

CB1 - GAGES & MURPHY (10A)
 CB2 - HORNS (15A)
 CB3 - WORK LIGHTS (15A)
 CB4 - PRESSURE / RETURN FILTERS (10A)
 CB5 - TRAVEL & BRAKE LIGHTS (15A)
 CB6 - PARK/RUN RELAY & BRAKES (15A)

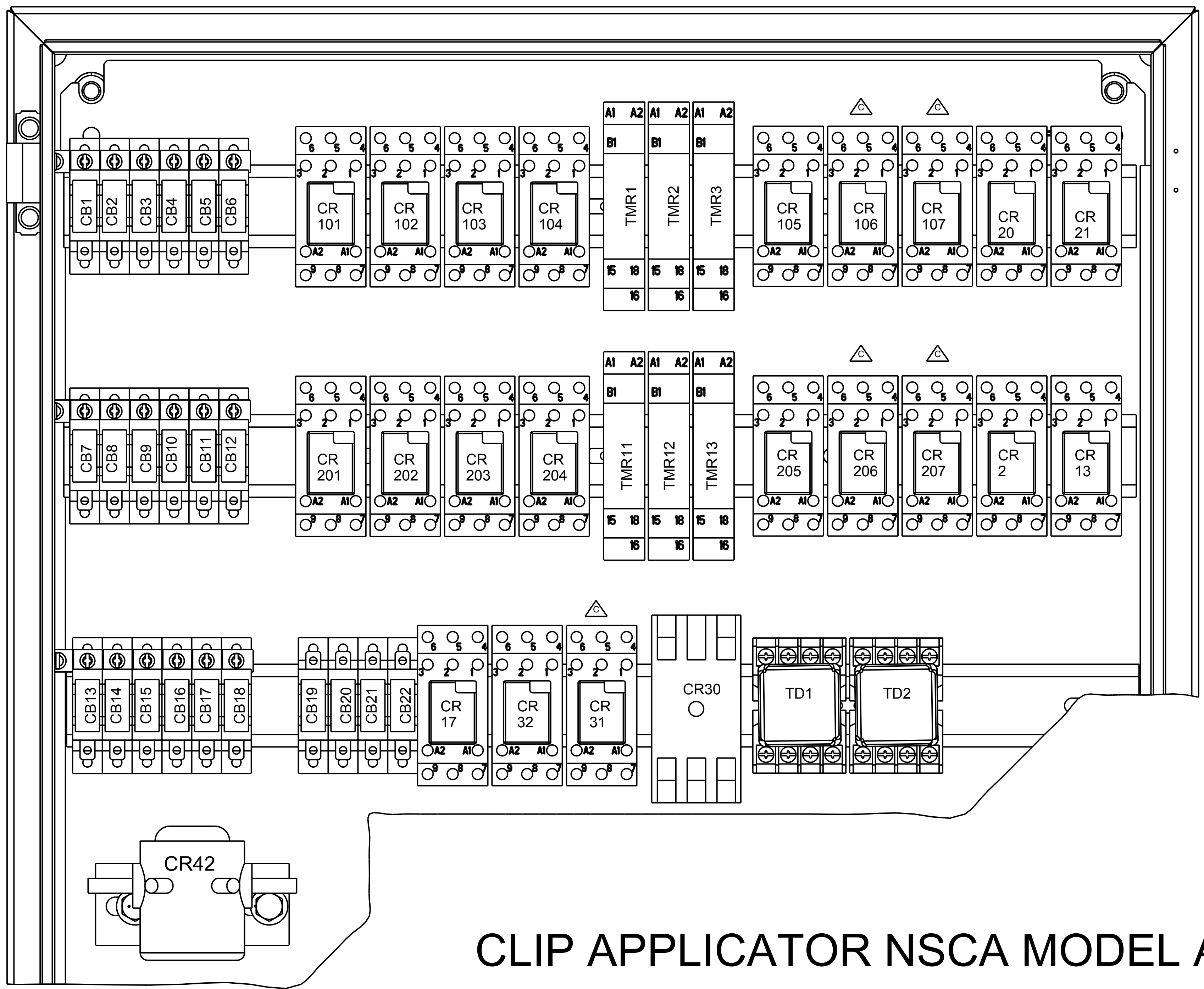
CB7 - OIL COOLER (25A)
 CB8 - STROBE/DOME LIGHTS AND CAB FANS (15A)
 CB9 - FRONT WINDSHIELD WIPERS (15A)
 CB10 - CAB HEATER (10A)
 CB11 - AIR CONDENSER (20A)
 CB12 - AIR CONDITIONING (20A)

CB13 - AID BOX (8A) OR FUEL HEATER (15A)
 CB14 - ADDCO THROTTLE (3A) OR CUMMINS (6A)
 CB15 - RADIO AND SPRAY TANK (15A)
 CB16 - HEATED MIRRORS (10A)
 CB17 - REAR WINDSHIELD WIPERS (15A)
 CB18 - PERIMETER LIGHTS (15A)

CB19 - WORKHEAD CENTERING (10A) OR BOARDING LIGHT AT STEPS (3A)
 CB20 - PRESSURIZER (10A)

CB21 - KEYSWITCH POWER (6A)
 CB22 - ENGINE DIAGNOSTICS POWER (3A)

CR42 - INTERLOCK RELAY



CR101 - LH OPEN ARMS
 CR102 - LH RAISE WH
 CR103 - LH CLOSE ARMS

TMR1 - ARMS CLOSE DELAY
 TMR2 - CLIP SPRAY DURATION
 TMR3 - AUTO-RAISE DELAY

CR104 - LOWER WH TO LS2
 CR105 - RAISE WH TO LS1
 CR106 - LH MOMENTARY CLOSE
 CR107 - LH MOMENTARY OPEN

CR20 - PROPEL FWD
 CR21 - PROPEL REV

CR201 - RH OPEN ARMS
 CR202 - RH RAISE WH
 CR203 - RH CLOSE ARMS

TMR11 - ARMS CLOSE DELAY
 TMR12 - CLIP SPRAY DURATION
 TMR13 - AUTO RAISE DELAY

CR204 - LOWER WH TO LS5
 CR205 - RAISE WH TO LS4
 CR206 - RH MOMENTARY CLOSE
 CR207 - RH MOMENTARY OPEN

CR2 - NEUTRAL START
 CR13 - BRAKES

CR17 - TURNTABLE
 CR30 - OIL COOLER
 CR31 - REAR WIPERS
 CR32 - CONDENSER FANS (A/C)

CR40 - MAIN POWER RELAY (NOT SHOWN)
 CR42 - POWER RELAY

TD1 - TIMER MODULE - LEFT WORKHEAD
 TD2 - TIMER MODULE - RIGHT WORKHEAD

CLIP APPLICATOR NSCA MODEL A

ELECTRICAL

QUICK REFERENCE CHART













THIS CHART IS TO BE USED WITH LOGIC BOX 31440080

S/N 290025 - 290035


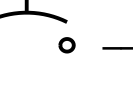

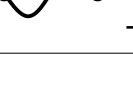
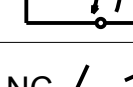
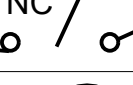

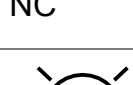




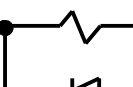
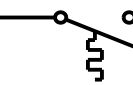
START SEQUENCE:
 IGN SWITCH S1 "ST"
 (WIRE 1 TO 98)
 PUMP SWITCH S10 "OFF"
 (WIRE 98 TO 199)
 BRAKE OP. SWITCH S42 "DEADMAN"
 (WIRE 199 TO 198)
 BRAKE APPLIED, FOOT SWITCHES
 S44 & S59 CLOSED
 (FROM CR13, WIRE 36 TO CR2 ->
 WIRE 198 TO 99)

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA			
FRACTION	± 1/8	DESCRIPTION: ELECTRICAL SCHEMATIC			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV
XX	± .03	D	NTS	97291003	H
XXX	± .010	ASSEMBLY:-		SHEET 1	OF 17
MACHINE FINISH UNLESS OTHERWISE STATED		REVISION HISTORY LOCATED ON LAST SHEET			
PLANE ANGLES 90°-1°					

CONNECTION KEY 

	WIRE SPLICE
	WIRE CONNECTIONS AT A COMPONENT TERMINAL
	WIRE CONNECTION AT A TERMINAL BLOCK
	BUSS BAR CONNECTION (CIRCUIT BREAKERS)
	WIRE CONNECTION AT A PIN ON HARNESS PLUG WHERE "P##" IS A PLUG AND "X" IS THE PIN
	WIRE CONNECTION THROUGH JUNCTION BOX WHERE "JB#" IS THE JUNCTION BOX I.D. AND "X" IS THE PIN
	WIRE "X" TO SHEET # (SCHEMATIC ONLY)
	GROUND TB# = TERMINAL BLOCK LB = LOGIC BOX FR = FRAME EN = ENGINE
	BREAK POINT - CONNECTION IS REMOVED IF NEAR BY OPTION TAKEN. (IF NO OPTION, THIS MARK MAY BE IGNORED)
	OPTION BOUNDRY
	OPTION WIRING
	STANDARD WIRING





DEVICE ABBREVIATION / SYMBOL LIST

ABBREV.	DEVISE	SYMBOL
AH	ALARM	
C	CAPACITOR	$\approx X_{uf}$
CB	CIRCUIT BREAKER	
CR	CONTROL RELAY	VARIES
D	DIODE	
F	FUSE	
FLS	FLASHER	
FS	FOOT SWITCH	
GA	GUAGE	
LS	LIMIT SWITCH	
LT	LIGHT (SEE NOTE BELOW)	
PB	PUSH BUTTON	
POT	POTENTIOMETER	
PS	PRESSURE SWITCH	
S	TOGGLE / ROTART SWITCH	VARIES
SOL	SOLENOID (W/ DIODE PROTECTION)	
TAS	TEMPERATURE SWITCH	
TD	TIME DELAY	VARIES
TMR	TIMER	VARIES

NOTE:
LETTER WITHIN LIGHT SYMBOL
REPRESENTS COLOR OF LAMP:
A - AMBER
B - BLUE
G - GREEN
R - RED
W - WHITE
Y - YELLOW

ELECTRICAL DRAWING REFERENCE

DESCRIPTION	DRAWING #
CABLING DRAWING	97291001
LOGIC BOX	31440080
CAB HARNESS	42350049
WORK LIGHT HARNESS	42350008
ENGINE / FRAME HARNESS	42350007
TIER 2 ENGINE	OR 520302
CUMMINS TIER 3 ENGINE	520339
J.D. TIER 3 ENGINE	
FOOT SWITCH HARNESS	42350100
HAND CONTROLLER	520339
EMERG PUMP / TOP OFF BOX	96510126
	31440092
TRAVEL LIGHTS - ENGINE	520255
PERIMETER LIGHTS - ENGINE	520256
WASHER FLUID	520337
HEATED MIRRORS	520338







S/N 290032 & ABOVE 
S/N 290032 & ABOVE 
S/N 290032 & ABOVE 
S/N 290032 & ABOVE 



CONNECTOR REFERENCE

CONN	# OF PINS	DESTINATION	SOURCE
P1	7	LEFT JOYSTICK CABLE	LOGIC BOX
P2	12	JB-1 CABLE	LOGIC BOX
P3	7	RIGHT JOYSTICK CABLE	LOGIC BOX
P4	12	JB-2 CABLE	LOGIC BOX
P5	4	WORK LIGHT HARNESS	LOGIC BOX
P6	12	JB-3 CABLE	LOGIC BOX
P7	12	JB-4 CABLE	LOGIC BOX
P8	6	JOY STICK	LEFT JOY STICK CABLE
P9	6	JOY STICK	RIGHT JOY STICK CABLE
P10	12	FOOT CONTROLS	LOGIC BOX
P11	4	CAB HEATER	LOGIC BOX
P12	3	RETURN FILTER	ENGINE HARNESS
P13	2	OIL COOLER	ENGINE HARNESS
P14	2	TEMP SWITCH	ENGINE HARNESS
P15	3	PRESSURE FILTER	ENGINE HARNESS
P16	2	PUMP	ENGINE HARNESS
P17	2	HYD OIL TEMP SENDER	ENGINE HARNESS
P18	2	PERIMETER LIGHTS	ENGINE HARNESS
P19	3	CASE DRAIN FILTER IND.	ENGINE HARNESS
P20	2	FRONT TRAVEL LIGHTS	ENGINE / CAB HARNESS
P21	2	REAR TRAVEL LIGHTS	CAB HARNESS
P23	2	LEFT WH CEN. LIMIT SWITCH	LOGIC BOX
P24	2	RIGHT WH CEN. LIMIT SWITCH	LOGI BOX
P25	2	HYD OIL MONITOR	ENGINE HARNESS
P26	2	ACCUM. DUMP VALVE	ENGINE HARNESS
P27	2	WASHER FLUID PUMP	CAB HARNESS
P28	2	PRESSURIZER	CAB HARNESS
P29	2	AIR CONDITION HARNESS	LOGIC BOX
P30	5	WIPER, LH FRONT LOWER	CAB HARNESS
P31	5	WIPER, RH FRONT LOWER	CAB HARNESS
P32	5	WIPER, LH FRONT UPPER	CAB HARNESS
P33	5	WIPER, RH FRONT UPPER	CAB HARNESS
P34	5	WIPER, LH REAR	CAB HARNESS
P35	5	WIPER, RH REAR	CAB HARNESS
P36	2	DOME LIGHT	CAB HARNESS
P37	2	BEACON / STROBE	CAB HARNESS

