TRUCK SERVICE MANUAL

BE, CE Bus Starting March, 2004 — ELECTRICAL CIRCUIT DIAGRAMS

Model: BE 200
Start Date: 08/01/2005

Model: CE Bus
Start Date: 03/01/2004

Model: CE 200
Start Date: 03/01/2004

Model: CE 300
Start Date: 03/01/2004

S08291

05/31/2006

Table of Contents

SAFETY INFORMATION

IMPORTANT – Read the following before starting the service procedure.

The information contained in this International Service Manual Section was current at the time of printing and is subject to change without notice or liability.

You must follow your company safety procedures when you service or repair equipment. Be sure to understand all of the procedures and instructions before you begin work on the unit.

International uses the following types of notations to give warning of possible safety problems and to give information that will prevent damage to the equipment being serviced or repaired.

WARNING – A warning indicates procedures that must be followed exactly. Personal injury or possible death can occur if the procedure is not followed.

CAUTION – A caution indicates procedures that must be followed exactly. If the procedure is not followed, damage to equipment or components can occur.

NOTE – A note indicates an operation, procedure or instruction that is important for correct service.

Some procedures require the use of special tools for safe and correct service. Failure to use these special tools when required can cause injury to service personnel or damage to vehicle components.

This service manual section is intended for use by professional technicians, NOT a "**do-it-yourselfer**." It is written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the service section applies to your vehicle. See your International Truck Dealer for information on whether this service section applies to your vehicle.

Table of Contents

1. INSTRUCTIONS AND CHARTS (CHAPTER 1)

1.1. CIRCUIT NUMBER IDENTIFICATION CHART, P. 1

INTERNATIONAL TRUCK AND ENGINE CORPORATION

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF INTERNATIONAL TRUCK AND ENGINE CORPORATION.

ELECTRICAL CIRCUIT DIAGRAM CHAPTER 1

INTERNATIONAL CIRCUIT NUMBER IDENTIFICATION AND LOCATION

PREFIX DESIGNATIONS

PREFIX	LOCATION
A	CAB-INSTRUMENT PANEL
K	ENGINE/TRANSMISSION
L	DRIVE TRAIN DATA LINK/FAN SOLENOID
M	HORN
N	CHASSIS, FRONT SECTION
R	CHASSIS, REAR SECTION
U	HOOD HARNESS

CIRCUIT NUMBER AND IDENTIFICATIONS

CIRCUIT NUMBER	COLOR	DESCRIPTION
1	LTBL	ALTERNATOR-FIELD
2	RD	ALTERNATOR-CHARGE
3	DKBL	J1708 DATALINK, SWITCH DATA LINK (+)
	GY	J1708 DATALINK, SWITCH DATA LINK (-)
4		
5	YL	DRIVE TRAIN J1939 DATA LINK (+)
	GN	DRIVE TRAIN J1939 DATA LINK (-)
6	GY	LOW VOLTAGE ELECTRONIC FEED (LESS THAN 9 VOLTS)
7	RD	ALTERNATOR-RESISTANCE
8		

CHK	DATE	CHANGE	REV	REFERENCE	DRAWN	NAME
CNA	28FEB06	CONVERTED FROM SABER	C	59968M	U00JLH3	DRIVE • CONVENTIONAL BUS ELECTRICAL CIRCUIT DIAGRAMS
		TO UG.			RELEASE NO. 55806A	DATE 19JUL02 / PART NO. AE08-54425 / SHEET 01

Figure 1 Circuit Number Identification Chart

1.2. CIRCUIT NUMBER IDENTIFICATION CHART, P. 2

INTERNATIONAL TRUCK AND ENGINE CORPORATION

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF INTERNATIONAL TRUCK AND ENGINE CORPORATION.

ELECTRICAL CIRCUIT DIAGRAM CHAPTER 1

INTERNATIONAL CIRCUIT NUMBER IDENTIFICATION AND LOCATION (CONT.)

CIRCUIT NUMBER AND IDENTIFICATION (CONT.)

CIRCUIT NUMBER	COLOR	DESCRIPTION
9	GY	ZERO VOLT REFERENCE (ZVR)
10	WH	CHASSIS/ENGINE GROUND
11	WH	CAB GROUND
12	LTBL	ACCESSORY FEED
13	PK BK	IGNITION FEED IGNITION FEED(BODY BUILDER CONNECTOR)
14	RD	BATTERY FEED
15	RD	KEY SWITCH FEED
16		
17	PK	STARTER CONTROL
18	PK	GLOW PLUG/PRE-HEATER
19	GY	ENGINE SHUTDOWN
20	LTGN	REMOTE POWER MODULE
21	TN	COLD START CONTROLS (ETHER)
22		
23	TN	ENGINE FAN/SHUTTERS
24	GY	ENGINE EXHAUST BRAKE
25	TN	PYROMETER
26	TN	AMMETER
27	TN	VOLTMETER
28	TN	INSTRUMENTS & GAUGES
29	TN	ENGINE WATER TEMPERATURE
30	TN	ENGINE OIL TEMPERATURE
31	TN	TRANSMISSION OIL TEMPERATURE
32	TN	AXLE OIL TEMPERATURE

CHK	DATE	CHANGE	REV	REFERENCE	DRAWN	NAME
CNA	28FEB06	CONVERTED FROM SABER	C	59968M	U00JLH3	DRIVE • CONVENTIONAL BUS ELECTRICAL CIRCUIT DIAGRAMS
		TO UG.			RELEASE NO. 55806A	DATE 19JUL02 PART NO. AE08-54425 SHEET 02

Figure 2 Circuit Number Identification Chart (Cont.)

1.3. CIRCUIT NUMBER IDENTIFICATION CHART, P. 3

INTERNATIONAL TRUCK AND ENGINE CORPORATION

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF INTERNATIONAL TRUCK AND ENGINE CORPORATION.

ELECTRICAL CIRCUIT DIAGRAM CHAPTER 1

INTERNATIONAL CIRCUIT NUMBER IDENTIFICATION AND LOCATION (CONT.)

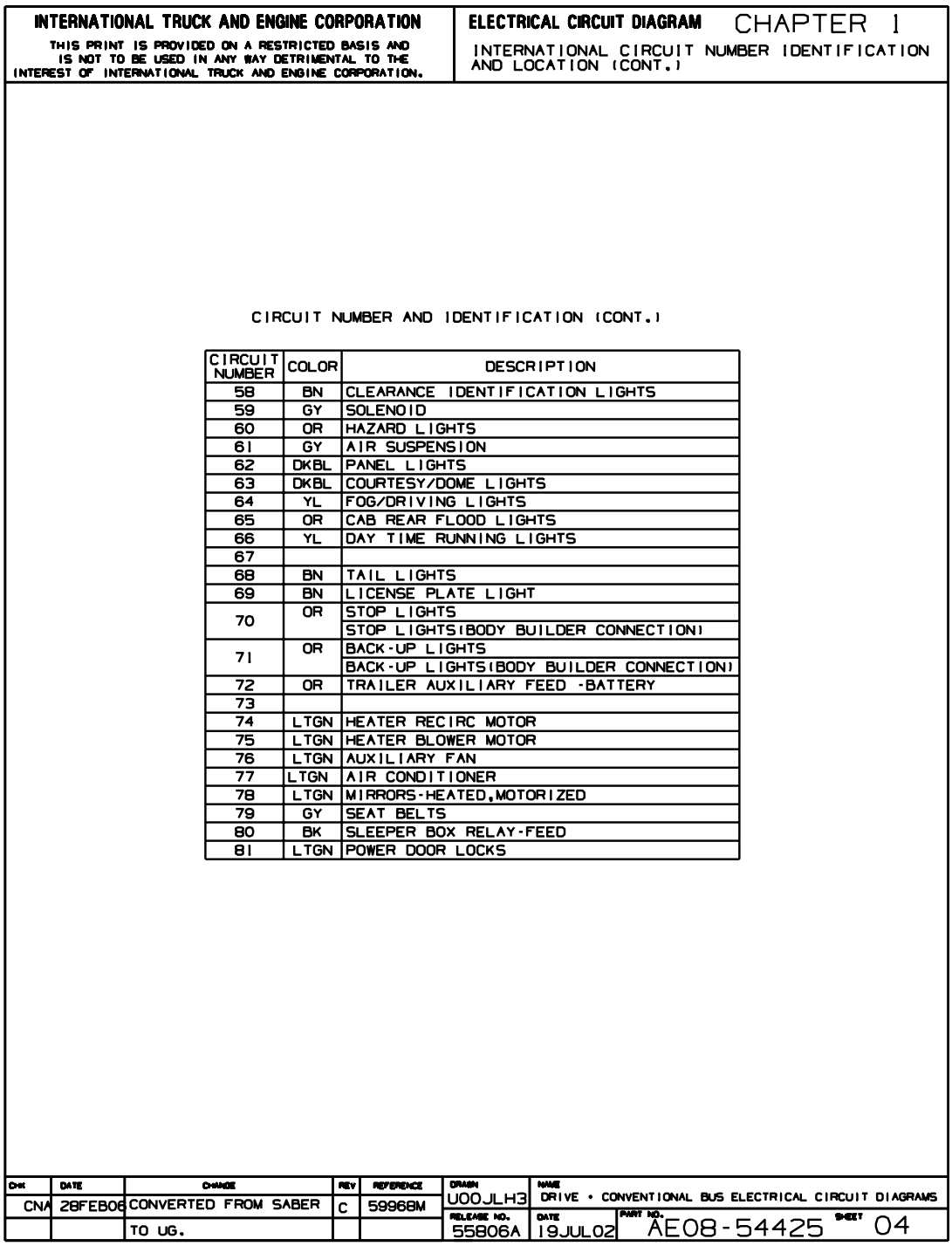
CIRCUIT NUMBER AND IDENTIFICATION (CONT.)

CIRCUIT NUMBER	COLOR	DESCRIPTION
33	TN	ENGINE OIL LEVEL
34	TN	COOLANT LEVEL
35	TN	ENGINE OIL PRESSURE
36	TN	FUEL LEVEL
37	TN	FUEL PUMP
38		
39	GY	AIR DRYER HEATER
40	GY	LOW AIR PRESSURE WARNING
41	TN	AIR TEMPERATURE
42	GY	FRONT AXLE ENGAGED
43	GY	POWER DIVIDER LOCK(PDL) WARNING
44	GY	PARK BRAKE WARNING
45	LTGN	ANTI-THEFT WARNING
46	GY	POWER TAKE -OFF WARNING
47	GY	SPEEDOMETER
48	GY	TACHOMETER
49	GY	DIFFERENTIAL LOCK WARNING
50	YL	LIGHT SWITCH FEED
51	YL	DIMMER SWITCH FEED
52	YL	HEADLIGHT HI-BEAM
53	YL	HEADLIGHT LO-BEAM
54	BN	PARKING/MARKER LIGHTS
55	OR	TURN SIGNAL-FEED
56	OR	TURN SIGNAL LIGHTS-LEFT
	YL	TURN SIGNAL LIGHTS-LEFT (BODY BUILDER CONNECTION)
57	OR	TURN SIGNAL LIGHTS-RIGHT
	LTGN	TURN SIGNAL LIGHTS-RIGHT(BODY BUILDER CONNECTION)

CHK	DATE	CHANGE	REV	REFERENCE	DRAWN	NAME
CNA	28FEB06	CONVERTED FROM SABER	C	59968M	U00JLH3	DRIVE • CONVENTIONAL BUS ELECTRICAL CIRCUIT DIAGRAMS
		TO UG.			RELEASE NO. 55806A	DATE 19JUL02 / PART NO. AE08-54425 / SHEET 03

Figure 3 Circuit Number Identification Chart (Cont.)

1.4. CIRCUIT NUMBER IDENTIFICATION CHART, P. 4



INTERNATIONAL TRUCK AND ENGINE CORPORATION

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF INTERNATIONAL TRUCK AND ENGINE CORPORATION.

ELECTRICAL CIRCUIT DIAGRAM CHAPTER 1

INTERNATIONAL CIRCUIT NUMBER IDENTIFICATION AND LOCATION (CONT.)

CIRCUIT NUMBER AND IDENTIFICATION (CONT.)

CIRCUIT NUMBER	COLOR	DESCRIPTION
58	BN	CLEARANCE IDENTIFICATION LIGHTS
59	GY	SOLENOID
60	OR	HAZARD LIGHTS
61	GY	AIR SUSPENSION
62	DKBL	PANEL LIGHTS
63	DKBL	COURTESY/DOME LIGHTS
64	YL	FOG/DRIVING LIGHTS
65	OR	CAB REAR FLOOD LIGHTS
66	YL	DAY TIME RUNNING LIGHTS
67		
68	BN	TAIL LIGHTS
69	BN	LICENSE PLATE LIGHT
70	OR	STOP LIGHTS
		STOP LIGHTS(BODY BUILDER CONNECTION)
71	OR	BACK-UP LIGHTS
		BACK-UP LIGHTS(BODY BUILDER CONNECTION)
72	OR	TRAILER AUXILIARY FEED -BATTERY
73		
74	LTGN	HEATER RECIRC MOTOR
75	LTGN	HEATER BLOWER MOTOR
76	LTGN	AUXILIARY FAN
77	LTGN	AIR CONDITIONER
78	LTGN	MIRRORS-HEATED,MOTORIZED
79	GY	SEAT BELTS
80	BK	SLEEPER BOX RELAY-FEED
81	LTGN	POWER DOOR LOCKS

CHK	DATE	CHANGE	REV	REFERENCE	DRAWN	NAME
CNA	28FEB06	CONVERTED FROM SABER	C	59968M	U00JLH3	DRIVE • CONVENTIONAL BUS ELECTRICAL CIRCUIT DIAGRAMS
		TO UG.			RELEASE NO. 55806A	DATE 19JUL02 PART NO. AE08-54425 SHEET 04

Figure 4 Circuit Number Identification Chart (Cont.)

1.5. CIRCUIT NUMBER IDENTIFICATION CHART, P. 5

INTERNATIONAL TRUCK AND ENGINE CORPORATION

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF INTERNATIONAL TRUCK AND ENGINE CORPORATION.

ELECTRICAL CIRCUIT DIAGRAM CHAPTER 1

INTERNATIONAL CIRCUIT NUMBER IDENTIFICATIOIN AND LOCATION (CONT.)

CIRCUIT NUMBER AND IDENTIFICATIONS (CONT.)

CIRCUIT NUMBER	COLOR	DESCRIPTION
82	GY	WINDSHIELD WIPER
83	LTGN	POWER WINDOWS
84	LTGN	CIGAR LIGHTER
85	GY	HORN
86	LTGN	RADIO-ENTERTAINMENT
87	GY	WINDSHIELD WASHER
88	LTGN	CLOCK/HOURMETER
89	VT	AIR BAG
90	GY	HYDRAULIC BRAKE PUMP
91	VT	INTERCOMMUNICATIONS
92	TN	TRANSMISSION CONTROLS-ELECTRONICS
93	TN	AXLE SHIFT CONTROL
94	GY	ANTILOCK BRAKE SYSTEM
95	TN	EXHAUST EMISSION
96	YL	SNOW PLOW LIGHTS
97	VT	ENGINE CONTROLS-ELECTRONIC
98	BK	DATALINK AND DIAGNOSTICS
99	VT	ACCELERATOR POSITION SENSOR(APS)
100	GY	AIR HORN(ELECTRIC SOLENOID ACTUATED)
101	TN	BRAKE APPLICATION AIR
102	YL	FLASH TO PASS

CHK	DATE	CHANGE	REV	REFERENCE	DRAWN	NAME
CNA	28FEB06	CONVERTED FROM SABER	C	59968M	U00JLH3	DRIVE • CONVENTIONAL BUS ELECTRICAL CIRCUIT DIAGRAMS
		TO UG.			RELEASE NO. 55806A / DATE 19JUL02	PART NO. AE08-54425 / SHEET 05

Figure 5 Circuit Number Identification Chart (Cont.)

1.6. CIRCUIT DIAGRAM INSTRUCTIONS, P. 6

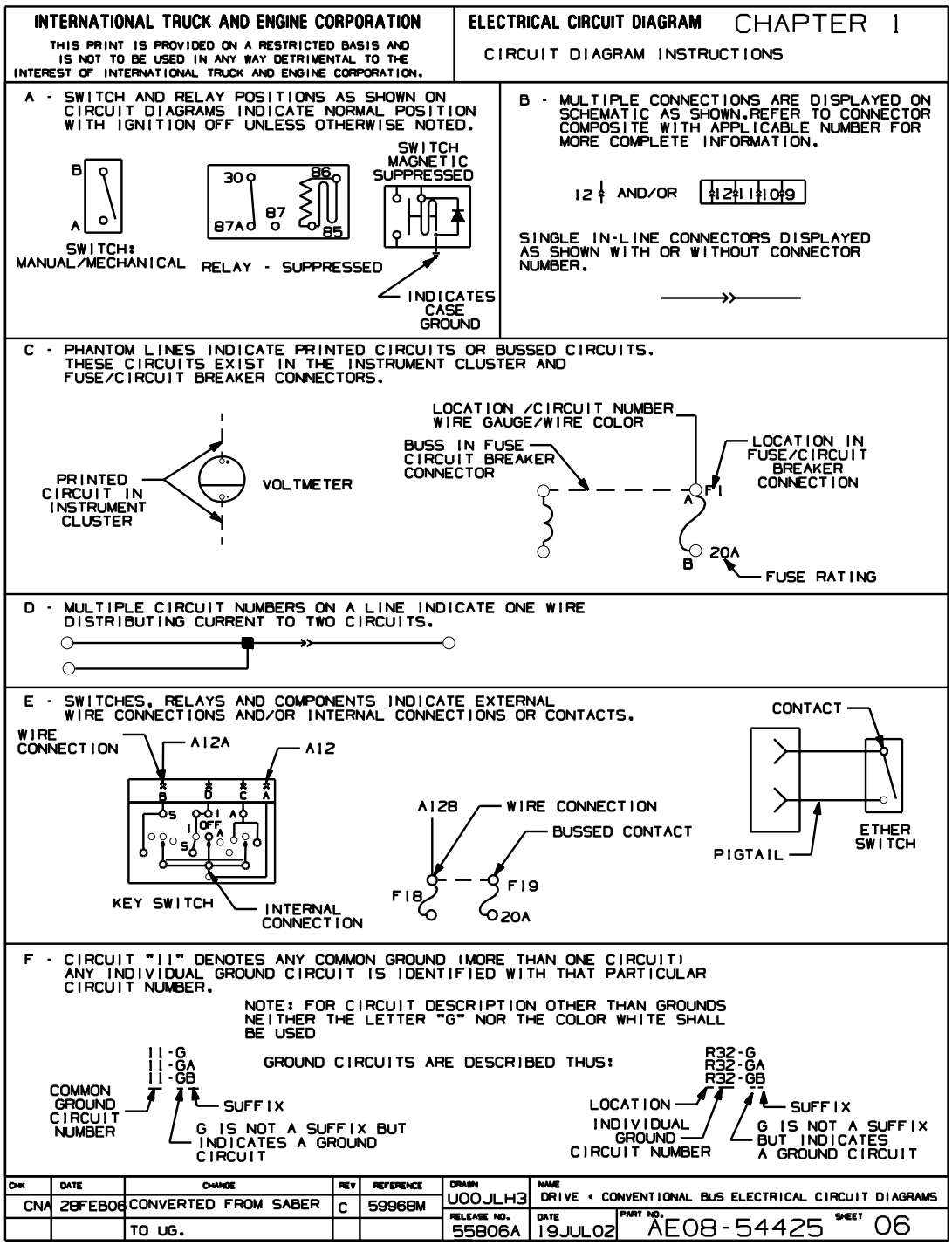


Figure 6 Circuit Diagram Instructions

1.7. CIRCUIT NUMBER IDENTIFICATION AND LOCATION, P. 7

INTERNATIONAL TRUCK AND ENGINE CORPORATION

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF INTERNATIONAL TRUCK AND ENGINE CORPORATION.

ELECTRICAL CIRCUIT DIAGRAM CHAPTER 1

INTERNATIONAL CIRCUIT NUMBER IDENTIFICATIOIN AND LOCATION

G - ABBREVIATIONS: COLOR, NOUN AND ENGINE

COLOR ABBREVIATION

ABBREVIATION	COLOR	ABBREVIATION	COLOR
AQ	AQUA	LTGN	LIGHT GREEN
BK	BLACK	OR	ORANGE
BL	BLUE	PK	PINK
BN	BROWN	PL	PURPLE
DKGN	DARK GREEN	RD	RED
GD	GOLD	SIL	SILVER
GY	GRAY	TN	TAN
GN	GREEN	VT	VOILET
LTBL	LIGHT BLUE	WH	WHITE
		YL	YELLOW

NOUN ABBREVIATION

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A	ACCESSORY	G	GROUND
ACC		GND	
AC	AIR CONDITIONER	I	IGNITION
AUX	AUXILIARY	IGN	
AWG	AMERICAN WIRE GAUGE	IND	INDICATOR
B	BATTERY	L	LEFT
BAT		LT	LIGHT
CONN	CONECTION OR CONNECTOR	W/O	WITHOUT
DRL	DAYTIME RUNNING LIGHTS	OPT	OPTIONAL
ENG	ENGINE	R	RIGHT
FWD	FORWARD	S	STARTER OR SENDER
GA	GAUGE	THERMO	THERMOSTAT
		W/	WITH

ENGINE ABBREVIATION :

V8- MFG (INTERNATIONAL) V8 6.0 LITER ELECTRONIC ENGINE CONTROL

I6- MFG (INTERNATIONAL) NGD I6 DT466 & DT/HT530 ELECTRONIC ENGINE CONTROL

IDM- MFG (INTERNATIONAL) INJECTOR DRIVE MODULE

CHK	DATE	CHANGE	REV	REFERENCE	DRAWN	NAME
CNA	28FEB06	CONVERTED FROM SABER	C	59968M	U00JLH3	DRIVE • CONVENTIONAL BUS ELECTRICAL CIRCUIT DIAGRAMS
		TO UG.			RELEASE NO. 55806A	DATE 19JUL02 PART NO. AE08-54425 SHEET 07

Figure 7 Circuit Number Identification and Location

1.8. SCHEMATIC SYMBOL CHART, P. 8

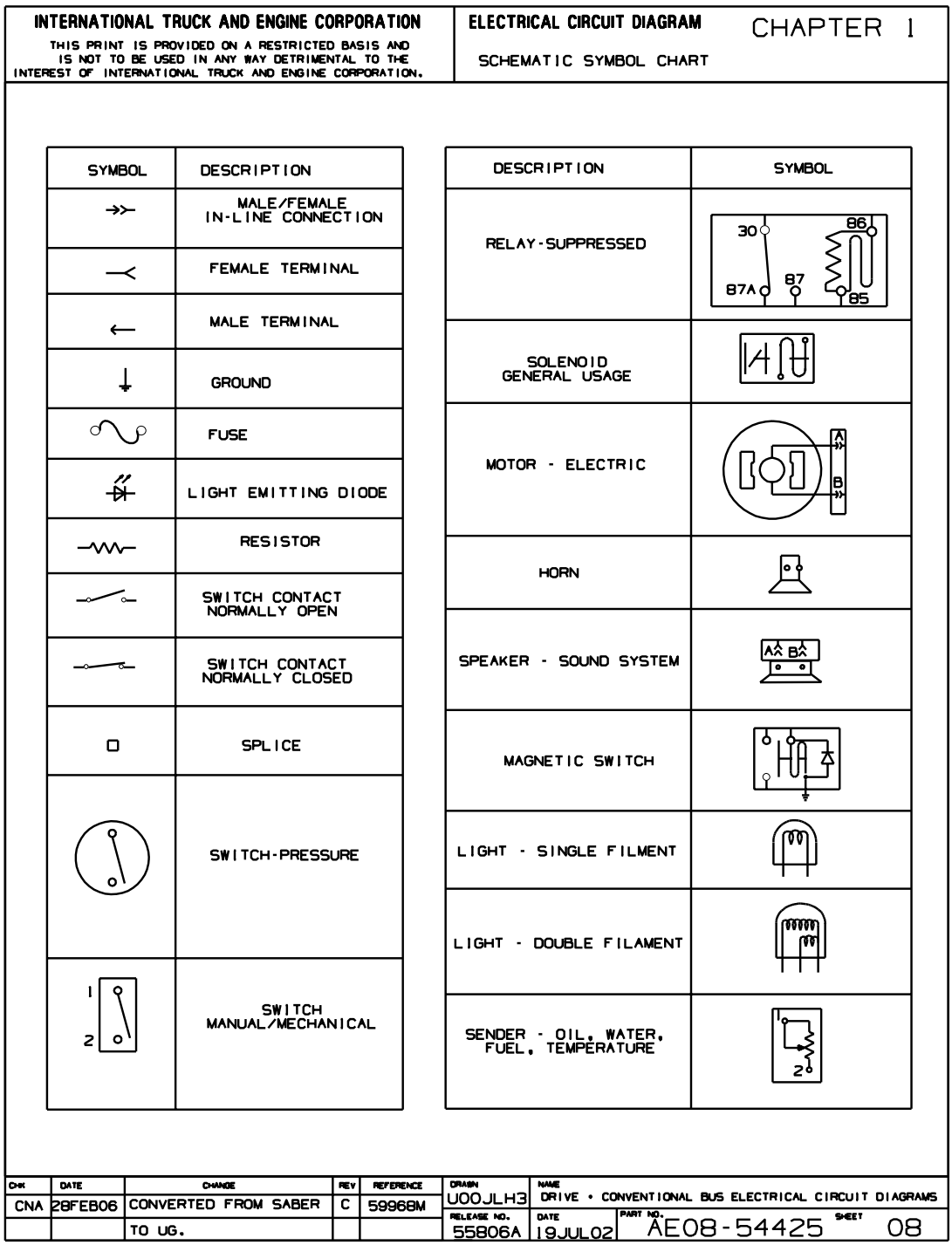


Figure 8 Schematic Symbol Chart

1.9. CIRCUIT NUMBER IDENTIFICATION AND LOCATION, P. 9

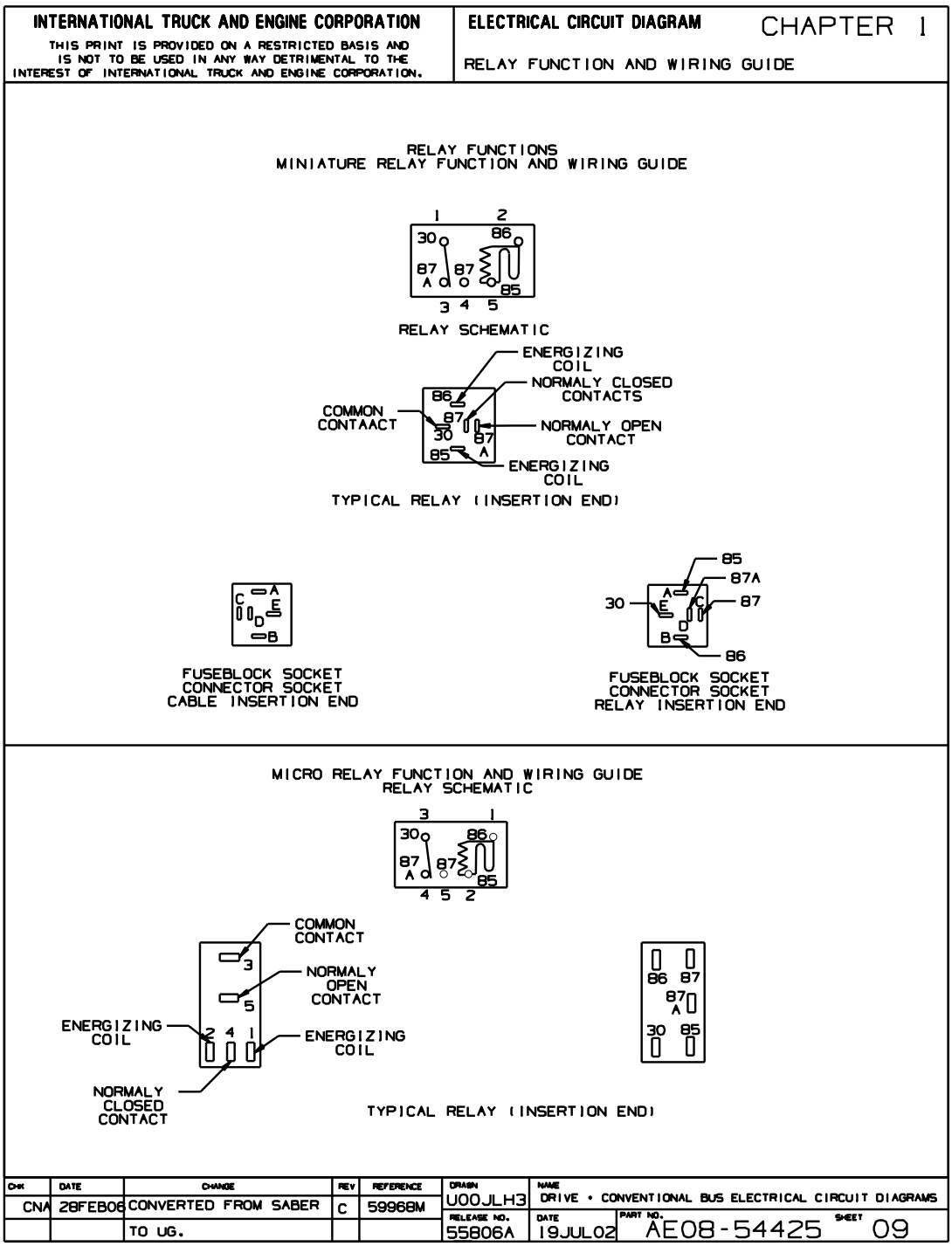


Figure 9 Circuit Number Identification and Location

1.10. LAMP BULB CHART, P. 10

INTERNATIONAL TRUCK AND ENGINE CORPORATION

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF INTERNATIONAL TRUCK AND ENGINE CORPORATION.

ELECTRICAL CIRCUIT DIAGRAM CHAPTER 1

LAMP BULB CHART

BULB APPLICATION	BULB CANDLE POWER OR WATTS	BULB TRACE NUMBER
FOG LIGHTS	121 CANDLE POWER	H355
HEAD LIGHTS		
LOW BEAMS	65 WATTS	9007
HIGH BEAMS	55 WATTS	9007
MISC LIGHTS		
SIDE MARKER	3.8 WATTS	194NA
TURN SIGNAL MARKER (FENDER)	27/8 WATTS	3157
TURN SIGNAL & FRONT MARKER LIGHT	27/8 WATTS	3157NA

CHK	DATE	CHANGE	REV	REFERENCE	DRAWN	NAME
CNA	28FEB06	CONVERTED FROM SABER	C	59968M	U00JAHP	DRIVE • CONVENTIONAL BUS ELECTRICAL CIRCUIT DIAGRAMS
		TO UG.			RELEASE NO. 55806A	DATE 23APR02 PART NO. AE08-54425 SHEET 10

Figure 10 Lamp Bulb Chart

2. 12 VOLT POWER DISTRIBUTION AND DATA LINK (CHAPTER 2)

2.1. ACCESSORY, P. 1

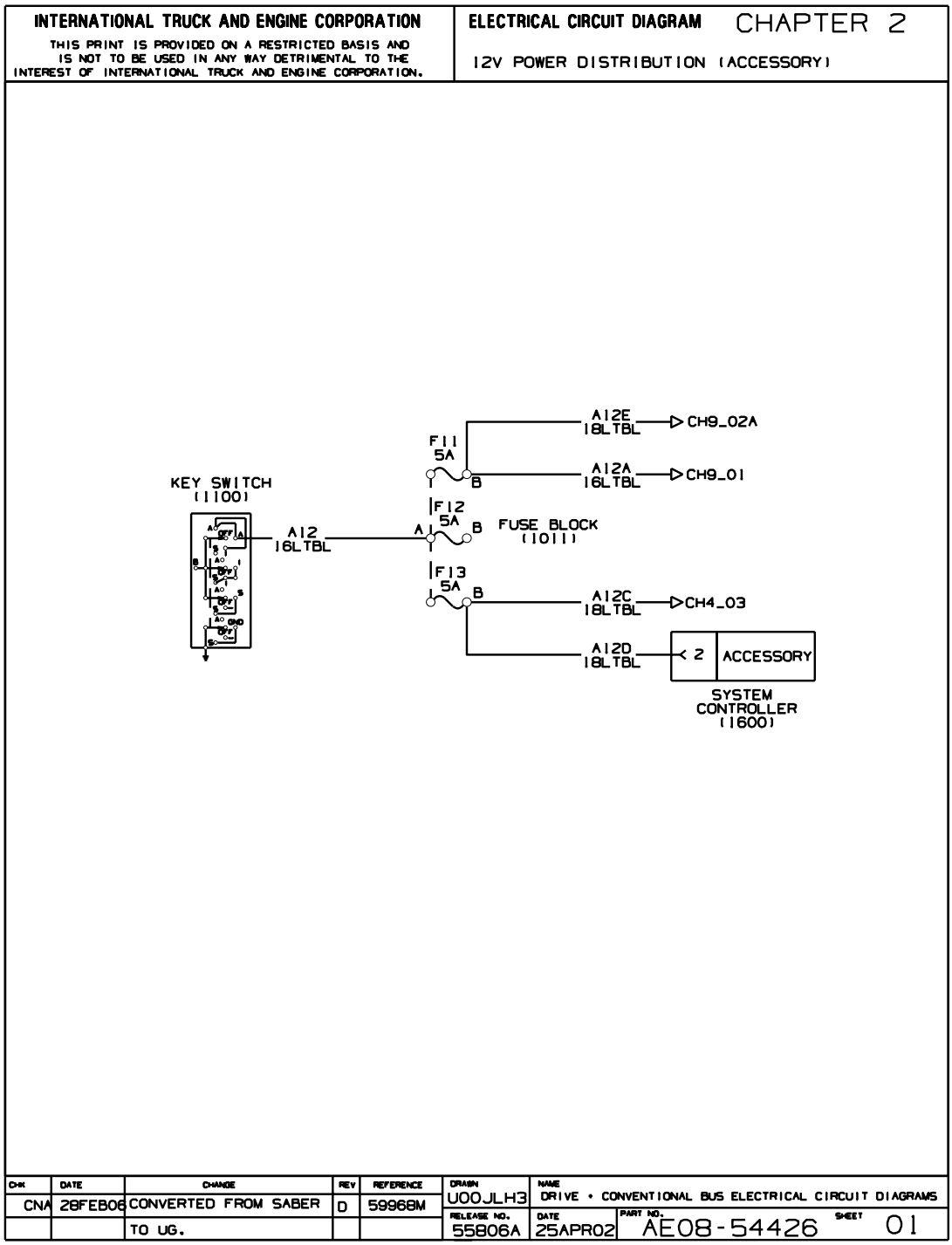


Figure 11 Accessory

2.2. BATTERY, P. 2

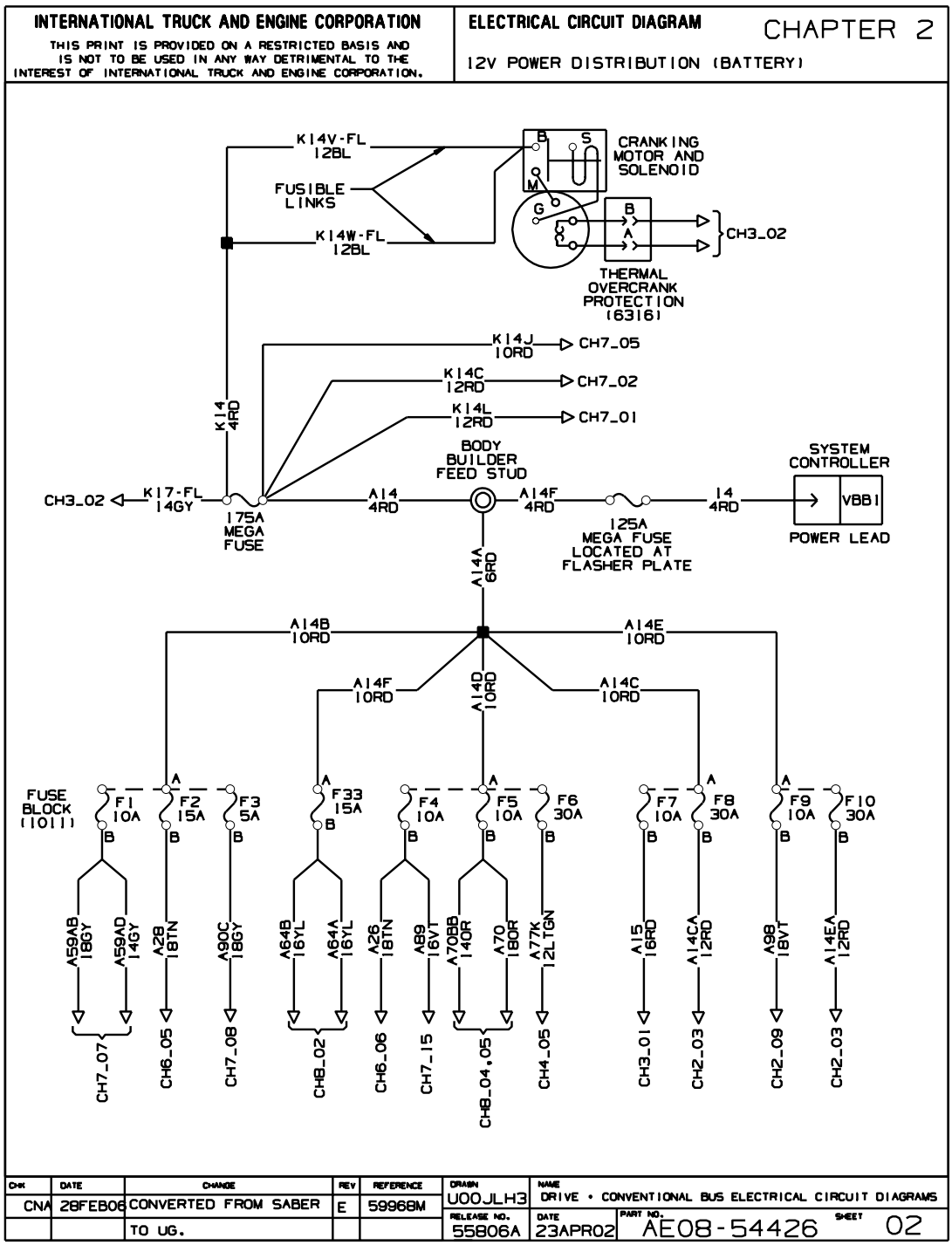


Figure 12 Battery

2.3. IGNITION, P. 3

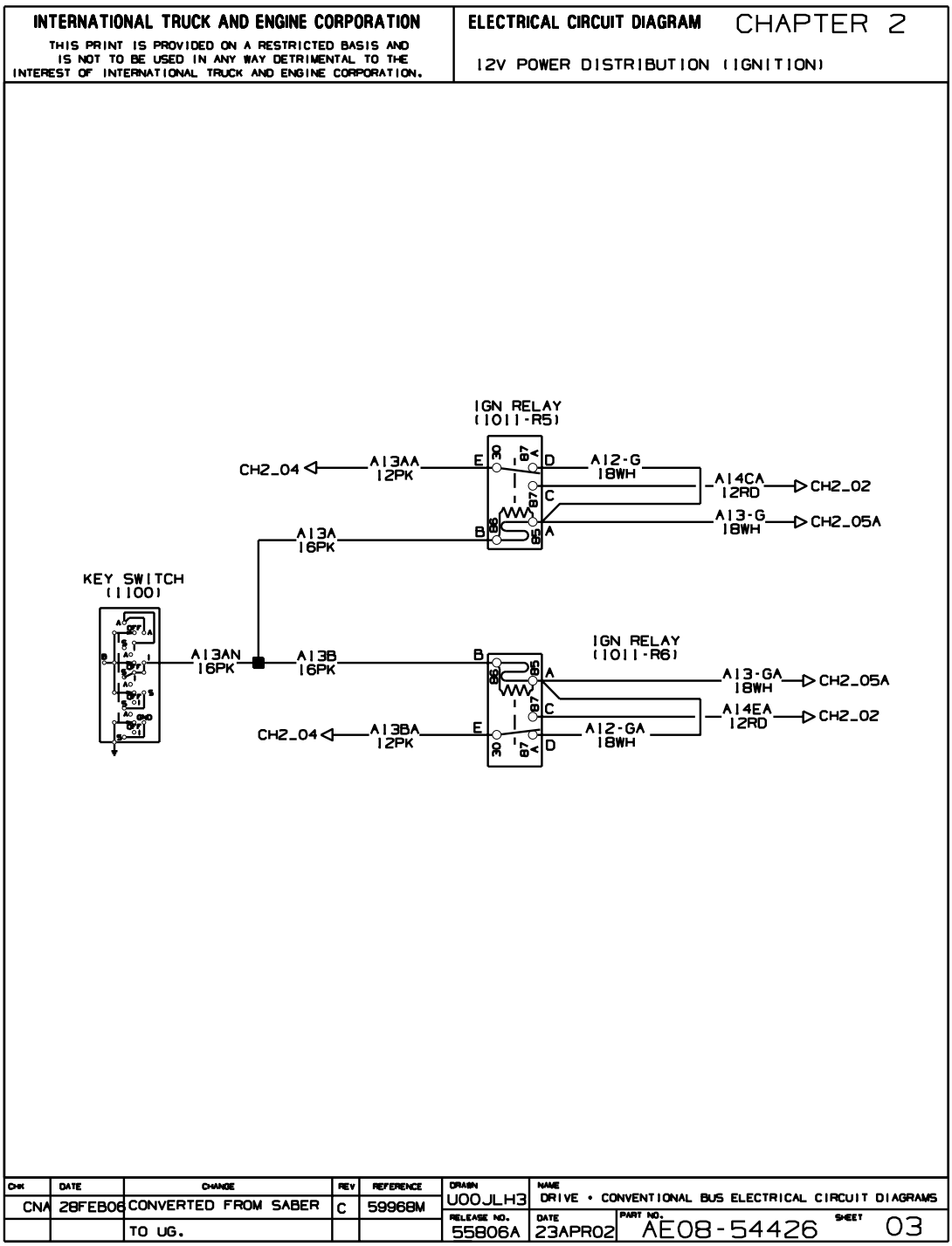


Figure 13 Ignition

2.4. IGNITION, P. 4

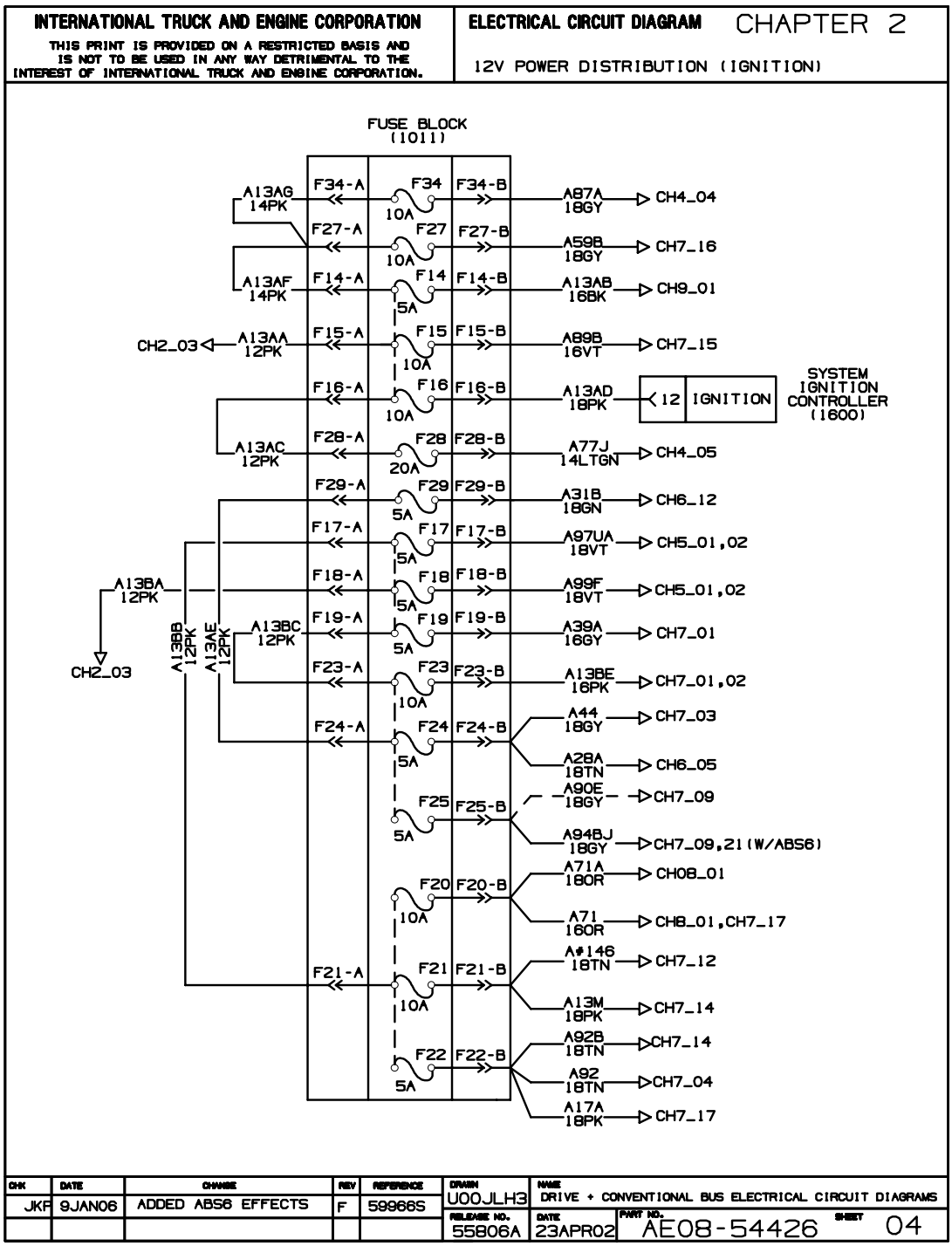


Figure 14 Ignition (Cont.)

