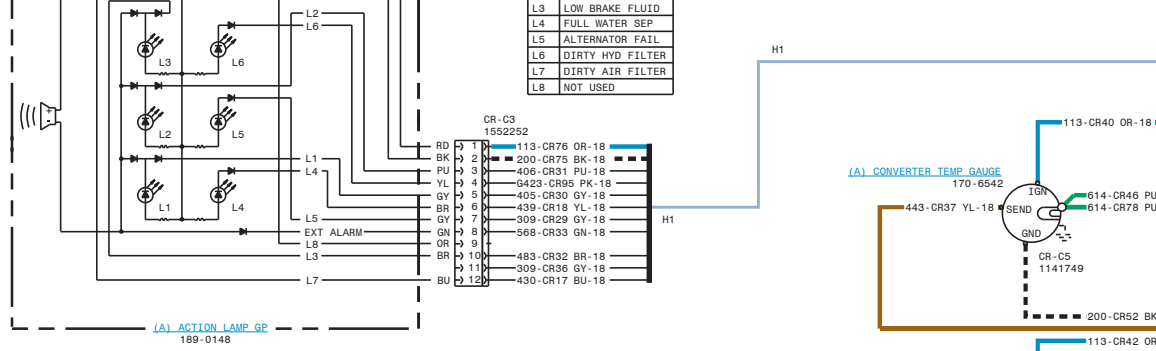


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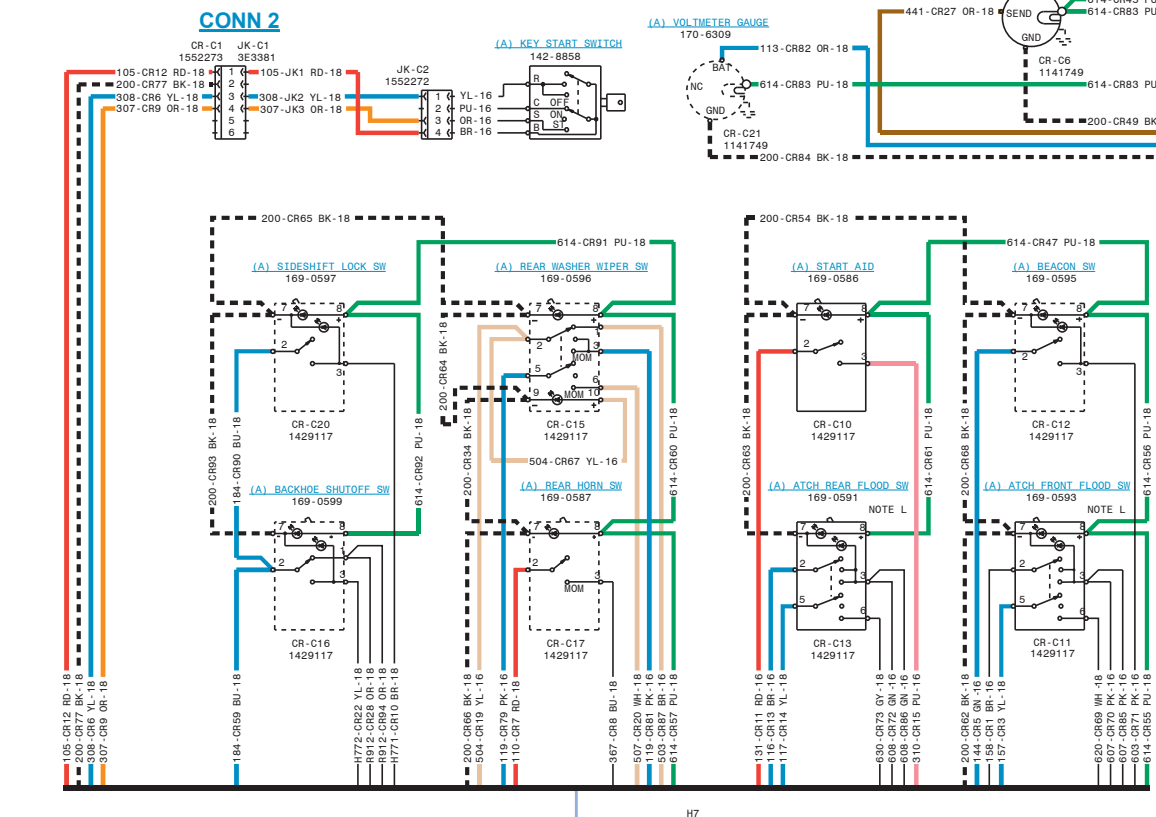
H