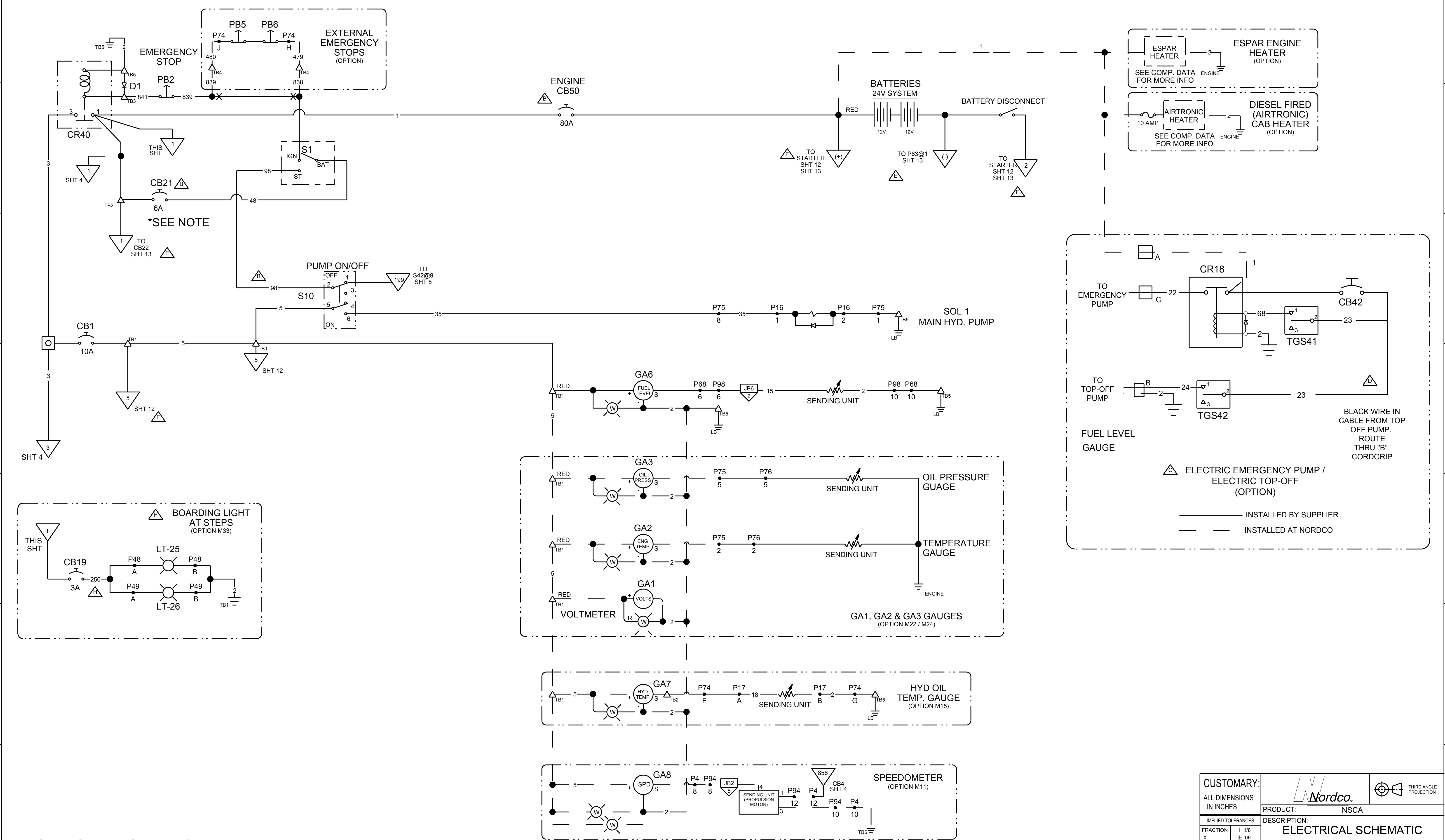
CONNECTOR REFERENCE (CONTINUED)

CONN	# OF PINS	DESTINATION	SOURCE
P38	2	CAB FAN	CAB HARNESS
P39	3	FRONT BREAK / MARKER	CAB HARNESS
P40	3	REAR BREAK / MARKER	CAB HARNESS
P41	3	HORNS	CAB HARNESS
P42	2	BACK-UP ALARM	CAB HARNESS
P43	1	HEATED MIRROOR LEFT	CAB HARNESS
P44	1	HEATED MIRROR RIGHT	CAB HARNESS
P45	4	A/C CIELING UNIT	AIR CONDITIONING HARNESS
P46	2	CONDENSOR FAN	AIR CONDITIONING HARNESS
P47	2	CONDENSOR FAN	AIR CONDITIONING HARNESS
P50	2	WORK LIGHT	WORK LIGHT HARNESS
P54	2	PERIMETER LIGHTS - ENGINE	ENGINE PER LT. HARNESS
P55	2	PERIMETER LIGHTS - CAB	CAB HARNESS
P56	2	SPEEDOMETER (AT MOTOR)	SPEEDO HARNESS
P61	2	SPRAY TANK POWER	LOGIC BOX
P62	2	SPRAY TANK POWER	TANK PUMP
P63	2	SPRAY SOLENOID - LH REAR	JB5 CABLE
P64	2	SPRAY SOLENOID - RH FRONT	JB5 CABLE
P65	2	SPRAY SOLENOID - LH FRONT	JB5 CABLE
P66	2	SPRAY SOLENOID - RH FRONT	JB5 CABLE
P67	12	JB5 CABLE - LOCK-UP	LOGIC BOX
P68	12	JB6 CABLE - BREAK & FUEL	LOGIC BOX
P74	14	ENGINE HARNESS	LOGIC BOX
P75	18	ENGINE HARNESS	LOGIC BOX
P76	18	ENGINE	ENGINE HARNESS
P79	31	CAB HARNESS	LOGIC BOX
P80	50	LOGIC BOX	ENGINE
P81	9	DIAGNOSTICS	LOGIC BOX
P82	9	LOGIC BOX	ENGINE
P83	4	LOGIC BOX	ENGINE
P84	2	ENGINE COOLANT LEVEL	ENGINE
P85	6	MURPHY POWER VIEW	LOGIC BOX
P92	12	JB-1	JB-1 CABLE
P94	12	JB-2	JB-2 CABLE
P95	12	JB-5	JB-5 CABLE
P96	12	JB-3	JB-3 CABLE
P97	12	JB-4	JB-4 CABLE
P98	12	JB-6	JB-6 CABLE

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA			
FRACTION	± 1/8	DESCRIPTION: ELECTRICAL SCHEMATIC			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV
XX	± .03	D NTS		97291003	H
XXX	± .010	ASSEMBLY:-		SHEET 2 OF 17	
MACHINE FINISH UNLESS OTHERWISE STATED		PLANE ANGLES 45-90°			

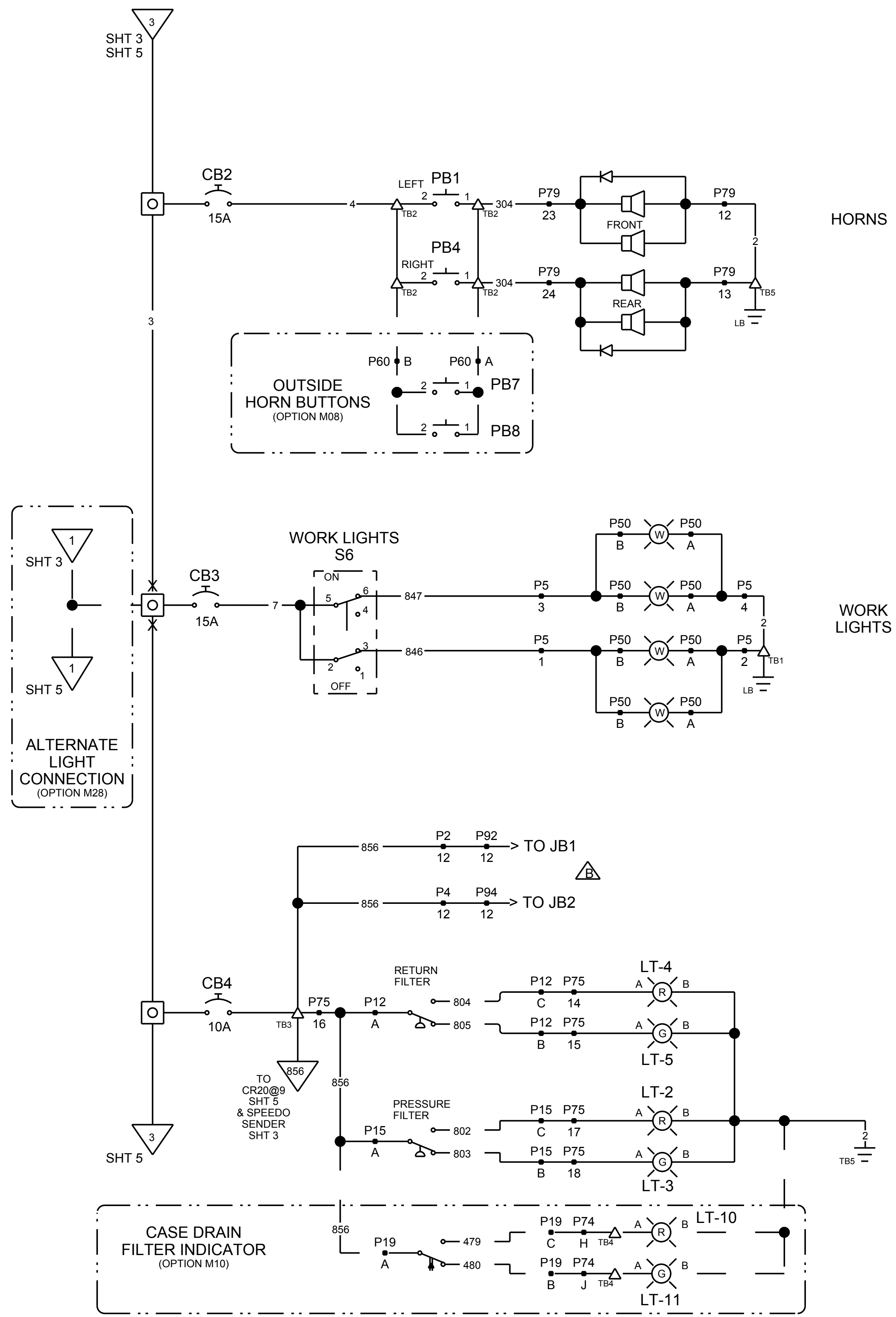
REVISION HISTORY LOCATED ON LAST SHEET



NOTE: CB21 NOT PRESENT IN S/N290025-27.

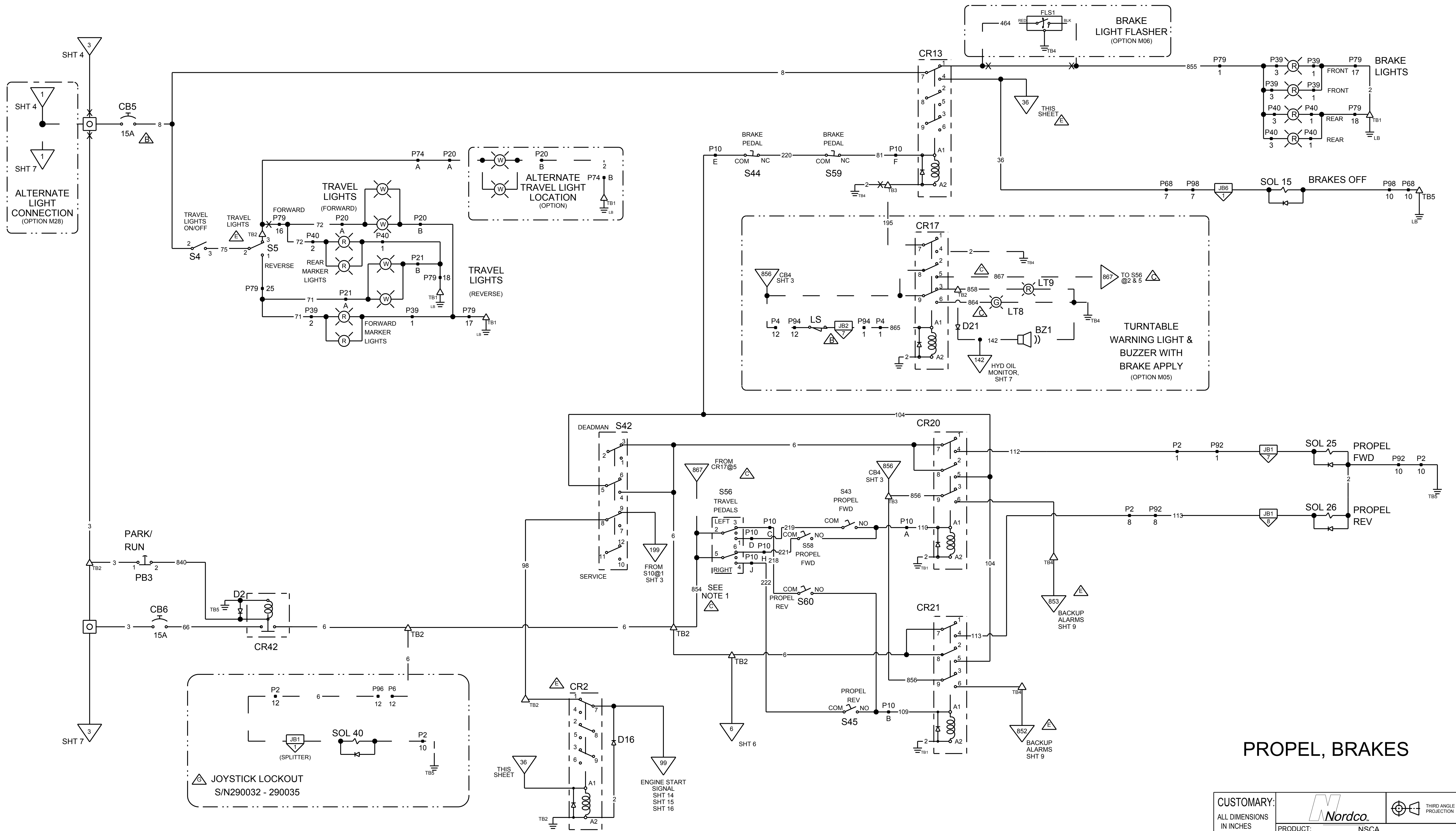
REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY:					
ALL DIMENSIONS IN INCHES		PRODUCT: NSCA			
IMPLIED TOLERANCES		DESCRIPTION: ELECTRICAL SCHEMATIC			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D NTS	97291003	H	H
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-			
PLANE ANGLES 90°-1°		SHEET 3 OF 17			



CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA			
FRACTION	± 1/8	DESCRIPTION: ELECTRICAL SCHEMATIC			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
XX	± .03	D NTS	97291003	H	H
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-			
PLANE ANGLES 91-1°		SHEET 4 OF 17			

REVISION HISTORY
LOCATED ON LAST SHEET



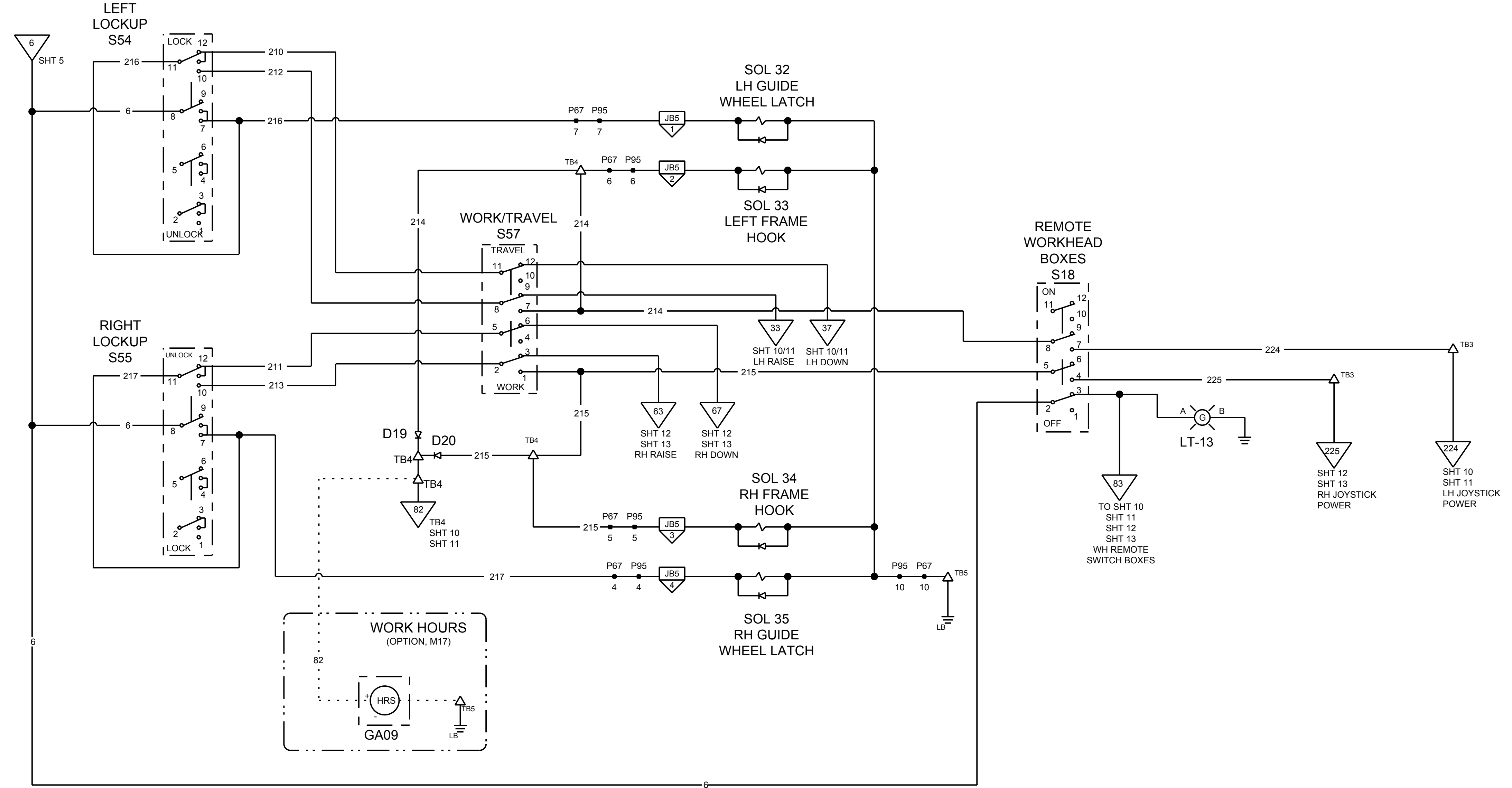
PROPEL, BRAKES

NOTE
 1. REMOVE WIRE 854 (TB2 TO S56@2 & 5)
 WHEN OPTION M05 (WIRE 867) REQUIRED

REVISION HISTORY
 LOCATED ON LAST SHEET

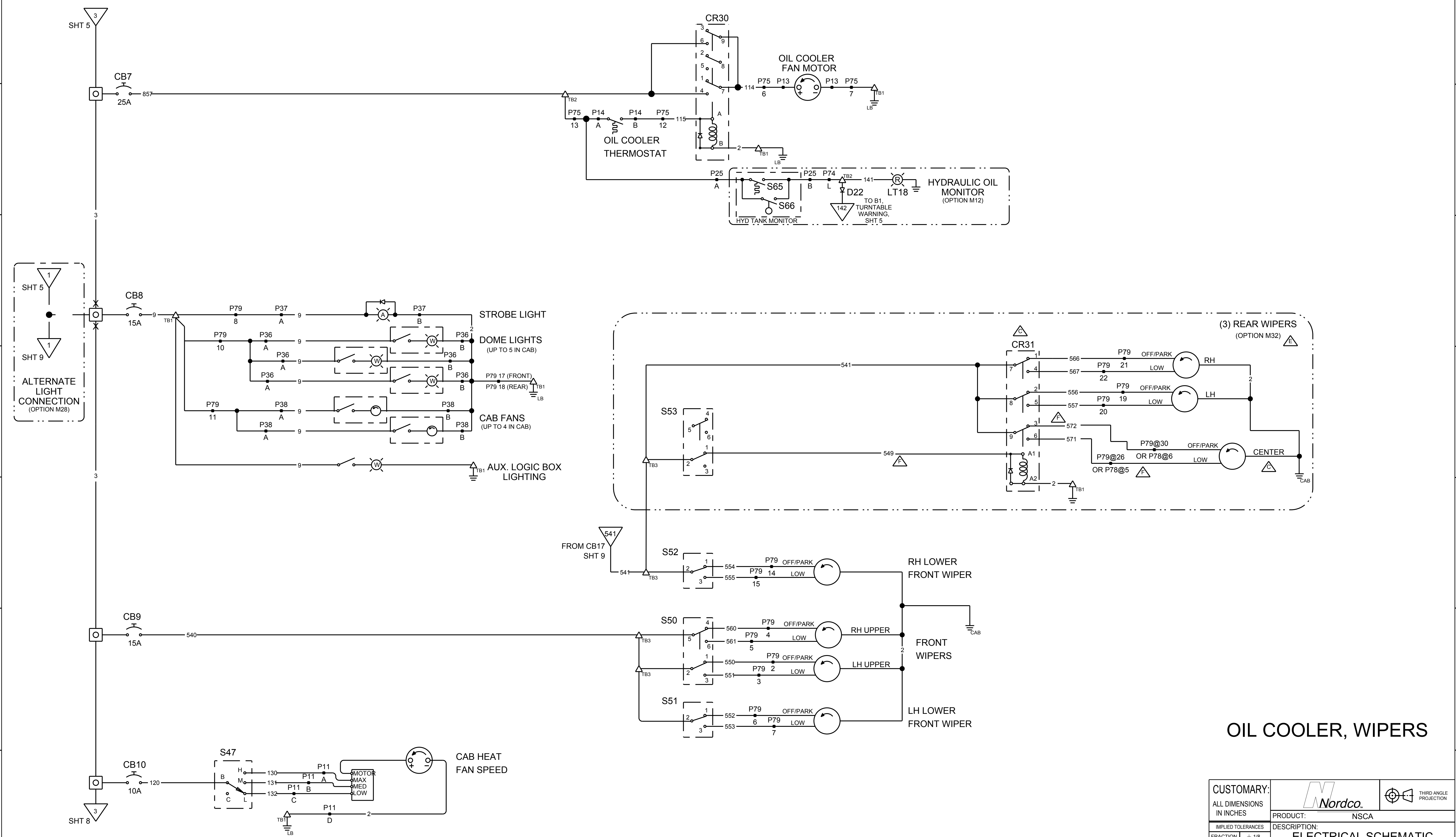
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IMPLIED TOLERANCES		PRODUCT: NSCA			
DESCRIPTION: ELECTRICAL SCHEMATIC		DRAWING CODE NUMBER			
FRACTION	± 1/8	SIZE	SCALE	REV	
X	± .06	D NTS	97291003	H	
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-			
PLANE ANGLES W/F		SHEET 5 OF 17			