2.5. GROUND, P. 5

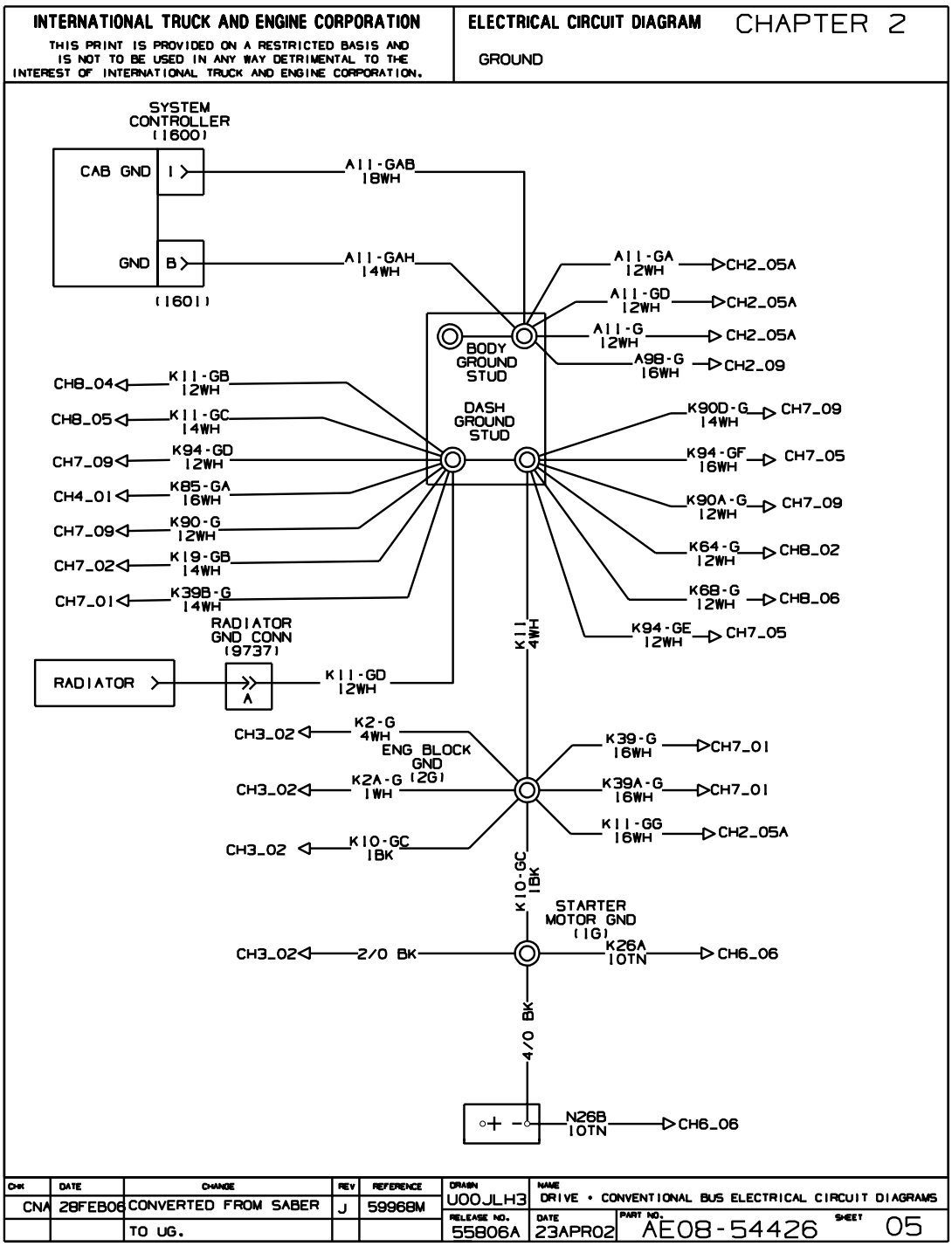


Figure 15 Ground

2.6. DRIVETRAIN J1939 DATA LINK (CAB), P. 6

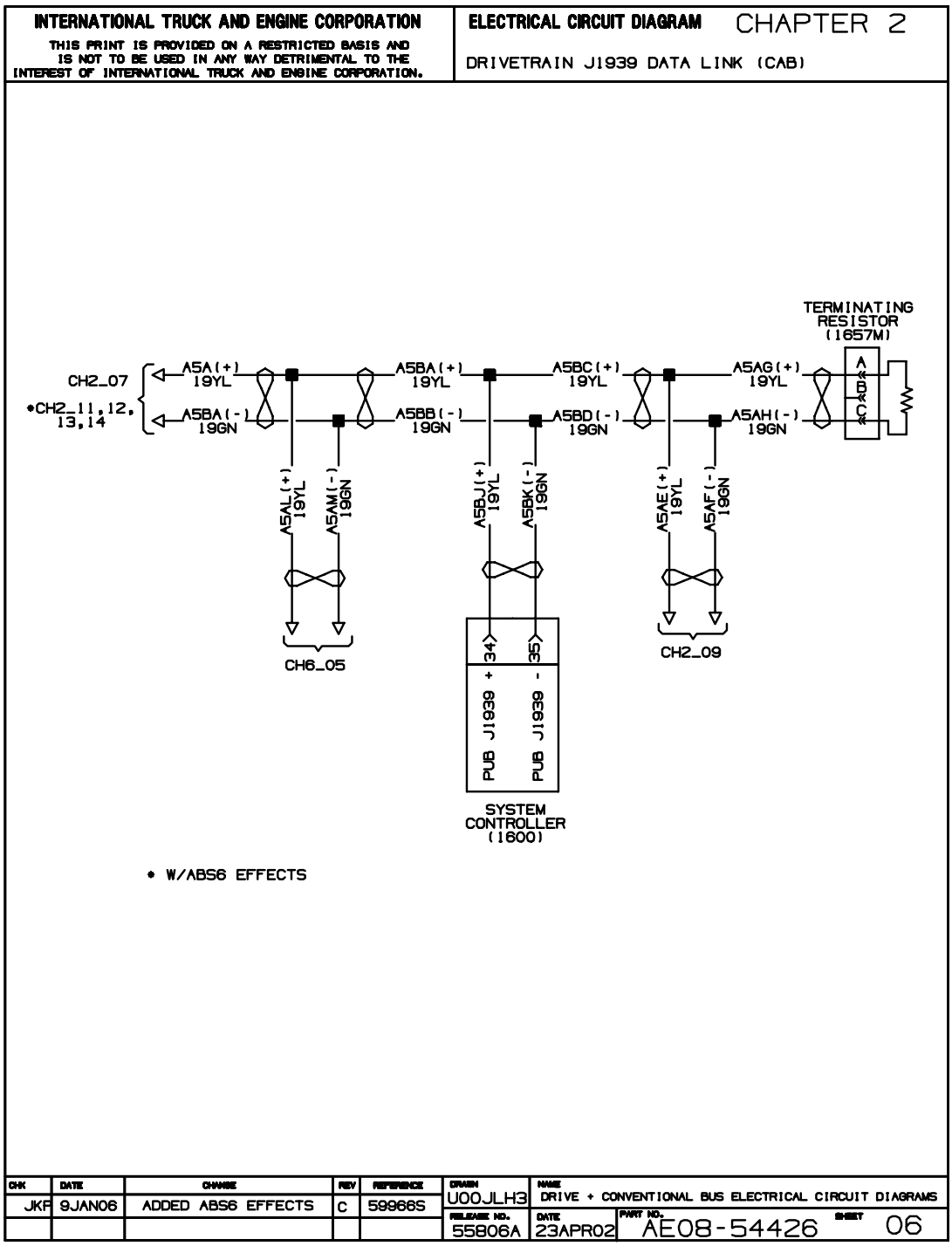


Figure 16 Drivetrain J1939 Data Link (Cab)

2.7. DRIVETRAIN J1939 DATA LINK (CHASSIS), P. 7

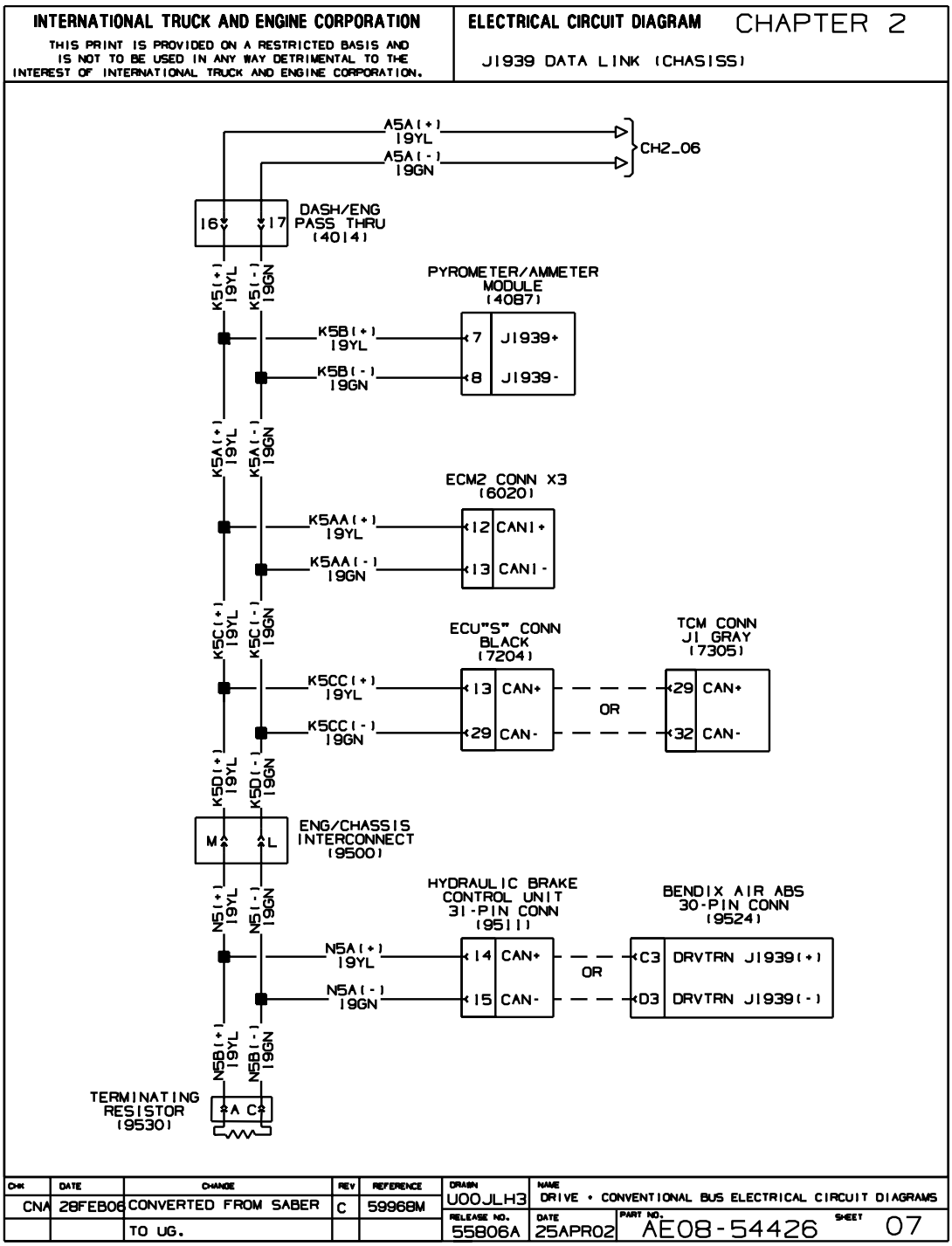


Figure 17 Drivetrain J1939 Data Link (Chassis)

2.8. J1708 DATA LINK DIAGNOSTIC, P. 8

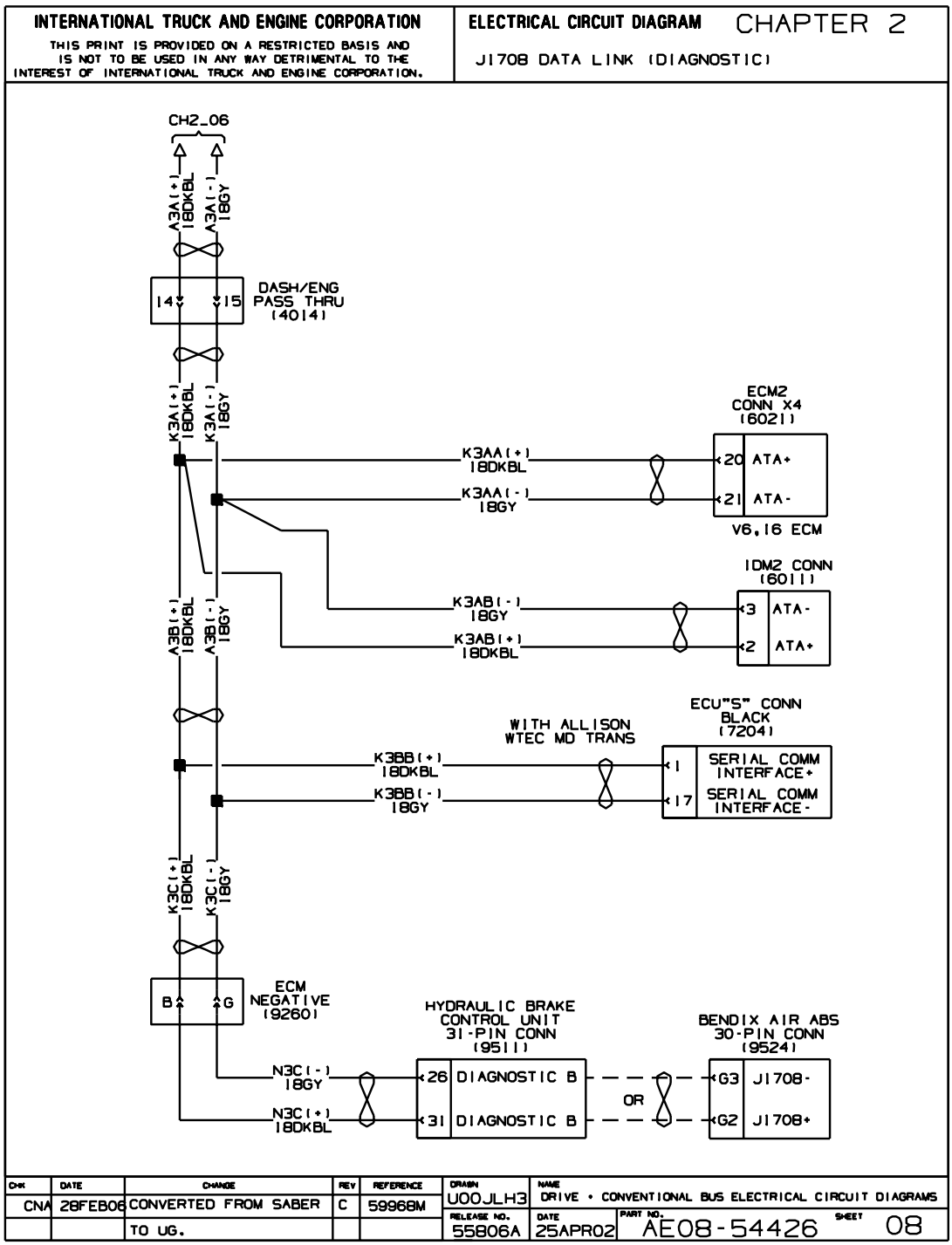


Figure 18 J1708 Data Link Diagnostic

2.9. DIAGNOSTICS AND PROGRAMMABLE CONNECTOR, P. 9

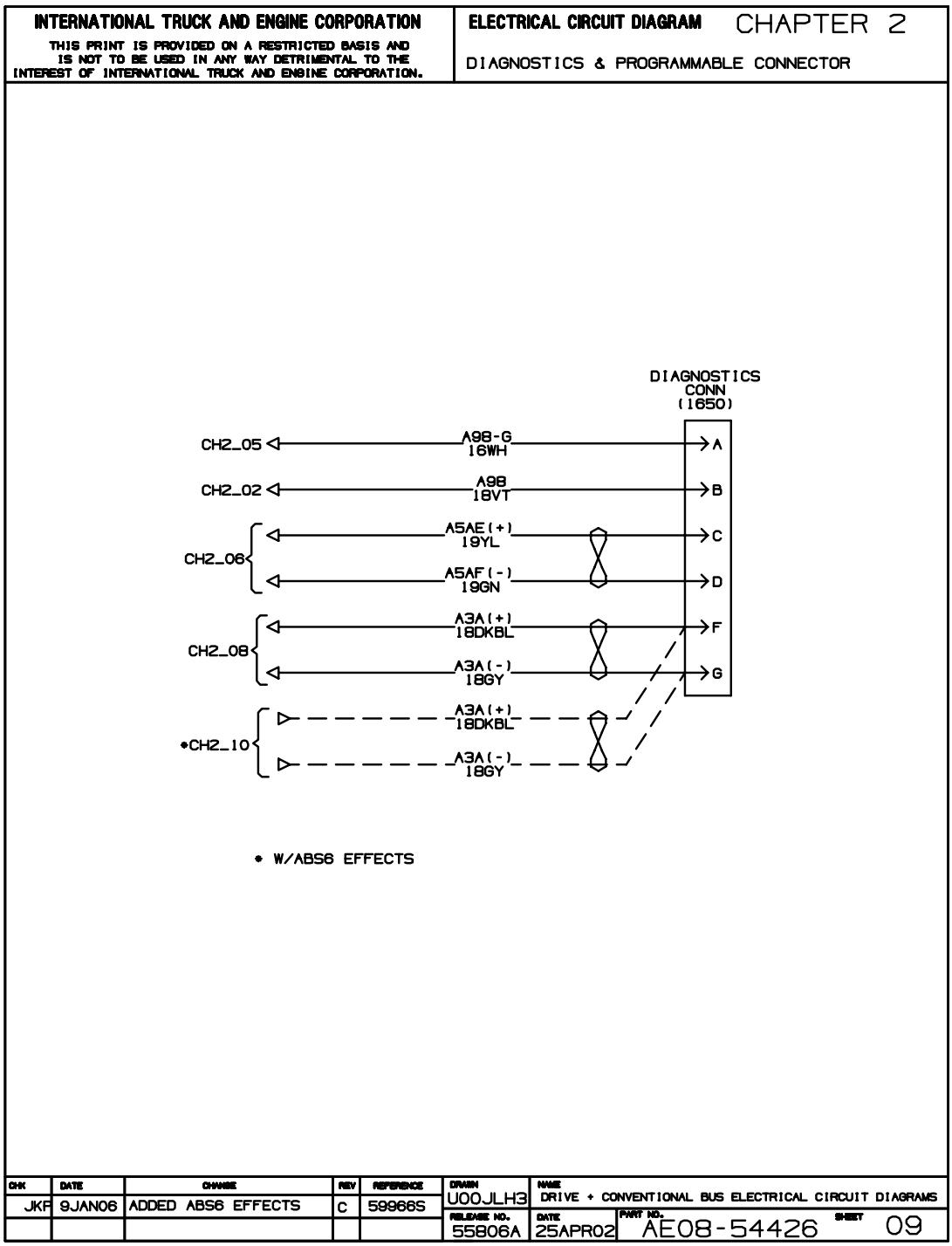


Figure 19 Diagnostics and Programmable Connector

2.10. J1708 DATALINK DIAGNOSTIC W/ABS6, P. 10

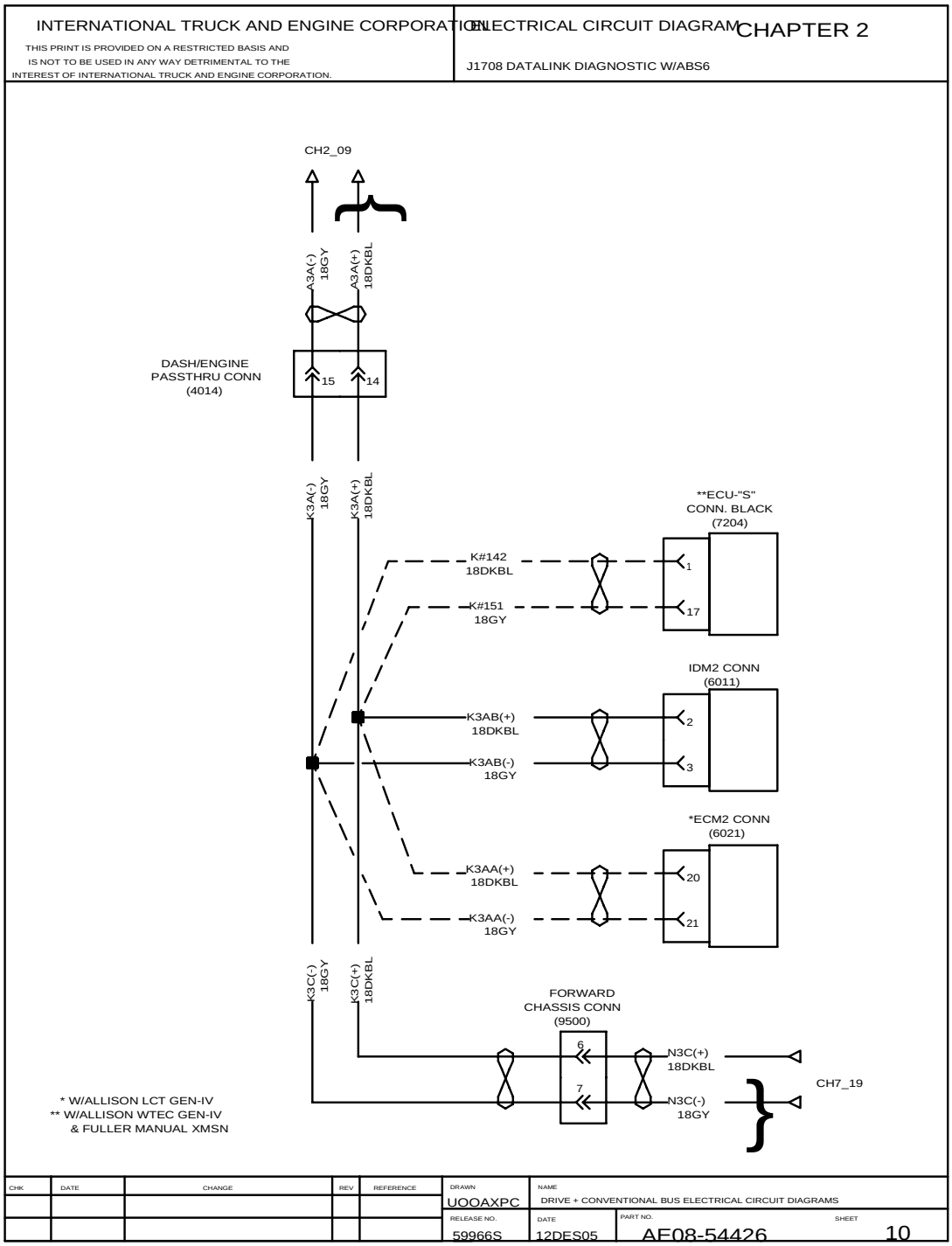


Figure 20 J1708 Datalink Diagnostic W/ABS6

2.11. DRIVETRAIN J1939 DATALINK W/ABS6, W/LCT, W/WTEC XMSN, P. 11

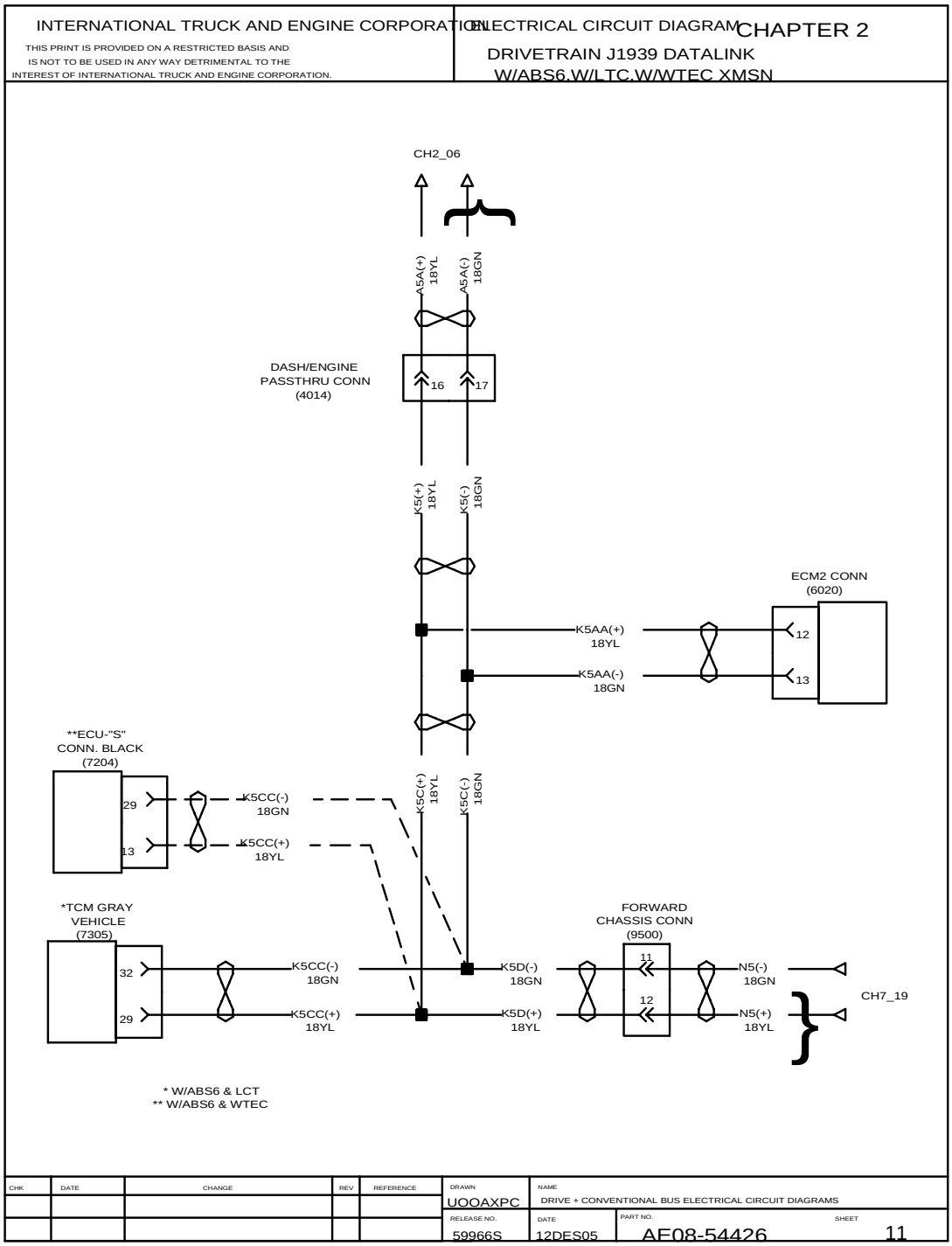


Figure 21 Drivetrain J1939 Datalink W/ABS6, W/LCT, W/WTEC XMSN

2.12. DRIVETRAIN J1939 DATALINK W/ABS6, W/AMMETER, W/LCT, W/WTEC XMSN, P. 12

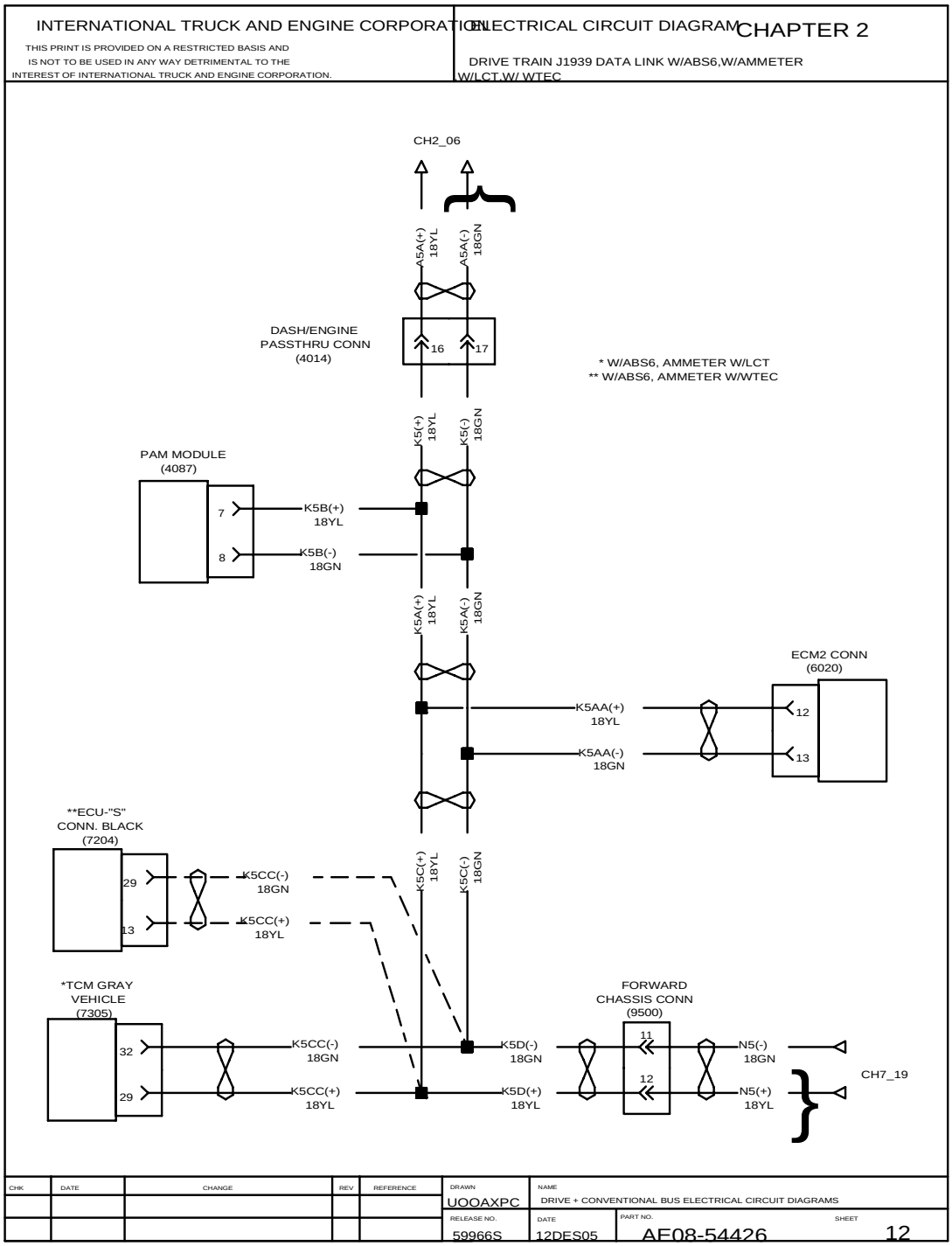


Figure 22 Drivetrain J1939 Datalink W/ABS6, W/Ammeter, W/LCT, W/WTEC XMSN

2.13. DRIVETRAIN J1939 DATALINK W/ABS6, W/ALLISON GEN IV, W/MANUAL XMSN, P. 13

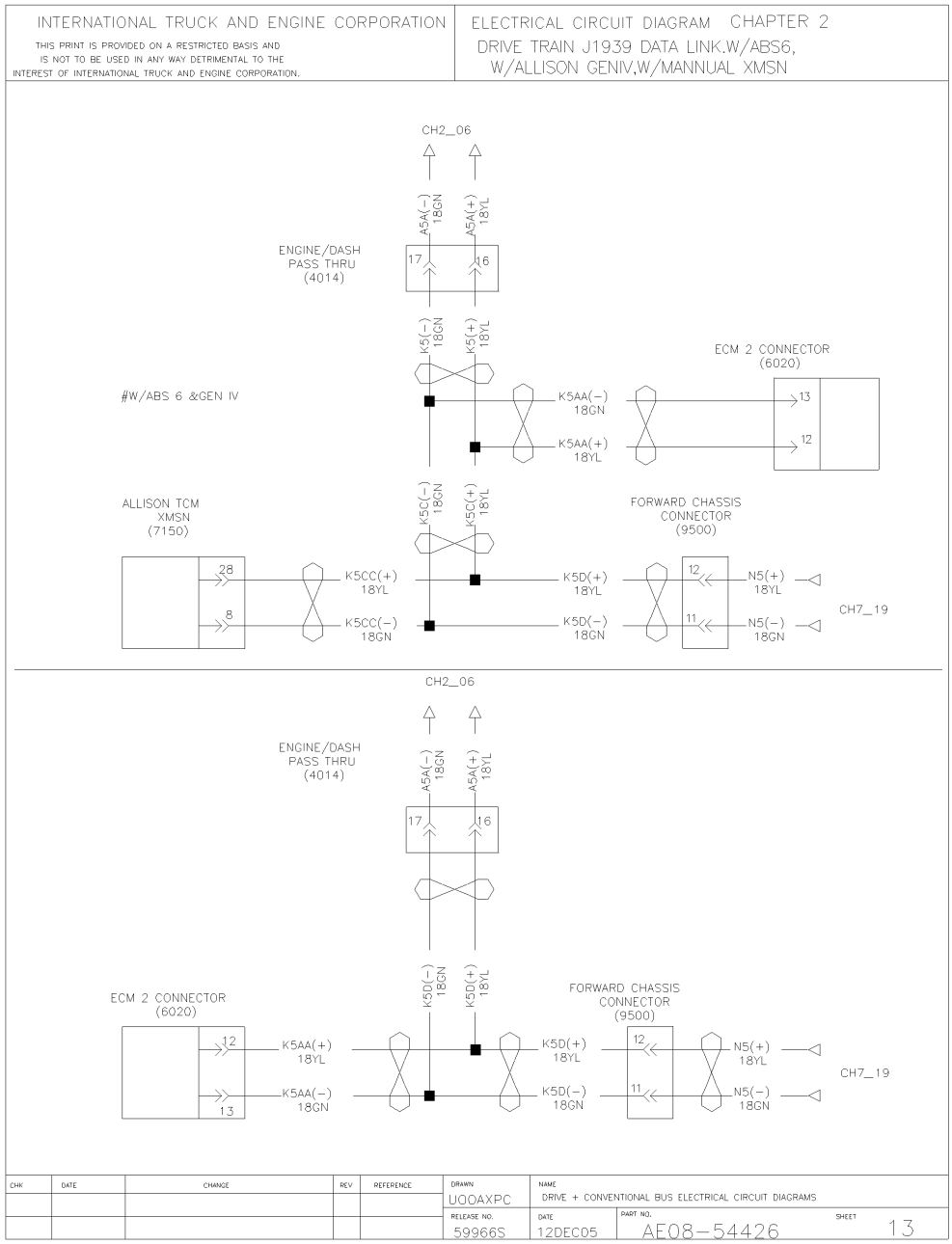


Figure 23 Drivetrain J1939 Datalink W/ABS6, W/Allison Gen IV, W/Manual XMSN

2.14. DRIVETRAIN J1939 DATALINK W/ABS6, W/AMMETER, W/ALLISON GEN IV, P. 14

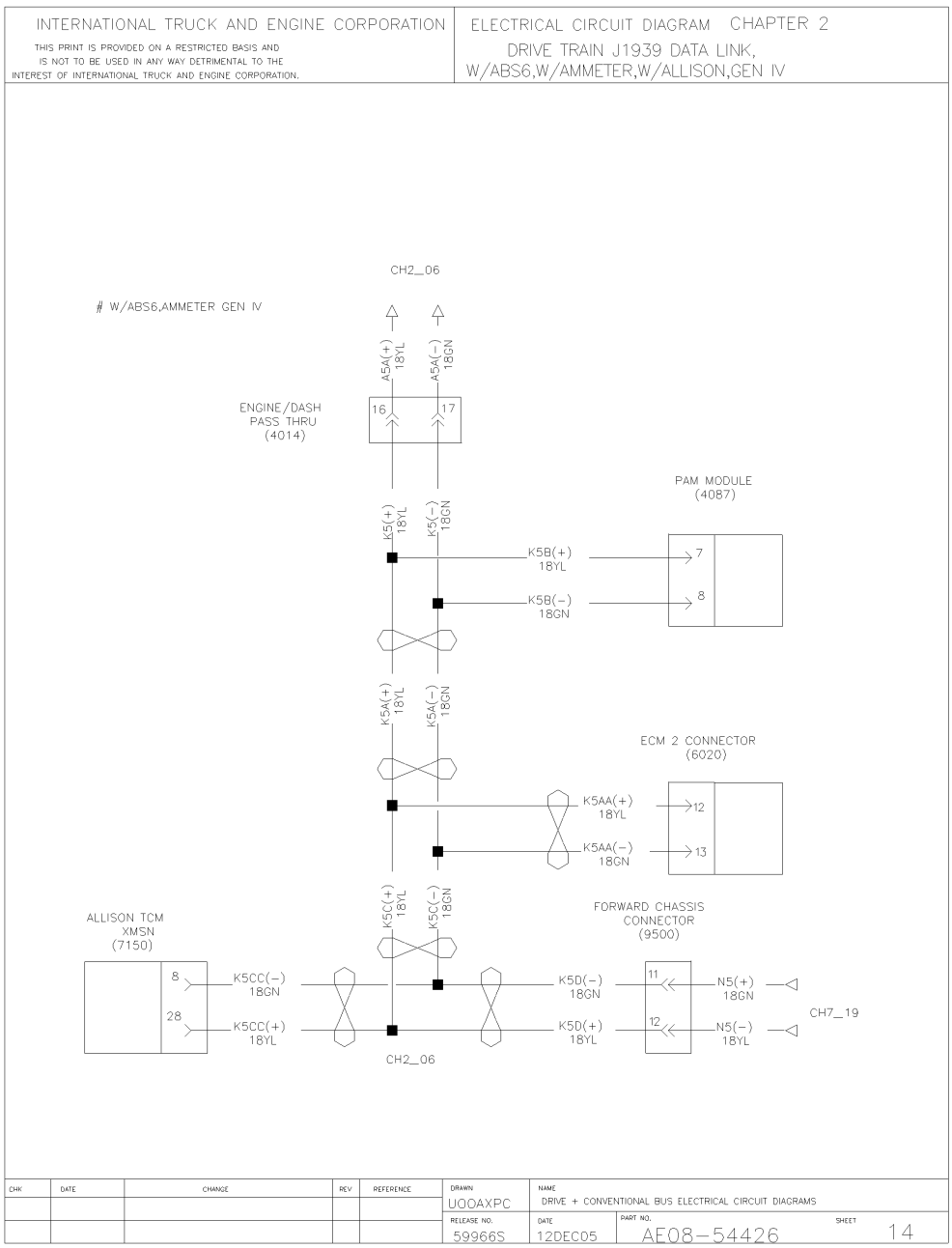


Figure 24 Drivetrain J1939 Datalink W/ABS6, W/Ammeter, W/Allison Gen IV

3. 12V CHARGING AND CRANKING SYSTEM (CHAPTER 3)