G

F

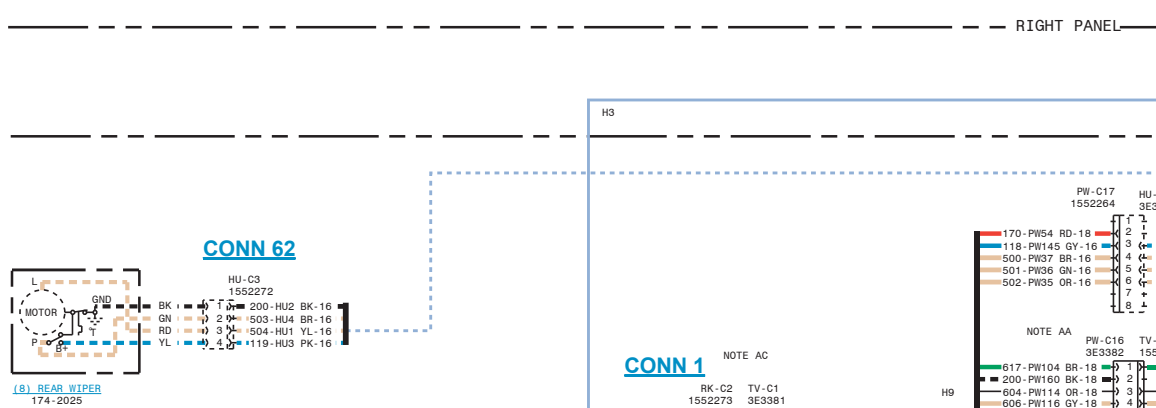


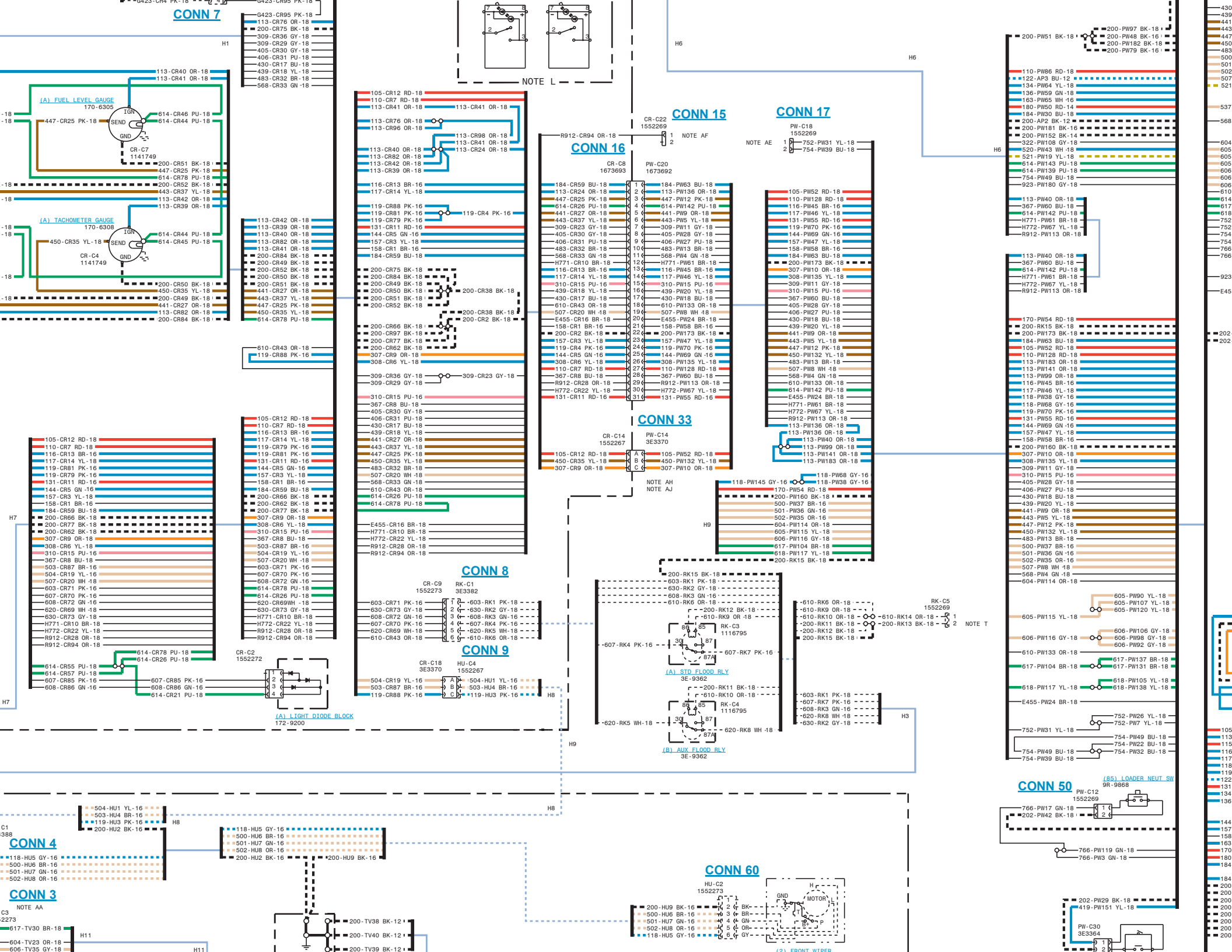
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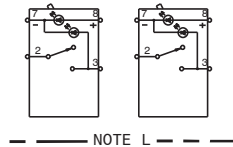
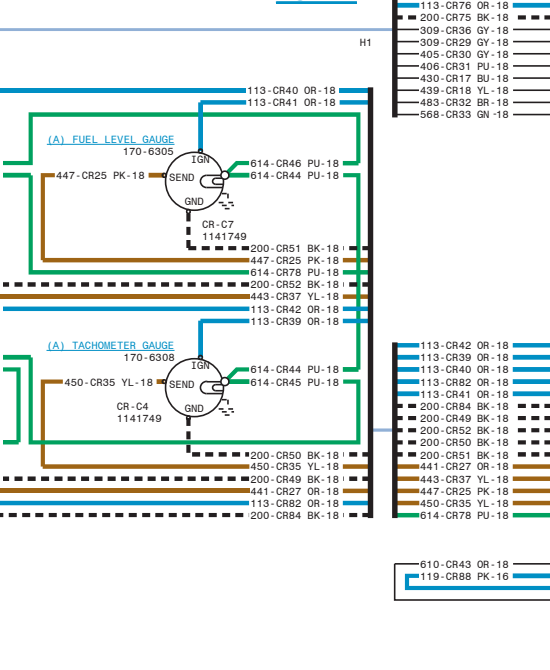
D

C



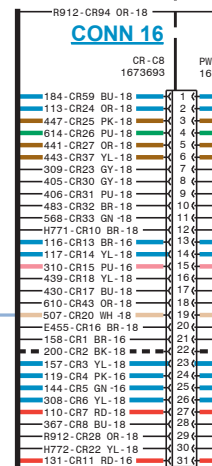


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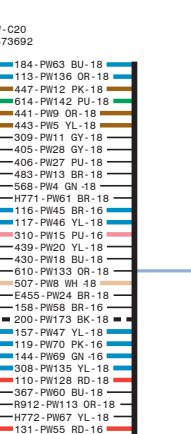


NOTE L

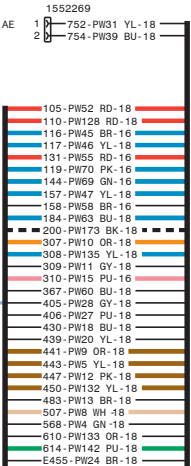
**CONN 15**



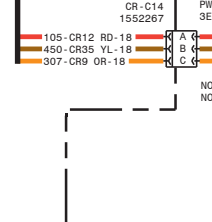
**CONN 16**



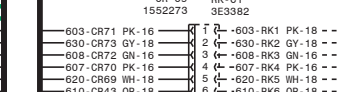
**CONN 17**



**CONN 33**



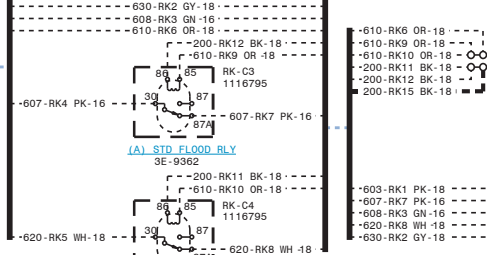
**CONN 8**



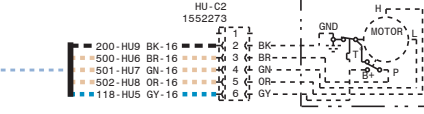
**CONN 9**



**CONN 30**



**CONN 60**



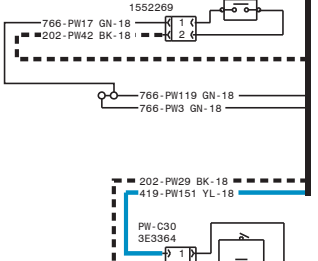
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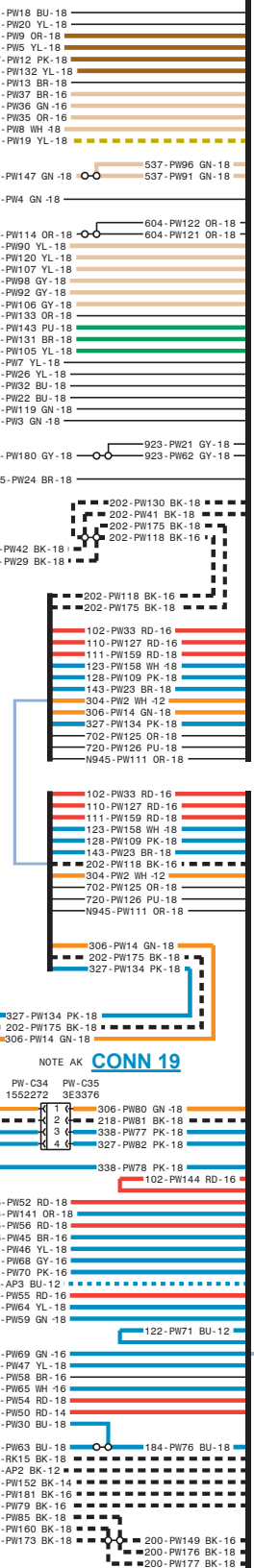


