

SHEET	DESCRIPTION
1	SHEET INDEX
2	NOTES
3	ABBREVIATIONS & SYMBOLS
4	COMPONENT LAYOUT – SHEET 1 OF 6 (MODULAR CONTROL PANEL/VR SUBPAN)
5	COMPONENT LAYOUT – SHEET 2 OF 6 (MODULAR CONTROL PANEL)
6	COMPONENT LAYOUT – SHEET 3 OF 6 (MODULAR CONTROL PANEL)
7	COMPONENT LAYOUT – SHEET 4 OF 6 (2700 FRAME GENERATORS)
8	COMPONENT LAYOUT – SHEET 5 OF 6 (3000 FRAME GENERATORS)
9	COMPONENT LAYOUT – SHEET 6 OF 6 (B5600H4 GENERATORS)
10	AC SCHEMATIC – SHEET 1 OF 6 (LOW VOLTAGE 1200/1400/1600/1800 FRAMES)
11	AC SCHEMATIC – SHEET 2 OF 6 (4160V 1400/1600/1800 FRAMES)
12	AC SCHEMATIC – SHEET 3 OF 6 (2400V 1400/1600/1800 FRAMES)
13	AC SCHEMATIC – SHEET 4 OF 6 (2700 FRAME GENERATORS)
14	AC SCHEMATIC – SHEET 5 OF 6 (3000 FRAME GENERATORS)
15	AC SCHEMATIC – SHEET 6 OF 6 (B5600H4 GENERATORS)
16	DC SCHEMATIC – SHEET 1 OF 13 (EMCP 4.2B)
17	DC SCHEMATIC – SHEET 2 OF 13 (EMCP 4.2B)
18	DC SCHEMATIC – SHEET 3 OF 13 (EMCP 4.2B)
19	DC SCHEMATIC – SHEET 4 OF 13 (EMCP 4.3/4.4)
20	DC SCHEMATIC – SHEET 5 OF 13 (EMCP 4.3/4.4)
21	DC SCHEMATIC – SHEET 6 OF 13 (EMCP 4.3/4.4)
22	DC SCHEMATIC – SHEET 7 OF 13 (CIRCUIT BREAKERS)
23	DC SCHEMATIC – SHEET 8 OF 13 (2700 FRAME GENERATORS)
24	DC SCHEMATIC – SHEET 9 OF 13 (3000 FRAME GENERATORS)
25	DC SCHEMATIC – SHEET 10 OF 13 (B5600H4 GENERATORS)
26	DC SCHEMATIC – SHEET 11 OF 13 (3500 MUI)
27	DC SCHEMATIC – SHEET 12 OF 13 (3500 MUI)
28	DC SCHEMATIC – SHEET 13 OF 13 (3500 MUI)
29	CAT CONNECT
30	COMMUNICATIONS – CAN1, CAN2
31	AC OPTIONS – SHORE POWER SHEET 1 OF 4 (1200,1200/1400,1600,1800 FRAMES)
32	AC OPTIONS – SHORE POWER SHEET 2 OF 4 (2700 FRAME GENERATORS)
33	AC OPTIONS – SHORE POWER SHEET 3 OF 4 (3000 FRAME GENERATORS)
34	AC OPTIONS – SHORE POWER SHEET 4 OF 4 (B5600H4 GENERATORS)
35	CUSTOMER INTERCONNECTS SHEET 1 OF 10 (EMCP 4.2B, 4.3, 4.4)
36	CUSTOMER INTERCONNECTS SHEET 2 OF 10 (EMCP 4.2B, 4.3)
37	CUSTOMER INTERCONNECTS SHEET 3 OF 10 (EMCP 4.2B, 4.3, 4.4)
38	CUSTOMER INTERCONNECTS SHEET 4 OF 10 (LOW VOLTAGE TO WALL MOUNT)
39	CUSTOMER INTERCONNECTS SHEET 5 OF 10 (2700/3000 FRAME TO WALL MOUNT)
40	CUSTOMER INTERCONNECTS SHEET 6 OF 10 (B5600H4 TO WALL MOUNT)
41	CUSTOMER INTERCONNECTS SHEET 7 OF 10 (CIRCUIT BREAKERS TO WALL MOUNT)
42	CUSTOMER INTERCONNECTS SHEET 8 OF 10 (EMCP 4.3/4.4)

SHEET	DESCRIPTION
43	CUSTOMER INTERCONNECTS SHEET 10 OF 10 (HARDWIRED DBA & LSLD)
44	MGDL NETWORK – SHEET 1 OF 4
45	MGDL NETWORK – SHEET 2 OF 4
46	MGDL NETWORK – SHEET 3 OF 4
47	MGDL NETWORK – SHEET 4 OF 4
48	ENGINE INTERFACE HARNESS SHEET 1 OF 4 (ON PACKAGE CONTROLS (3500-C175))
49	ENGINE INTERFACE HARNESS SHEET 2 OF 4 (OFF PACKAGE CONTROLS (3500-C175))
50	ENGINE INTERFACE HARNESS SHEET 3 OF 4 (ON PACKAGE CONTROLS (C27/C32))
51	ENGINE INTERFACE HARNESS SHEET 4 OF 4 (OFF PACKAGE CONTROLS (C27/C32))
52	ENGINE SCHEMATIC – SHEET 1 OF 11 (3500 EUI ENGINE)
53	ENGINE SCHEMATIC – SHEET 2 OF 11 (3500 EUI ENGINE)
54	ENGINE SCHEMATIC – SHEET 3 OF 11 (3500 MUI ENGINE)
55	ENGINE SCHEMATIC – SHEET 4 OF 11 (3500 MUI ENGINE)
56	ENGINE SCHEMATIC – SHEET 5 OF 11 (C175-16/20 ENGINE)
57	ENGINE SCHEMATIC – SHEET 6 OF 11 (C175-16/20 ENGINE)
58	ENGINE SCHEMATIC – SHEET 7 OF 11 (C175-16/20 ENGINE)
59	ENGINE SCHEMATIC – SHEET 8 OF 11 (C27/C32 ENGINE)
60	ENGINE SCHEMATIC – SHEET 9 OF 11 (C27/C32 ENGINE)
61	ENGINE SCHEMATIC – SHEET 10 OF 11 (C27/C32 ENGINE)
62	ENGINE SCHEMATIC – SHEET 11 OF 11 (C27/C32 ENGINE)

GENSET	PRINT LIST
C27/C32	1-6, 10-12, 16-22, 29-31, 35-38, 41-47, 50-51, 59-62
3500 EUI	1-8, 10-14, 16-24, 29-33, 35-39, 41-49, 52-53
3500 MUI	1-8, 10-14, 22-24, 26-33, 35-39, 41, 48-49, 54-55
C175-16/20	1-8, 10-14, 16-24, 29-33, 35-39, 41-49, 56-58

1E2733	DRAWING – AUTOCAD				
1E0198W	BRAND MARKINGS				
1E0013G	CONFIDENTIALITY				
1E0012A	INTERPRETATION				
1E0011	INTPR & TOL				
SPEC. NO.	NAME				
DRN	M.L. WAGNER				
CHK	E.M. SCHROEDER				
APPD	J.D. ELDER				
CONCEPT	EXP	PRE PROD.	PROD.		
		<input checked="" type="checkbox"/>			
RECORDS					
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC</small>					
SCALE: NONE		00	20OCT16		
		SHEET 1 OF 62	CHG	DATE	
CATERPILLAR INC.					
<small>THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.</small>					
DIAGRAM – SCHEMATIC MODULAR CONTROLS					
521-9364	VER	CONTROL			
	-	DES	<input checked="" type="checkbox"/>	W989	D
		SUB			

SHEET INDEX
CATERPILLAR: CONFIDENTIAL GREEN

SHEET 16,17,19,22,26,27,35,41 NOTE A: SEE LEBE0049 TO PROGRAM EMCP 4.2B INPUTS AND OUTPUTS
 SHEET 16,19,26,35,38,39,40 NOTE B: REMOVE JUMPER BAR BETWEEN ESTOP-A AND ESTOP-B TERMINAL BOARD POINTS AFTER INSTALLATION OF C27/C32 ENCLOSURE EMERGENCY STOP AND MOVE THE JUMPER WIRE FROM BTRY NEG AND ESTOP-A TO BTRY NEG AND ESTOP-B.
 REMOVE THE JUMPER WIRE FROM BTRY NEG AND ESTOP-A WITH THE INSTALLATION OF THE CUSTOMER SUPPLIED ESTOP ACROSS TERMINALS BTRY NEG AND ESTOP-B.
 SHEET 35,36 NOTE C: CUSTOMER LOADING FROM TERMINAL STRIP SHOULD BE LIMITED TO 5A RESISTIVE ONLY AND
 SHEET 17,28,35,38,39 FOR EXCESS DEMAND USE BATTERY CONNECTION.
 40,44,45,46,47 NOTE D: SEE LEBE0010 FOR EMCP 4 SCADA DATA LINKS
 SHEET 17,28,35,38,39,40 NOTE E: SEE SHEET "CUSTOMER INTERCONNECTS SHEET 3 OF 10" FOR CONNECTION TO REMOTE DEVICES
 SHEET 18 NOTE F: SEE LEBE0049 TO PROGRAM DISCRETE I/O MODULE INPUTS AND OUTPUTS
 SHEET 31 NOTE G: WHEN THE ENGINE IS RUNNING, THE EMCP ENERGIZES THE SPDR RELAYS TO DISABLE AC SHORE POWER
 SHEET 21,31,32,33,36,38,39,40 NOTE H: AMPACITY OF SHORE POWER CUSTOMER WIRING SHOULD BE DETERMINED BY OPTIONS INSTALLED.
 SHEET 21,37 NOTE J: USE THE EXISTING RESISTOR ON THE DC TERMINAL BLOCK
 SHEET 21,43 NOTE K: DIODE 1 IS USED FOR BEST BATTERY CIRCUIT. SEE LEBE0007 (EMCP 4.3, 4.4 GENERATOR SET CONTROL A&I GUIDE) AND MANUAL UENR1210 (SYSTEMS OPERATION TROUBLESHOOTING TESTING AND ADJUSTING - SOTTA) FOR CONNECTIONS DETAILS.
 SHEET 22,41 NOTE L: REFERENCE 417-2951 FOR CIRCUIT BREAKER INSTALLATION DRAWINGS
 SHEET 17,22,27,35,41 NOTE M: DIGITAL INPUT 3 IS ONLY AVAILABLE ON PACKAGES WITHOUT A CIRCUIT BREAKER. DIGITAL INPUT 5,6 ARE USED BY THE FACTORY FOR THE C175 GENSET
 SHEET 17,27,35 NOTE N: ANALOG INPUT (-)'S MUST BE REFERENCED TO BATTERY (-) (EMCP 4.2B)
 SHEET 36 NOTE P: CIRCUIT BREAKER TERMINAL LABELS ARE LOCATION BASED, LF=LEFT, RT=RIGHT, RR=REAR
 SHEET 35,38,39,40 NOTE R: RECOMMENDED WIRING FOR ACTIVE SENSORS
 SHEET 35,38,39,40 NOTE S: RECOMMENDED WIRING FOR RESISTIVE SENSORS
 SHEET 21,44,45,46,47 NOTE U: THE EMCP 4.4 MULTIPLE GENSET DATA LINK (MGDL) FEATURE IS AN ETHERNET DATA LINK USED BETWEEN ENGINE/GENERATOR SETS FOR ON-PACKAGE PARALLELING AND CONTROL. THE EMCP 4.4 MGDL FEATURE DOES NOT EMPLOY A MASTER CONTROLLER STRATEGY FOR PARALLELING OPERATION. THE EMCP 4.4 CONTROLLER USES A PROPRIETARY PROTOCOL TO COMMUNICATE INFORMATION BETWEEN GENERATOR SETS TO CONTROL PARALLELING FEATURES LIKE DEAD BUS ARBITRATION, SYNCHRONIZING, LOAD SHARING AND LOAD SEQUENCING. THE EMCP 4.4 IS NOT DESIGNED OR INTENDED TO CONNECT TO THIRD-PARTY PRODUCTS OVER THIS DATA LINK. SEE LEBE0031 (EMCP 4.4 MULTIPLE GENSET DATA LINK) FOR DETAILED CONFIGURATION AND OPERATION GUIDE.
 SHEET 21,44,45,46,47 NOTE V: LEBE0032 (EMCP 4.4 MULTIPLE GENSET DATA LINK QUICK START GUIDE) PROVIDES INFORMATION NECESSARY TO SET UP THE MULTIPLE GENSET DATA LINK (MGDL) FEATURE FOR OPERATION ON CAT GENERATOR SETS. THIS QUICK START GUIDE IS NOT A DETAILED CONFIGURATION AND OPERATION GUIDE. FOR STEPS TO PROPERLY SETUP MGDL HARDWARE, SETPOINT CONFIGURATION, AND ALL MGDL PARALLELING FEATURE OPERATION REVIEW THE EMCP MULTIPLE GENSET DATA LINK CONFIGURATION & OPERATION GUIDE
 SHEET 44,45,46,47 NOTE W: ETHERNET NETWORK TOPOLOGY SHOWN USING 6-PORT ETHERNET SWITCH. ETHERNET SWITCH AND CABLES SUPPLIED BY OTHERS.
 SHEET 43 NOTE X: ONE, AND ONLY ONE, UNIT MUST BE DESIGNATED AS THE LEAD UNIT. THIS IS ACCOMPLISHED BY CONNECTING THE BEST BATTERY POSITIVE LINE OF A UNIT TO THE HWDBA 3 INPUT OF THAT SAME UNIT. IF BREAKER CONTROLS ON A GENSET ARE WIRED TO THE EMCP 4.4 INPUTS, THE BREAKER WILL NOT CLOSE IF THE CLOSE CONTROL IS ACTIVATED UNLESS HWDBA IS ENABLED AND THE LEAD UNIT CONNECTION IS INSTALLED.

ALL CUSTOMER WIRE SIZES ARE 16 AWG/1.0sq mm MINIMUM, 600V STRANDED WIRE, UNLESS OTHERWISE SPECIFIED.
 THIS SCHEMATIC REPRESENTS DIAGRAM-WIRING 491-3960/00 (MODULAR CONTROLS)
 THIS SCHEMATIC REPRESENTS DIAGRAM-WIRING 237-9000/00 (3500 EUI)
 THIS SCHEMATIC REPRESENTS DIAGRAM-WIRING 415-1146/04 (3500 MUI)
 THIS SCHEMATIC REPRESENTS DIAGRAM-WIRING 420-8316/02 (C175-16)
 THIS SCHEMATIC REPRESENTS DIAGRAM-WIRING 420-8317/00 (C175-20)
 THIS SCHEMATIC REPRESENTS DIAGRAM-WIRING 260-9515/06 (C27/C32)

EMCP 4.3/4.4 I/O DEFAULT CONFIGURATION

DESCRIPTION	RELAY	3500-EUI	C175-16/C175-20	C27 & C32
ESTOP (DEDICATED DI-1)		E-STOP (DEDICATED)	E-STOP (DEDICATED)	E-STOP (DEDICATED)
START (DEDICATED DI-2)		REMOTE INITIATE (DEDICATED)	REMOTE INITIATE (DEDICATED)	REMOTE INITIATE (DEDICATED)
PROG DI-01		SPARE	SPARE	SPARE
PROG DI-02		SPARE	SPARE	SPARE
PROG DI-03		SSG CLOSED (OPTIONAL)	SSG CLOSED (OPTIONAL)	SSG CLOSED (OPTIONAL)
PROG DI-04		SSG OPEN (OPTIONAL)	SSG OPEN (OPTIONAL)	SSG OPEN (OPTIONAL)
PROG DI-05		SPARE	JACKET WATER COOLANT LEVEL ALARM	SPARE
PROG DI-06		SPARE	SCAC COOLANT LEVEL ALARM	SPARE
PROG DI-07		SPARE	SPARE	SPARE
PROG DI-08		SPARE	SPARE	SPARE
ISOLATED DI-01		SPARE	SPARE	SPARE
ISOLATED DI-02		SPARE	SPARE	SPARE
ISOLATED DI-03		SPARE	SPARE	SPARE
ISOLATED DI-04		SPARE	SPARE	SPARE
ANALOG INPUT-1		SPARE	SPARE	SPARE
ANALOG INPUT-2		SPARE	SPARE	SPARE
ANALOG INPUT-3		SPARE	SPARE	SPARE
ANALOG INPUT-4		SPARE	SPARE	SPARE
DD-1	R1	SPARE	SPARE	SPARE
DD-2	R2	SPARE	SPARE	SPARE
DD-3	R3	SPARE	SPARE	SPARE
DD-4		SPARE	SPARE	SPARE
DD-5		SPARE	SPARE	SPARE
DD-6		COMMON SHUTDOWN	COMMON SHUTDOWN	COMMON SHUTDOWN
DD-7		SPARE	SPARE	SPARE
DD-8		SPARE	SPARE	SPARE
DD-9		SPARE	SPARE	SPARE
DD-10		SPARE	SPARE	SPARE
DD-11		SPARE	SPARE	SPARE
DD-12	R12	SPARE	SPARE	SPARE
DD-13	R13	SPARE	SPARE	SPARE
DD-14	R14	PRELUBE	PRELUBE	SPARE
DD-15	R15	DISABLE AUX AC SUPPLY	DISABLE AUX AC SUPPLY	DISABLE AUX AC SUPPLY
DD-16	R16	STARTER MOTOR MAG RELAY	SPARE	SPARE
DD-17		SPARE	SPARE	SPARE
DDI 1		GROUP START	GROUP START	GROUP START
DDI 2		CIRCUIT BREAKER OVERCURRENT ALARM	CIRCUIT BREAKER OVERCURRENT ALARM	CIRCUIT BREAKER OVERCURRENT ALARM
DDI 3		MANUAL CIRCUIT BREAKER OPEN	MANUAL CIRCUIT BREAKER OPEN	MANUAL CIRCUIT BREAKER OPEN
DDI 4		MANUAL CIRCUIT BREAKER CLOSE	MANUAL CIRCUIT BREAKER CLOSE	MANUAL CIRCUIT BREAKER CLOSE
DDO 1	R20	DEAD BUS ARBITRATION RELAY	DEAD BUS ARBITRATION RELAY	DEAD BUS ARBITRATION RELAY
DDO 2	R17	CIRCUIT BREAKER CLOSE	CIRCUIT BREAKER CLOSE	SPARE
DDO 3	R19	CIRCUIT BREAKER OPEN	CIRCUIT BREAKER OPEN	SPARE

EMCP 4.2B I/O DEFAULT CONFIGURATION

DESCRIPTION	RELAY	3500-EUI	3500-MUI	C175-16/C175-20	C27 & C32
RELAY 01	(R01)	SMS	SPARE	SPARE	SPARE
RELAY 02	(R02)	SPARE	SPARE	SPARE	SPARE
RELAY 03	(R03)	SPARE	SPARE	SPARE	SPARE
RELAY 04	(R04)	SPARE	FUEL ENABLE	SPARE	SPARE
RELAY 05	(R05)	PRELUBE	IDLE/RATED SPEED	SPARE	SPARE
RELAY 06	(R06)	COMMON SHUTDOWN	COMMON SHUTDOWN	COMMON SHUTDOWN	COMMON SHUTDOWN
RELAY 07	(R07)	LOW IDLE SPEED	SPARE	LOW IDLE SPEED	SPARE
RELAY 08	(R08)	SPARE	SPARE	SPARE	SPARE
DIGITAL OUTPUT #1	(O01)	DISABLE AUX AC	DISABLE AUX AC	DISABLE AUX AC	DISABLE AUX AC
DIGITAL OUTPUT #2	(O02)	CONTROL SIGNAL TO IVR (DEDICATED)	CONTROL SIGNAL TO IVR (DEDICATED)	CONTROL SIGNAL TO IVR (DEDICATED)	CONTROL SIGNAL TO IVR (DEDICATED)
DIGITAL INPUT E-STOP	(E-STOP)	E-STOP (DEDICATED)	E-STOP (DEDICATED)	E-STOP (DEDICATED)	E-STOP (DEDICATED)
DIGITAL INPUT START	(START)	REMOTE INITIATE (DEDICATED)	REMOTE INITIATE (DEDICATED)	REMOTE INITIATE (DEDICATED)	REMOTE START (DEDICATED)
DIGITAL INPUT #1	(DI1)	SPARE	SPARE	SPARE	SPARE
DIGITAL INPUT #2	(DI2)	SPARE	SPARE	SPARE	SPARE
DIGITAL INPUT #3	(DI3)	SSG CLOSED (OPTIONAL)	SSG CLOSED (OPTIONAL)	SSG CLOSED (OPTIONAL)	SSG CLOSED (OPTIONAL)
DIGITAL INPUT #4	(DI4)	SPARE	SPARE	SPARE	SPARE
DIGITAL INPUT #5	(DI5)	SPARE	ENGINE COOLANT LEVEL ALARM	JACKET WATER COOLANT LEVEL ALARM	SPARE
DIGITAL INPUT #6	(DI6)	SPARE	SPARE	SCAC COOLANT LEVEL ALARM	SPARE
ANALOG INPUT #1	(AI1)	SPARE	ENGINE OIL PRESSURE	SPARE	SPARE
ANALOG INPUT #2	(AI2)	SPARE	ENGINE COOLANT TEMPERATURE	SPARE	SPARE
ANALOG INPUT #3	(AI3)	SPARE	ENGINE OIL TEMPERATURE	SPARE	SPARE

NOTES CATERPILLAR: CONFIDENTIAL GREEN

MATERIAL			
HT			
TR			
1E2733	DRAWING - AUTOCAD		
1E0198W	BRAND MARKINGS		
1E0013G	CONFIDENTIALITY		
1E0012A	INTERPRETATION		
1E0011	INTPR & TOL		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CONCEPT	EXP	PRE PROD	PROD
RECORDS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE:	NONE		
			00 200CT16
SHEET 2 OF 62	THIRD ANGLE PROJECTION	CHG	DATE
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364			
VER	DES	CONTROL	
	SUB		W989 D

ABBREVIATIONS

52G	GENERATOR CIRCUIT BREAKER	LVL	LEVEL
AC	ALTERNATING CURRENT	MAG	MAGNETIC
ADEM	ADVANCED DIESEL ENGINE MANAGEMENT	MBUS	MODBUS
AFDPS	AIR FILTER DIFFERENTIAL PRESSURE SWITCH	MGDL	MULTIPLE GENSET DATA LINK
ALM	ALARM	MPU	MAGNETIC PICKUP
ALT	ALTERNATOR	MUI	MECHANICAL UNIT INJECTOR
AI	ANALOG INPUT	MV	MEDIUM VOLTAGE
ARB	ARBITRATION	N	NEUTRAL
ASOS	AIR SHUTOFF SOLENOID	NC	NORMALLY CLOSED
ASOR	AIR SHUTOFF RELAY	NEG	NEGATIVE
ASOSR	AIR SHUTOFF SOLENOID RELAY	N/C	NO CONNECTION
ASS	AIR START SOLENOID	NFPA	NATIONAL FIRE PROTECTION AGENCY
AUX	AUXILIARY	NO	NORMALLY OPEN
BAT	BATTERY	OPT	OPTIONAL
BATT-	BATTERY NEGATIVE	P	PUMP
BATT+	BATTERY POSITIVE	PB	PUSH BUTTON
BB	BEST BATTERY	PIO	PARALLELING INPUT OUTPUT
BKR	BREAKER	PM	PRELUBE MOTOR
BTRY	BATTERY	PMG	PERMANENT MAGNET GENERATOR
C	COMMON	POS	POSITIVE
CAM	CAMSHAFT	POT	POTENTIOMETER
CAN	CONTROLLER AREA NETWORK	PPRM	PRELUBE PRESSURE RELAY MAINTAINED
CB	CIRCUIT BREAKER	PPRS	PRELUBE PRESSURE RELAY START
CBPCB	CIRCUIT BREAKER CLOSE PUSH BUTTON	PPS	PRELUBE PRESSURE SWITCH
CBOPB	CIRCUIT BREAKER OPEN PUSH BUTTON	PR	PRELUBE RELAY
CDL	CAT DATA LINK	PROG	PROGRAMMABLE
CHG	CHARGER	PS	POWER SUPPLY
CR	CONTROL RELAY	PT	POTENTIAL TRANSFORMER
CS	CONTROL SIGNAL	PWM	PULSE WIDTH MODULATION
CT	CURRENT TRANSFORMER	PWR	POWER
CW	CLOCKWISE	R	RELAY
D	DIODE	REF	REFERENCE
DC	DIRECT CURRENT	RES	RESISTOR
DDO	DEDICATED DIGITAL OUTPUT	RH	RIGHT HAND
DI	DIGITAL INPUT	RHASOGB	RIGHT HAND AIR SHUTOFF CIRCUIT BREAKER
DIAG	DIAGNOSTICS	RLY	RELAY
DIDI	DEDICATED ISOLATED DIGITAL INPUT	RO	RELAY OUTPUT
DIFF	DIFFERENTIAL	RTD	RESISTANCE TEMPERATURE DETECTOR
DIO	DIGITAL INPUT/OUTPUT	RTN	RETURN
DO	DIGITAL OUTPUT	RXD	RECEIVE DATA
DTR	DATA TERMINAL READY	SCAC	SEPARATE CIRCUIT AFTER COOLER
ECM	ELECTRONIC CONTROL MODULE	SH	SHIELD
ECHMR	ELECTRONIC CONTROL MODULE RELAY	SHNT	SHUNT
EIH	ENGINE INTERFACE HARNESS	SMMS	STARTER MOTOR MAGNETIC SWITCH
EJ	ETHERNET JACK	SNSR	SENSOR
EM	EXCITATION MODULE	SPD	SPEED
EMCP	ELECTRONIC MODULAR CONTROL PANEL	SPDR	SHORE POWER DISCONNECT RELAY
ENG	ENGINE	ST	SERVICE TOOL
ES	ETHERNET SWITCH	STR	START
ESPB	EMERGENCY STOP PUSH BUTTON	SR	STARTER RELAY
ESTOP	EMERGENCY STOP	STR	SHUNT TRIP RELAY
EUI	ELECTRONIC UNIT INJECTOR	STRTR	STARTER
F	FUSE	SW	SWITCH
FPP	FUEL PRIMING PUMP	TB	TERMINAL BOARD
FPR	FUEL PRIMING RELAY	TDC	TOP DEAD CENTER
GEN	GENERATOR	TEL	TELEMATICS
GND	GROUND	TEMP	TEMPERATURE
GOV	GOVERNOR	TMG	TIMING
GP	GROUP	THRT	THROTTLE
HPC	HYSTAT PRESSURE CONTROL	TXD	TRANSMIT DATA
HWDBA	HARDWIRED DEAD BUS ARBITRATION	UV	UNDERVOLTAGE RELEASE
HWLSLD	HARDWIRED LOAD SENSE LOAD DEMAND	V	VOLTS
HZ	HERTZ	VA	VOLT AMPERES
I/O	INPUTS/OUTPUTS	VR	VOLTAGE REGULATOR
IDI	ISOLATED DIGITAL INPUT	VS	VOLTAGE SUPPLY
IE	INTERNAL EXCITATION	XFMR	TRANSFORMER
ISOL	ISOLATED		
IVR	INTEGRATED VOLTAGE REGULATOR		
JW	JACKET WATER		
JWH	JACKET WATER HEATER		
KW	KILOWATT		
KVAR	KILOVOLT-AMPERE REACTIVE		
L	LAMP		
LH	LEFT HAND		
LHASOGB	LEFT HAND AIR SHUTOFF CIRCUIT BREAKER		
LS	LAMP SWITCH		
LSM	LOAD SHARE MODULE		
LV	LOW VOLTAGE		

WIRE COLOR

RD	RED
WH	WHITE
OR	ORANGE
YL	YELLOW
CL	CLEAR
BK	BLACK
GY	GRAY
CU	COPPER
BR	BROWN
GN	GREEN
BU	BLUE
GN_YL	GREEN/YELLOW
VI	VIOLET
BK_WH	BLACK/WHITE

LAMP COLOR

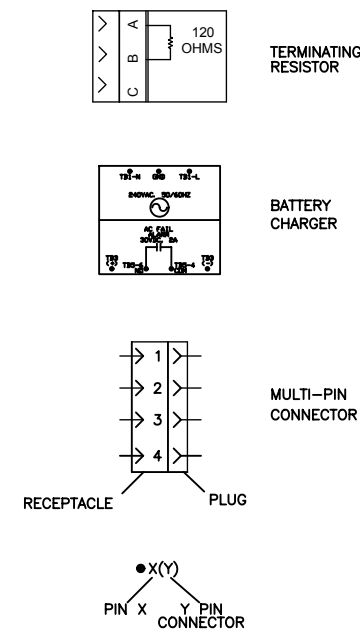
R	RED
G	GREEN
Y	YELLOW
A	AMBER
W	WHITE
O	ORANGE
B	BLUE

LINE STYLES

	STANDARD WIRING
	CUSTOMER SUPPLIED WIRING
	SHIELDED CABLE
	TWISTED PAIR
	CIRCUIT BREAK
	WIRE CONNECTION
	CIRCUITS NOT CONNECTED
	CIRCUIT CONNECTED
	COMPONENT CALLOUT

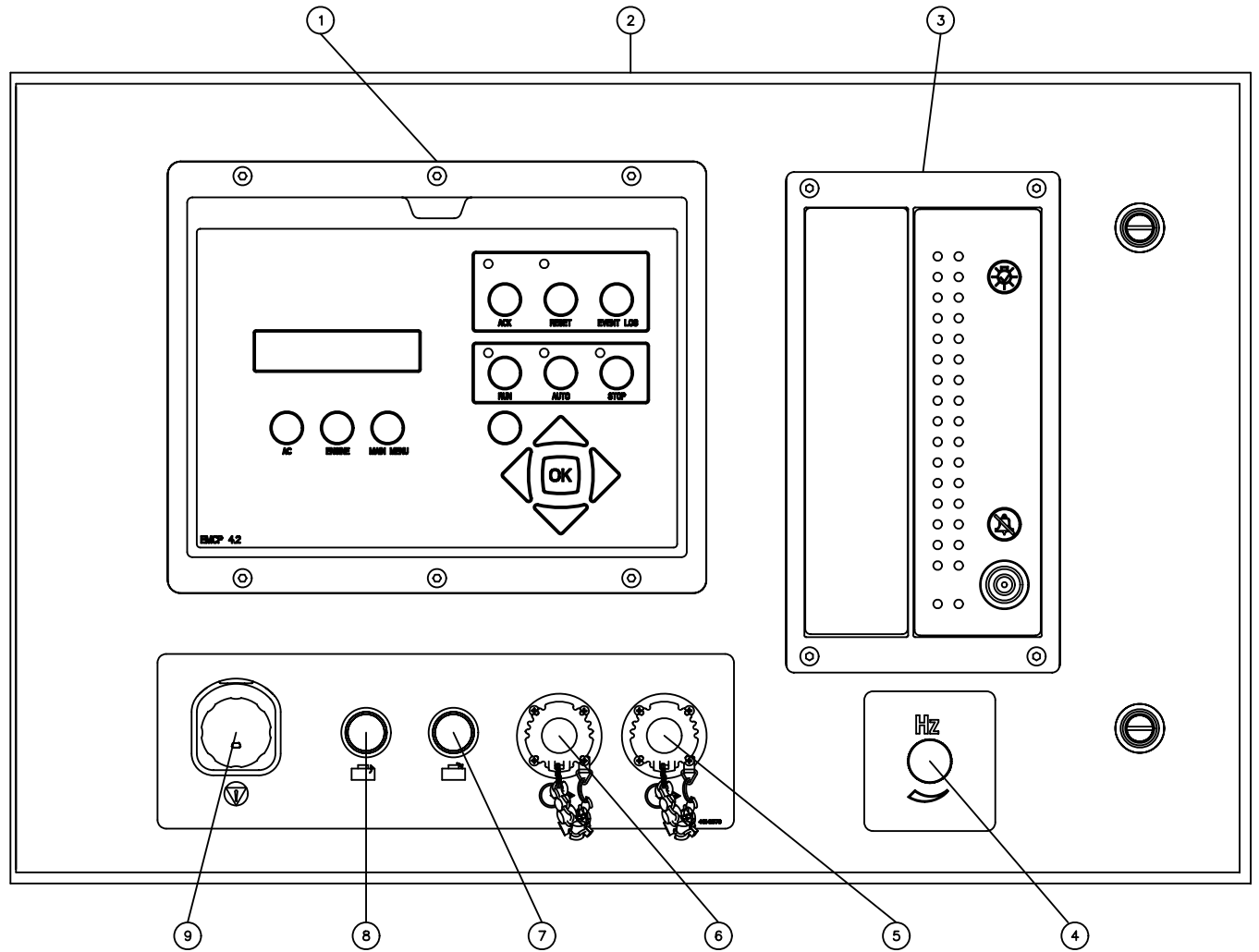
SYMBOLS

	RELAY CONTACT (NORMALLY OPEN)
	RELAY CONTACT (NORMALLY CLOSED)
	GROUND
	LAMP
	FUSE
	DIODE
	HEATING ELEMENT
	RELAY COIL
	PUMP MOTOR
	EMERGENCY STOP PUSH BUTTON
	SWITCH CONTACT (NORMALLY OPENED)
	SWITCH CONTACT (NORMALLY CLOSED)
	TOGGLE SWITCH
	CIRCUIT BREAKER (1 POLE)
	TERMINAL BOARD POINT
	PIN
	SOCKET
	POTENTIOMETER
	3-WIRE RTD
	2-WIRE RTD
	TEMPERATURE SWITCH (NORMALLY CLOSED)
	CURRENT TRANSFORMER
	EXCITER COIL