3.1. KEY SWITCH START CIRCUIT, P. 1

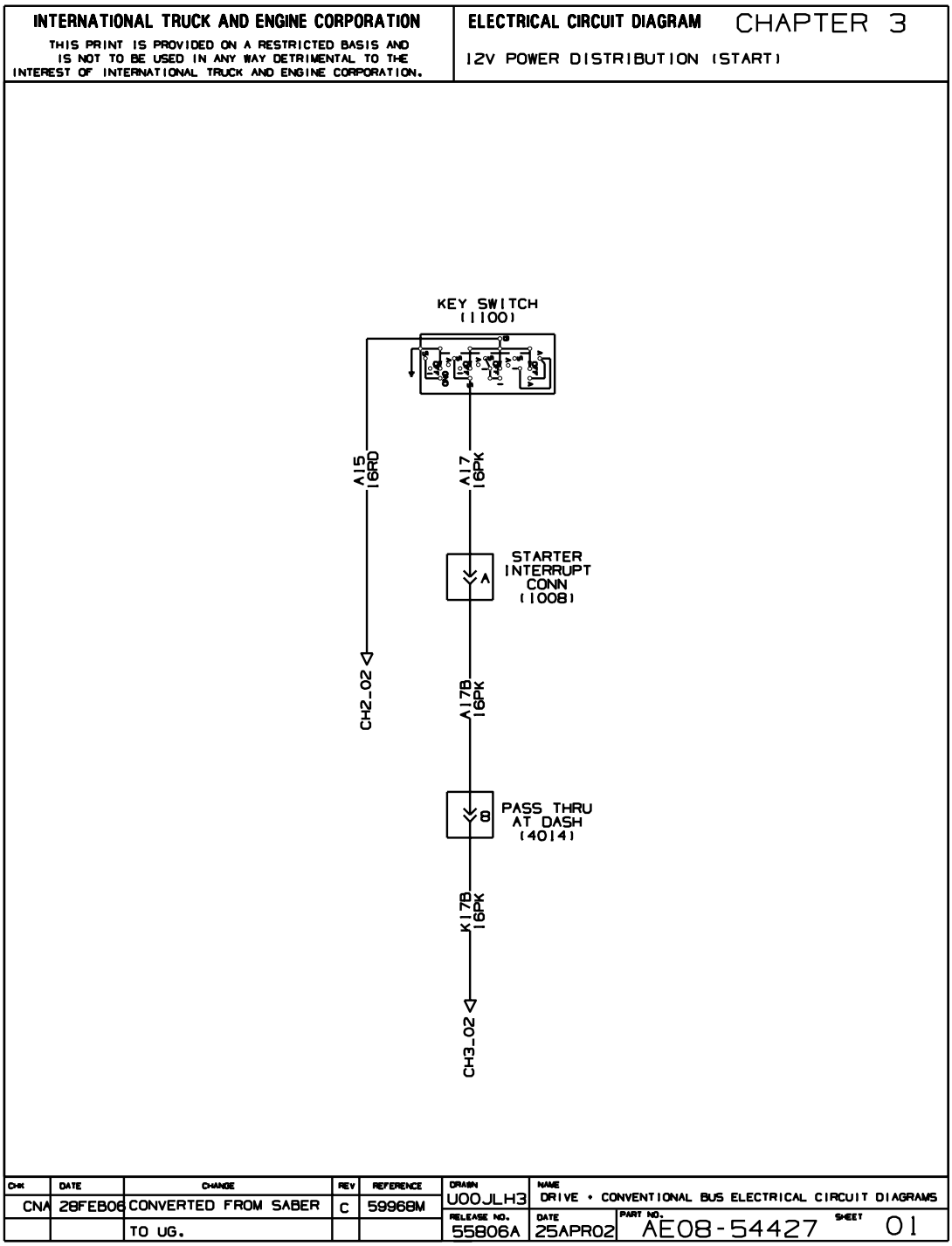


Figure 25 Key Switch Start Circuit

3.2. CHARGING AND CRANKING, P. 2

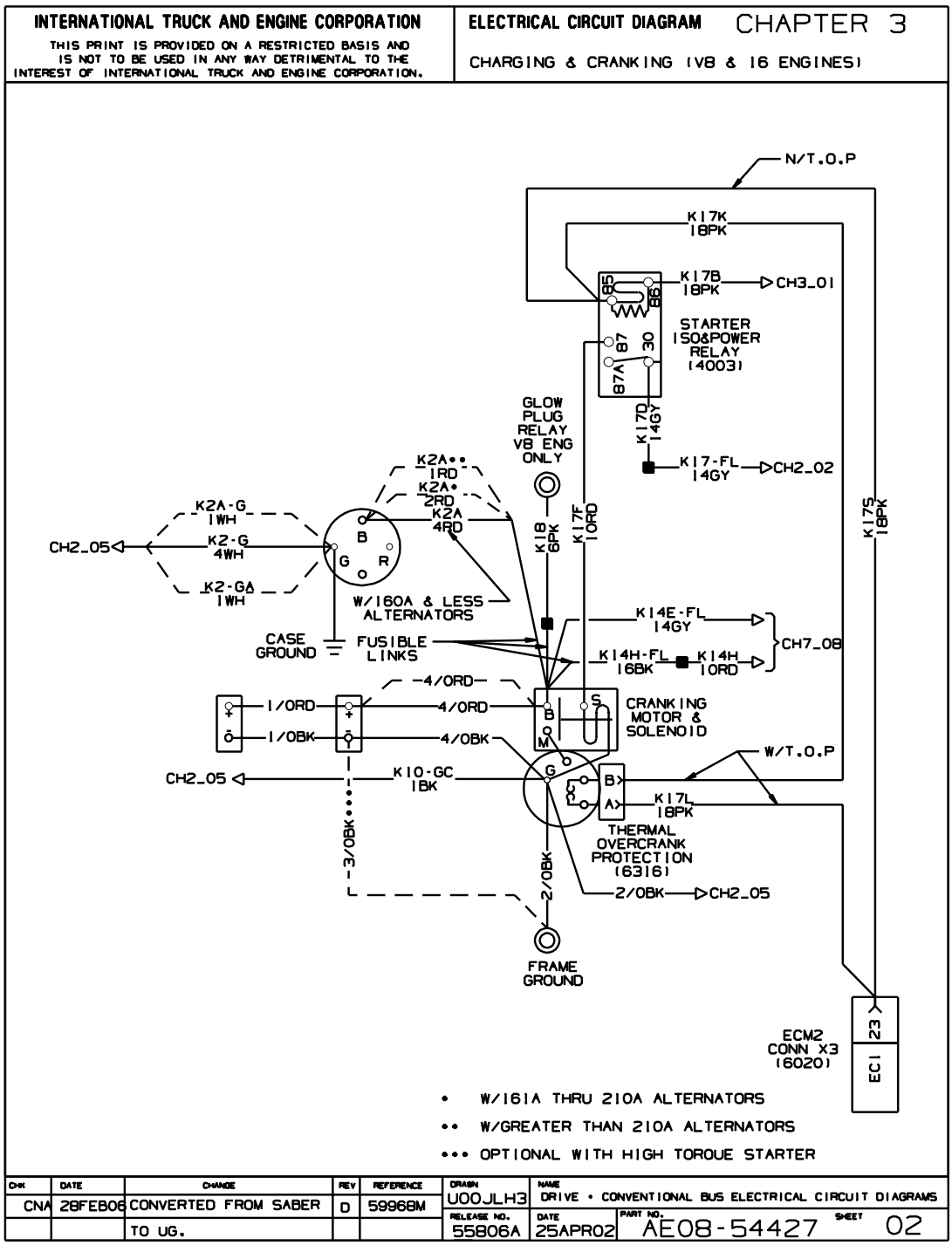


Figure 26 Charging and Cranking

4. CAB ACCESSORIES (CHAPTER 4)

4.1. HORN, DUAL ELECTRIC, P. 1

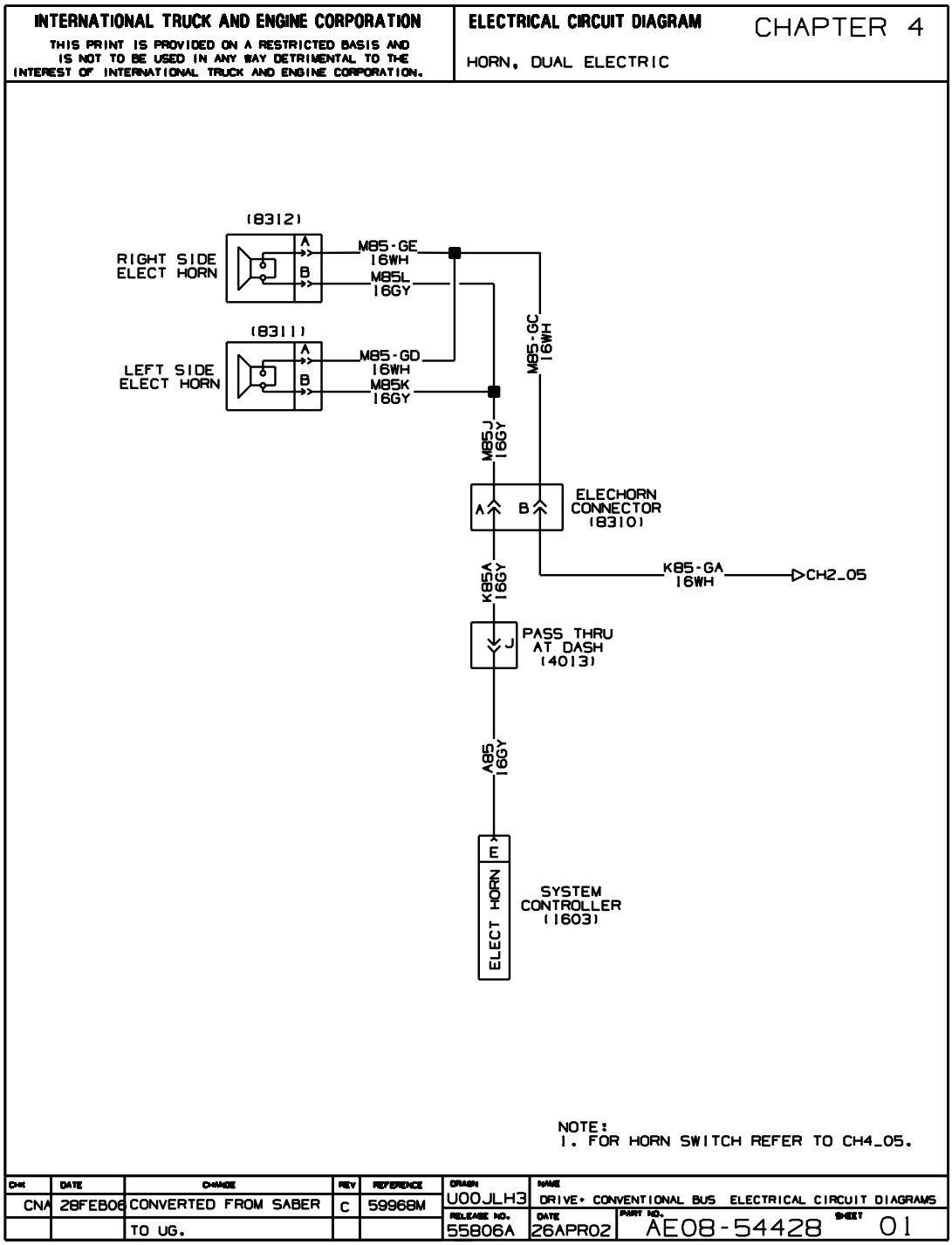


Figure 27 Horn, Dual Electric

4.2. STEERING WHEEL SWITCHES, P. 2

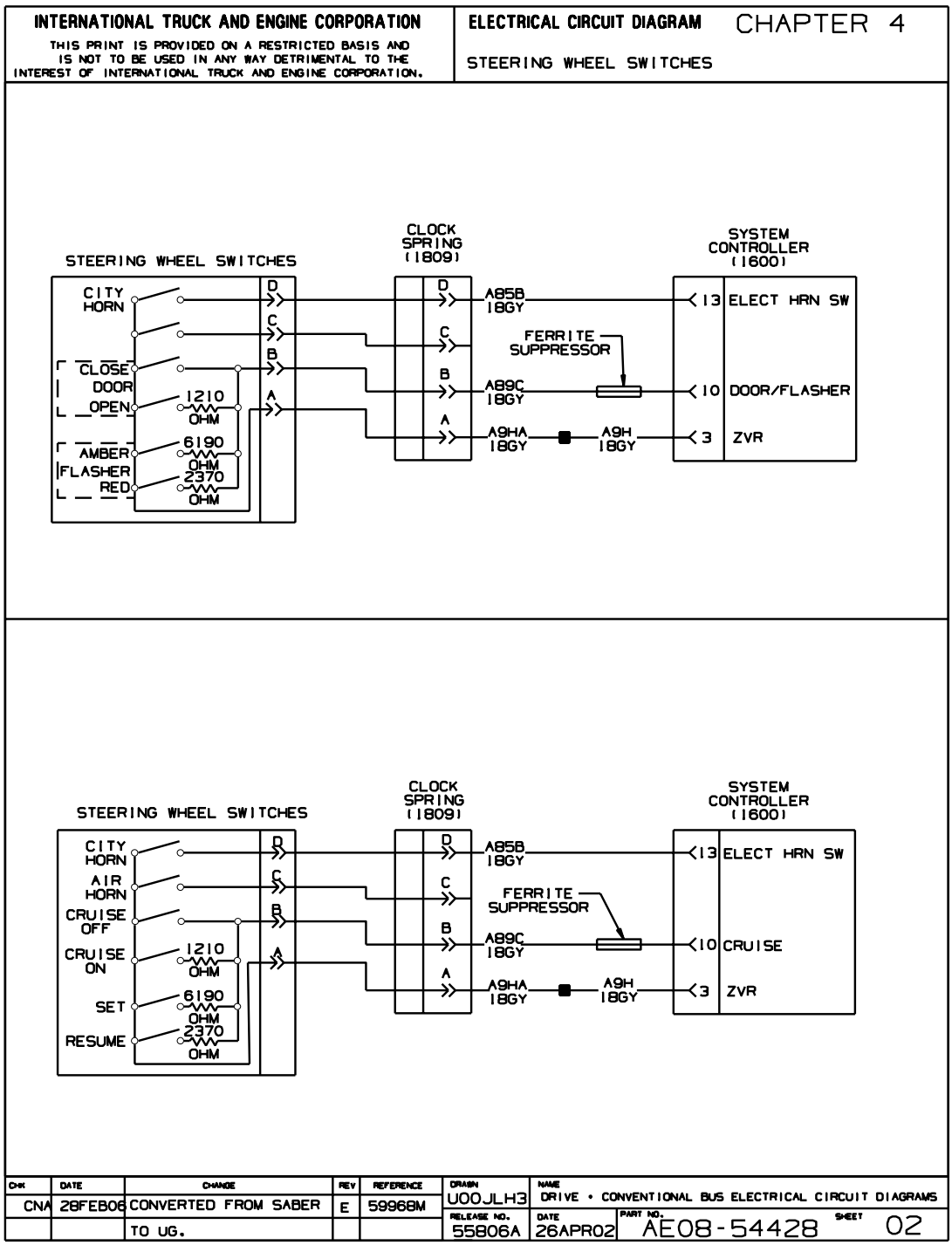


Figure 28 Steering Wheel Switches

4.3. SWITCH PACKS, P. 3

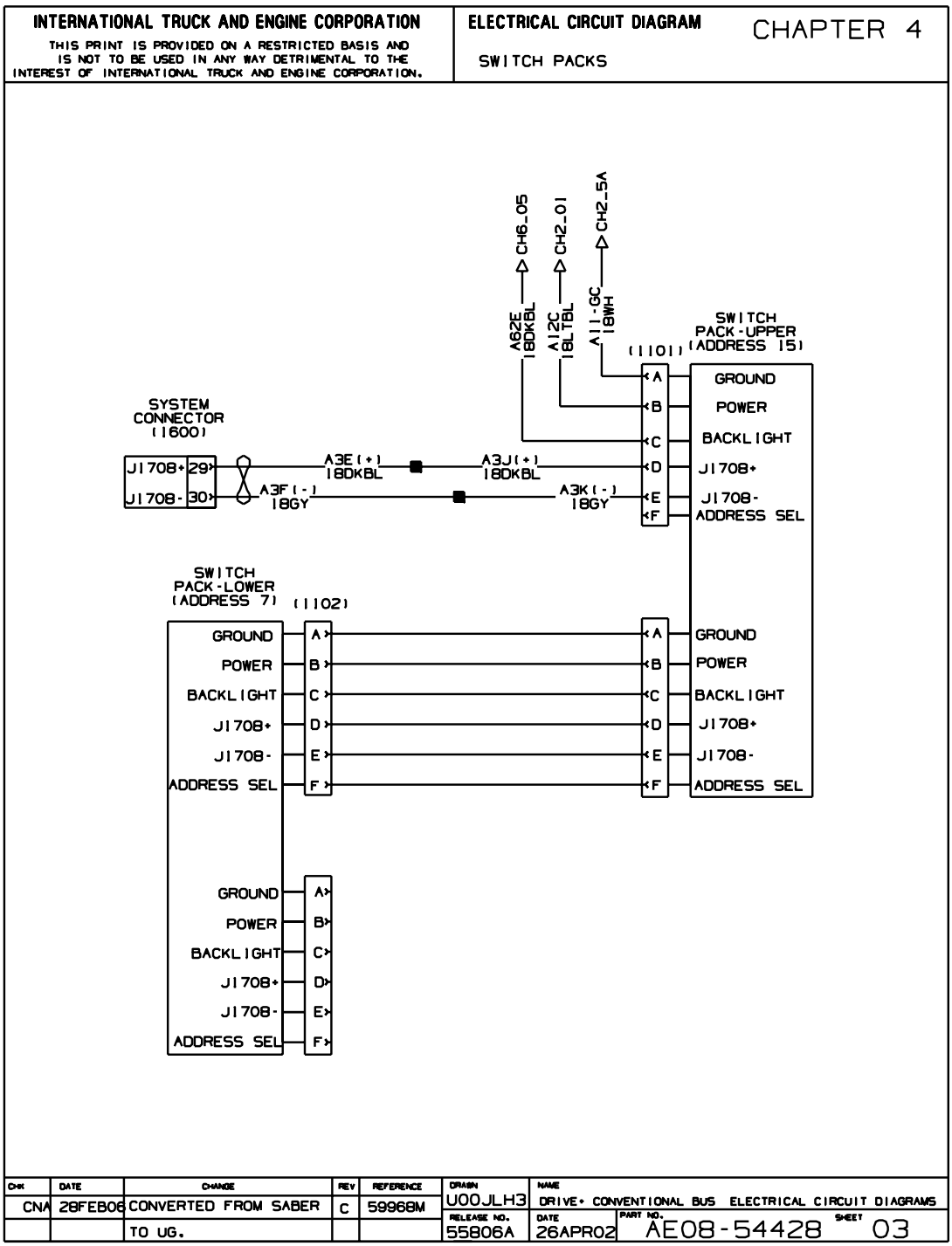


Figure 29 Switch Packs

4.4. WINDSHIELD WIPER AND WASHER SYSTEMS, P. 4

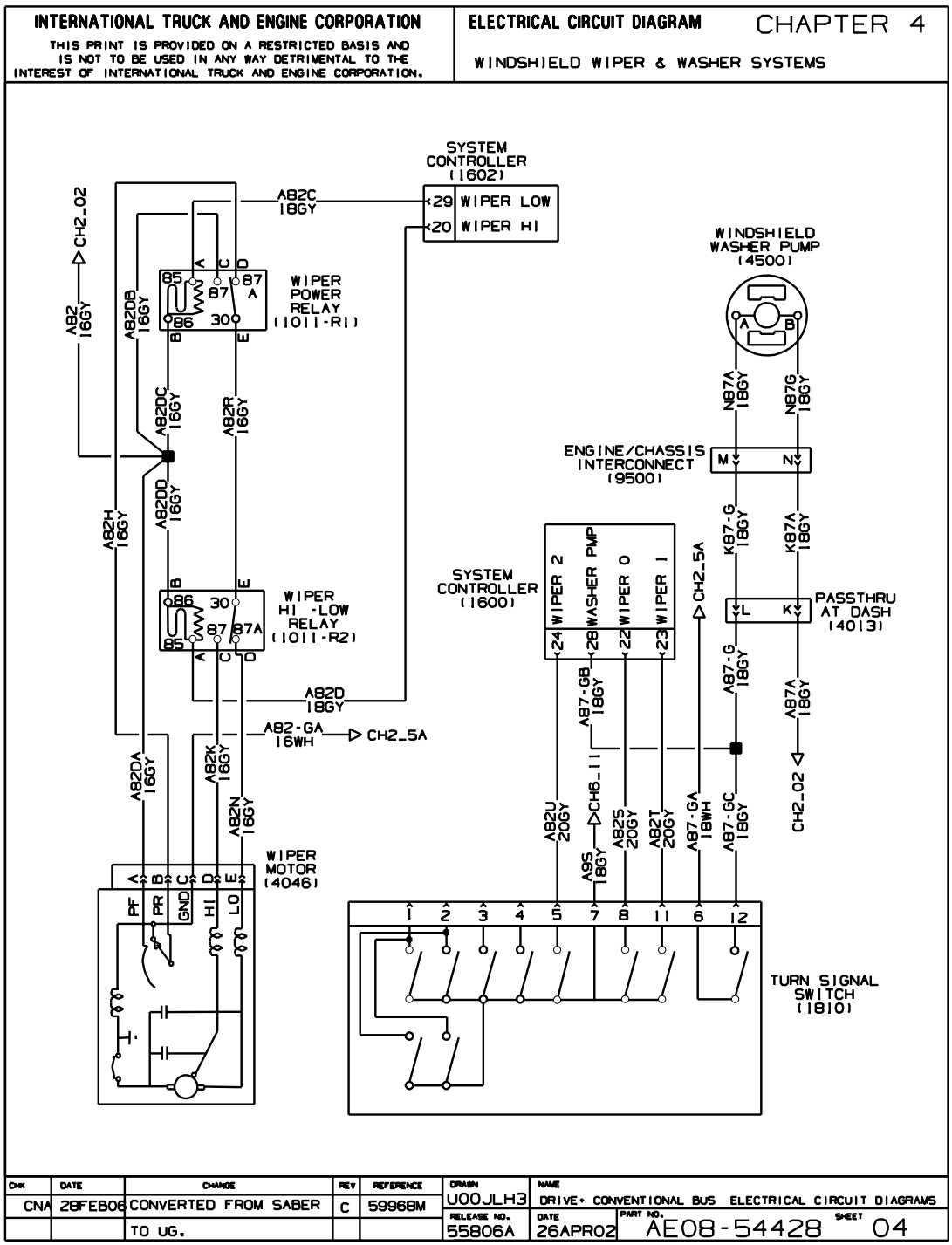


Figure 30 Windshield Wiper and Washer Systems

4.5. DRIVER'S AIR CONDITIONING, P. 5

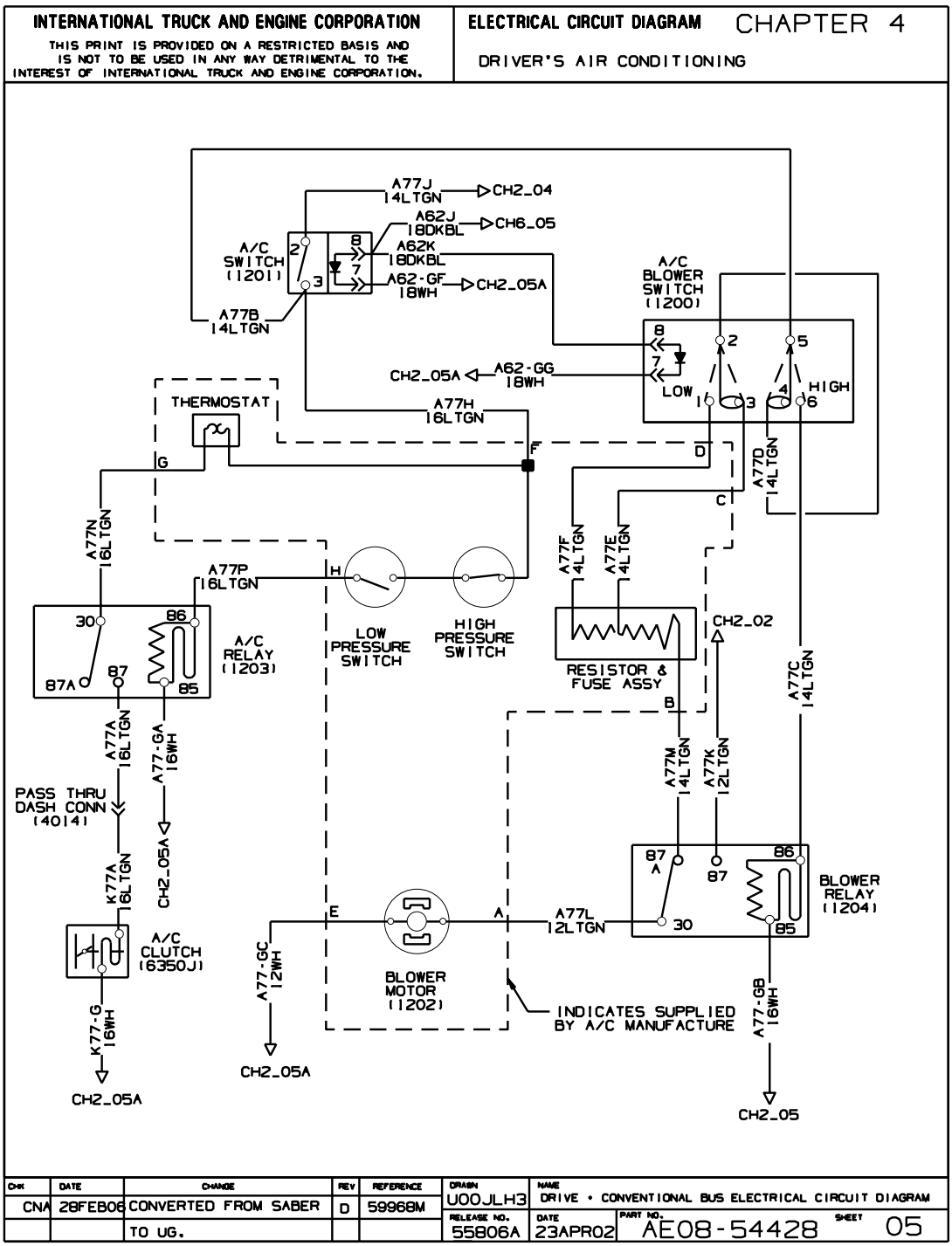


Figure 31 Driver's Air Conditioning

5. ENGINE ELECTRONICS (CHAPTER 5)

5.1. ELECTRONIC ENGINE CONTROLS — V8 ENGINE, P. 1

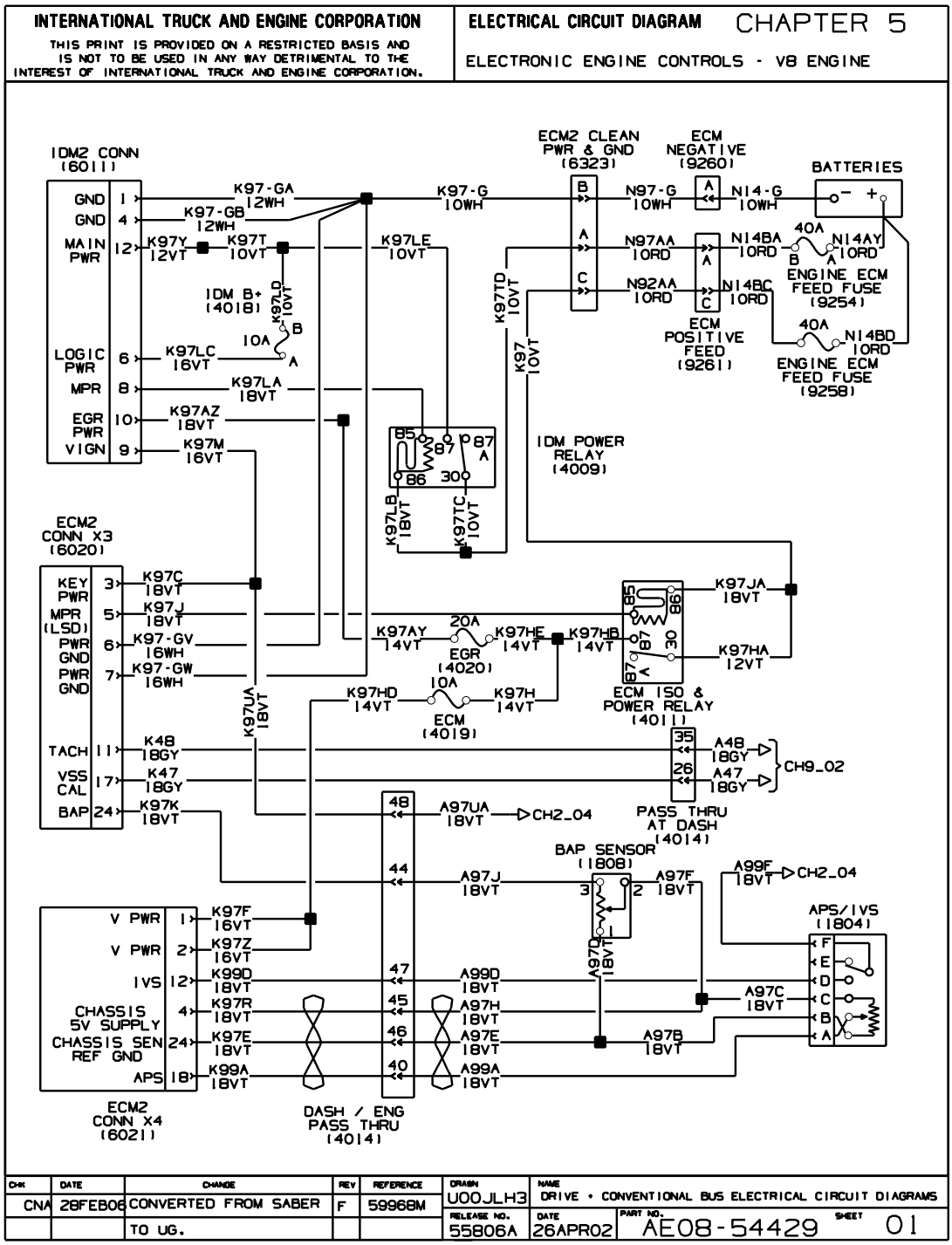


Figure 32 Electronic Engine Controls — V8 Engine

5.2. ELECTRONIC ENGINE CONTROLS — I6 ENGINE, P. 2

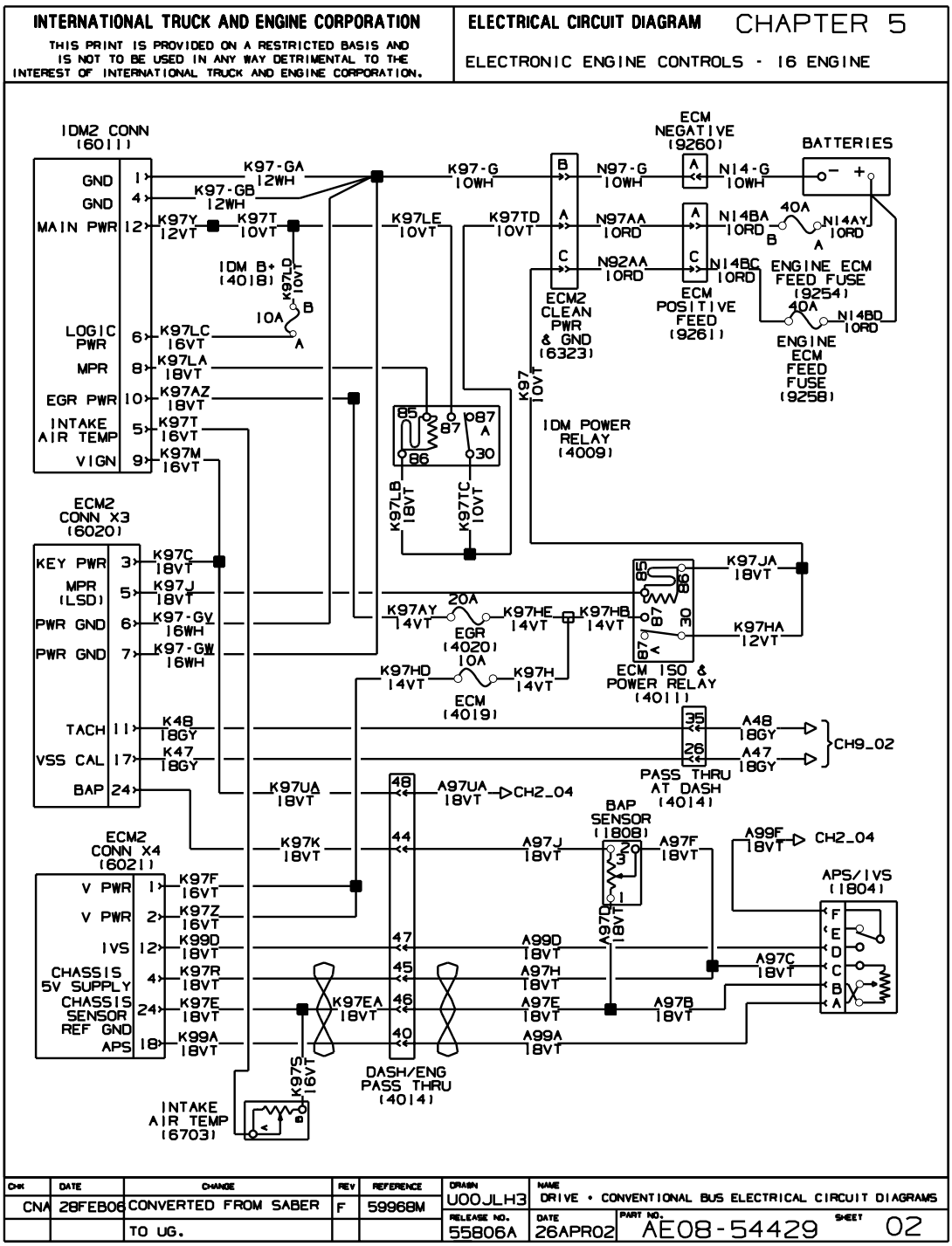


Figure 33 Electronic Engine Controls — I6 Engine

5.3. I6 FAN AND SHUTTER WIRING, P. 3

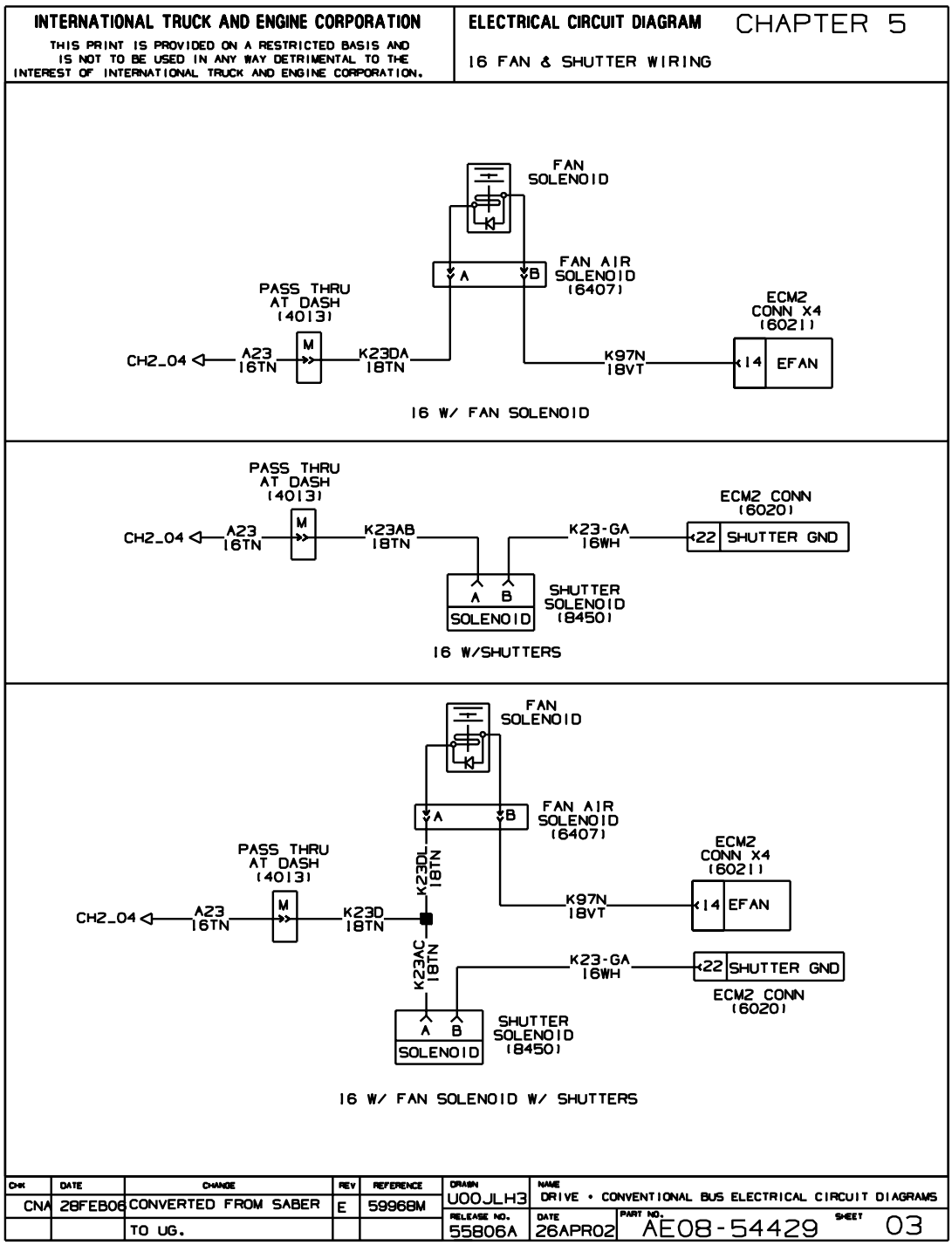


Figure 34 I6 Fan and Shutter Wiring

5.4. V8 FAN AND SHUTTER WIRING, P. 4

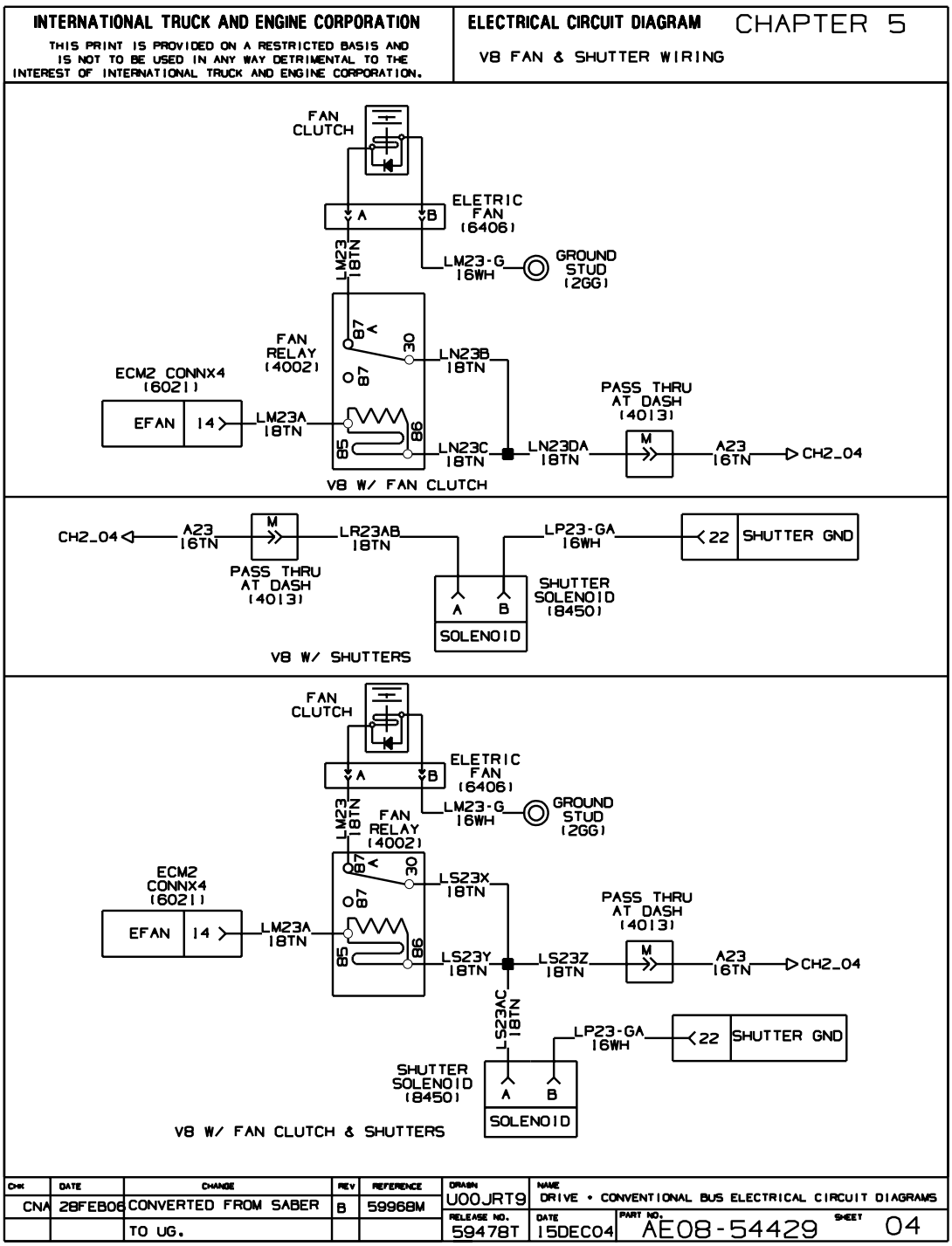


Figure 35 V8 Fan and Shutter Wiring

5.5. V8 FAN AND SHUTTER WIRING, P. 5

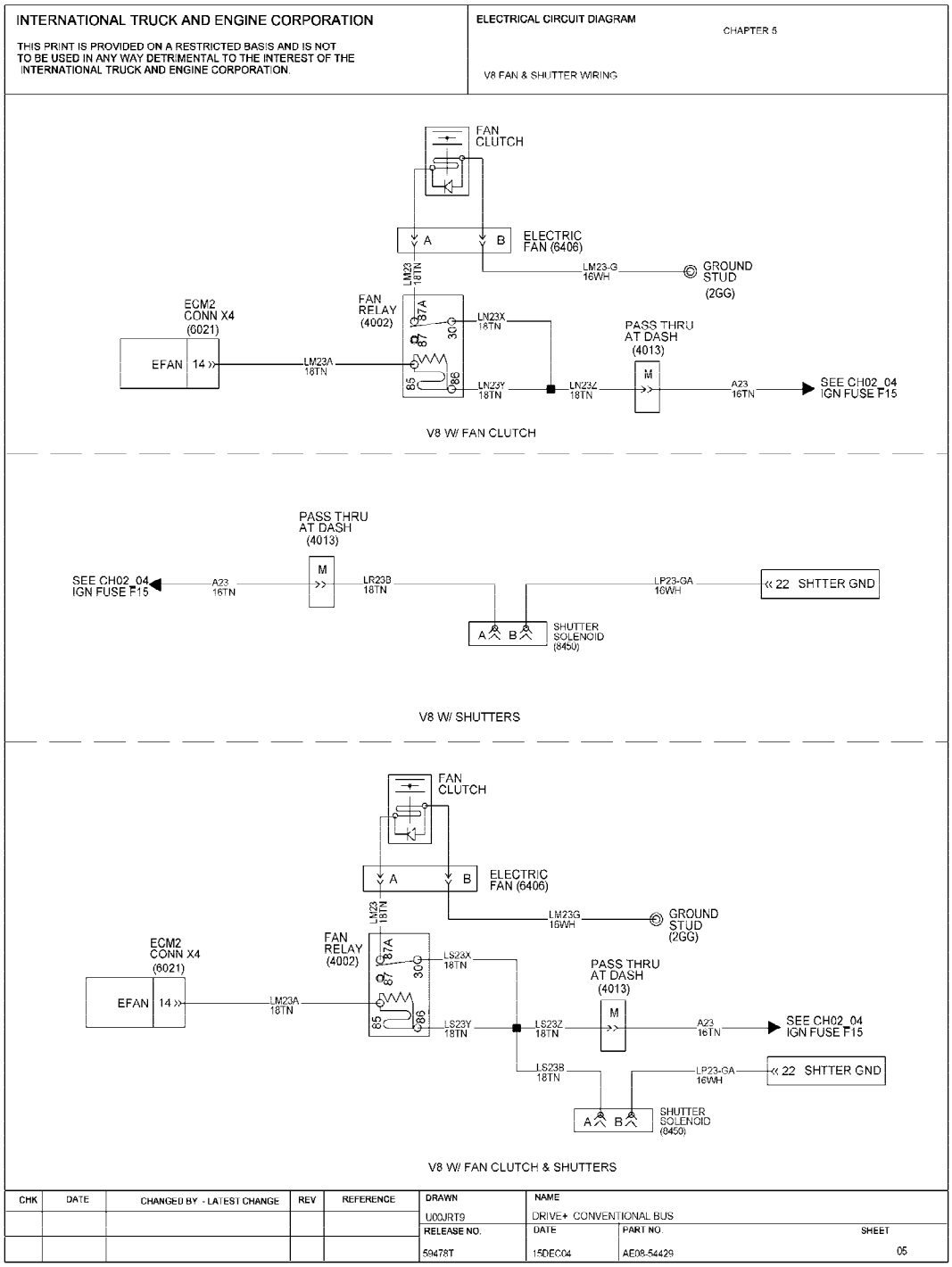


Figure 36 V8 Fan and Shutter Wiring

6. GAUGES AND WARNING LIGHTS (CHAPTER 6)

6.1. IP GAUGES, P. 1

INTERNATIONAL TRUCK AND ENGINE CORPORATION

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF INTERNATIONAL TRUCK AND ENGINE CORPORATION.

