# **SERVICE MANUAL**

# **SERVICE MANUAL SECTION**

# 1000 SERIES Starting February 8, 2004 — ELECTRICAL CIRCUIT DIAGRAMS

Model: 1000

Start Date: 02/08/2004

**S08294** 

01/12/2006

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# 1. INSTRUCTIONS AND CHARTS (CHAPTER 1)

# 1.1. CIRCUIT NUMBER IDENTIFICATION CHART, P. 1

T OF INTERN	D IN ANY WAY DETRIMENTAL TO THE ATIONAL TRUCK AND ENGINE CORPORATION.		IDENTIFICA	ION CHART	
CIRCUIT NUMBER	DESCRIPTION - COLOR		CIRCUIT NUMBER	DESCRIPTION -	COLOR
1	GENERATOR - FIELD - LIGHT BLUE		37	FUEL PUMP - TAN	
2	GENERATOR - CHARGE - RED		38		
3			39	AIR DRYER - GRAY	
4			40	LOW AIR PRESSURE WARNING - GR	RAY
5	DRIVETRAIN J1939 DATALINK (+) - YELLOW DRIVETRAIN J1939 DATALINK (-) - GREEN		41	FRONT AXLE - GRAY	
6	, and the second		42		
7	ALTERNATOR - RESISTANCE - RED		43	POWER DIVIDER LOCK (PDL) - GRA	Y
8			44	PARK BRAKE WARNING - GRAY	
9			45	ANTI-THEFT WARNING - LIGHT GRE	EN .
10			46	POWER TAKE-OFF WARNING - GRA	Y
11	GROUND - WHITE		47	SPEEDOMETER - GRAY	
12	ACCESSORY FEED - LIGHT BLUE		48	TACHOMETER - GRAY	
13	IGNITION FEED - PINK		49	DIFFERENTIAL LOCK - GRAY	
14	BATTERY FEED - RED		50	LIGHT SWITCH FEED - YELLOW	
15	KEY SWITCH FEED - RED		51	DIMMER SWITCH - YELLOW	
16			52	HEADLIGHT - HIGH BEAM - YELLOW	,
17	STARTER CONTROL - PINK		53	HEADLIGHT - LOW BEAM - YELLOW	
18	GLOW PLUG/PRE-HEATER - PINK		54	PARKING/MARKER LIGHTS - BROWI	N
19	ENGINE SHUT-OFF - GRAY		55	TURN SIGNAL FEED - ORANGE	
20			56	TURN SIGNAL LIGHTS - LEFT - ORAI	NGE
21	ETHER START - TAN		57	TURN SIGNAL LIGHTS - RIGHT - OR	ANGE
22			58	CLEARANCE AND IDENTIFICATION I	LIGHTS - BROWN
23	ENGINE COOLING - TAN		59		
24	ENGINE BRAKE GRAY		60	HAZARD LIGHTS - ORANGE	
25	PYROMETER - TAN		61	AIR SUSPENSION - GRAY	
26	AMMETER - TAN		62	PANEL LIGHTS - DARK BLUE	
27	VOLTMETER - TAN		63	COURTESY AND DOME LIGHTS - DA	ARK BLUE
28	INSTRUMENT FEED - TAN		64	AUXILIARY LIGHTS - YELLOW	
29	ENGINE WATER TEMPERATURE - TAN		65	5TH WHEEL/WORK LIGHT - ORANG	E
30	ENGINE OIL TEMPERATURE - TAN		66	DAYTIME RUNNING LIGHTS - YELLO	w
31	TRANSMISSION OIL TEMPERATURE - TAN		67		
32	AXLE OIL TEMPERATURE - TAN		68	TAIL LIGHTS - BROWN	
33	ENGINE OIL LEVEL - TAN		69	LICENSE PLATE LIGHT - BROWN	
34	WATER LEVEL - TAN		70	STOP LIGHTS - ORANGE	
35	ENGINE OIL PRESSURE - TAN		71	BACK-UP LIGHTS - ORANGE	
36	FUEL LEVEL - TAN		72	TRAILER AUXILIARY - ORANGE	
	•		•		
DATE	CHANGE RI	EV REFERENCE DRAF		WAME 1000 SERIES ELECTRICAL CIR	POLIIT DIAGDAMS
			OJWA1	1000 SERIES ELECTRICAL CIP	SHEET -

Figure 1 Circuit Number Identification Chart

# 1.2. CIRCUIT NUMBER IDENTIFICATION CHART, P. 2

ST OF INTERN	OVIDED ON A RESTRICTED BASIS AND ED IN ANY WAY DETRIMENTAL TO THE NATIONAL TRUCK AND ENGINE CORPORATION.		INSTRUCTION IDENTIFICA	ONS & CHARTS TION CHART	S: NAVISTAR CIRCUIT	
CIRCUIT NUMBER	DESCRIPTION - COLOR	:	CIRCUIT NUMBER		DESCRIPTION - COLOR	
73			87	WINDSHIELD W	ASHER - GRAY	
74			88	CLOCK/HOURM	ETER - LIGHT GREEN	
75	HEATER BLOWER MOTOR - LIGHT GREEN		89			
76	AUXILIARY FAN - LIGHT GREEN		90	HYDRAULIC BR	AKE PUMP - GRAY	
77	AIR CONDITIONER - LIGHT GREEN		91	INTERCOMMUN	ICATIONS - VIOLET	
78	MIRRORS - HEATED * MOTORIZED - LIGHT	GREEN	92	TRANSMISSION	(ELECTRONIC) - TAN	
79			93	AXLE SHIFT CO	NTROL - TAN	
80			94	ANTILOCK BRAI	KES - GRAY	
81	POWER DOOR LOCKS - LIGHT GREEN		95	EXHAUST EMIS	SION - TAN	
82	WINDSHIELD WIPERS - GRAY		96	SNOW PLOW LI	GHTS - YELLOW	
83	POWER WINDOW - LIGHT GREEN		97	CRUISE CONTR	OL AND ELECTRONIC ENGINE - VIOLET	
84	CIGAR LIGHTER - LIGHT GREEN		98	DATA LINK AND	DIAGNOSTICS - BLACK	
85	HORN - ELECTRIC - GRAY		99	THROTTLE POS	ITION SENSOR - VIOLET	
86	RADIO - ENTERTAINMENT - LIGHT GREEN					
	NOT ALL CIRCUITS MAY BE COLORS ABOVE ARE NEW FOR MAJOR HARNESSES.					
	COLORS ABOVE ARE NEW					
DATE	COLORS ABOVE ARE NEW		DRAWN UOOJWA1	NAME:	ELECTRICAL CIRCUIT DIAGRAMS	

Figure 2 Circuit Number Identification Chart (Cont.)