WORKHEAD POWER LOCK-UPS



REVISION HISTORY
LOCATED ON LAST SHEET

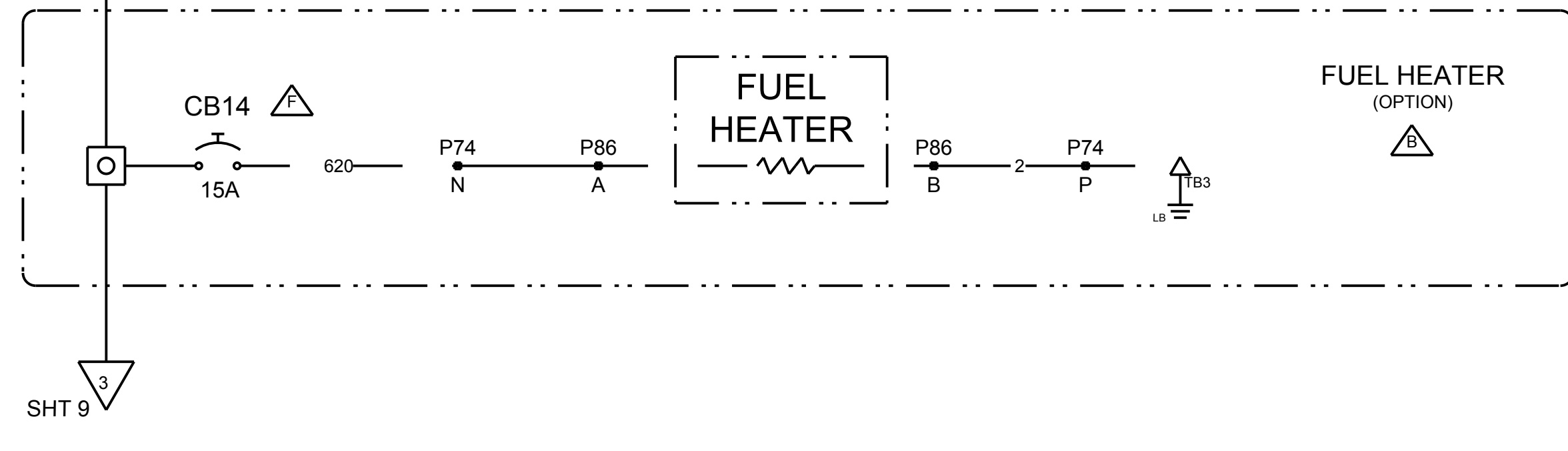
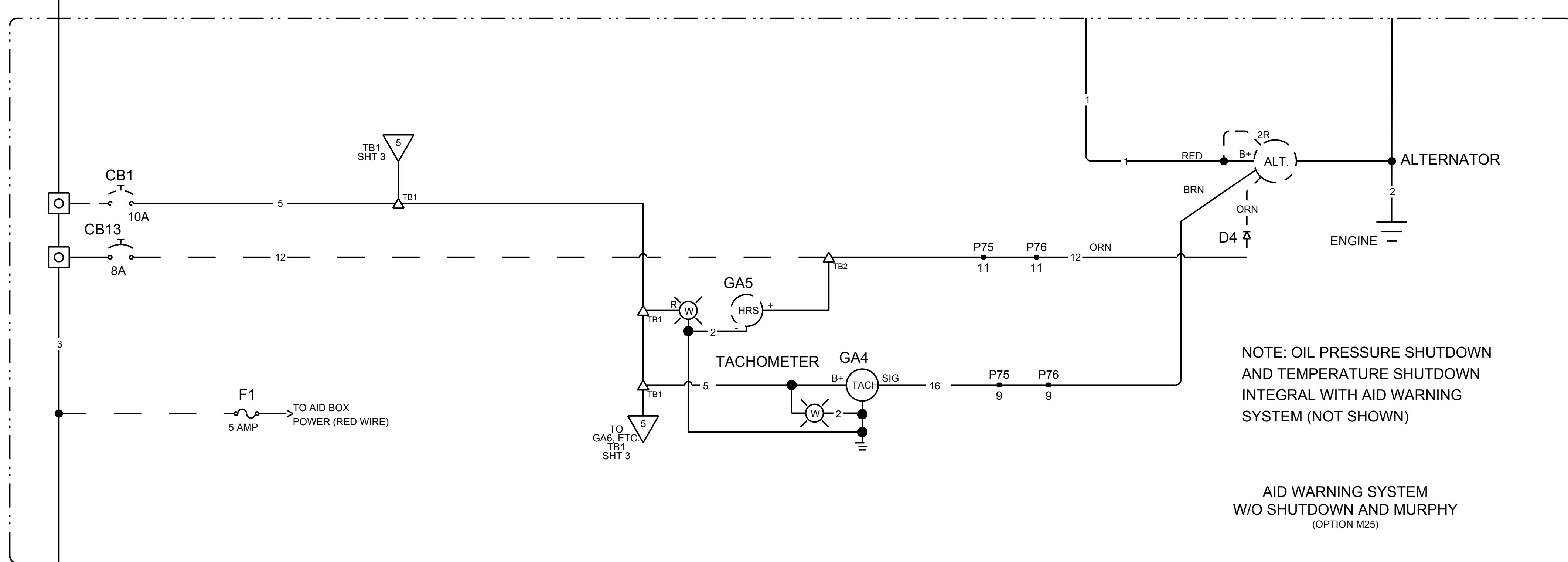
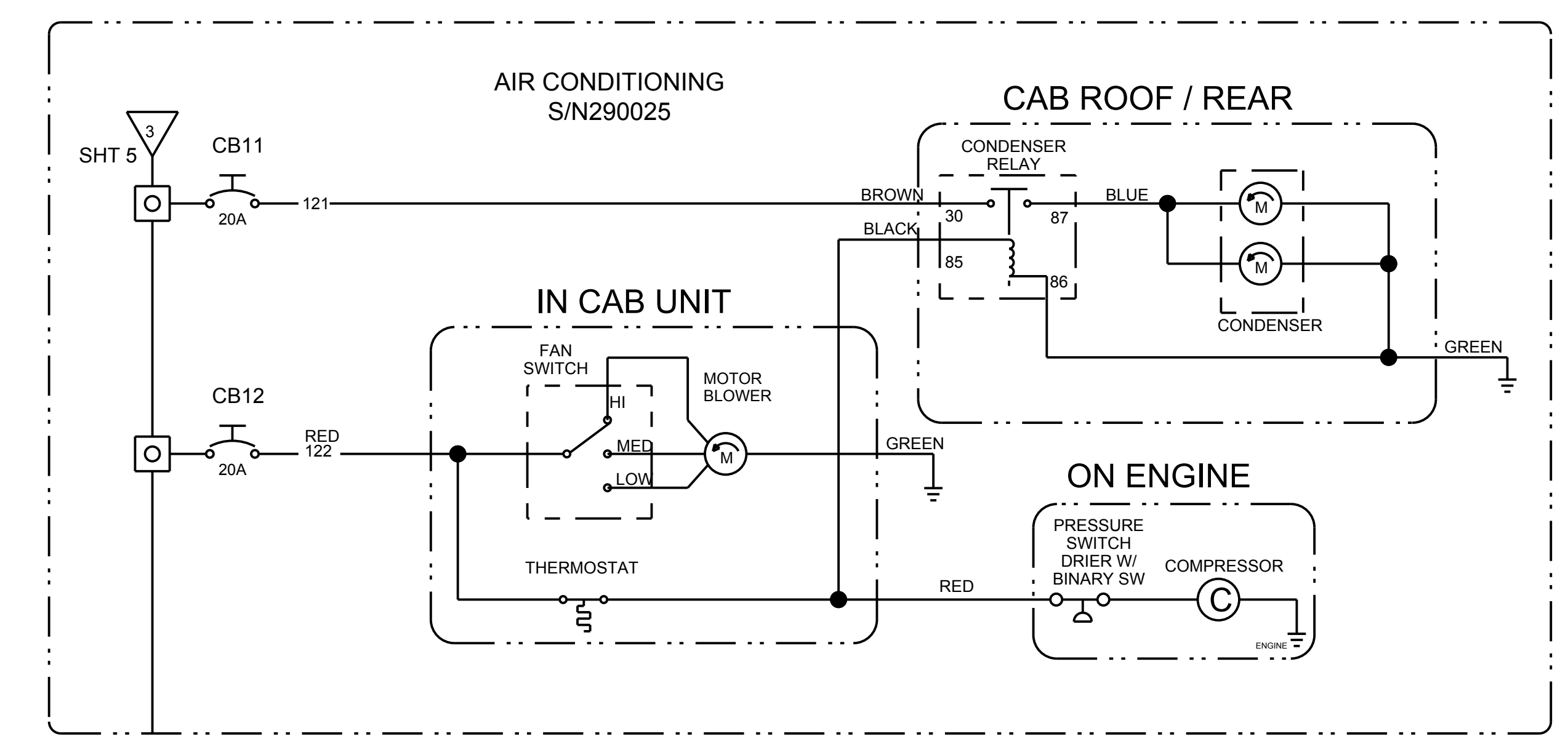
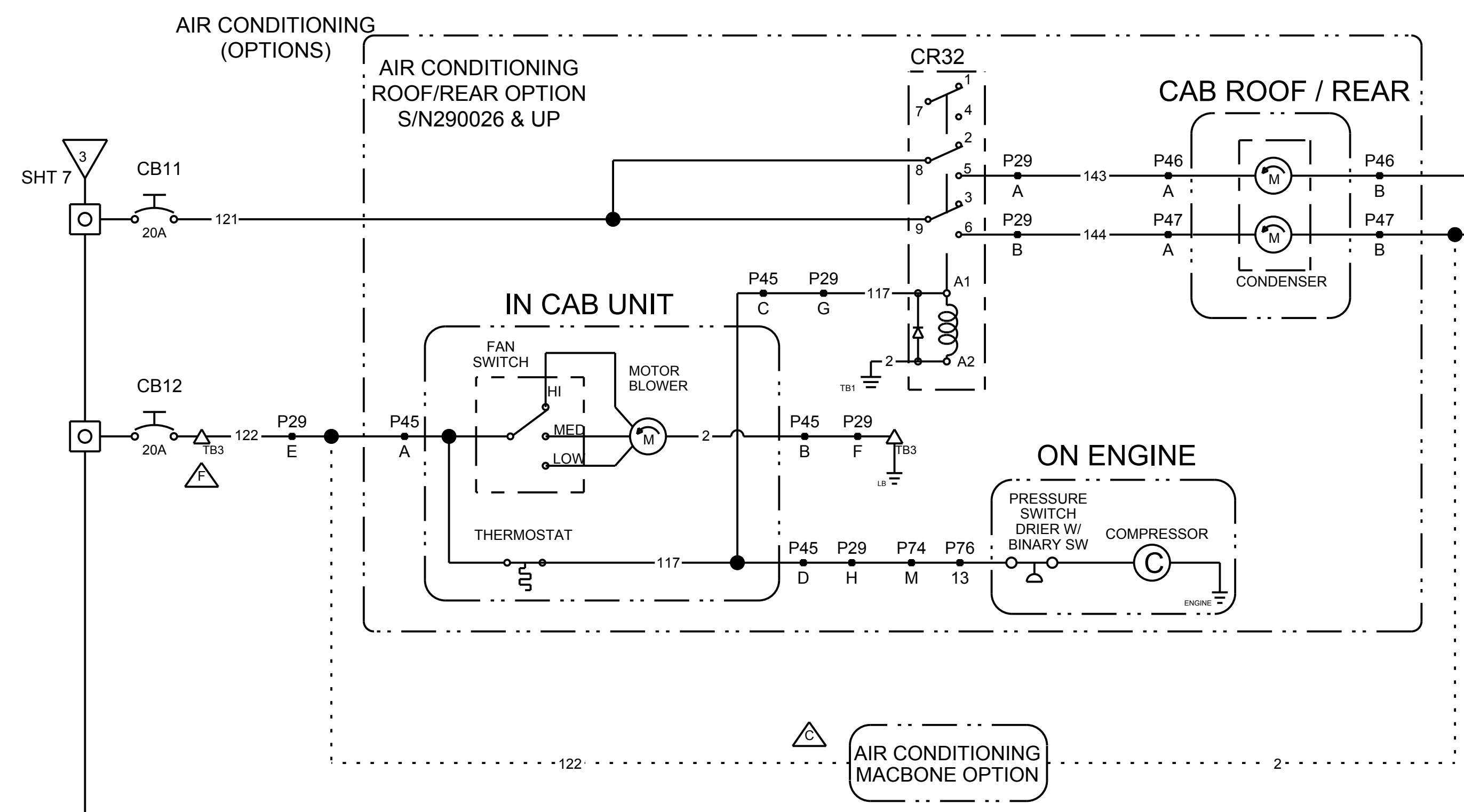
CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA			
FRACTION	± 1/8	DESCRIPTION: ELECTRICAL SCHEMATIC			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
XX	± .03	D	NTS	97291003	H
XXX	± .010	MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-	SHEET 6 OF 17
PLANE ANGLES 45°-1°					