ELECTRICAL CIRCUIT DIAGRAM CHAPTER 6

IP/GAUGES

INSTRUMENT PANEL GAUGES

GAUGE	WARNING LIGHT	SIGNAL PATH	SENSOR LOCATION
RPM (TACH)	NO	ENGINE CTRL/DRIVE TRAIN J1939 CLUSTER	ENGINE
MPH/KPH (SPD)	NO	ENGINE CTRL/DRIVE TRAIN J1939 CLUSTER	TRANSMISSION
FUEL	YES	SYSTEM CTRL/DRIVE TRAIN J1939 CLUSTER	FUEL TANK
VOLT	YES	SYSTEM CTRL/DRIVE TRAIN J1939 CLUSTER	-
AIR1 (PRES)	YES	SYSTEM CTRL/DRIVE TRAIN J1939 CLUSTER	INSIDE CAB- DASH PNL
AIR2 (PRES)	YES	SYSTEM CTRL/DRIVE TRAIN J1939 CLUSTER	STEERING COL AREA
WATER (TEMP)	YES	ENGINE CTRL/DRIVE TRAIN J1939 CLUSTER	ENGINE
ENGINE OIL (TEMP)	YES	ENGINE CTRL/DRIVE TRAIN J1939 CLUSTER	ENGINE
OIL (PRES)	YES	ENGINE CTRL/DRIVE TRAIN J1939 CLUSTER	ENGINE
TRANS (TEMP)	YES	XMSN CTRLR/SYSTEM CTRLR/DRIVE TRAIN J1939 CLUSTER	TRANSMISSION
AMMETER	NO	PAM MODULE/DRIVE TRAIN J1939 CLUSTER	ENGINE

NOTE :

1) WARNING LIGHTS ARE PART OF THE GAUGES AND LOCATED IN THE GAUGE CLUSTER

CH	DATE	CHANGE	REV	REFERENCE	DRAWN	NAME
CNA	28FEB06	CONVERTED FROM SABER	C	59968M	U00JAHP	DRIVE • CONVENTIONAL ELECTRICAL CIRCUIT DIAGRAMS
		TO UG.			RELEASE NO. 55806A	DATE 23APR02 / PART NO. AE08-54430 / SHEET 01

Figure 37 IP Gauges

6.2. WARNING LIGHTS, P. 2

INTERNATIONAL TRUCK AND ENGINE CORPORATION

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF INTERNATIONAL TRUCK AND ENGINE CORPORATION.

ELECTRICAL CIRCUIT DIAGRAM CHAPTER 6

WARNING LIGHTS

IP WARNING LIGHTS		
WARNING LIGHT TITLE	SIGNAL PATH	SENSOR LOCATION
RANGE INHIBITED LCT	TRANS CTRLR/DRIVE TRAIN J1939/CLUSTER	
FUEL FILTER	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	FUEL FILTER
ENGINE (YELLOW LED)	ENGINE CTRLR/DRIVE TRAIN J1939/CLUSTER	
ENGINE (RED LED)	ENGINE CTRLR/DRIVE TRAIN J1939/CLUSTER	
BRAKE PRESSURE (AIR)	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	SWITCH
BRAKE PRESSURE (HYD)	HYD BRK ECU CTRLR/DRIVE TRAIN J1939/CLUSTER	SWITCH
BRAKE/PARK/BRAKE FLUID	HYD BRK ECU CTRLR/DRIVE TRAIN J1939/CLUSTER	
PARK (HYD BRAKE) (P)	HYD BRK ECU CTRLR/DRIVE TRAIN J1939/CLUSTER	SAHR TRAVEL SW
BRAKE FLUID HYD BRK	HYD BRK ECU CTRLR/DRIVE TRAIN J1939/CLUSTER	BRK RESERVOIR
TRAC CTRL	TRUCK ABS CTRLR/DRIVE TRAIN J1939/CLUSTER	
CHECK TRANS	TRUCK ABS CTRLR/DRIVE TRAIN J1939/CLUSTER	
(LEFT TURN)	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	TURN SIG SW
WATER IN FUEL	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	FUEL FILTER
COOLANT LEVEL	ENGINE CTRLR/DRIVE TRAIN J1939/CLUSTER	SURGE TANK
CHECK ELECT SYS	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	
PARK (AIR BRAKE) (P)	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	PARK BRAKE VALVE
ABS	TRUCK CTRLR/DRIVE TRAIN J1939/CLUSTER	
(RIGHT TURN)	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	
WAIT TO START	ENGINE CTRLR/DRIVE TRAIN J1939/CLUSTER	
(HIGH BEAM IND)	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	
COLD AMB PROTEC	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	
THROTTLE	ENGINE CTRLR/DRIVE TRAIN J1939/CLUSTER	
LIFT DOOR	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	LIFT DOOR SWITCH
ECON	TRANS CTRLR/DRIVE TRAIN J1939/CLUSTER	
SERVICE (P)	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	
AMBER FLASHER	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	
RED FLASHER	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	
EMERG EXIT	SYSTEM CTRLR/DRIVE TRAIN J1939/CLUSTER	

CHK	DATE	CHANGE	REV	REFERENCE	DRAWN	NAME
CNA	28FEB06	CONVERTED FROM SABER	D	59968M	U00JAHP	DRIVE • CONVENTIONAL BUS ELECTRICAL CIRCUIT DIAGRAMS
		TO UG.			RELEASE NO. 55806A	DATE 23APR02 PART NO. AE08-54430 SHEET 02

Figure 38 Warning Lights

6.3. WARNING LIGHTS CONTROLLED BY ENGINE, TRANSMISSION, ABS CONTROLLERS, P. 3

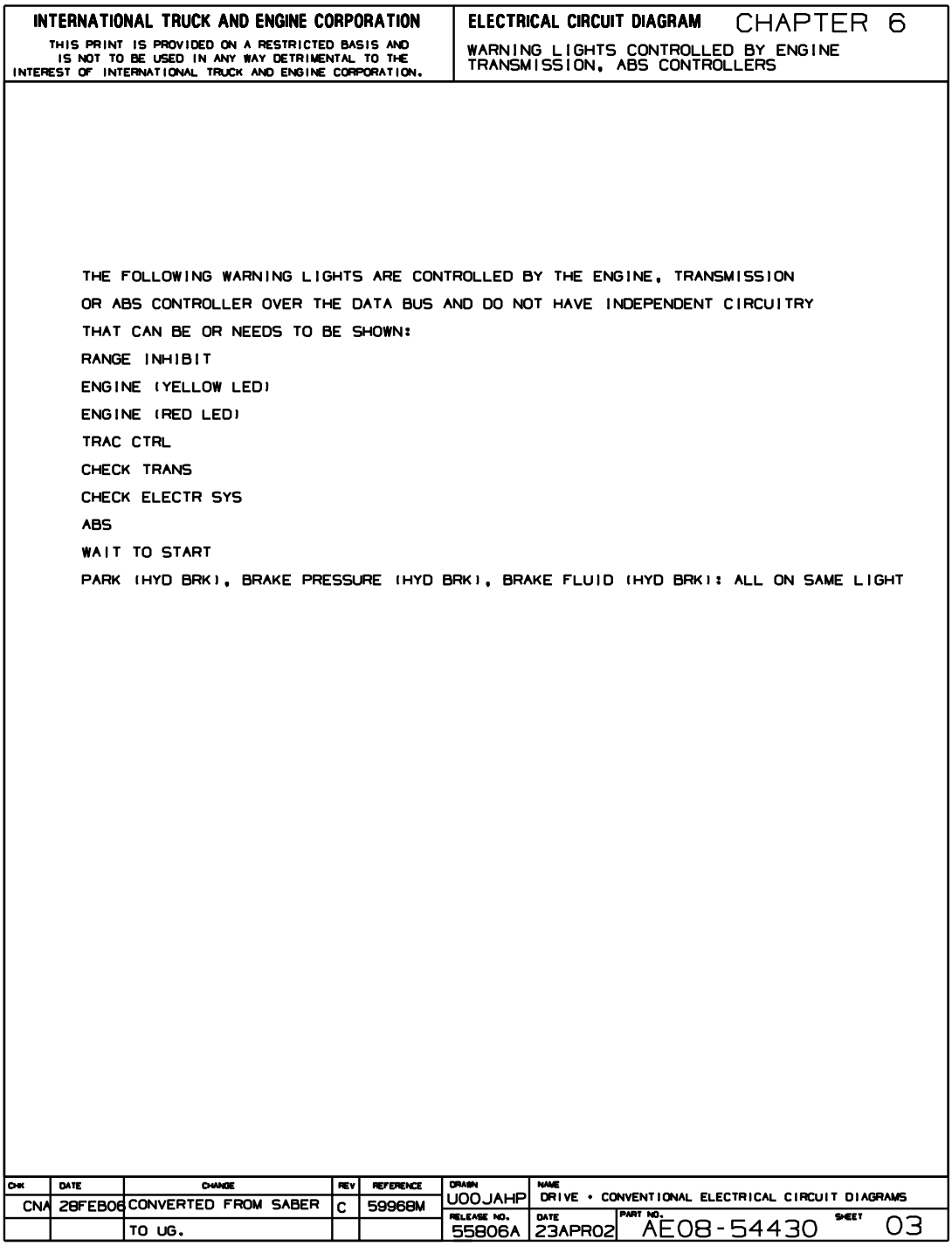


Figure 39 Warning Lights Controlled by Engine, Transmission, ABS Controller

6.4. ENG. OIL PRESS. AND TEMP., SPEEDOMETER, TACH., VOLTMETER AND WATER TEMP. GAUGE CIRCUITS, P. 4

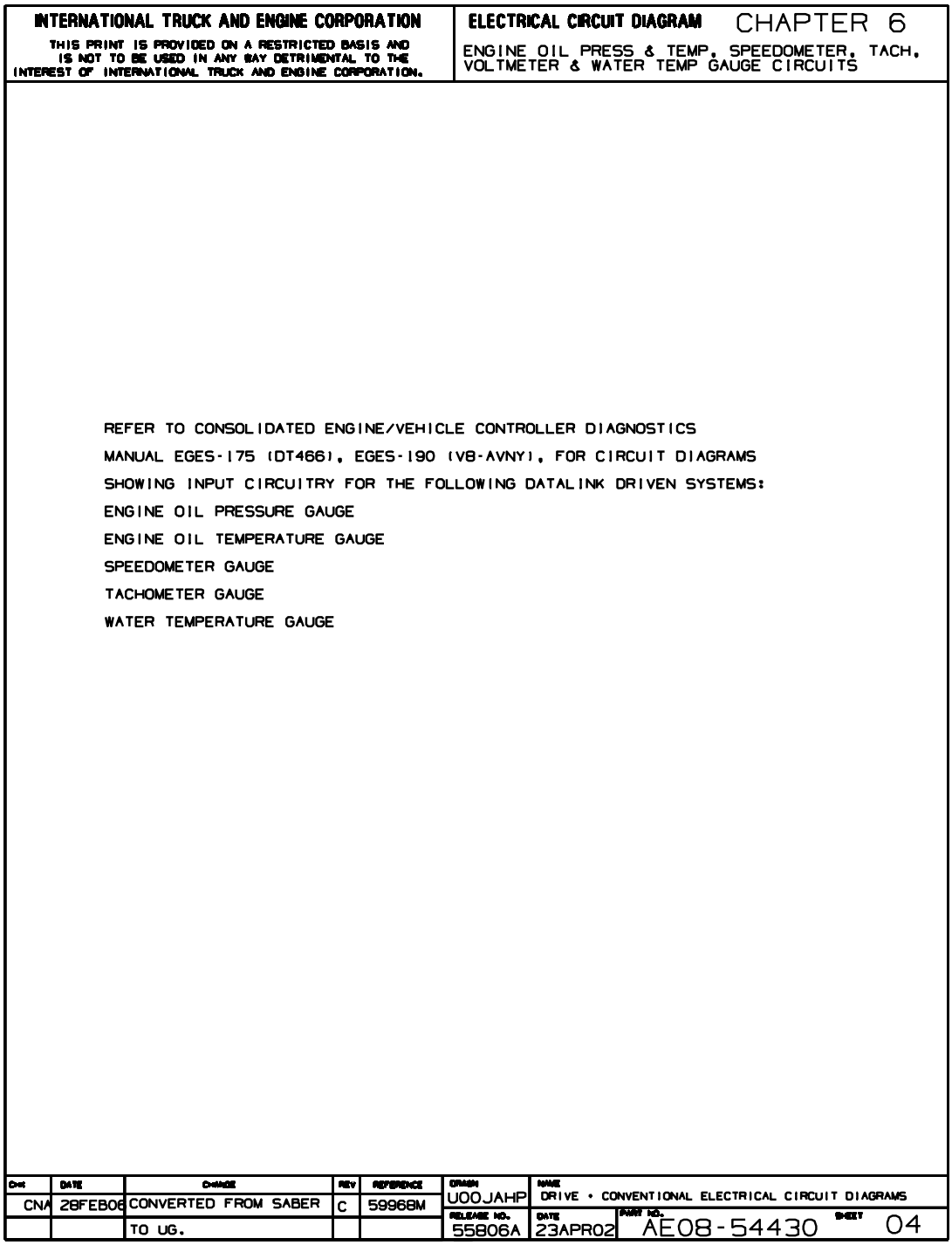


Figure 40 Eng. Oil Press. and Temp., Speedometer, Tach., Voltmeter and Water Temp. Gauge Circuits

6.5. GAUGES AND WARNING LIGHTS — INSTRUMENT CLUSTER, P. 5

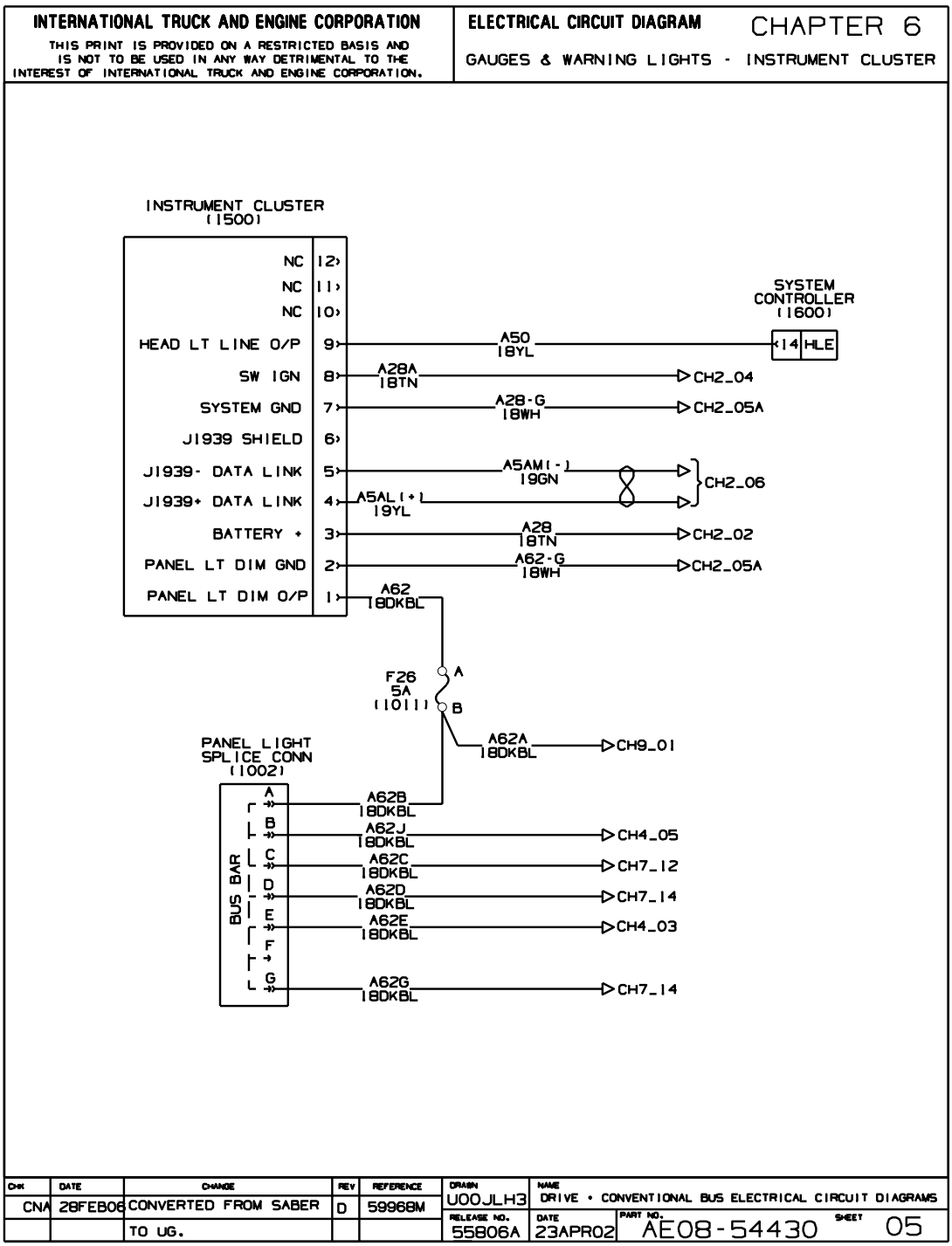


Figure 41 Gauges and Warning Lights — Instrument Cluster

6.6. GAUGES AND WARNING LIGHTS — AMMETER, P. 6

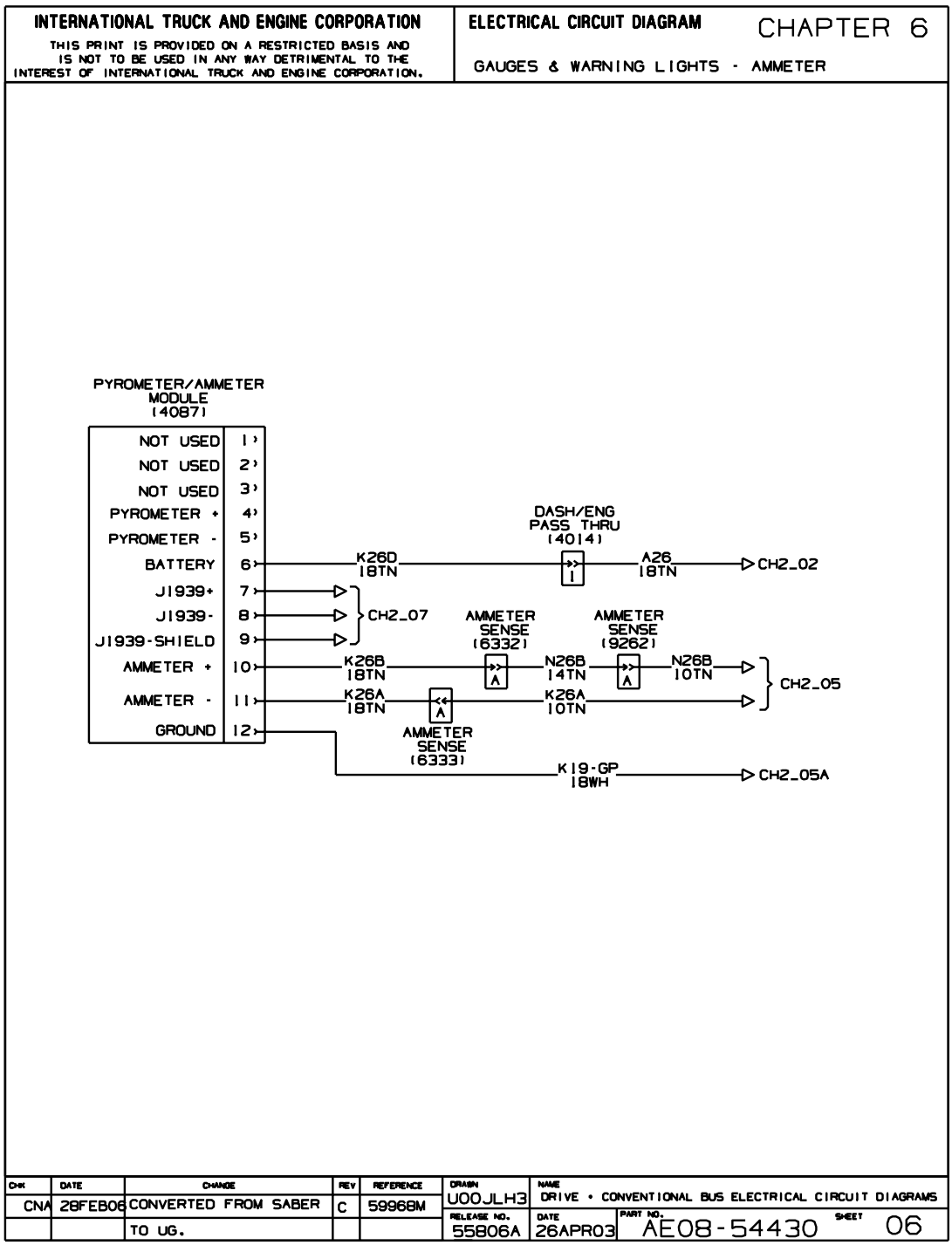


Figure 42 Gauges and Warning Lights — Ammeter

6.7. GAUGES AND WARNING LIGHTS — COOLANT TANK LEVEL, P. 7

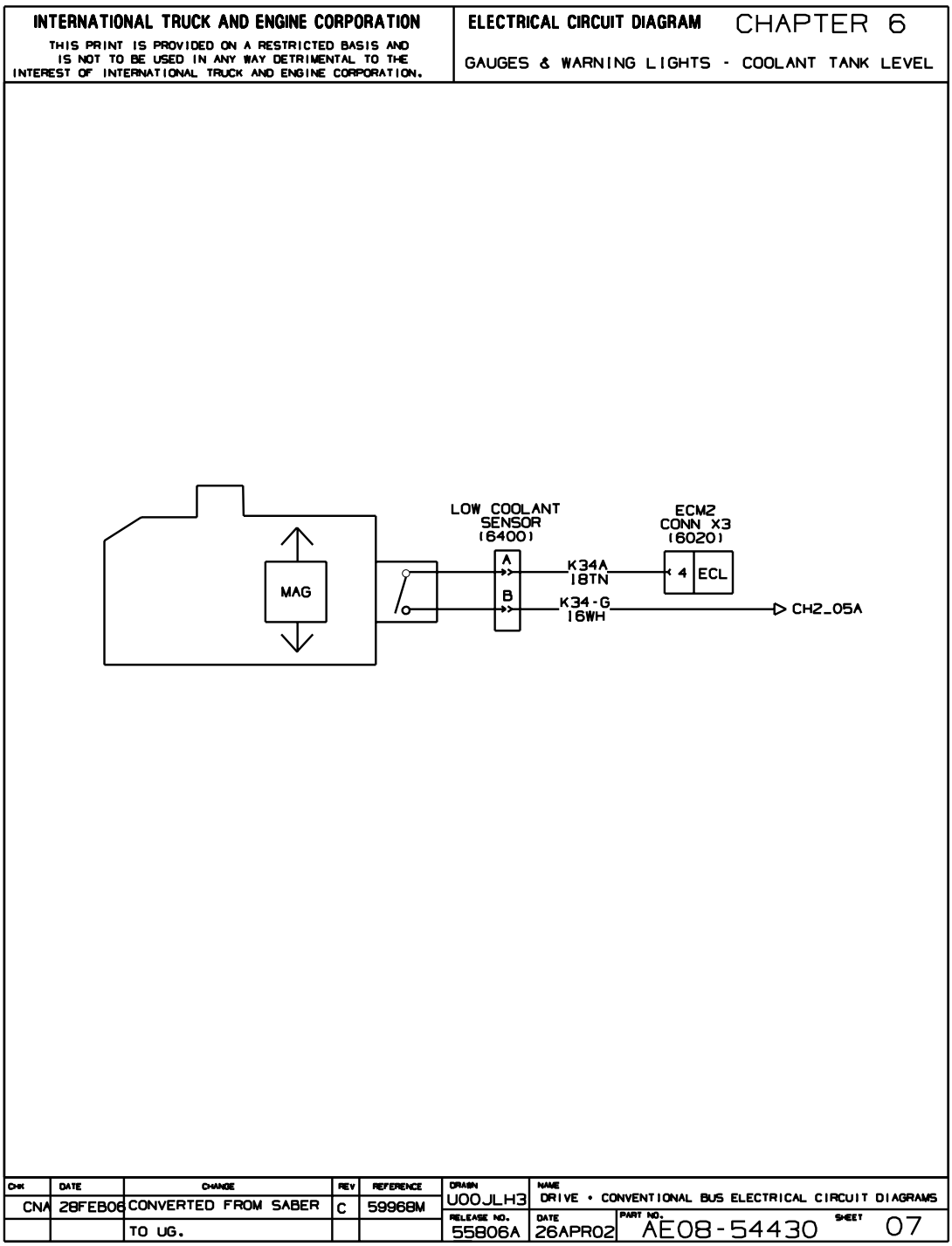


Figure 43 Gauges and Warning Lights — Coolant Tank Level

6.8. GAUGES AND WARNING LIGHTS — FUEL GAUGE WITH AIR BRAKE CHASSIS, P. 8

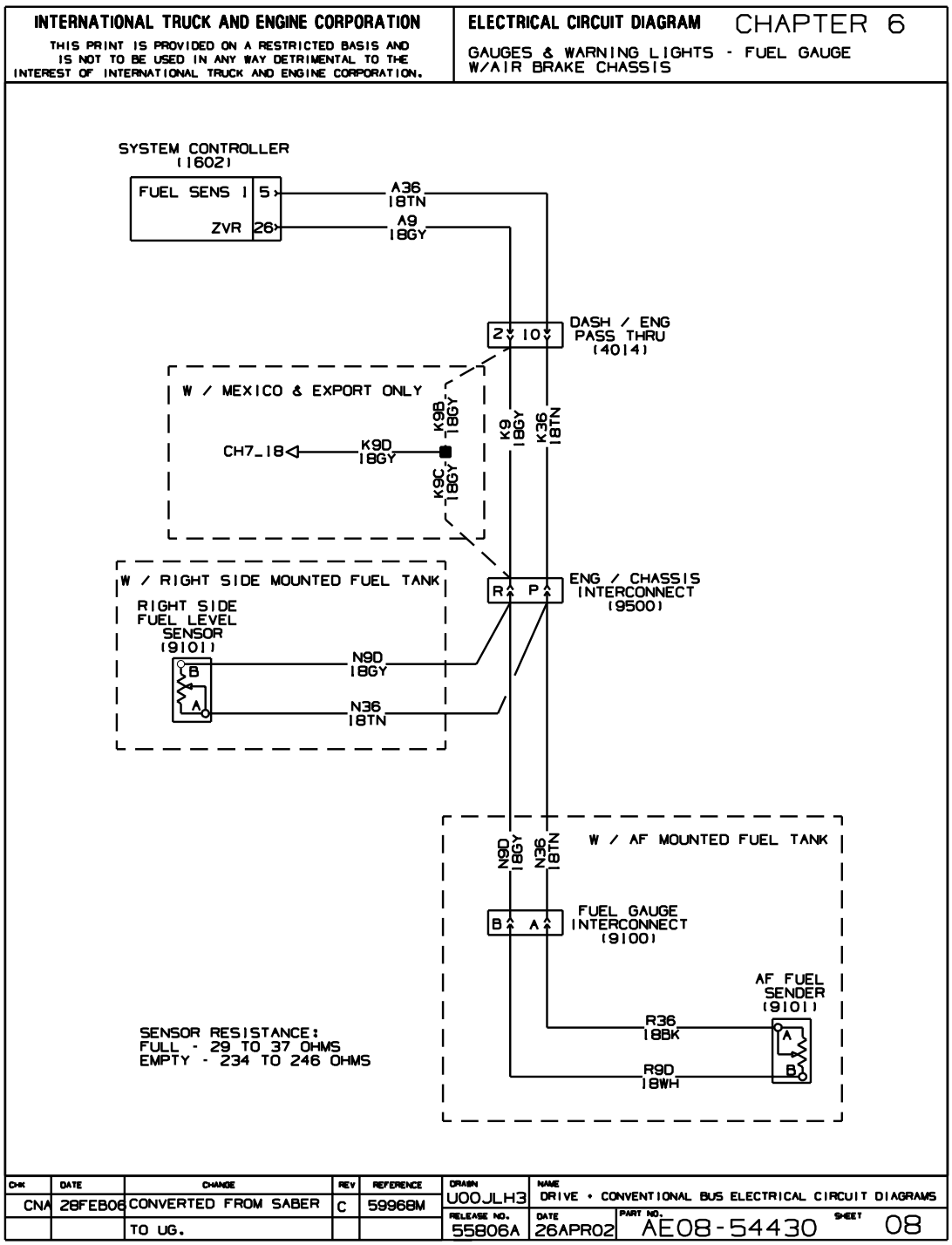


Figure 44 Gauges and Warning Lights — Fuel Gauge with Air Brake Chassis

6.9. GAUGES AND WARNING LIGHTS — FUEL GAUGE WITH HYDRAULIC BRAKE CHASSIS, P. 9

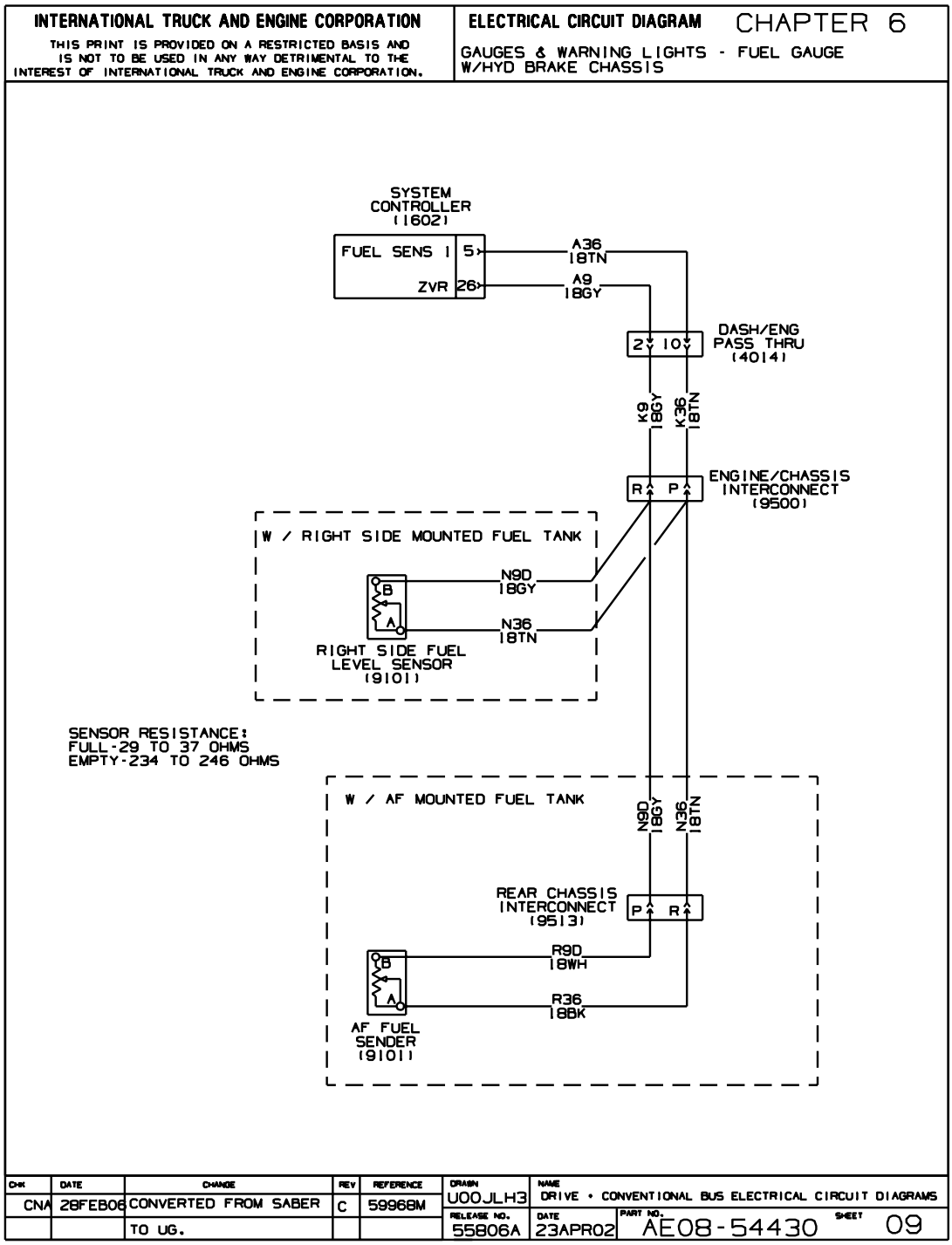


Figure 45 Gauges and Warning Lights — Fuel Gauge with Hydraulic Brake Chassis

6.10. GAUGES AND WARNING LIGHTS — PARK BRAKE LIGHT, P. 10

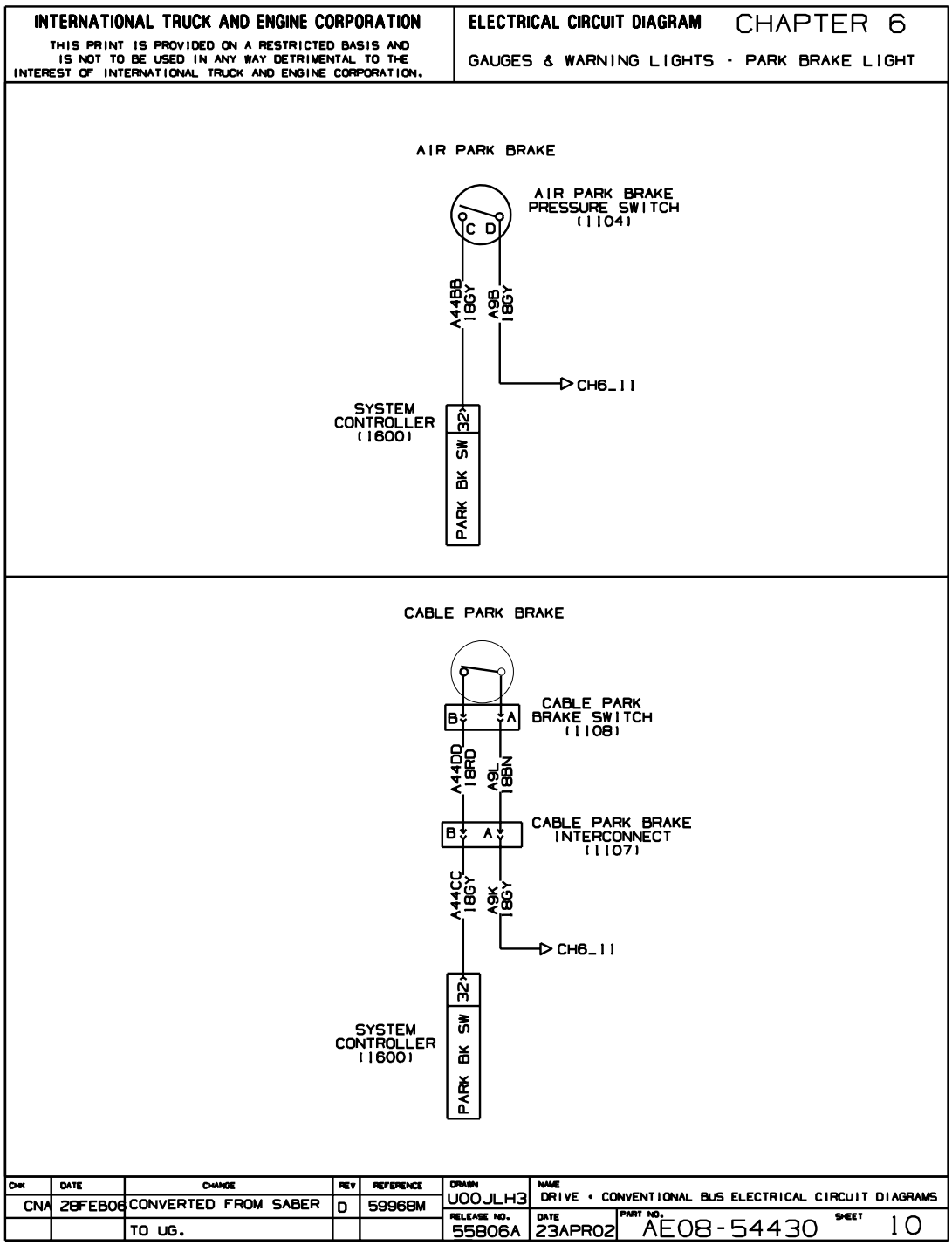


Figure 46 Gauges and Warning Lights — Park Brake Light

6.11. GAUGES AND WARNING LIGHTS — AIR PRESSURE INPUT CIRCUIT AND ZERO VOLT REFERENCE SPLICE, P. 11

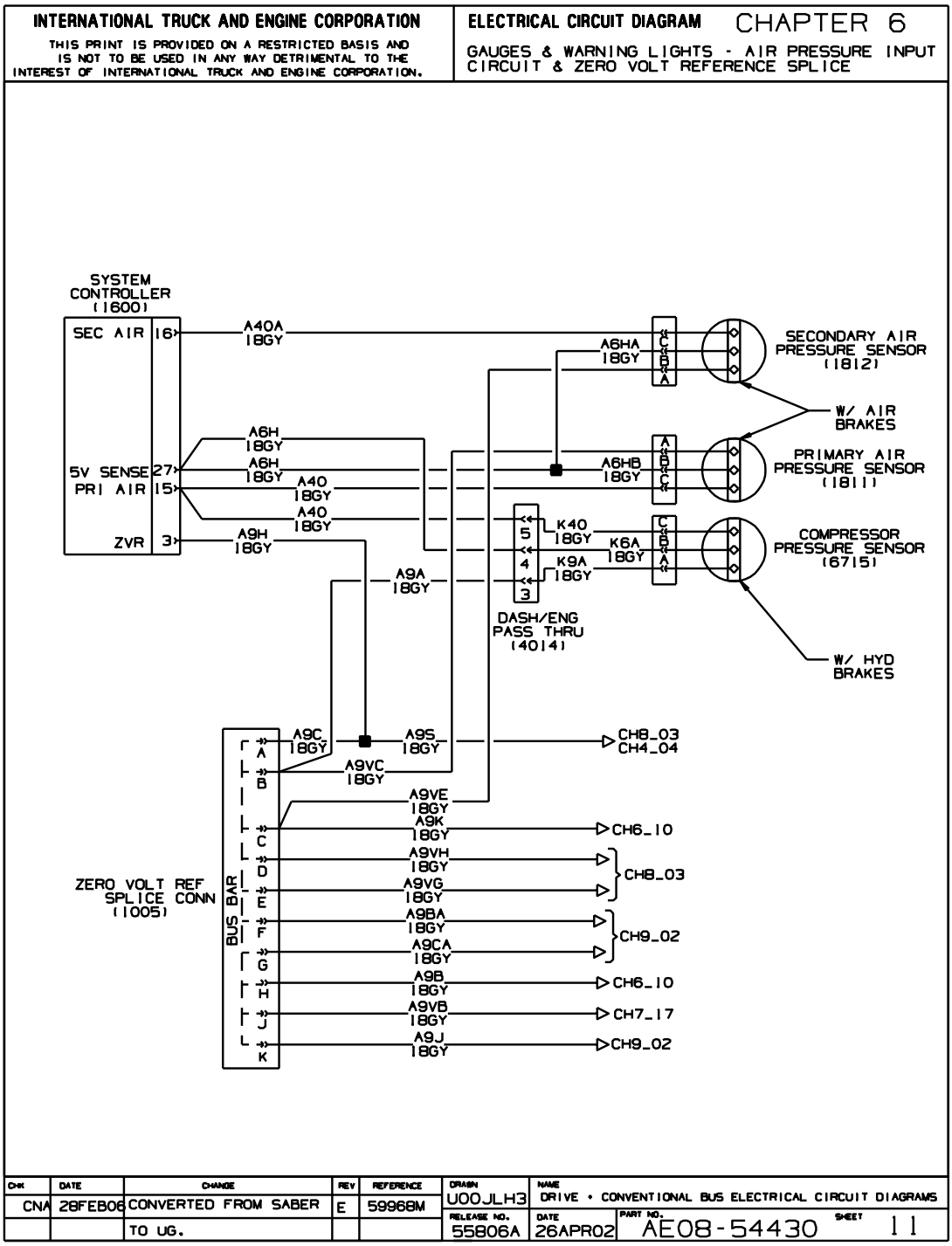


Figure 47 Gauges and Warning Lights — Air Pressure Input Circuit and Zero Volt Reference Splice