## 1.3. CIRCUIT DIAGRAM INSTRUCTIONS, P. 3

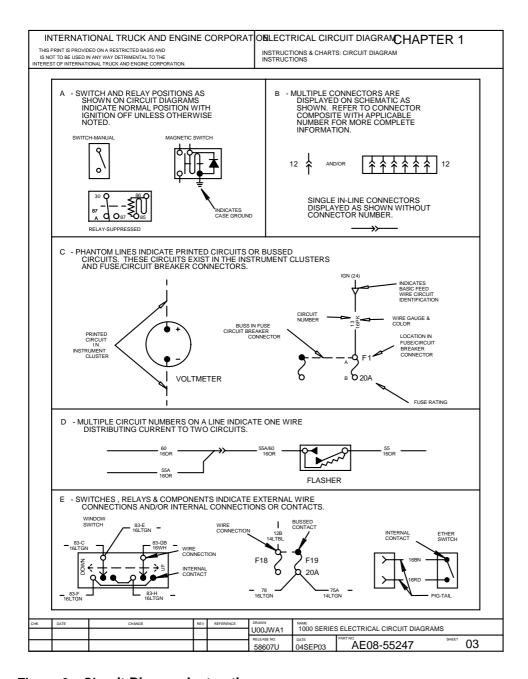


Figure 3 Circuit Diagram Instructions

## 1.4. CIRCUIT DIAGRAM INSTRUCTIONS, P. 4

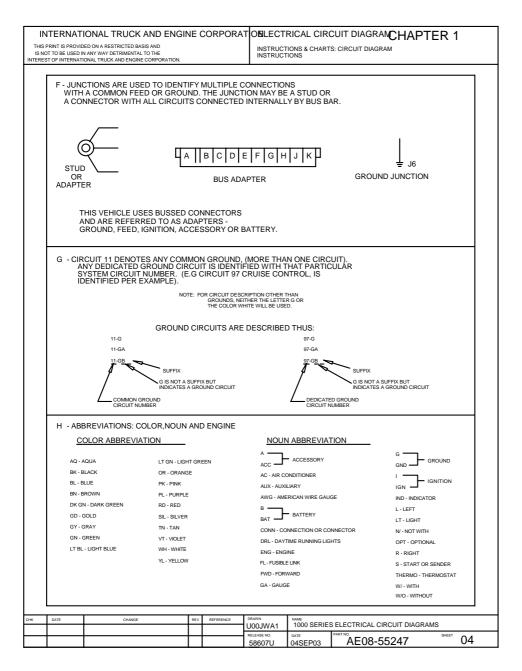


Figure 4 Circuit Diagram Instructions

## 1.5. SCHEMATIC SYMBOLS, P. 5

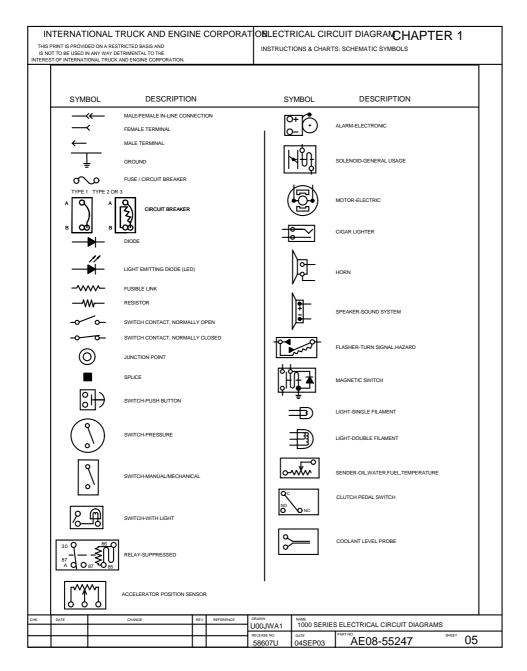


Figure 5 Schematic Symbols

# 1.6. RELAY PINOUT, FUNCTION DATA, AND SEALED RELAY, P. 6

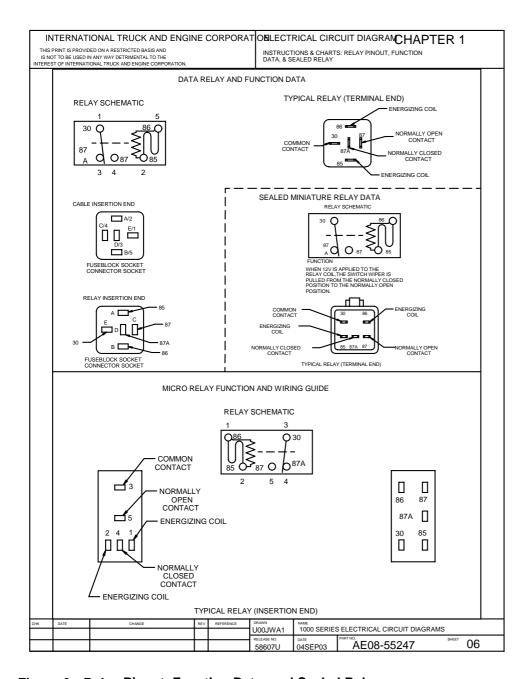


Figure 6 Relay Pinout, Function Data, and Sealed Relay

# 1.7. INTERNATIONAL V8 ECM CONTROLLER CONNECTOR PIN NUMBER IDENTIFICATION, P. 7

NOT TO	BE USED IN ANY V	A RESTRICTED BASIS AND VAY DETRIMENTAL TO THE RUCK AND ENGINE CORPORATION.		CONNECTO	NAL V8 ECM ( RS PIN NUMBE	CONTROLLER ER IDENTIFICATION	
ONNE	ECTOR X3	REFERENCE (6020)		CONNE	ECTOR X4	REFERENCE (6021)	
ECM N#	TERM	DESCRIPTION		ECM PIN #	TERM	DESCRIPTION	
1		NOT POPULATED		1	ECM PWR	BATTERY POWER	
2		NOT POPULATED		2	ECM PWR	BATTERY POWER	
3	VIGN	IGNITION FEED		3	<b>1</b>	NOT POPULATED	
4 5	ECL MPR	ENGINE COOLANT LEVEL MAIN POWER RELAY		5	VBREF	SENSOR REFERENCE VOLTAGE NOT POPULATED	
6	BAT GND	GROUND GROUND		6	+	NOT POPULATED	
7	BAT GND	GROUND		7		NOT POPULATED	
8	DDS	DRIVELINE DISENGAGE SWITCH		8		NOT POPULATED	
9		NOT POPULATED		9	VSS -	VEHICLE SPEED SENSOR -	
10		NOT POPULATED		10	VSS+	VEHICLE SPEED SENSOR +	
11	TACH	TACHOMETER CONTROL		11		NOT POPULATED	
12 13	CAN1 + CAN1 -	DRIVETRAIN J1939 DATALINK + DRIVETRAIN J1939 DATALINK -		12	IVS	IDLE VALIDATION SWITCH NOT POPULATED	
13	RAS	RESUME/ACCELERATE		13	+	NOT POPULATED  NOT POPULATED	
15	INAO	NOT POPULATED		15	+	NOT POPULATED	
16	<del>                                     </del>	NOT POPULATED		16	1	NOT POPULATED	
17	VSS_CAL	VEHICLE SPEED SENSOR CALIBRATION		17		NOT POPULATED	
18		NOT POPULATED		18	APS	ACCELERATION POSITION SENSOR	
19	RPRE	REMOTE PRESET PTO ENABLE		19	1	NOT POPULATED	
20	RVAR SCS	REMOTE VARIABLE PTO ENABLE SET/COAST		20	ATA +	J1708 DATALINK + J1708 DATALINK -	
22	SCS	NOT POPULATED		21	AIA-	NOT POPULATED	
23	ECI	ENGINE CRANK INHIBIT			+	NOT POPULATED	
				23			
24	BAP	BAROMETRIC AIR PRESSURE		23 24	SIG GND	NOT POPULATED SENSOR REFERENCE GROUND	
					SIG GND		
					SIG GND		
					SIG GND		
					SIG GND		
					SIG GND		
					SIG GND		
					SIG GND		
					SIG GND		
					SIG GND		
	ВАР			24	NAME	SENSOR REFERENCE GROUND	
24	ВАР	BAROMETRIC AIR PRESSURE	U	24 24 OOJWA1	NAME		

Figure 7 International V8 ECM Controller Connector Pin Number Identification

# 2. 12 VOLT POWER DISTRIBUTION CIRCUIT DIAGRAMS (CHAPTER 2)

## 2.1. KEY SWITCH, P. 1

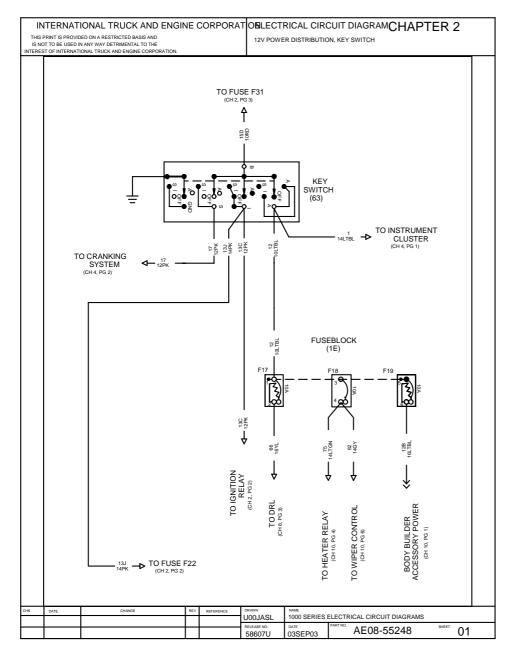


Figure 8 Key Switch

## 2.2. KEY SWITCH, P. 2

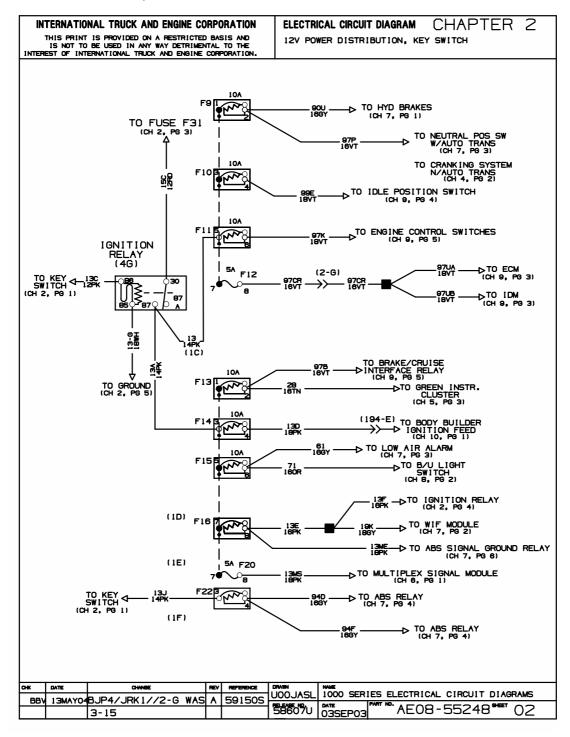


Figure 9 Key Switch (Cont.)

## 2.3. BATTERY, P. 3

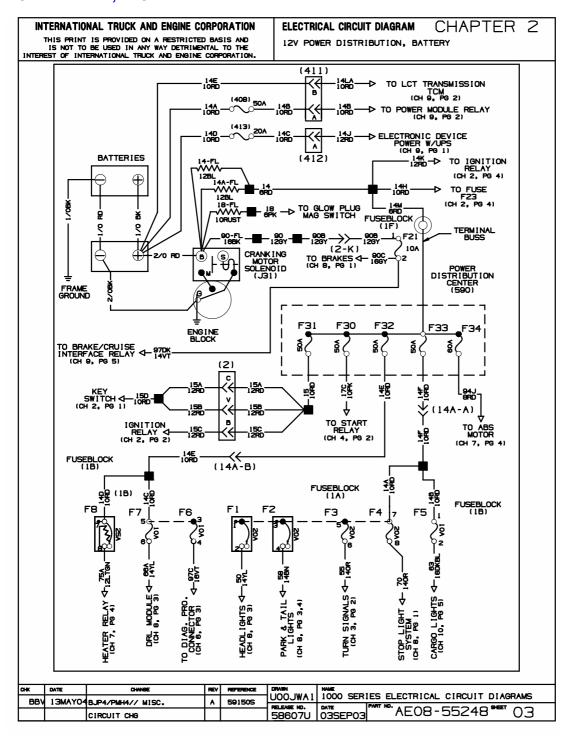


Figure 10 Battery

## 2.4. BATTERY, P. 4

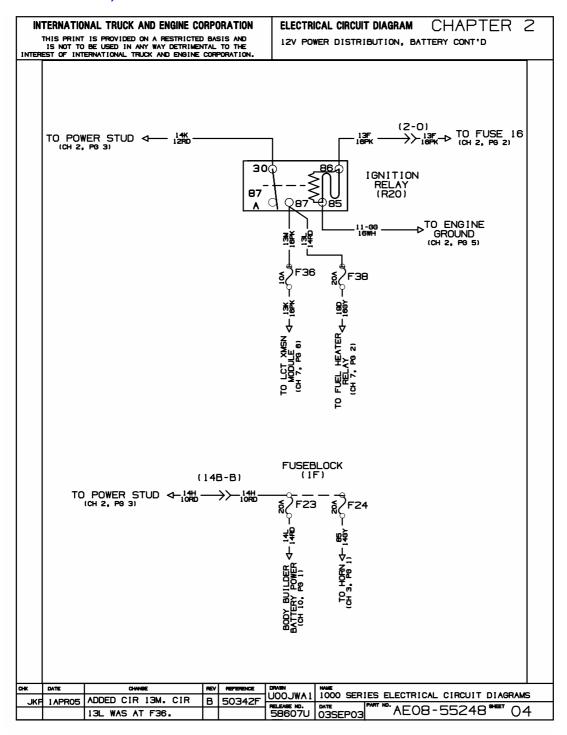


Figure 11 Battery (Cont.)