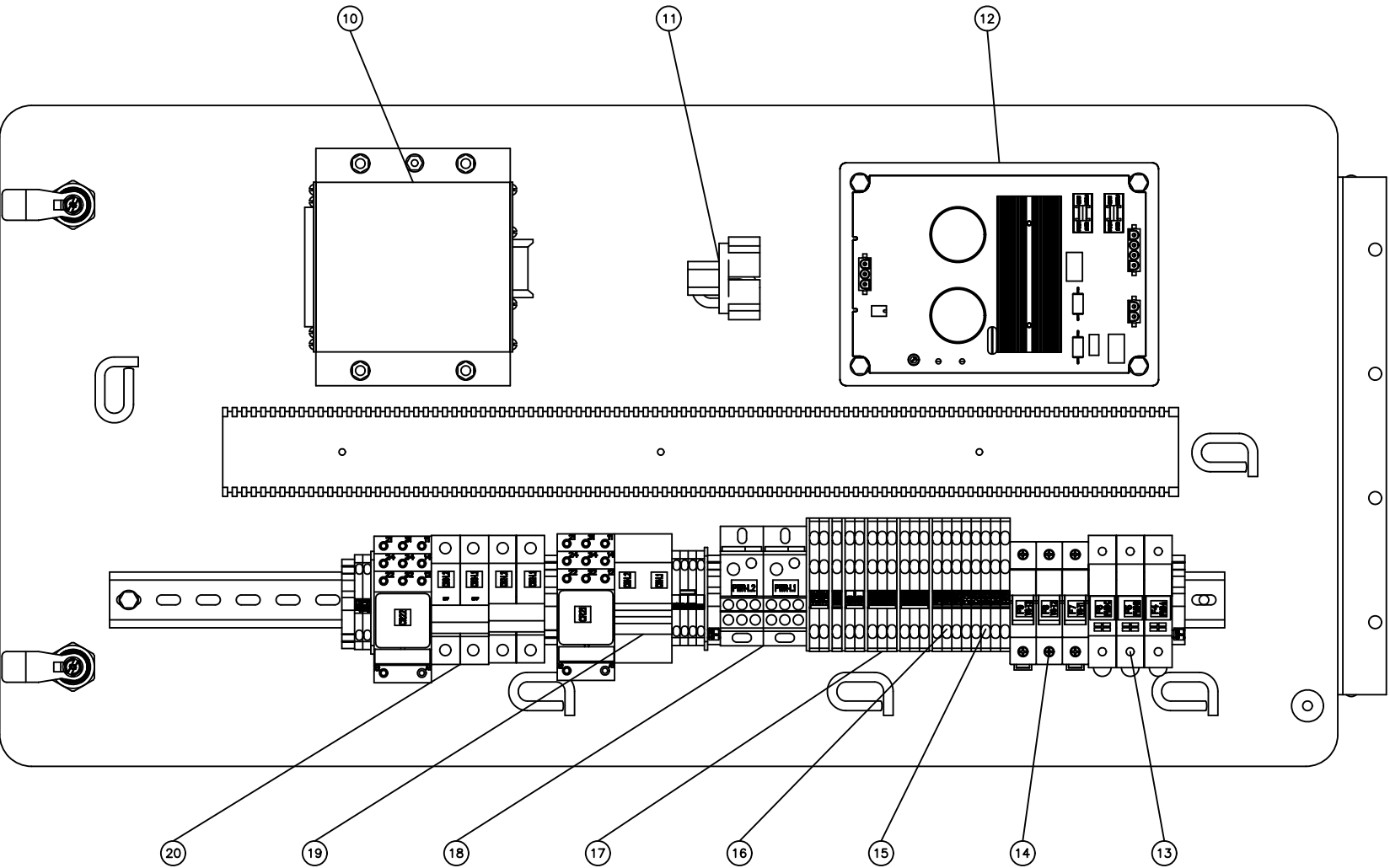


ABBREVIATIONS & SYMBOLS FOR NOTES SEE SHEET 2 CATERPILLAR: CONFIDENTIAL GREEN

M			
A			
T			
L			
HT			
TR			
1E2733		DRAWING - AUTOCAD	
1E0198W		BRAND MARKINGS	
1E0013G		CONFIDENTIALITY	
1E0012A		INTERPRETATION	
1E0011		INTPR & TOL	
SPEC NO.	NAME		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD.
RECORDS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			00 20OCT16
SHEET 3 OF 62			
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	
	-	DES	W989
		SUB	



FRONT VIEW OF CONTROL PANEL



REAR MOUNTED VOLTAGE REGULATOR PANEL

- ① EMCP 4
- ② EMCP 4 PANEL
- ③ RS-485 ANNUNCIATOR (OPTIONAL)
- ④ SPEED/Hz ADJUST (OPTIONAL)
- ⑤ SERVICE TOOL CONNECTOR #2 (CAN2: EXPANSION MODULES, RTD AND DIO)
- ⑥ SERVICE TOOL CONNECTOR #1 (CDL& CAN1: ADEM, EMCP, THERMOCOUPLE, CAT CONNECT)
- ⑦ CIRCUIT BREAKER CLOSE PUSH BUTTON (RED LIGHT) (EMCP 4.4 ONLY)
- ⑧ CIRCUIT BREAKER TRIP PUSH BUTTON (GREEN LIGHT) (EMCP 4.4 ONLY)
- ⑨ EMERGENCY STOP PUSH BUTTON
- ⑩ RTD MODULE (OPTIONAL)
- ⑪ CAN 2 TEE CONNECTOR
- ⑫ IVR MODULE (EM10/EM15)
- ⑬ PMG/IE FUSING
- ⑭ VOLTAGE SENSING FUSING
- ⑮ CURRENT SENSING
- ⑯ PWM (IVR MODULE CONTROL SIGNAL)
- ⑰ 24VDC TERMINAL STRIP
- ⑱ CUSTOMER SHORE POWER CONNECTION
- ⑲ SPACE HEATER CONTROLS (OPTIONAL)
- ⑳ JACKET WATER HEATER CONTROLS (OPTIONAL)

M	
A	
T	
L	
HT	
TR	

	1E2733	DRAWING - AUTOCAD
	1E0198W	BRAND MARKINGS
	1E0013G	CONFIDENTIALITY
	1E0012A	INTERPRETATION
	1E0011	INTPR & TOL

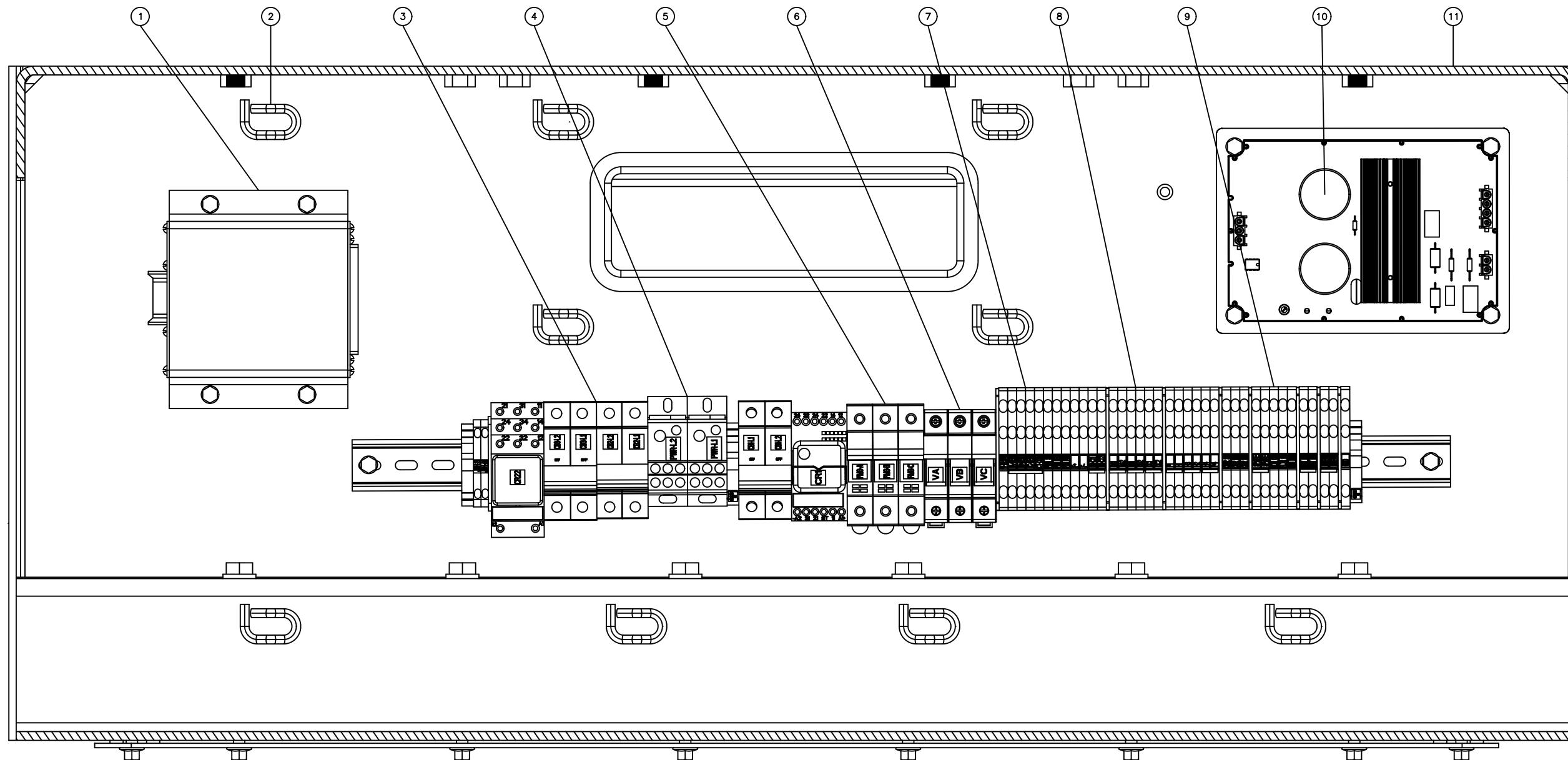
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD

RECORDS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
0 10mm 20 30	THIRD ANGLE PROJECTION	00	20OCT16
SHEET 4 OF 62		CHG	DATE

CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			

521-9364	VER	CONTROL	
	-	DES	W989
		SUB	

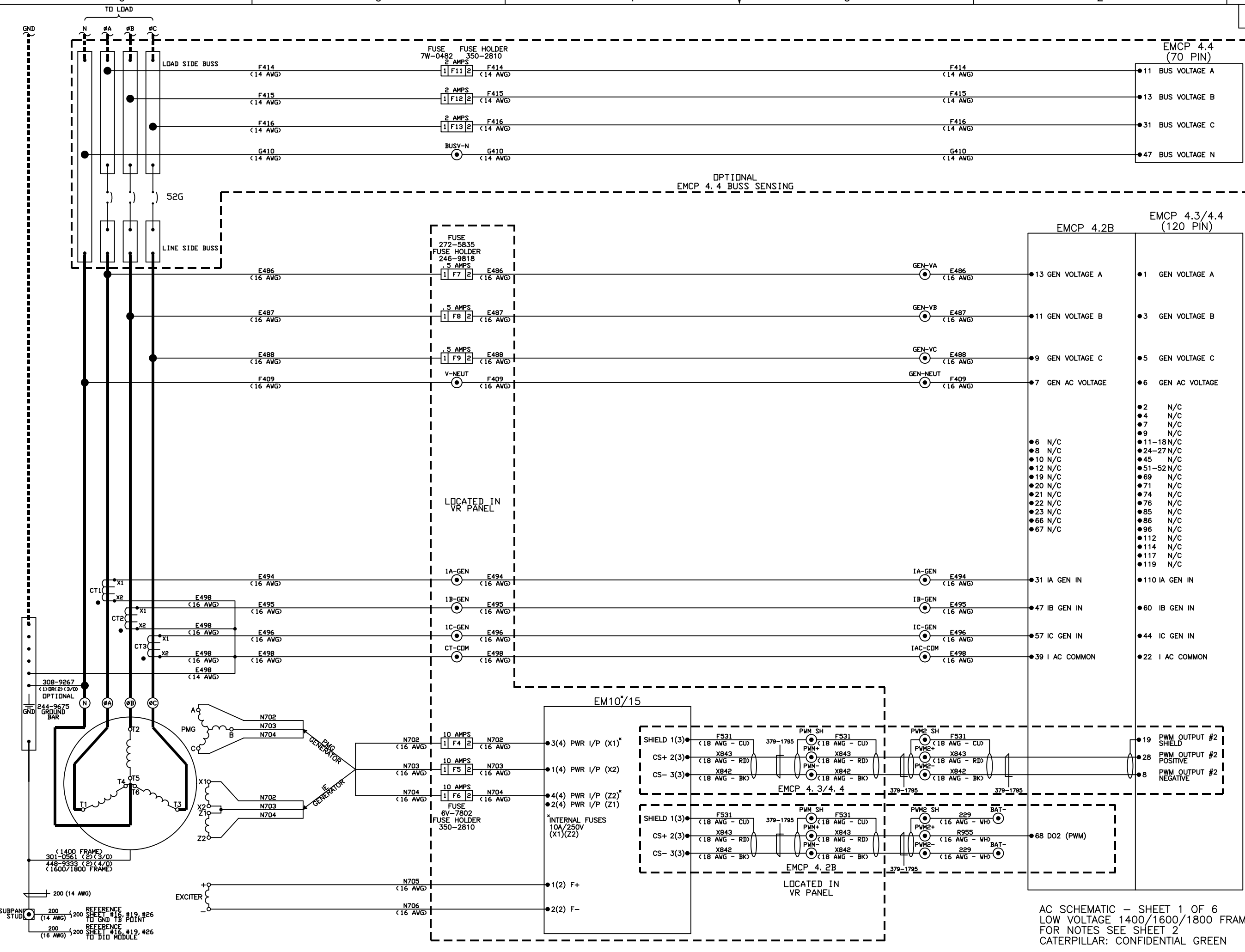
COMPONENT LAYOUT - SHEET 1 OF 6
(MODULAR CONTROL PANEL/VR SUBPAN)
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN



- ① RTD MODULE (OPTIONAL)
- ② WELD LINK (HARNESS SUPPORT)
- ③ JACKET WATER HEATER/
SPACE HEATER CONTROLS (OPTIONAL)
- ④ CUSTOMER SHORE POWER CONNECTION
- ⑤ PMG FUSES
- ⑥ VOLTAGE SENSING FUSING
- ⑦ CURRENT SENSING
- ⑧ DIFFERENTIAL CURRENT XFMR TB POINTS (OPTIONAL)
- ⑨ DC TERMINAL STRIP
- ⑩ IVR MODULE (EM15)
- ⑪ 3000 FRAME DOGHOUSE

M			
A			
T			
L			
HT			
TR			
1E2733	DRAWING - AUTOCAD		
1E0198W	BRAND MARKINGS		
1E0013G	CONFIDENTIALITY		
1E0012A	INTERPRETATION		
1E0011	INTPR & TOL		
NO	SPEC NO.	NAME	
TE			
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD.
RECORDS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
0 10mm 20 30			
SHEET 8 OF 62			THIRD ANGLE PROJECTION
			00 20OCT16
			CHG DATE
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364		VER	CONTROL
		-	DES
			SUB
			W989

COMPONENT LAYOUT - SHEET 5 OF 6
(3000 FRAME GENERATORS)
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

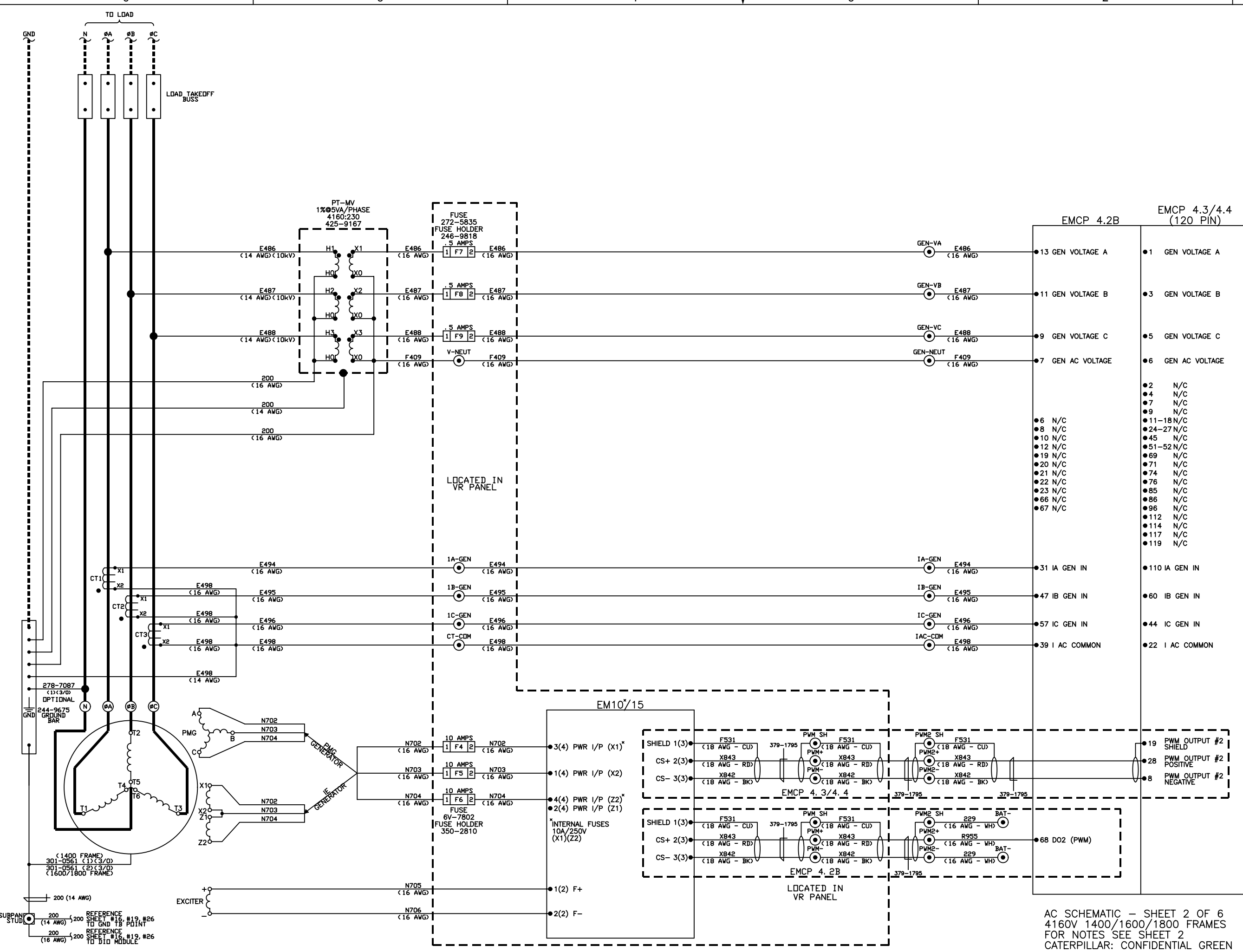


TO LOAD
GND
LOAD SIDE BUSS
LINE SIDE BUSS
52G
OPTIONAL EMCP 4.4 BUSS SENSING
EMCP 4.4 (70 PIN)
EMCP 4.3/4.4 (120 PIN)
EMCP 4.2B
EM10/15
LOCATED IN VR PANEL
LOCATED IN VR PANEL

●11	BUS VOLTAGE A
●13	BUS VOLTAGE B
●31	BUS VOLTAGE C
●47	BUS VOLTAGE N
●1	GEN VOLTAGE A
●3	GEN VOLTAGE B
●5	GEN VOLTAGE C
●6	GEN AC VOLTAGE
●2	N/C
●4	N/C
●7	N/C
●9	N/C
●11-18	N/C
●24-27	N/C
●45	N/C
●51-52	N/C
●69	N/C
●71	N/C
●74	N/C
●76	N/C
●85	N/C
●86	N/C
●96	N/C
●112	N/C
●114	N/C
●117	N/C
●119	N/C
●6	N/C
●8	N/C
●10	N/C
●12	N/C
●19	N/C
●20	N/C
●21	N/C
●22	N/C
●23	N/C
●66	N/C
●67	N/C
●31	IA GEN IN
●47	IB GEN IN
●57	IC GEN IN
●39	I AC COMMON
●110	IA GEN IN
●60	IB GEN IN
●44	IC GEN IN
●22	I AC COMMON
●19	PWM OUTPUT #2 SHIELD
●28	PWM OUTPUT #2 POSITIVE
●8	PWM OUTPUT #2 NEGATIVE
●68	DO2 (PWM)

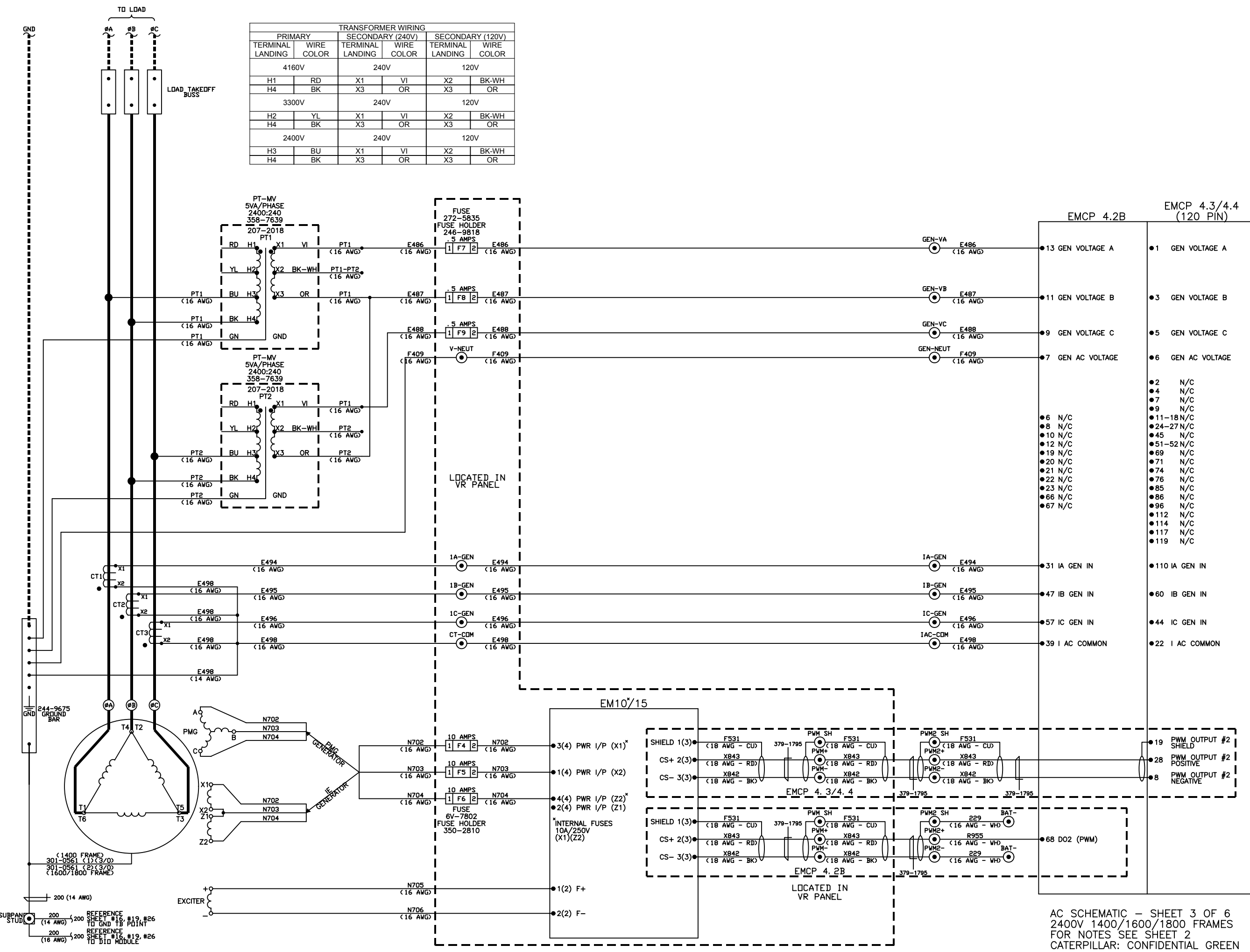
1E2733	DRAWING - AUTOCAD		
1E0198W	BRAND MARKINGS		
1E0013G	CONFIDENTIALITY		
1E0012A	INTERPRETATION		
1E0011	INTPR & TOL		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD.
RECORDS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE:	NONE	THIRD ANGLE PROJECTION	00 200CT16
SHEET	10 OF 62	CHG	DATE
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	D
	SUB	W989	

AC SCHEMATIC - SHEET 1 OF 6
LOW VOLTAGE 1400/1600/1800 FRAMES
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN



1E2733	DRAWING - AUTOCAD		
1E0198W	BRAND MARKINGS		
1E0013G	CONFIDENTIALITY		
1E0012A	INTERPRETATION		
1E0011	INTPR & TOL		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CONCEPT	EXP	PRE PROD	PROD
RECORDS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE:	NONE	THIRD ANGLE PROJECTION	00 200CT16
SHEET	11 OF 62	CHG	DATE
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	D
	SUB	W989	

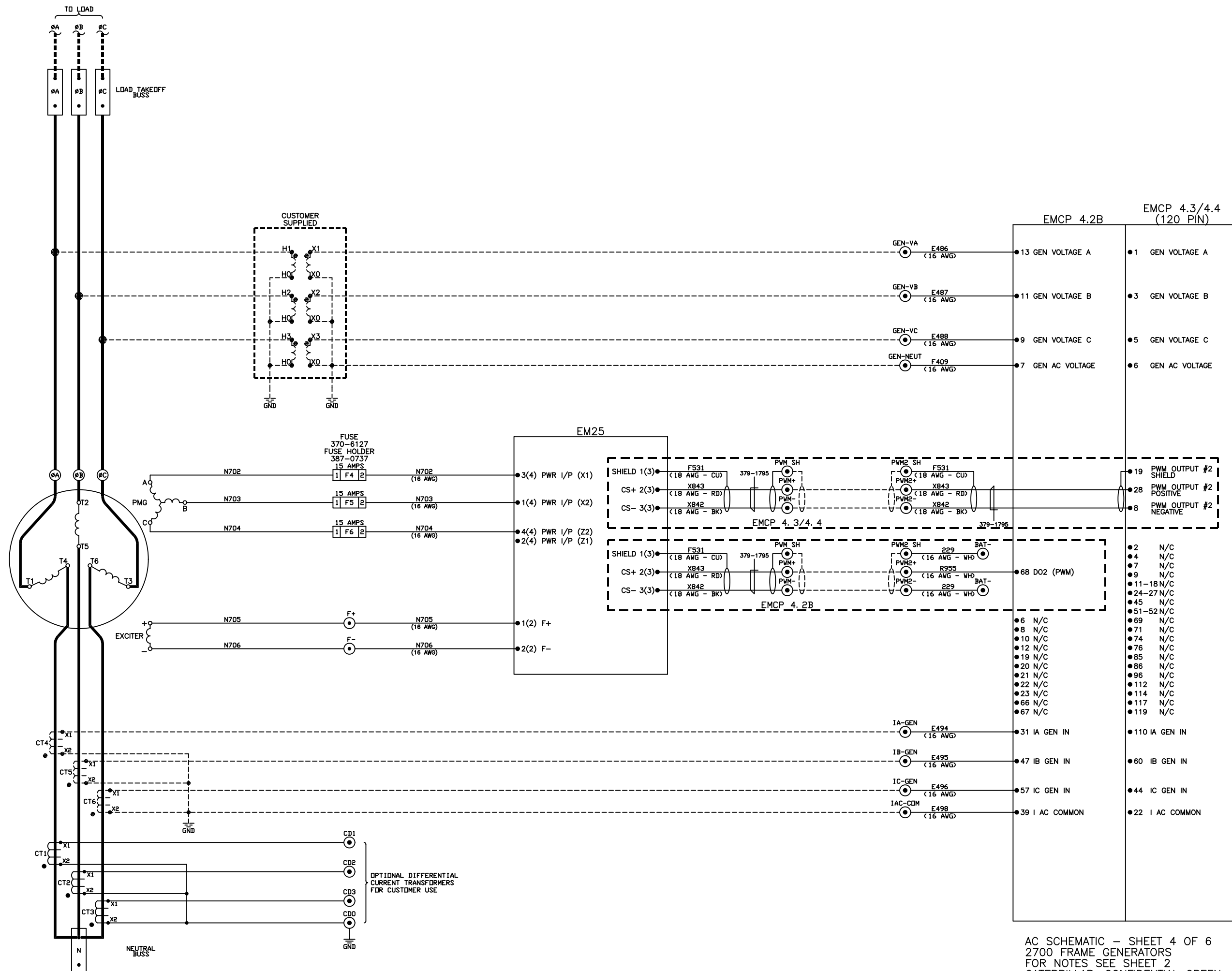
TRANSFORMER WIRING					
PRIMARY		SECONDARY (240V)		SECONDARY (120V)	
TERMINAL LANDING	WIRE COLOR	TERMINAL LANDING	WIRE COLOR	TERMINAL LANDING	WIRE COLOR
4160V		240V		120V	
H1	RD	X1	VI	X2	BK-WH
H4	BK	X3	OR	X3	OR
3300V		240V		120V	
H2	YL	X1	VI	X2	BK-WH
H4	BK	X3	OR	X3	OR
2400V		240V		120V	
H3	BU	X1	VI	X2	BK-WH
H4	BK	X3	OR	X3	OR



- | | |
|-------------------|------------------------|
| EMCP 4.2B | EMCP 4.3/4.4 (120 PIN) |
| ●13 GEN VOLTAGE A | ●1 GEN VOLTAGE A |
| ●11 GEN VOLTAGE B | ●3 GEN VOLTAGE B |
| ●9 GEN VOLTAGE C | ●5 GEN VOLTAGE C |
| ●7 GEN AC VOLTAGE | ●6 GEN AC VOLTAGE |
| ●6 N/C | ●2 N/C |
| ●8 N/C | ●4 N/C |
| ●10 N/C | ●7 N/C |
| ●12 N/C | ●9 N/C |
| ●19 N/C | ●11-18 N/C |
| ●20 N/C | ●24-27 N/C |
| ●21 N/C | ●45 N/C |
| ●22 N/C | ●51-52 N/C |
| ●23 N/C | ●69 N/C |
| ●66 N/C | ●71 N/C |
| ●67 N/C | ●74 N/C |
| | ●76 N/C |
| | ●85 N/C |
| | ●86 N/C |
| | ●96 N/C |
| | ●112 N/C |
| | ●114 N/C |
| | ●117 N/C |
| | ●119 N/C |
| ●31 IA GEN IN | ●110 IA GEN IN |
| ●47 IB GEN IN | ●60 IB GEN IN |
| ●57 IC GEN IN | ●44 IC GEN IN |
| ●39 I AC COMMON | ●22 I AC COMMON |

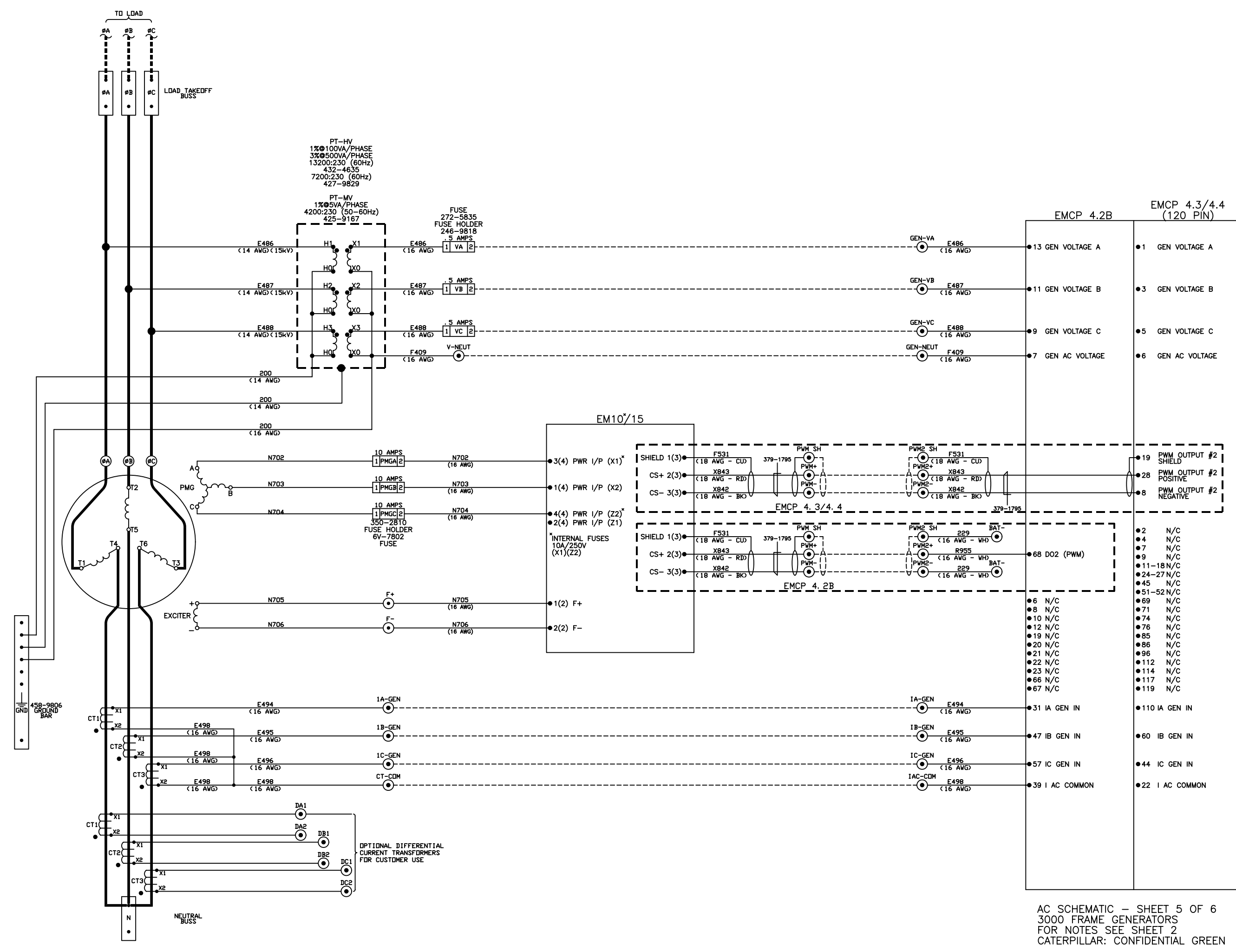
M			
A			
T			
L			
H			
T			
R			
1E2733 DRAWING - AUTOCAD			
1E0198W BRAND MARKINGS			
1E0013G CONFIDENTIALITY			
1E0012A INTERPRETATION			
1E0011 INTPR & TOL			
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. SCHROEDER		
CON-CEPT	EXP	PRE-PROD	PROD
RECORDS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE:	NONE		
SHEET	12 OF 62	THIRD ANGLE PROJECTION	00 200CT16
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	D
	SUB	W989	

AC SCHEMATIC - SHEET 3 OF 6
 2400V 1400/1600/1800 FRAMES
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN



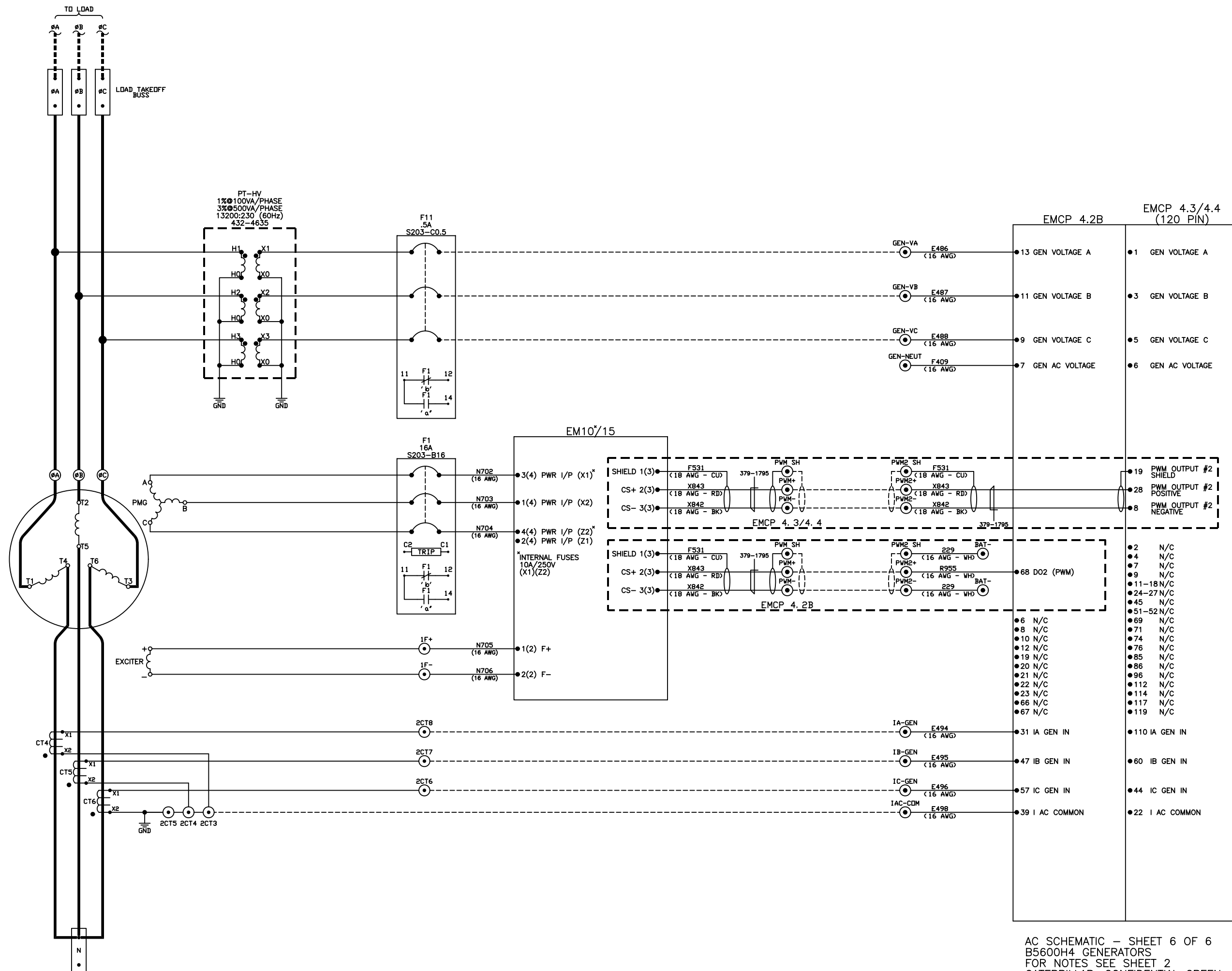
AC SCHEMATIC - SHEET 4 OF 6
2700 FRAME GENERATORS
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

1E2733	DRAWING - AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL
DRN	M.L. WAGNER
CHK	E.M. SCHROEDER
APPD	J.D. ELDER
CON-CEPT	EXP PRE PROD PROD
RECORDS <input checked="" type="checkbox"/>	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC	
SCALE: NONE	
SHEET 13 OF 62	THIRD ANGLE PROJECTION
CHG	DATE 20OCT16
CATERPILLAR INC.	
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.	
DIAGRAM - SCHEMATIC	
MODULAR CONTROLS	
521-9364	VER CONTROL
-	DES SUB W989



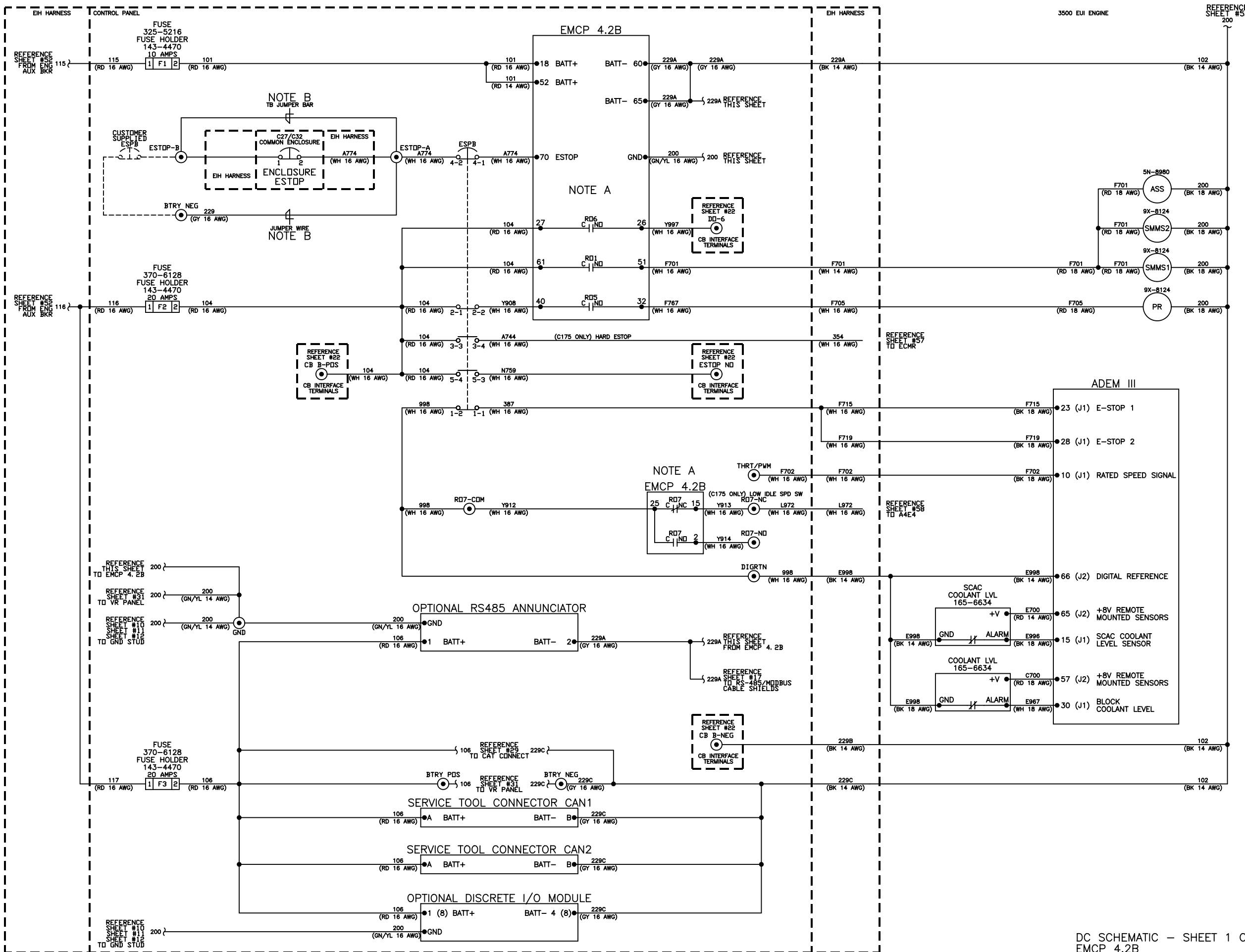
AC SCHEMATIC - SHEET 5 OF 6
 3000 FRAME GENERATORS
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

M			
A			
T			
L			
HT			
TR			
1E2733 DRAWING - AUTOCAD			
1E0198W BRAND MARKINGS			
1E0013G CONFIDENTIALITY			
1E0012A INTERPRETATION			
1E0011 INTPR & TOL			
NO	SPEC NO.	NAME	
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD
RECORDS <input checked="" type="checkbox"/>			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
			00 20OCT16
SHEET 14 OF 62			THIRD ANGLE PROJECTION
<p align="center">CATERPILLAR INC.</p> <p align="center">THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.</p>			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	
	-	DES	W989
		SUB	



AC SCHEMATIC - SHEET 6 OF 6
 B5600H4 GENERATORS
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

1E2733	DRAWING - AUTOCAD		
1E0198W	BRAND MARKINGS		
1E0013G	CONFIDENTIALITY		
1E0012A	INTERPRETATION		
1E0011	INTPR & TOL		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD.
RECORDS			
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN MM [INCHES]			
DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
			00 20OCT16
SHEET 15 OF 62		THIRD ANGLE PROJECTION	CHG DATE
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	
	DES	W989	D

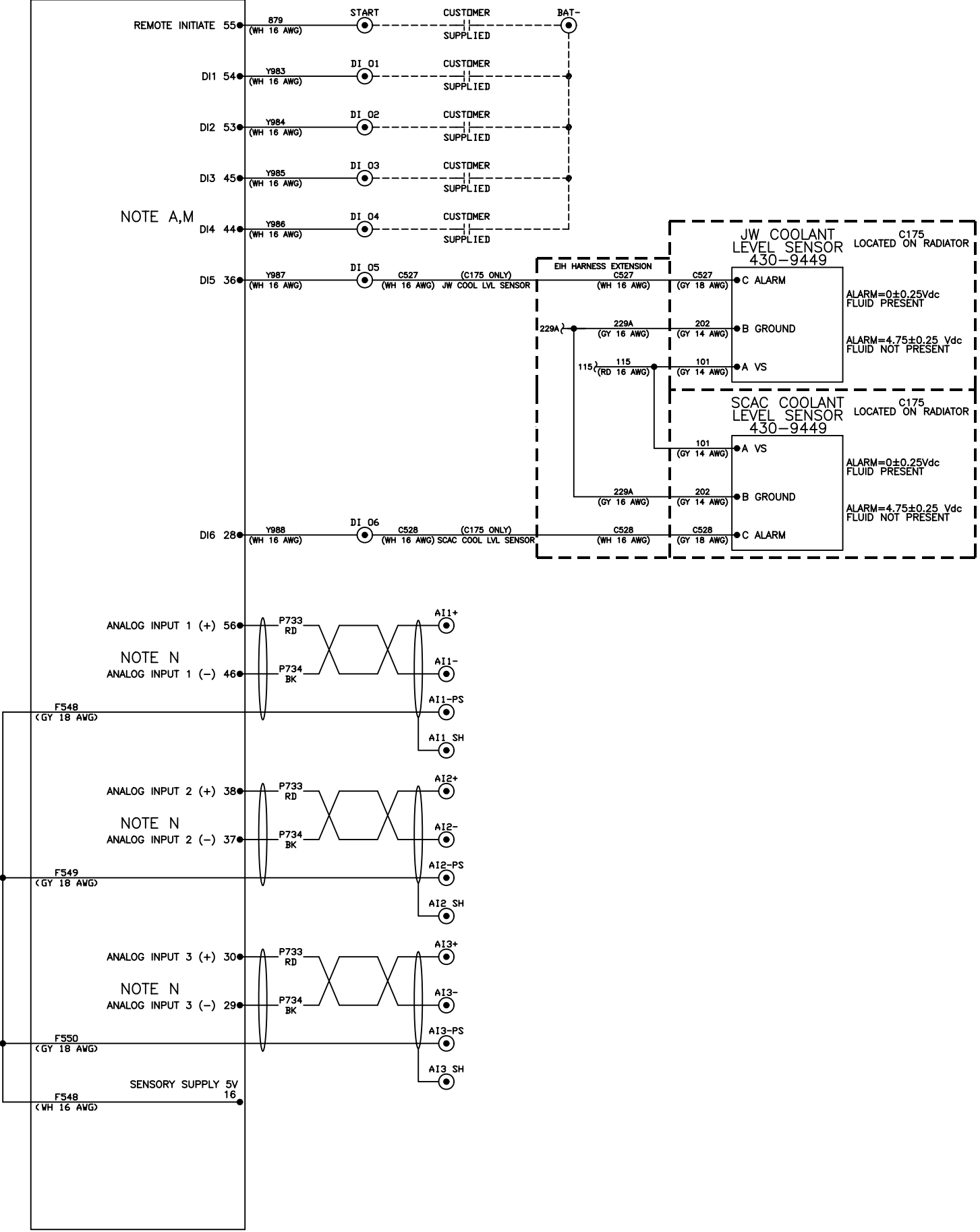


DC SCHEMATIC - SHEET 1 OF 13
EMCP 4.2B
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

M		
A		
T		
L		
H		
T		
R		
1E2733 DRAWING - AUTOCAD		
1E0198W BRAND MARKINGS		
1E0013G CONFIDENTIALITY		
1E0012A INTERPRETATION		
1E0011 INTPR & TOL		
N	SPEC NO.	NAME
O		
G		
T		
E		
DRN	M.L. WAGNER	
CHK	E.M. SCHROEDER	
APPD	J.D. ELDER	
CON-CEPT	EXP	PRE-PROD
		PROD
RECORDS <input checked="" type="checkbox"/>		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC		
SCALE:	NONE	THIRD ANGLE PROJECTION
	0 10mm 20 30	
SHEET 16 OF 62	00	20OCT16
CATERPILLAR INC.		
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.		
DIAGRAM - SCHEMATIC		
MODULAR CONTROLS		
521-9364	VER	CONTROL
-	DES	W989
	SUB	

A

EMCP 4.2B



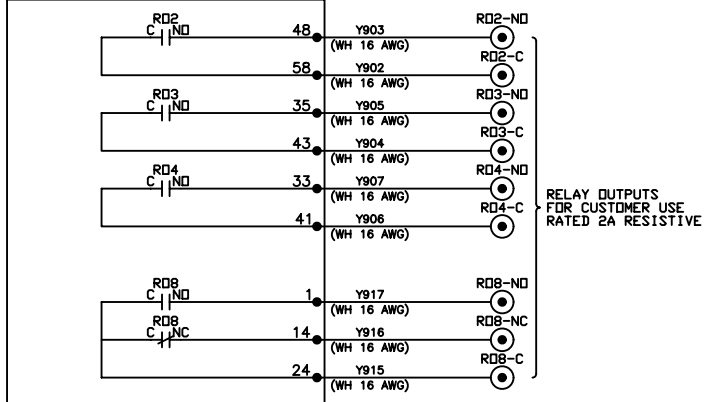
NOTE A,M

NOTE N

NOTE N

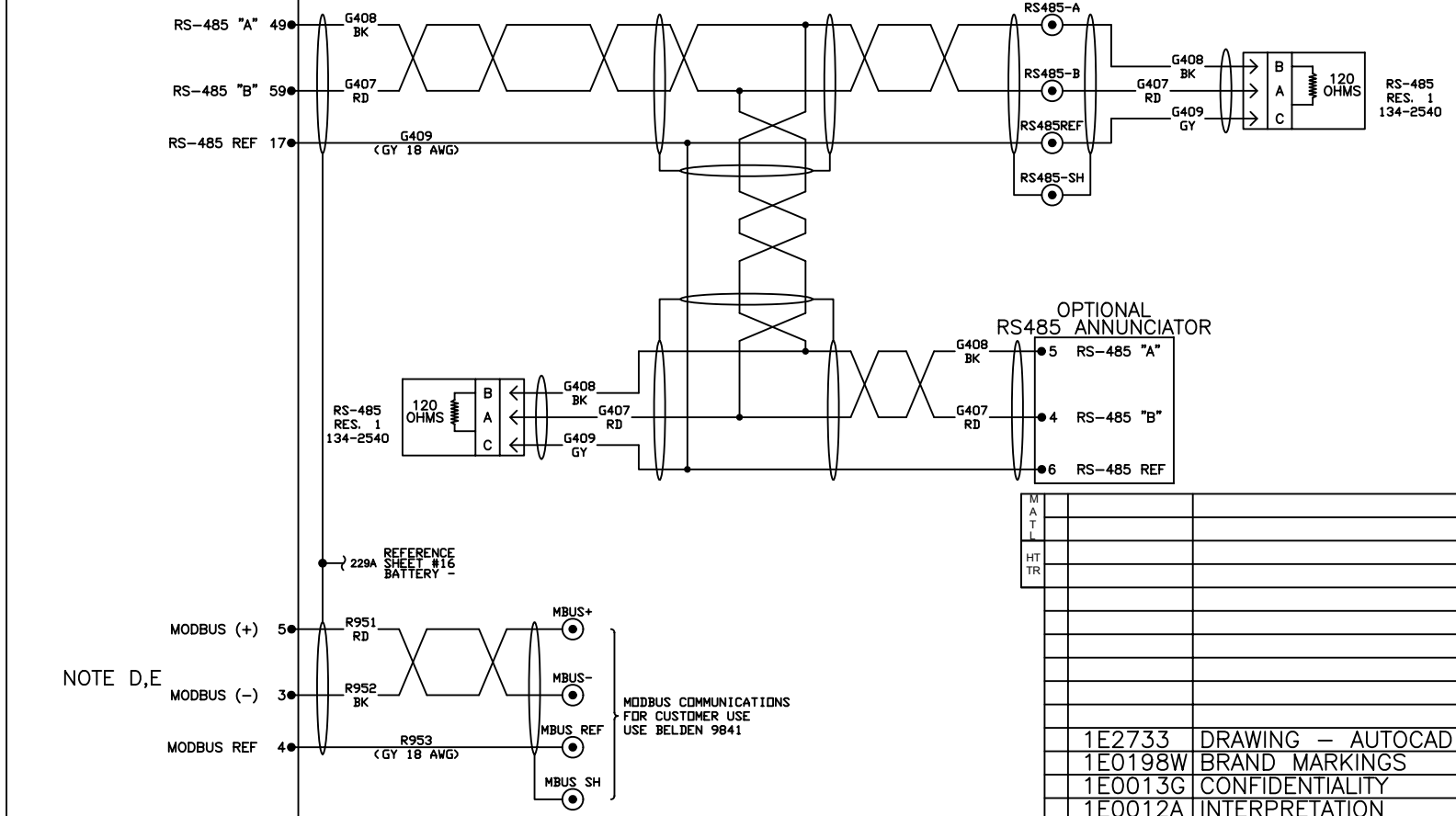
NOTE N

NOTE A
EMCP 4.2B



RELAY OUTPUTS
FOR CUSTOMER USE
RATED 2A RESISTIVE

NOTE D,E



OPTIONAL
RS485 ANNUNCIATOR

120
OHMS

REFERENCE
BATTERY

MODBUS COMMUNICATIONS
FOR CUSTOMER USE
USE BELDEN 9841

MA			
HT			
TR			

1E2733	DRAWING - AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL

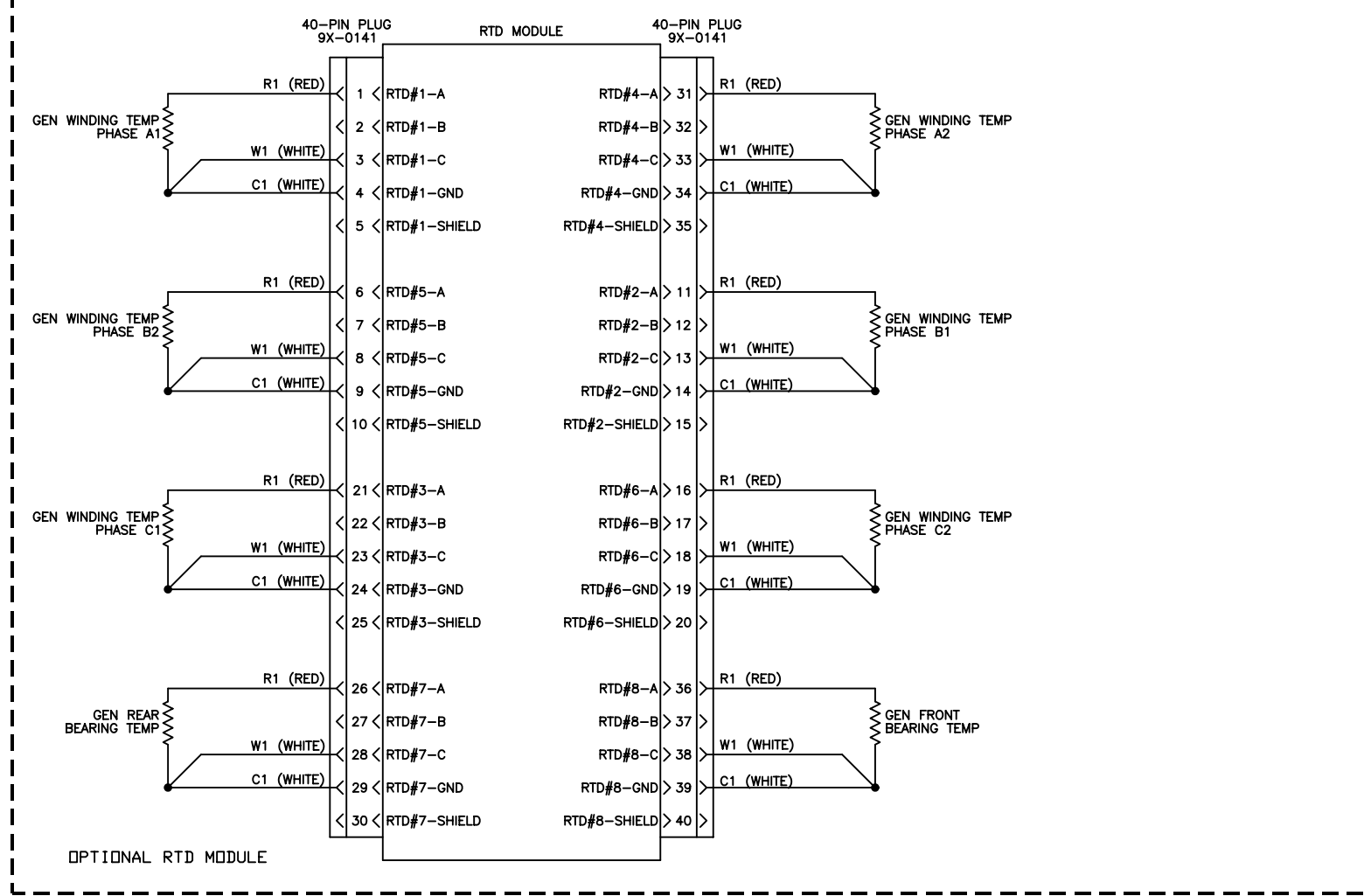
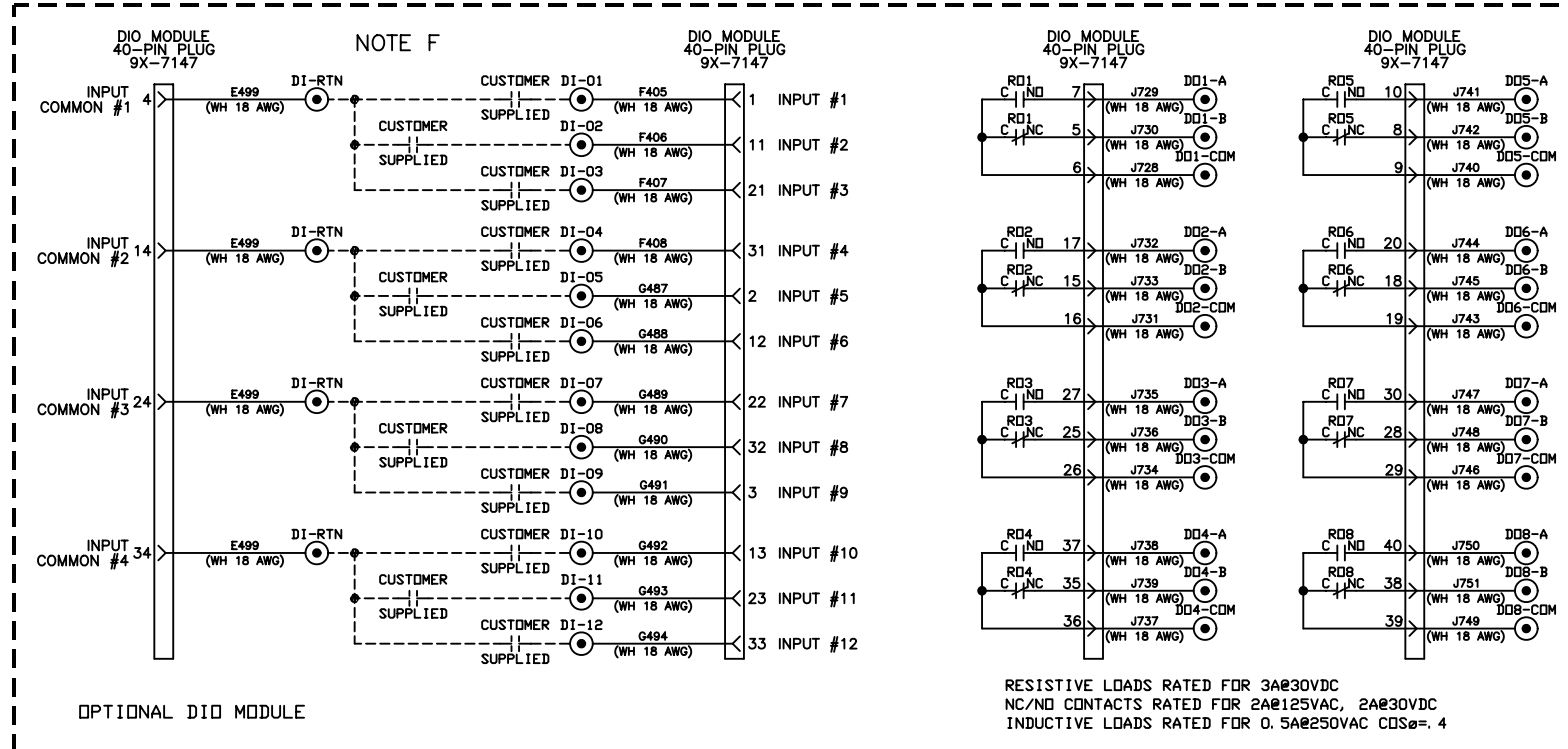
DRN	M.L. WAGNER
CHK	E.M. SCHROEDER
APPD	J.D. ELDER
CON-CEPT	EXP PRE PROD PROD

RECORDS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC	
SCALE: NONE	THIRD ANGLE PROJECTION
SHEET 17 OF 62	00 20OCT16

CATERPILLAR INC.	
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.	
DIAGRAM - SCHEMATIC	
MODULAR CONTROLS	

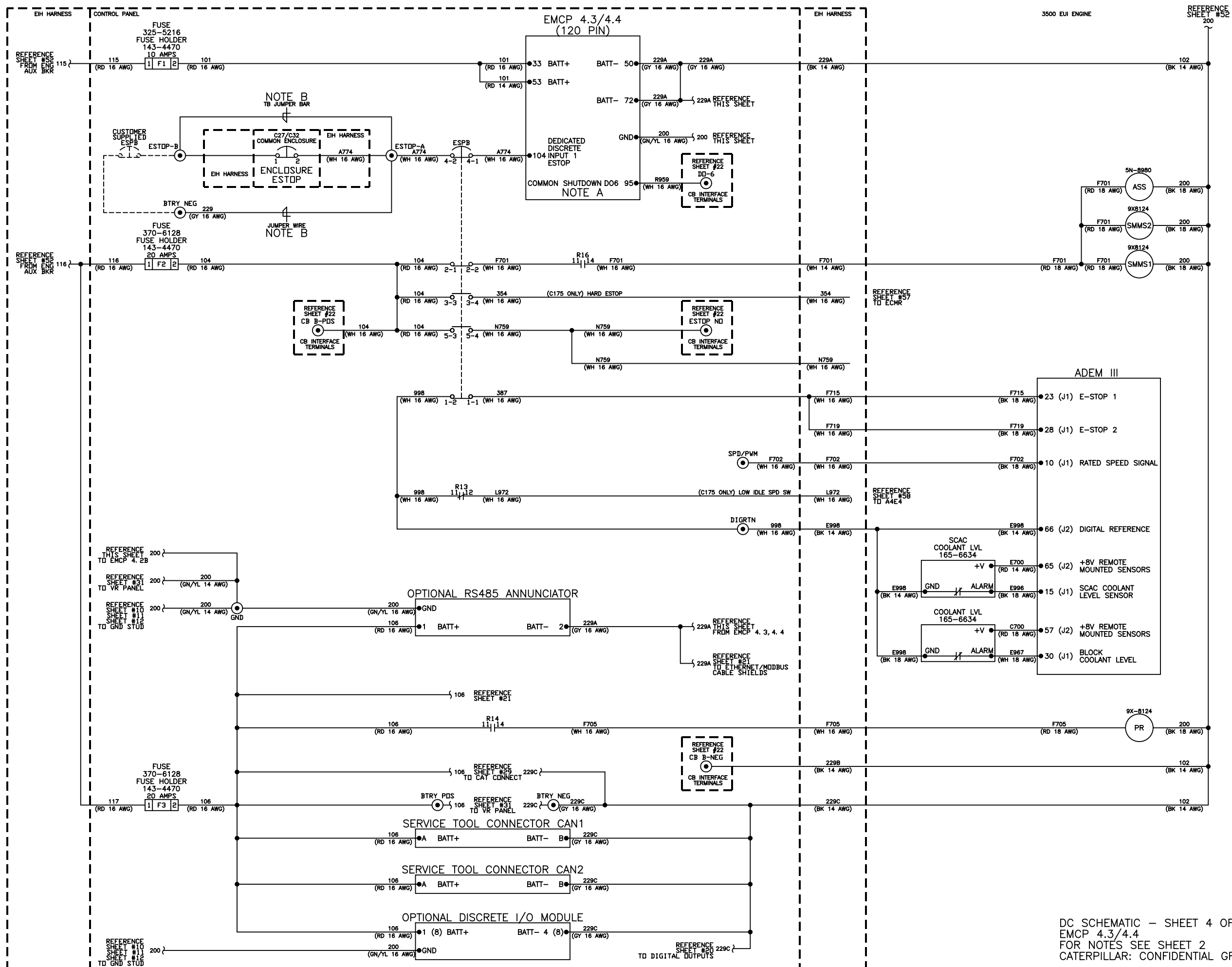
521-9364	VER	CONTROL
	DES	W989
	SUB	

DC SCHEMATIC - SHEET 2 OF 13
EMCP 4.2B
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN



MATERIAL			
HT			
TR			
1E2733 DRAWING - AUTOCAD			
1E0198W BRAND MARKINGS			
1E0013G CONFIDENTIALITY			
1E0012A INTERPRETATION			
1E0011 INTPR & TOL			
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD
RECORDS <input checked="" type="checkbox"/>			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE		THIRD ANGLE PROJECTION	
0 10mm 20 30		00 20OCT16	
SHEET 18 OF 62		CHG	DATE
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364		VER	CONTROL
		-	DES X W989

DC SCHEMATIC - SHEET 3 OF 13
 EMCP 4.2B
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN



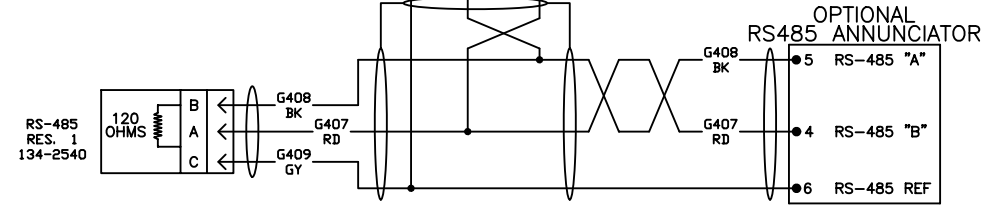
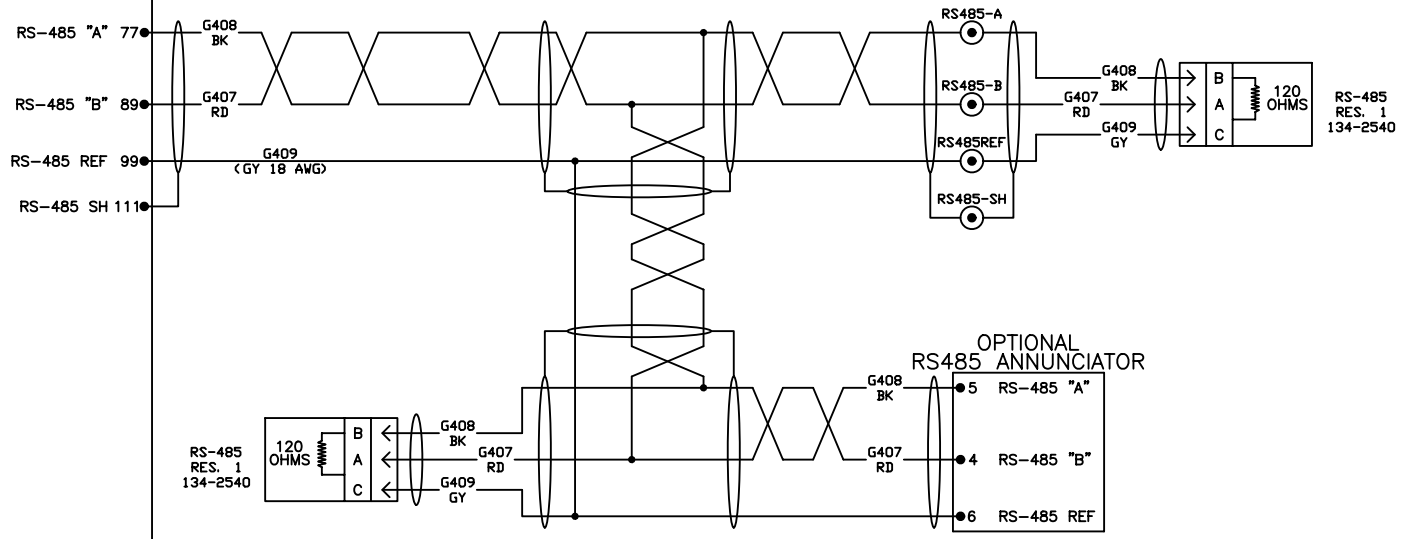
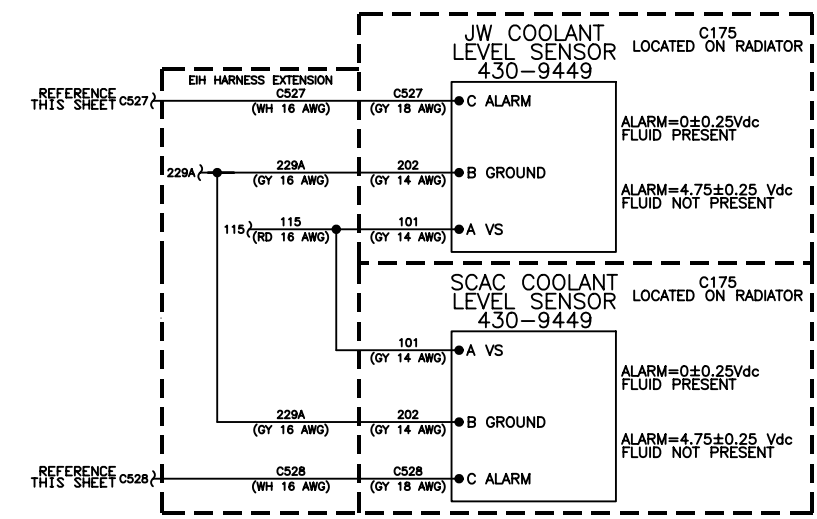
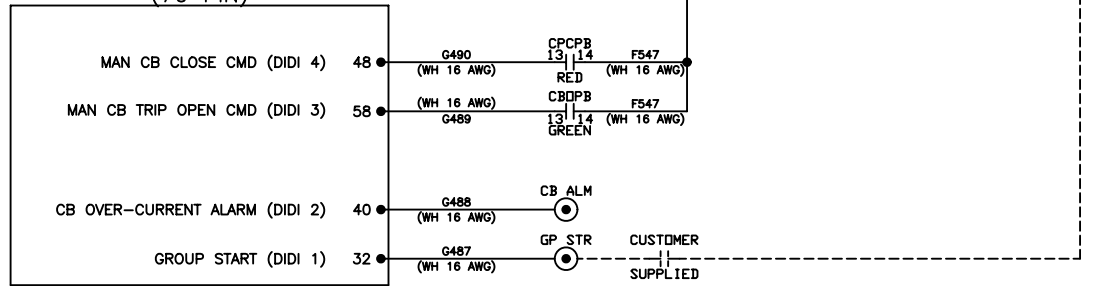
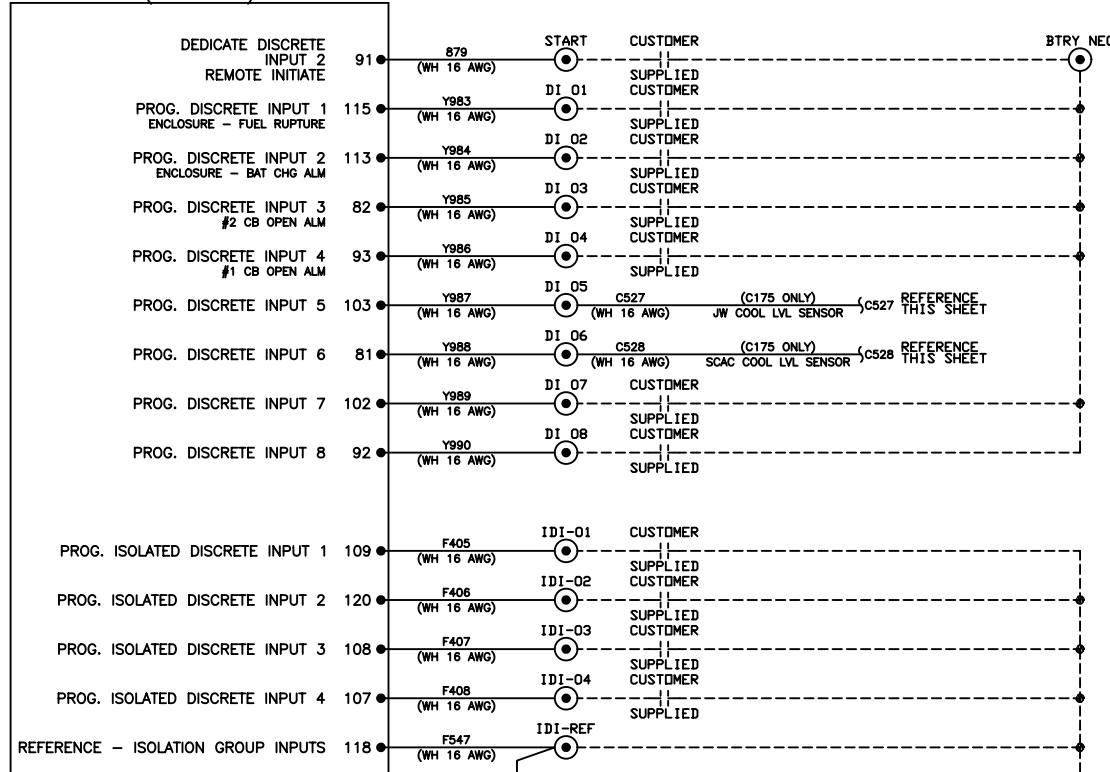
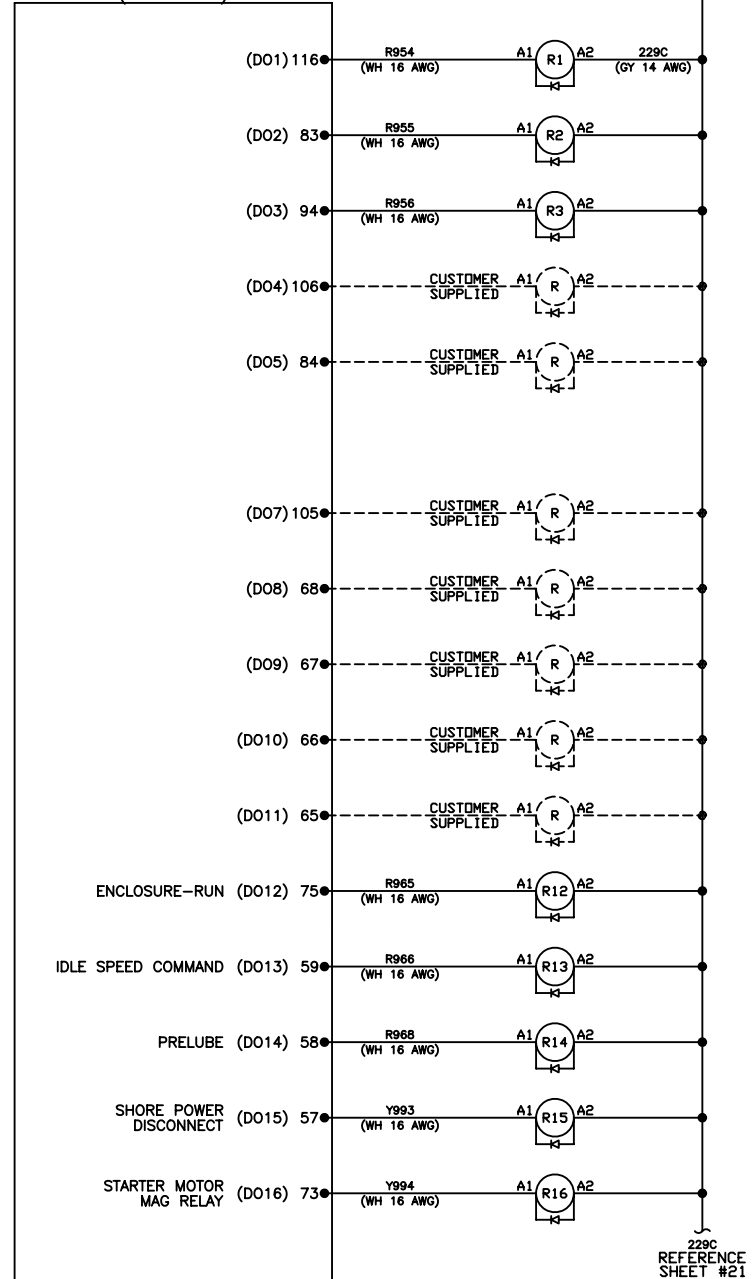
1E2733	DRAWING - AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL
DRN	M.L. WAGNER
CHK	E.M. SCHROEDER
APPD	J.D. ELDER
<input type="checkbox"/> CONCEPT <input type="checkbox"/> EXP <input checked="" type="checkbox"/> PRE PROD. <input type="checkbox"/> PROD.	
RECORDS <input checked="" type="checkbox"/>	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC	
SCALE: NONE	THIRD ANGLE PROJECTION
SHEET 19 OF 62	CHG DATE
CATERPILLAR INC.	
<small>THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.</small>	
DIAGRAM - SCHEMATIC MODULAR CONTROLS	
521-9364	VER CONTROL
	DES SUB W989

DC SCHEMATIC - SHEET 4 OF 13
 EMCP 4.3/4.4
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

EMCP 4.3/4.4
(120 PIN)

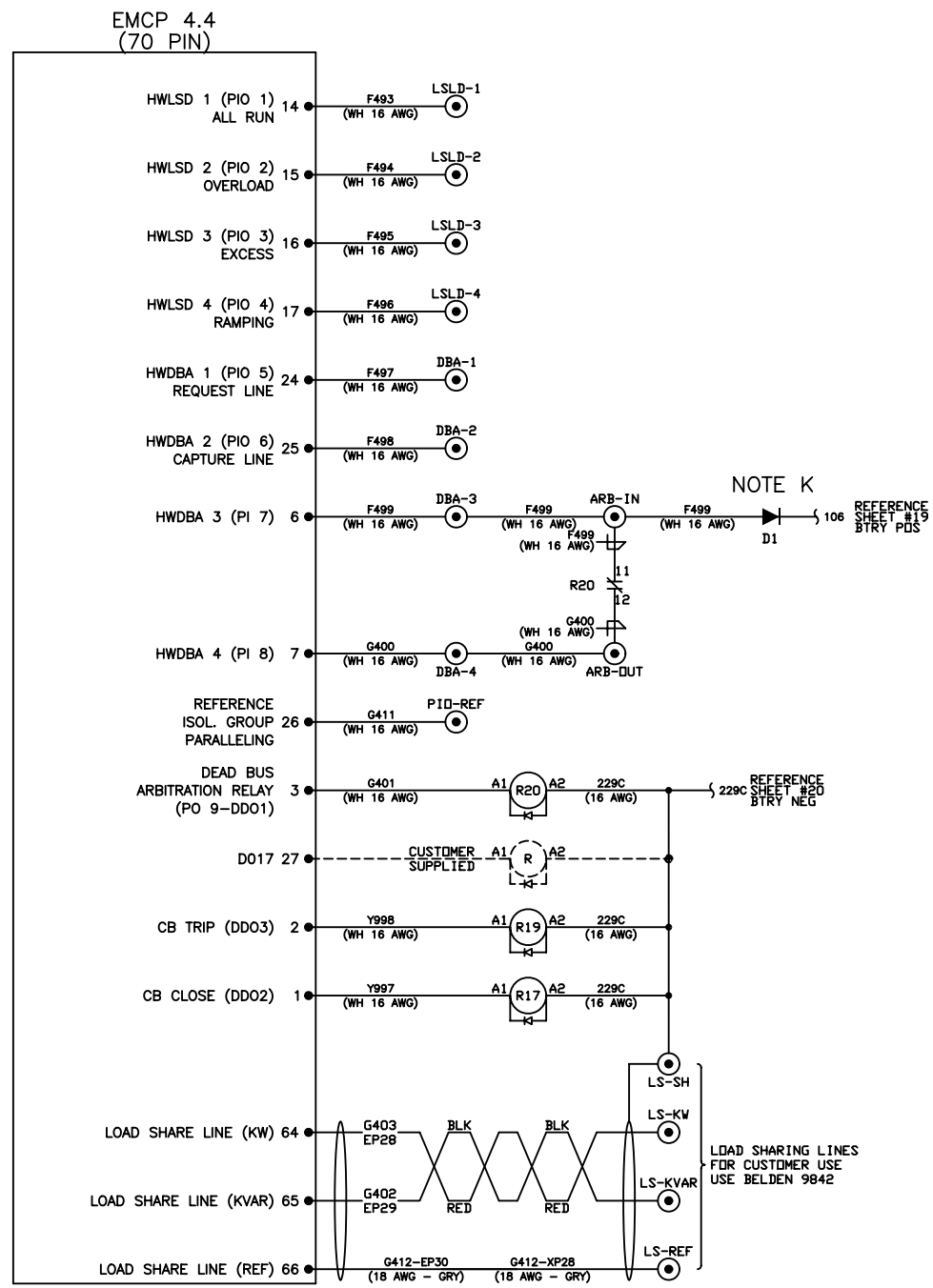
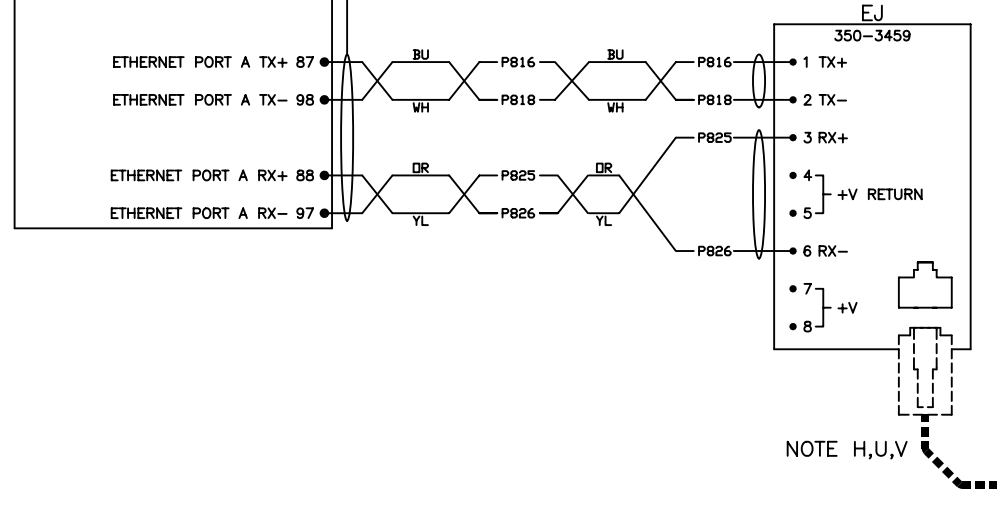
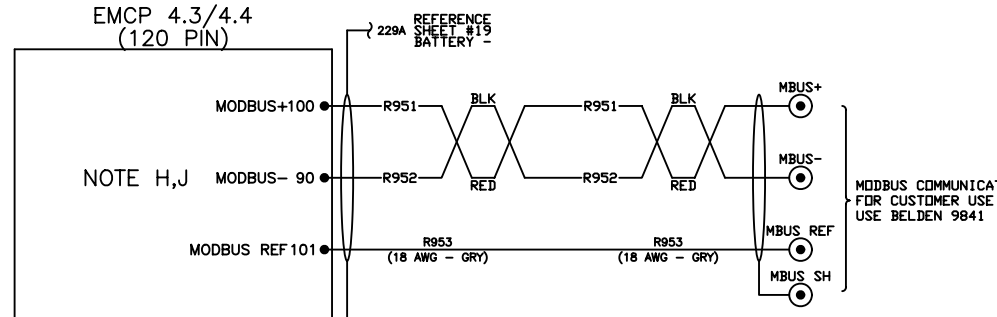
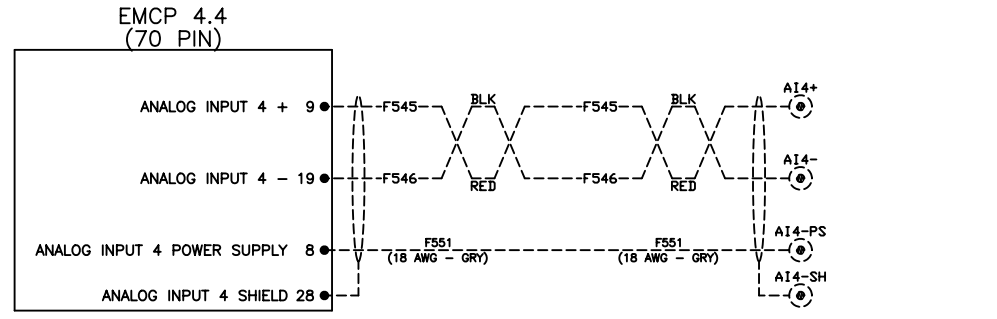
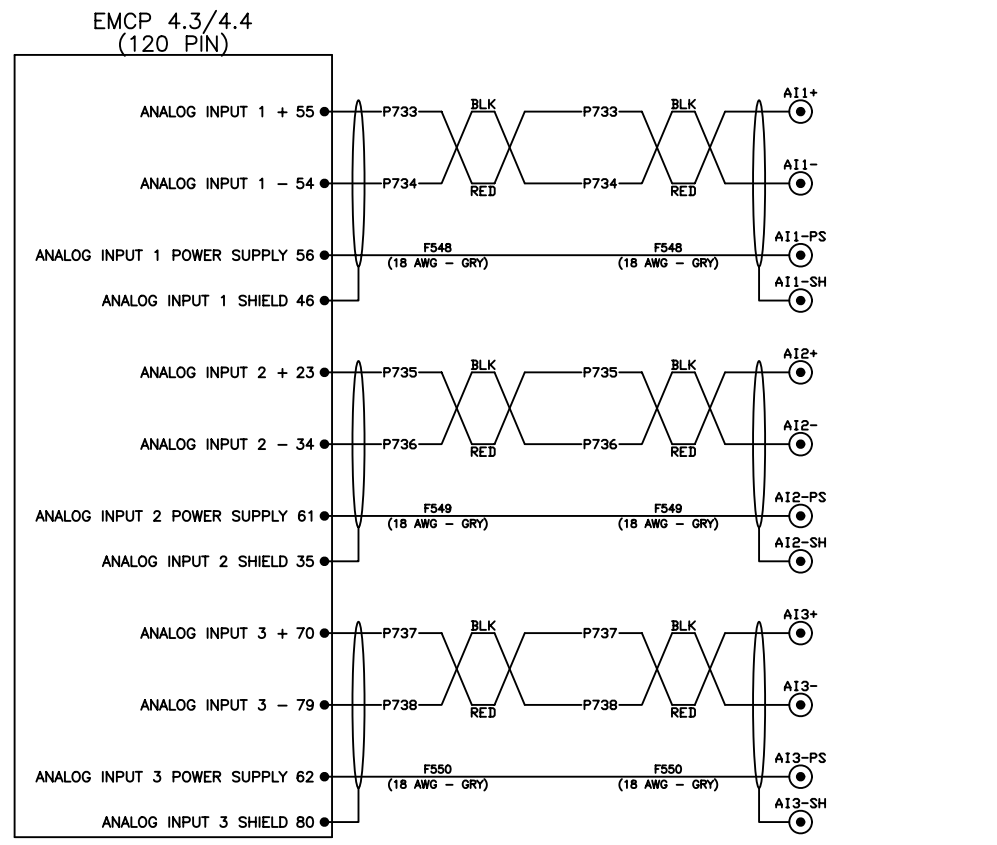
EMCP 4.3/4.4
(120 PIN)

EMCP 4.4
(70 PIN)



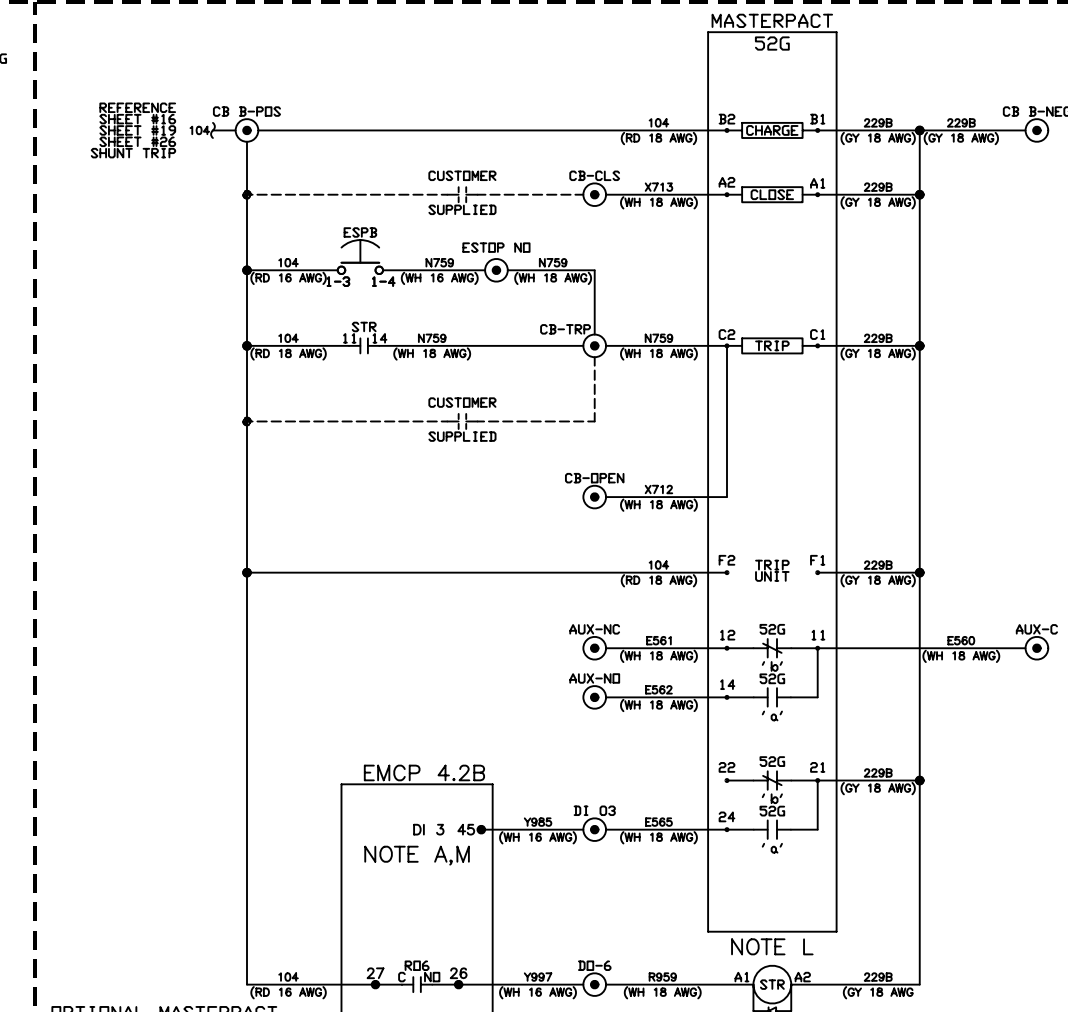
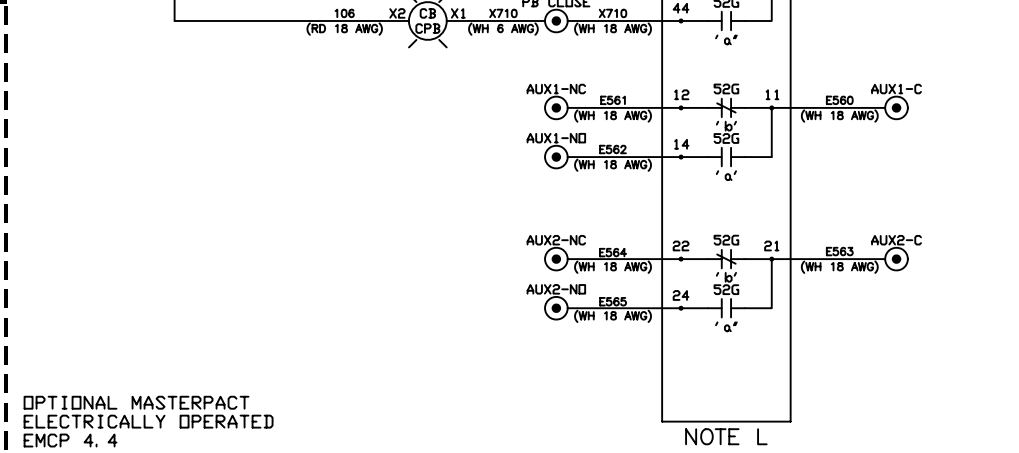
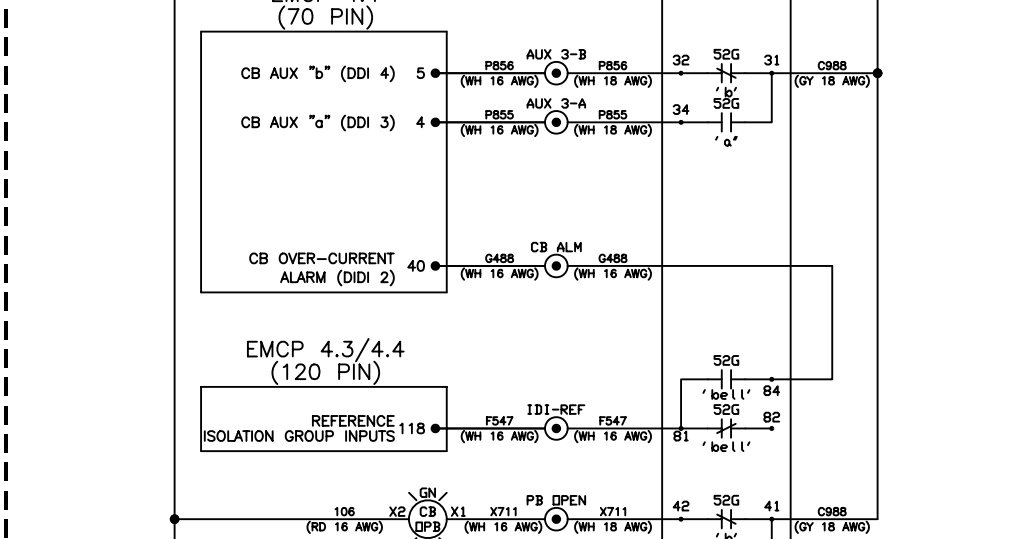
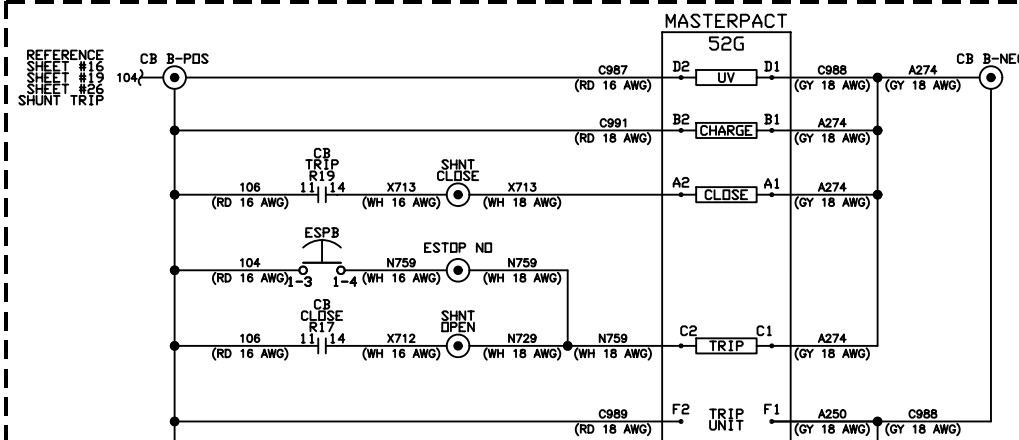
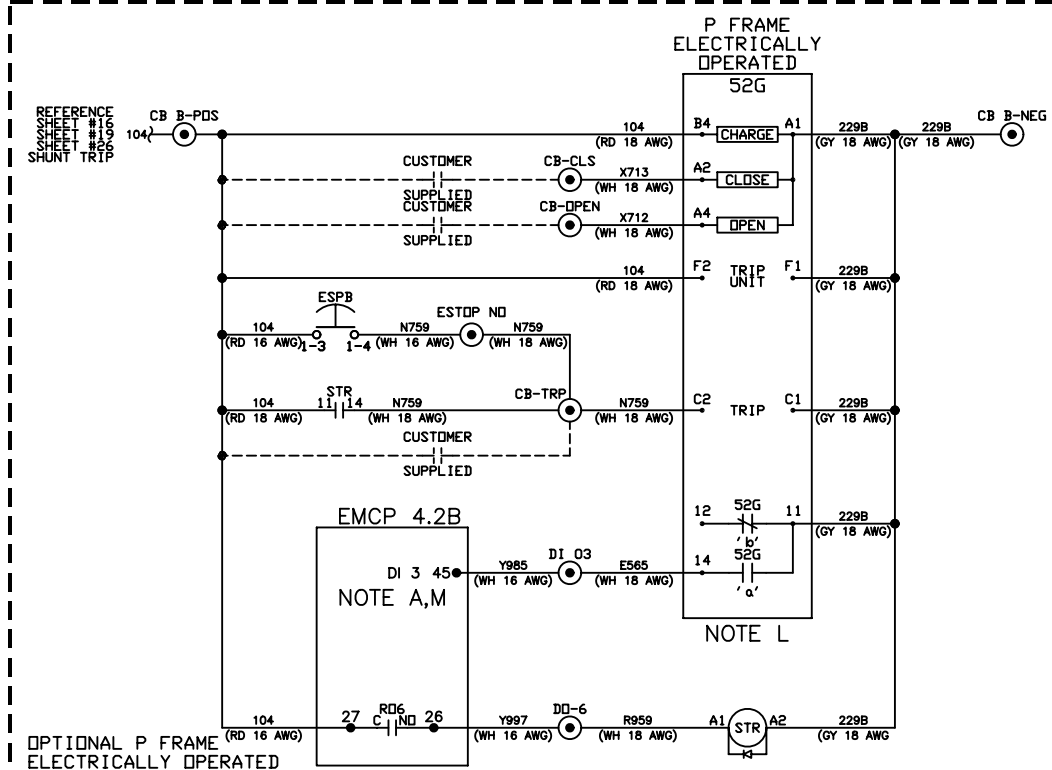
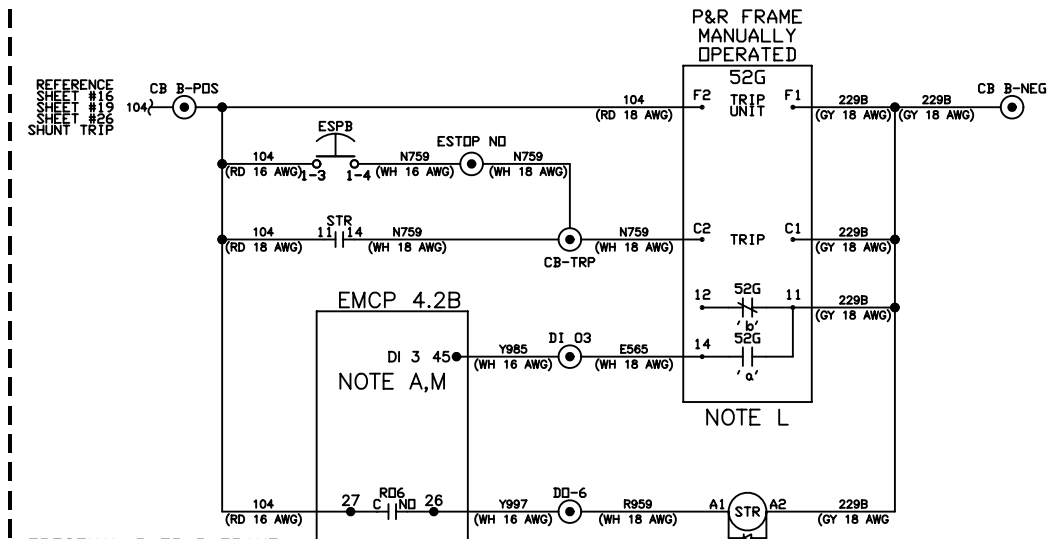
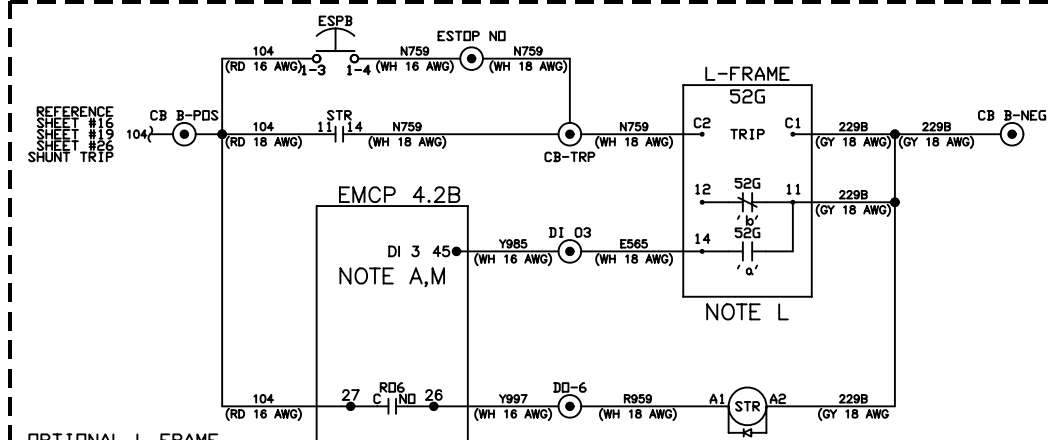
DATE			
HT			
TR			
1E2733 DRAWING - AUTOCAD			
1E0198W BRAND MARKINGS			
1E0013G CONFIDENTIALITY			
1E0012A INTERPRETATION			
1E0011 INTPR & TOL			
SPEC NO.	NAME		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD.	PROD.
RECORDS <input checked="" type="checkbox"/>			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE:	NONE		
0 10mm 20 30		THIRD ANGLE PROJECTION	00 20OCT16
SHEET	20 OF 62	CHG	DATE
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	
	DES	W989	D

DC SCHEMATIC - SHEET 5 OF 13
EMCP 4.3/4.4
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN



1E2733	DRAWING - AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL
SPEC NO. NAME	
DRN	M.L. WAGNER
CHK	E.M. SCHROEDER
APPD	J.D. ELDER
CONCEPT	EXP PRE PROD PROD
RECORDS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC	
SCALE: NONE	THIRD ANGLE PROJECTION
SHEET 21 OF 62	CHG DATE 00 20OCT16
CATERPILLAR INC.	
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.	
DIAGRAM - SCHEMATIC	
MODULAR CONTROLS	
521-9364	VER CONTROL DES SUB W989

DC SCHEMATIC - SHEET 6 OF 13
EMCP 4.3/4.4
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

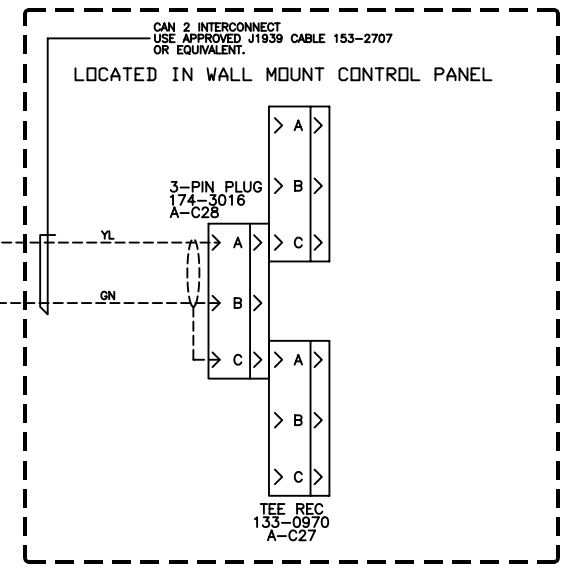
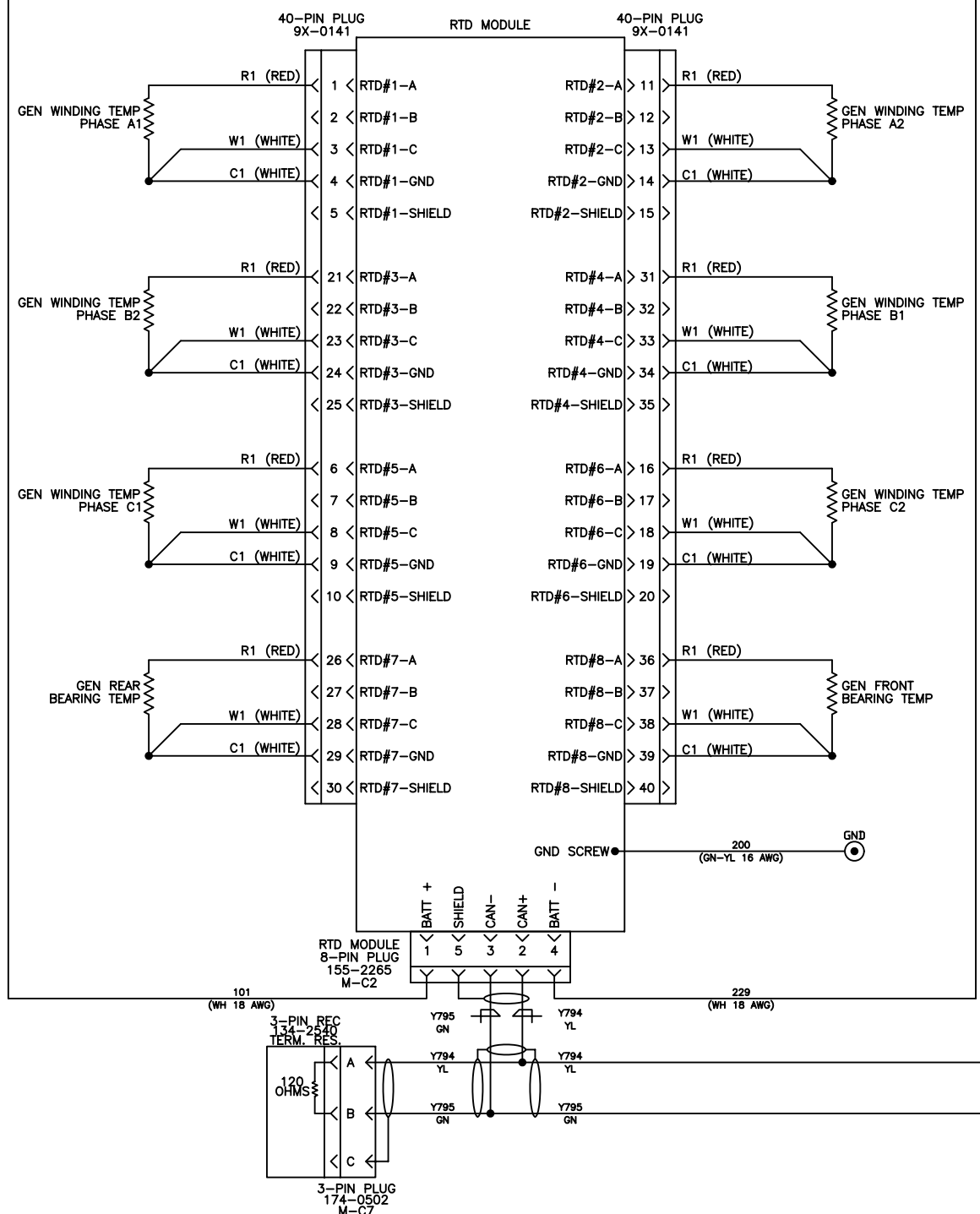
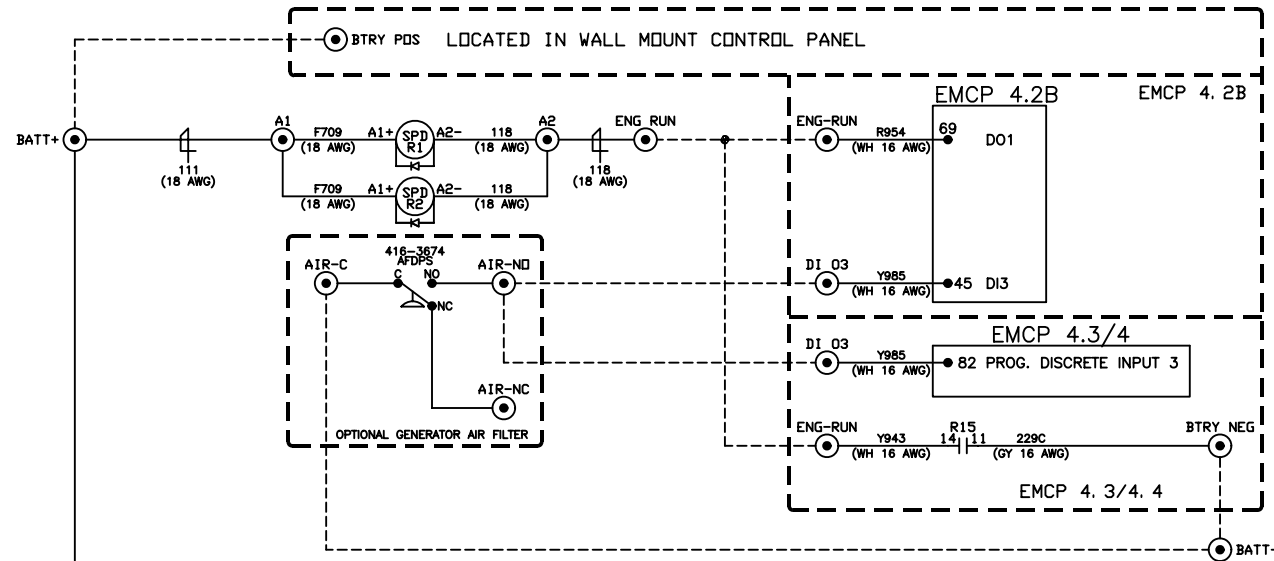


M
A
T
H
T

1E2733 DRAWING - AUTOCAD		
1E0198W BRAND MARKINGS		
1E0013G CONFIDENTIALITY		
1E0012A INTERPRETATION		
1E0011 INTPT & TOL		
SPEC NO.		NAME
DRN M.L. WAGNER		
CHK E.M. SCHROEDER		
APPD J.D. ELDER		
CON-CEPT	EXP	PRE PROD
RECORDS <input checked="" type="checkbox"/>		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC		
SCALE: NONE		00 20OCT16
0 10mm 20 30		
SHEET 22 OF 62		THIRD ANGLE PROJECTION
		CHG DATE

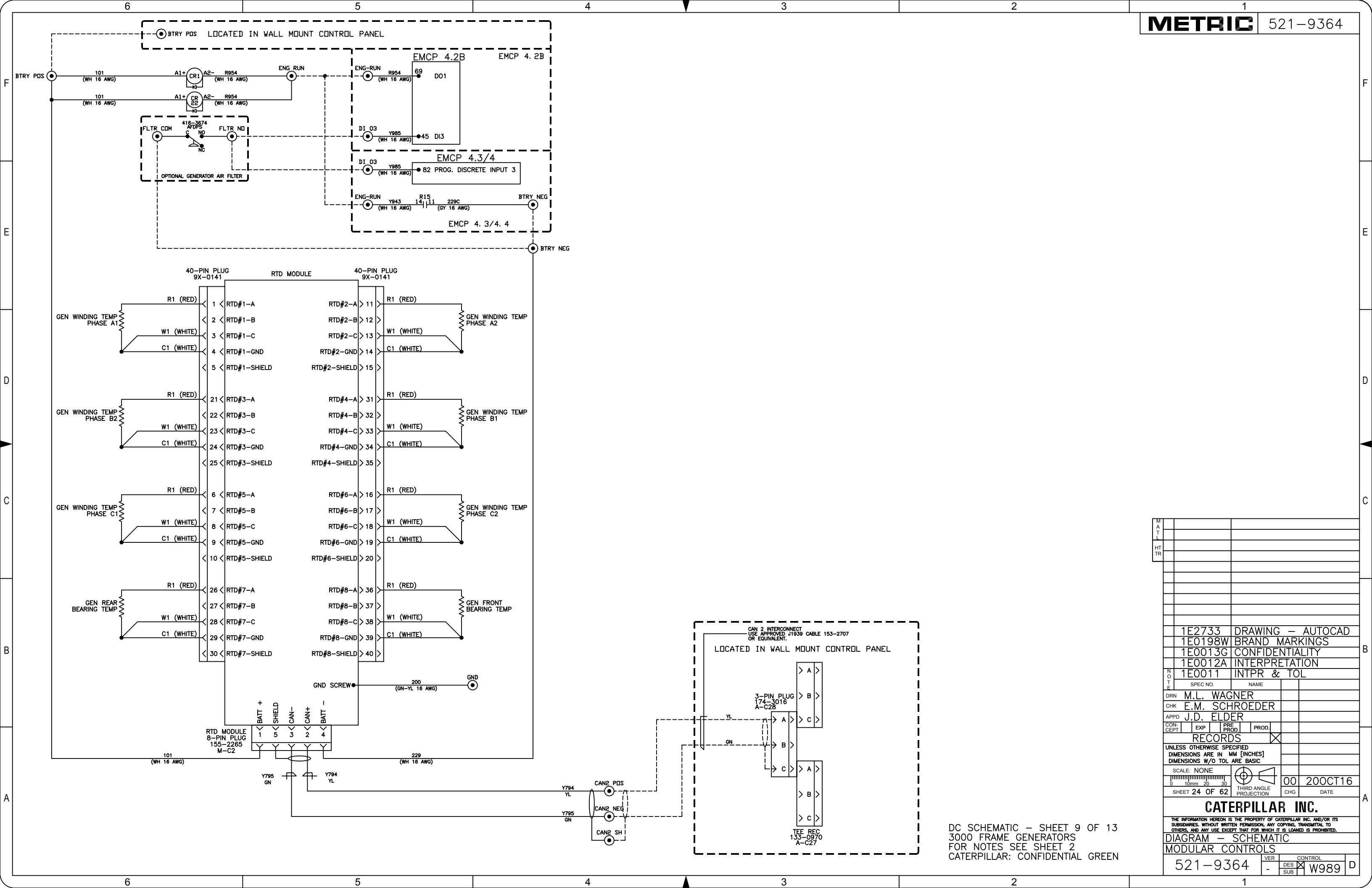
DC SCHEMATIC - SHEET 7 OF 13
CIRCUIT BREAKERS
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

CATERPILLAR INC.		
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.		
DIAGRAM - SCHEMATIC		
MODULAR CONTROLS		
521-9364	VER	CONTROL
	-	DES <input checked="" type="checkbox"/> W989
		SUB



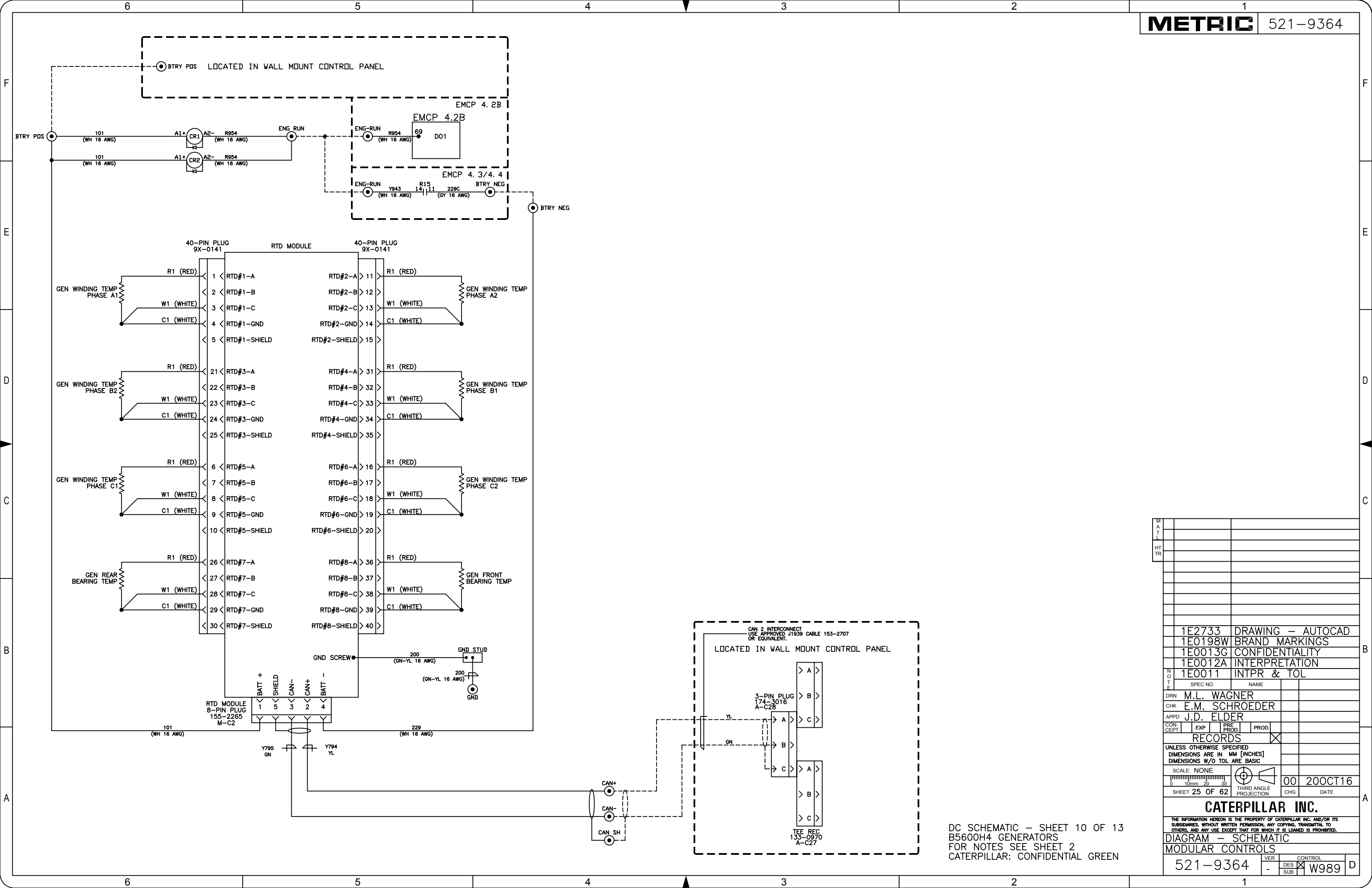
DC SCHEMATIC - SHEET 8 OF 13
 2700 FRAME GENERATORS
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

MA			
HT			
TR			
1E2733		DRAWING - AUTOCAD	
1E0198W		BRAND MARKINGS	
1E0013G		CONFIDENTIALITY	
1E0012A		INTERPRETATION	
1E0011		INTPR & TOL	
SPEC NO.	NAME		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD
RECORDS <input checked="" type="checkbox"/>			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
0 10mm 20 30		THIRD ANGLE PROJECTION	
SHEET 23 OF 62	CHG	DATE	00 20OCT16
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	
		DES	W989
		SUB	



DC SCHEMATIC - SHEET 9 OF 13
 3000 FRAME GENERATORS
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

1E2733	DRAWING - AUTOCAD																		
1E0198W	BRAND MARKINGS																		
1E0013G	CONFIDENTIALITY																		
1E0012A	INTERPRETATION																		
1E0011	INTPR & TOL																		
<table border="1"> <tr> <th>NO</th> <th>SPEC NO.</th> <th>NAME</th> </tr> <tr> <td>DRN</td> <td>M.L. WAGNER</td> <td></td> </tr> <tr> <td>CHK</td> <td>E.M. SCHROEDER</td> <td></td> </tr> <tr> <td>APPD</td> <td>J.D. ELDER</td> <td></td> </tr> <tr> <td>CON-CEPT</td> <td>EXP</td> <td>PRE PROD</td> </tr> <tr> <td>PROD</td> <td></td> <td></td> </tr> </table>		NO	SPEC NO.	NAME	DRN	M.L. WAGNER		CHK	E.M. SCHROEDER		APPD	J.D. ELDER		CON-CEPT	EXP	PRE PROD	PROD		
NO	SPEC NO.	NAME																	
DRN	M.L. WAGNER																		
CHK	E.M. SCHROEDER																		
APPD	J.D. ELDER																		
CON-CEPT	EXP	PRE PROD																	
PROD																			
RECORDS <input checked="" type="checkbox"/>																			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC																			
SCALE: NONE	THIRD ANGLE PROJECTION																		
0 10mm 20 30	00 20OCT16																		
SHEET 24 OF 62	CHG DATE																		
CATERPILLAR INC. THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.																			
DIAGRAM - SCHEMATIC MODULAR CONTROLS																			
521-9364	VER CONTROL																		
	DES SUB W989																		



1E2733	DRAWING - AUTOCAD		
1E0198W	BRAND MARKINGS		
1E0013G	CONFIDENTIALITY		
1E0012A	INTERPRETATION		
1E0011	INTPR & TOL		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD.
RECORDS			
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN MM [INCHES]			
DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
SHEET 25 OF 62	THIRD ANGLE PROJECTION	CHG	DATE
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	
	-	DES	W989
		SUB	

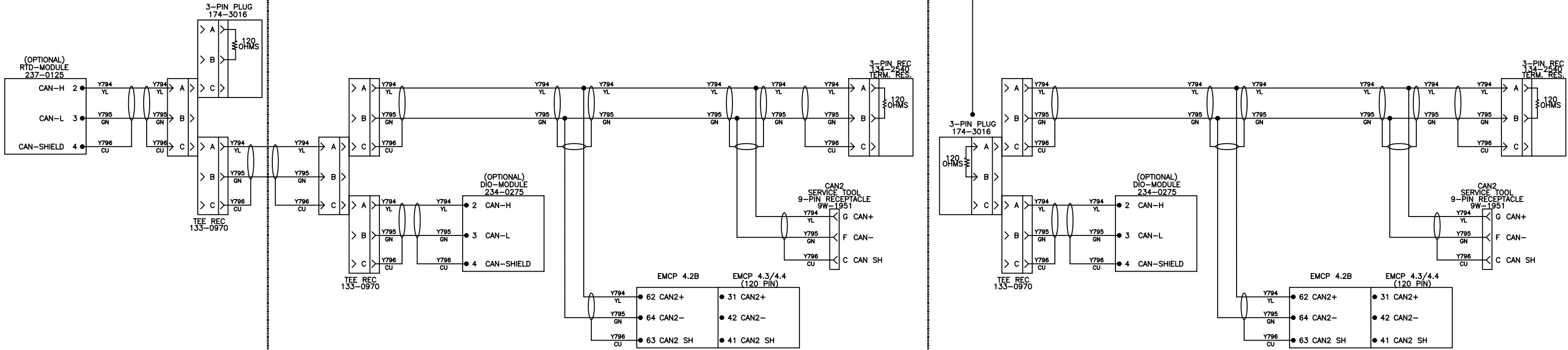
DC SCHEMATIC - SHEET 10 OF 13
 B5600H4 GENERATORS
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

VOLTAGE REGULATOR PANEL

CONTROL PANEL (SHOWN WITH RTD OPTION)

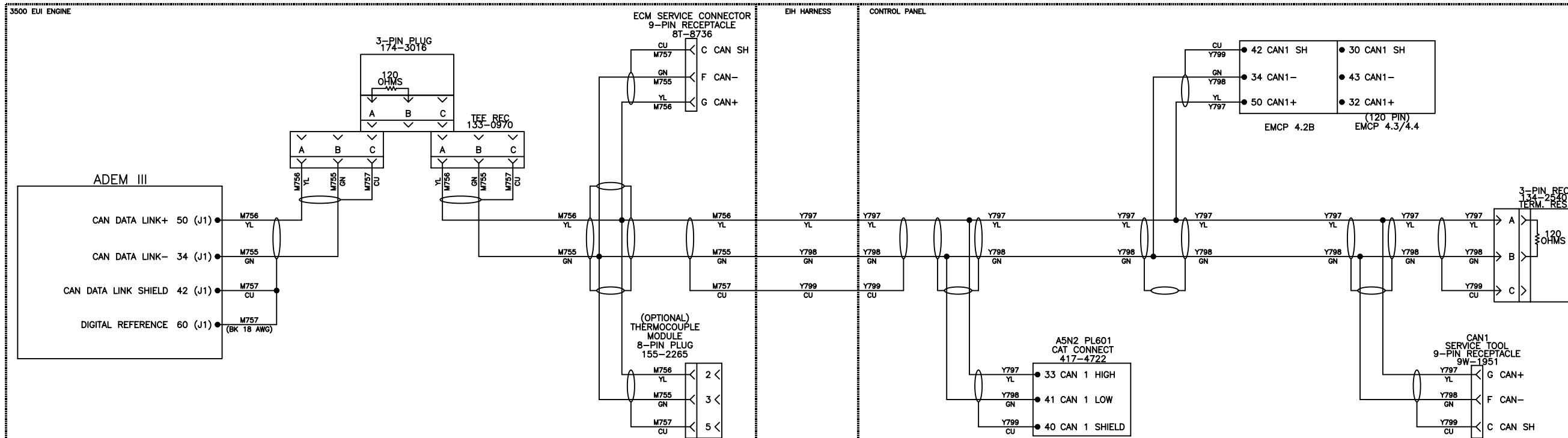
CONTROL PANEL (SHOWN WITHOUT RTD OPTION)

MOVE TERMINATING RESISTOR FROM
CONTROL PANEL 3-WAY CONNECTOR TO
THE VR PANEL 3-WAY CONNECTOR



CAN 2

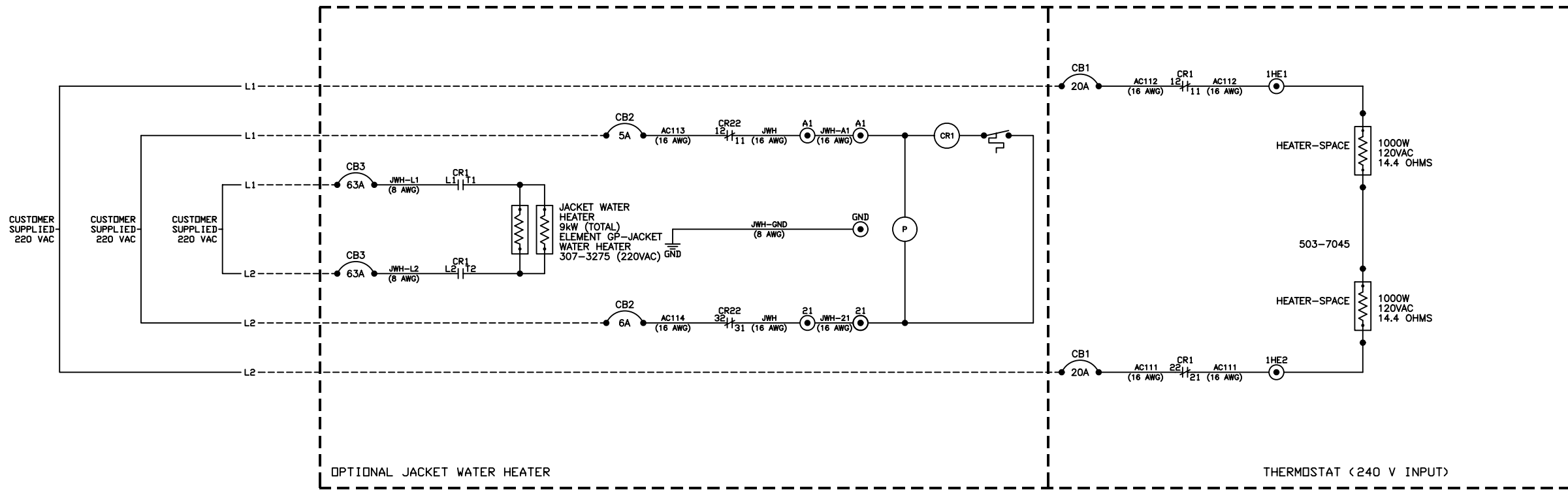
CAN 1



COMMUNICATIONS - CAN1, CAN2
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

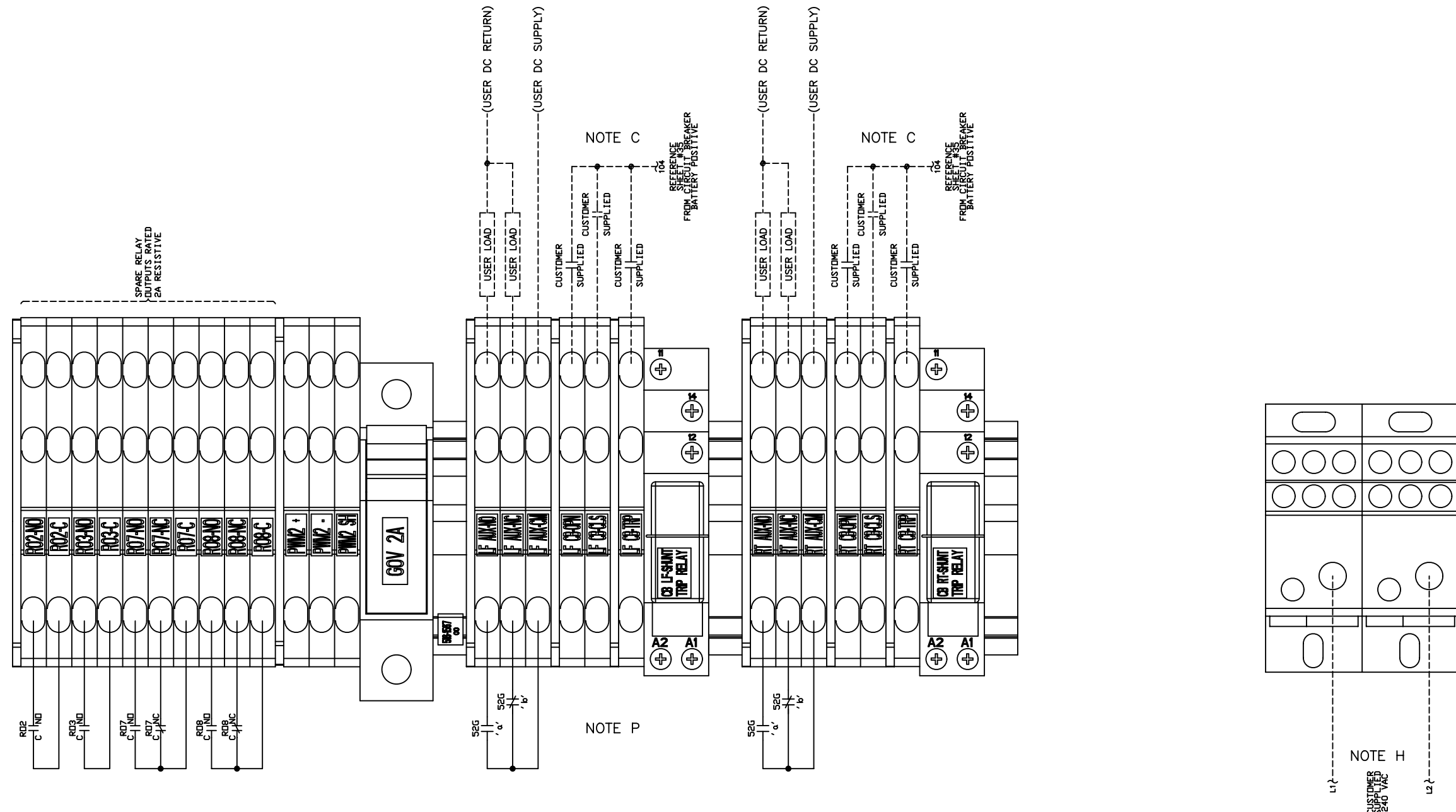
DATE	
HT	
1E2733 DRAWING - AUTOCAD	
1E0198W BRAND MARKINGS	
1E0013G CONFIDENTIALITY	
1E0012A INTERPRETATION	
1E0011 INTPR & TOL	
DRN	M.L. WAGNER
CHK	E.M. SCHROEDER
APPD	J.D. ELDER
CON-CEPT	EXP
	PRE PROD
	PROD
RECORDS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC	
SCALE:	NONE
SHEET	30 OF 62
	THIRD ANGLE PROJECTION
CHG	DATE
	20OCT16
CATERPILLAR INC.	
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.	
DIAGRAM - SCHEMATIC	
MODULAR CONTROLS	
521-9364	VER
	CONTROL
	DES
	SUB
	W989

521-9364 - DES W989



1E2733	DRAWING - AUTOCAD			
1E0198W	BRAND MARKINGS			
1E0013G	CONFIDENTIALITY			
1E0012A	INTERPRETATION			
1E0011	INTPR & TOL			
DRN	M.L. WAGNER			
CHK	E.M. SCHROEDER			
APPD	J.D. ELDER			
CON-CEPT	EXP	PRE-PROD	PROD	<input checked="" type="checkbox"/>
RECORDS				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC				
SCALE: NONE		THIRD ANGLE PROJECTION		
SHEET 34 OF 62	0 10mm 20 30	00	20OCT16	
CATERPILLAR INC.				
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.				
DIAGRAM - SCHEMATIC				
MODULAR CONTROLS				
521-9364	VER	CONTROL	D	
	-	DES	W989	
		SUB		