6.12. GAUGES AND WARNING LIGHTS — CHANGE TRANSMISSION FILTER LIGHT, P. 12

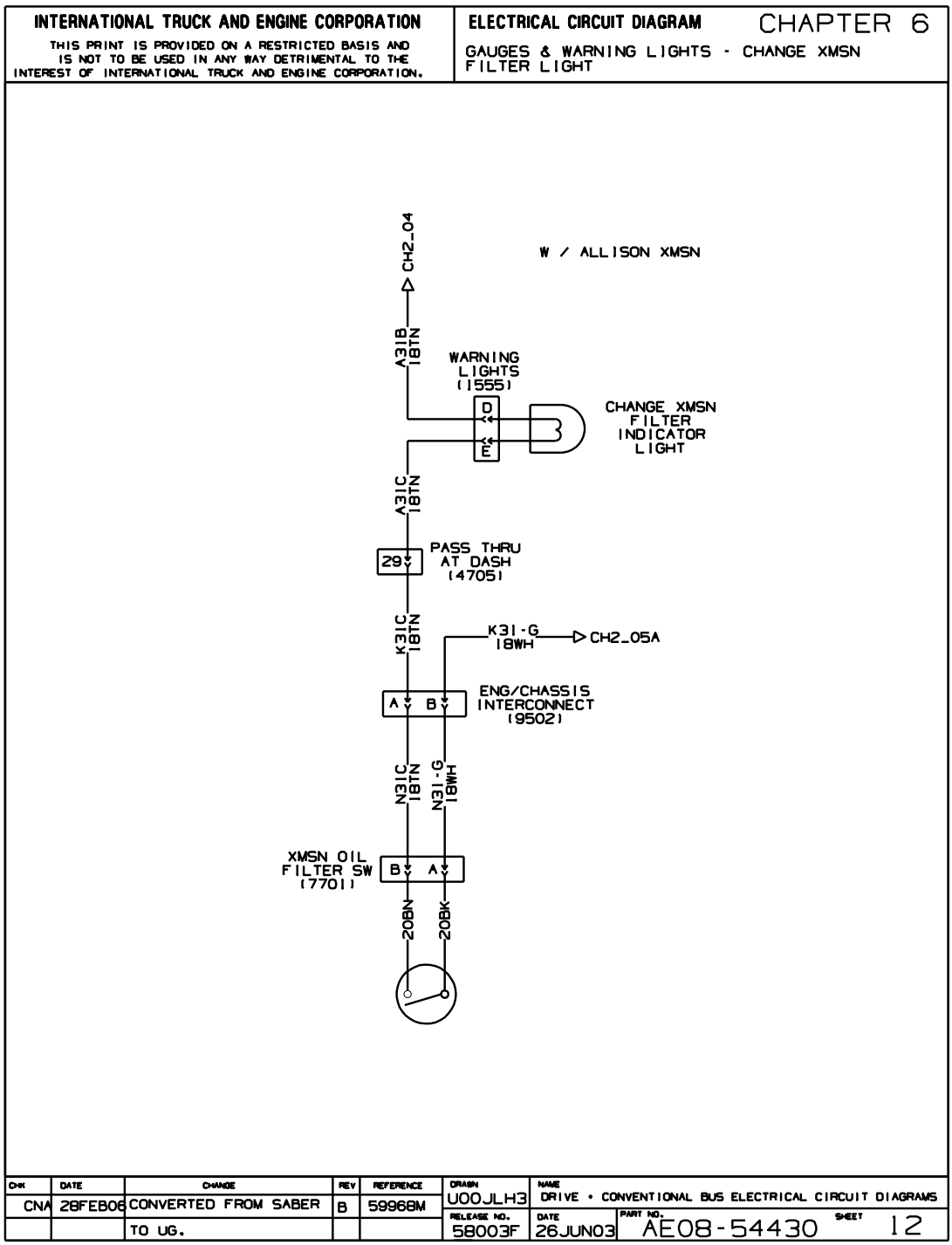


Figure 48 Gauges and Warning Lights — Change Transmission Filter Light

7. CHASSIS ACCESSORIES (CHAPTER 7)

7.1. AIR DRYER AND DRAIN VALVE, P. 1

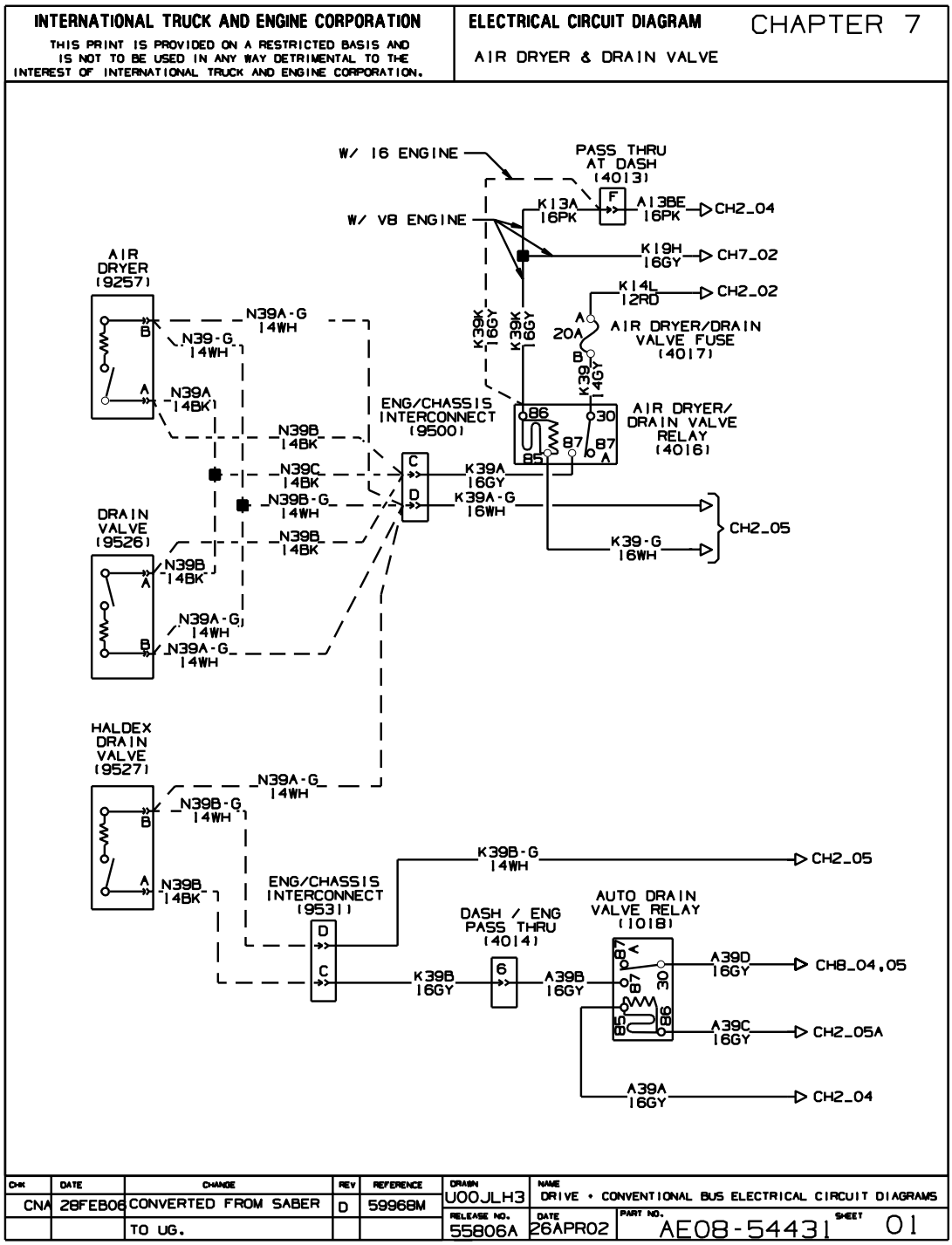


Figure 49 Air Dryer and Drain Valve

7.2. FUEL FILTER WIRING SYSTEM, P. 2

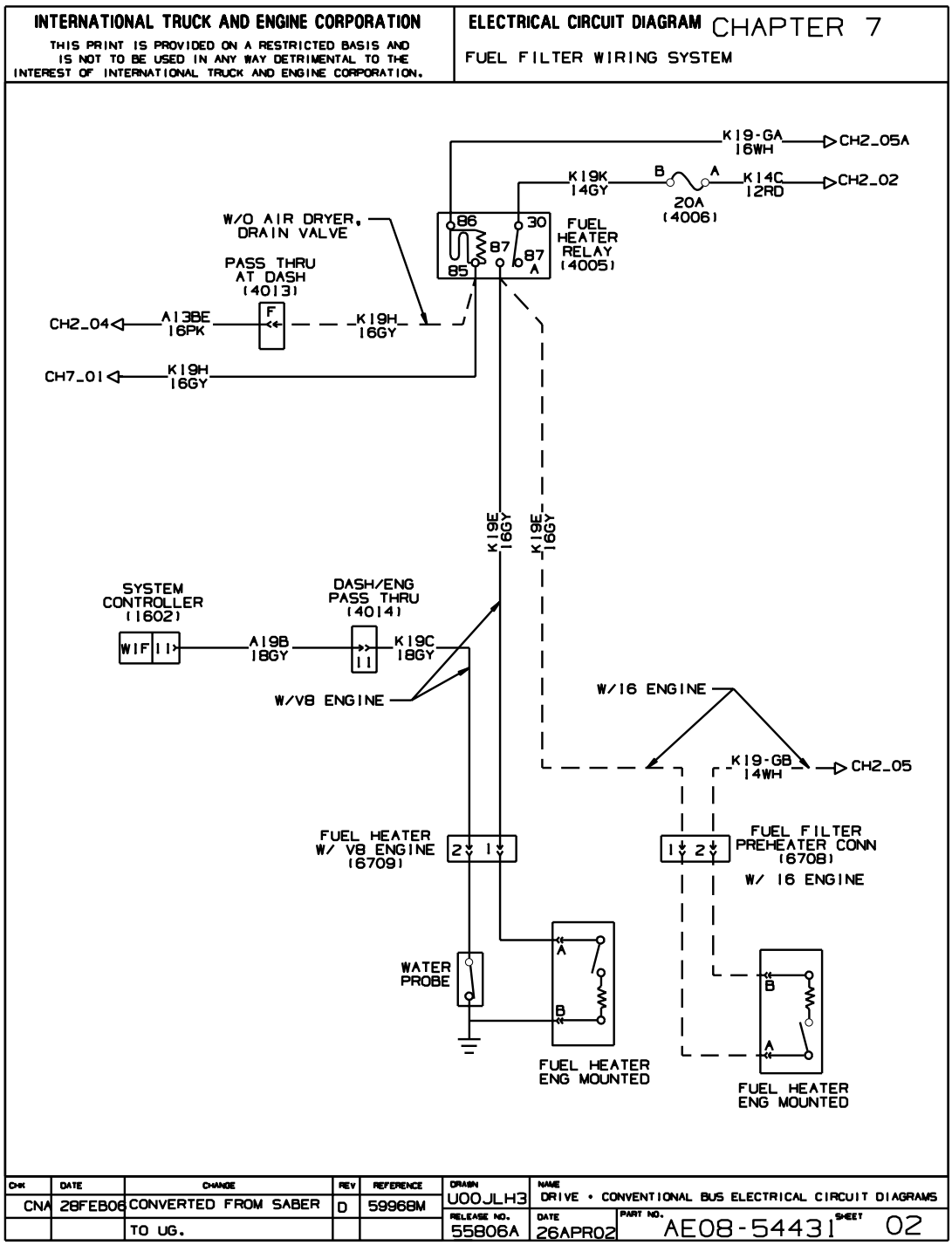


Figure 50 Fuel Filter Wiring System

7.3. AIR PARK BRAKE INTERLOCK, P. 3

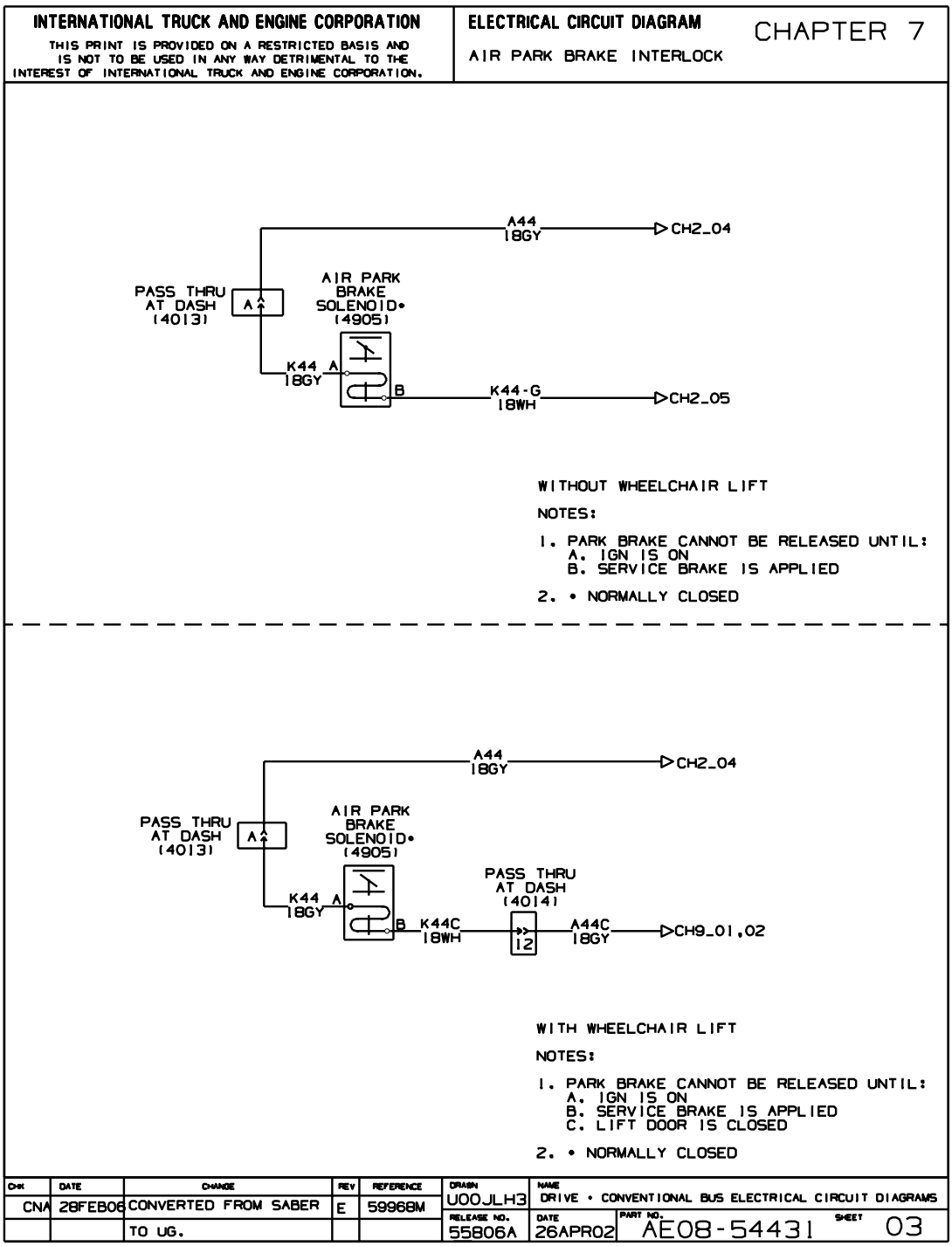


Figure 51 Air Park Brake Interlock

7.4. PARK BRAKE / SHIFTER INTERLOCK — WITH LCT TRANSMISSION ONLY, P. 4

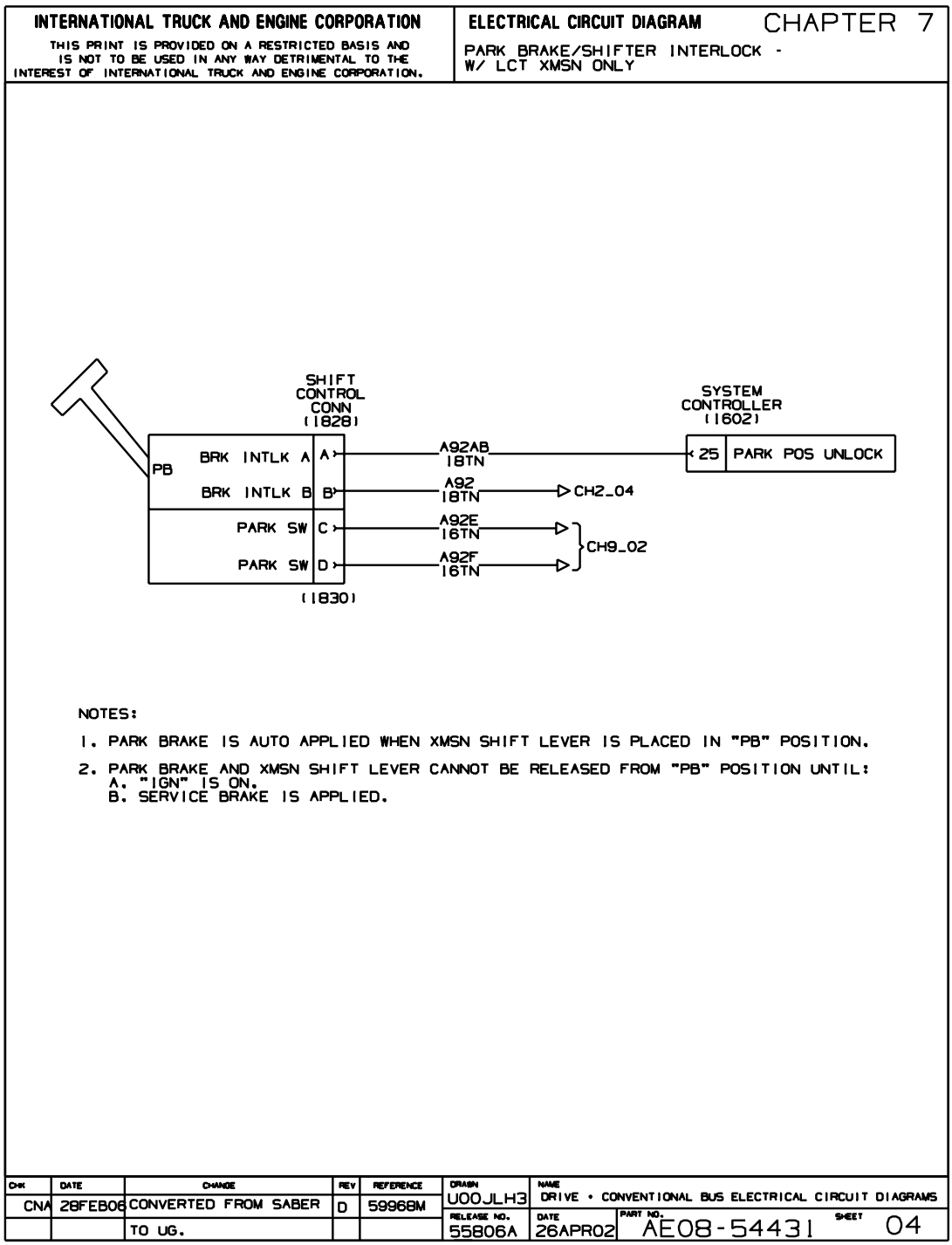


Figure 52 Park Brake / Shifter Interlock — with LCT Transmission Only

7.5. ANTILOCK BRAKE SYSTEM (ABS), AIR, P. 5

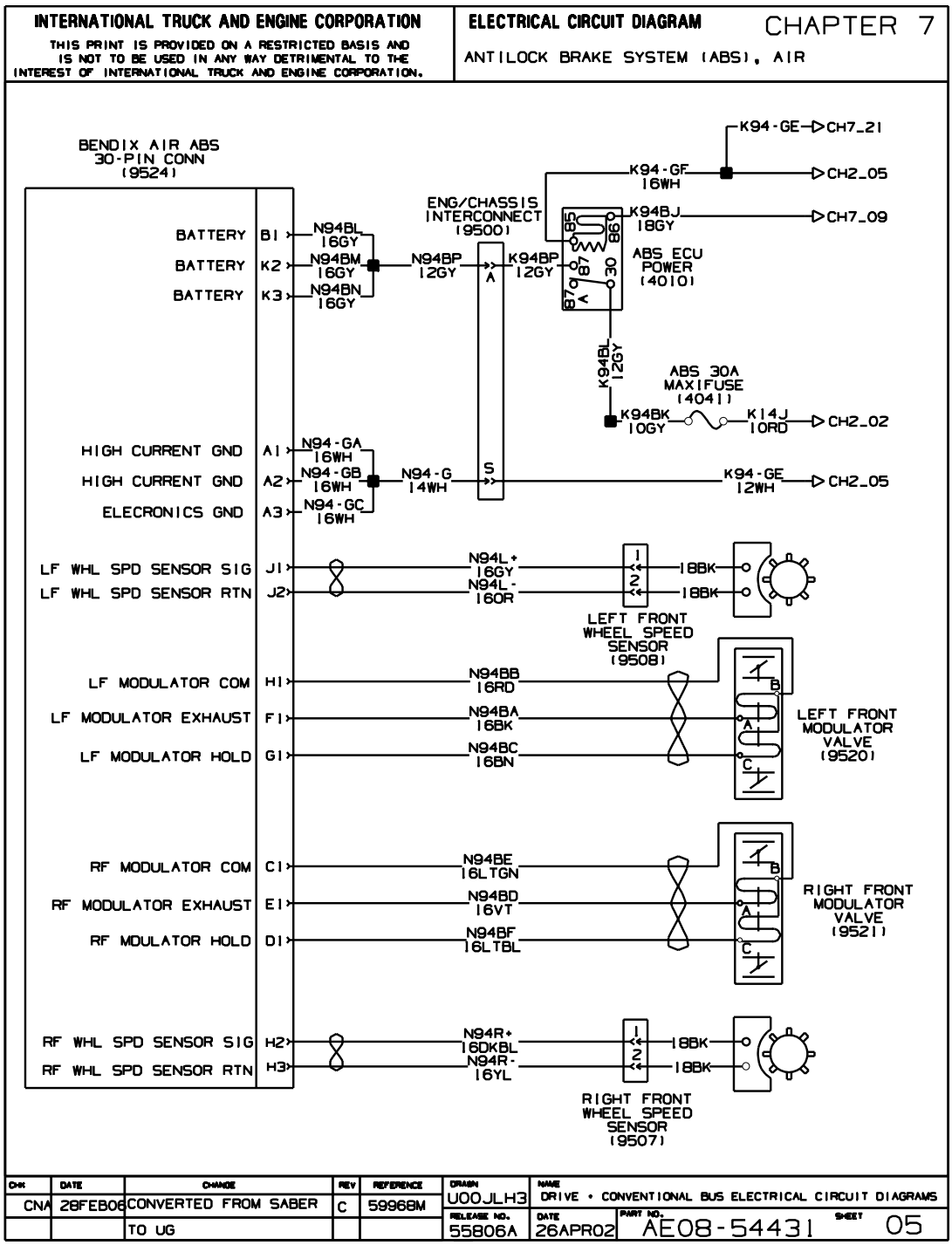


Figure 53 Antilock Brake System (ABS), Air

7.6. ANTILOCK BRAKE SYSTEM (ABS), AIR, P. 6

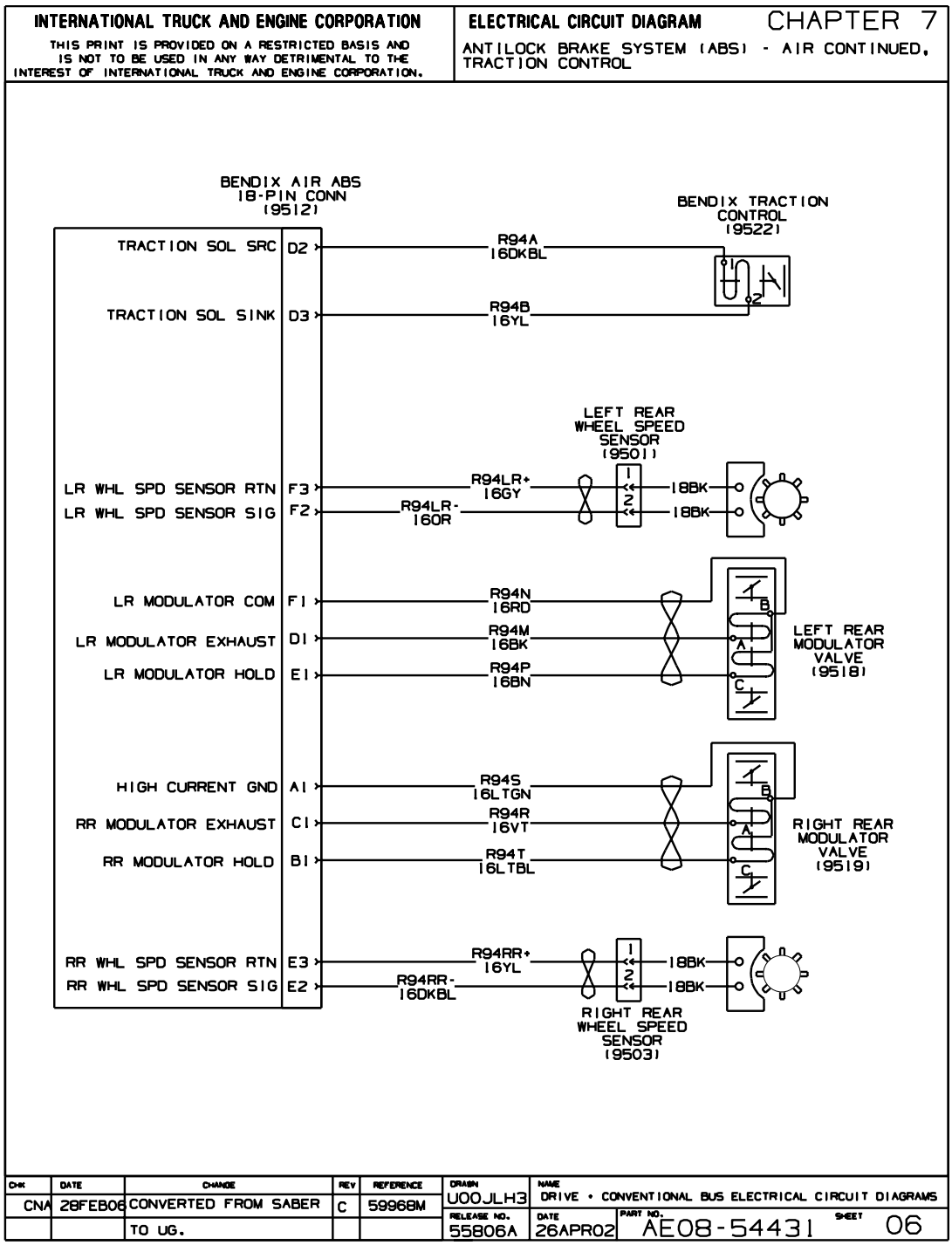


Figure 54 Antilock Brake System (ABS), Air (Cont.)

7.7. AIR SOLENOID MODULE, P. 7

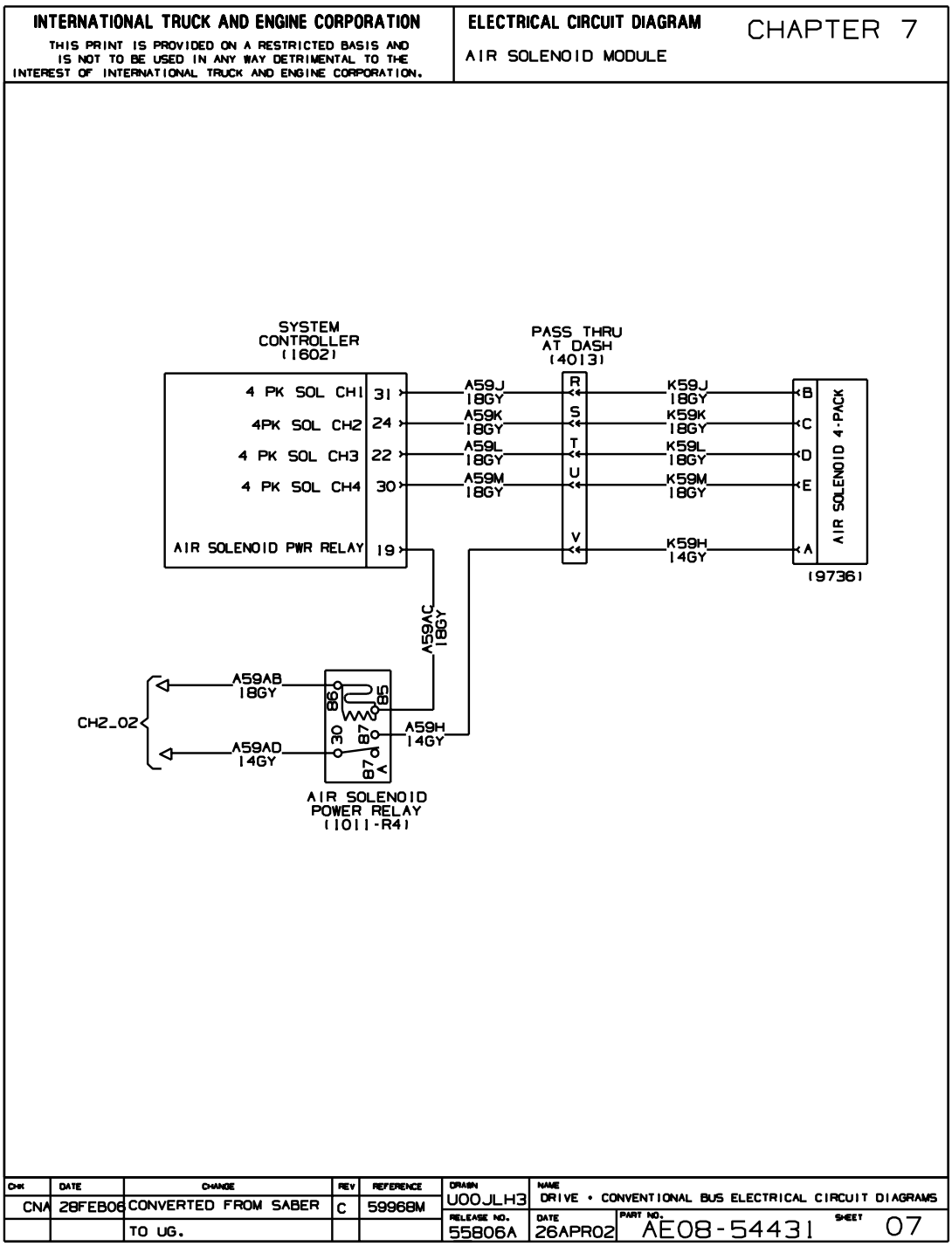


Figure 55 Air Solenoid Module

7.8. HYDRAULIC ANTILOCK BRAKES, P. 8

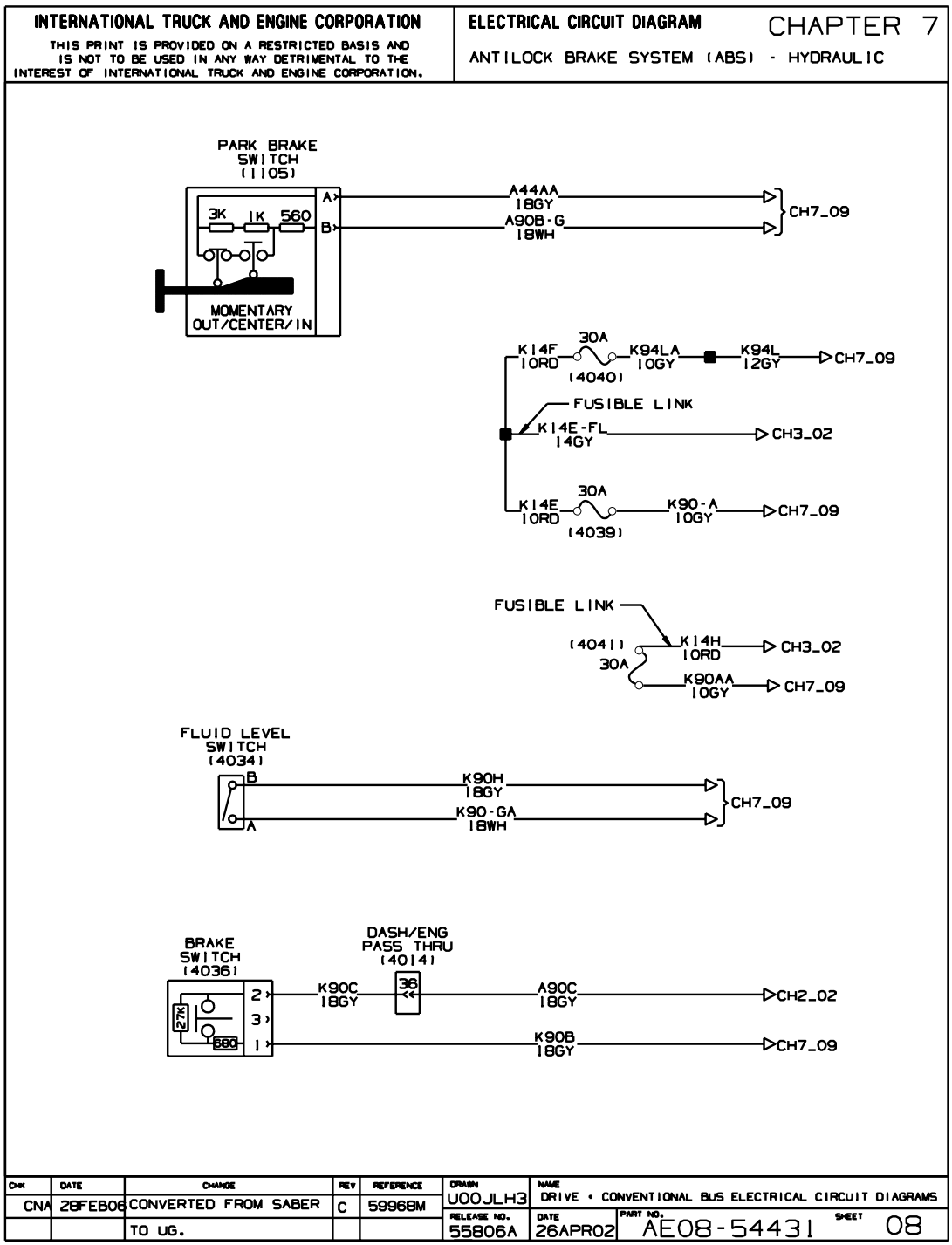


Figure 56 Hydraulic Antilock Brakes

7.9. HYDRAULIC ANTILOCK BRAKES, P. 9

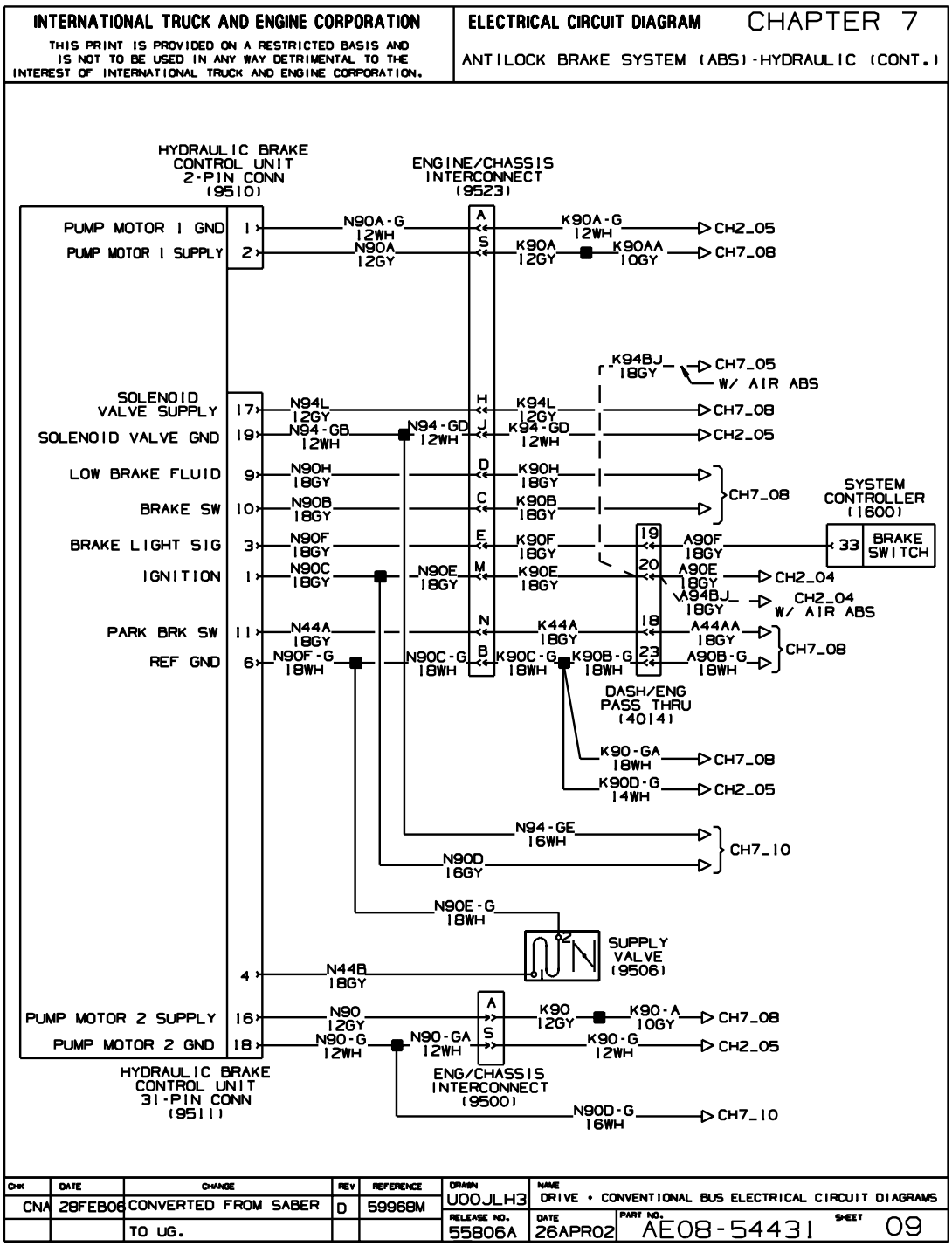


Figure 57 Hydraulic Antilock Brakes (Cont.)