OIL COOLER, WIPERS

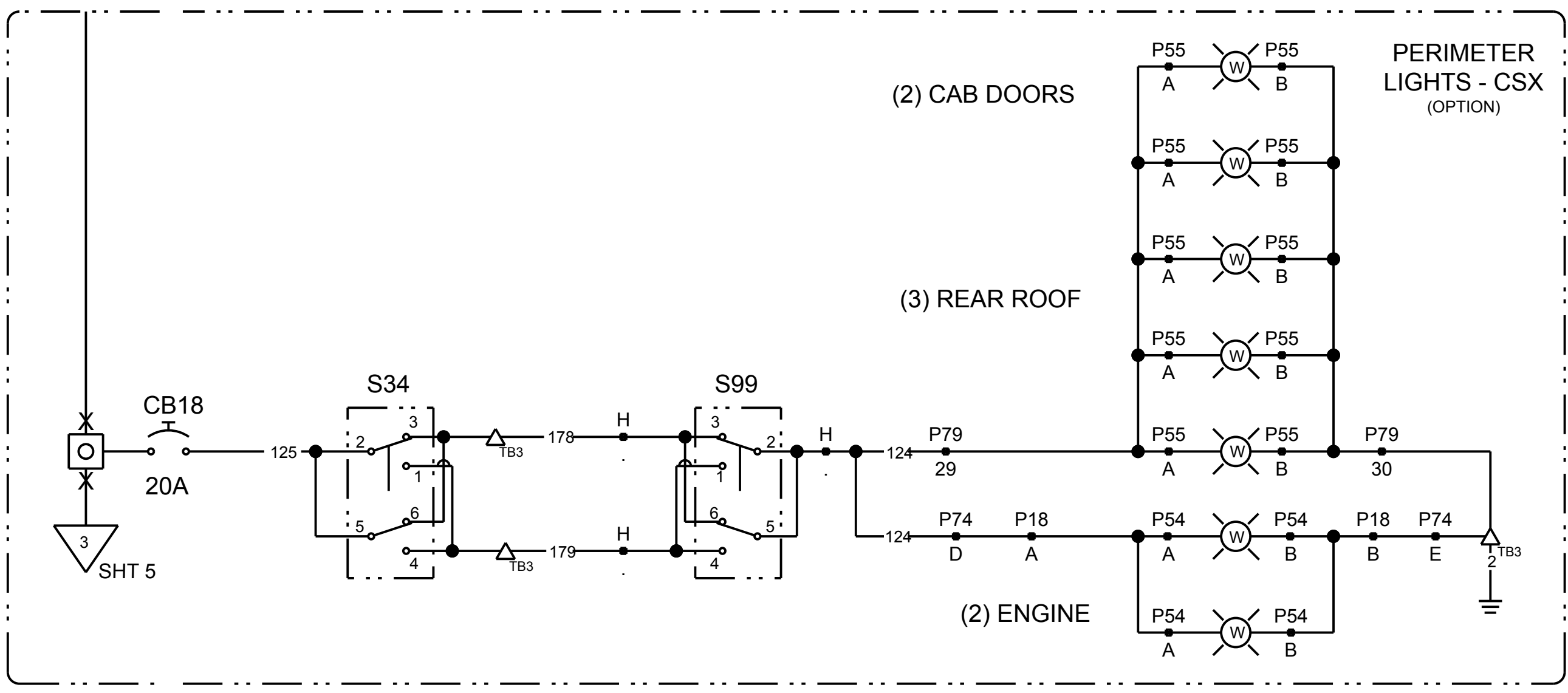
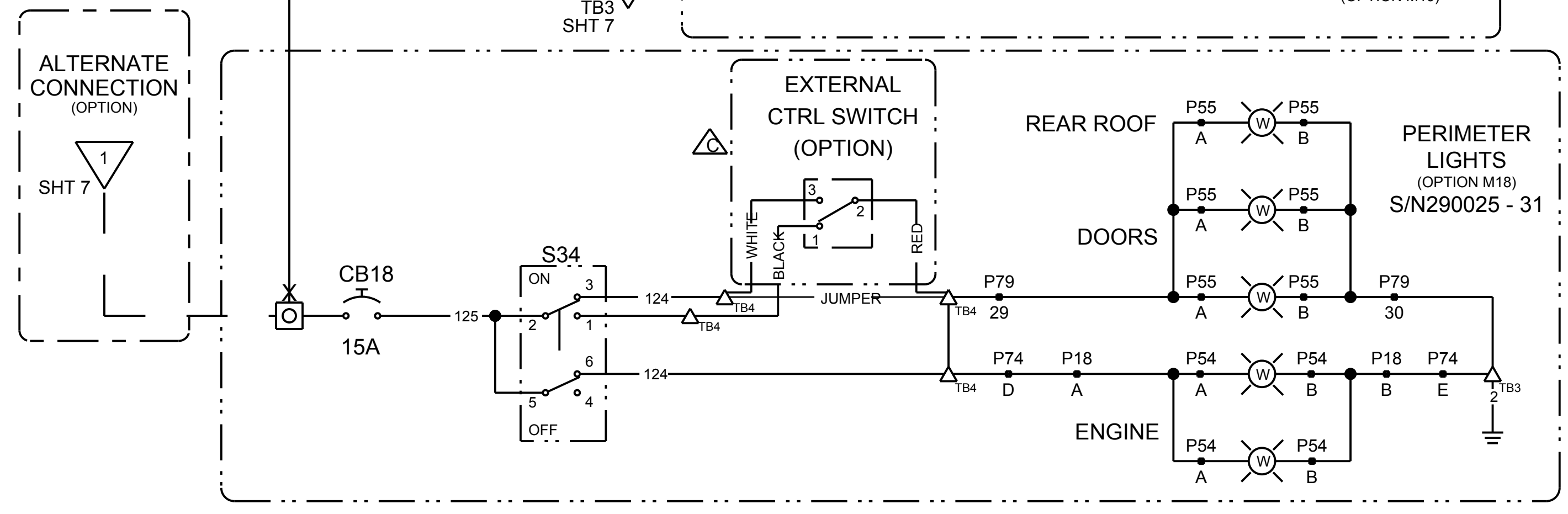
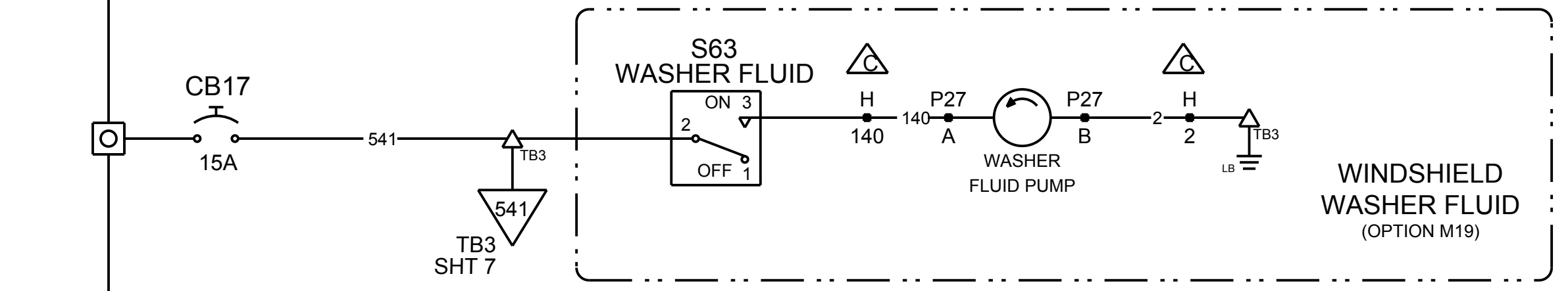
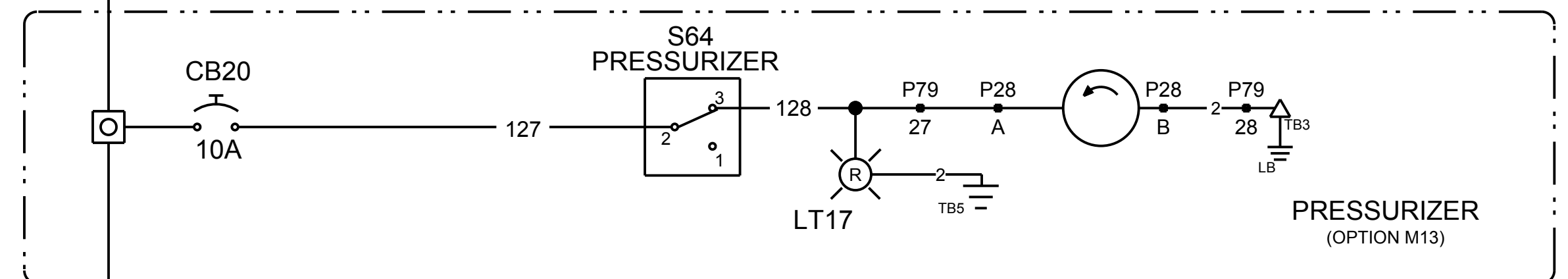
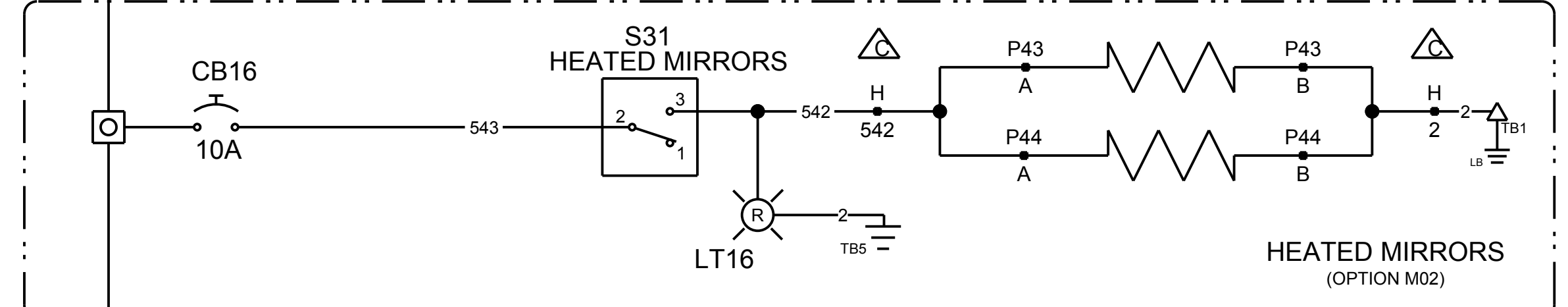
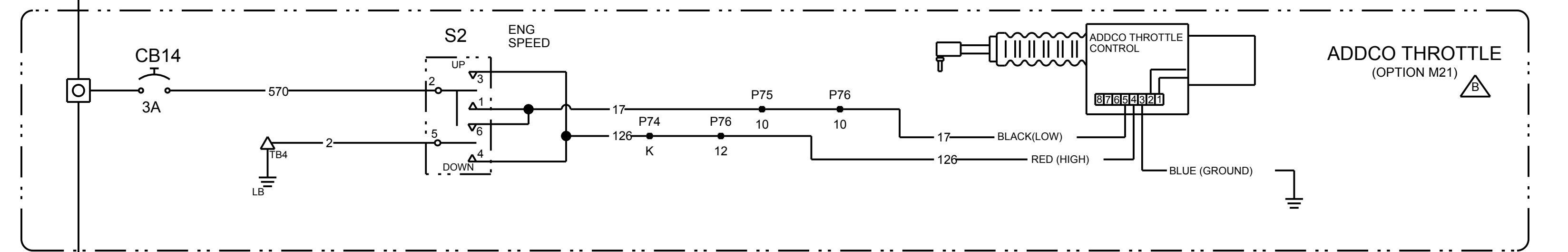
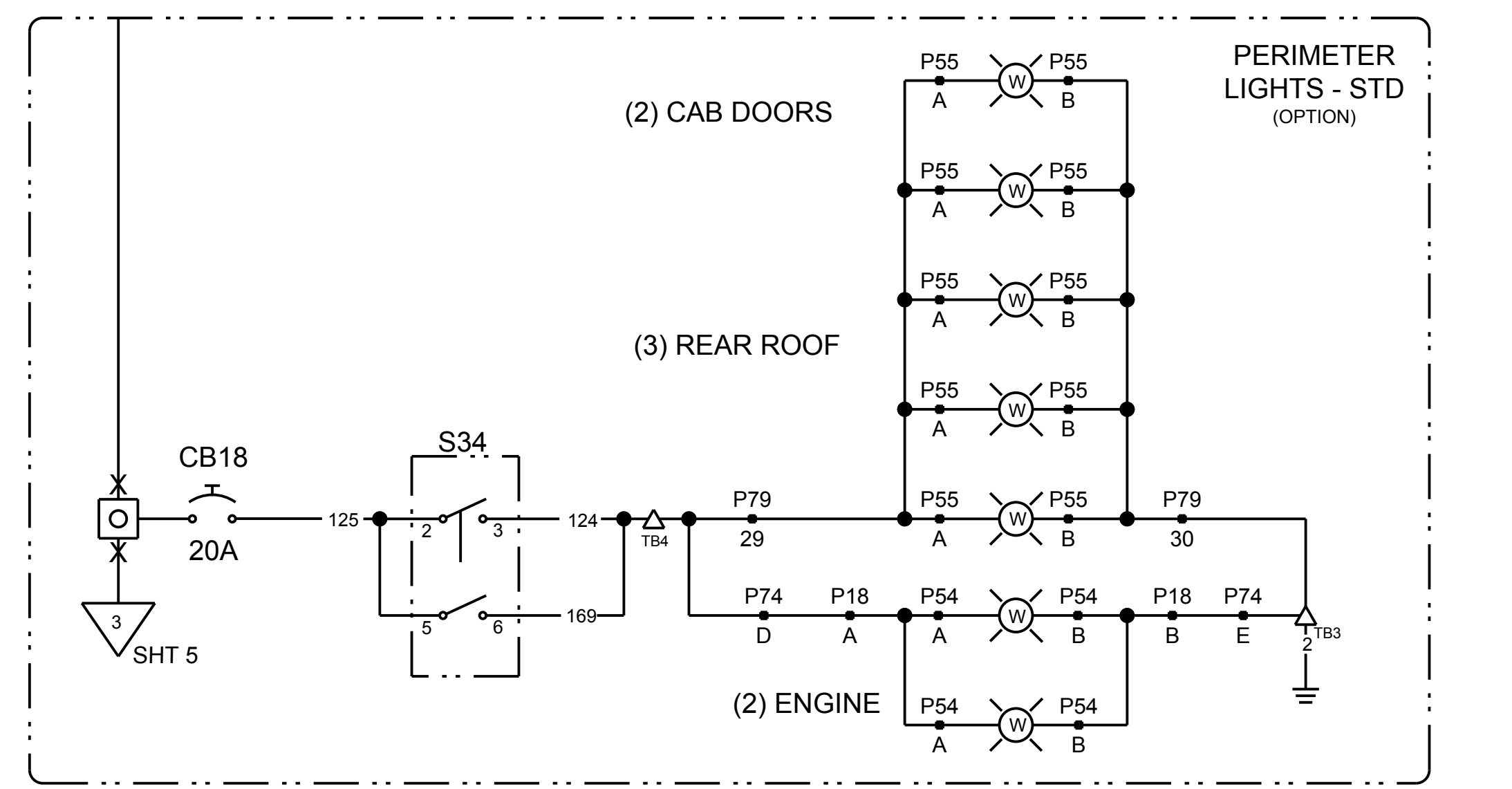
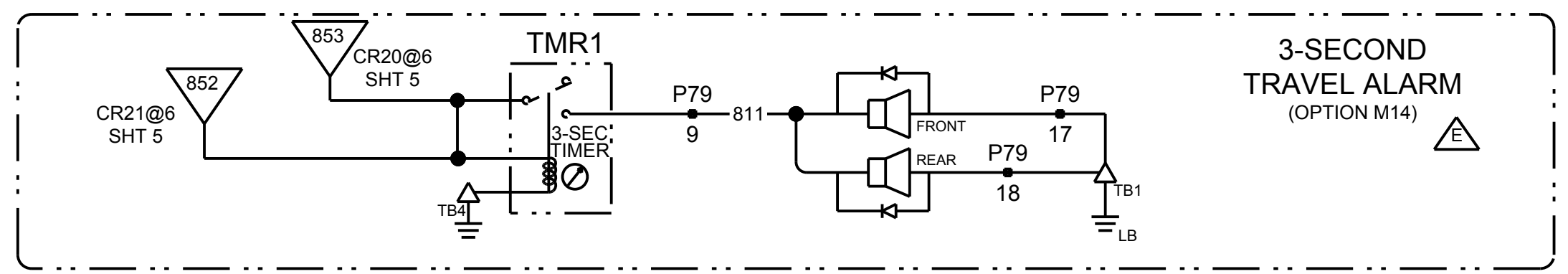
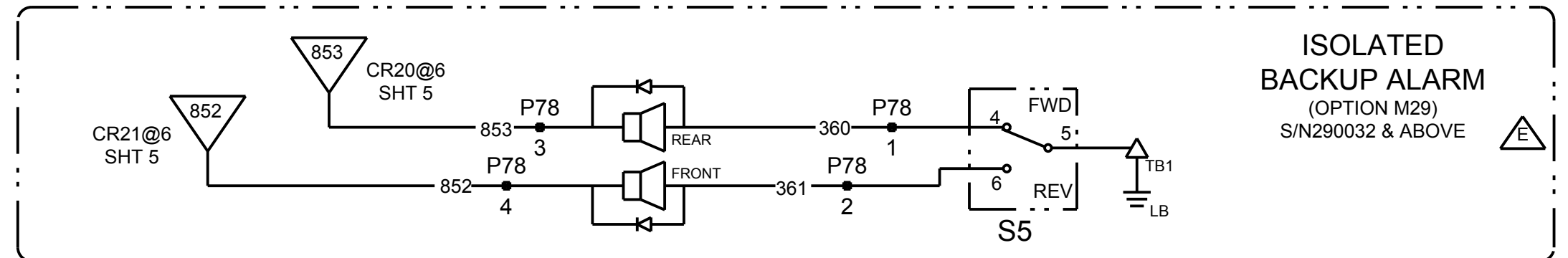
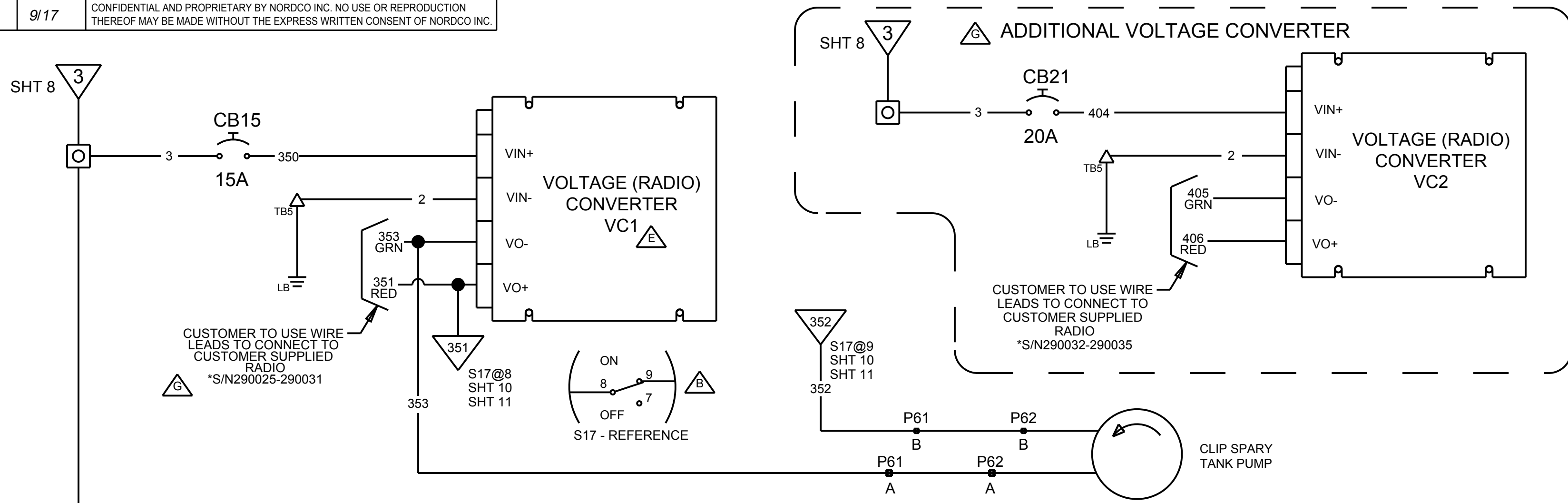
REVISION HISTORY
LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA			
DESCRIPTION: ELECTRICAL SCHEMATIC		DRAWING CODE NUMBER			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D NTS	97291003	H	SHEET 7 OF 17
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-			
PLANE ANGLES W- F°					