## 2.5. GROUND WIRING, P. 5

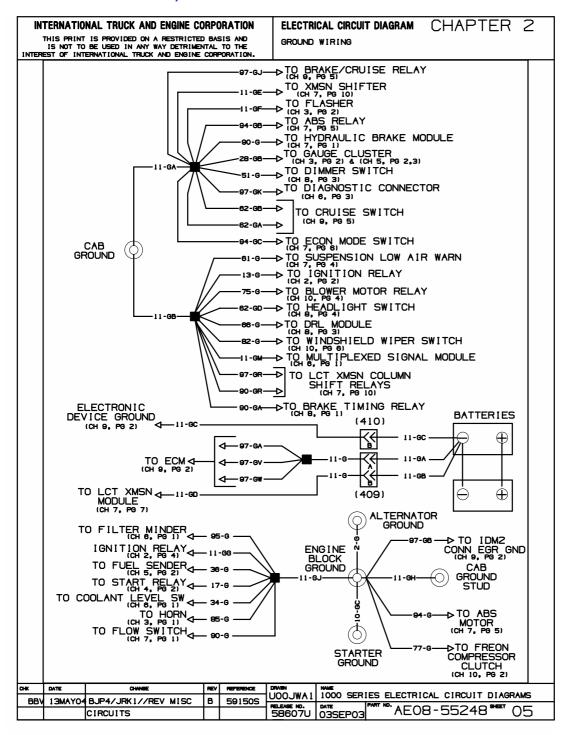


Figure 12 Ground Wiring

# 3. CAB ACCESSORIES (CHAPTER 3)

# 3.1. HORN, P. 1

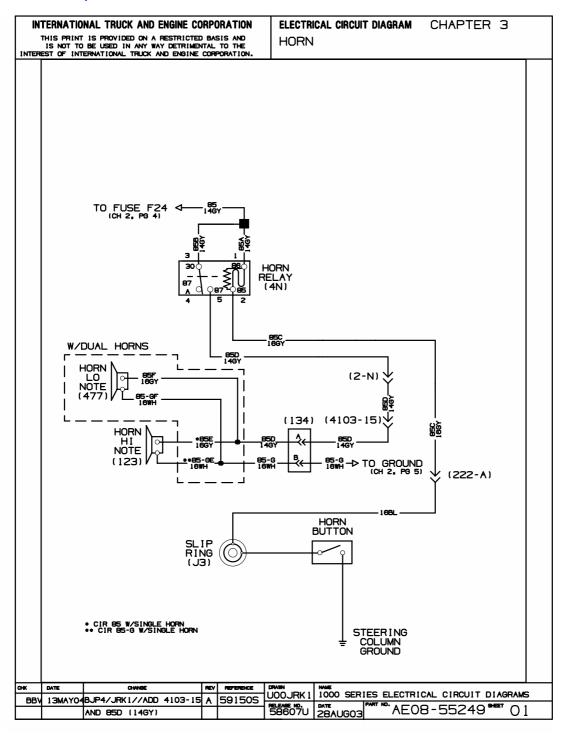


Figure 13 Horn

# 3.2. TURN SIGNALS WITH GROTE INDUSTRIES SWITCH, P. 2

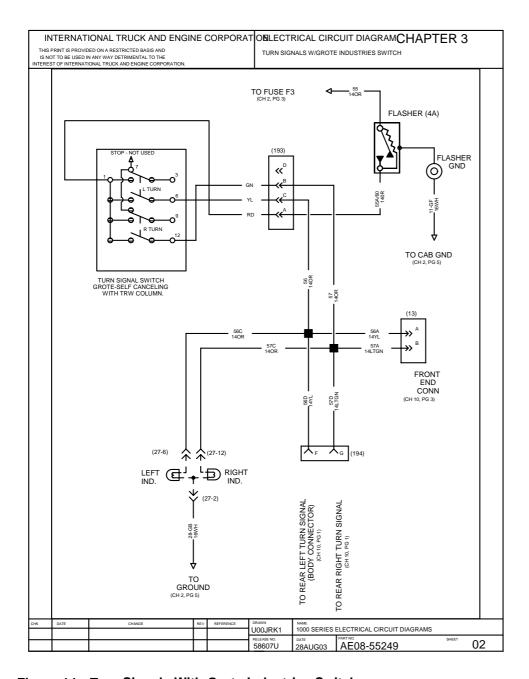


Figure 14 Turn Signals With Grote Industries Switch

# 3.3. TURN SIGNALS WITH DOUGLAS AUTOTECH SWITCH, P. 3

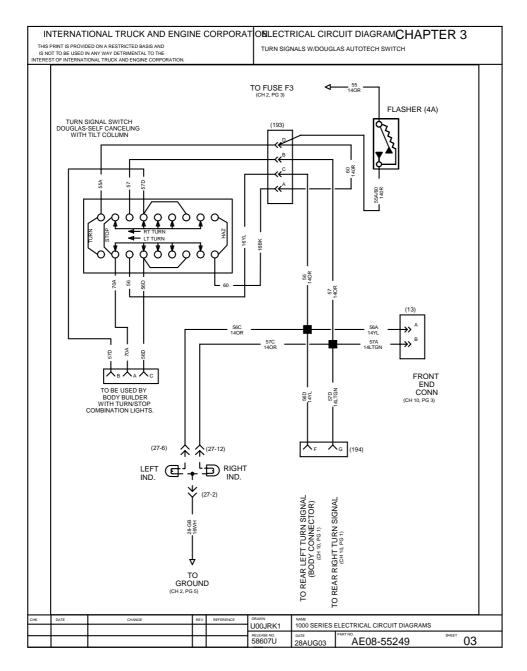


Figure 15 Turn Signals With Douglas Autotech Switch

# 4. ENGINE SYSTEMS (CHAPTER 4)

#### 4.1. CHARGING SYSTEM, P. 1

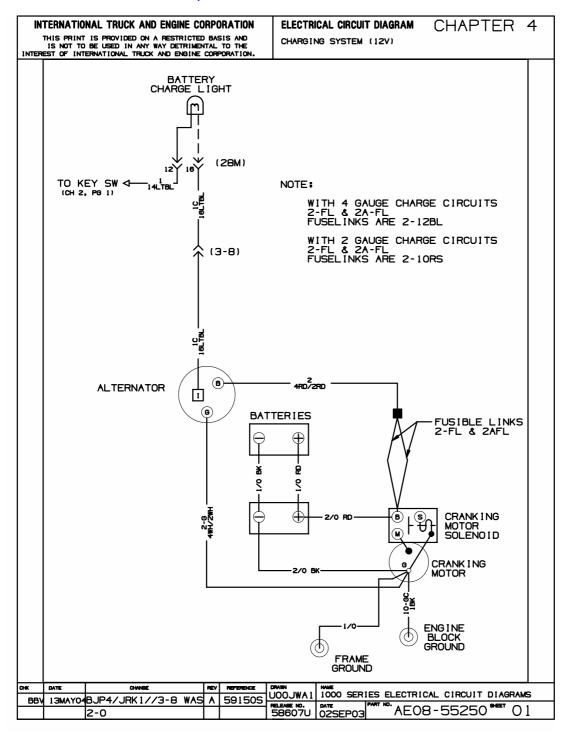


Figure 16 Charging System

# 4.2. CRANKING SYSTEM (12V) WITH MANUAL OR ALLISON AUTOMATIC TRANSMISSION, P. 2

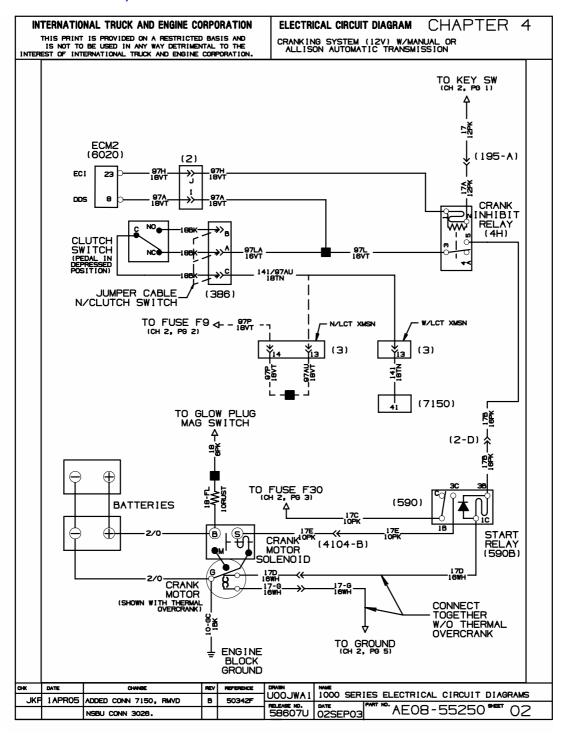


Figure 17 Cranking System (12V) with Manual or Allison Automatic Transmission

# 5. GAUGES (CHAPTER 5)

## 5.1. FUEL GAUGE, P. 1

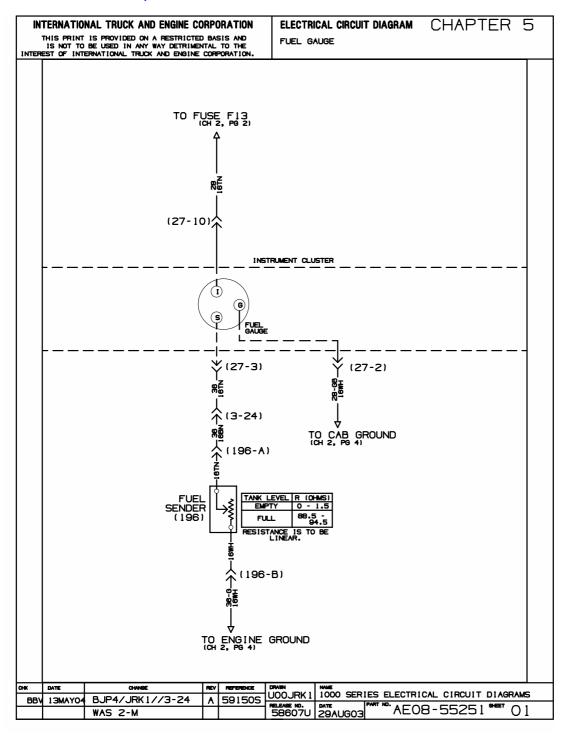


Figure 18 Fuel Gauge

## 5.2. GAUGES, P. 2

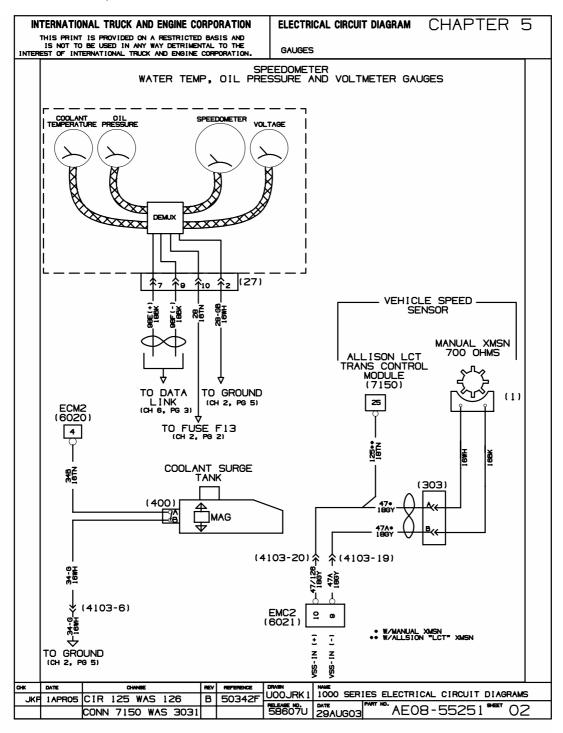


Figure 19 Gauges

# 6. WARNING LIGHTS (CHAPTER 6)

# 6.1. ENGINE WARNING LIGHTS, P. 1

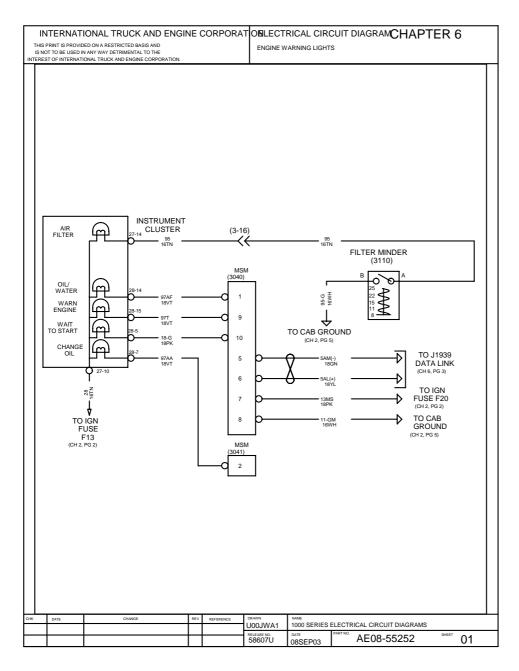


Figure 20 Engine Warning Lights

# 6.2. PARK BRAKE CIRCUIT, P. 2

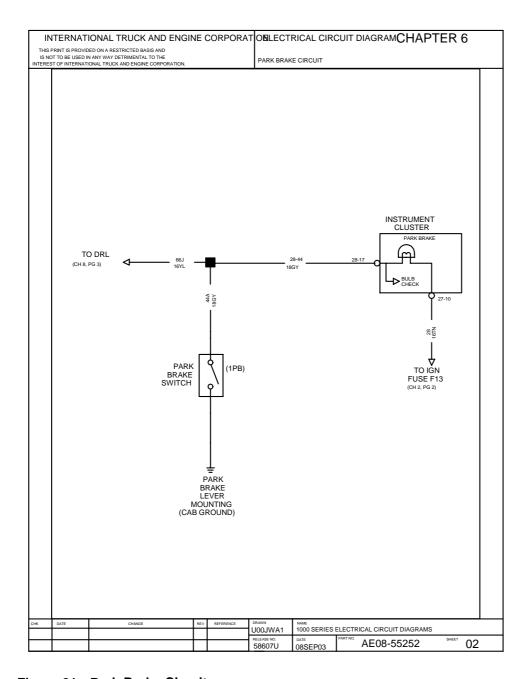