**CONN 3**



**CONN 50**





H13

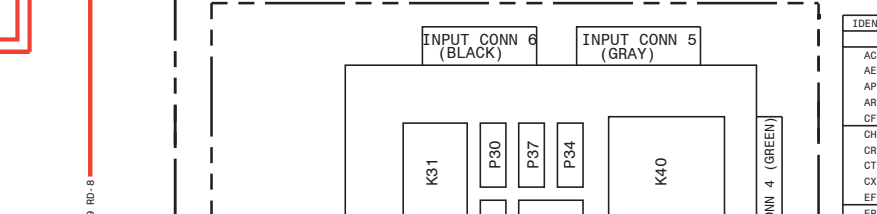
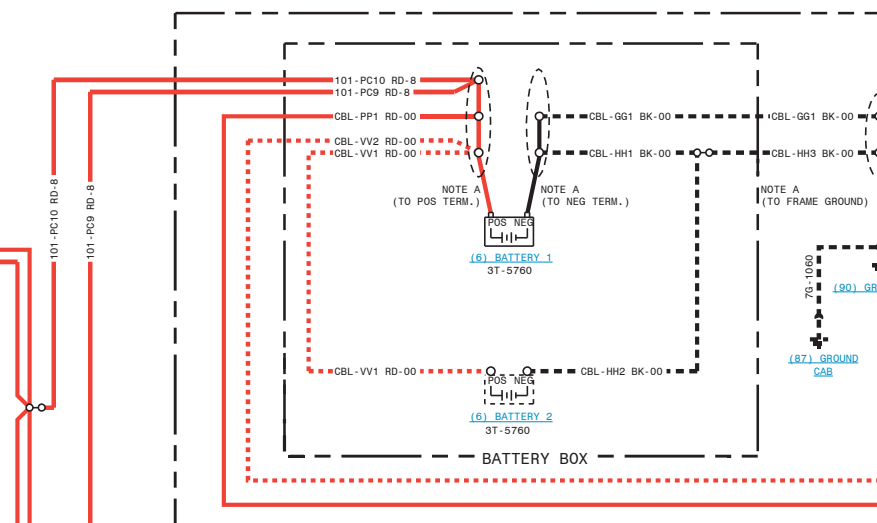
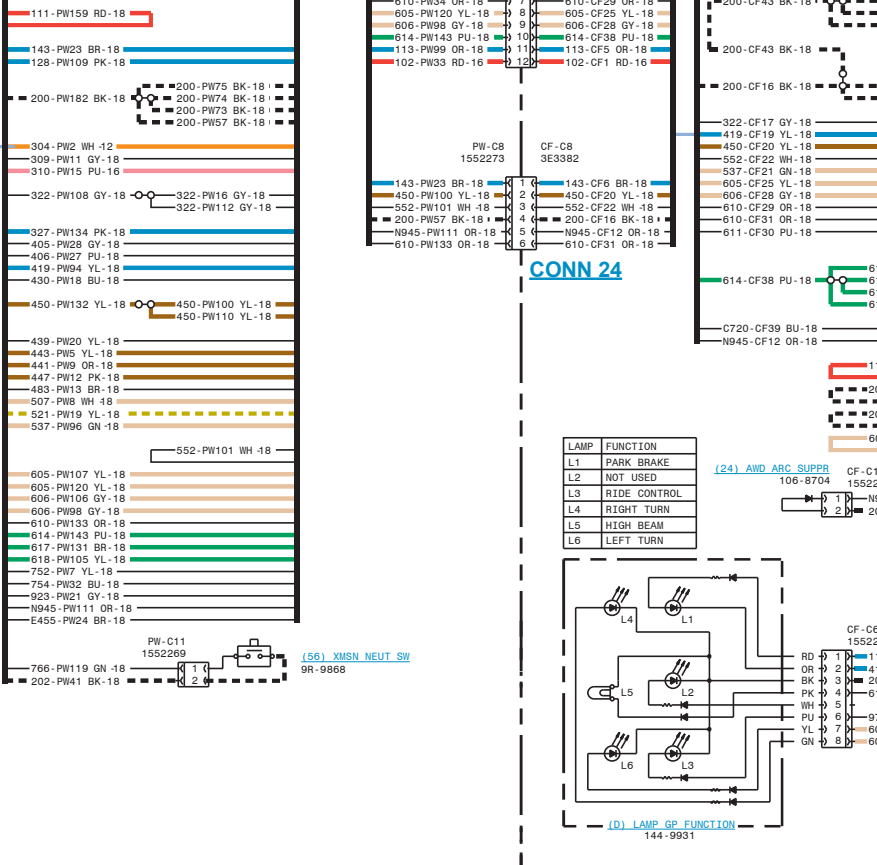
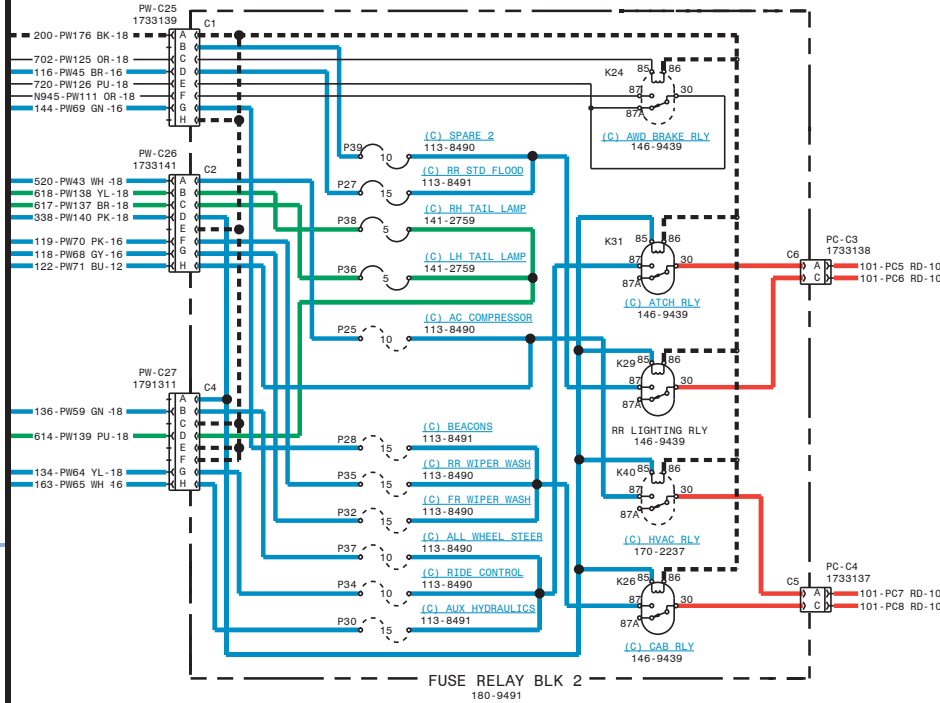
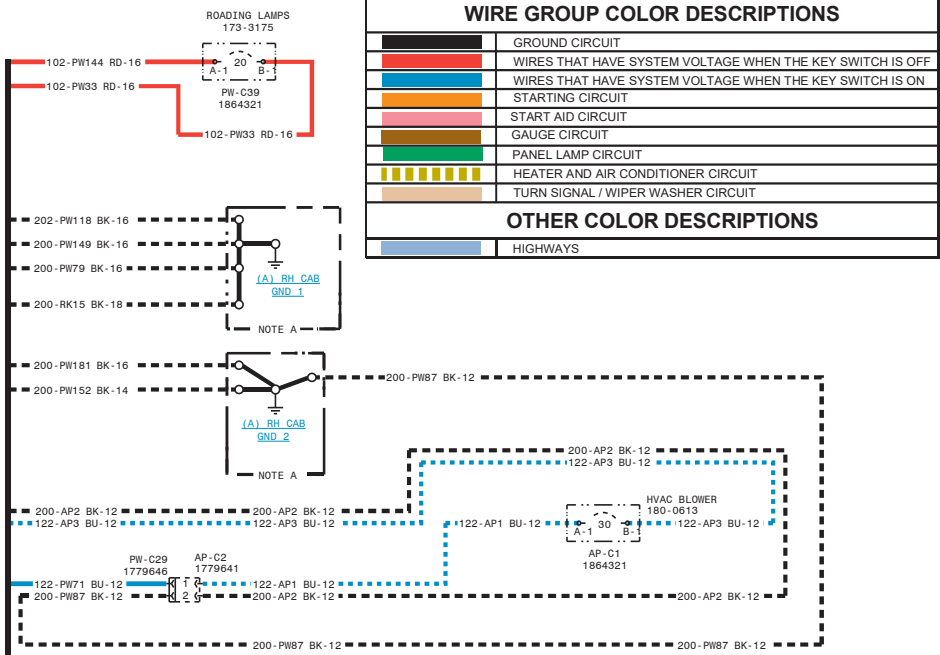
H13