REVISION HISTORY LOCATED ON LAST SHEET

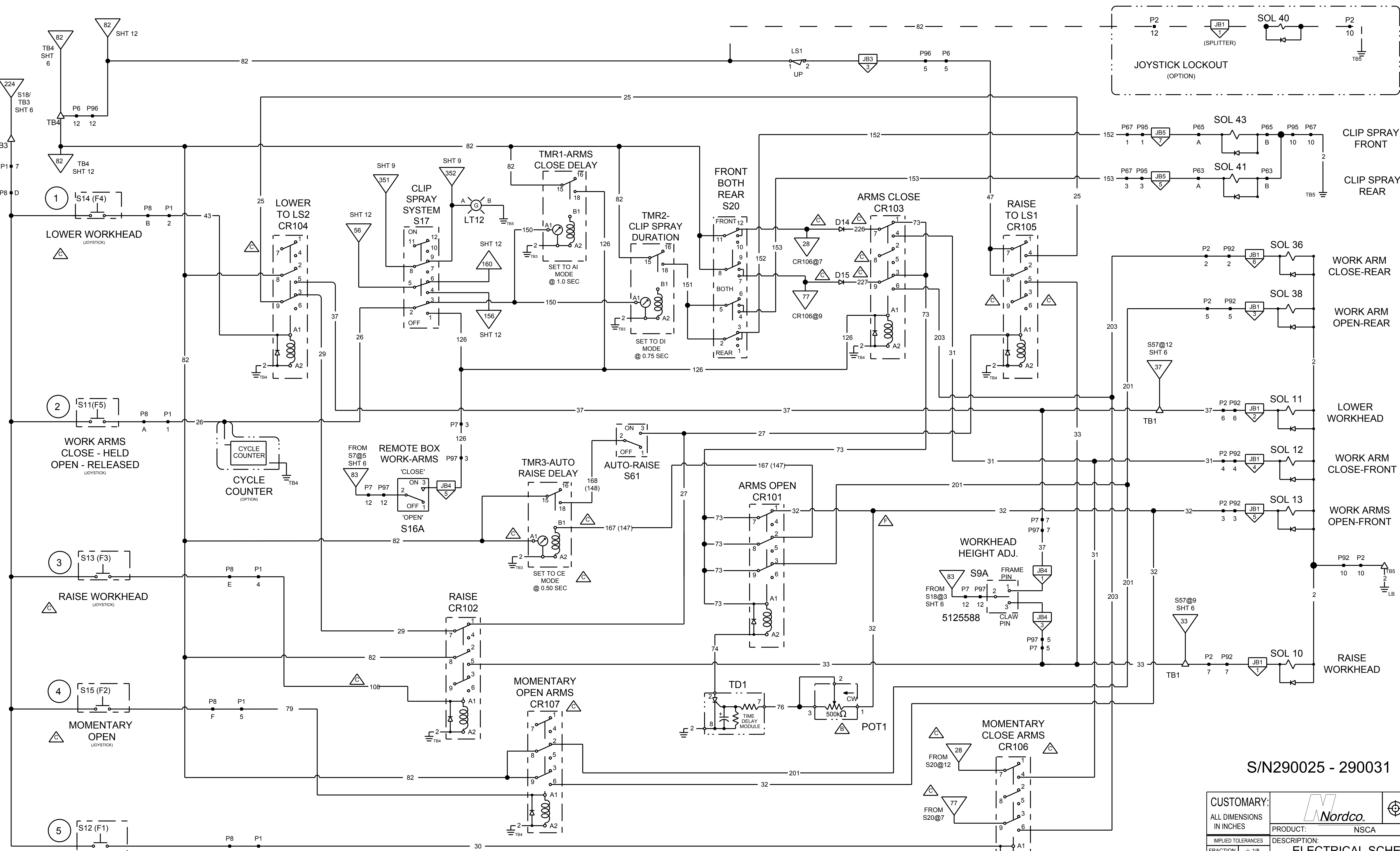
CUSTOMARY:					
ALL DIMENSIONS IN INCHES		PRODUCT: NSCA			
IMPLIED TOLERANCES		DESCRIPTION: ELECTRICAL SCHEMATIC			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D NTS	97291003	H	H
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 8 OF 17	
PLANE ANGLES 90°-1°					



CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION
IMPLIED TOLERANCES		PRODUCT: NSCA		
FRACTION	± 1/8	DESCRIPTION: ELECTRICAL SCHEMATIC		
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER
XX	± .03	D NTS		97291003
XXX	± .010	ASSEMBLY:-		H
PLANE ANGLES 90°-F		SHEET 9		OF 17

REVISION HISTORY
LOCATED ON LAST SHEET

HAND CONTROLLER FUNCTIONS



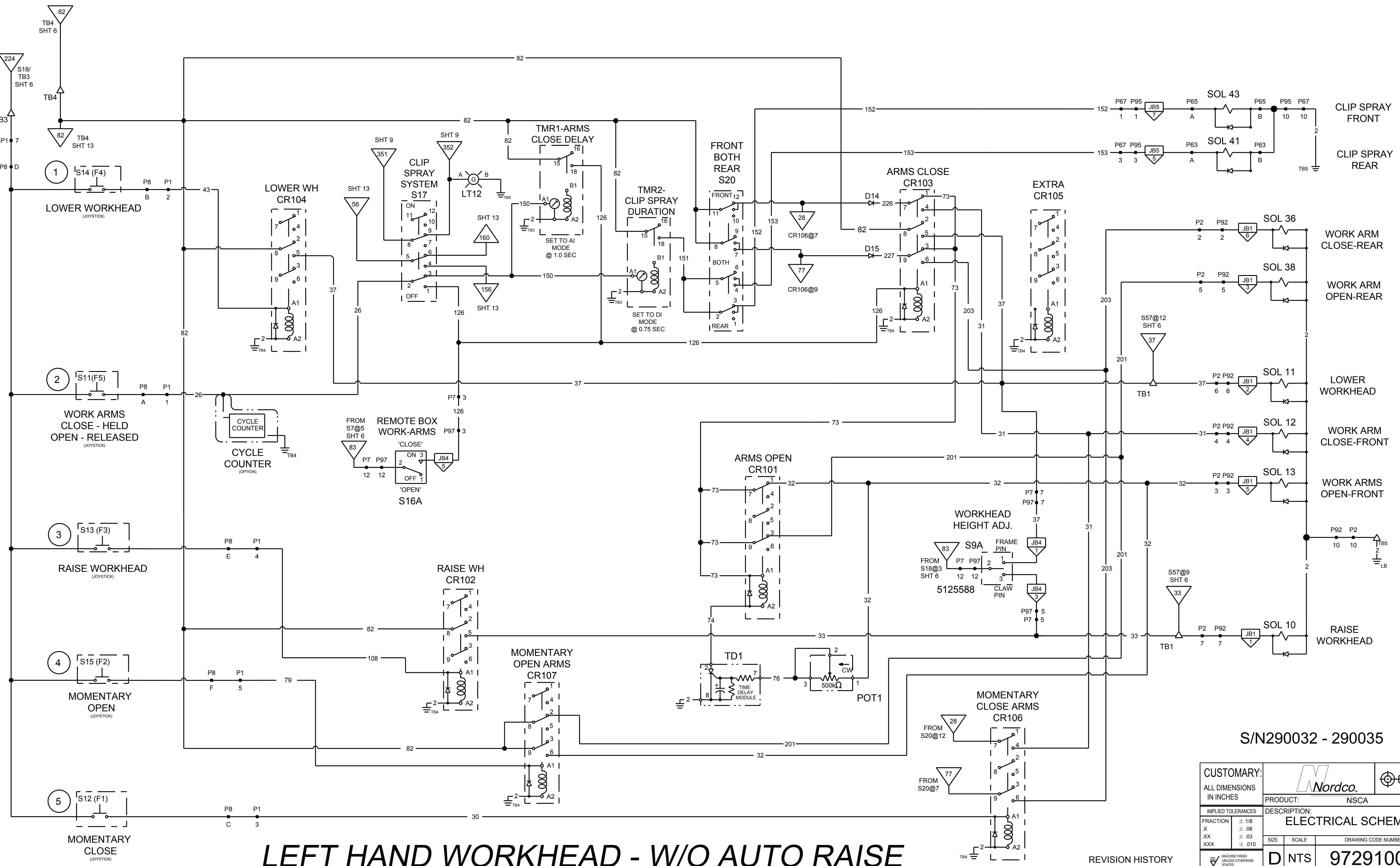
LEFT HAND WORKHEAD - W/ AUTO RAISE

S/N290025 - 290031

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION
IMPLIED TOLERANCES		PRODUCT: NSCA		
DESCRIPTION: ELECTRICAL SCHEMATIC		DRAWING CODE NUMBER		
FRACTION	± 1/8	SIZE	SCALE	REV
X	± .06	D NTS	97291003	H
XX	± .03			
XXX	± .010			
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY: -		
PLANE ANGLES W/ F°		SHEET 10 OF 17		

REVISION HISTORY
LOCATED ON LAST SHEET

HAND CONTROLLER FUNCTIONS



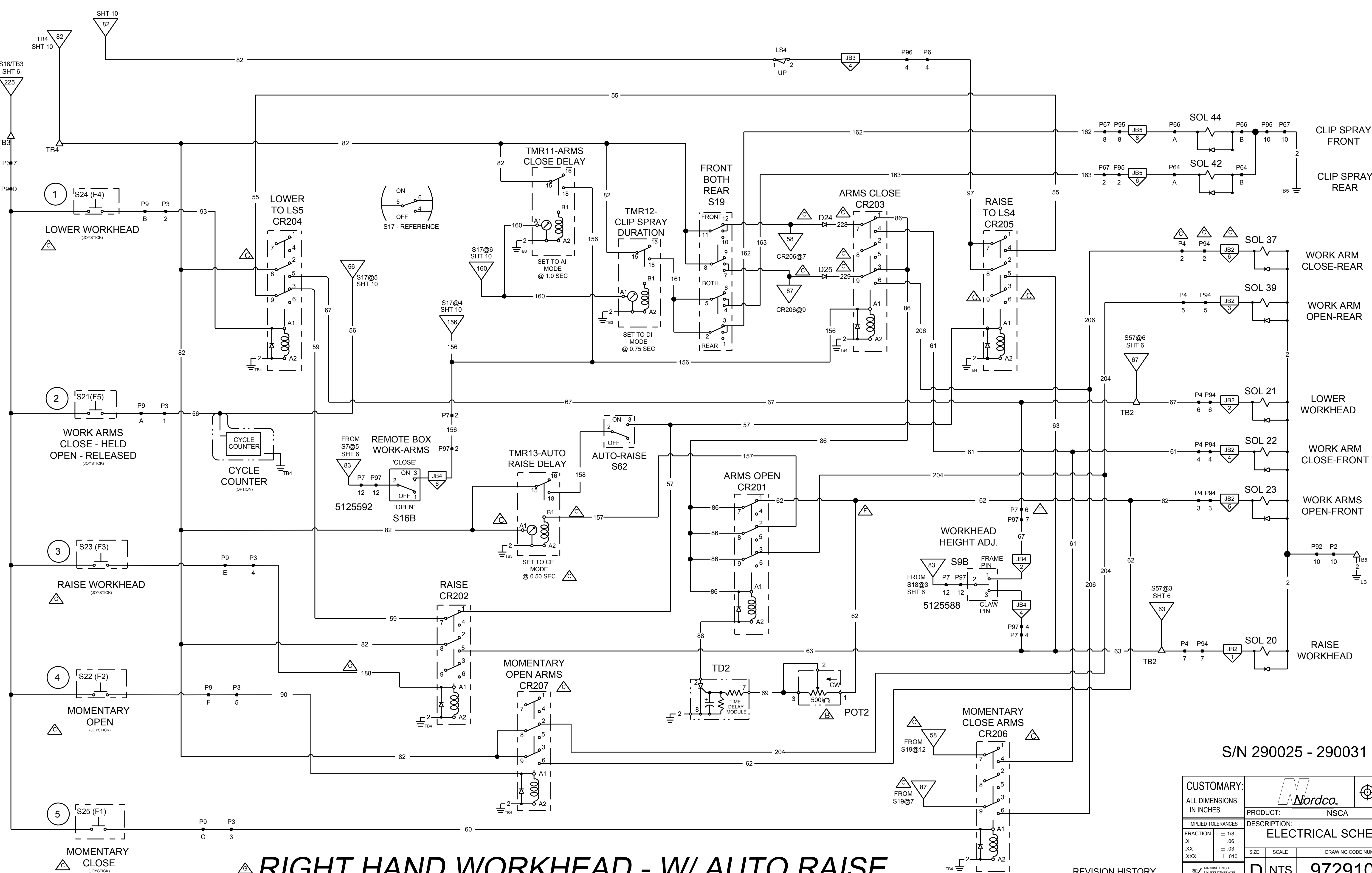
LEFT HAND WORKHEAD - W/O AUTO RAISE

S/N290032 - 290035

CUSTOMARY:				THIRD ANGLE PROJECTION	
ALL DIMENSIONS IN INCHES		PRODUCT: NSCA			
IMPLIED TOLERANCES		DESCRIPTION: ELECTRICAL SCHEMATIC			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D	NTS	97291003	H
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 11 OF 17	
PLANE ANGLES W/ F°					