Figure 21 Park Brake Circuit

## 6.3. DATA LINK AND DIAGNOSTIC / PROGRAMMING CONNECTOR, P. 3

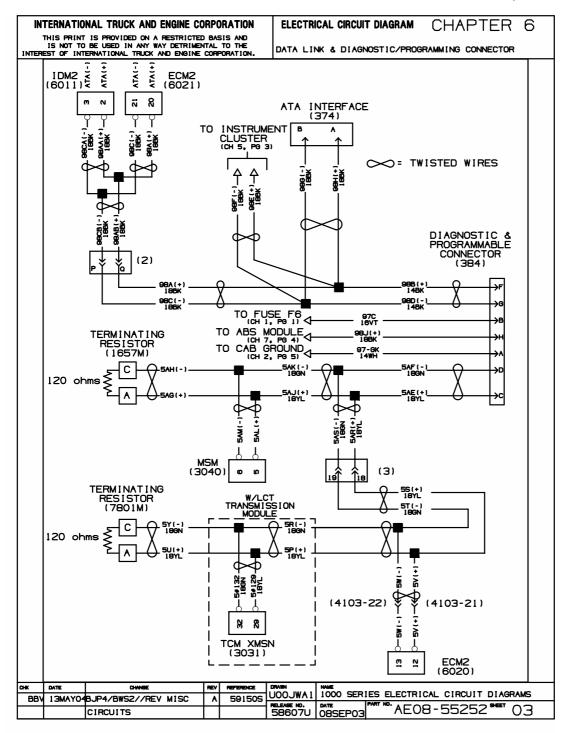


Figure 22 Data Link and Diagnostic / Programming Connector

# 7. CHASSIS ACCESSORIES (CHAPTER 7)

## 7.1. HYDRAULIC BRAKE BOOSTER, P. 1

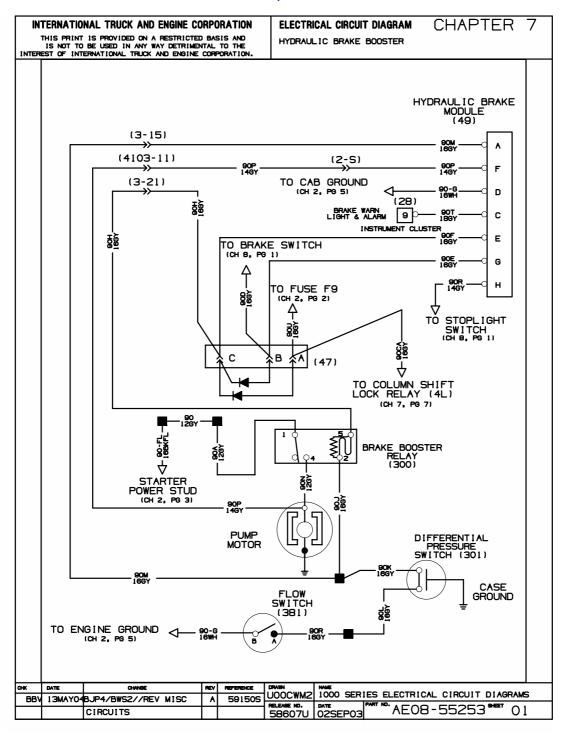


Figure 23 Hydraulic Brake Booster

## 7.2. FUEL FILTER WIRING SYSTEM, P. 2

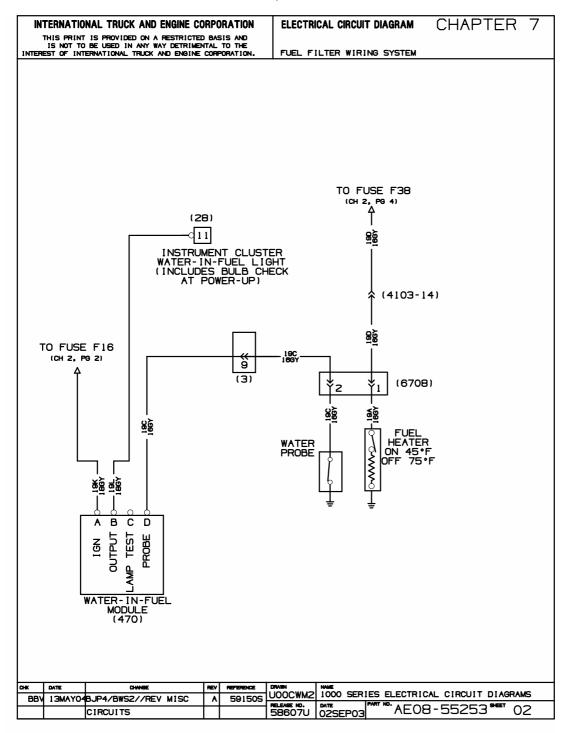


Figure 24 Fuel Filter Wiring System

# 7.3. SUSPENSION LOW AIR PRESSURE WARNING, P. 3

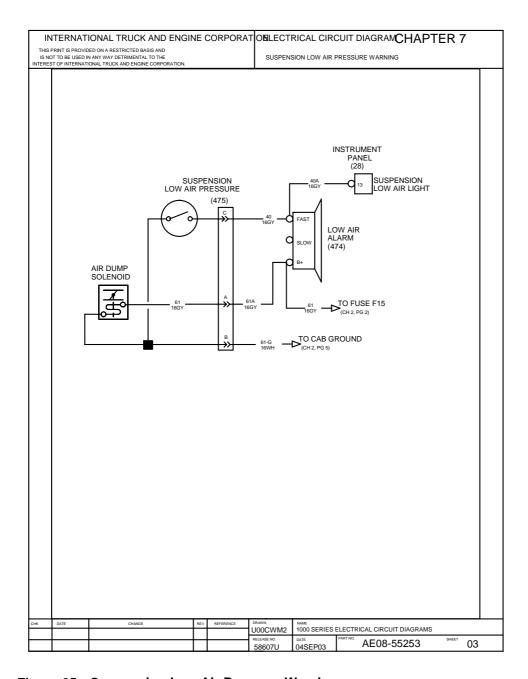


Figure 25 Suspension Low Air Pressure Warning

## 7.4. ANTILOCK BRAKE WIRING, P. 4

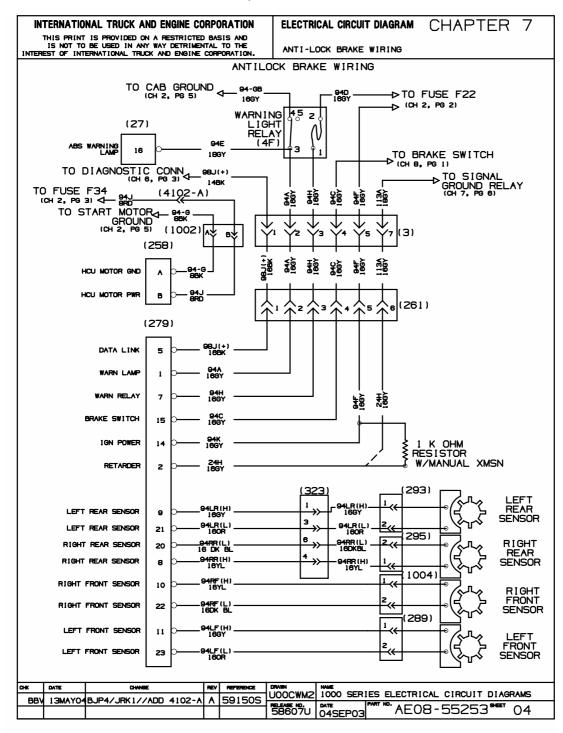


Figure 26 Antilock Brake Wiring

# 7.5. ALLISON 2400 (LCT) TRANSMISSION, P. 5

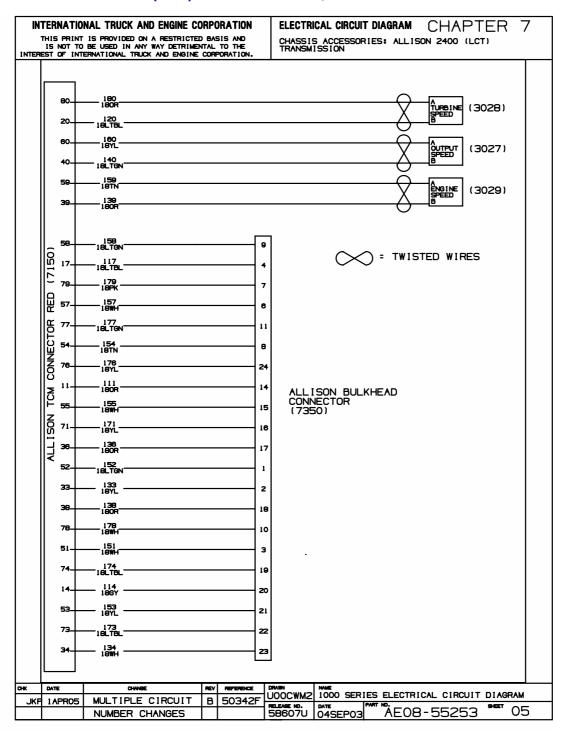


Figure 27 Allison 2400 (LCT) Transmission

## 7.6. ALLISON 2400 (LCT) TRANSMISSION, P. 6

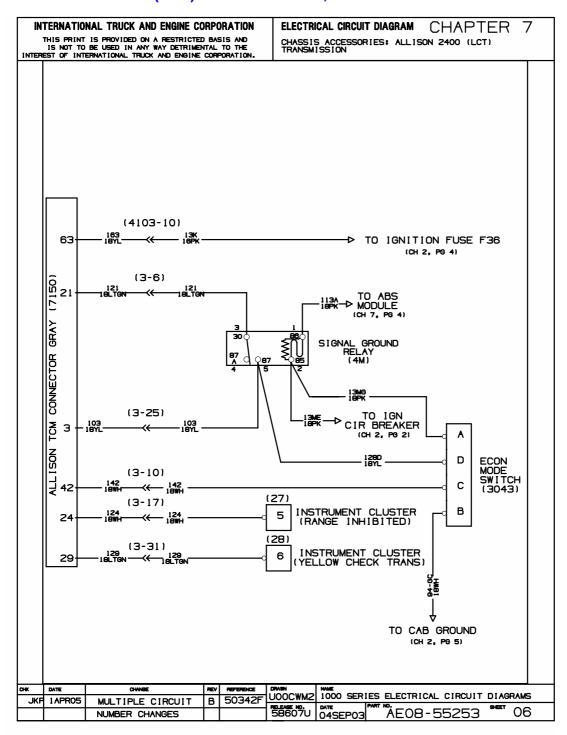


Figure 28 Allison 2400 (LCT) Transmission

## 7.7. COLUMN SHIFT LOCK WITH LCT TRANSMISSION, P. 7

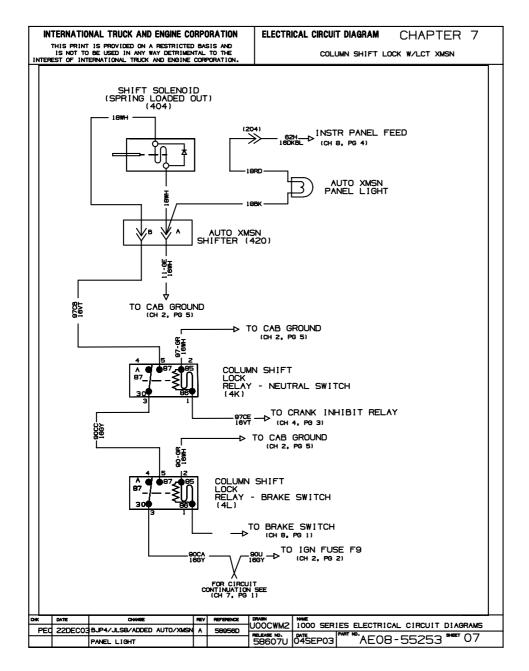


Figure 29 Column Shift Lock With LCT Transmission

# 8. LIGHT SYSTEMS (CHAPTER 8)

#### 8.1. STOP LIGHT / SIGNAL, P. 1

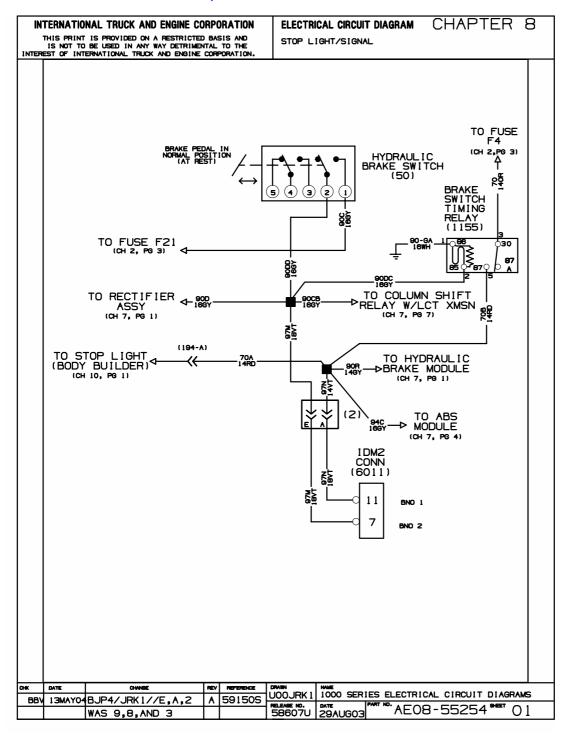


Figure 30 Stop Light / Signal