7.10. HYDRAULIC ANTILOCK BRAKES, P. 10

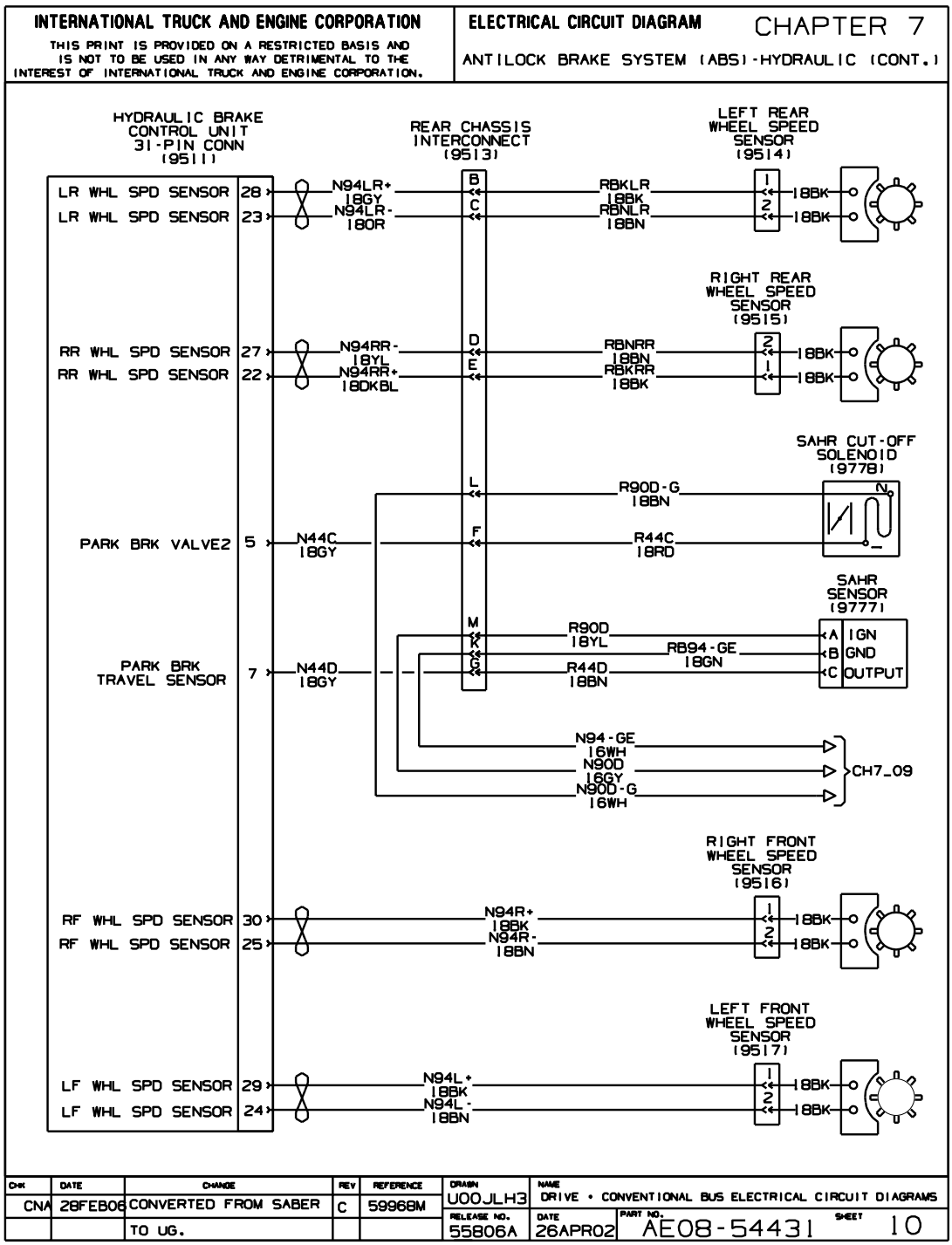


Figure 58 Hydraulic Antilock Brakes (Cont.)

7.11. ALLISON WTEC MD TRANSMISSION, P. 11

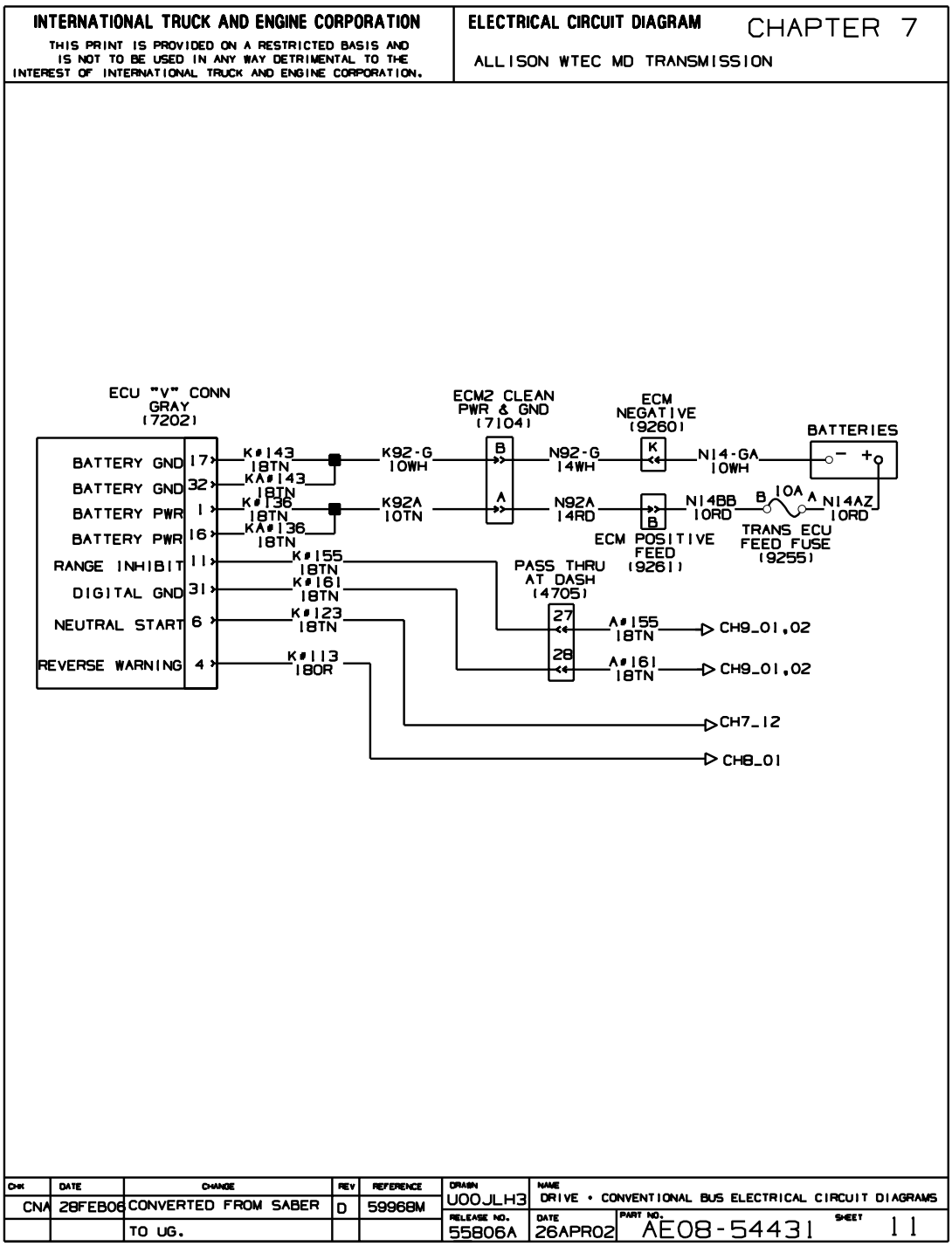


Figure 59 Allison WTEC MD Transmission

7.12. ALLISON WTEC MD TRANSMISSION, P. 12

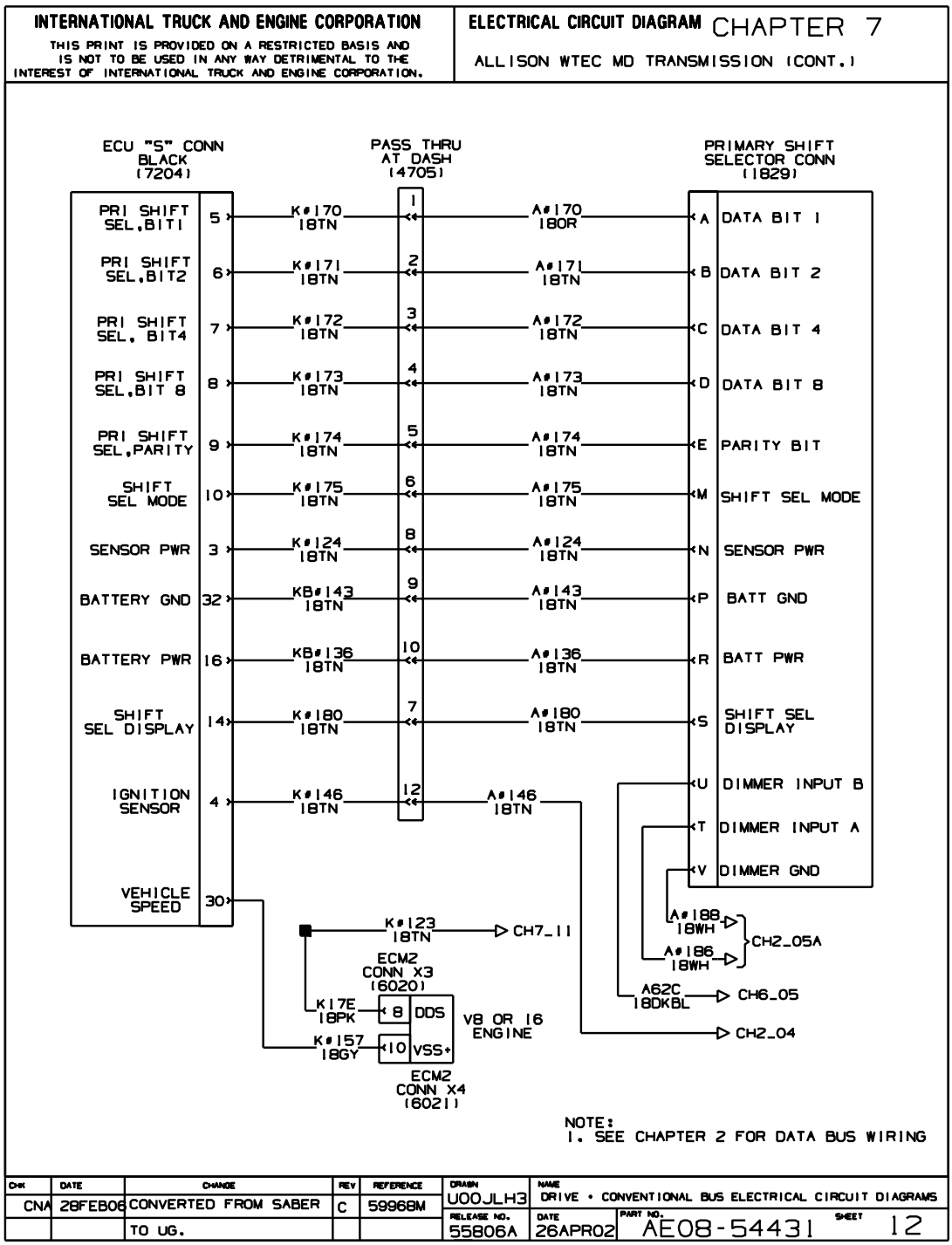


Figure 60 Allison WTEC MD Transmission (Cont.)

7.13. ALLISON WTEC MD TRANSMISSION, P. 13

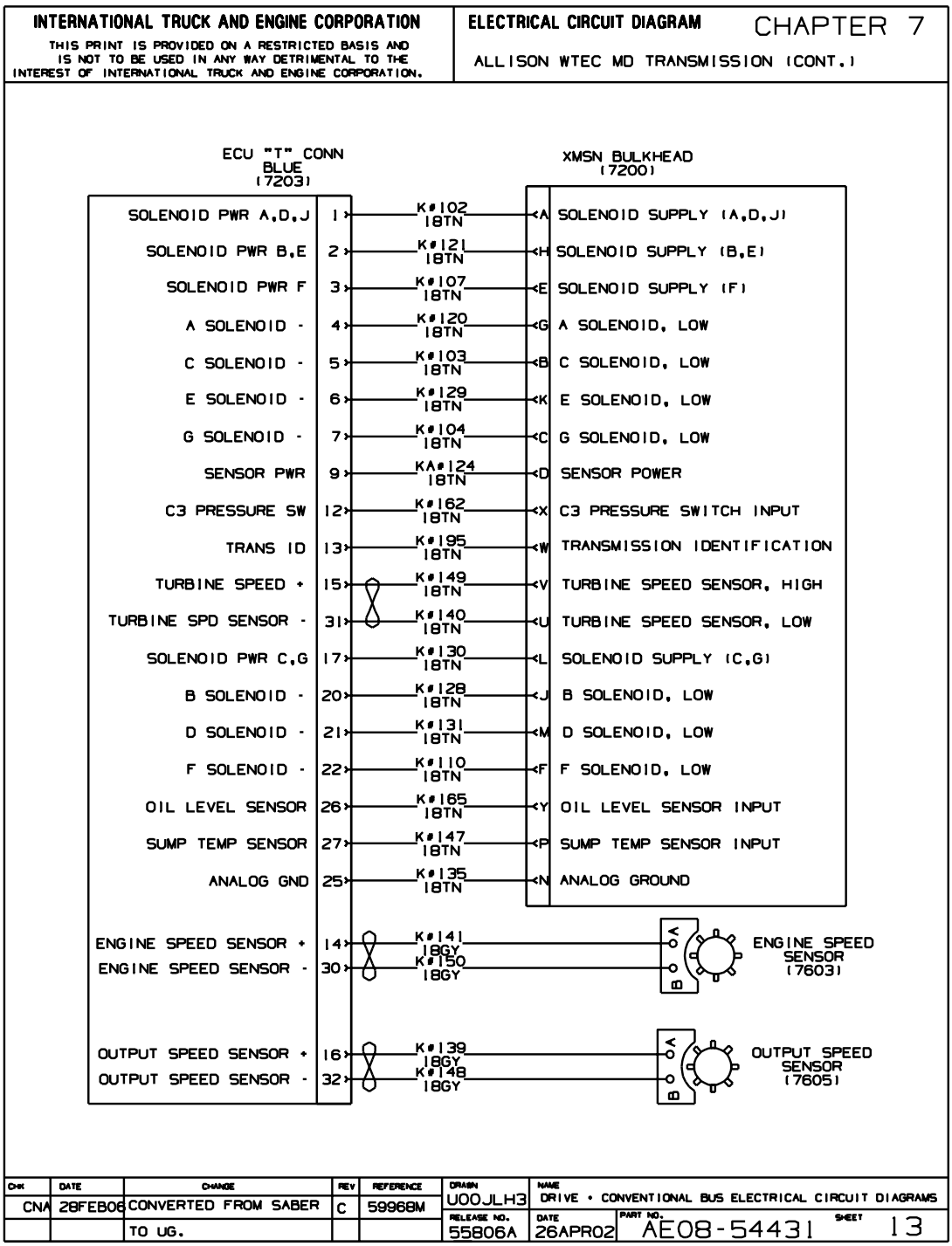


Figure 61 Allison WTEC MD Transmission (Cont.)

7.14. ALLISON LCT TRANSMISSION, P. 14

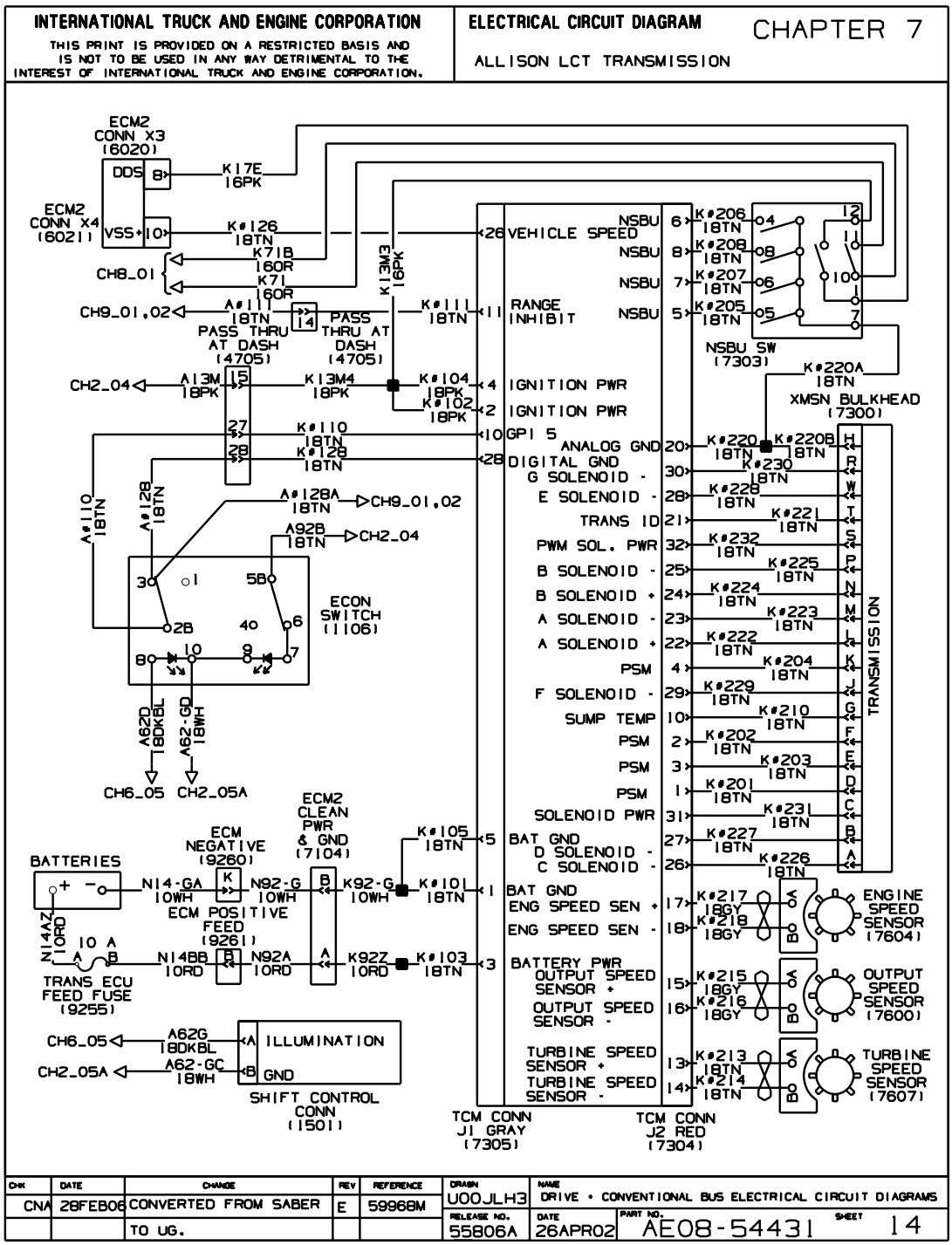


Figure 62 Allison LCT Transmission

7.15. CROSSING GATE, P. 15

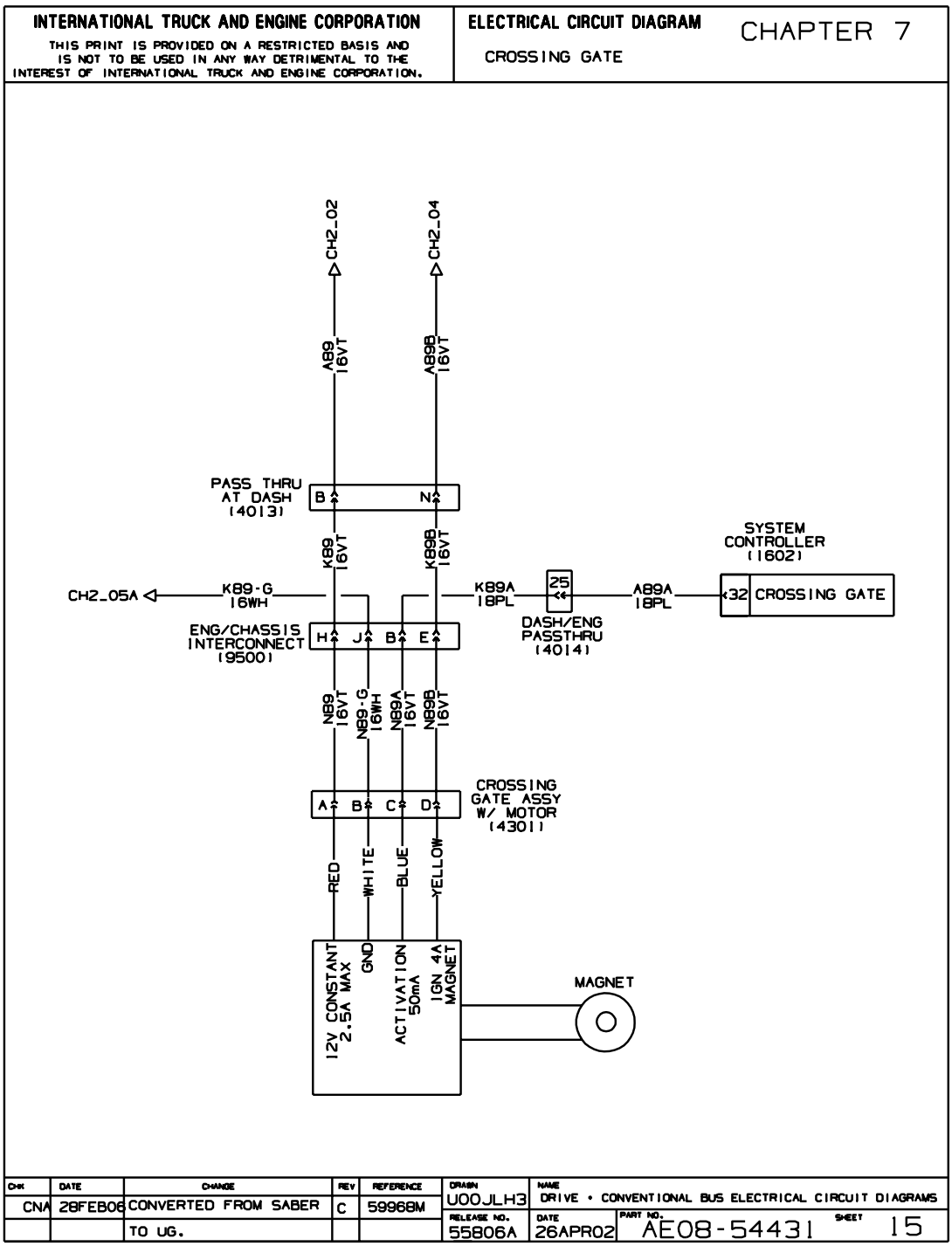


Figure 63 Crossing Gate

7.16. BRAKE MONITOR, P. 16

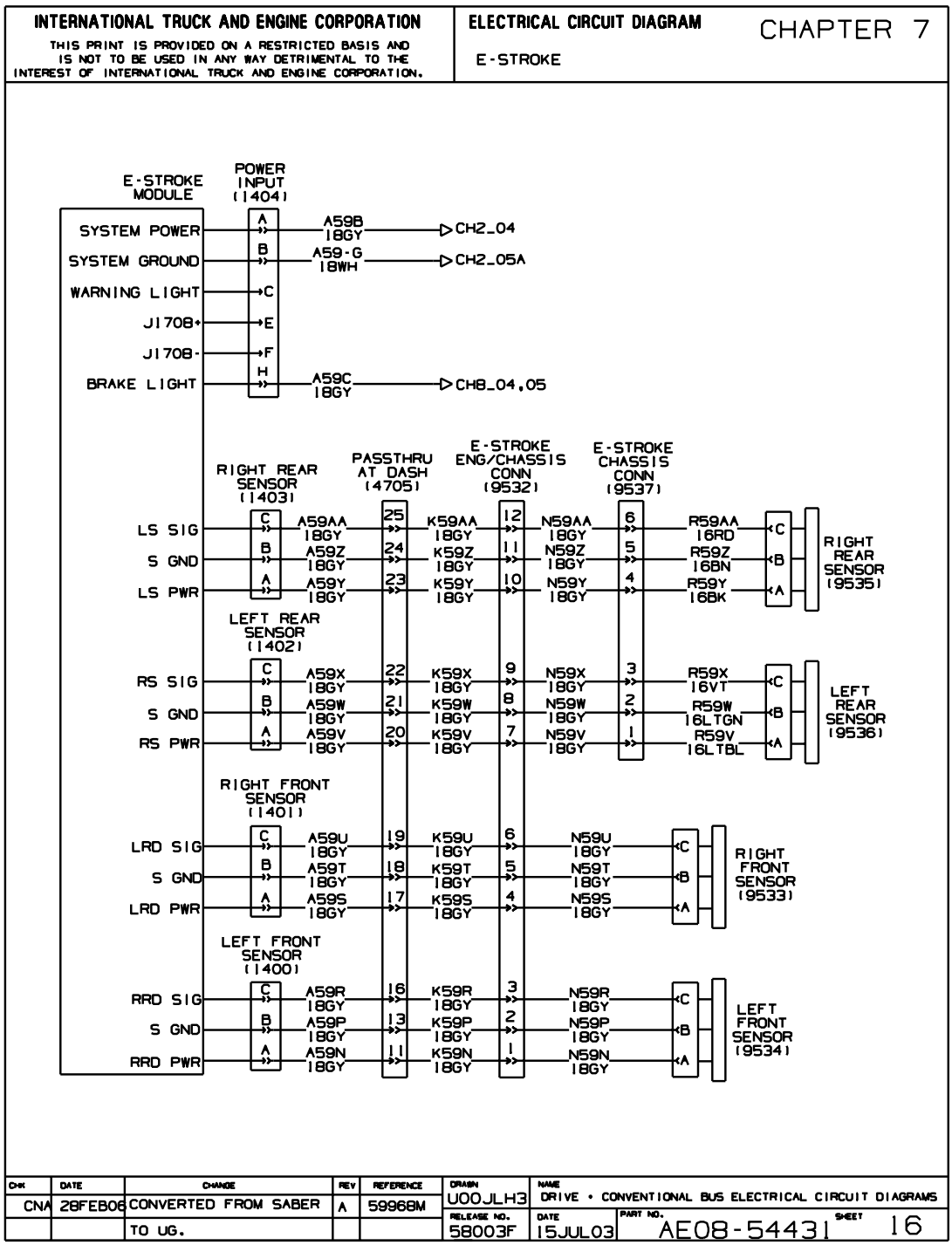


Figure 64 Brake Monitor

7.17. MANUAL TRANSMISSION, P. 17

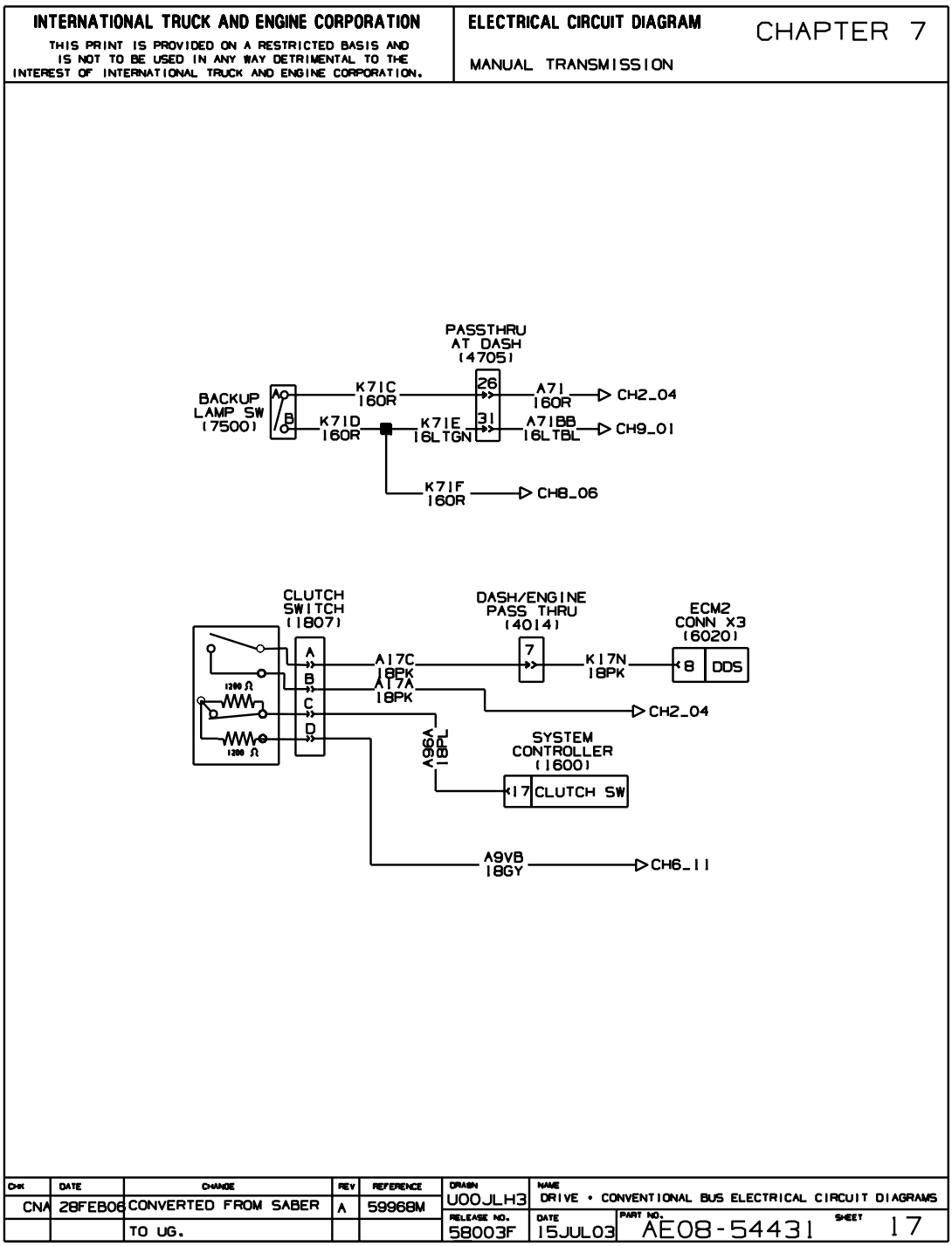


Figure 65 Manual Transmission

7.18. TWO SPEED AXLE, P. 18

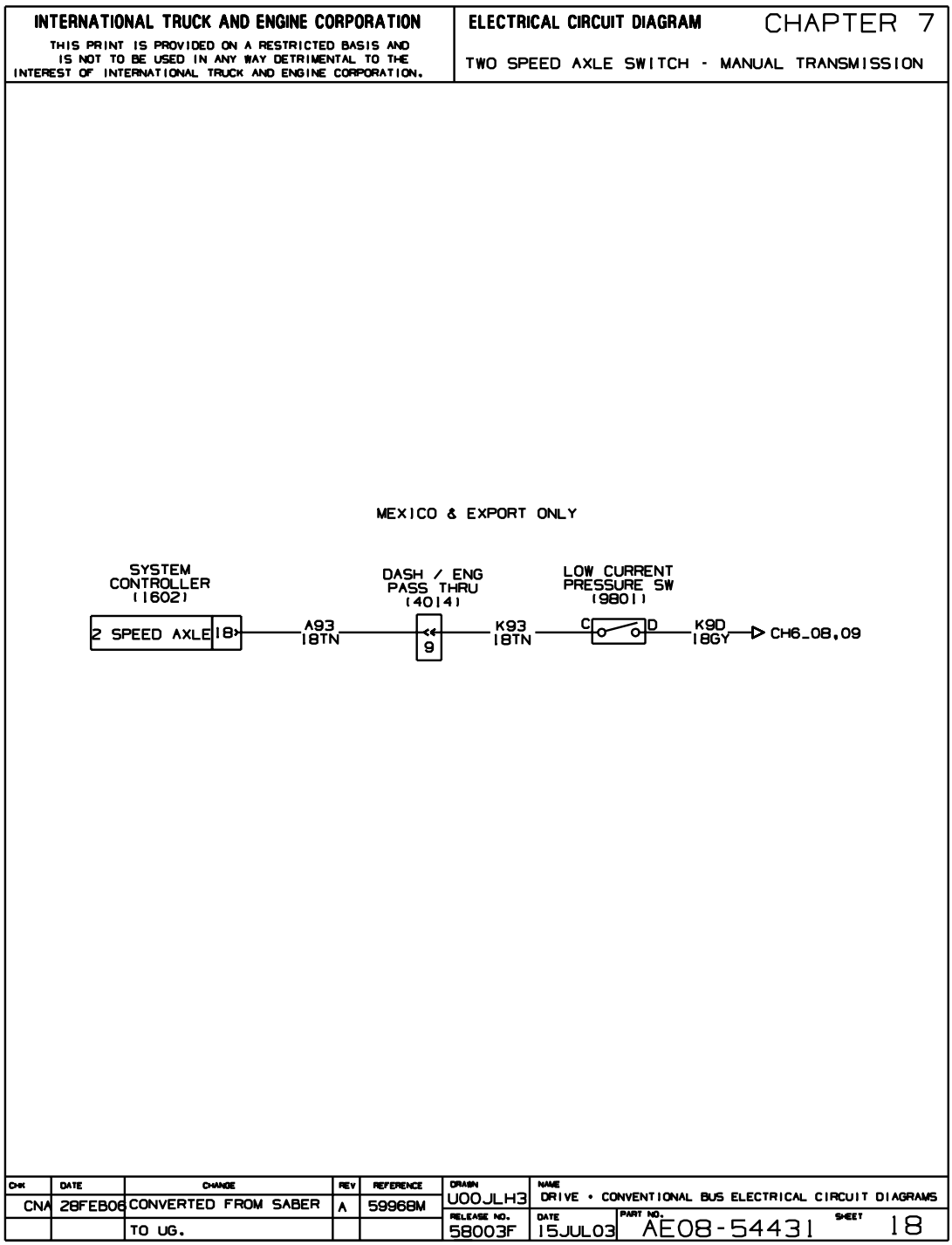


Figure 66 Two Speed Axle

7.19. CHASSIS ACCESSORIES W/ABS6 — BENDIX AIR — ECU PIN OUT, P. 19

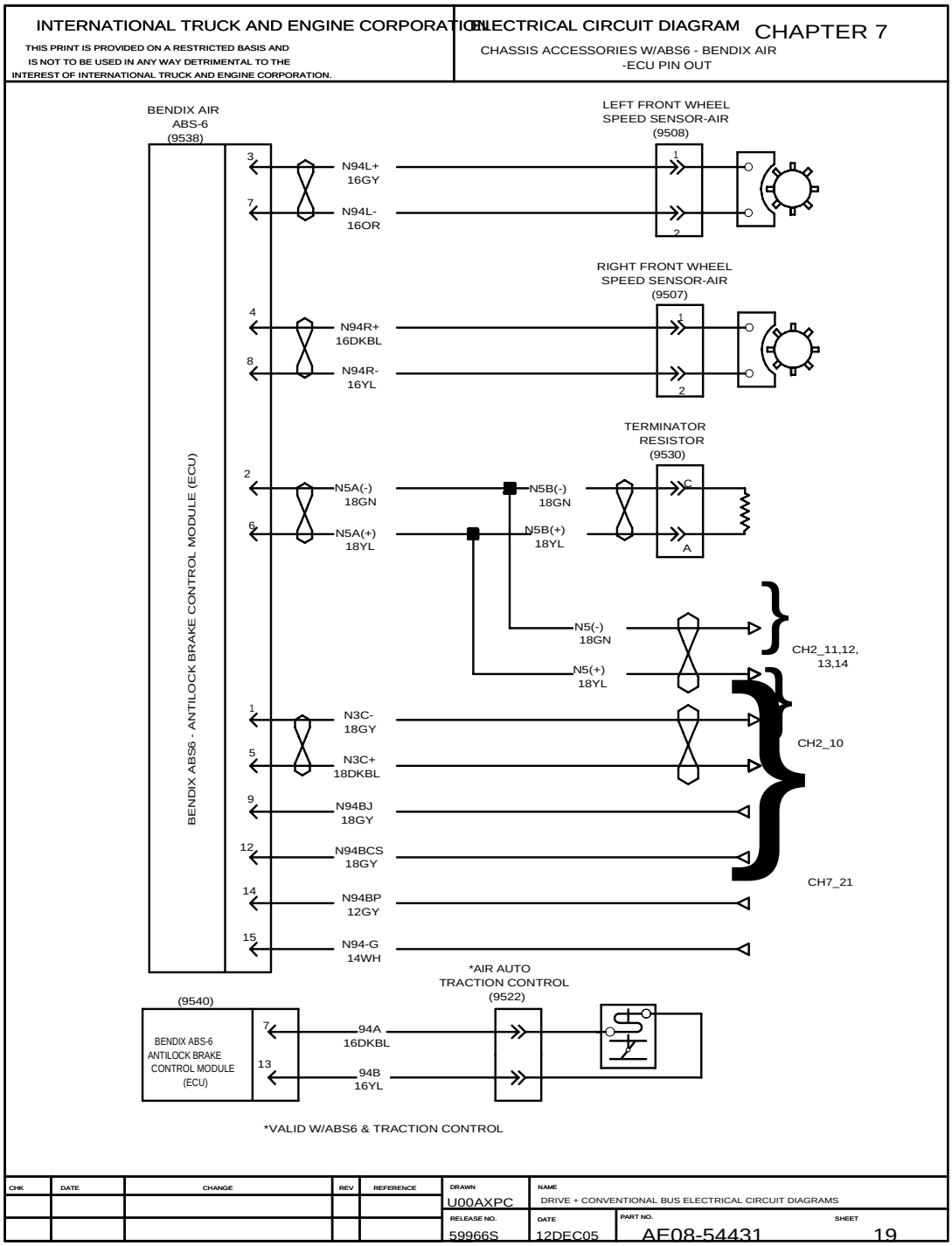


Figure 67 Chassis Accessories W/ABS6 — Bendix Air — ECU Pin Out

7.20. CHASSIS ACCESSORIES W/ABS6 — BENDIX AIR — ECU PIN OUT, P. 20

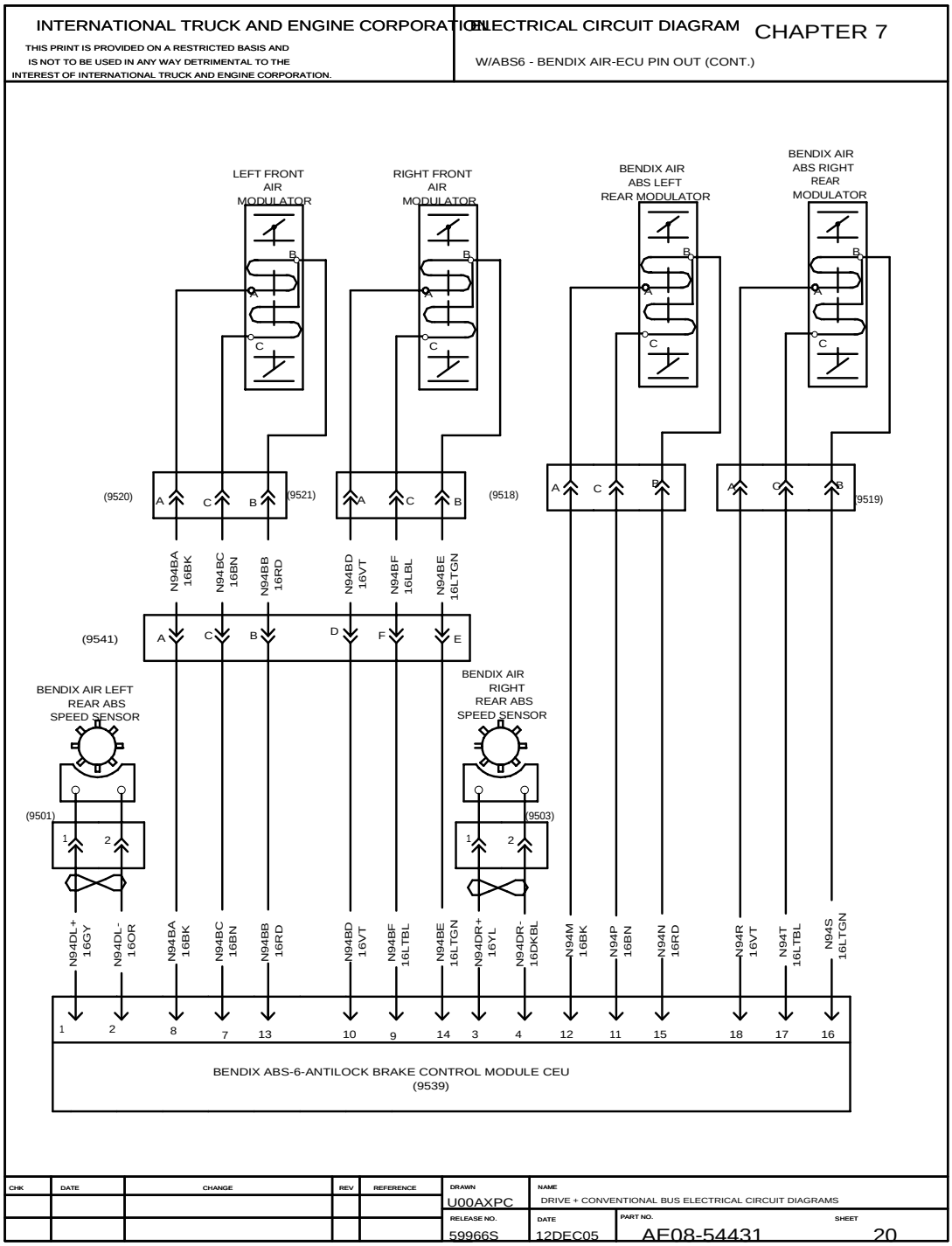


Figure 68 Chassis Accessories W/ABS6 — Bendix Air — ECU Pin Out (Cont.)