REVISION HISTORY LOCATED ON LAST SHEET

HAND CONTROLLER FUNCTIONS



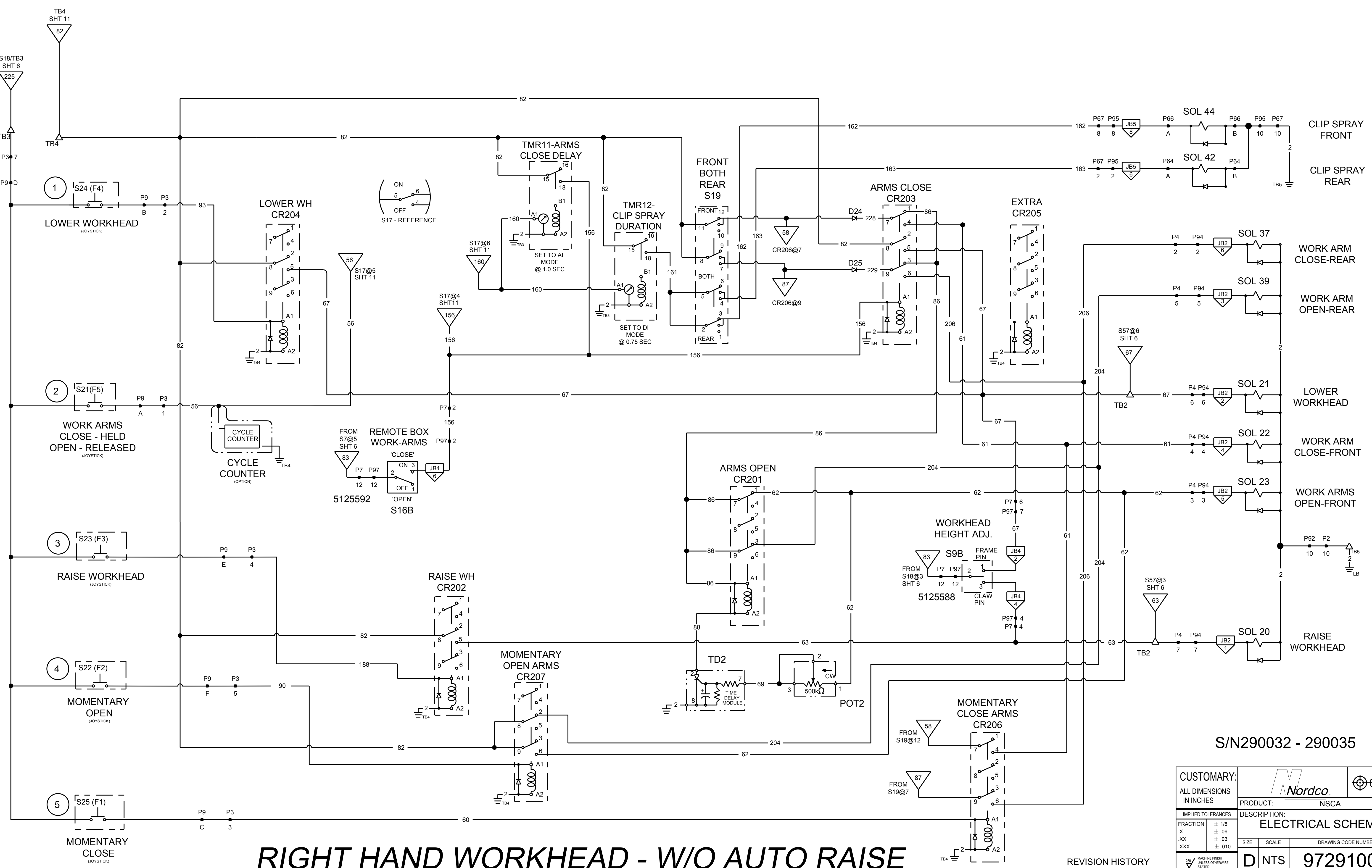
RIGHT HAND WORKHEAD - W/ AUTO RAISE

S/N 290025 - 290031

CUSTOMARY:		NORDCO		THIRD ANGLE PROJECTION	
ALL DIMENSIONS IN INCHES		PRODUCT: NSCA			
IMPLIED TOLERANCES		DESCRIPTION: ELECTRICAL SCHEMATIC			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D NTS	97291003	H	H
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY: -			
PLANE ANGLES W/ F°		SHEET 12 OF 17			

REVISION HISTORY LOCATED ON LAST SHEET

HAND CONTROLLER FUNCTIONS

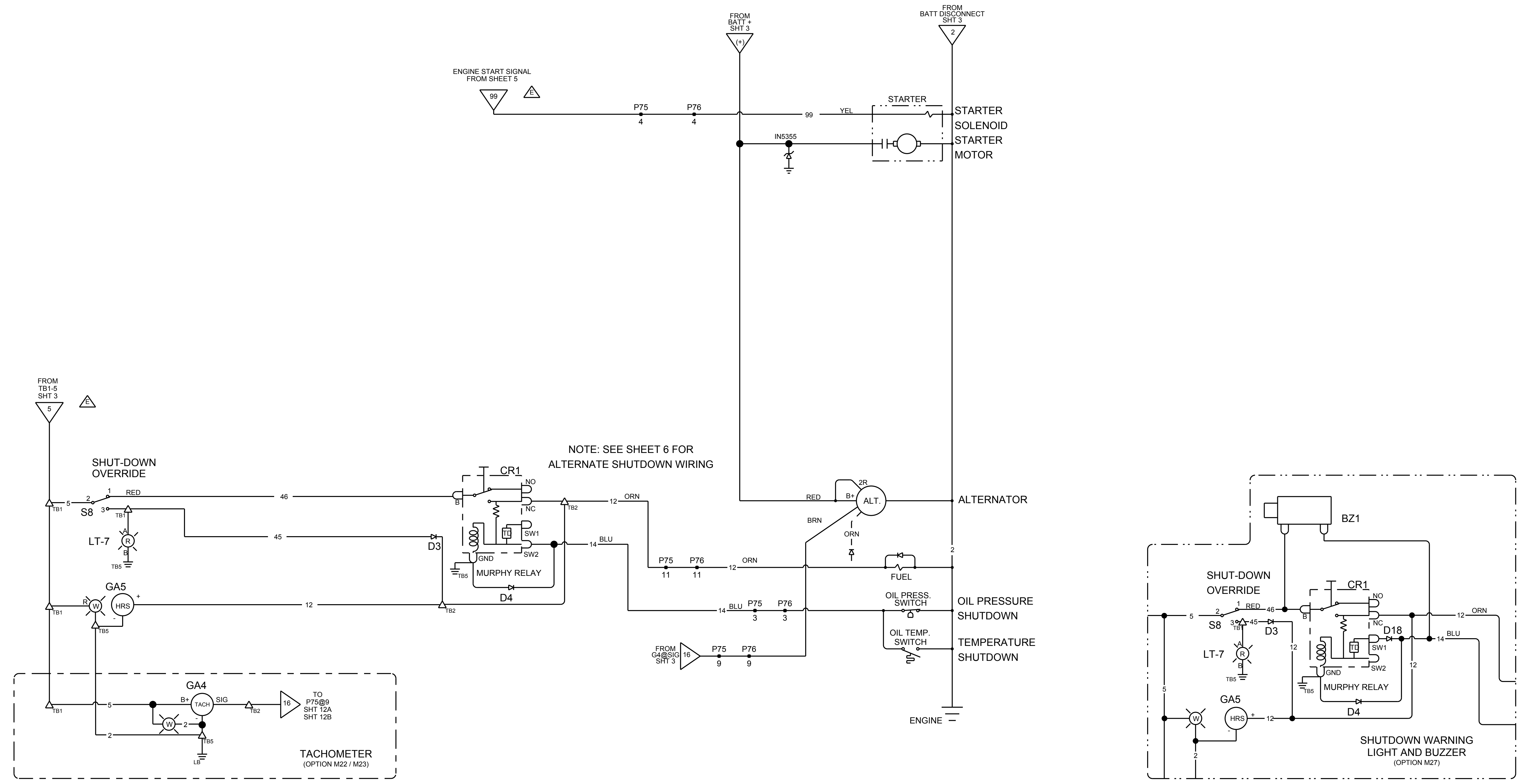


RIGHT HAND WORKHEAD - W/O AUTO RAISE

S/N290032 - 290035

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA			
DESCRIPTION: ELECTRICAL SCHEMATIC		DRAWING CODE NUMBER			
FRACTION	± 1/8	SIZE	SCALE	REV	
X	± .06	D NTS	97291003	H	SHEET 13 OF 17
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-			
PLANE ANGLES W/ F					