## 8.2. BACK-UP LIGHT SYSTEM, P. 2

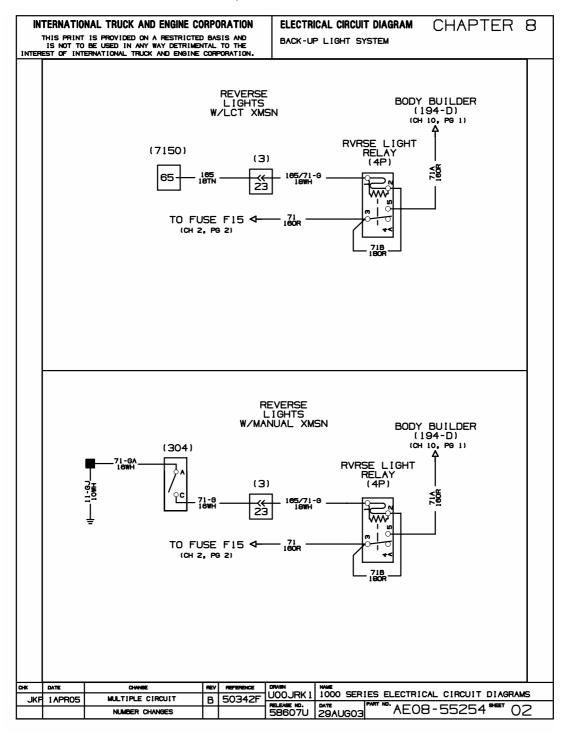


Figure 31 Back-Up Light System

## 8.3. HEADLIGHT SYSTEM, P. 3

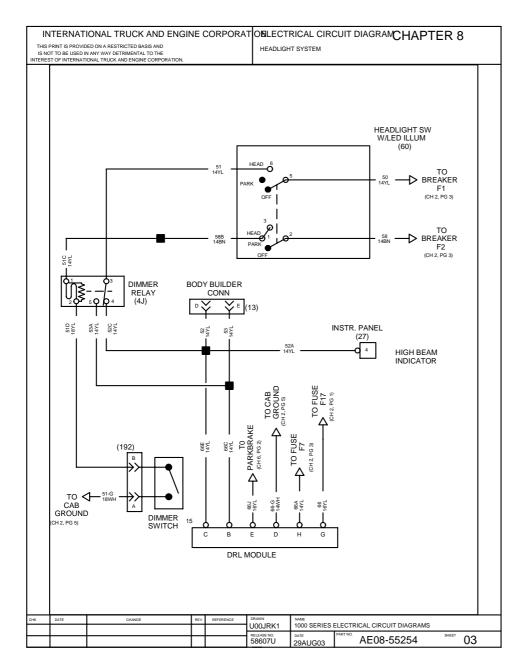


Figure 32 Headlight System

#### 8.4. PANEL LIGHTS, P. 4

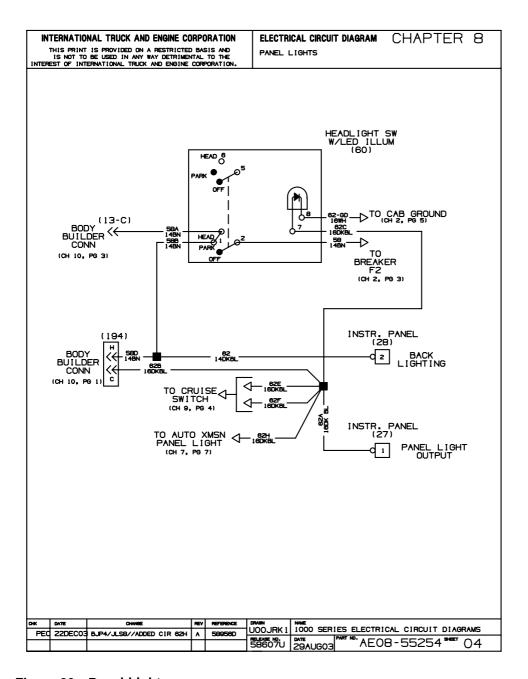


Figure 33 Panel Lights

## 9. ELECTRONICS (CHAPTER 9)

## 9.1. ELECTRONIC DEVICE POWERING, P. 1

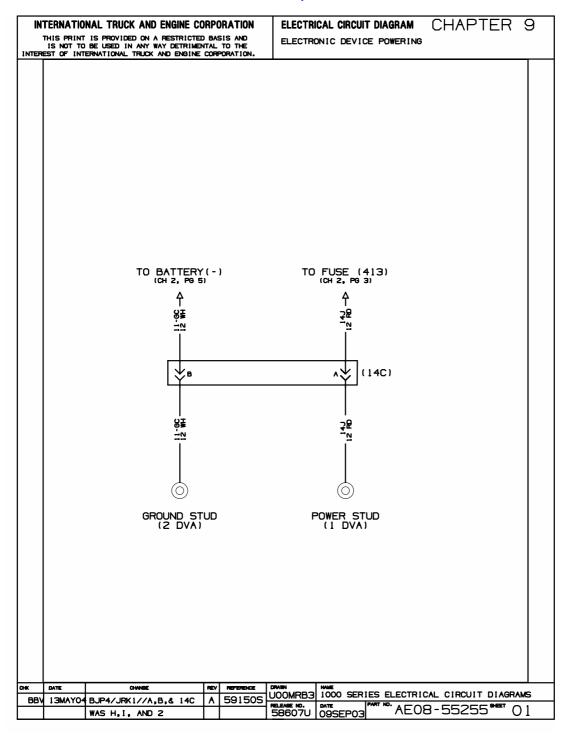


Figure 34 Electronic Device Powering

#### 9.2. MODULE POWER AND GROUND SYSTEM, P. 2

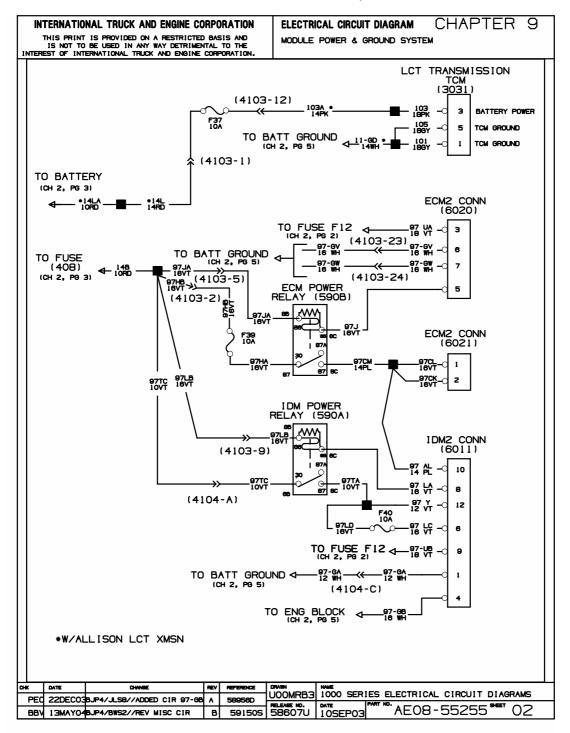


Figure 35 Module Power and Ground System

#### 9.3. ACCELERATOR, BAP, AND MAP SYSTEMS, P. 3

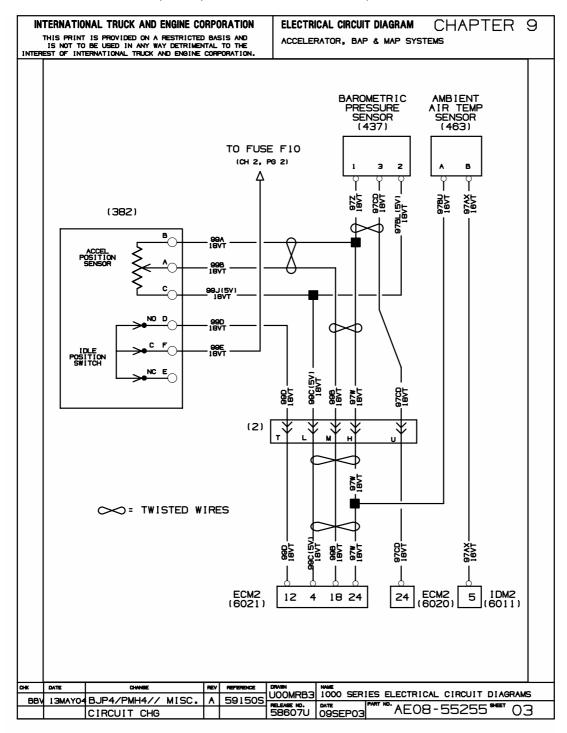


Figure 36 Accelerator, BAP and MAP Systems

#### 9.4. CRUISE / REMOTE ENGINE CONTROLS, P. 4

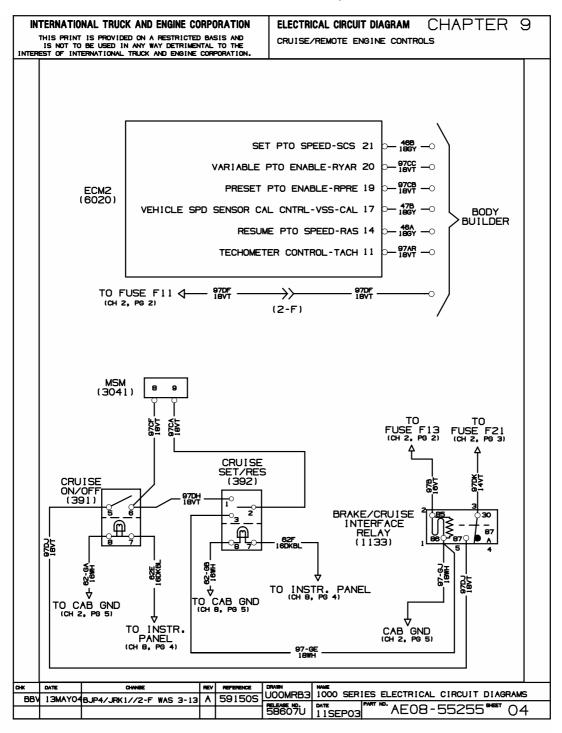


Figure 37 Cruise / Remote Engine Controls

## 10. MISC. (INCOMPLETE WIRINGS) (CHAPTER 10)

## 10.1. STOP / TAIL / TURN WIRING, P. 1

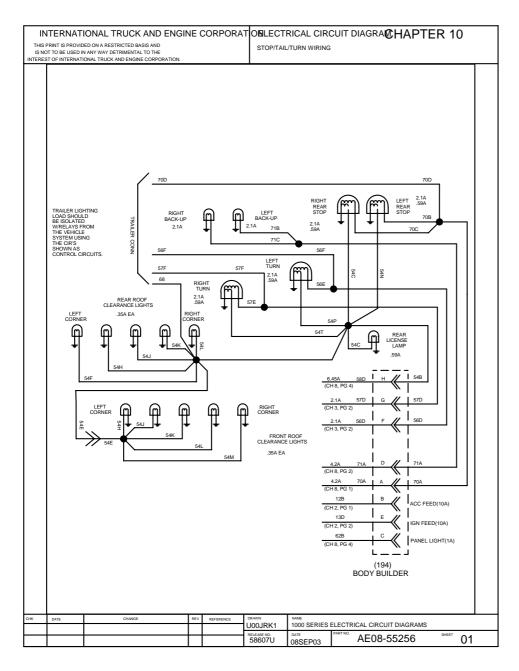


Figure 38 Stop / Tail / Turn Wiring

## 10.2. FREON CLUTCH, P. 2

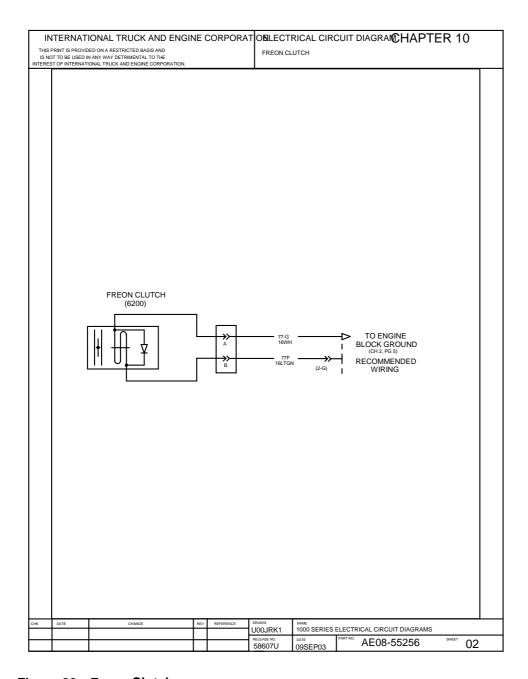


Figure 39 Freon Clutch

## 10.3. FRONT END WIRING (RECOMMENDED BODY WIRING), P. 3

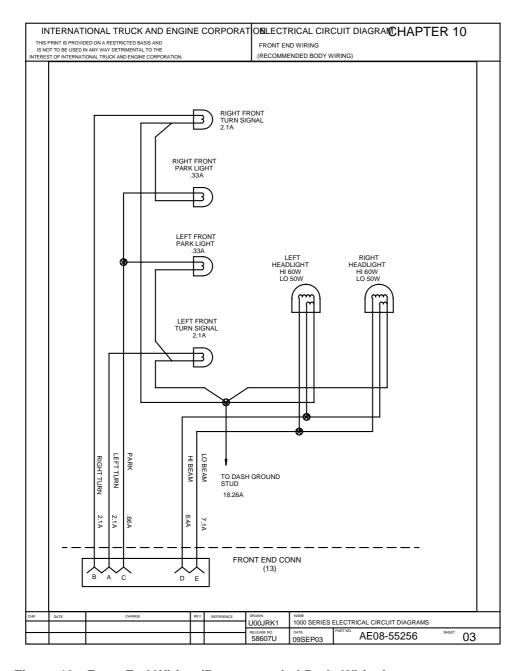


Figure 40 Front End Wiring (Recommended Body Wiring)