### WIRE GROUP COLOR DESCRIPTIONS

	GROUND CIRCUIT
	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS OFF
	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS ON
	STARTING CIRCUIT
	START AID CIRCUIT
	GAUGE CIRCUIT
	PANEL LAMP CIRCUIT
	HEATER AND AIR CONDITIONER CIRCUIT
	TURN SIGNAL / WIPER WASHER CIRCUIT
	HIGHWAYS

### OTHER COLOR DESCRIPTIONS

	HIGHWAYS
--	----------

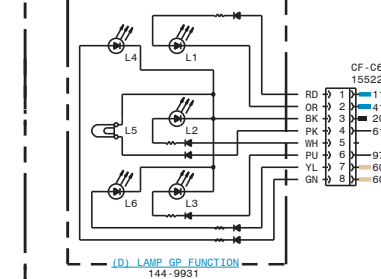


CONN 24

CONN 19

FUSE RELAY BLK 2  
180-9491

LAMP	FUNCTION
L1	PARK BRAKE
L2	NOT USED
L3	RIDE CONTROL
L4	RIGHT TURN
L5	HIGH BEAM
L6	LEFT TURN



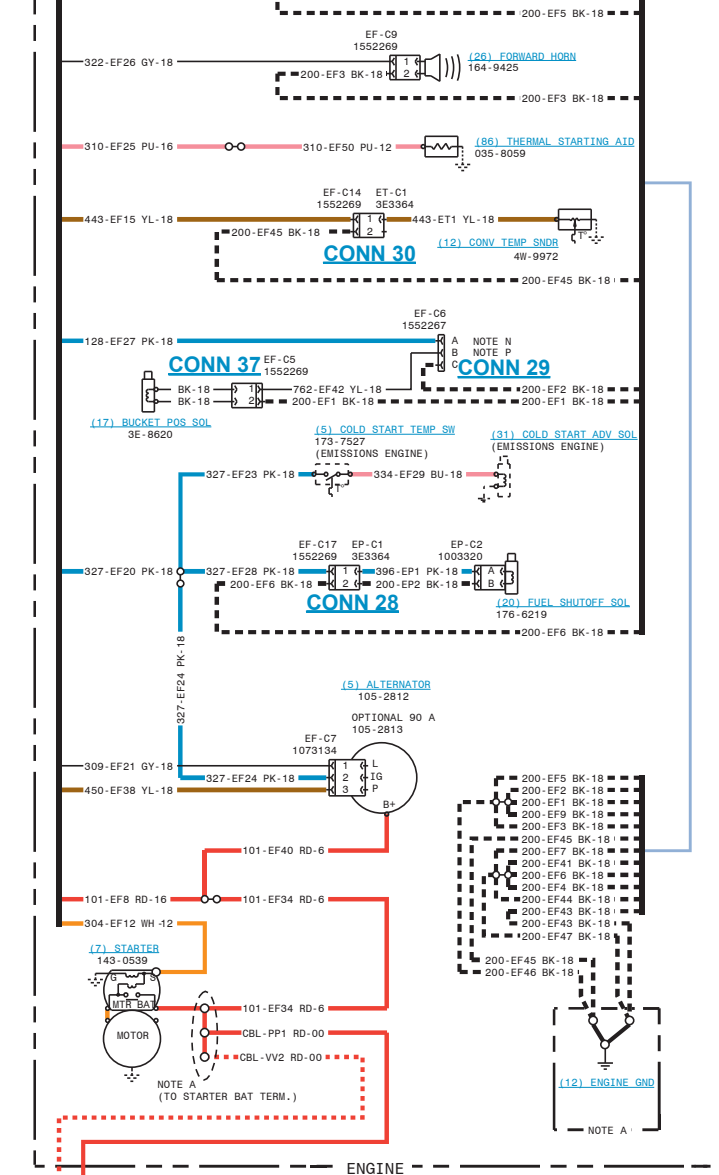
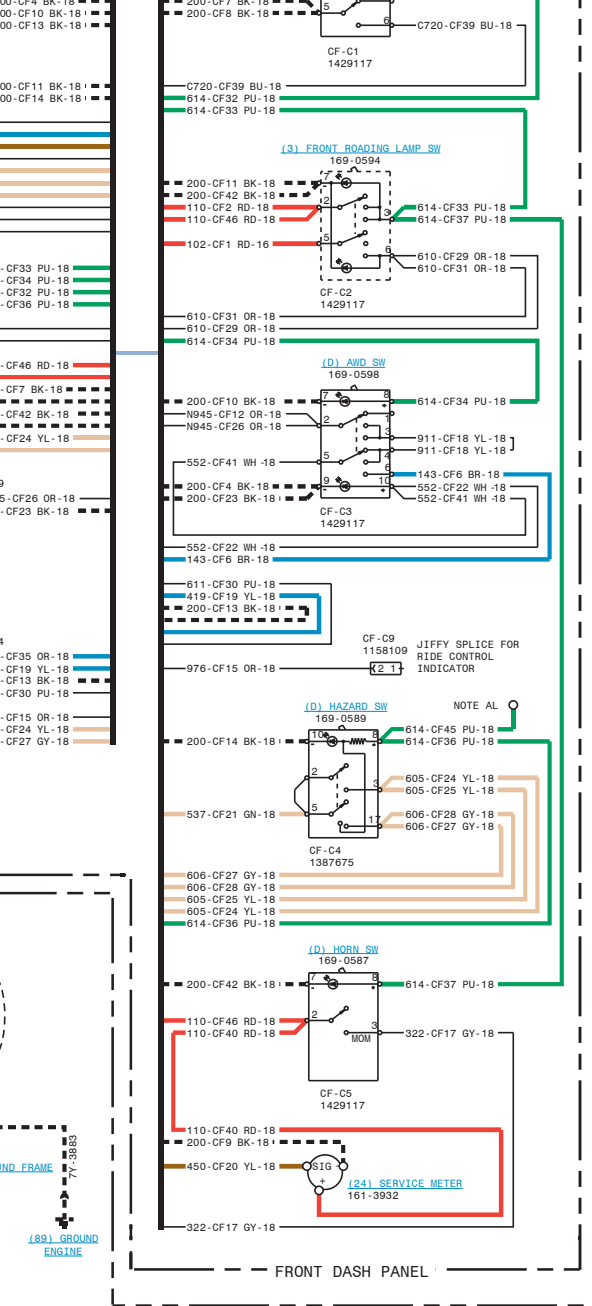
BATTERY 1  
3T-5760