AC OPTIONS - SHORE POWER SHEET 4 OF 4
B5600H4 GENERATORS
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN



NOTE C

NOTE C

NOTE P

NOTE H

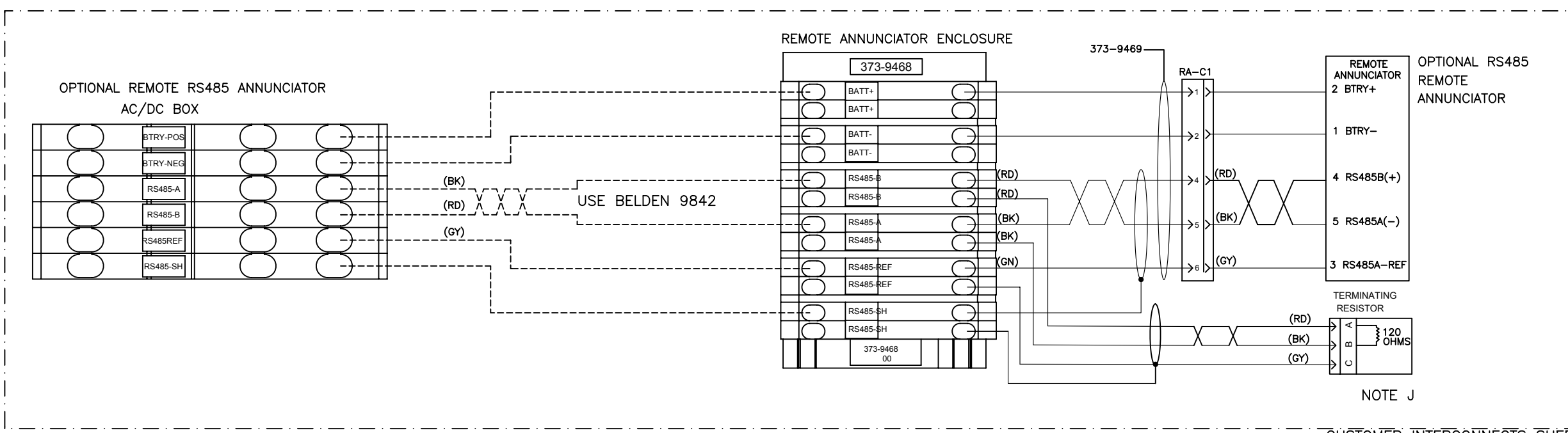
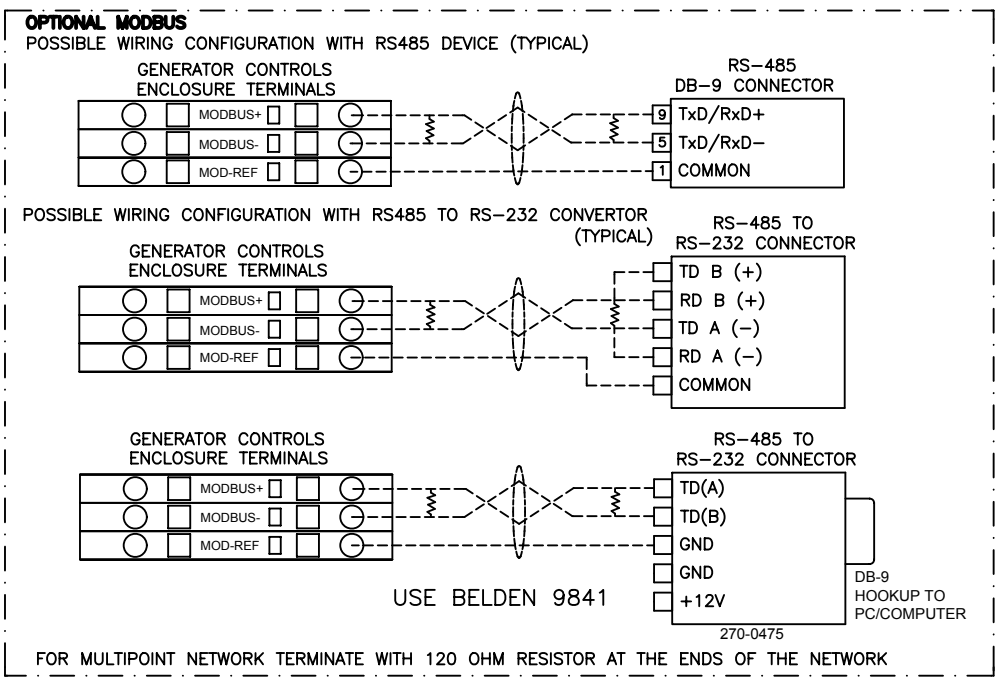
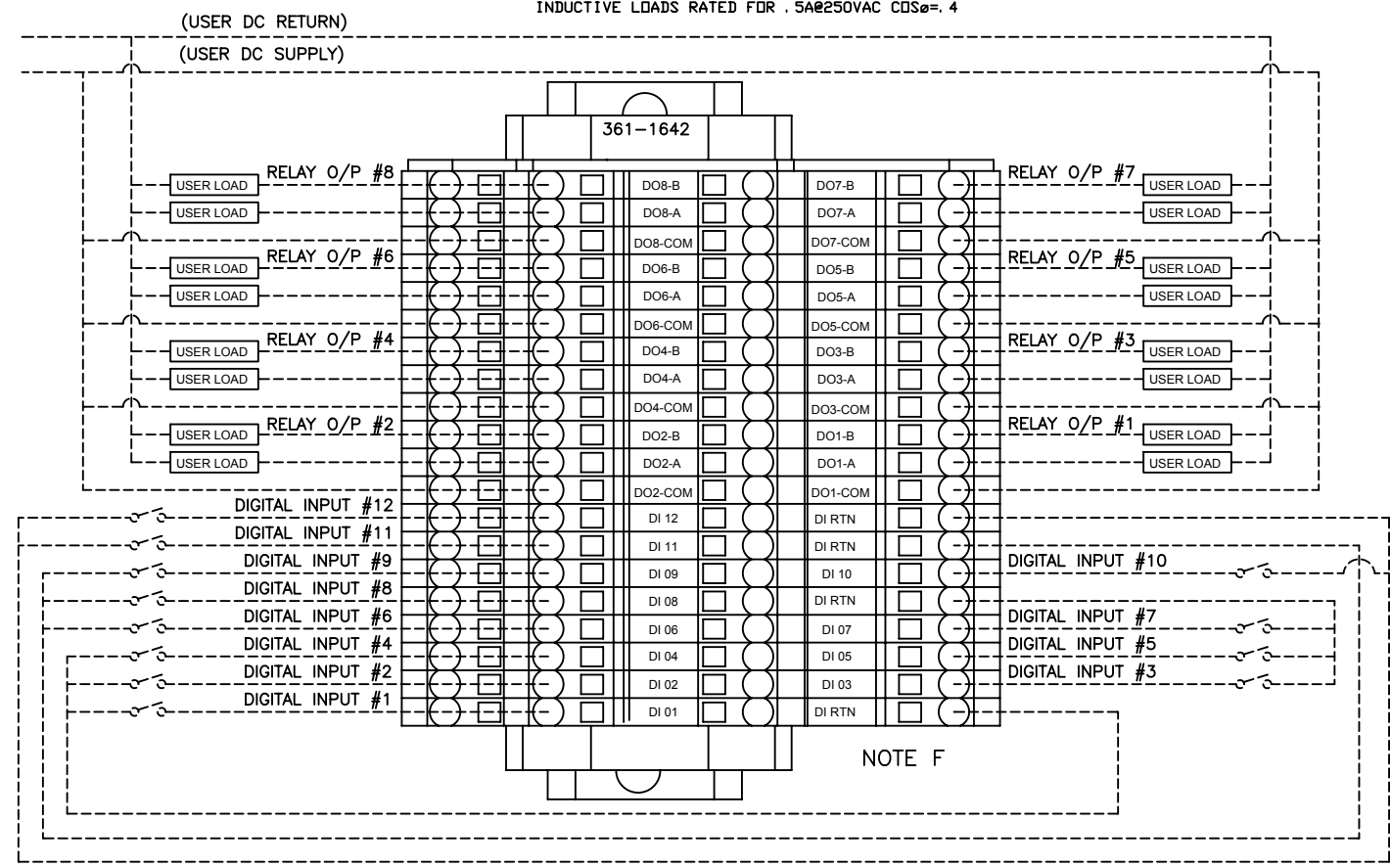
LOCATED IN THE VOLTAGE REGULATOR PANEL

1E2733	DRAWING - AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL
DRN	M.L. WAGNER
CHK	E.M. SCHROEDER
APPD	J.D. ELDER
CON-CEPT	EXP <input type="checkbox"/> PRE PROD <input type="checkbox"/> PROD <input checked="" type="checkbox"/>
RECORDS <input checked="" type="checkbox"/>	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC	
SCALE: NONE	
SHEET 36 OF 62	THIRD ANGLE PROJECTION
CHG	DATE
00	20OCT16
CATERPILLAR INC. <small>THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.</small>	
CUSTOMER INTERCONNECTS SHEET 2 OF 10 EMCP 4.2B, 4.3 FOR NOTES SEE SHEET 2 CATERPILLAR: CONFIDENTIAL GREEN	
521-9364	VER CONTROL - DES <input checked="" type="checkbox"/> SUB <input type="checkbox"/> W989

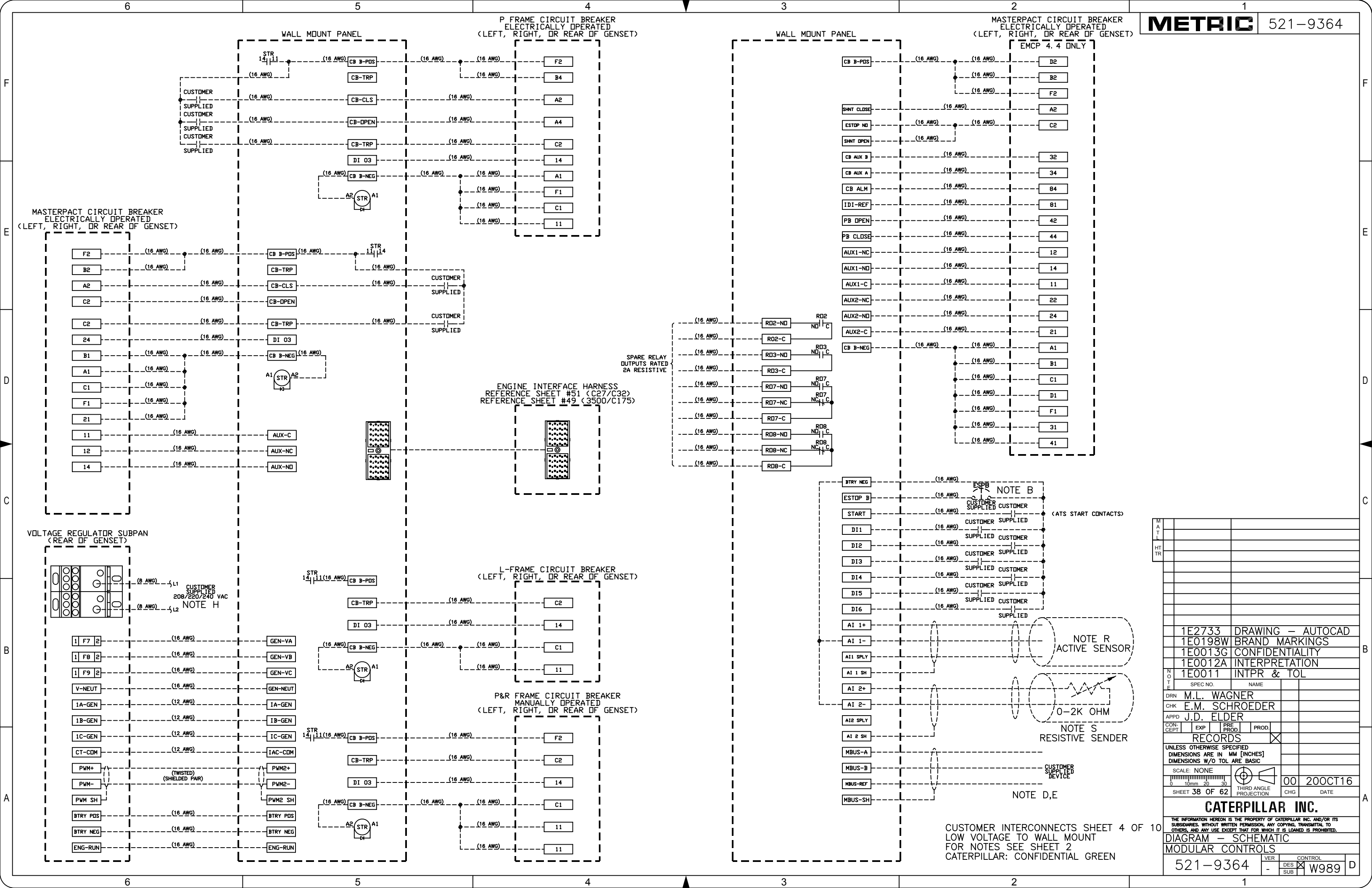
CUSTOMER INTERCONNECTS SHEET 2 OF 10
 EMCP 4.2B, 4.3
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

**OPTIONAL DISCRETE I/O MODULE TERMINALS
(INSTALLED IN AC/DC BOX)**

RESISTIVE LOADS RATED FOR 3A@30VDC
NC/NO CONTACTS RATED FOR 2A@125VAC, 2A@30VDC
INDUCTIVE LOADS RATED FOR .5A@250VAC COSφ= .4



M		
A		
T		
H		
T		
R		
1E2733 DRAWING - AUTOCAD		
1E0198W BRAND MARKINGS		
1E0013G CONFIDENTIALITY		
1E0012A INTERPRETATION		
1E0011 INTPR & TOL		
DRN	M.L. WAGNER	
CHK	E.M. SCHROEDER	
APPD	J.D. ELDER	
CON-CEPT	EXP	PRE-PROD
RECORDS		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC		
SCALE:	NONE	
SHEET	37 OF 62	
THIRD ANGLE PROJECTION		
CHG	00	20OCT16
DATE		
CATERPILLAR INC.		
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.		
DIAGRAM - SCHEMATIC		
MODULAR CONTROLS		
521-9364	VER	CONTROL
-	DES	W989
	SUB	



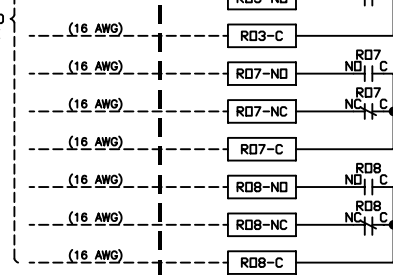
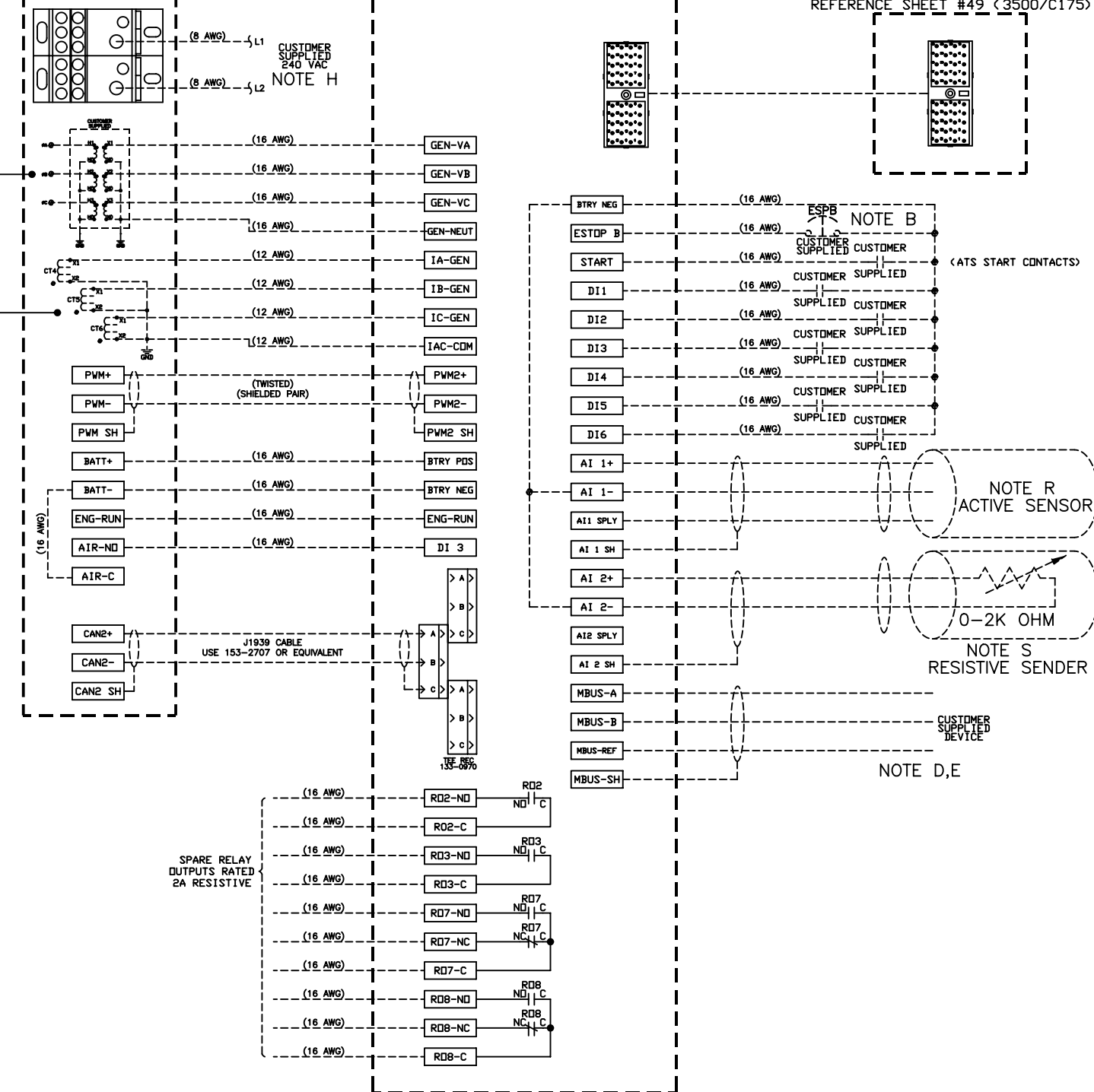
RECORDS		VER	CONTROL
DATE	DRW	DES	SUB
1E2733	M.L. WAGNER		
1E0198W	E.M. SCHROEDER		
1E0013G	J.D. ELDER		
1E0012A			
1E0011			
SPEC NO.		NAME	
DRN		APPD	
CHK		CON-CEPT	
EXP		PRE-PROD.	
PROD.		PROD.	
SCALE: NONE		THIRD ANGLE PROJECTION	
DIMENSIONS ARE IN MM [INCHES]		DIMENSIONS W/O TOL ARE BASIC	
SHEET 38 OF 62		00 20OCT16	
DATE		CHG	
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364		W989	

CUSTOMER INTERCONNECTS SHEET 4 OF 10
 LOW VOLTAGE TO WALL MOUNT
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

2700 FRAME GENERATOR (REAR OF GENSET)

WALL MOUNT PANEL

ENGINE INTERFACE HARNESS
REFERENCE SHEET #51 (C27/C32)
REFERENCE SHEET #49 (3500/C175)



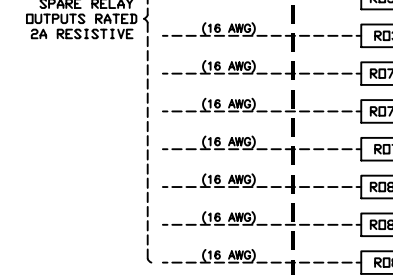
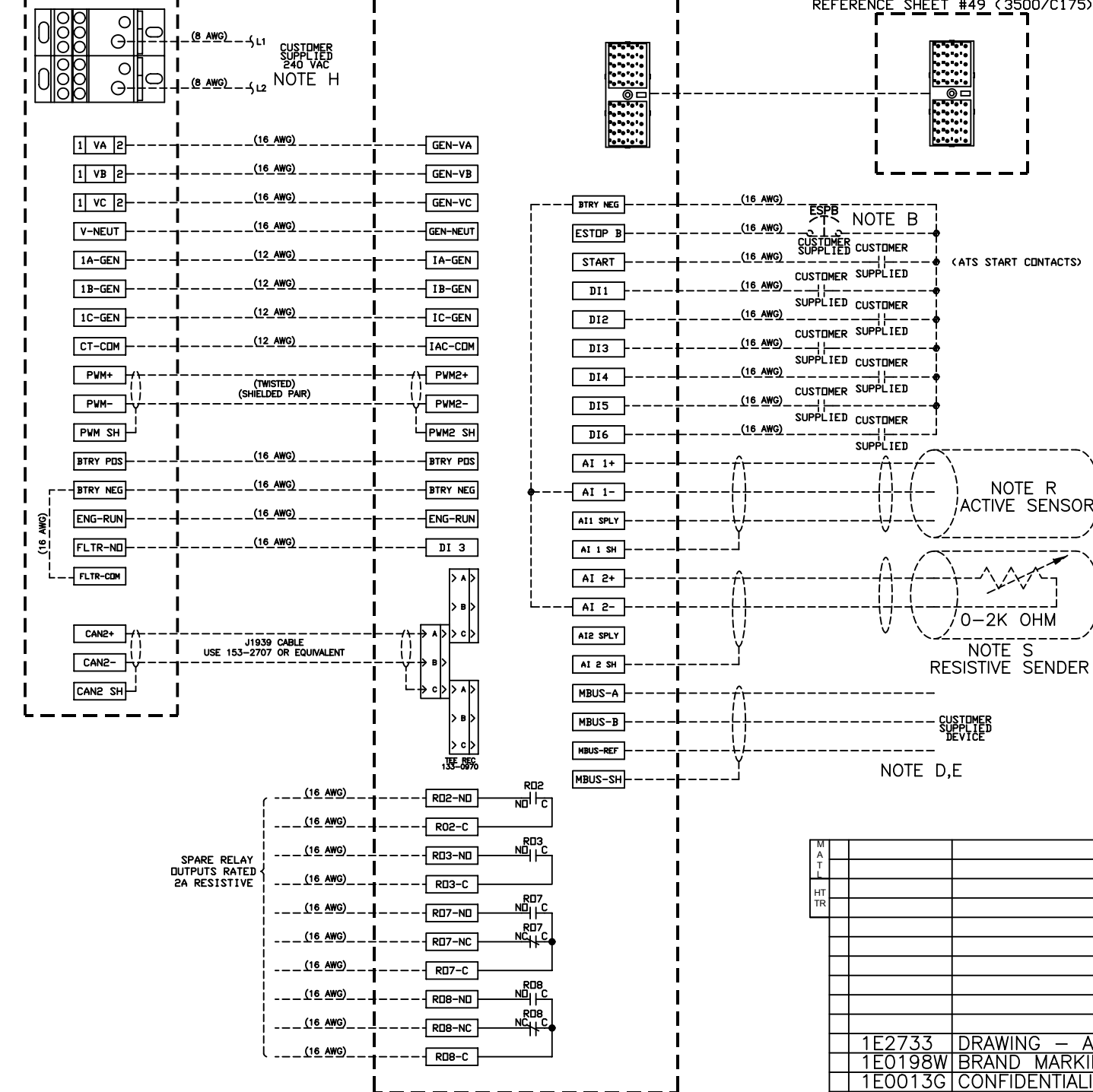
REFERENCE SHEET #13
FOR FURTHER DETAIL ON
VOLTAGE/CURRENT SENSING
AND THE 2700 FRAME GENERATOR

3000 FRAME GENERATOR (REAR OF GENSET)

WALL MOUNT PANEL

METRIC 521-9364

ENGINE INTERFACE HARNESS
REFERENCE SHEET #51 (C27/C32)
REFERENCE SHEET #49 (3500/C175)



CUSTOMER INTERCONNECTS SHEET 5 OF 10
2700/3000 FRAME TO WALL MOUNT
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

M			
A			
T			
L			
HT			
TR			

1E2733 DRAWING - AUTOCAD
 1E0198W BRAND MARKINGS
 1E0013G CONFIDENTIALITY
 1E0012A INTERPRETATION
 1E0011 INTPR & TOL

DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE PROD	PROD
RECORDS			

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MM [INCHES]
 DIMENSIONS W/O TOL ARE BASIC

SCALE: NONE

THIRD ANGLE PROJECTION

00 20OCT16
 SHEET 39 OF 62 CHG DATE

CATERPILLAR INC.
 THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.

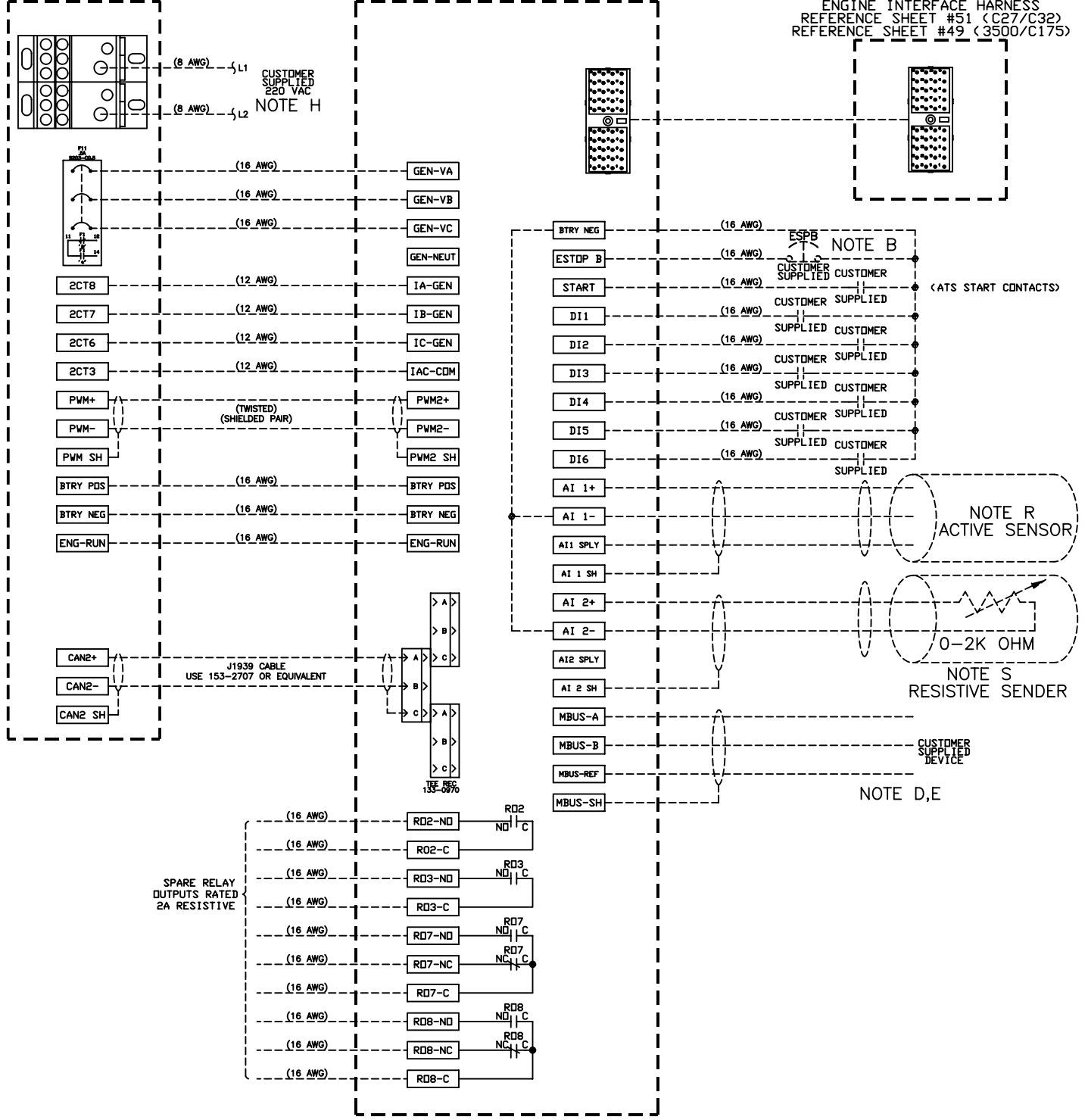
DIAGRAM - SCHEMATIC
 MODULAR CONTROLS

521-9364 - VER CONTROL DES W989 SUB

B5600H4 FRAME GENERATOR
(REAR OF GENSET)

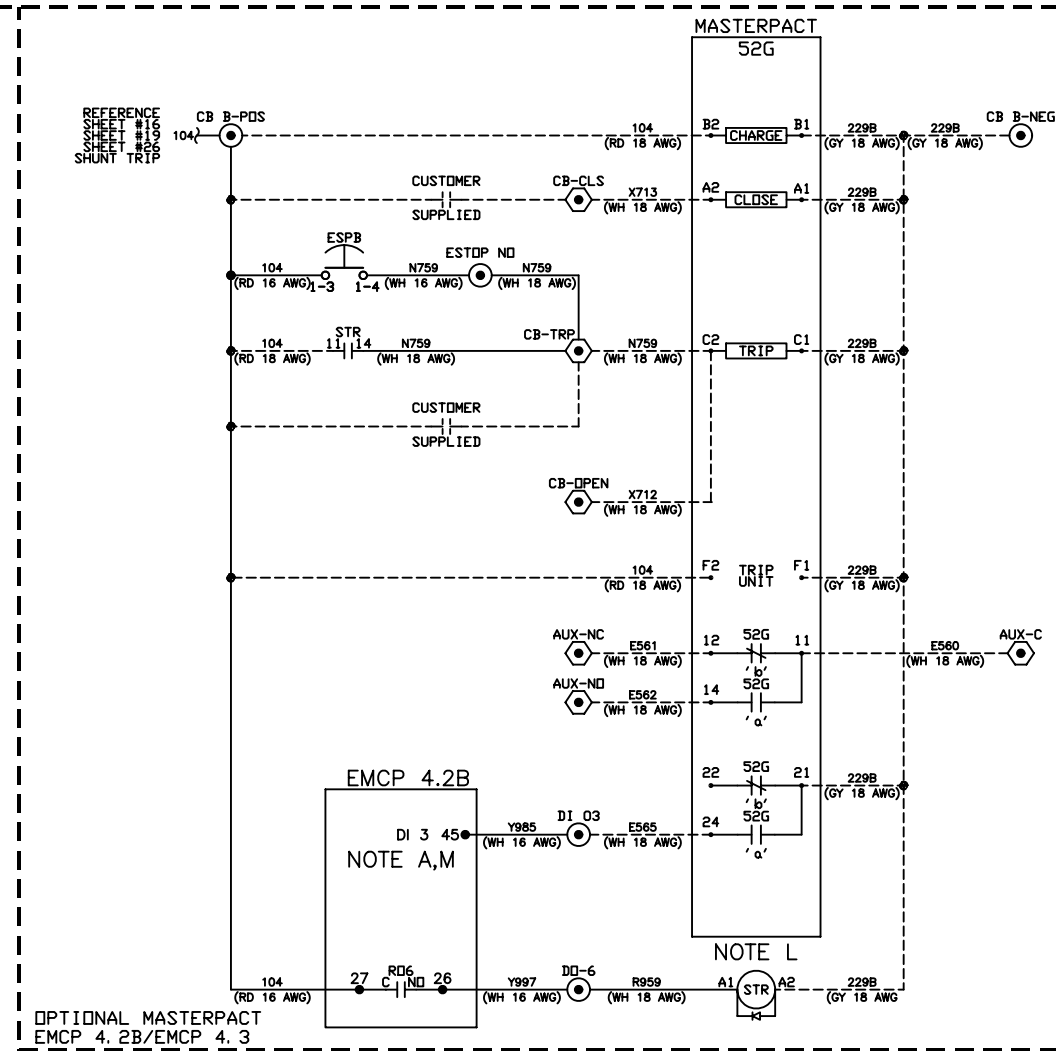
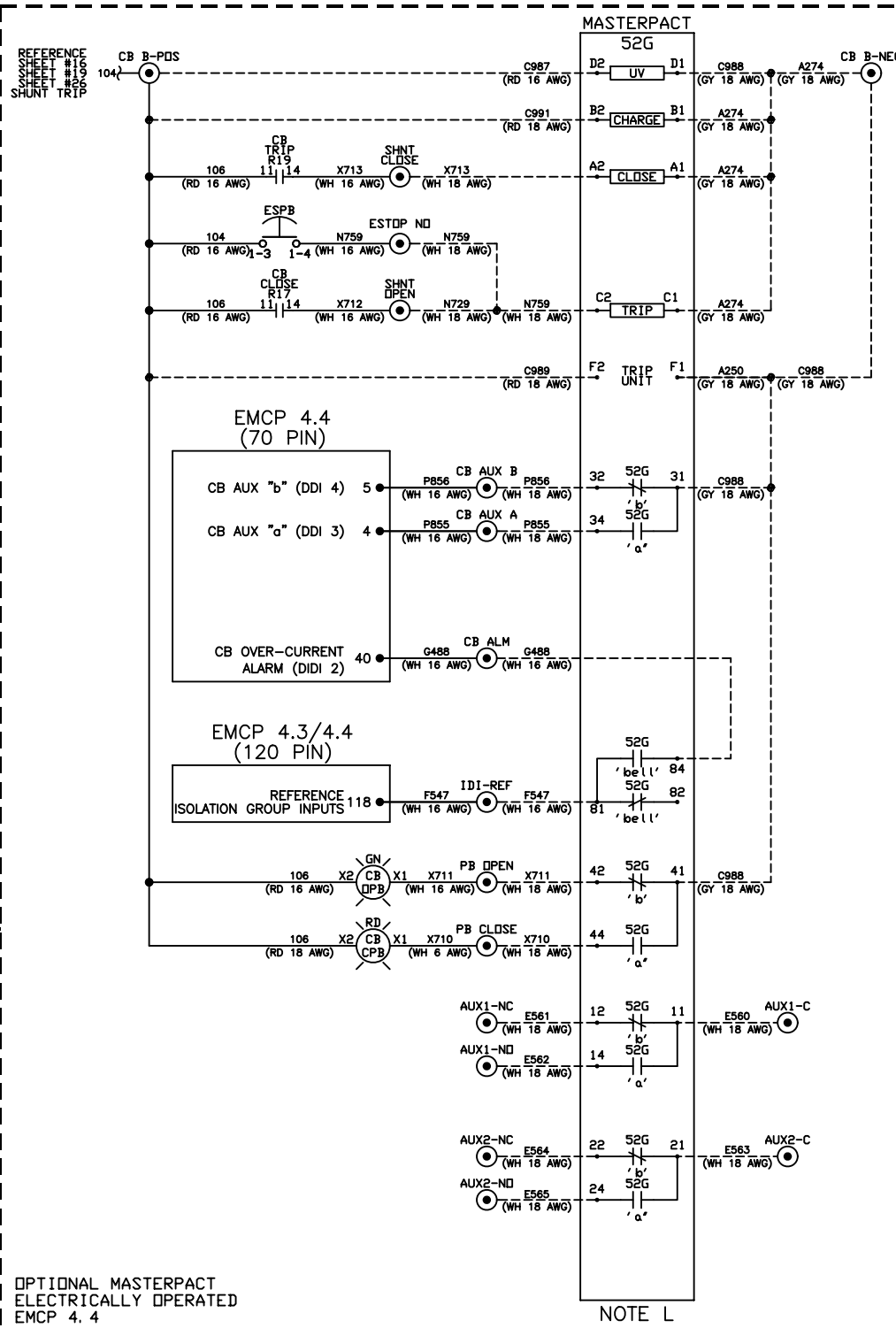
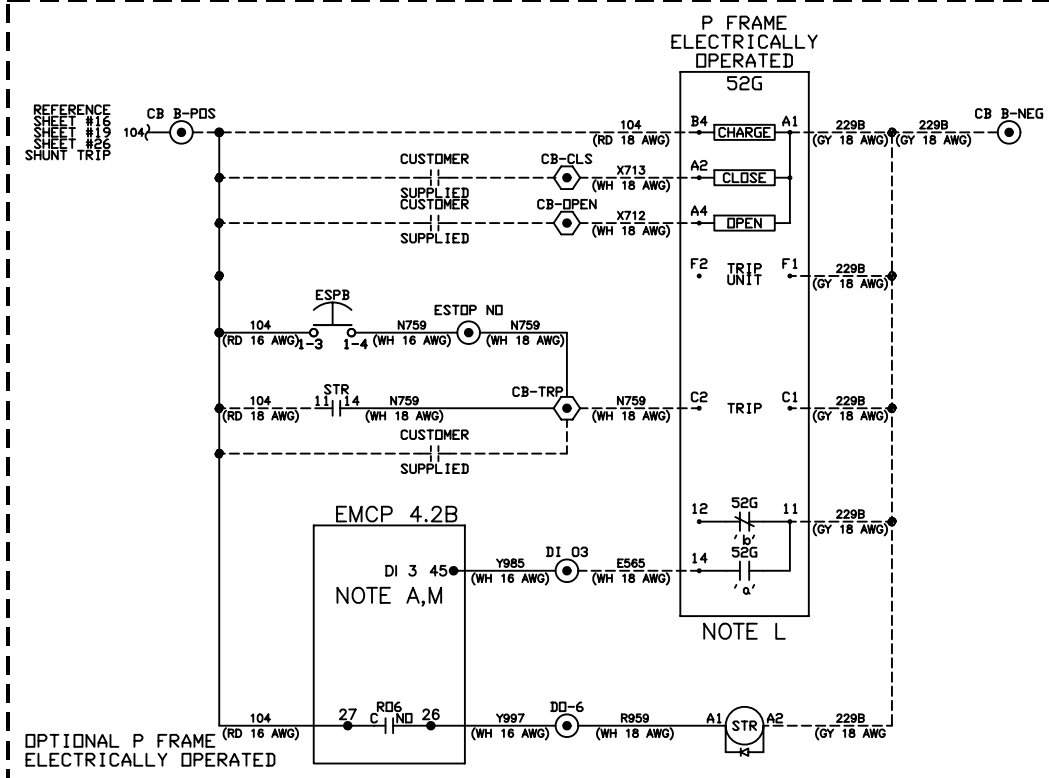
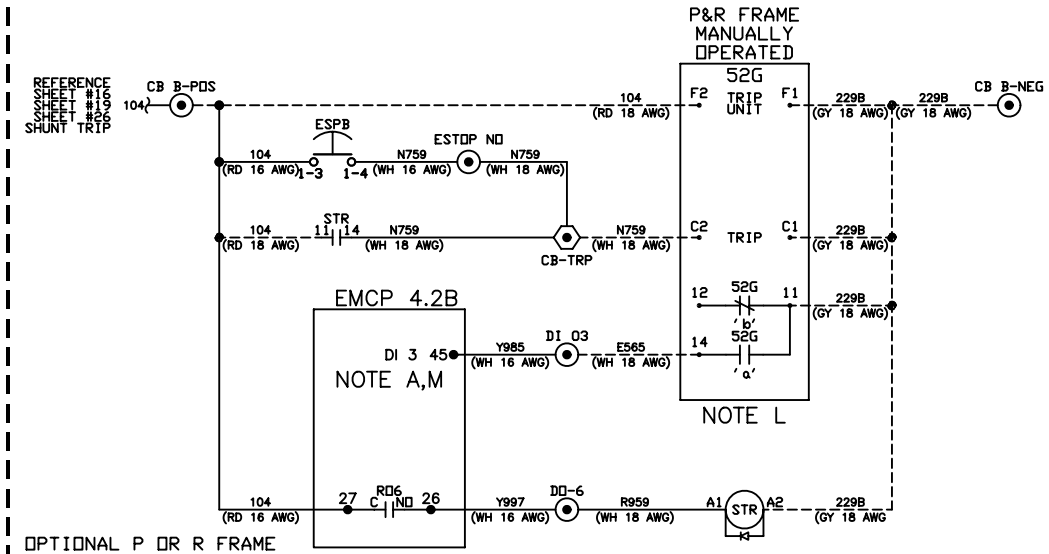
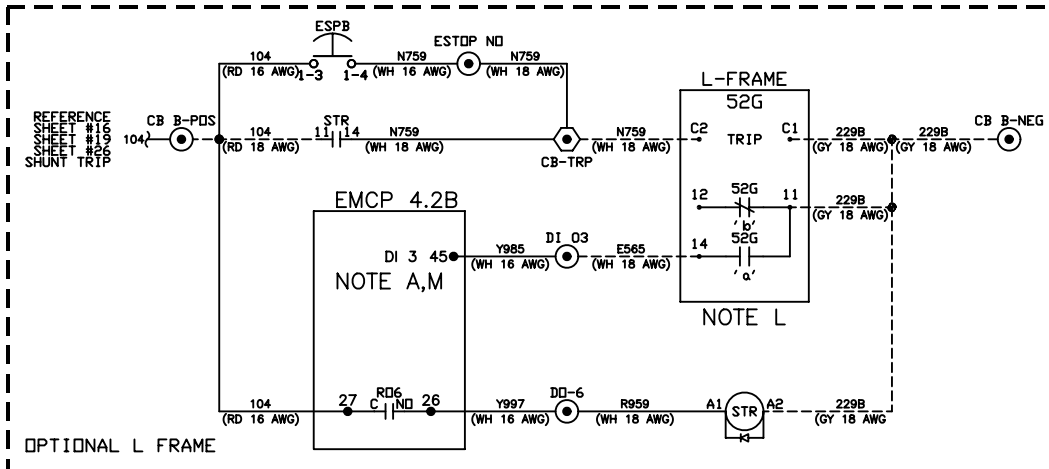
WALL MOUNT PANEL