## 10.4. HEATER BLOWER MOTOR, P. 4

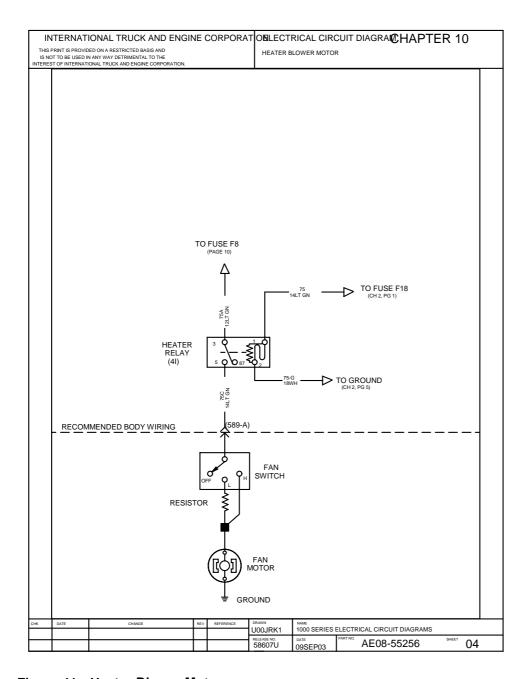


Figure 41 Heater Blower Motor

#### 10.5. CARGO LIGHTS, P. 5

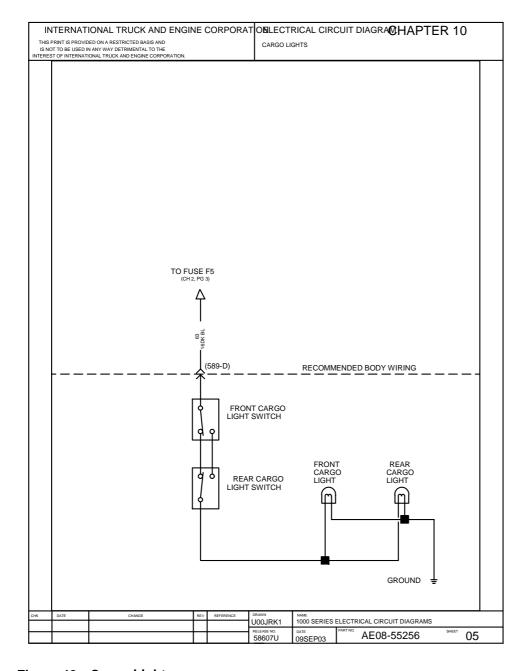


Figure 42 Cargo Lights

## 10.6. WIPER CONTROLS FOR DUAL MOTORS, P. 6

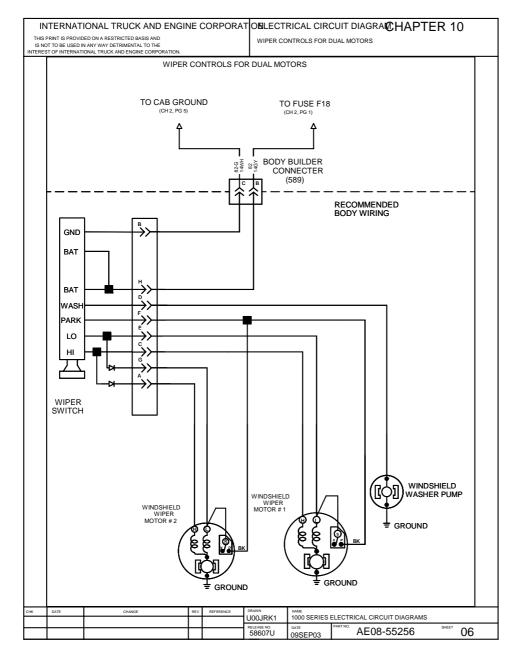


Figure 43 Wiper Controls for Dual Motors

## 11. CONNECTOR COMPOSITES (CHAPTER 11)

## 11.1. CONNECTOR COMPOSITES (1), (1A-1F), P. 1

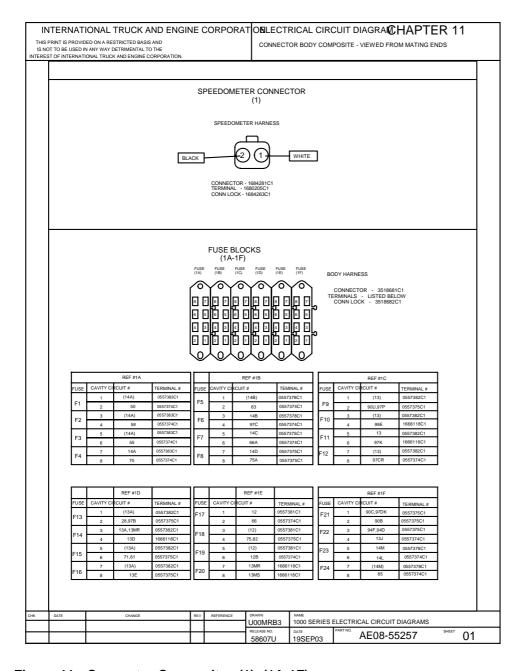


Figure 44 Connector Composites (1), (1A-1F)

#### 11.2. CONNECTOR COMPOSITE (2), P. 2

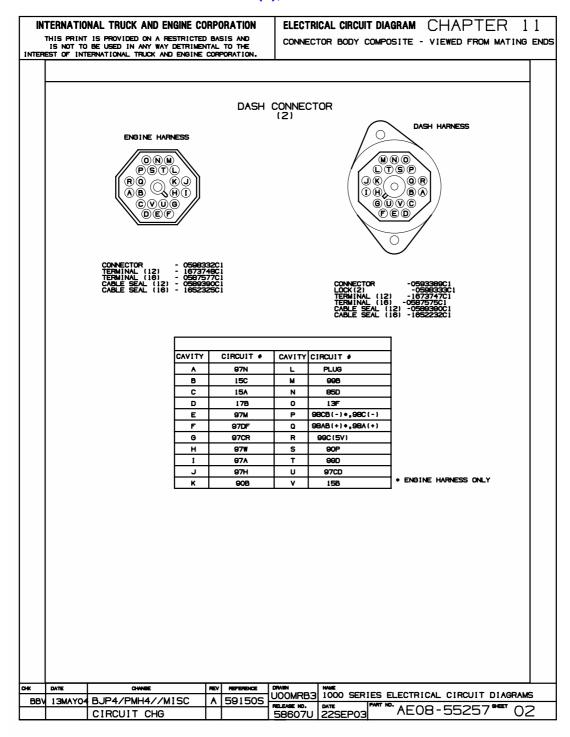


Figure 45 Connector Composite (2)

#### 11.3. CONNECTOR COMPOSITES (3), (4A), (4B), (4G), P. 3

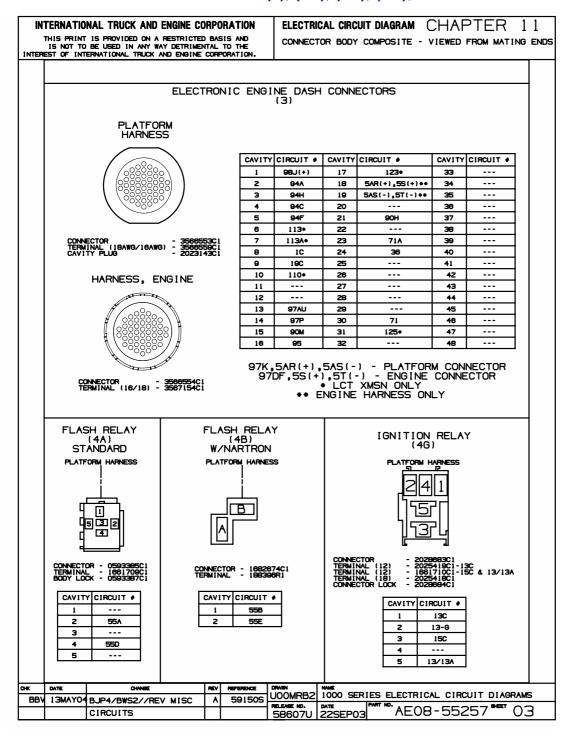


Figure 46 Connector Composites (3), (4A), (4B), (4G)

#### 11.4. CONNECTOR COMPOSITES (4H), (4I), (4J), (4K), (4L), (4M), (13), (14A, 14B), P. 4

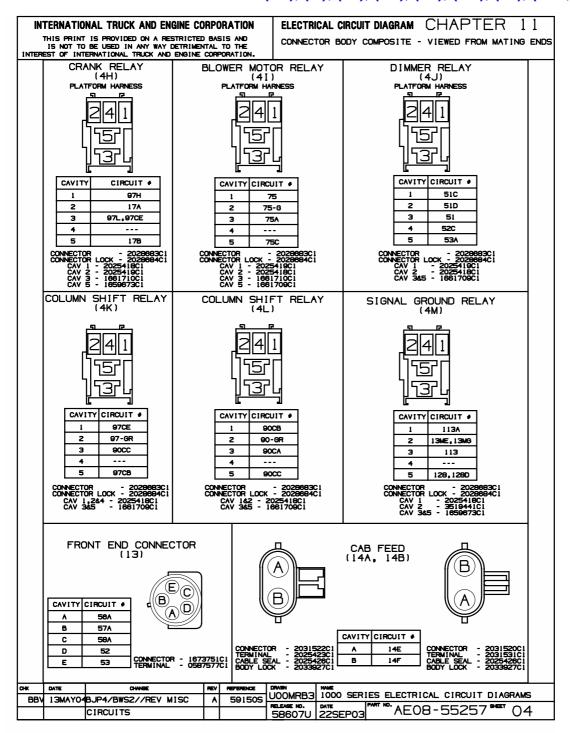


Figure 47 Connector Composites (4H), (4I), (4J), (4K), (4L), (4M), (13), (14A, 14B)

#### 11.5. CONNECTOR COMPOSITES (14C), (15), (27), (28), (47 AND 48), (49), P. 5

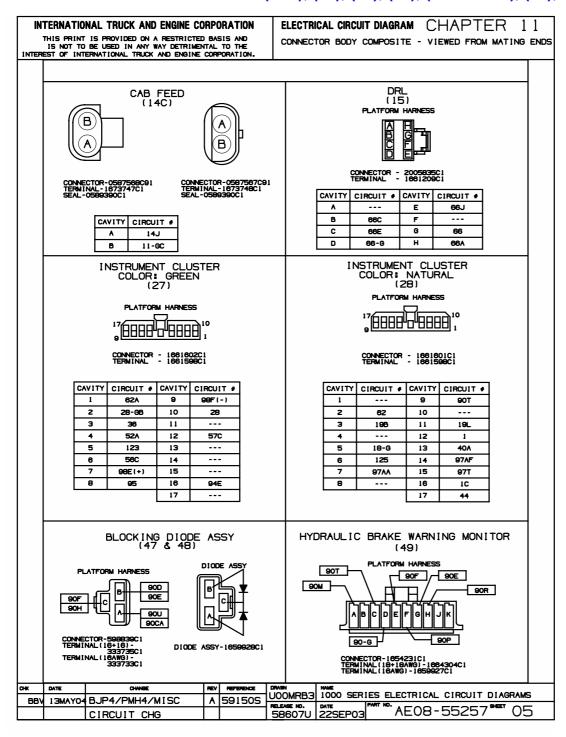


Figure 48 Connector Composites (14C), (15), (27), (28), (47 and 48), (49)