BATTERY 2  
3T-5760

INPUT CONN 6  
(BLACK)

INPUT CONN 5  
(GRAY)

IDENT
AC
AP
AF
CF
CH
CT
CX
EF



ABBREV	COLOR	SYMBOL	DESCRIPTION
RD	RED	+	BLADE, SPADE, RING, OR SCREW TERMINAL
WH	WHITE	+	CIRCUIT CONNECTED
OR	ORANGE	+	CIRCUIT NOT CONNECTED
YL	YELLOW	+	ELECTRICAL CONNECTION TO MACHINE STRUCTURE
PK	PINK	+	INTERNAL ELECTRICAL CONNECTION TO SURFACE OF COMPONENT
BK	BLACK	+	CONNECTOR
GY	GRAY	+	ATCH WIRE, CABLE & COMPONENT
PU	PURPLE	+	CIRCUIT GROUPING DESIGNATION
BR	BROWN	+	SPLICE
GN	GREEN	+	
BU	BLUE	+	

PART NO.	CHG	LOC	NOTE	DESCRIPTION
HARNES AS:				
174-2302	02	SH I-10	J	HVAC-PLATFORM
174-6417	02	SH H-2	J	HVAC COMPRESSOR
200-6918	00	SH E-6	J	HVAC - CKT. BREAKER
179-5771	02	SH I-8	J	HVAC - SHUTOFF RELAY
167-3701	02	SH G-4		FRONT CONSOLE
194-4414	01	SH G-13	J	HYDRAULIC FILTER PRESSURE SW. TIMER
167-3702	04	SH E-10		RIGHT SIDE CONSOLE
183-4492	01	SH2 G-8	J	FRONT CONSOLE OROPS TURN SIGNAL
183-4429	01	SH D-11	H	SIDE CONSOLE EXTENSION - NON-ROADING
167-3703	04	SH I-4		ENGINE AND FRAME
179-9465	00	SH E-1		ENGINE FUEL SOL ENOTD

**NOTE LOC**

SH1 VARIOUS,A-13 NOTE A: ASSEMBLE TERMINALS TO DESIGNATED STUD

SH2 VARIOUS NOTE C: WIRES ARE TWISTED. TWISTED 1 TWIST PER 25mm.

SH1 I-7 NOTE E: NORMALLY CLOSED WHEN BRAKE IS DEPRESSED

SH1 A-3,B-3 NOTE H: OPTION HARNES - ALTERNATE BASED ON MACHINE CONFIGURATION.

SH1 A-3,B-3 NOTE J: ATTACHMENT HARNES

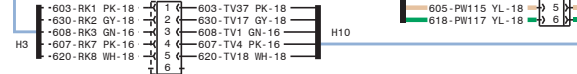
F

E

D

C



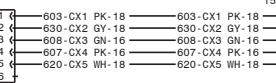


CAB HEADLINER

OPERA

**CONN 8** CX-C1  
3E3382

CONNECT CX-C1 TO  
CONNECTOR CR-C9  
(LOC D-11) FOR  
NORTH AMERICAN  
MACHINES

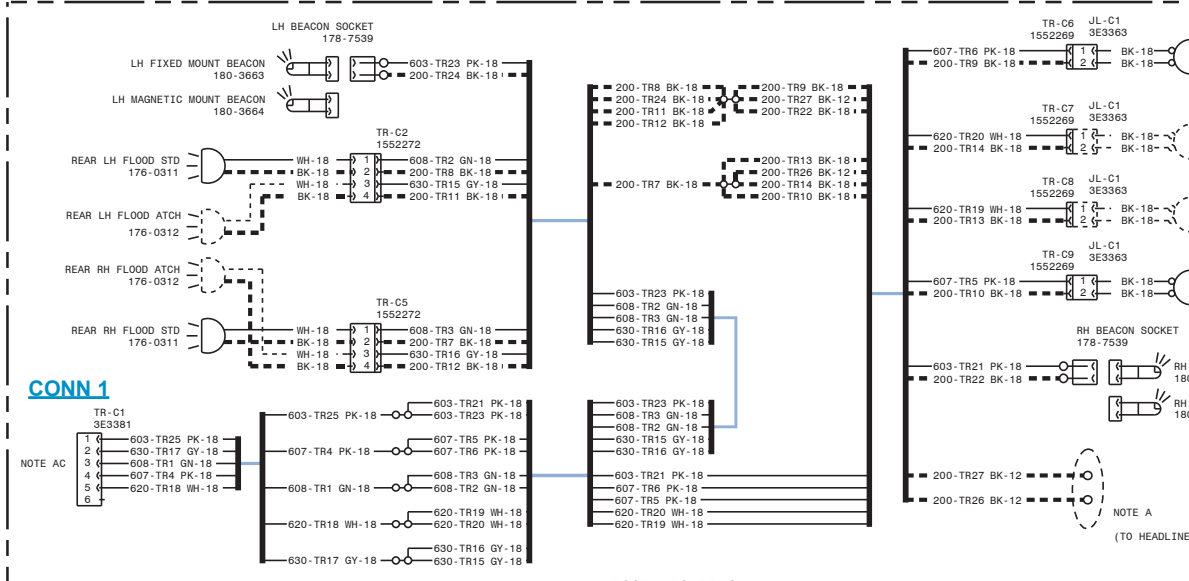


**CONN 1** CX-C2  
1552273

CONNECT CX-C2 TO  
CONNECTOR TV-C1 OR  
TR-C1 FOR NORTH  
AMERICAN MACHINES  
(SEE NOTE AC)