7.21. CHASSIS ACCESSORIES W/ABS6 — BENDIX AIR ECM POWER, P. 21

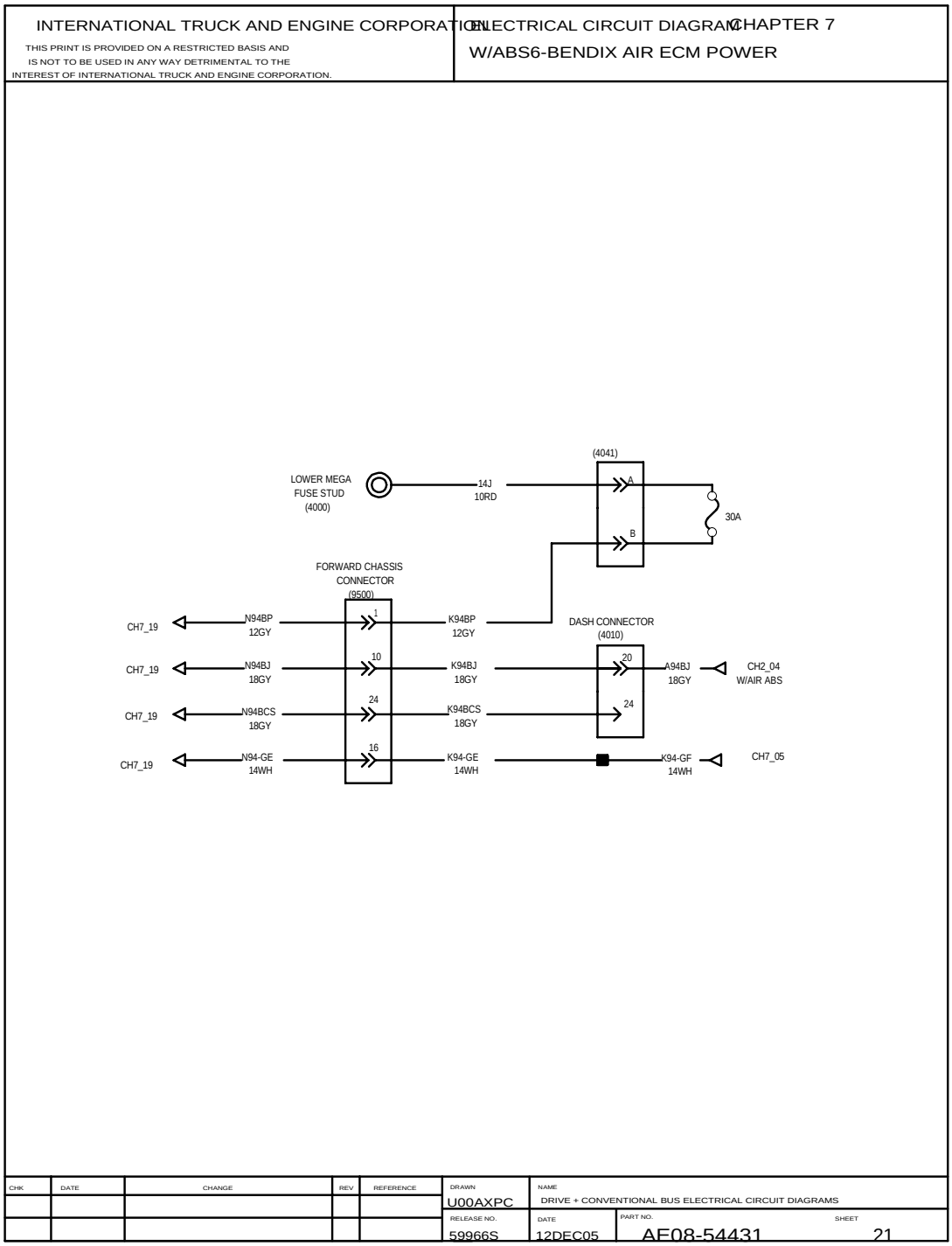


Figure 69 Chassis Accessories W/ABS6 — Bendix Air ECM Power

8. LIGHT SYSTEMS (CHAPTER 8)

8.1. BACK-UP LIGHTS / EXTERIOR LIGHT CHECK, P. 1

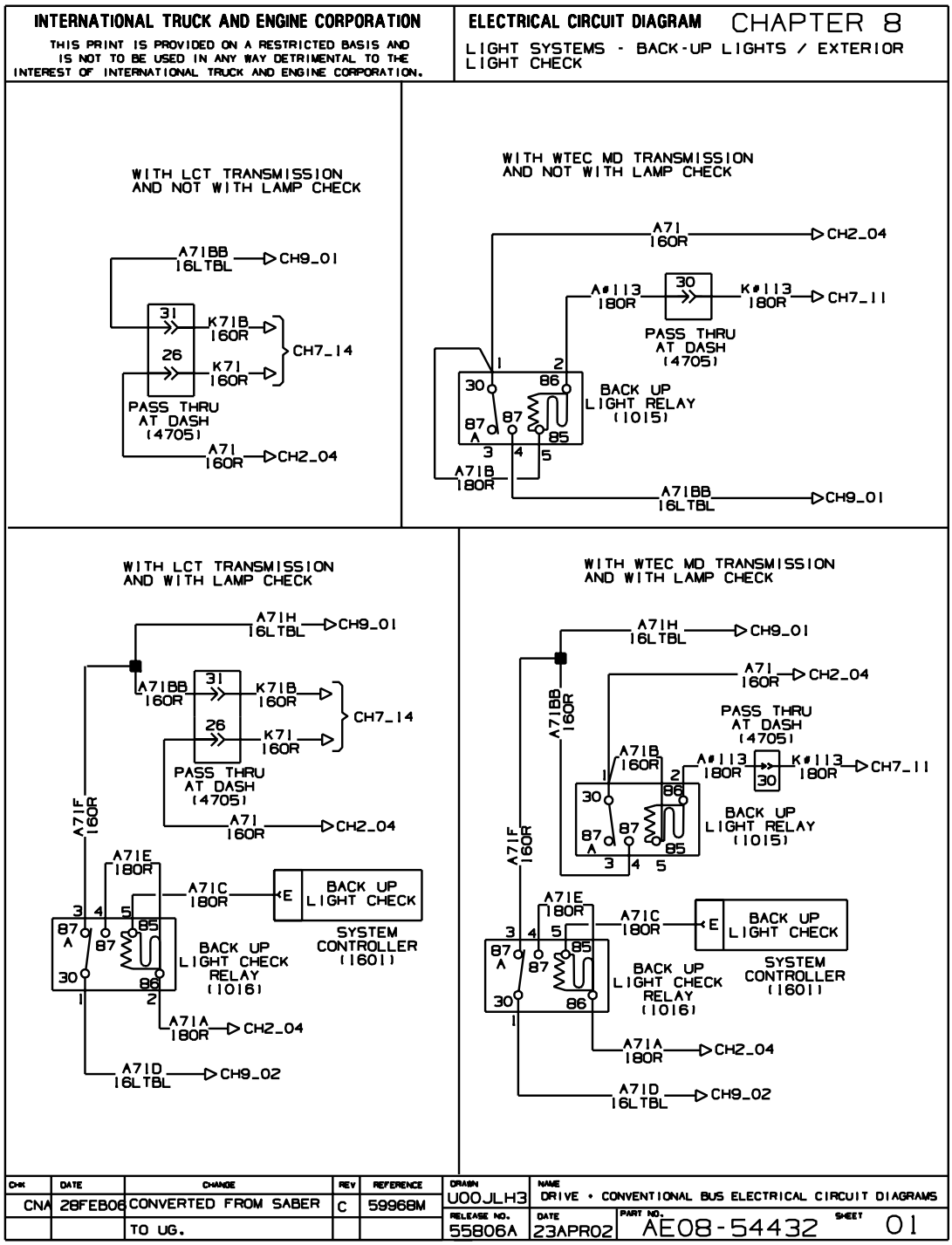


Figure 70 Back-Up Lights / Exterior Light Check

8.2. FOG LIGHTS, P. 2

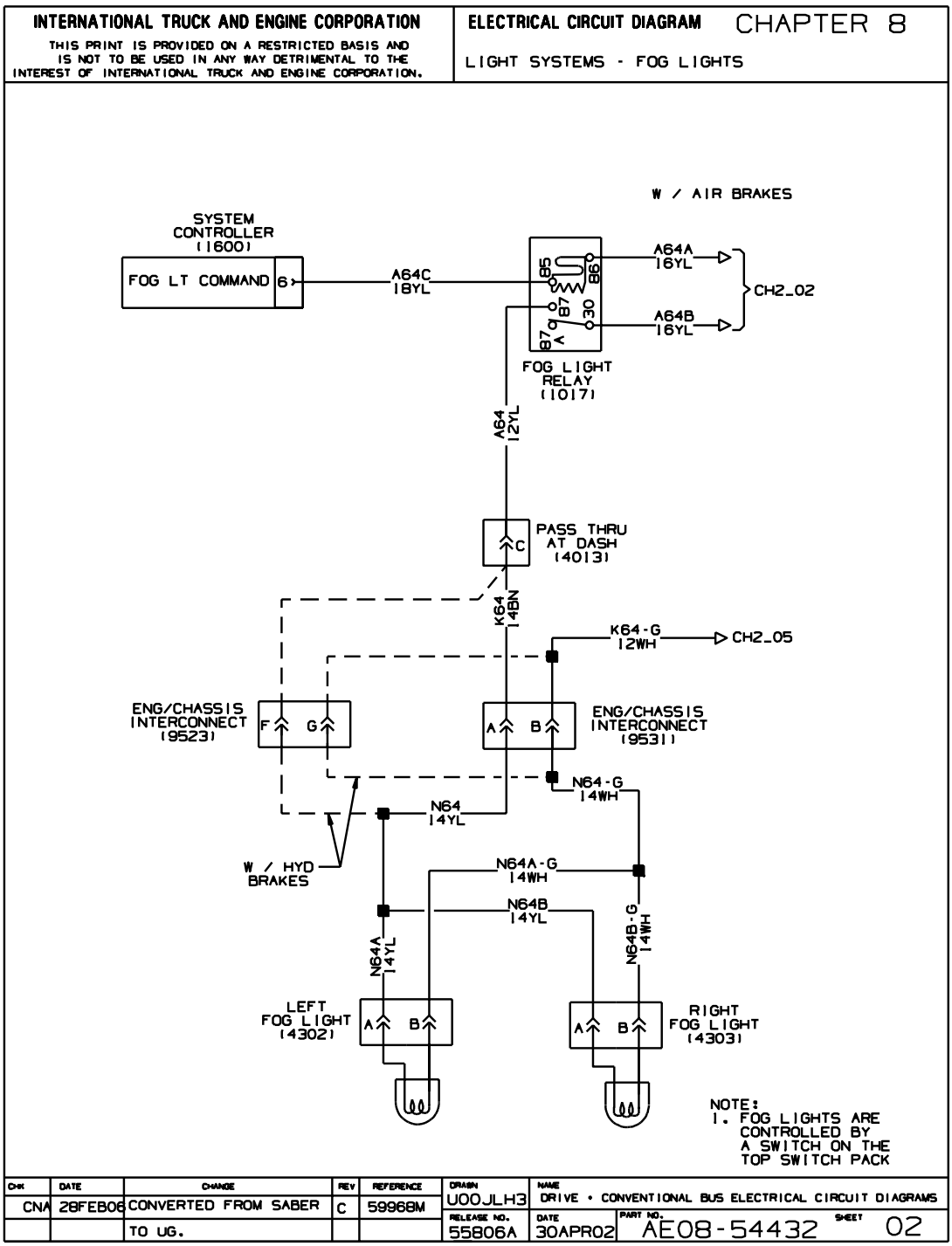


Figure 71 Fog Lights

8.3. HIGH BEAM, FLASH TO PASS, TURN SIGNAL, AND AIR BRAKE STOP SWITCHES, P. 3

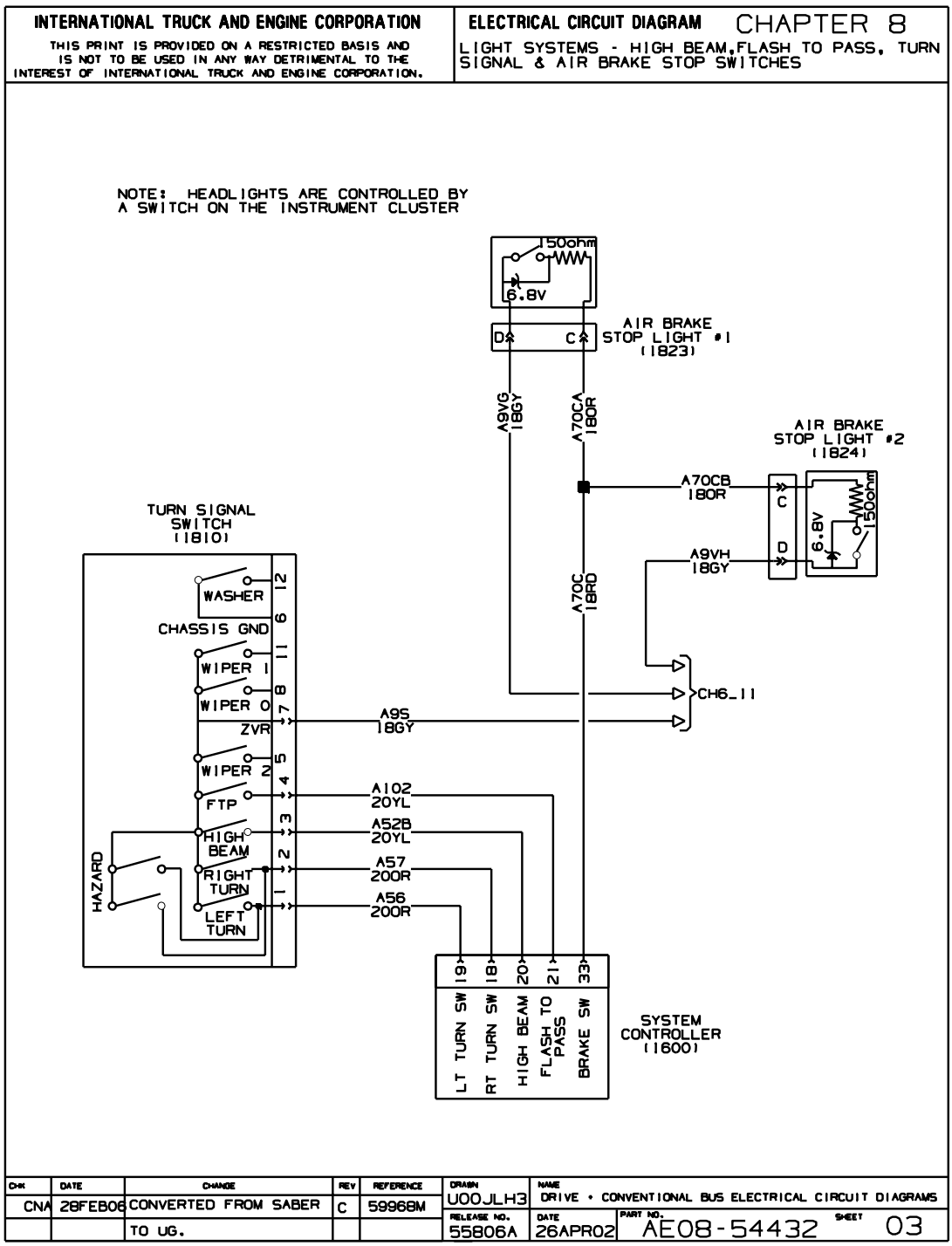


Figure 72 High Beam, Flash to Pass, Turn Signal, and Air Brake Stop Switches

8.4. HEADLIGHTS, MARKER, PARK, TURN, AND STOP RELAY — WITHOUT FENDER MOUNT LIGHTS, P. 4

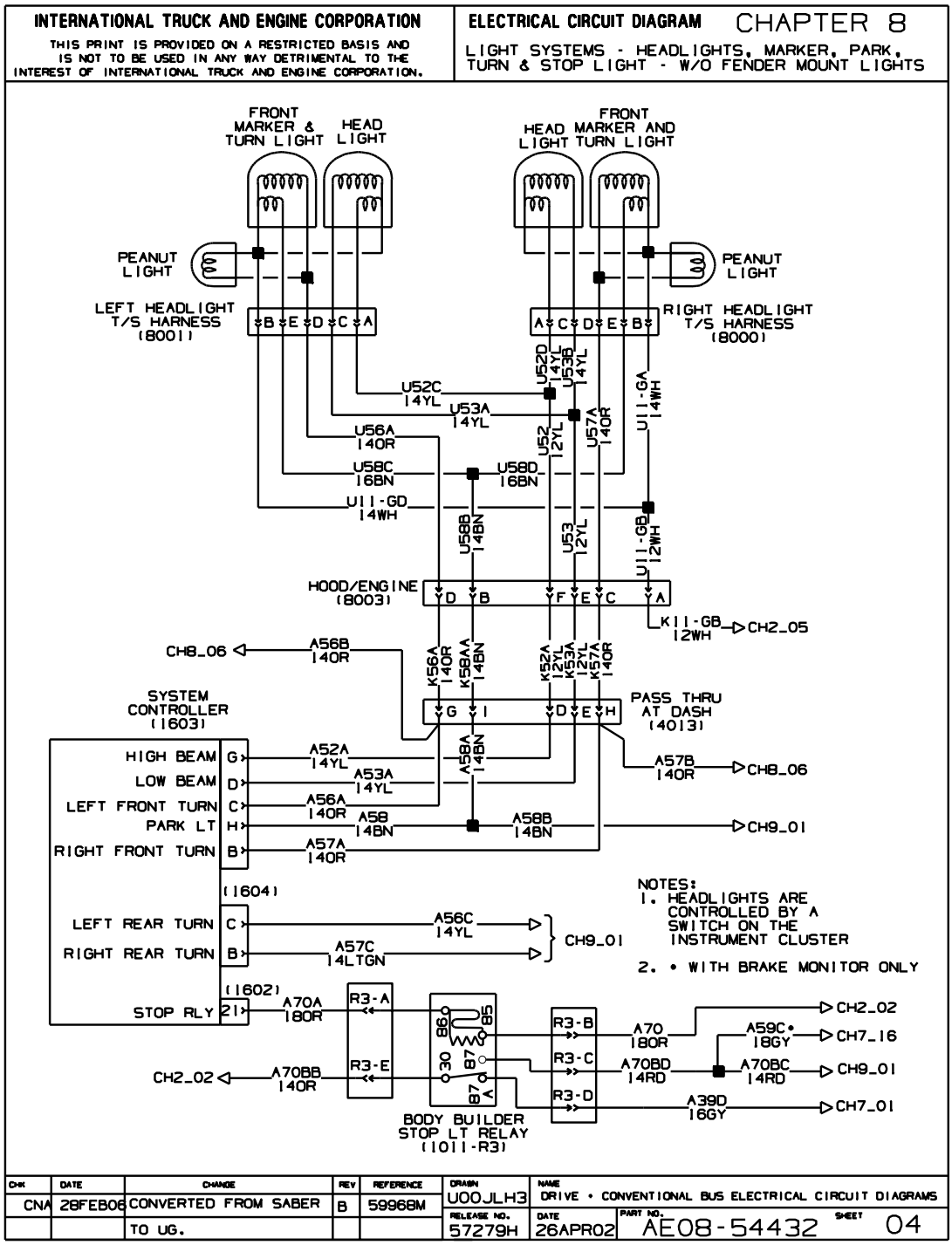


Figure 73 Headlights, Marker, Park, Turn, and Stop Relay — Without Fender Mount Lights

8.5. HEADLIGHTS, MARKER, PARK, TURN, AND STOP RELAY — WITH FENDER MOUNT LIGHTS, P. 5

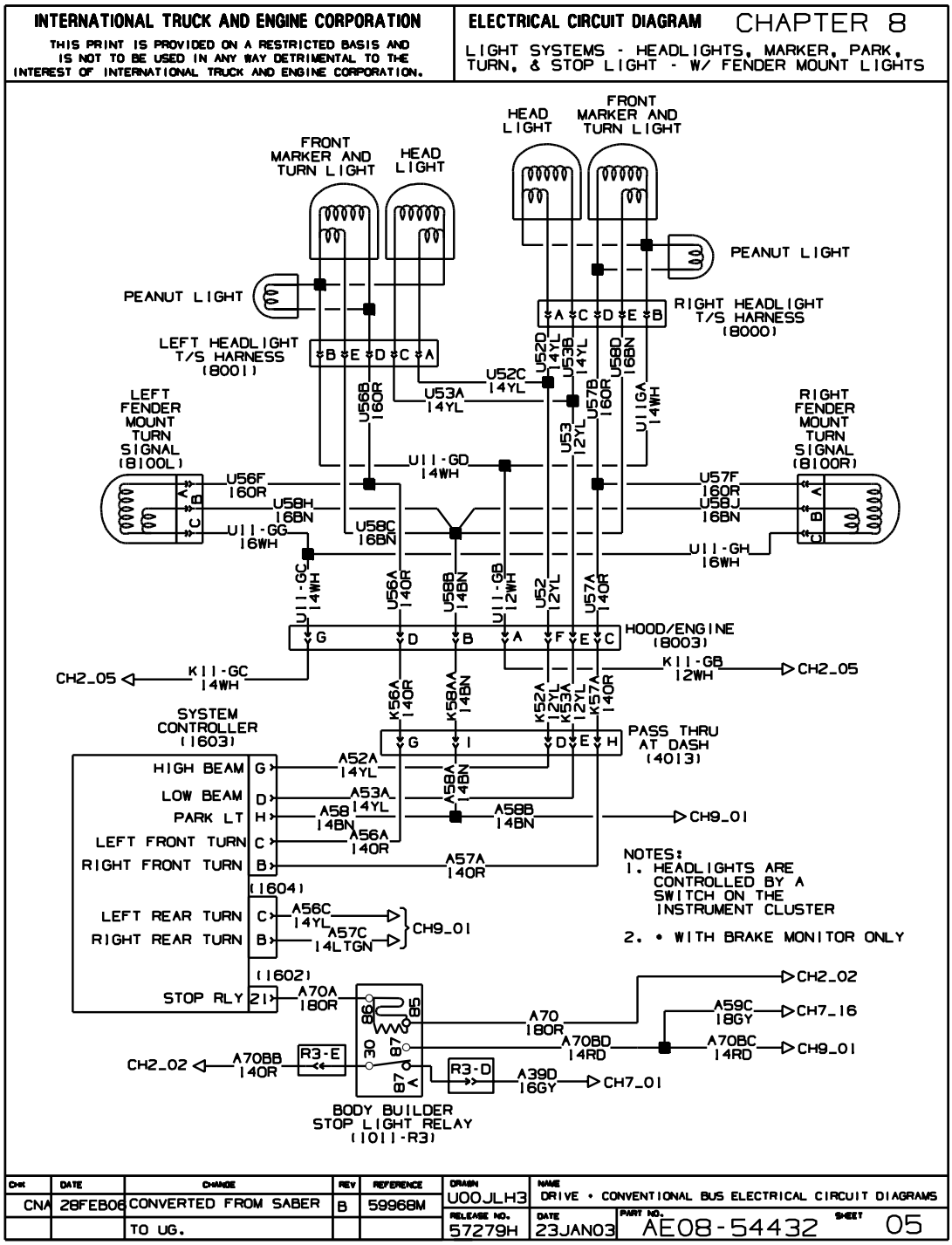


Figure 74 Headlights, Marker, Park, Turn, and Stop Relay — With Fender Mount Lights