## 11.6. CONNECTOR COMPOSITES (50), (60), (63), (123), P. 6

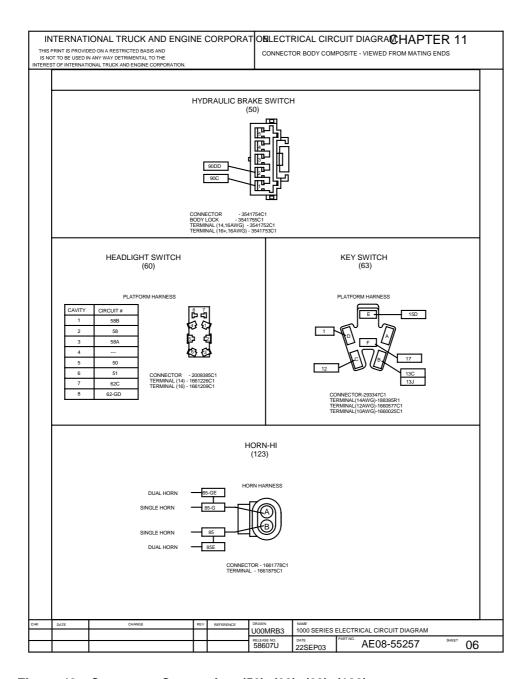


Figure 49 Connector Composites (50), (60), (63), (123)

## 11.7. CONNECTOR COMPOSITES (134), (192), (193), P. 7

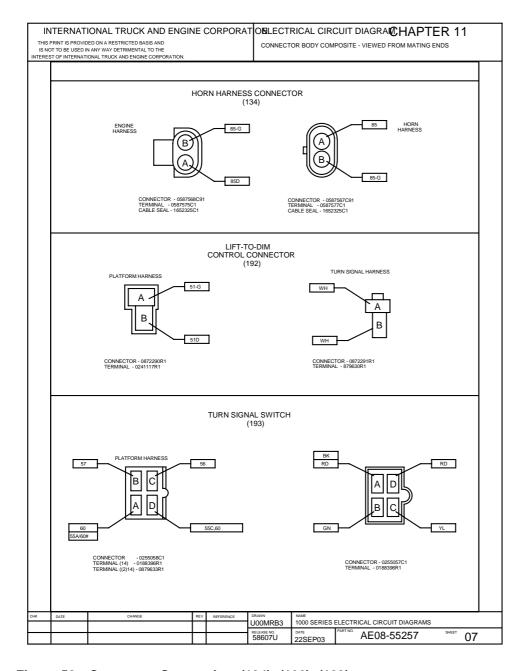


Figure 50 Connector Composites (134), (192), (193)

## 11.8. CONNECTOR COMPOSITES (194), (196), P. 8

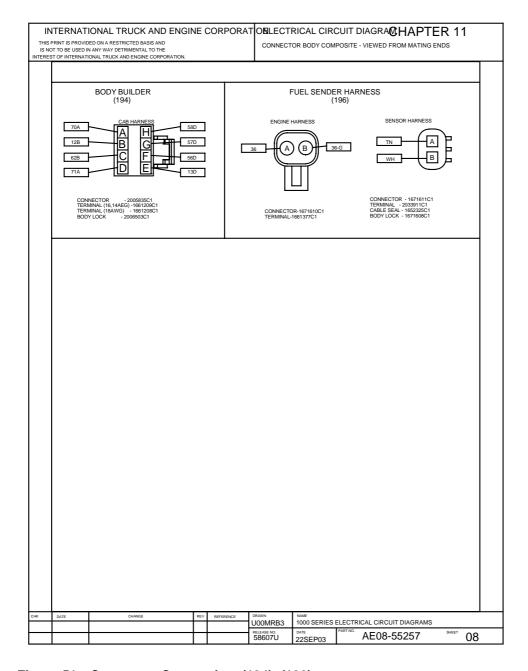


Figure 51 Connector Composites (194), (196)

## 11.9. CONNECTOR COMPOSITES (258), (261), (279), (289), P. 9

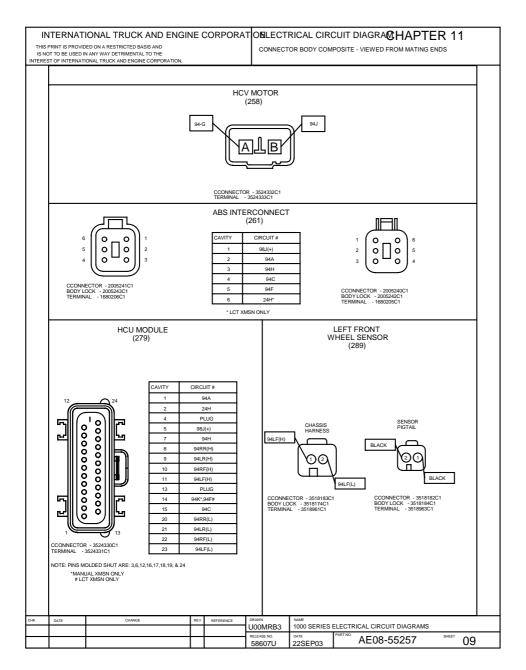


Figure 52 Connector Composites (258), (261), (279), (289)

## 11.10. CONNECTOR COMPOSITES (293), (295), (300), (301), (303), P. 10

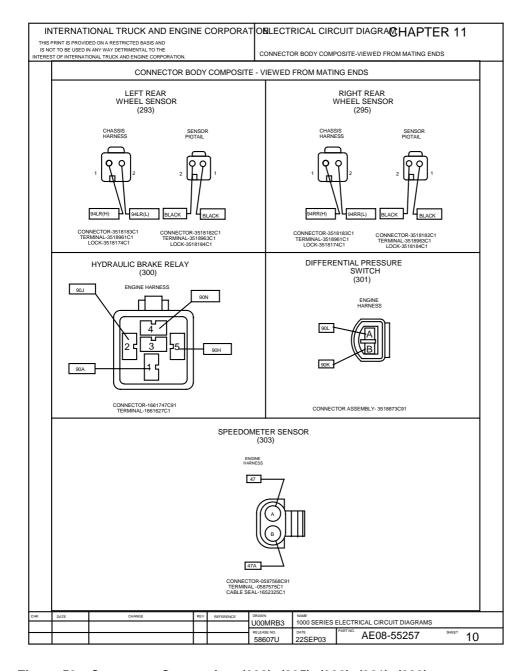


Figure 53 Connector Composites (293), (295), (300), (301), (303)

## 11.11. CONNECTOR COMPOSITES (304), (323), (374), P. 11

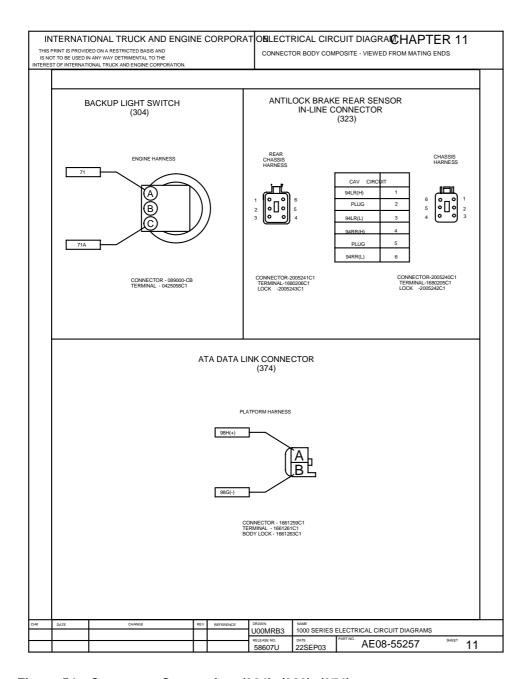


Figure 54 Connector Composites (304), (323), (374)

## 11.12. CONNECTOR COMPOSITES (381), (382), (384), P. 12

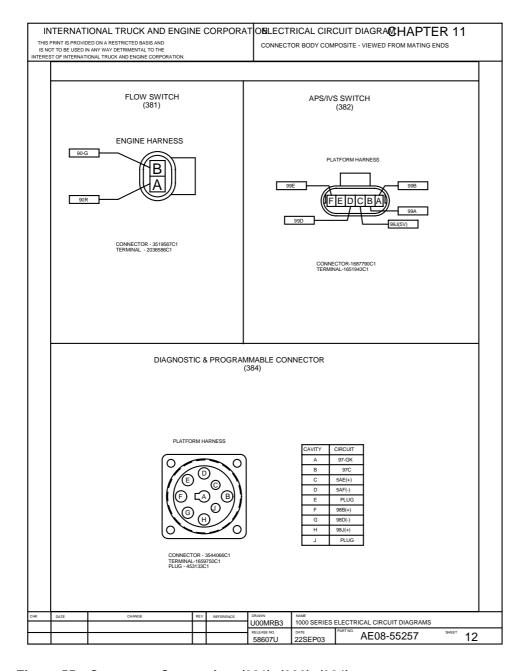


Figure 55 Connector Composites (381), (382), (384)

## 11.13. CONNECTOR COMPOSITES (386), (391), (392), (400), P. 13

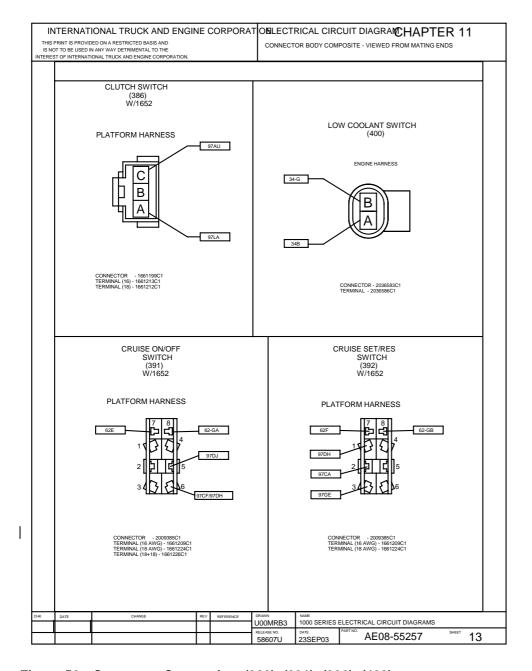


Figure 56 Connector Composites (386), (391), (392), (400)

#### 11.14. CONNECTOR COMPOSITES (408), (409), (410), (411), (412), (413), (420), P. 14

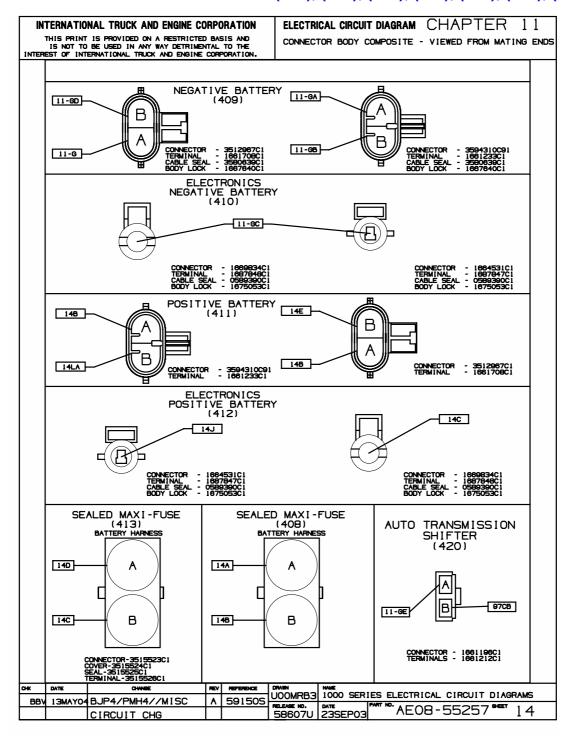


Figure 57 Connector Composites (408), (409), (410), (411), (412), (413), (420)