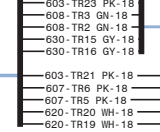
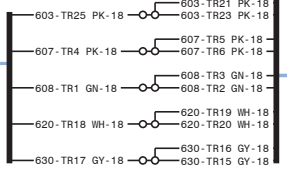
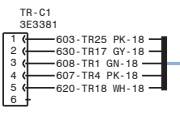
-- SIDE CONSOLE EXTENSION --

B



**CONN 1** TR-C1  
3E3381

NOTE AC



ROOF (ROADING)

NOTE A  
(TO HEADLINER)

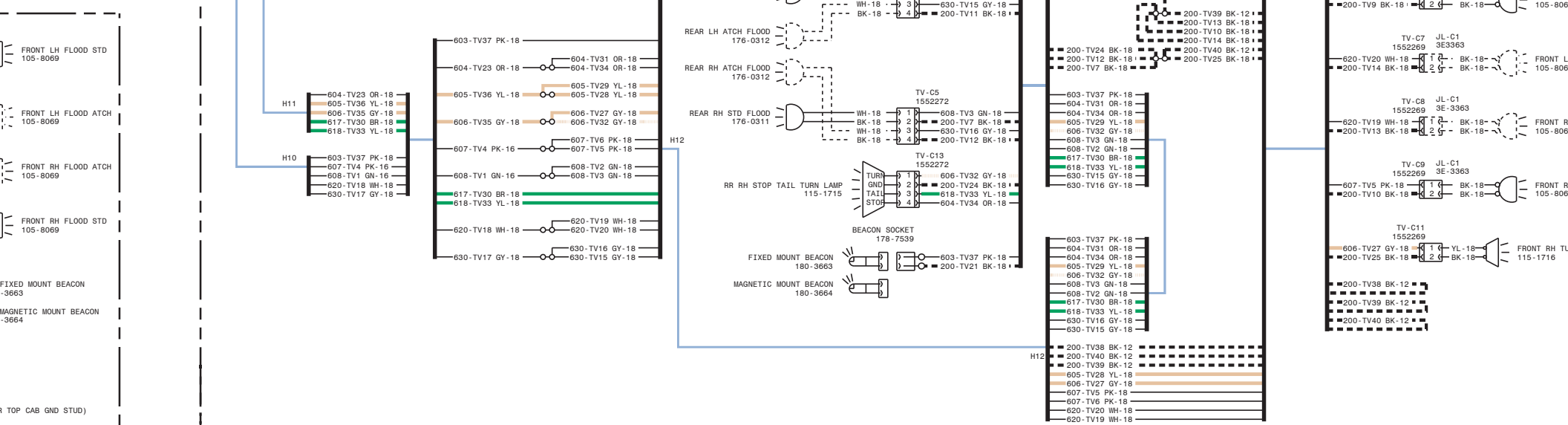
A

15

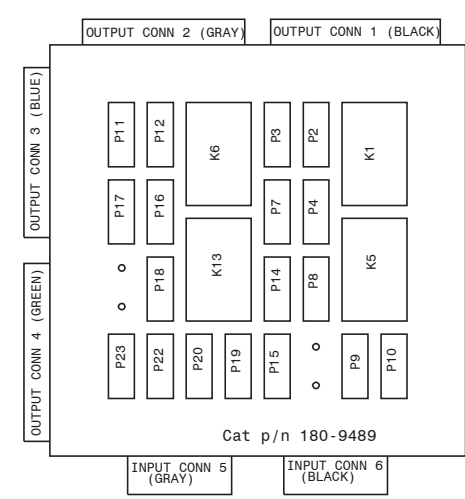
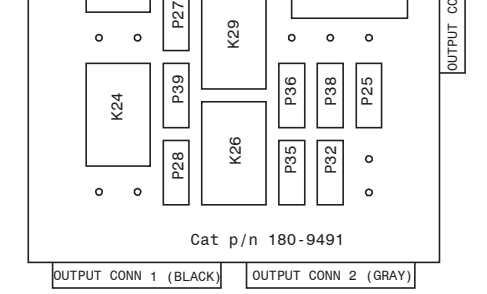
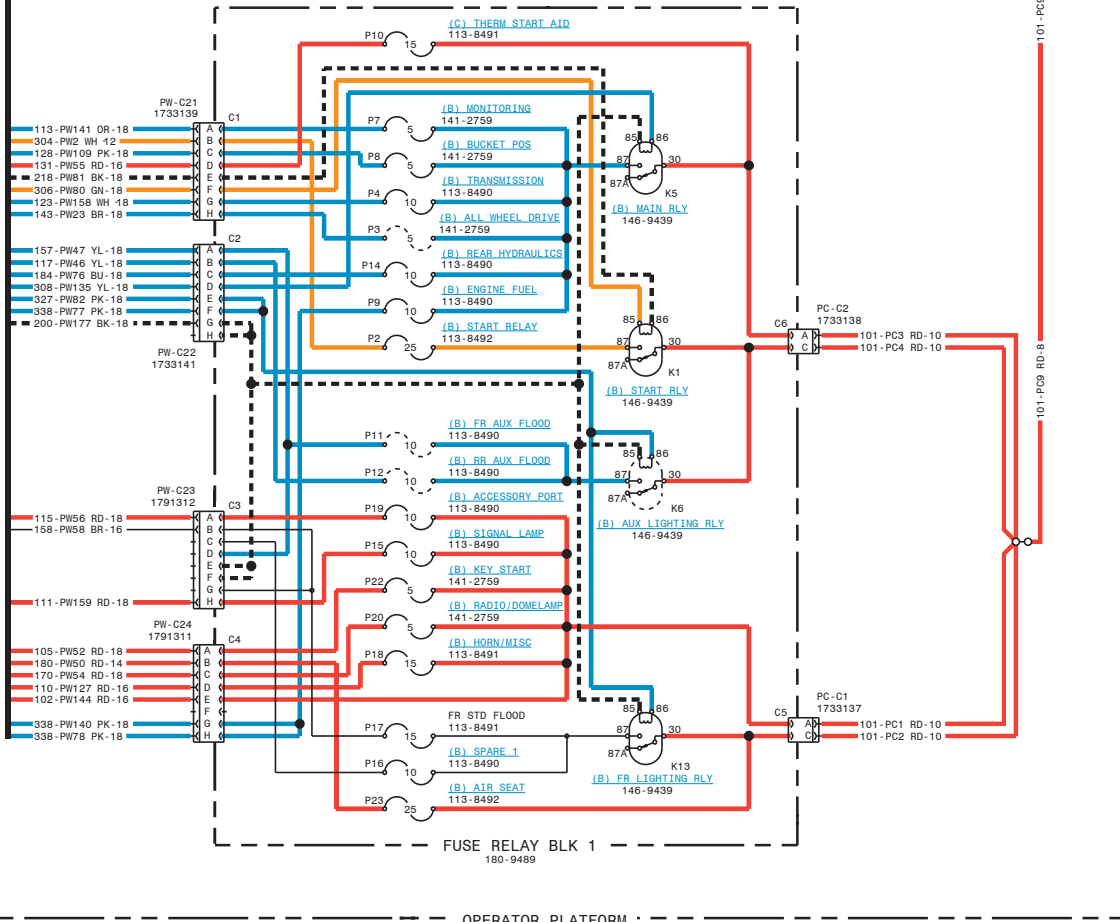
14