8.6. EXPORT STOP, TURN, TAIL AND BACK-UP LIGHTS, P. 6

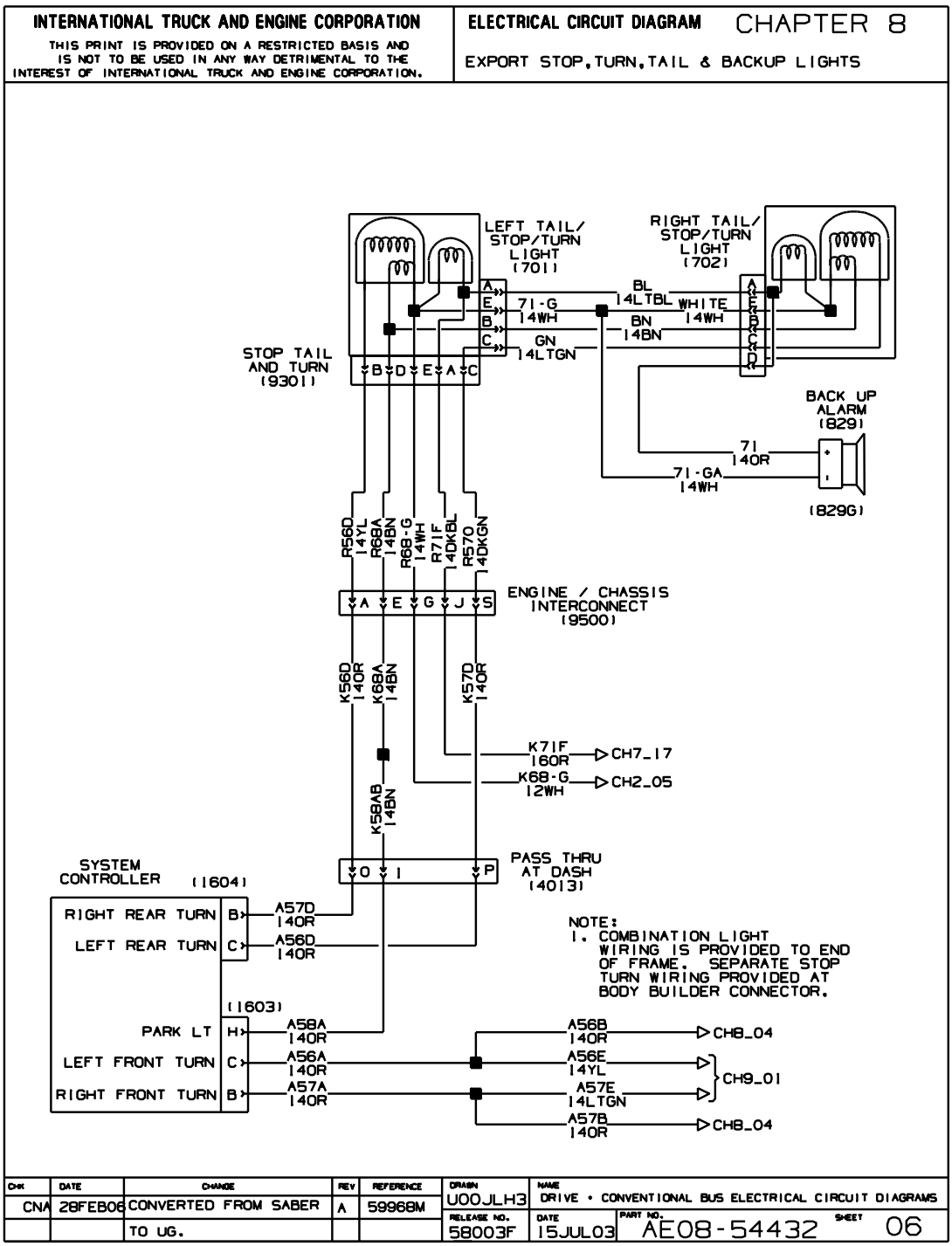


Figure 75 Export Stop, Turn, Tail, and Back-Up Lights

9. BODY BUILDER CONNECTION DATA (CHAPTER 9)

9.1. BODY BUILDER ELECTRICAL CONNECTION DATA FOR ALL MODELS, P. 1

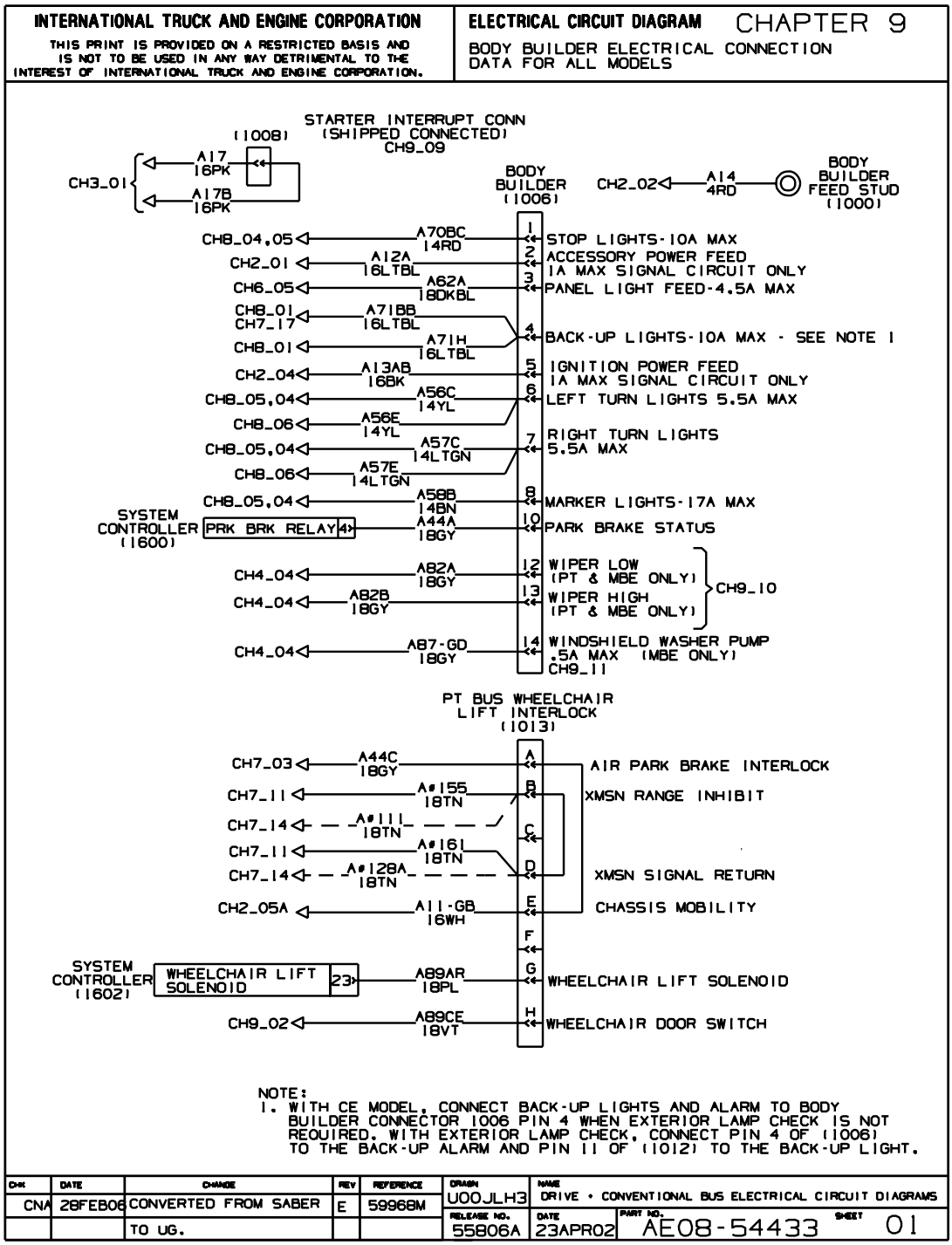


Figure 76 Body Builder Electrical Connection Data for All Models

9.2. BODY BUILDER ELECTRICAL CONNECTION DATA FOR CE MODEL, P. 2

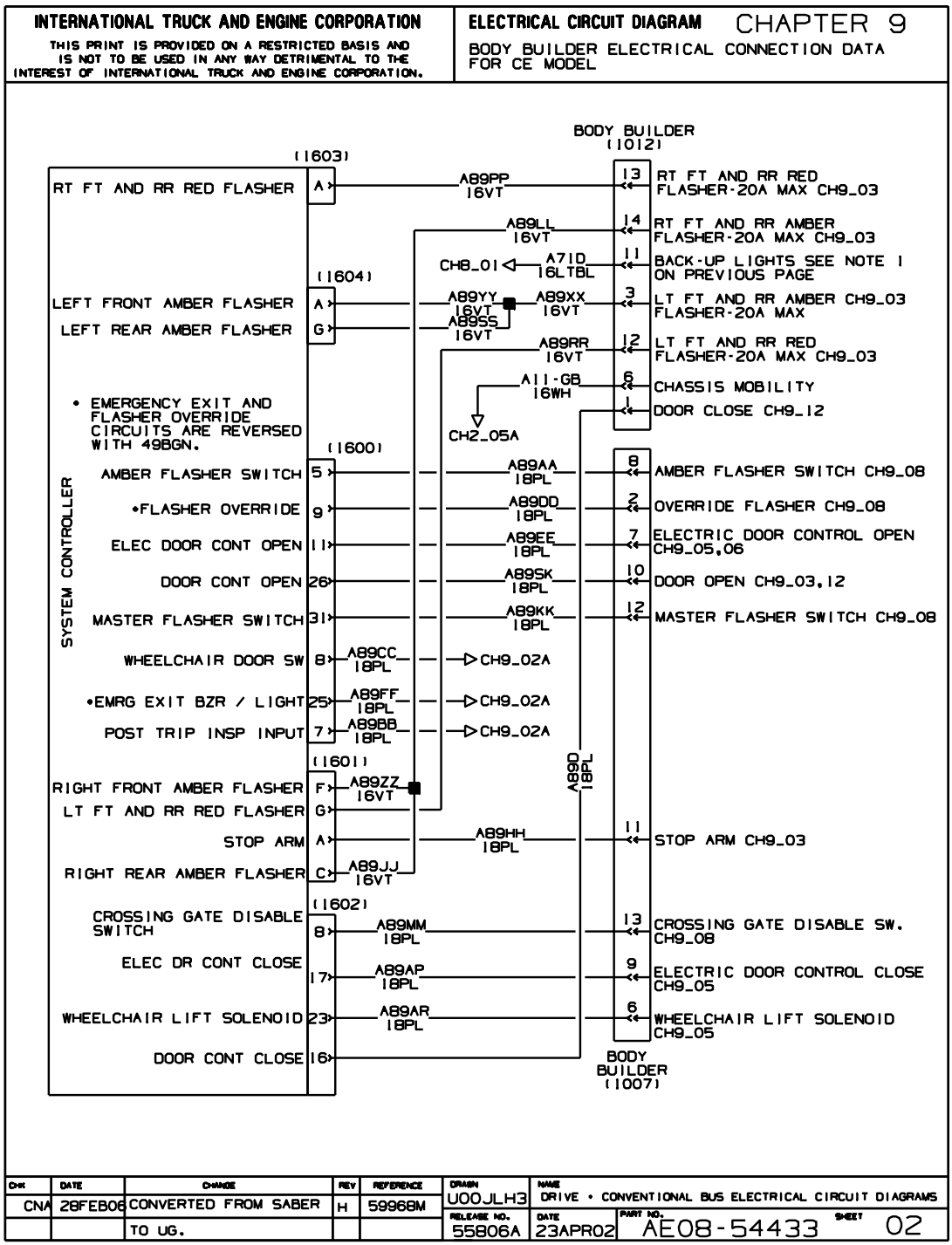


Figure 77 Body Builder Electrical Connection Data for CE Model

9.3. BODY BUILDER ELECTRICAL CONNECTION DATA FOR CE MODEL, P. 2A

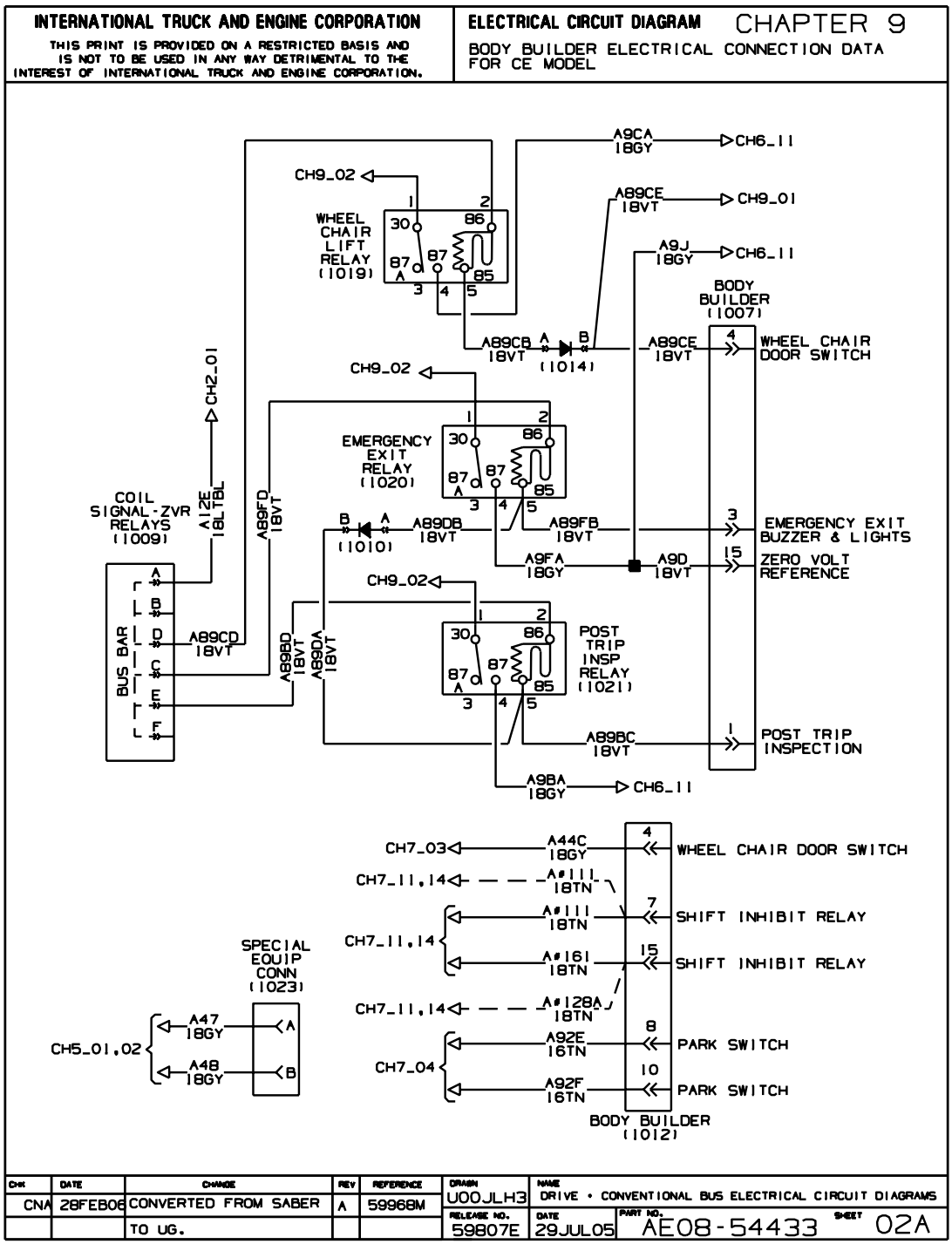


Figure 78 Body Builder Electrical Connection Data for CE Model

9.4. STOP ARM AND RED / AMBER LIGHTS, P. 3

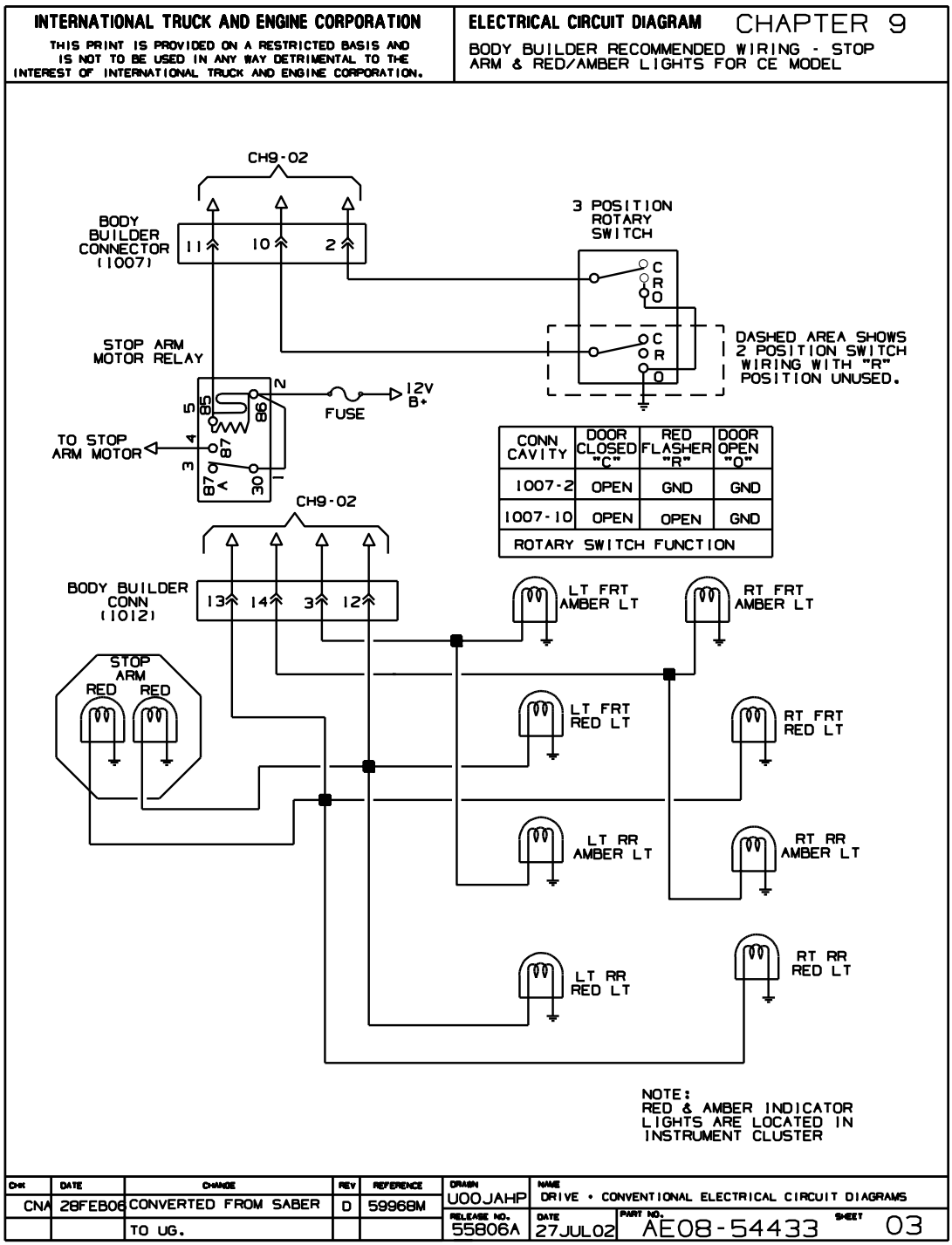


Figure 79 Stop Arm and Red / Amber Lights

9.5. EMERGENCY EXIT BUZZER AND POST TRIP INSPECTION, P. 4

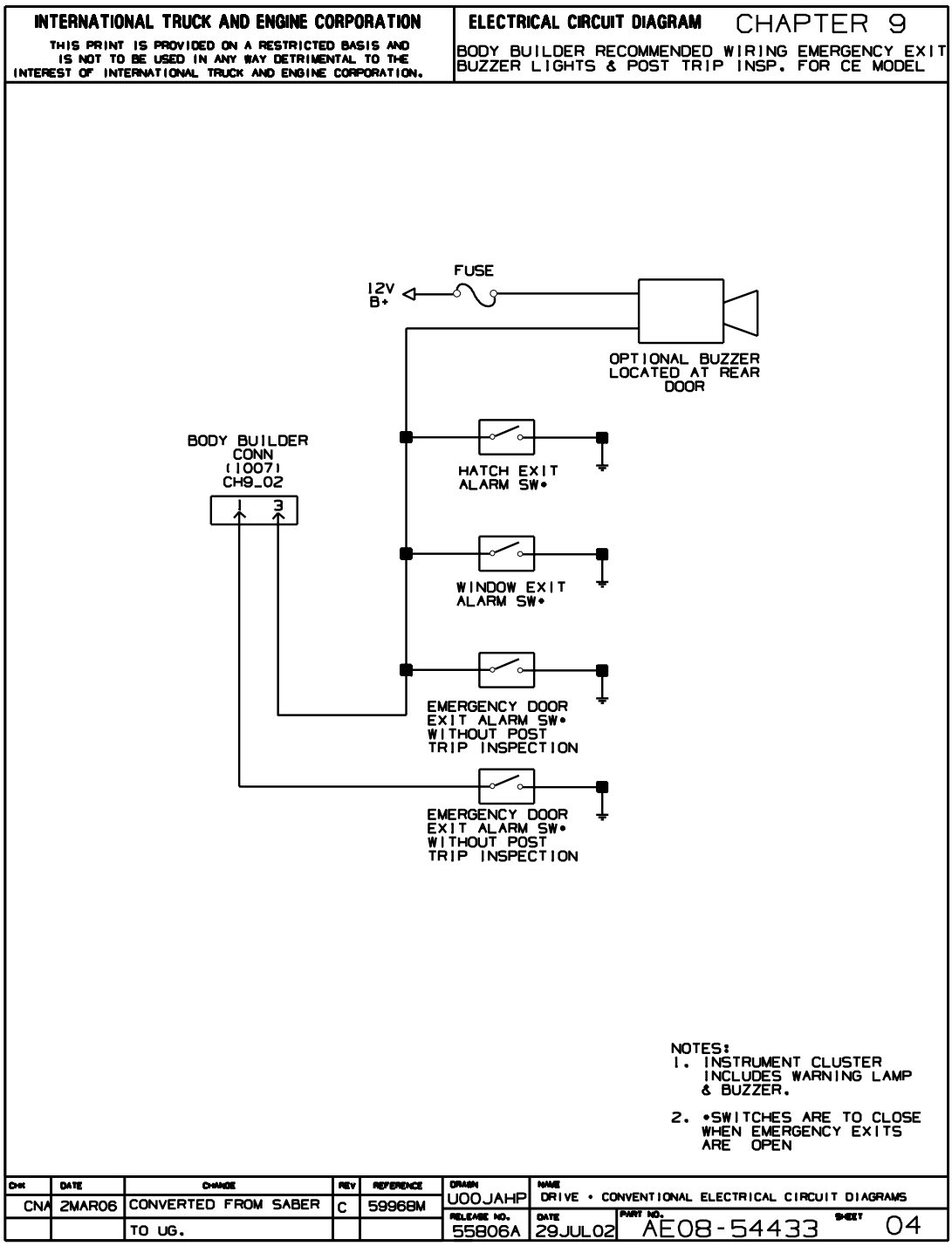


Figure 80 Emergency Exit Buzzer and Post Trip Inspection

9.6. DOOR OPEN / CLOSE WITH ELEC. CONTROL, P. 5

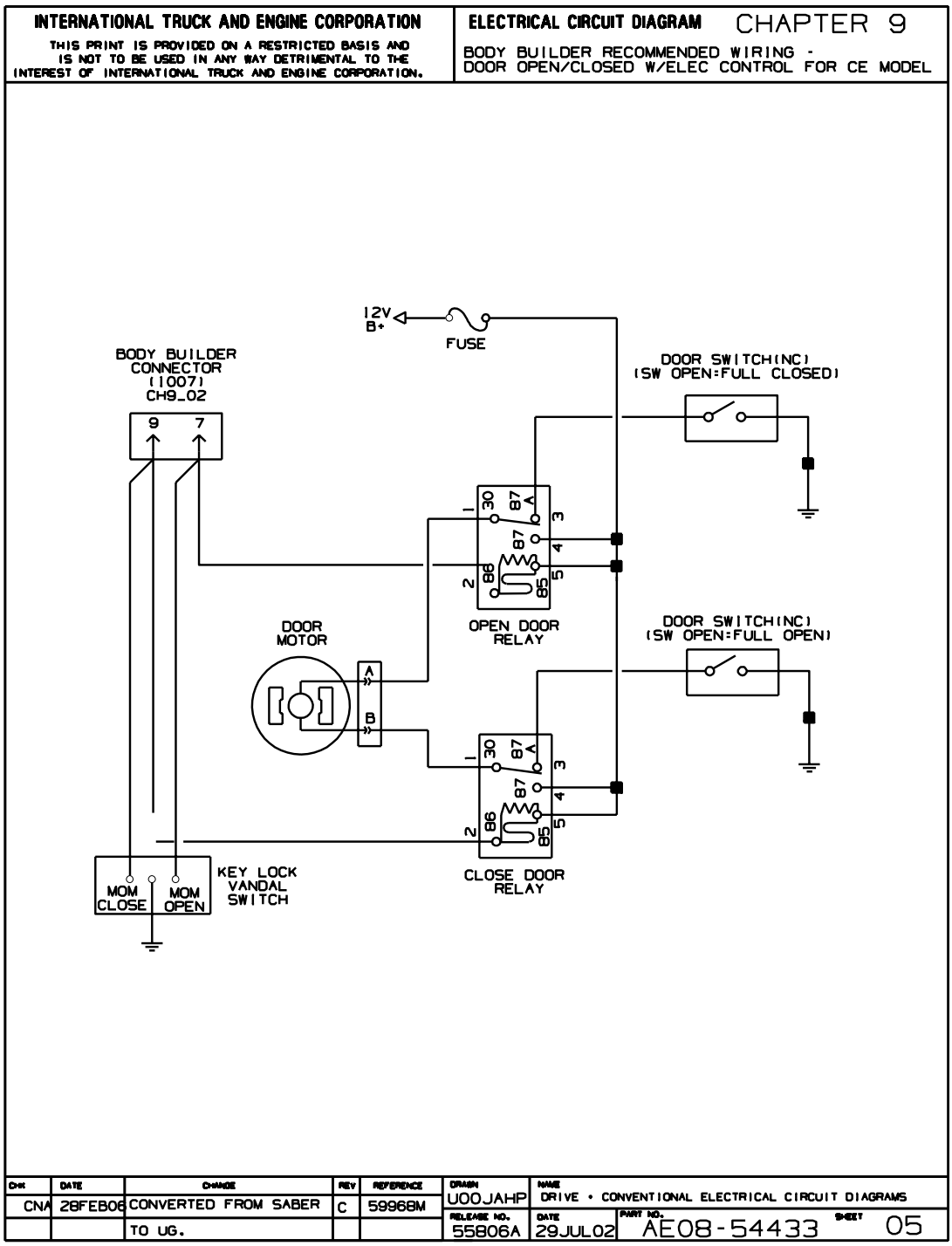


Figure 81 Door Open / Close with Elec. Control

9.7. DOOR OPEN / CLOSE WITH AIR CONTROL FOR CE MODEL, P. 6

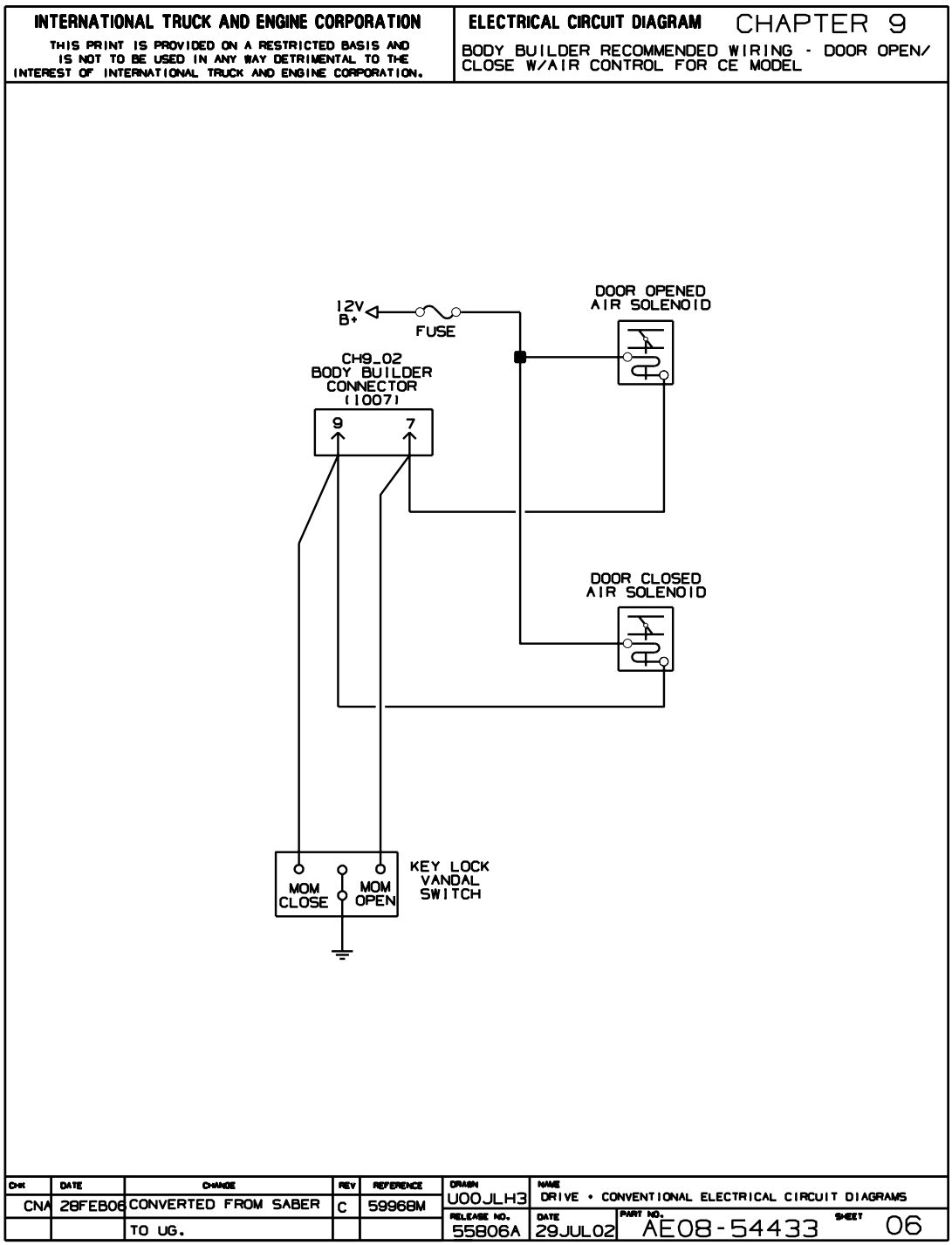


Figure 82 Door Open / Close with Air Control for CE Model

9.8. WHEELCHAIR LIFT INTERLOCK, P. 7

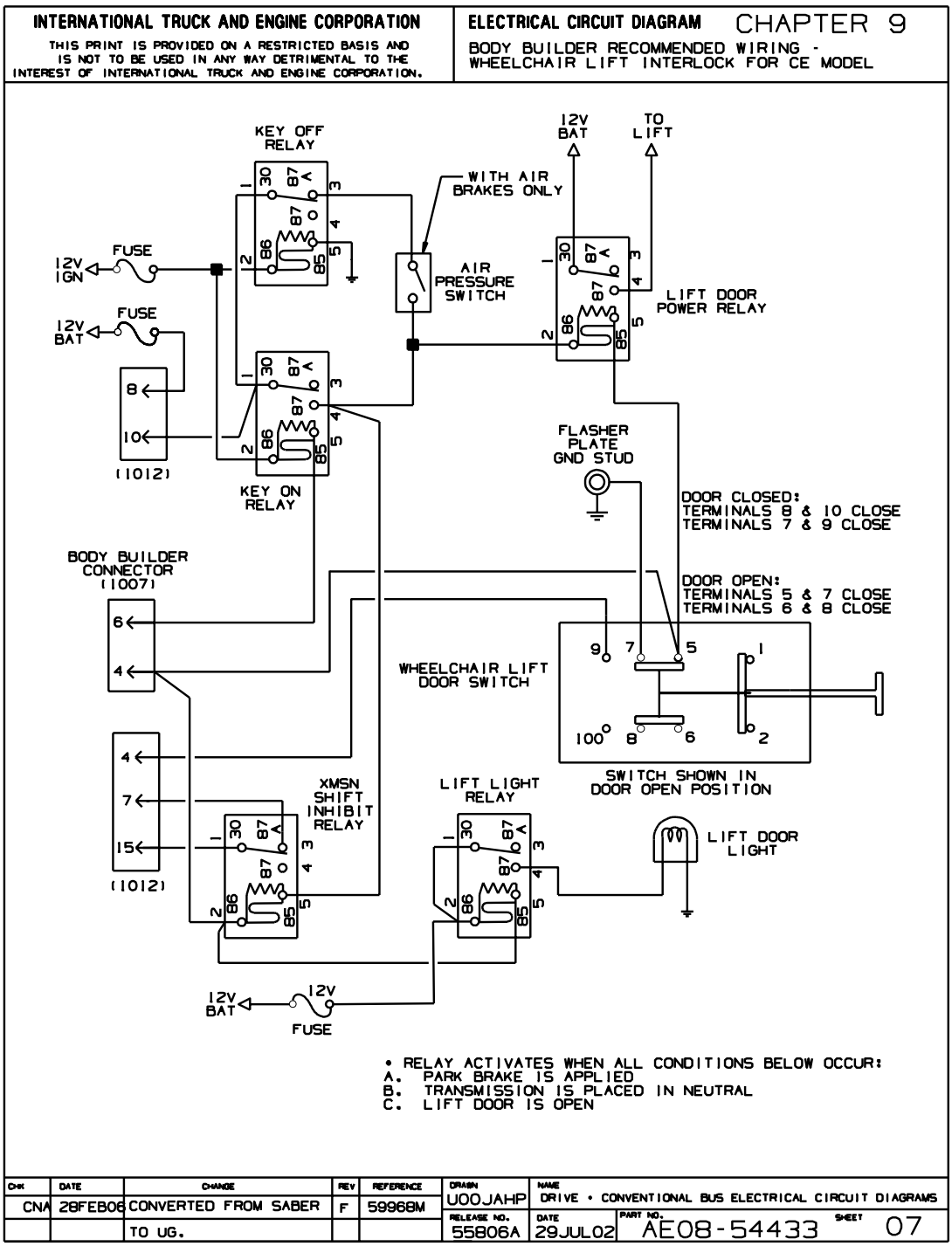


Figure 83 Wheelchair Lift Interlock

9.9. FLASHER SWITCHES FOR CE MODEL, P. 8

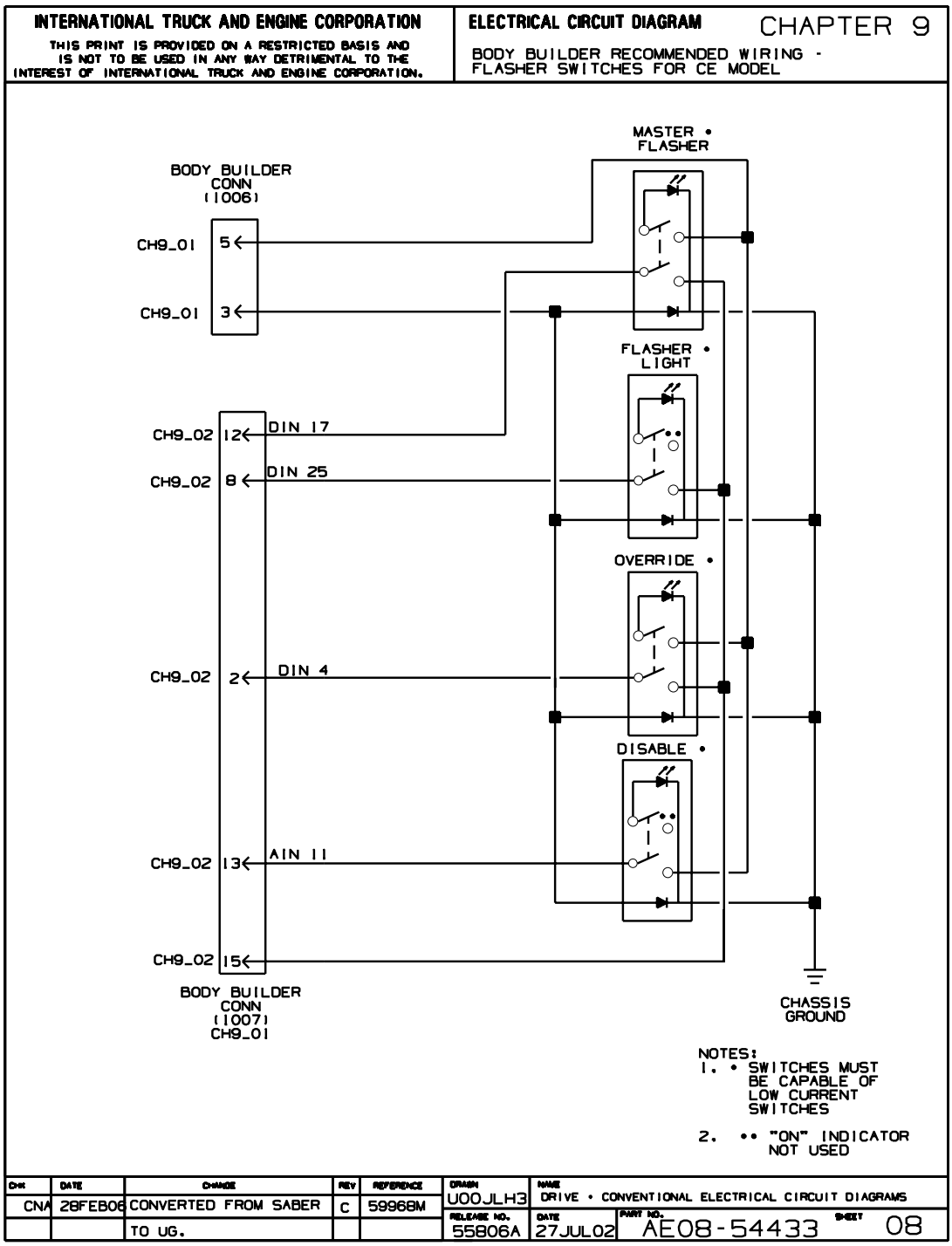


Figure 84 Flasher Switches for CE Model

9.10. PARK BRAKE STATUS, P. 9

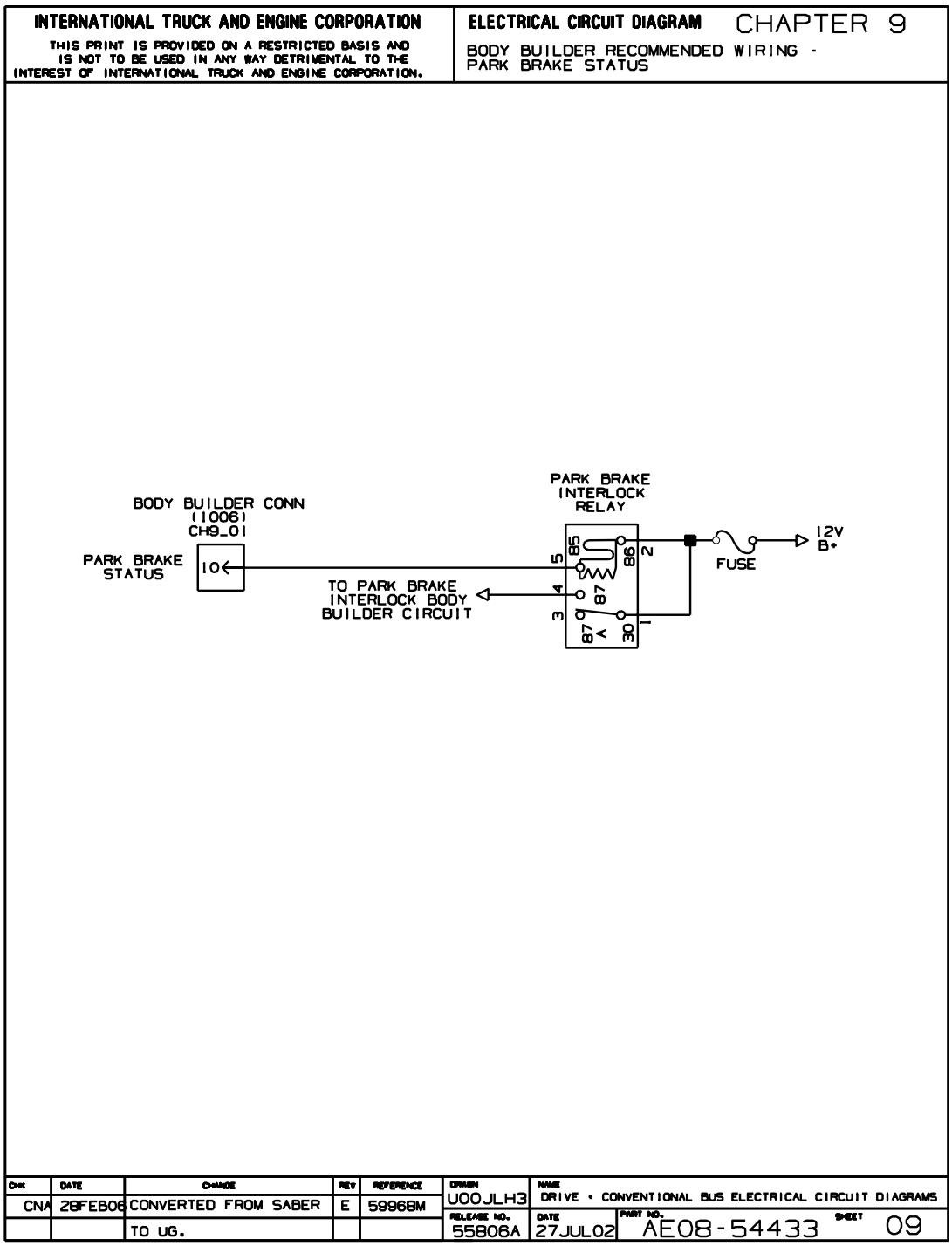


Figure 85 Park Brake Status

9.11. DUAL WIPER MOTORS FOR PT / MEXICO AND EXPORT MODELS, P. 10

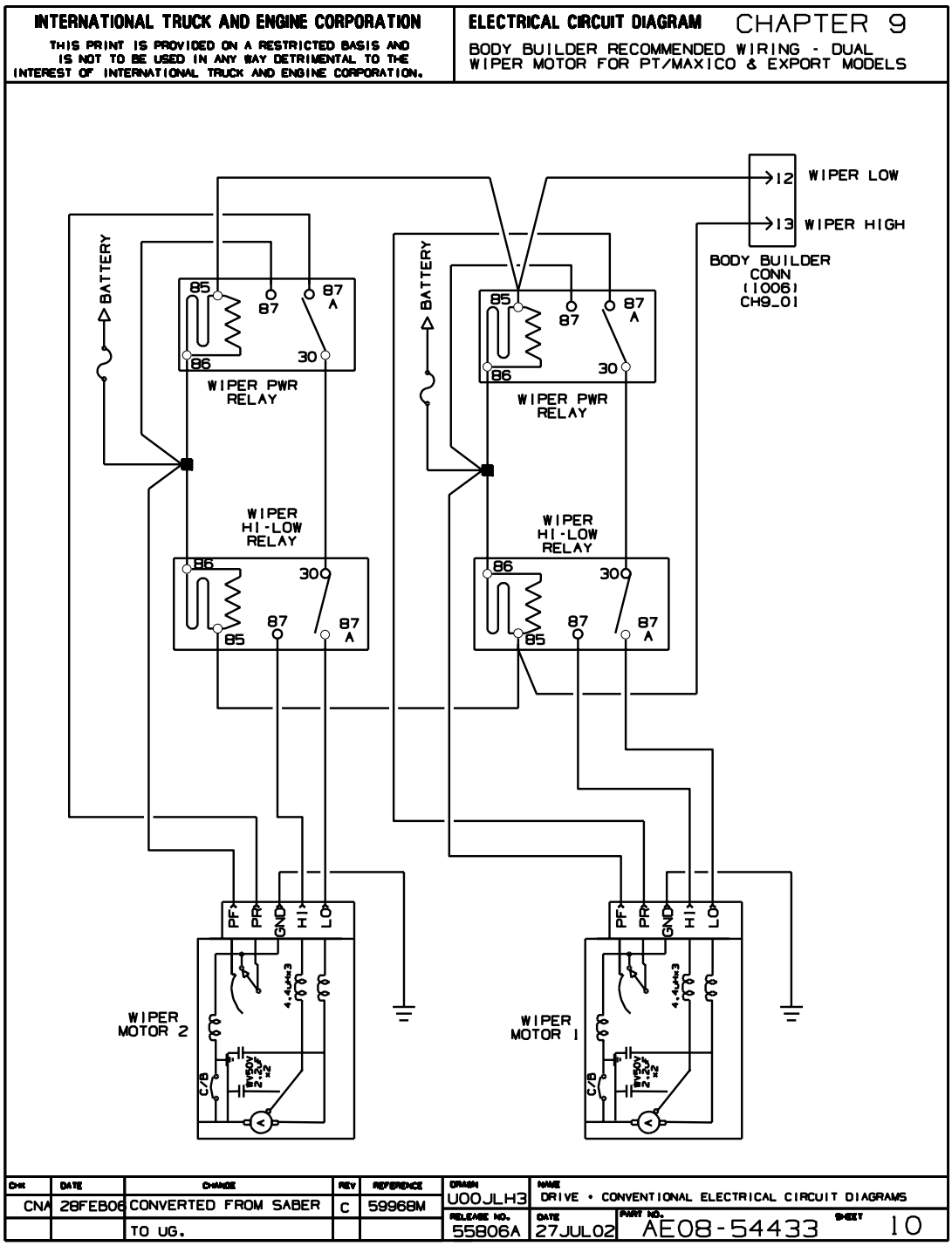


Figure 86 Dual Wiper Motors for PT / Mexico and Export Models

9.12. MEXICO AND EXPORT BUS WINDSHIELD WASHER PUMP, P. 11

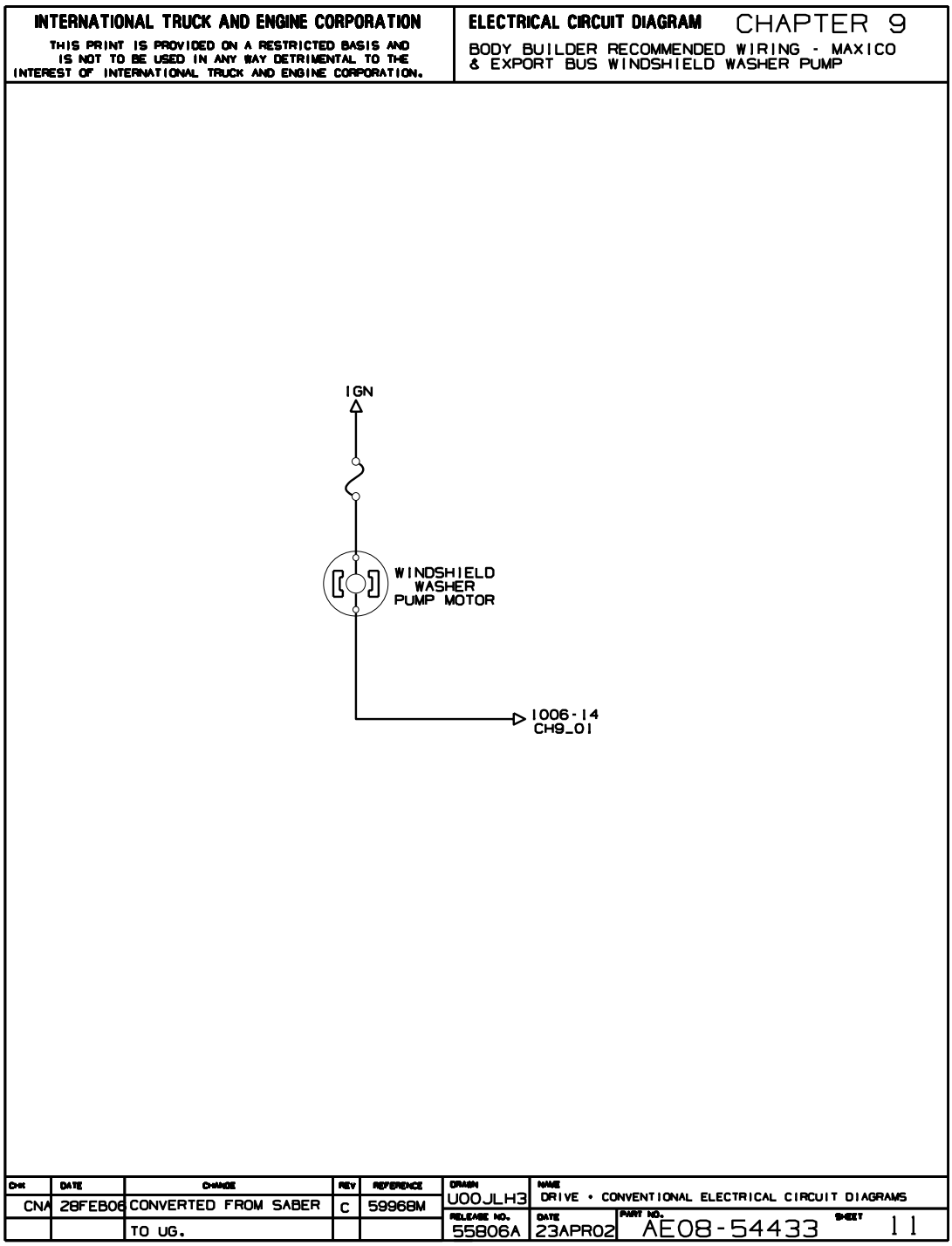


Figure 87 Mexico and Export Bus Windshield Washer Pump

9.13. CE BUS REDUNDANT DOOR CONTROLS, P. 12

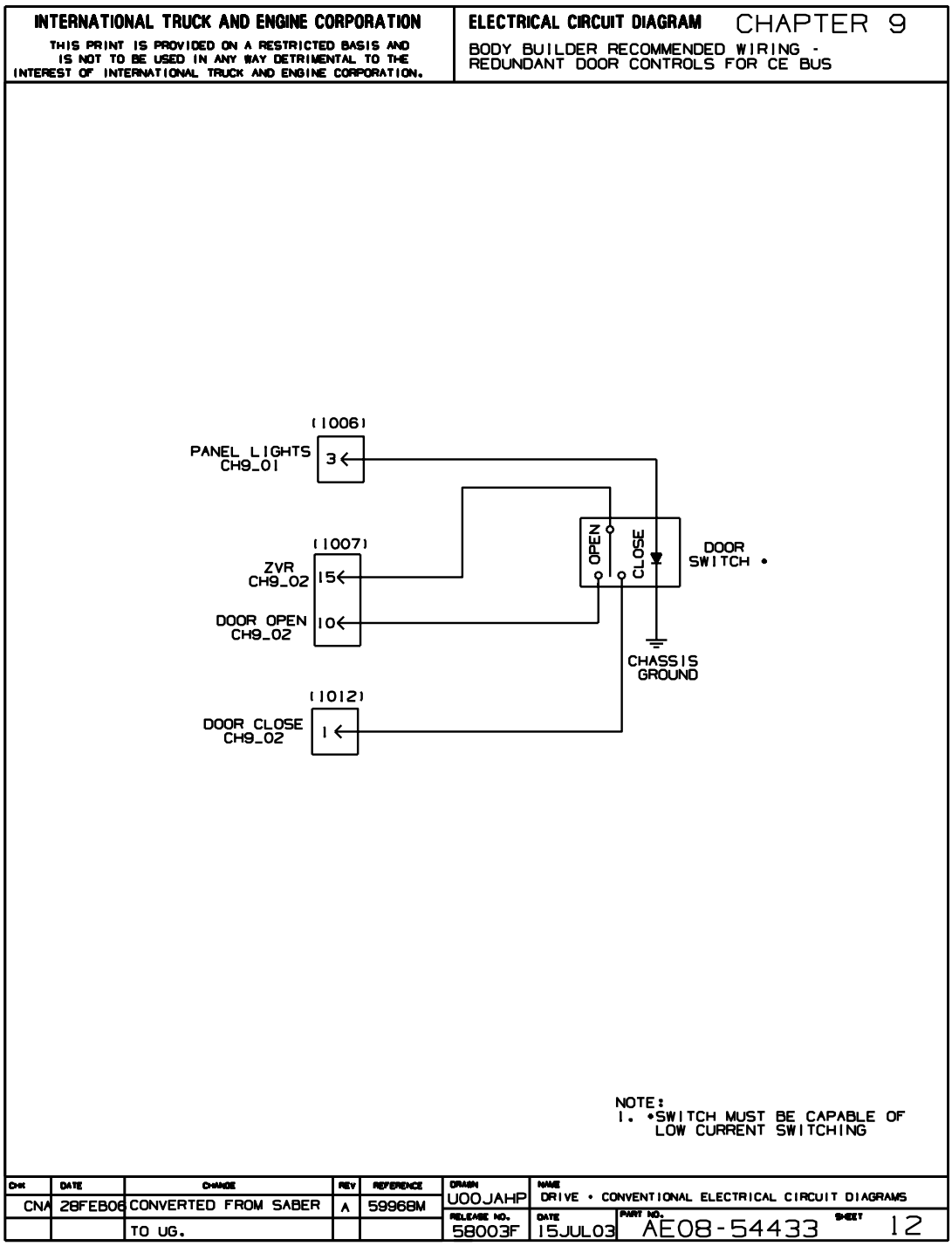


Figure 88 CE Bus Redundant Door Controls

9.14. MANUAL DOOR FOR CE BUS, P. 13

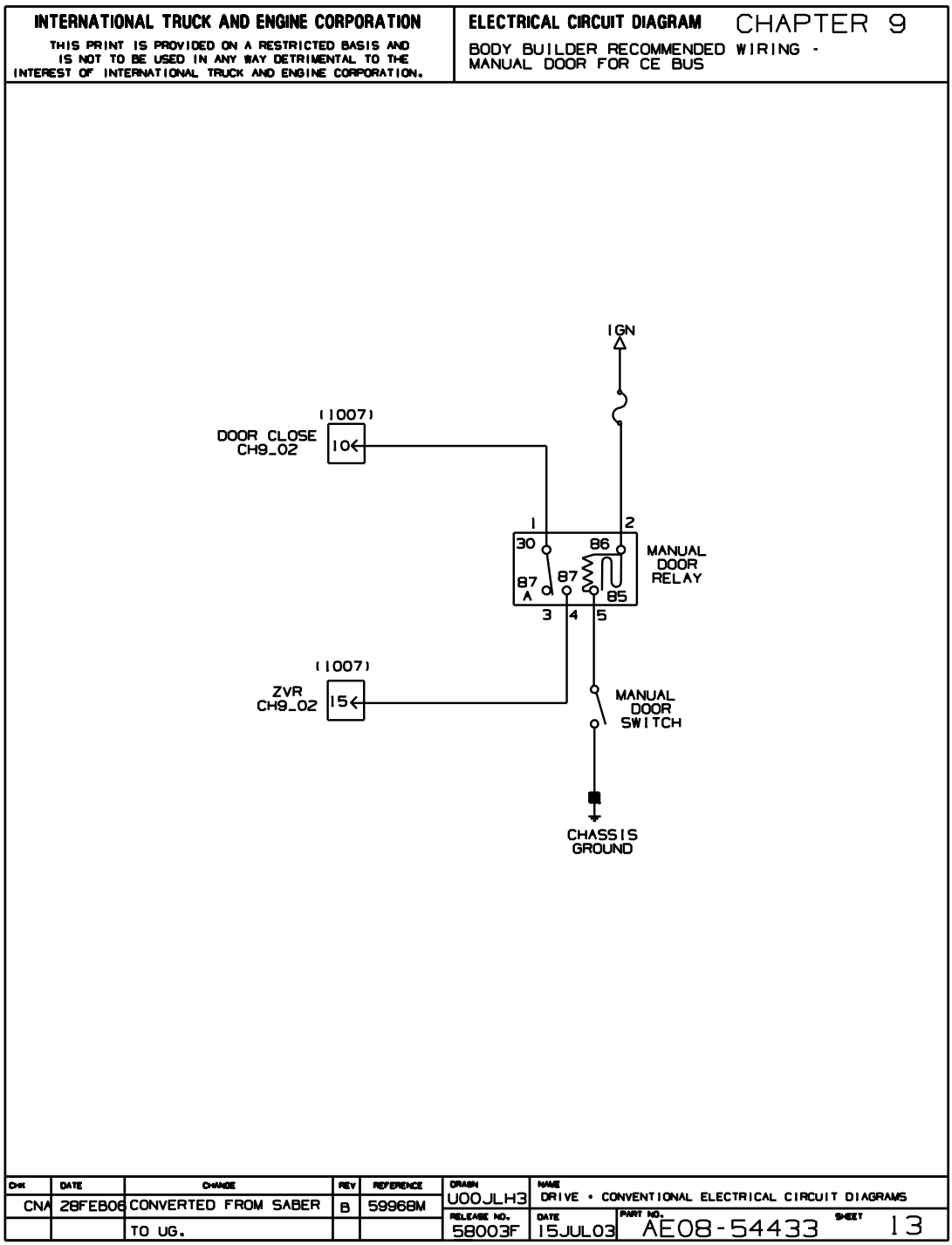


Figure 89 Manual Door for CE Bus