## 11.15. CONNECTOR COMPOSITES (437), (463), (470), P. 15

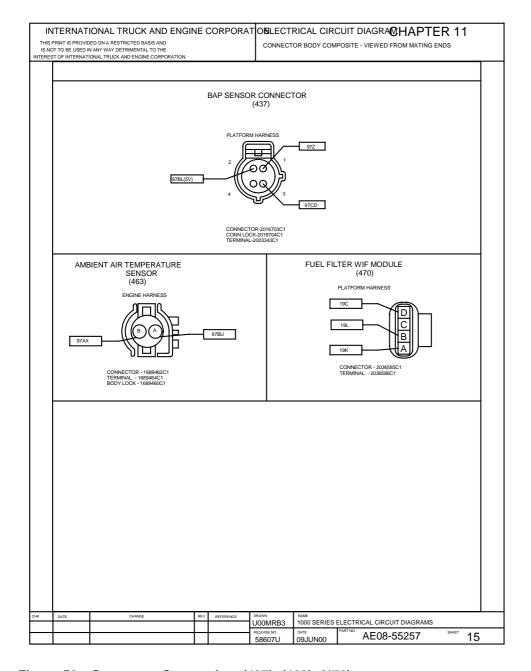


Figure 58 Connector Composites (437), (463), (470)

## 11.16. CONNECTOR COMPOSITES (474), (475), (477), (1002), (1004), (1133), (1155), P. 16

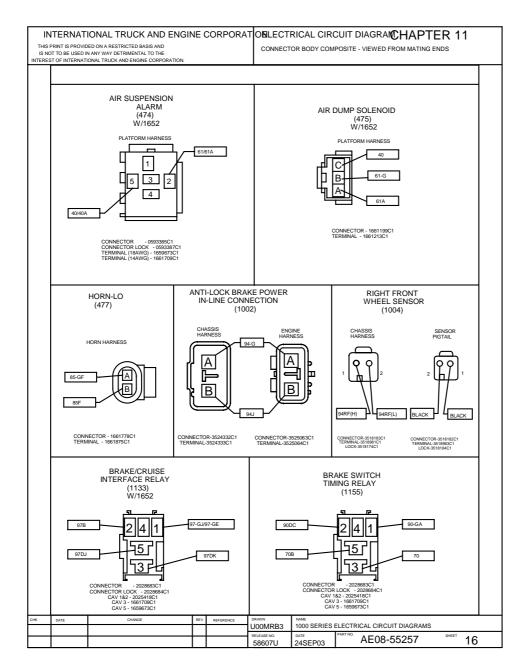


Figure 59 Connector Composites (474), (475), (477), (1002), (1004), (1133), (1155)

#### 11.17. CONNECTOR COMPOSITES (589), (590), (590A), (590B), P. 17

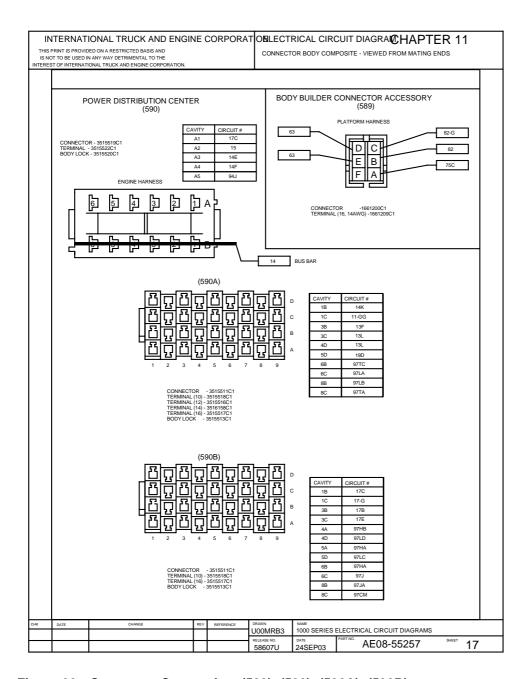


Figure 60 Connector Composites (589), (590), (590A), (590B)

## 11.18. CONNECTOR COMPOSITES (1657), (3023), (3024), (3027), (3028), (3029), (3030), P. 18

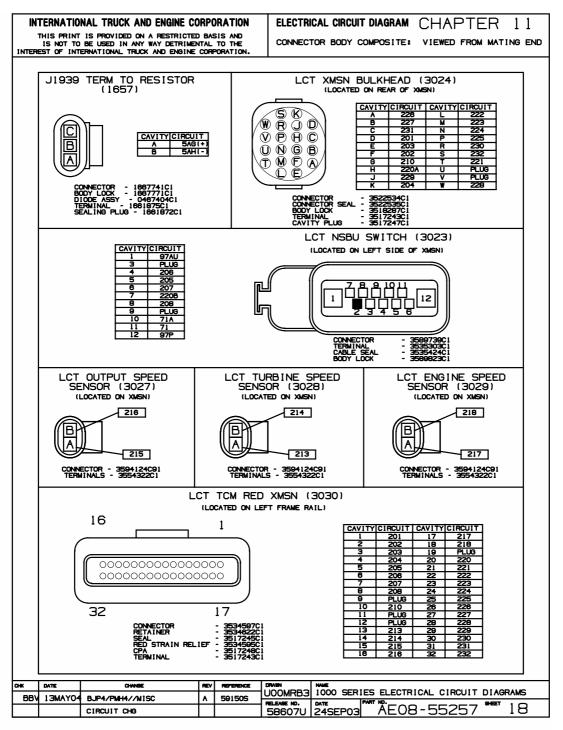


Figure 61 Connector Composites (1657), (3023), (3024), (3027), (3028), (3029), (3030)

# 11.19. CONNECTOR COMPOSITES (3031), (3110), (4101), (4102), (4103), (4104), (6011), (6020), (6021), P. 19

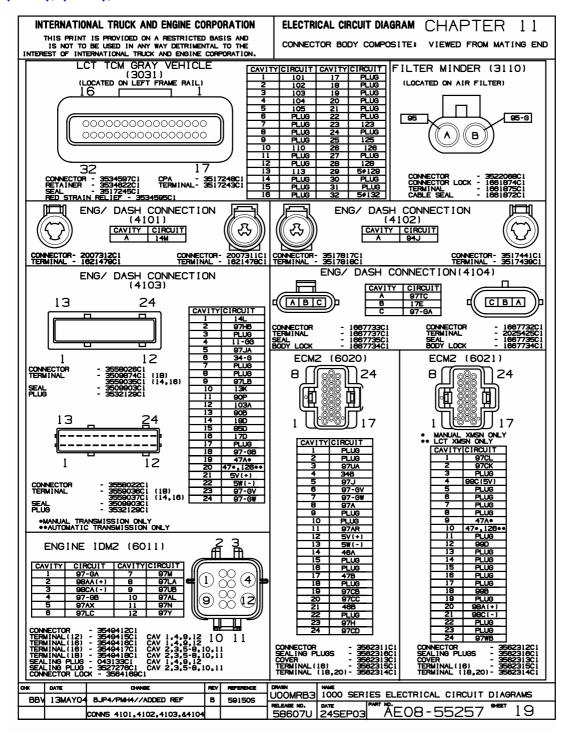


Figure 62 Connector Composites (3031), (3110), (4101), (4102), (4103), (4104), (6011), (6020), (6021)

11.20. CONNECTOR COMPOSITES (6200), (6316), (6346A), (6346A), (6708), (7801), P. 20

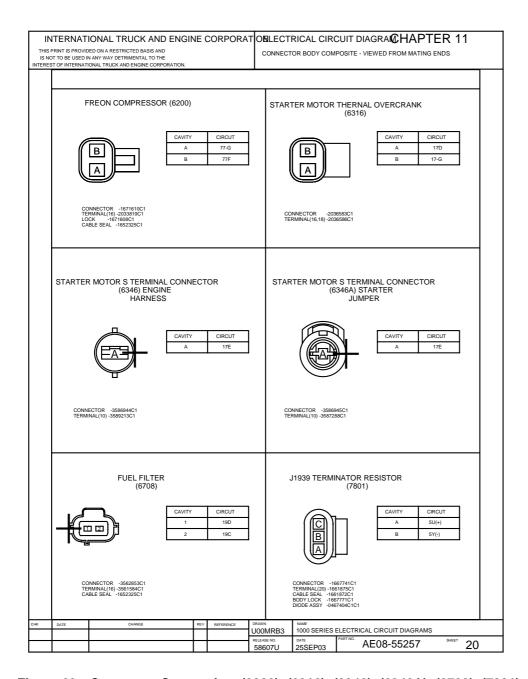


Figure 63 Connector Composites (6200), (6316), (6346), (6346A), (6708), (7801)

#### 11.21. LAMP BULB CHART, P. 21

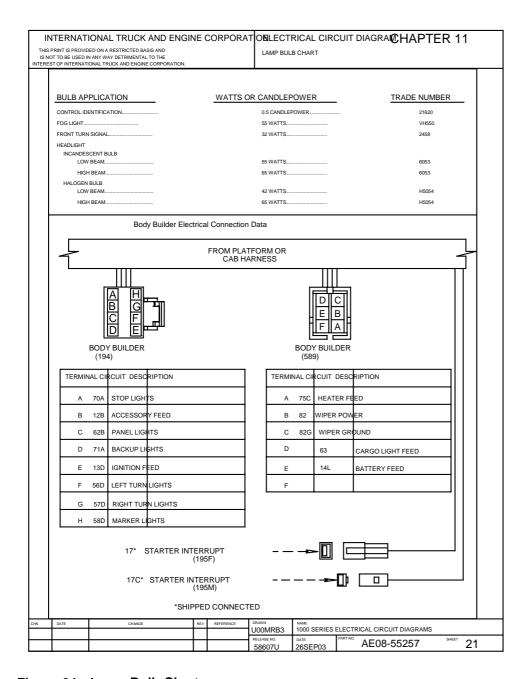


Figure 64 Lamp Bulb Chart

#### 11.22. FUSE BLOCK AND CIRCUIT BREAKER CHART — CAB, P. 22

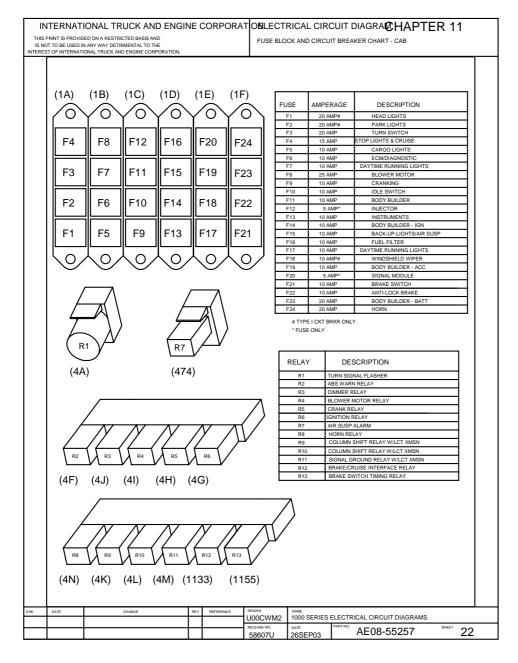


Figure 65 Fuse Block and Circuit Breaker Chart — Cab

#### 11.23. FUSE BLOCK AND CIRCUIT BREAKER CHART — COWL, P. 23

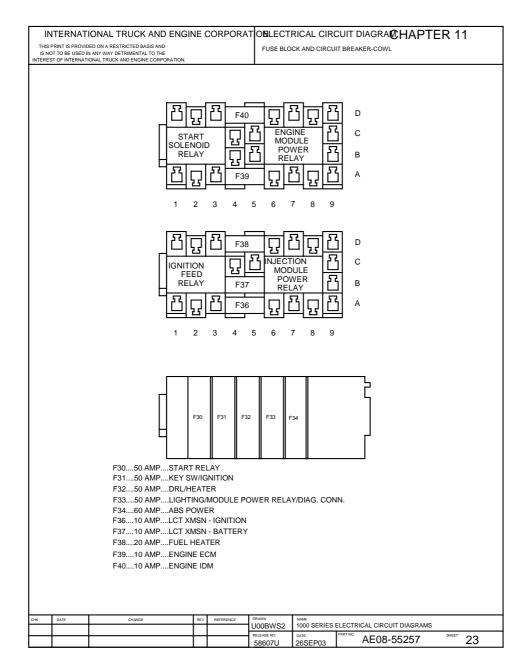


Figure 66 Fuse Block and Circuit Breaker Chart — Cowl