13

TOR PLATFORM



ROOF (NON-ROADING)



LAYOUT OF FUSE / RELAY BLOCKS

8

7

6

5

4

EX
FL
FR
FR
HL
HU
JA
JC
JK
JL
JU
JV
KA
KC
KL
KR
KT
LC
LN
LH
LX
LP
ME
MP
MW
PW
PX
PY
RA
RC
RF
RR
TA
TR
TV
UH
WA
WE
WF
XC
XE
XG
XH
ET
PC
GG
HH
PP
VV
-
-

189-2530	00	SH1 H-1	J	COOLANT TEMPERATURE SWITCH	SHT1 H-11	NOTE K:	STD AIR SUSPENSION SEAT IS P/N 164-1201 (FABRIC) OR P/N 164-1202 (VINYL). DELUXE AIR SEAT IS P/N 164-1203 AND EUROPEAN UTILITY AIR SEAT IS P/N 164-1206.
189-6563	00	SH2 F-10	J	FOG LAMP AND LIGHT	SHT1 G-11	NOTE L:	STD FRONT FLOOD AND STD REAR FLOOD SWITCHES ARE FOR STANDARD FLOOD LAMP ARRANGEMENTS (4 LAMPS TOTAL). ATCH FRONT FLOOD AND ATCH REAR FLOOD SWITCHES ARE FOR MACHINES WITH OPTIONAL ATTACHMENT FLOOD LAMPS (8 LAMPS TOTAL).
189-6561	01	SH2 F-10	J	FOG LAMP - PLATFORM			
189-6562	00	SH2 F-10	J	FOG LAMP - CONSOLE			
179-1215	02	SH2 I-6	J	HEADLINER - STANDARD CAB AR.			
167-3704	03	SH1 C-13	J	HEADLINER - UTILITY CAB AR.			
186-0320	01	SH2 F-8	J	STABILIZER ALARM			
167-3708	02	SH1 H-12	H	REAR END - NON-ROADING			
193-1509	01	SH1 F-15	J	KEY START ADAPTER			
191-0698	01	SH1 B-8	J	FLOOD LAMP ADAPTER			
186-0319	07	SH2 C-8	J	STABILIZER - AUTO UP			
167-3707	00	SH1 I-12	H	REAR END - ROADING			
179-9335	01	SH2 I-8	J	QUICK COUPLER - ATT. FRONT CONSOLE			
179-9336	01	SH2 I-10	J	QUICK COUPLER - STANDARD FRONT CONSOLE			
183-4738	01	SH2 H-9	J	QUICK COUPLER - LOADER ARM			
179-7997	02	SH2 G-10	J	QUICK COUPLER ATCH - RELAY			
174-6397	00	SH2 H-8	J	QUICK COUPLER ATCH - BROOM			
194-1941	00	SH2 A-5	J	DEAD ENGINE LOWER - FRONT CONSOLE			
194-1940	00	SH2 A-5	J	DEAD ENGINE LOWER-FRAME			
194-1938	01	SH2 B-5	J	DEAD ENGINE LOWER - PLATFORM			
194-1937	00	SH2 B-5	J	DEAD ENGINE LOWER - PRESSURE SW			
101-4449	01	SH2 F-8	J	LICENSE PLATE LIGHT			
179-8000	02	SH2 H-10	J	MULTI-PURPOSE - FRAME			
179-7998	03	SH2 I-10	J	MULTI-PURPOSE - PLATFORM			
131-1368	03	SH1 I-3	J	WASHER MOTORS			
167-3700	08	SH1 D-7	J	PLATFORM			
107-5605	05	SH1 I-15	H	RETURN TO DIG SWITCH - LOADER ARM			
122-1648	04	SH1 I-15	H	BUCKET POSITION SENSOR - LOADER ARM			
174-6398	02	SH2 G-6	J	RIDE CONTROL - AUTOSHIFT			
174-6395	02	SH2 G-6	J	RIDE CONTROL - FRONT CONSOLE			
174-6399	02	SH2 G-4	J	RIDE CONTROL - FRAME			
200-0648	00	SH1 D-11	H	SIDE CONSOLE EXTENSION - ROADING			
167-3710	01	SH1 H-4	J	ROADING LIGHTS			
186-0313	00	SH2 E-13	J	THEFT DETERENT - MSS			
167-3712	00	SH1 A-15	H	ROOF TOP - ROADING			
167-3713	01	SH1 C-13	H	ROOF TOP - NON-ROADING			
183-7581	01	SH2 D-10	J	CAT DATA LINK SERVICE PORT			
164-9638	02	SH2 A-12	J	AWIS - AXLE			
174-6406	03	SH2 A-14	J	AWIS - PLATFORM			
174-6405	01	SH2 B-12	J	AWIS - FRONT CONSOLE			
174-6411	03	SH2 E-3	J	AUTOSHIFT - FRONT CONSOLE			
174-6413	02	SH2 C-5	J	AUTOSHIFT - ECM			
174-6415	03	SH2 D-5	J	AUTOSHIFT - PLATFORM			
174-6414	02	SH2 C-5	J	AUTOSHIFT - TRANSMISSION			
WIRE AS.							
192-3341	00	SH1 F-1		CONVERTER TEMP SENDER WIRE AS.			
174-6400	00	SH1 A-6		BATTERY POWER TO CAB			
CABLE AS.							
130-8292	02	SH1 D-4	H	GROUND CABLE - STANDARD			
130-8293	03	SH1 D-4	H	GROUND CABLE - HEAVY DUTY			
141-1656	03	SH1 D-4	H	BATTERY CABLE - STANDARD			
141-1658	03	SH1 D-4	H	BATTERY CABLE - HEAVY DUTY			
BR-6111	01	SH2 I-3	J	CABLE - COAXIAL (RADIO ANTENNA)			
STRAP AS.							
7G-1060	00	SH1 D-3		STRAP-GROUND CAB TO FRAME			
7Y-3883	02	SH1 D-4		STRAP-GROUND ENGINE TO FRAME			
					SHT1 H-7	NOTE M:	WHEN USING A CAB WITH HEATER ONLY, HEATER AC SW IS REPLACED WITH VENT SW.
					SHT1 I-15,F-1	NOTE N:	RETURN-TO-DIG SWITCH - SINGLE TILT OPTION
					SHT1 I-15,F-1	NOTE P:	RETURN-TO-DIG SENSOR - PARALLEL LIFT OPTION
					SHT1 I-1	NOTE R:	NORMALLY CLOSED AT PROPER REFRIGERANT CHARGE
					SHT1 D-9	NOTE T:	CONNECTOR RK-C5 IS USED FOR THE FOG LAMP ATTACHMENT (CONN FP-C3).