ENGINE INTERFACE HARNESS
REFERENCE SHEET #51 (C27/C32)
REFERENCE SHEET #49 (3500/C175)



1E2733	DRAWING - AUTOCAD		
1E0198W	BRAND MARKINGS		
1E0013G	CONFIDENTIALITY		
1E0012A	INTERPRETATION		
1E0011	INTPR & TOL		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE PROD	PROD
RECORDS <input checked="" type="checkbox"/>			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
0 10mm 20 30		THIRD ANGLE PROJECTION	
SHEET 40 OF 62	CHG	DATE	00 20OCT16
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	
	-	DES SUB	W989

CUSTOMER INTERCONNECTS SHEET 7 OF 10
B5600H4 TO WALL MOUNT
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

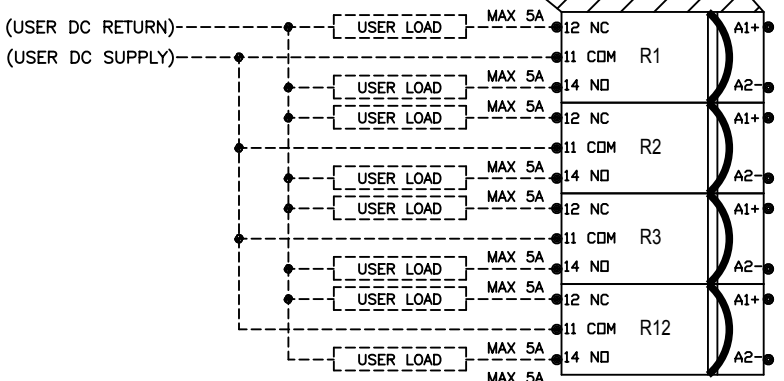
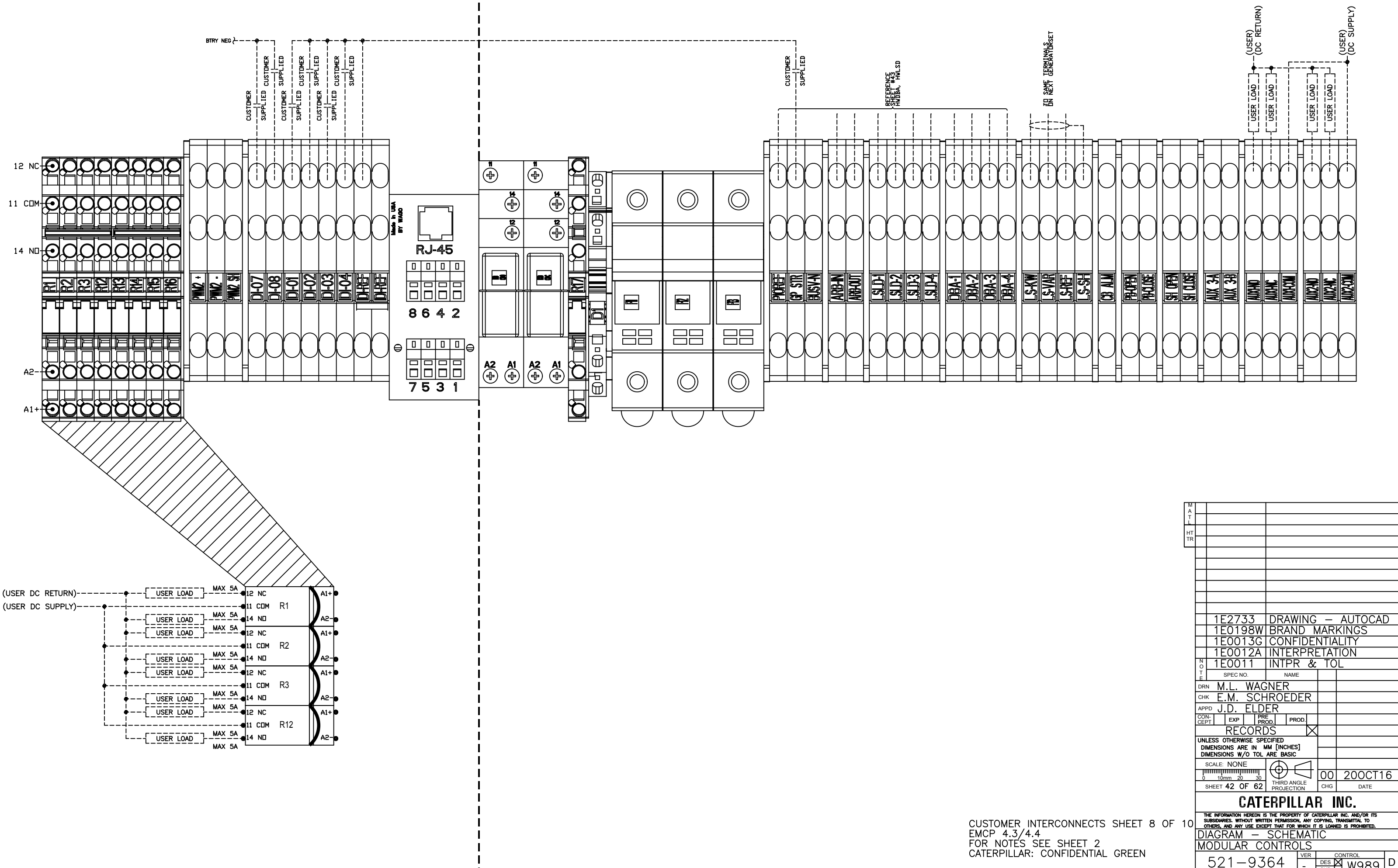


MA			
T			
HT			
TR			
1E2733 DRAWING - AUTOCAD			
1E0198W BRAND MARKINGS			
1E0013G CONFIDENTIALITY			
1E0012A INTERPRETATION			
1E0011 INTPR & TOL			

DRN	CHK	APPD	CON-CEPT	EXP	PRE-PROD	PROD.	SPEC NO.	NAME
M.L. WAGNER	E.M. SCHROEDER	J.D. ELDER						
RECORDS								<input checked="" type="checkbox"/>
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC								
SCALE: NONE								
SHEET 41 OF 62								
THIRD ANGLE PROJECTION								
00 20OCT16								

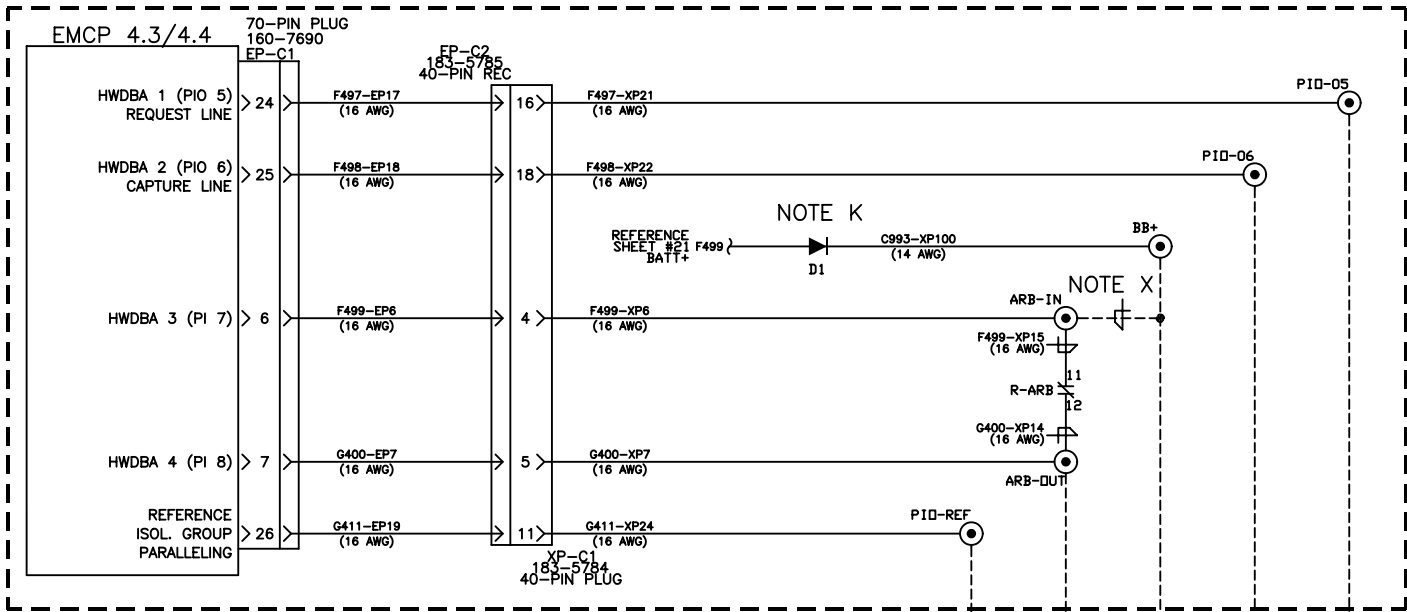
CATERPILLAR INC.			
<small>THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.</small>			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	D
	-	DES	W989
		SUB	

CUSTOMER INTERCONNECTS SHEET 7 OF 10
CIRCUIT BREAKERS TO WALL MOUNT
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

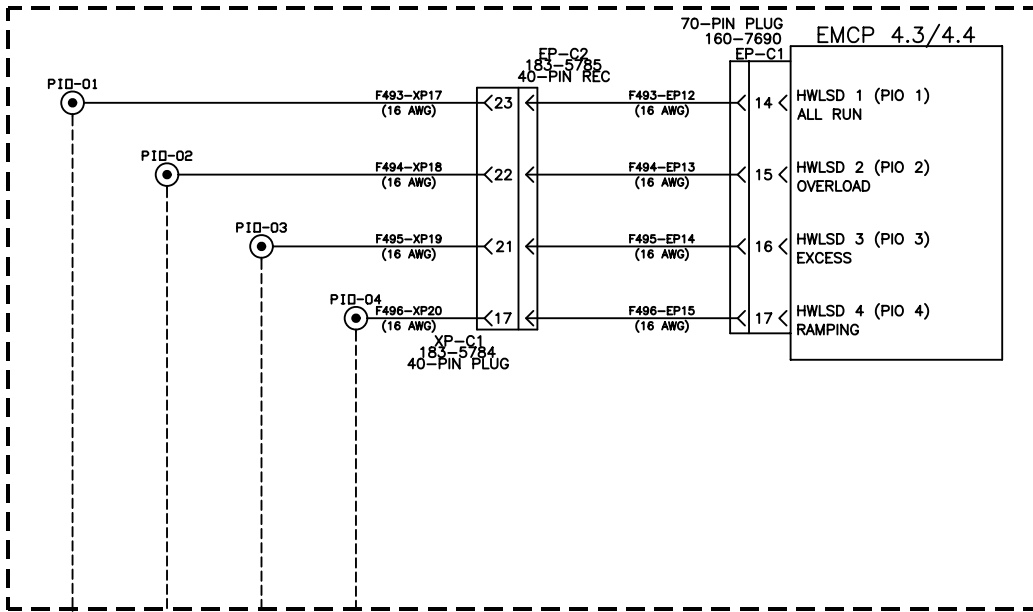


MA		
TR		
1E2733 DRAWING - AUTOCAD		
1E0198W BRAND MARKINGS		
1E0013G CONFIDENTIALITY		
1E0012A INTERPRETATION		
1E0011 INTPR & TOL		
NO	SPEC NO.	NAME
TE		
DRN	M.L. WAGNER	
CHK	E.M. SCHROEDER	
APPD	J.D. ELDER	
CON-CEPT	EXP	PRE-PROD
		PROD
RECORDS <input checked="" type="checkbox"/>		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC		
SCALE: NONE		
0 10mm 20 30		
SHEET 42 OF 62 THRD ANGLE PROJECTION		
00 20OCT16		
CHG DATE		
CATERPILLAR INC.		
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.		
DIAGRAM - SCHEMATIC		
MODULAR CONTROLS		
521-9364		
VER	CONTROL	
-	DES	W989
	SUB	

CUSTOMER INTERCONNECTS SHEET 8 OF 10
EMCP 4.3/4.4
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

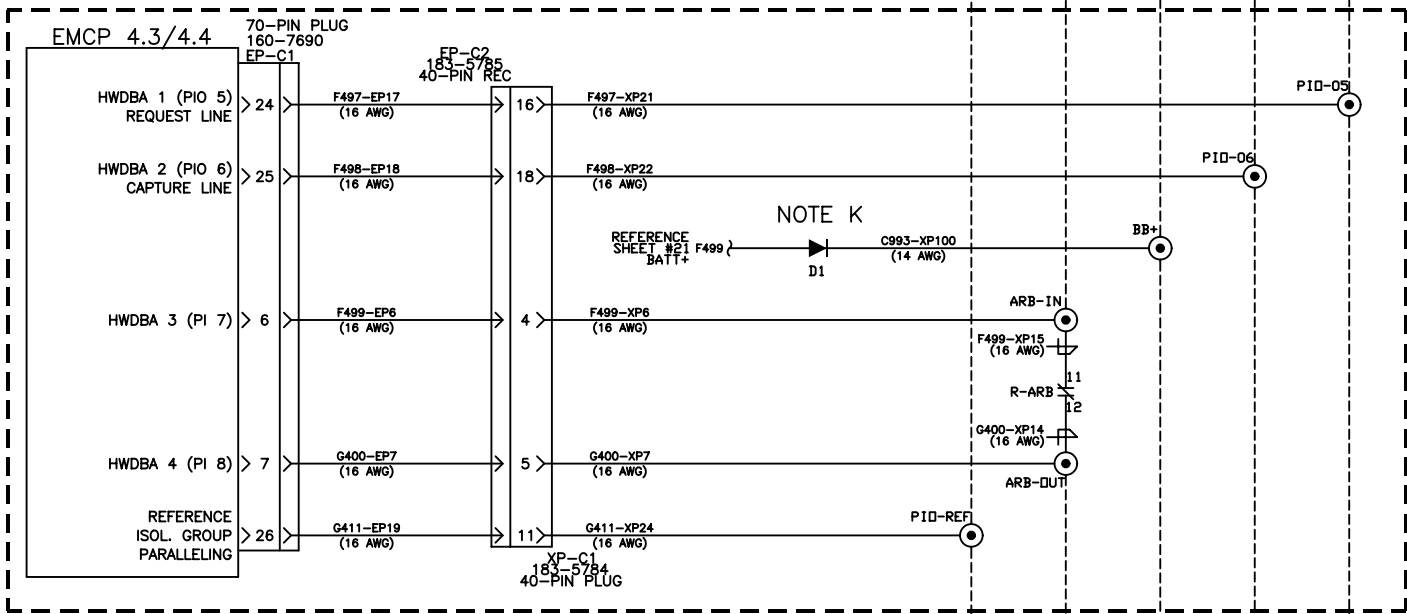


GENERATOR 1

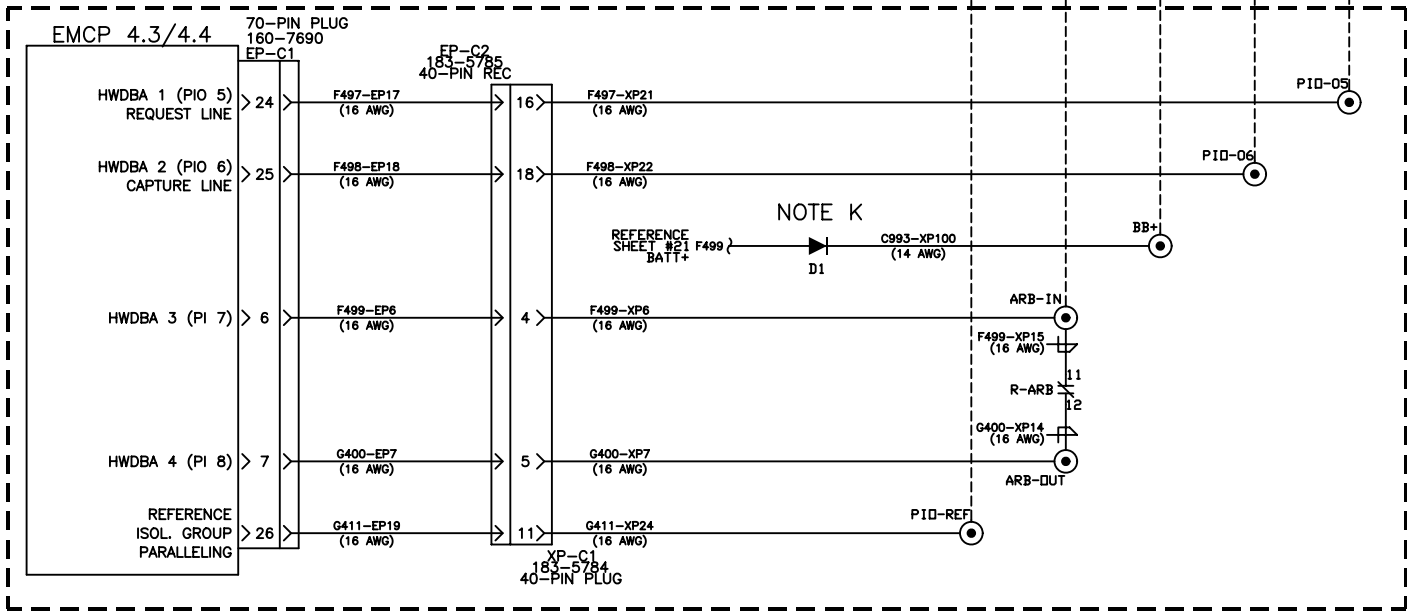
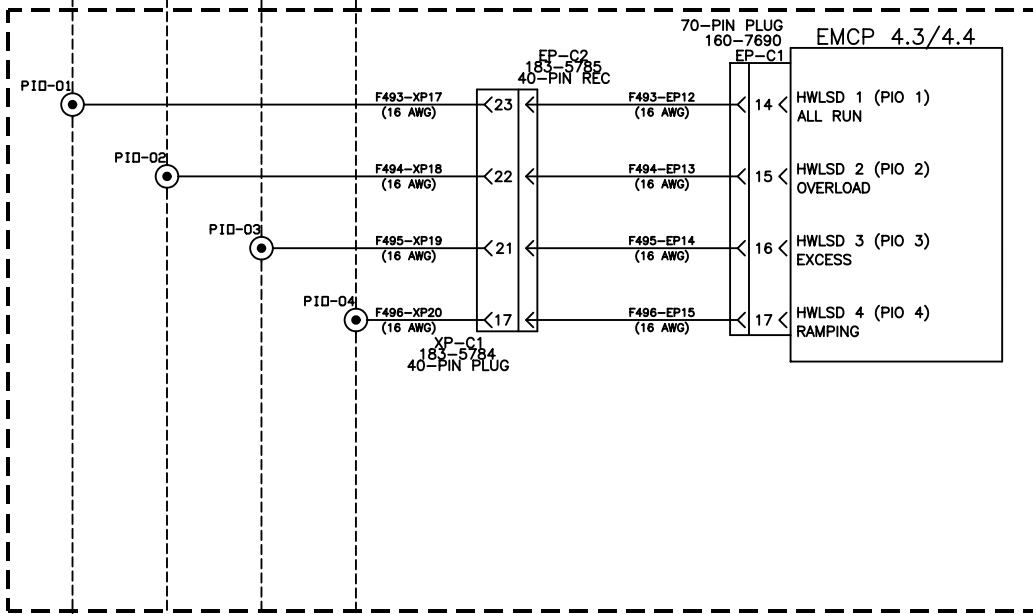


HARDWIRED DEAD BUS ARBITRATION

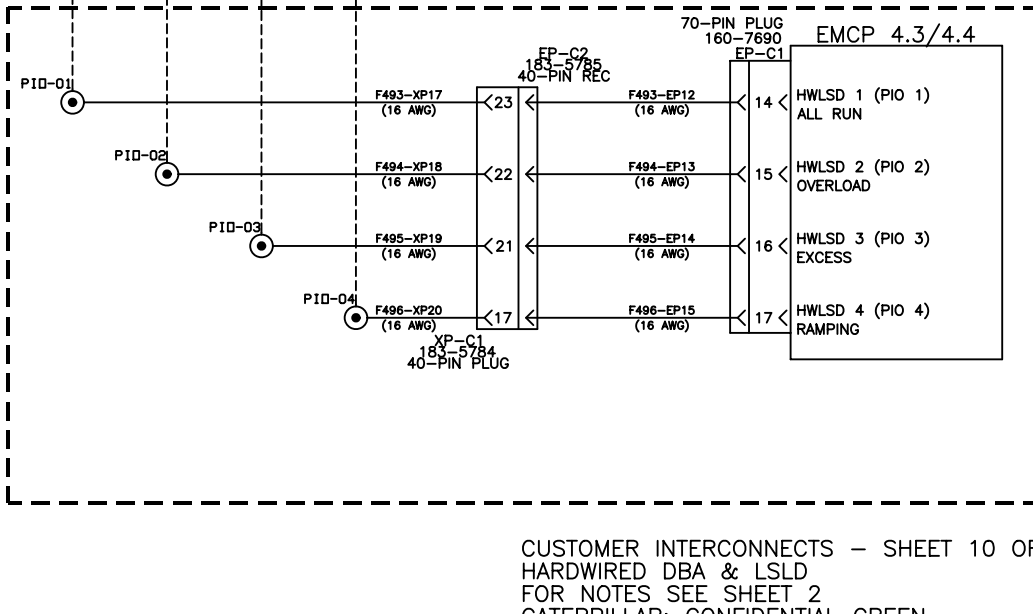
HARDWIRED LOAD SENSE LOAD DEMAND



GENERATOR 2

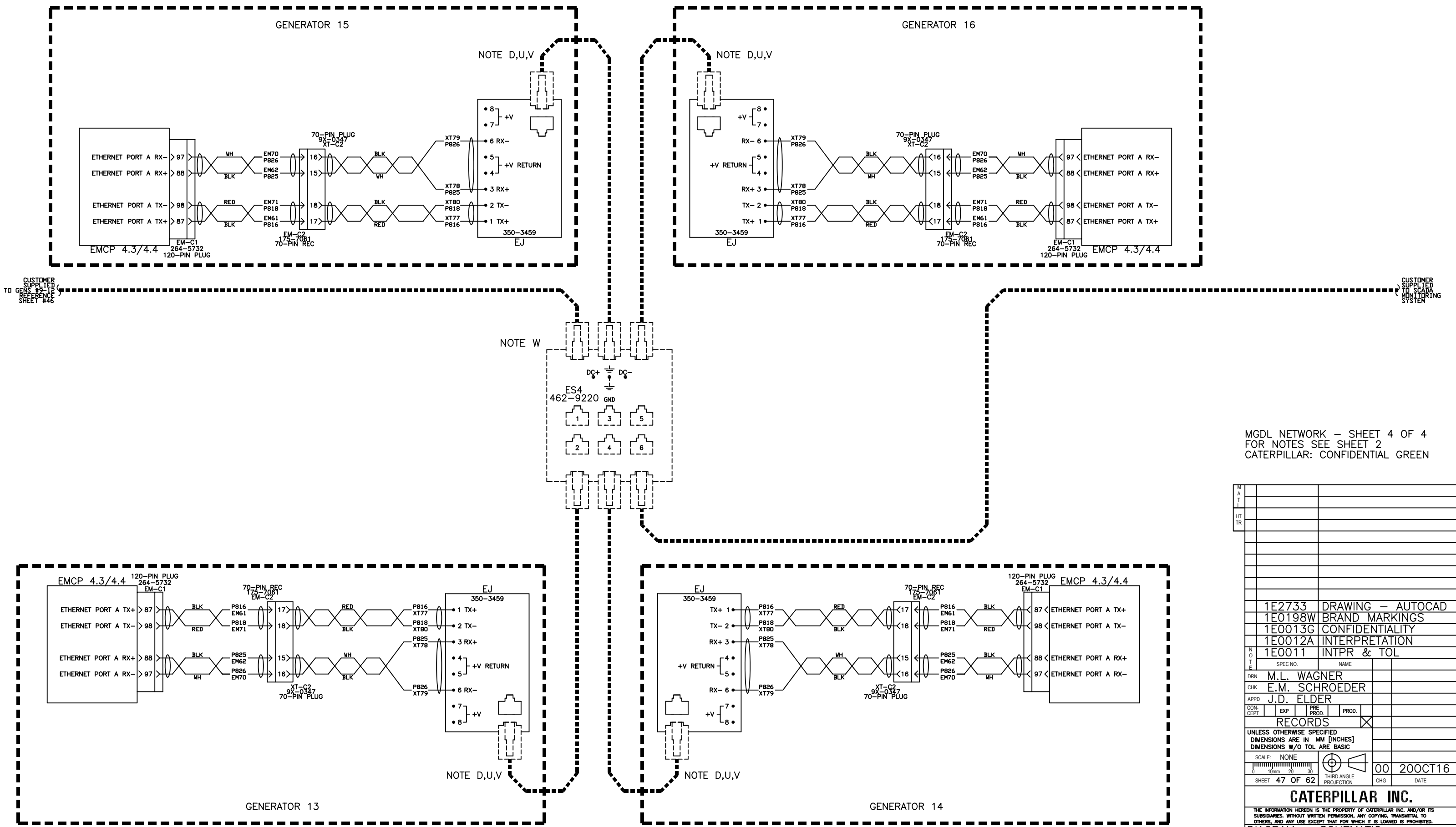


UP TO 8 GENERATORS



CUSTOMER INTERCONNECTS - SHEET 10 OF 10
 HARDWIRED DBA & LSLD
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

MA					
TL					
HT					
TR					
NO					
TE					
DRN	M.L. WAGNER				
CHK	E.M. SCHROEDER				
APPD	J.D. ELDER				
CON-CEPT	EXP	PRE PROD.	PROD.		
1E2733 DRAWING - AUTOCAD					
1E0198W BRAND MARKINGS					
1E0013G CONFIDENTIALITY					
1E0012A INTERPRETATION					
1E0011 INTPR & TOL					
SPEC. NO.		NAME			
RECORDS <input checked="" type="checkbox"/>					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC					
SCALE:	NONE	00 20OCT16			
0 10mm 20 30					
SHEET	43 OF 62				
CATERPILLAR INC.		D			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.					
DIAGRAM - SCHEMATIC MODULAR CONTROLS					
521-9364				VER	CONTROL
		DES SUB	W989		



CUSTOMER SUPPLIED TO GENS #9-12 REFERENCE SHEET #46

CUSTOMER SUPPLIED TO SCADA MONITORING SYSTEM

MGDL NETWORK - SHEET 4 OF 4
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

REV	DATE	DESCRIPTION

1E2733	DRAWING - AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL
SPEC NO. NAME	
DRN	M.L. WAGNER
CHK	E.M. SCHROEDER
APPD	J.D. ELDER
CONCEPT	EXP PRE PROD. PROD.

CATERPILLAR INC.

THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.

DIAGRAM - SCHEMATIC
MODULAR CONTROLS

521-9364	VER	CONTROL
-	DES	W989
-	SUB	

00 20OCT16
SHEET 47 OF 62 CHG DATE

40 PIN RECEPTACLE

DESCRIPTION	PIN#	WIRE # (COLOR AWG)
NOT USED	1	NOT USED
NOT USED	2	NOT USED
NOT USED	3	NOT USED
BATTERY +	25	115 (RD 16 AWG)
BATTERY +	27	116 (RD 16 AWG)
KEY SWITCH	18	390 (WH 16 AWG)
BATTERY +	8	117 (RD 16 AWG)
NOT USED	4	NOT USED
NOT USED	5	NOT USED
NOT USED	6	NOT USED
NOT USED	7	NOT USED
NOT USED	9	NOT USED
NOT USED	10	NOT USED
NOT USED	11	NOT USED
NOT USED	12	NOT USED
DIGITAL RETURN	15	998 (WH 16 AWG)
NOT USED	13	NOT USED
SOFT ESTDP2	17	F719 (WH 16 AWG)
SOFT ESTDP1	19	F715 (WH 16 AWG)
NOT USED	14	NOT USED
RATED SPEED - PWM	21	F702 (WH 16 AWG)
NOT USED	16	NOT USED
ENG SHUTDOWN RELAY	23	354 (WH 16 AWG)
NOT USED	20	NOT USED
NOT USED	22	NOT USED
NOT USED	24	NOT USED
NOT USED	26	NOT USED
NOT USED	28	NOT USED
NOT USED	29	NOT USED
NOT USED	31	NOT USED
NOT USED	33	NOT USED
NOT USED	34	NOT USED
NOT USED	37	NOT USED
NOT USED	40	NOT USED
CAN1 +	35	Y797 (YL 379-2338)
CAN1 -	36	Y798 (GN 379-2338)
CAN1 SH	38	Y799 (CU 379-2338)
BATTERY -	30	229A (GY 16 AWG)
BATTERY -	32	229B (GY 16 AWG)
BATTERY -	39	229C (GY 16 AWG)

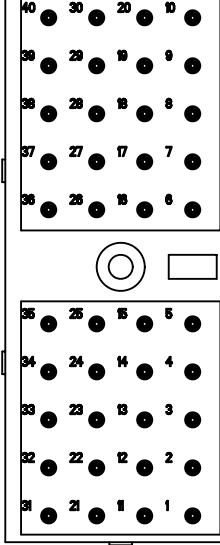
CONNECT TO ENGINE FOR C27/C32

40 PIN PLUG

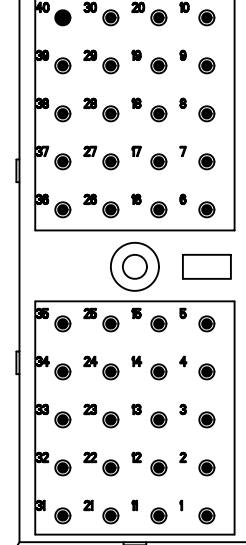
WIRE # (COLOR AWG)	PIN#	DESCRIPTION
NOT USED	1	NOT USED
NOT USED	2	NOT USED
NOT USED	3	NOT USED
115 (RD 16 AWG)	4	F1 10 AMPS
116 (RD 16 AWG)	5	F2 20 AMPS
NOT USED	7	NOT USED
117 (RD 16 AWG)	6	F3 20 AMPS
NOT USED	8	NOT USED
NOT USED	9	NOT USED
NOT USED	10	NOT USED
NOT USED	11	NOT USED
NOT USED	12	NOT USED
NOT USED	13	NOT USED
NOT USED	14	NOT USED
NOT USED	16	NOT USED
998 (WH 16 AWG)	15	DIGITAL RETURN
NOT USED	18	NOT USED
387 (WH 16 AWG)	17	EMERGENCY STOP
NOT USED	19	NOT USED
NOT USED	20	NOT USED
F702 (WH 16 AWG)	21	RATED SPEED - PWM
NOT USED	22	NOT USED
354 (WH 16 AWG)	23	EMERGENCY STOP
NOT USED	24	NOT USED
NOT USED	25	NOT USED
NOT USED	26	NOT USED
NOT USED	27	NOT USED
NOT USED	28	NOT USED
NOT USED	29	NOT USED
NOT USED	33	NOT USED
NOT USED	34	NOT USED
NOT USED	37	NOT USED
NOT USED	39	NOT USED
NOT USED	40	NOT USED
Y797 (YL 379-2338)	35	CAN1 +
Y798 (GN 379-2338)	36	CAN1 -
Y799 (CU 379-2338)	38	CAN1 SH
229A (GY 16 AWG)	30	BATTERY -
229B (GY 16 AWG)	31	BATTERY -
229C (GY 16 AWG)	32	BATTERY -

CONNECT TO MODULAR CONTROL PANEL

9X-1339
40 PIN RECEPTACLE



8T-9834
40 PIN PLUG



MATERIAL	
HT	
TR	

1E2733 DRAWING - AUTOCAD
1E0198W BRAND MARKINGS
1E0013G CONFIDENTIALITY
1E0012A INTERPRETATION
1E0011 INTPR & TOL

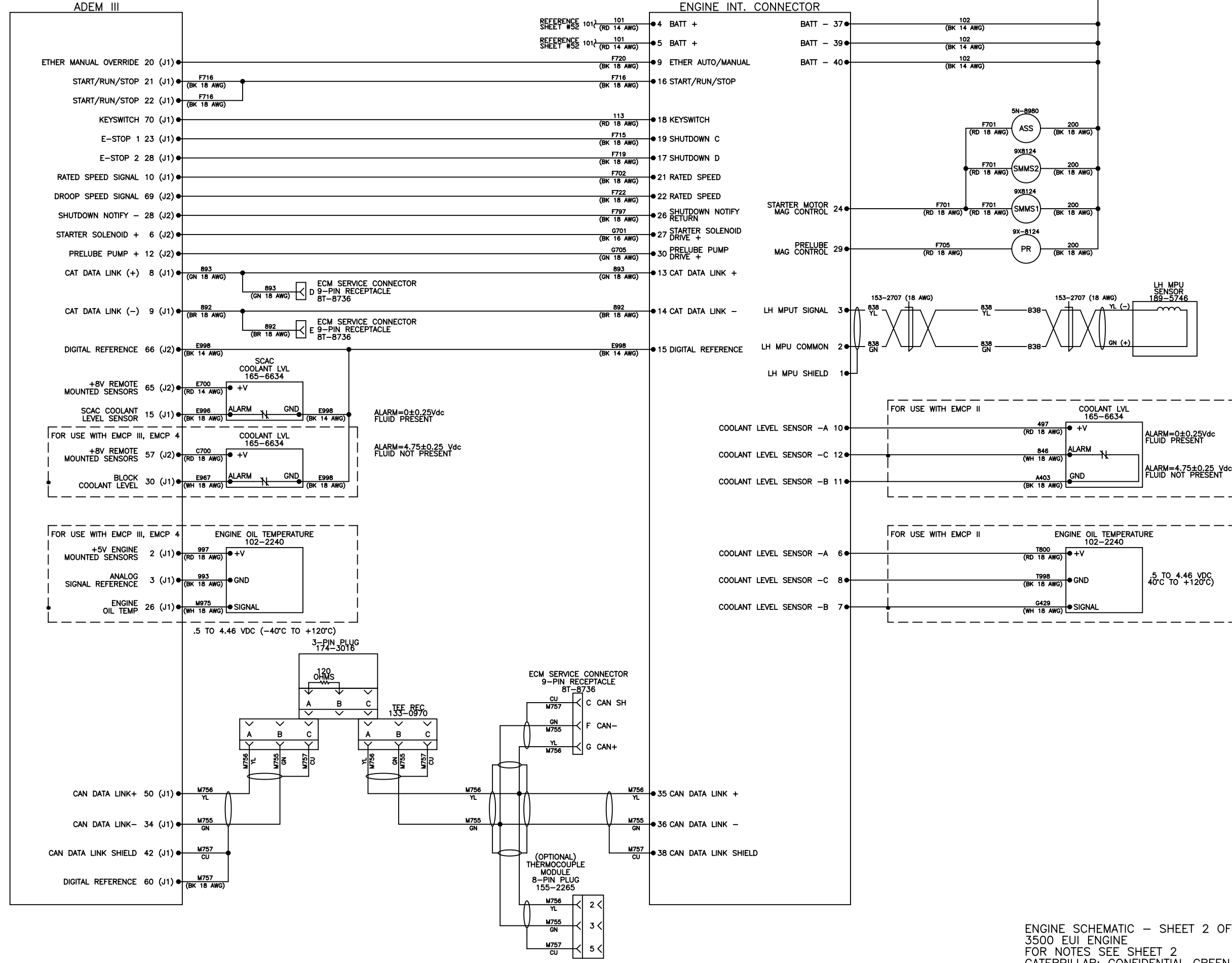
DRN	M.L. WAGNER	
CHK	E.M. SCHROEDER	
APPD	J.D. ELDER	
CONCEPT	EXP	PRE PROD
RECORDS <input checked="" type="checkbox"/>		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC		
SCALE: NONE		00 20OCT16
SHEET 50 OF 62		CHG DATE

CATERPILLAR INC.

ENGINE INTERFACE HARNESS SHEET 3 OF 4
ON PACKAGE CONTROLS (C27/C32)
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

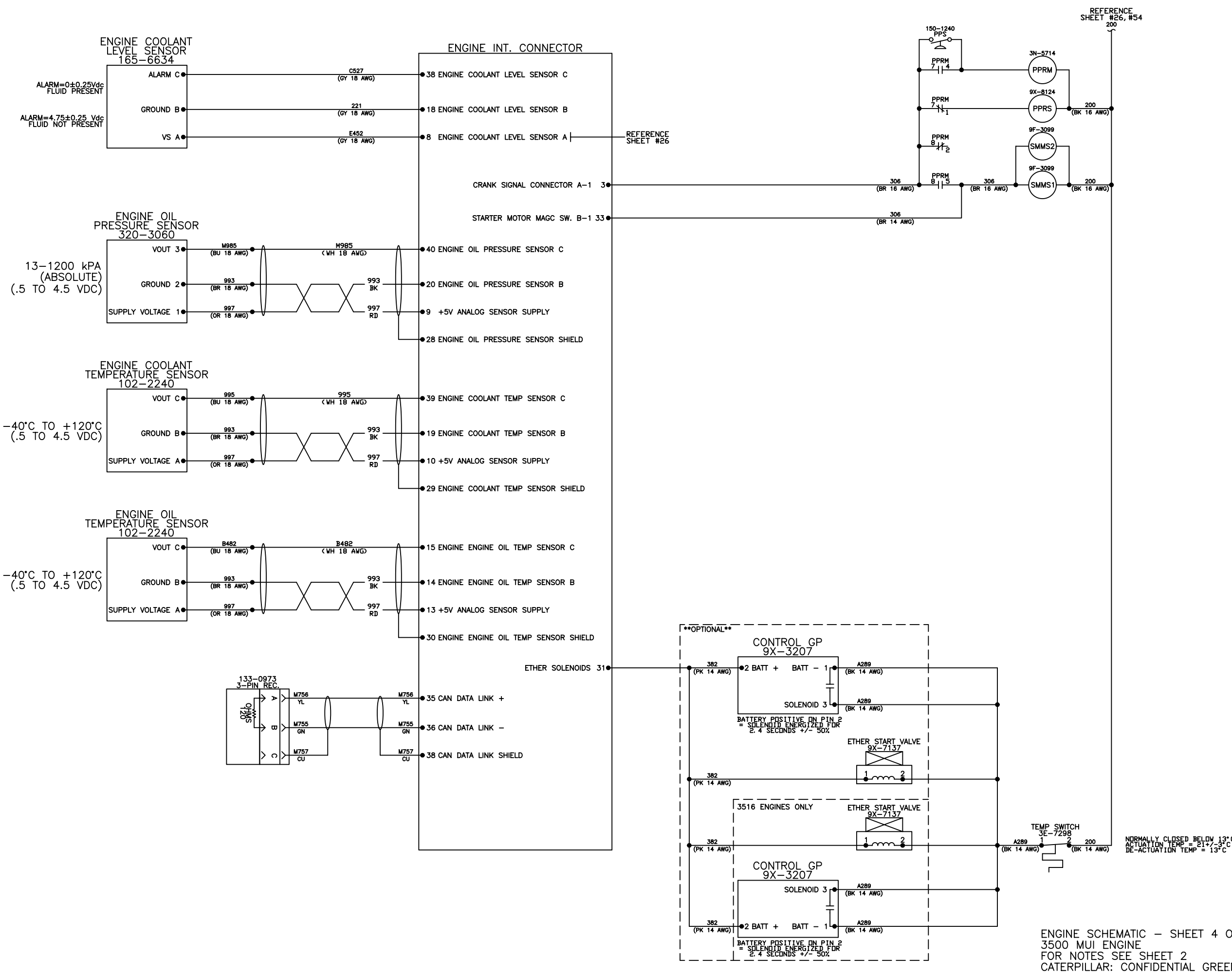
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.
DIAGRAM - SCHEMATIC
MODULAR CONTROLS

521-9364	VER	CONTROL	
-	DES	W989	D



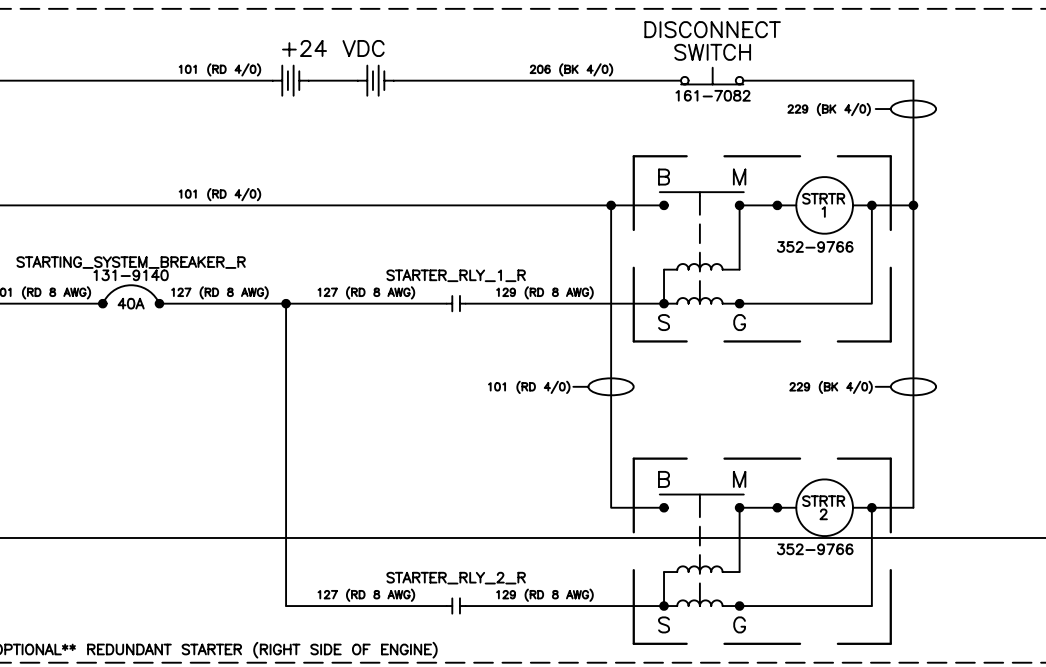
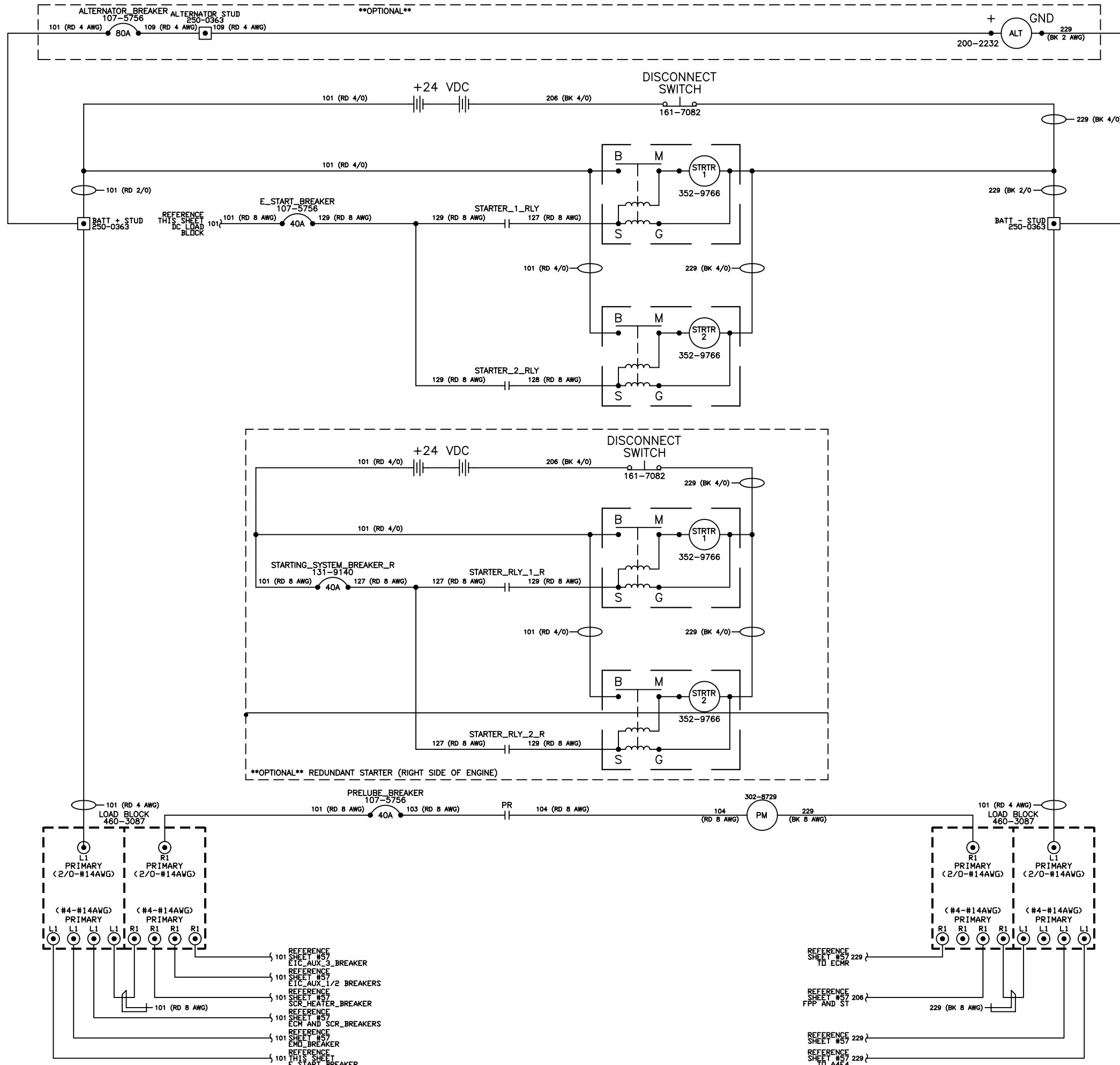
ENGINE SCHEMATIC - SHEET 2 OF 11
 3500 EUI ENGINE
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

1E2733	DRAWING - AUTOCAD		
1E0198W	BRAND MARKINGS		
1E0013G	CONFIDENTIALITY		
1E0012A	INTERPRETATION		
1E0011	INTPR & TOL		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD.
RECORDS			
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN MM [INCHES]			
DIMENSIONS W/O TOL ARE BASIC			
SCALE:	NONE	THIRD ANGLE PROJECTION	00 20OCT16
SHEET	53 OF 62	CHG	DATE
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364	VER	CONTROL	D
	-	DES	W989
		SUB	



M			
A			
T			
H			
T			
R			
1E2733 DRAWING - AUTOCAD			
1E0198W BRAND MARKINGS			
1E0013G CONFIDENTIALITY			
1E0012A INTERPRETATION			
1E0011 INTPR & TOL			
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD
RECORDS <input checked="" type="checkbox"/>			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
SHEET 55 OF 62			
THIRD ANGLE PROJECTION			
CHG DATE			
CATERPILLAR INC.			
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.			
DIAGRAM - SCHEMATIC			
MODULAR CONTROLS			
521-9364			
VER	CONTROL	DES	DATE
		W989	20OCT16

ENGINE SCHEMATIC - SHEET 4 OF 11
3500 MUI ENGINE
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN



- 101 SHEET #57 ETC_AUX_3 BREAKER
- 101 SHEET #57 ETC_AUX_1/2 BREAKERS
- 101 SHEET #57 SCR_HEATER_BREAKER
- 101 SHEET #57 ECM AND SCR_BREAKERS
- 101 SHEET #57 EMD_BREAKER
- 101 THIS SHEET E_START_BREAKER

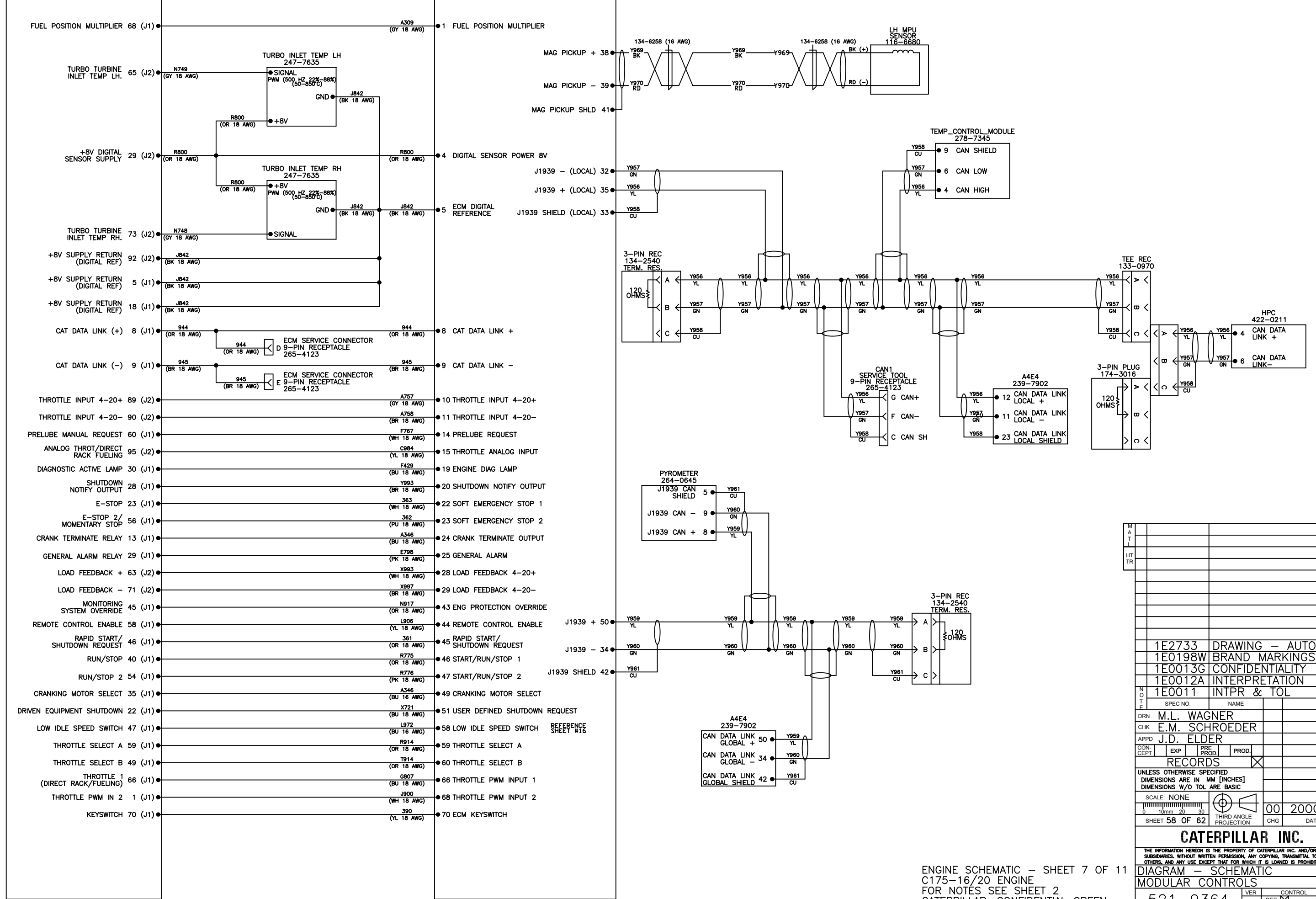
- REFERENCE SHEET #57 229 TO ECHR
- REFERENCE SHEET #57 206 TO FPP AND ST
- REFERENCE SHEET #57 229 TO A4E4

ENGINE SCHEMATIC - SHEET 5 OF 11
 C175-16/20 ENGINE
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

1E2733	DRAWING - AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL
N G	SPEC NO.
HT	NAME
TR	
DRN	M.L. WAGNER
CHK	E.M. SCHROEDER
APPD	J.D. ELDER
CON-CEPT	EXP
	PRE-PROD
	PROD.
	RECORDS
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC
	SCALE: NONE
	0 10mm 20 30
	SHEET 56 OF 62
	THIRD ANGLE PROJECTION
	CHG DATE
	00 20OCT16
CATERPILLAR INC.	
THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.	
DIAGRAM - SCHEMATIC	
MODULAR CONTROLS	
521-9364	VER CONTROL
	- DES SUB X W989 D

A4E4
239-7902

ENGINE INT. CONNECTOR



1E2733	DRAWING - AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL
SPEC NO.	NAME
DRN M.L. WAGNER	
CHK E.M. SCHROEDER	
APPD J.D. ELDER	
CONCEPT	EXP
	PRE PROD
	PROD
	<input checked="" type="checkbox"/> RECORDS
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC	
SCALE: NONE	THIRD ANGLE PROJECTION
0 10mm 20 30	00 20OCT16
SHEET 58 OF 62	CHG DATE

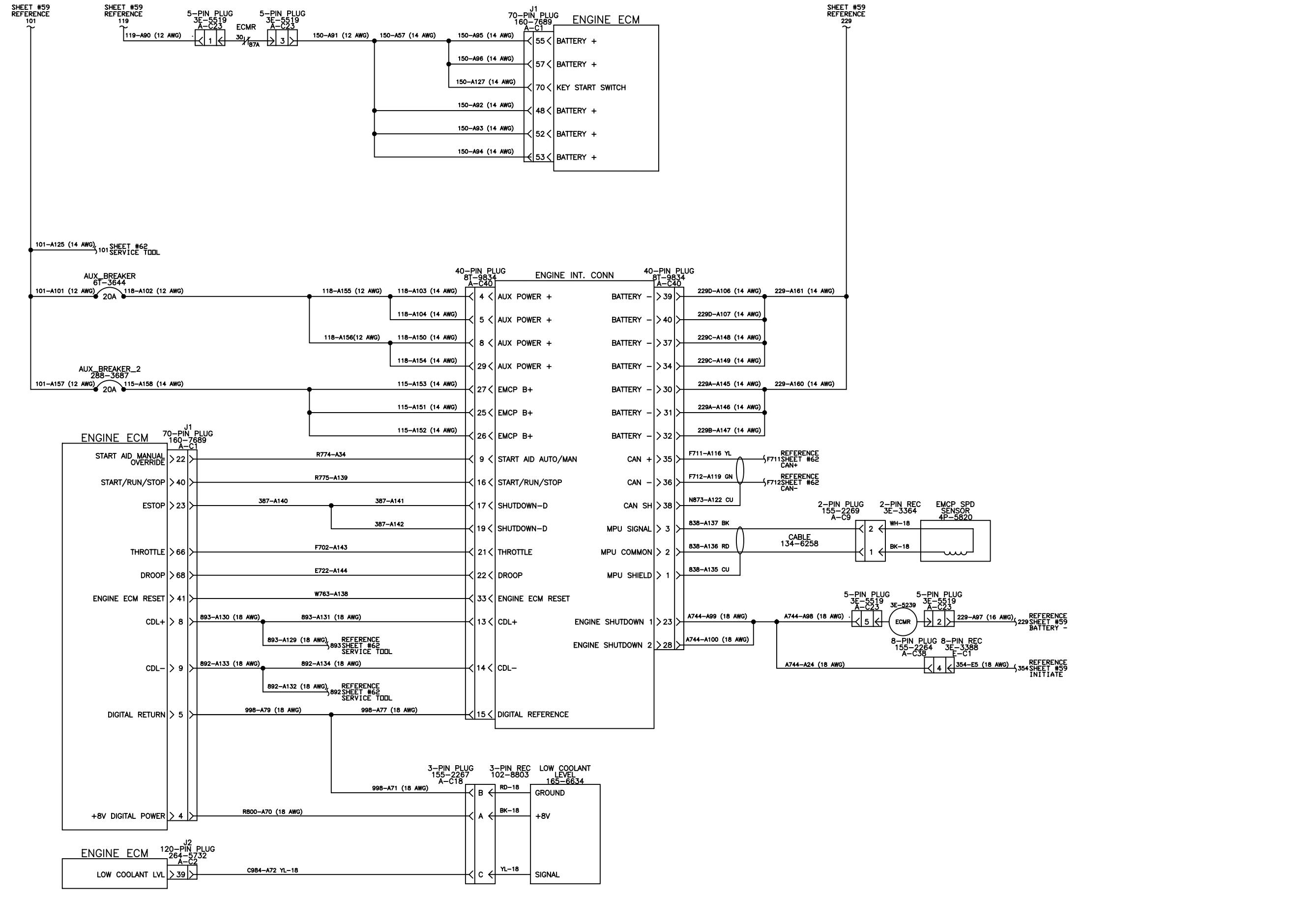
ENGINE SCHEMATIC - SHEET 7 OF 11
C175-16/20 ENGINE
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN

CATERPILLAR INC.

THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.

DIAGRAM - SCHEMATIC
MODULAR CONTROLS

521-9364	VER	CONTROL
	DES	W989
	SUB	



1E2733	DRAWING - AUTOCAD		
1E0198W	BRAND MARKINGS		
1E0013G	CONFIDENTIALITY		
1E0012A	INTERPRETATION		
1E0011	INTPR & TOL		
SPEC NO.	NAME		
DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD.
RECORDS			
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN MM [INCHES]			
DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
			THIRD ANGLE PROJECTION
SHEET 60 OF 62	CHG	DATE	00 20OCT16

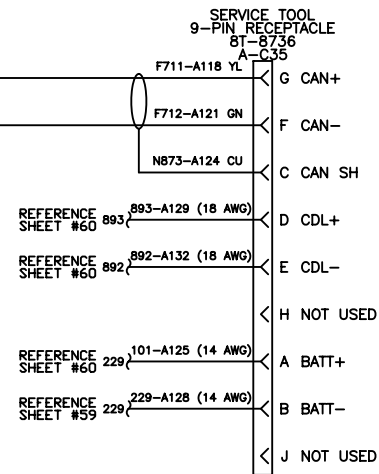
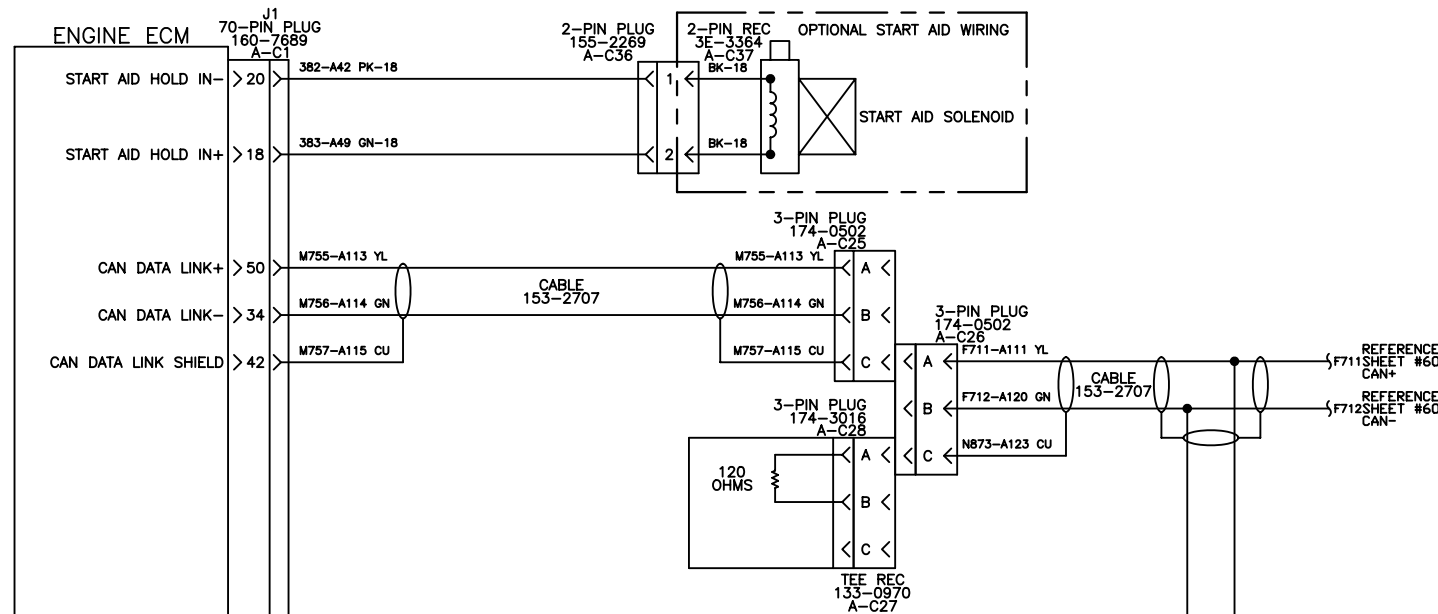
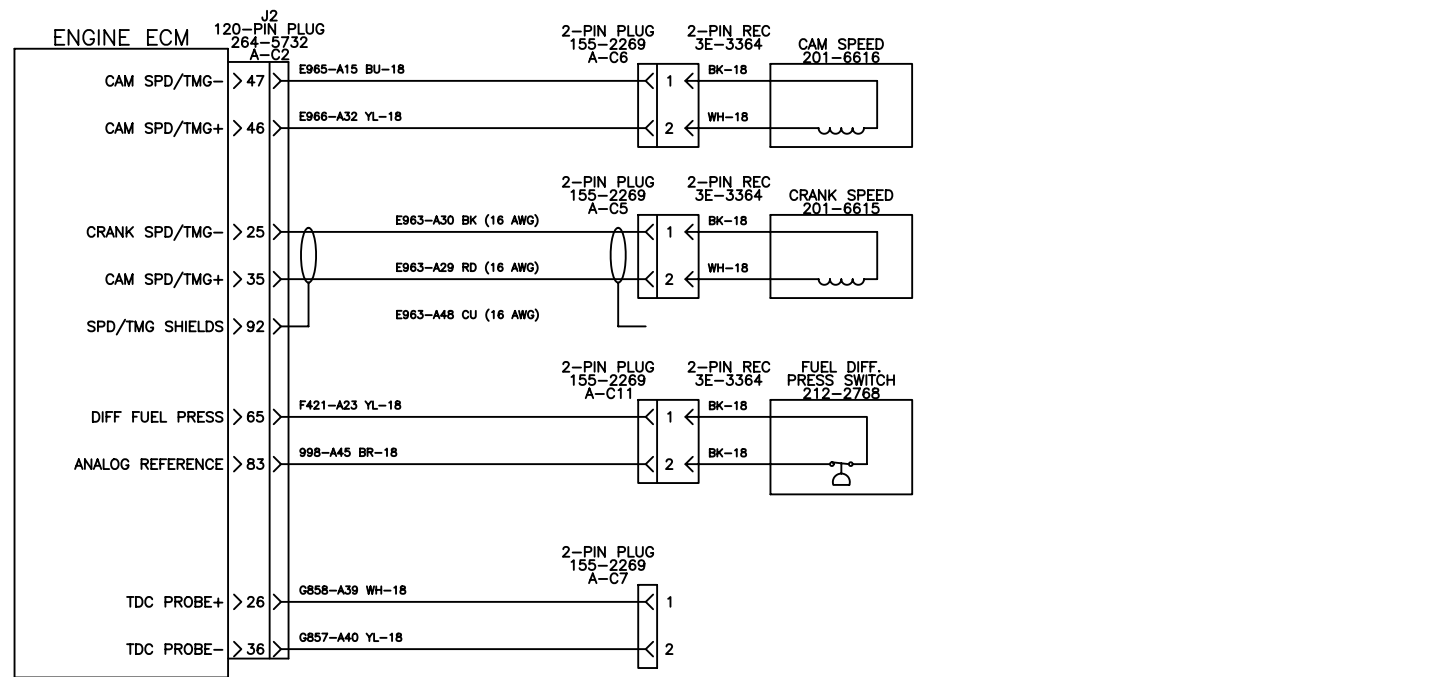
ENGINE SCHEMATIC - SHEET 9 OF 11
 C27/C32 ENGINE
 FOR NOTES SEE SHEET 2
 CATERPILLAR: CONFIDENTIAL GREEN

CATERPILLAR INC.

THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.

DIAGRAM - SCHEMATIC
 MODULAR CONTROLS

521-9364	VER	CONTROL
-	DES	W989
	SUB	



1E2733	DRAWING - AUTOCAD
1E0198W	BRAND MARKINGS
1E0013G	CONFIDENTIALITY
1E0012A	INTERPRETATION
1E0011	INTPR & TOL

DRN	M.L. WAGNER		
CHK	E.M. SCHROEDER		
APPD	J.D. ELDER		
CON-CEPT	EXP	PRE-PROD	PROD
RECORDS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM [INCHES] DIMENSIONS W/O TOL ARE BASIC			
SCALE: NONE			
0 10mm 20 30		THIRD ANGLE PROJECTION	00 20OCT16
SHEET 62 OF 62			

CATERPILLAR INC.

THE INFORMATION HEREON IS THE PROPERTY OF CATERPILLAR INC. AND/OR ITS SUBSIDIARIES. WITHOUT WRITTEN PERMISSION, ANY COPYING, TRANSMITTAL TO OTHERS, AND ANY USE EXCEPT THAT FOR WHICH IT IS LOANED IS PROHIBITED.

DIAGRAM - SCHEMATIC
MODULAR CONTROLS

521-9364	VER	CONTROL	
	DES		
	SUB		

ENGINE SCHEMATIC - SHEET 11 OF 11
C27/C32 ENGINE
FOR NOTES SEE SHEET 2
CATERPILLAR: CONFIDENTIAL GREEN