					SHT2 F-9		
					SHT1 H-11	NOTE U:	CONNECTOR PW-C4 (LOC. SHT 1, H-11) IS USED TO SUPPLY POWER FOR THE RIDE CONTROL (CONN RA-C7), DEAD ENGINE LOWER (CONN LN-C3), AND STAB LEGS AUTO UP (CONN JU-C9) ATTACHMENTS.
					SHT2 C-9,A-7, F-6		
					SHT1 H-11	NOTE V:	CONNECTOR PW-C15 (LOC. SHT 1, G-11) IS USED TO SUPPLY POWER FOR THE AWS (CONN WE-C1) AND AUX. HYDRAULICS (CONN MP-C7) ATTACHMENTS.
					SHT2 C-14,I-12		
					SHT1 G-11	NOTE W:	CONNECTOR PW-C5 (LOC. SHT 1, G-11) IS USED TO SUPPLY POWER FOR THE CAT DATA LINK SERVICE PORT (CONN UH-C2) ATTACHMENT.
					SHT2 E-10		
					SHT2 C-14	NOTE X:	THIS CONNECTOR IS USED IN PLACE OF PW-C15 FOR THE AUX. HYDRAULICS (CONN MP-C7) ATTACHMENT.
					SHT2 C-9,A-6	NOTE Y:	THIS CONNECTOR IS USED IN PLACE OF PW-C4 FOR THE RIDE CONTROL (CONN RA-C7) ATTACHMENT OR OTHER ATTACHMENTS PER NOTE U.
					SHT1 C-13,I-12	NOTE AA:	FOR CENTER PIVOT MACHINE, THEN CONNECTOR PW-C16 (LOC. SHT 1, C-13) PLUGS INTO CONNECTOR TV-C3 (LOC. SHT 1, C-13), ELSE FOR SIDE SHIFT MACHINE THEN CONNECTOR PW-C16 PLUGS INTO CONNECTOR JV-C3 (LOC. SHT 1, I-12).
					SHT1 A-15	NOTE AC:	CONNECTOR CX-C2 (LOC. SHT 1, C-14) PLUGS INTO ROOF LIGHTING HARNESS CONNECTOR TV-C1 (LOC. SHT 1, C-14) OR TR-C1 (LOC. SHT 1, A-15).
					SHT1 F-10	NOTE AE:	CONNECTOR PW-C18 (LOC. SHT 1, F-10) PLUGS INTO THE STAB LEG ALARM ATTACHMENT
					SHT2 E-8	CONNECTOR JA-C2 (LOC. SHT 2, E-8).	
					SHT1 F-10	NOTE AF:	CONNECTOR CR-C22 (LOC. SHT 1, F-10) PLUGS INTO THE AUX. HYDRAULICS ATTACHMENT
					SHT2 I-13	CONNECTOR MP-C11 (LOC. SHT 2, I-13).	
					SHT2 G-3,E-7	NOTE AG:	WHEN USING RIDE CONTROL ATTACH AND AUTOSHIFT, CONNECT XF-C11 (LOC. SHT 2, E-7) TO RA-C2 (LOC. SHT 2, G-4) AND DO NOT USE 6 PIN JUMPER WIRE AS. RA-C2A.
					SHT1 E-10	NOTE AH:	THIS ATTACHMENT CONNECTOR CAN PLUG INTO SIDE CONSOLE HARNESS CONN. CR-C14 OR CAN BE USED FOR OTHER ATTACHMENTS IN PLACE OF PLATFORM CONN. PW-C14 (LOC. SHT 1, E-10).
					SHT2 I-3,F-13		
					SHT1 E-10	NOTE AJ:	THIS ATTACHMENT CONNECTOR CAN PLUG INTO PLATFORM HARNESS CONN. PW-C14 OR CAN BE USED FOR OTHER ATTACHMENTS IN PLACE OF SIDE CONSOLE CONN. CR-C14 (LOC. SHT 1, E-10).
					SHT2 F-12		
					SHT1 VARIOUS	NOTE AK:	PLATFORM HARNESS CONNECTORS PW-C34 AND PW-C35 (LOC. SHT 1, D-8) CONNECT TOGETHER WHEN THERE ARE NO RELATED ATTACHMENTS. WHEN MACHINE SECURITY, DEAD ENGINE LOWER, OR AUTOSHIFT ATTACHMENTS ARE USED, CONNECTORS PW-C34 AND PW-C35 ARE DISCONNECTED AND THE ATTACHMENT HARNESSES CONNECT INTO THEM AND EACH OTHER. SEE TABLE 1 (LOC. SHT 2, B-1) TO UNDERSTAND CORRECT ATTACHMENT CONNECTIONS.
					SHT2 VARIOUS,B-1		
					SHT1 E-2	NOTE AL:	CONNECT MALE BLADE TERMINAL INTO 614-PU FEMALE BLADE TERMINAL COMING OFF OF HAZARD SWITCH IN THE FRONT CONSOLE (LOC. SHT 1, E-2).
					SHT2 E-3,H-6, I-8,B-5,D-10		
					SHT2 G-10,B-15, C-14	NOTE AM:	FOR MACHINES WITH AUX. HYDRAULICS AND ALL WHEEL STEER, CONNECT WE-C7 (LOC. SHT 2, C-14) TO KR-C5 (LOC. SHT 2, G-10) AND CONNECT WE-C6 (LOC. SHT 2, C-14) TO MP-C10 (LOC. SHT 2, G-10).REAR STEER SWITCH P/N 189-0998 IS NOT USED.
					SHT1 H-2	NOTE AN:	RH DIP BEAM ROADING LAMPS USE P/N 3E-7584. LH DIP BEAM ROADING LAMPS USE P/N 3E-7585. SIDE REPEAT ROADING LAMPS USE P/N 3E-9382 FOR THE RH SIDE AND P/N 104-5225 FOR THE LH SIDE.

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## THIS SCHEMATIC IS FOR THE 416D, 420D, 424D, 428D, 430D, 432D, 438D, AND 442D BACKHOE LOADER ELECTRICAL SYSTEM

### VOLUME 1 of 2: ENGINE AND CHASSIS

MEDIA NUMBER: RENR3587-04

SCHEMATIC PART NUMBER: 176-0268, CHANGE: 01, VERSION: -

Components are shown installed on a fully operable machine with the key and engine off, transmission shifter in neutral and with parking brake set.

Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.