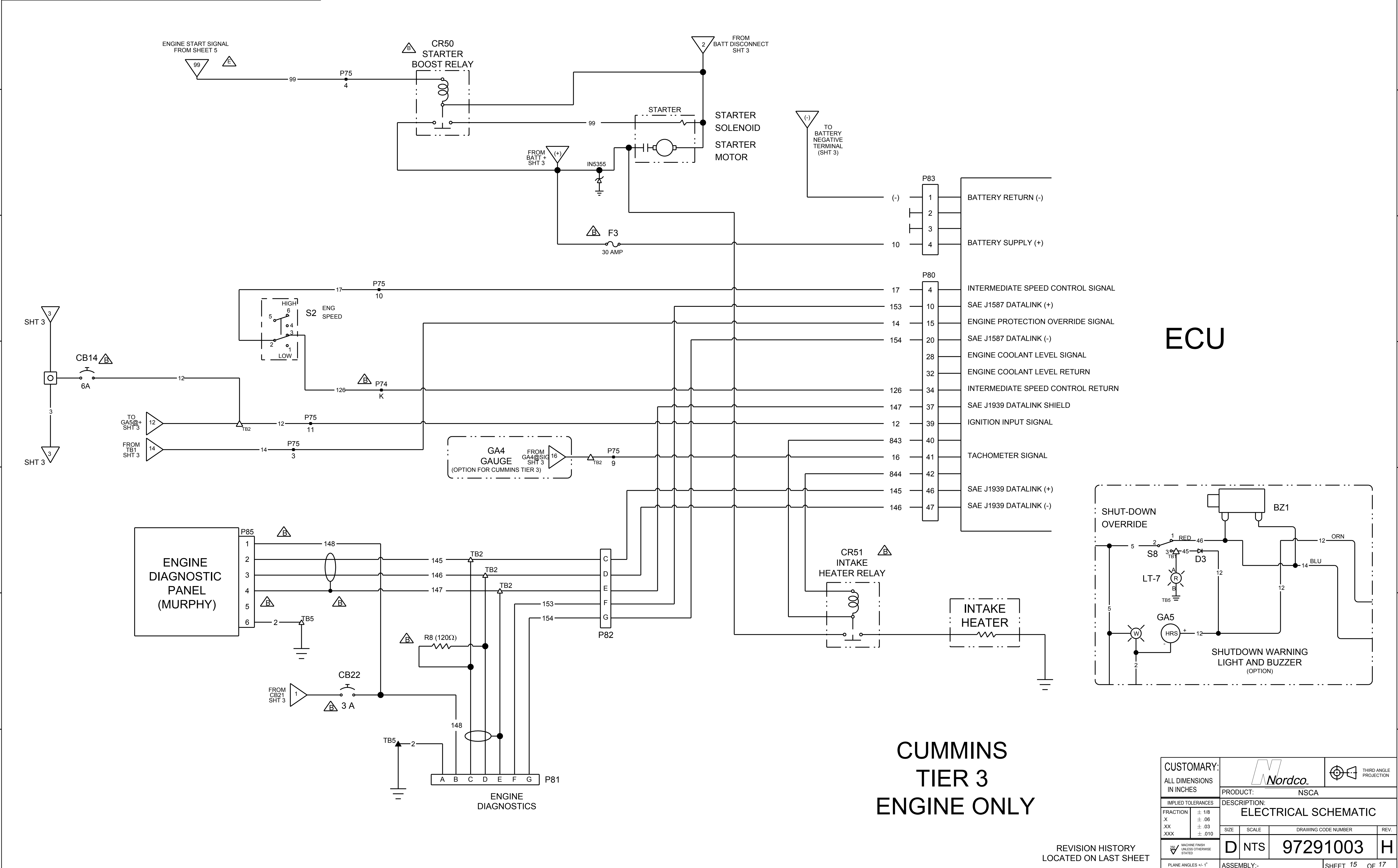
REVISION HISTORY LOCATED ON LAST SHEET



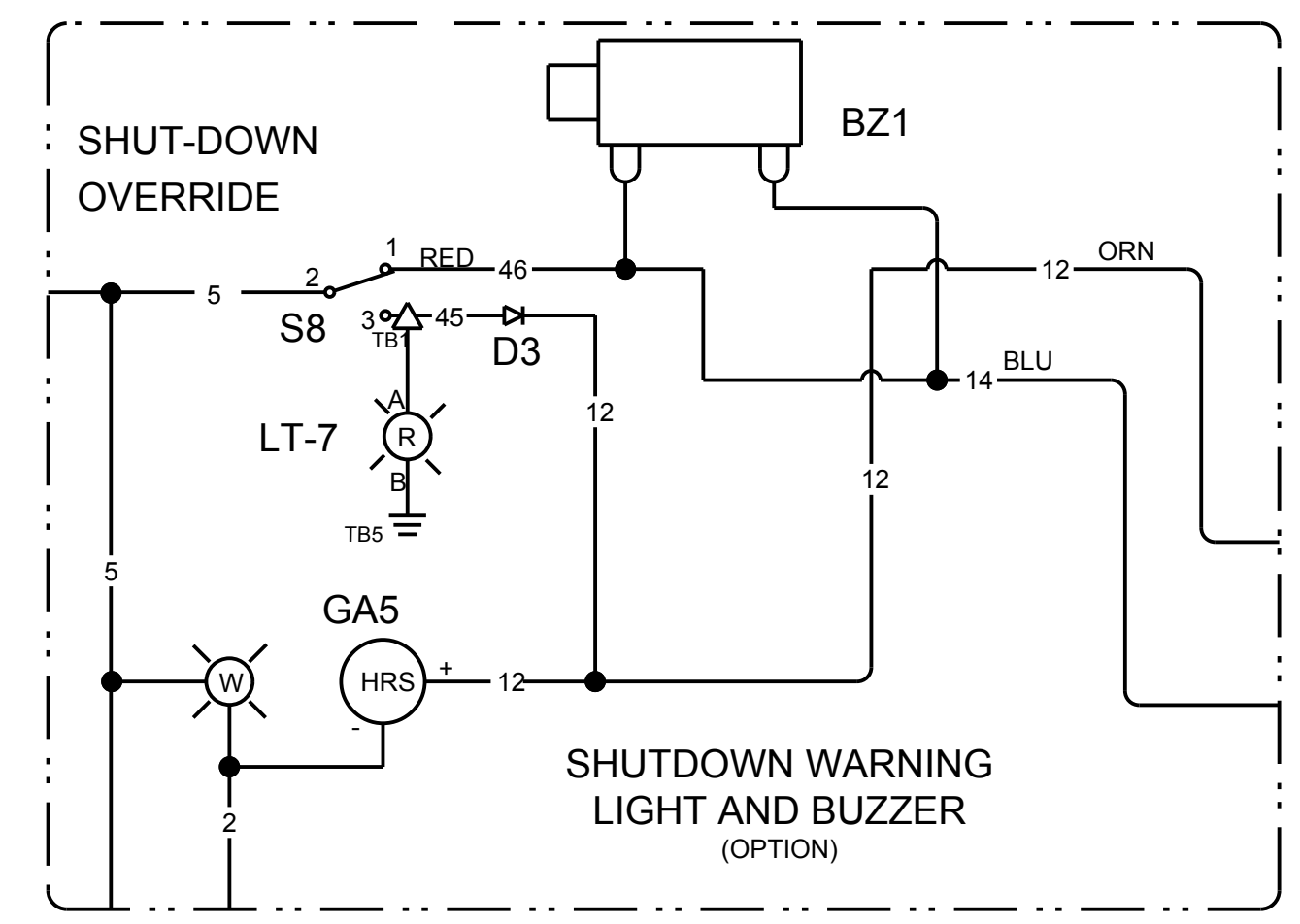
JOHN DEERE TIER 2 ENGINE ONLY

REVISION HISTORY
LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA			
DESCRIPTION: ELECTRICAL SCHEMATIC		DRAWING CODE NUMBER			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D NTS	97291003	H	SHEET 14 OF 17
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-			
PLANE ANGLES 90°-1°					



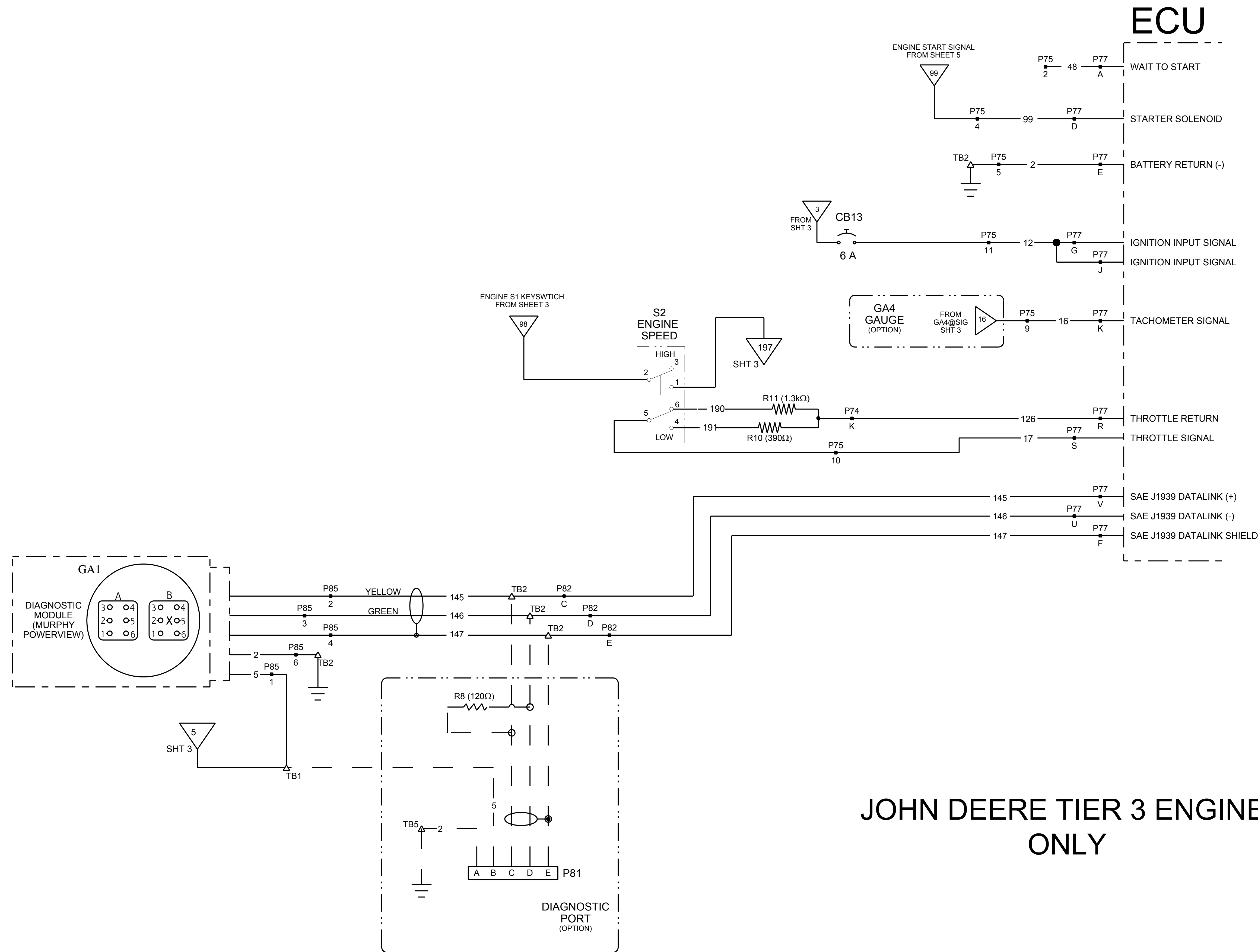
ECU



CUMMINS TIER 3 ENGINE ONLY

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA			
DESCRIPTION: ELECTRICAL SCHEMATIC		DRAWING CODE NUMBER			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D NTS	97291003	H	SHEET 15 OF 17
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-			
PLANE ANGLES 45°-1°					



JOHN DEERE TIER 3 ENGINE ONLY

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY:					
ALL DIMENSIONS IN INCHES		PRODUCT: NSCA			
IMPLIED TOLERANCES		DESCRIPTION: ELECTRICAL SCHEMATIC			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D NTS	97291003	H	H
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 16 OF 17	
PLANE ANGLES 45°-1°					

ECO	NONE	PROTOTYPE	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
PJP	---	---	
11/21/2007			
SHEET	CHANGE		
ALL	PROTOTYPE LEVEL		

ECO	NONE	REV -	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
PJP	---	---	
9/15/2008			
SHEET	CHANGE		
ALL	UPDATED SHEETS WHERE APPLICABLE COMPONENTS MATCH TO THE SIMILAR SP2R SCHEMATIC 97311003 REV - J		

ECO	NONE	REV A	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
PJP	---	---	
10/24/2008			
SHEET	CHANGE		
3	P68x6 WAS P4x1; JB6/2 WAS JB2/7; P68x10 WAS P4x10; P4x8 WAS P2x8; P4x12 WAS P4x12; P4x10 WAS P4x10		
5	P68x7 WAS P2x2; JB6/1 WAS JB1/6; P68x10 WAS P2x10; P4x12 WAS P2x12; P4x1 WAS P2x1; P68x7 WAS P2x2; JB6/1 WAS JP1/6; P68x10 WAS P4x10		
8	JB3/1 WAS JB3/2; JB3/3 WAS JB3/4; WIRE #166 WAS WIRE #126; P67x8 WAS P67x1; JB5/8 WAS JP5/7; P66x1 WAS P65x1; SOL 44 WAS SOL 43; P66x2 WAS P65x4; P67x2 WAS P67x3; JB5/6 WAS JB5/5; P64X1 WAS P63x1; SOL 42 WAS SOL 41; P64x2 WAS P63x2; ALL P4 CONNECTORS WERE P2; WAS LEFT HAND WORKHEAD		
9	JB3/2 WAS JB3/1; P67x1 WAS P67x8; JB5/7 WAS JP5/8; P65x1 WAS P66x1; SOL 43 WAS SOL 44; P65x2 WAS P66x2; P67x3 WAS P67x2; JB5/5 WAS JB5/6; P63X1 WAS P64x1; SOL 41 WAS SOL 42; P63x2 WAS P64x2; ALL P2 CONNECTORS WERE P4; WAS RIGHT HAND WORKHEAD		

ECO	80088	REV B	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
JWW	---	---	
2-DEC-08			
SHEET	CHANGE		
1	CB5: 15A WAS 25A. CB13: "... OR FUEL HEATER (15A)" ADDED. CB14: "... OR CUMMINS (6A) ADDED. CB15: "... AND SPRAY TANK" ADDED. CB21 AND CB22 ADDED. START SEQUENCE: REMOVED ENGINE SPEED TO LOW CONDITION. ADDED FLIP CHART NOTE.		
2	P92-P98 ADDED.		
3	CHANGED FUNCTION OF CB21. CB50 (80A) WAS CB20 (10A) MOVED CB2-CB4 TO NEW SHEET 4. WIRE 197 REMOVED. WIRE 98 CONNECTED TO S10.		
4	ADDED THIS SHEET (MOVED FROM SHEET 3). REMOVED "EXTRA WORK LIGHT OPTION" FROM CB5. ADDED JB1 AND JB2 SYMBOLS TO WIRE 856.		
5	MOVED CB7-CB10 TO SHEET 7. CB5: 15A WAS 25A. P4@1 WAS P2@1. JB2@7 WAS JB1@7. WIRE 94 REMOVED FROM SWITCH S42.		
6	WAS SHEET 4. REMOVED UNUSED THROTTLE CONFIGURATIONS. MOVED THROTTLE TO SHEET 9.		
8	ADDED FUEL HEATER OPTION.		
9	S17 CHANGED TO 12V SIDE OF CONVERTER. REFERENCE ADDED. ADDCO THROTTLE MOVED TO THIS SHEET.		
10	POT 1: 500K WAS 1.5M.		
11	POT 2: 500K WAS 1.5M. SWITCH S17 REMOVED, REFERENCE ADDED.		
12A	GLOW PLUGS REMOVED.		
12B	CB22: 3A WAS 1A. CB14 WAS CB13. CORRECTION: P74@K WAS P75@3. SHIELDED CABLE SYMBOL CORRECTED. REMOVED ENGINE COOLANT LEVEL WIRES. ADDED R8, 120W RESISTOR TO ENGINE DIAGNOSTIC PORT. ADDED CR50 (STARTER) AND CR51 (INTAKE HEATER) RELAYS. REPLACED CB21 WITH F3 30A FUSE. ADDED DIRECT CONNECTIONS BETWEEN ECU AND BATTERY. WIRE 148 FROM CB22 TO P85@1 WAS WIRE #1.		
13	ADDED FLIP CHART INSTRUCTIONS.		

ECO	80114	REV C	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
CP	---	---	
09-FEB-10			
SHEET	CHANGE		
1	"THIS CHART IS TO BE USED..." WAS "FLIP CHART REORDER..." CR106 - "LH MOMENTARY CLOSE" ADDED CR107 - "LH MOMENTARY OPEN" ADDED CR206 - "RH MOMENTARY CLOSE" ADDED CR207 - "RH MOMENTARY OPEN" ADDED CR31 - "REAR WIPERS" ADDED CR40 - "MAIN POWER RELAY" REMOVED		
2	31440092, 520337 & 520338 ADDED FOR S/N 290032 & ABOVE		
3	EMERGENCY PUMP OPTION UPDATED		
5	MOVED WIRE 864 FROM CR17@5 TO CR17@6 ADDED WIRE 867 FOR CR17@5 TO S56@2 & 5 ADDED WIRE 854 FOR S56@2 & 5 TO TB2 ADDED NOTE #1		
7	ADDED CR31 & CENTER WIPER		
8	ADDED MACBONE A/C OPTION		
9	H@2 WAS P79@2 H@542 WAS P79@26 H@140 WAS P79@31 ADDED EXTERNAL CTRL SWITCH FOR CSX OPTION		
10	REMOVED WIRES 38, 42, 43 & 177 ADDED CR106, CR107, WIRES 226 & 227 WIRE 108 WAS 27 ADDED WIRE 28 FROM S20@12 TO CR106@7, WIRE 77 FROM S20@7 TO CR106@9 AND DIODES D14 & D15 ADDED WIRE 82 FROM CR104@8 TO TB4 TMR3, MOVED WIRE 167 FROM A1 TO B1, ADDED WIRE 82 TO A1 AND CHANGED SET UP "DE" TO "CE" MODIFIED DESCRIPTIONS FOR JOYSTICK BUTTONS 1, 3 & 5		
11	REMOVED WIRES 68, 92, 93 & 187 ADDED CR206, CR207, WIRES 228 & 229 WIRE 188 WAS 57 ADDED WIRE 58 S19@12 TO CR206@7, WIRE 87 FROM S19@7 TO CR206@9 AND DIODES D24 & D25 ADDED WIRE 82 FROM CR204@8 TO TB4 P4@2 WAS P4@1 P94@2 WAS P94@1 JB2@6 WAS JB2@7 TMR13, MOVED WIRE 157 FROM A1 TO B1, ADDED WIRE 82 TO A1 AND CHANGED SET UP "DE" TO "CE" MODIFIED DESCRIPTIONS FOR JOYSTICK BUTTONS 1, 2, 3 & 4		


ECO	600727	REV D	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
ARADLOFF	CP	---	
27JUN12	03JUL12		
SHEET	CHANGE		
3	WIRE 1 REMOVED FROM TGS41@2; WIRE 23 ADDED TO TGS41@2		

ECO	600880	REV E	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
JMK	CP	---	
4FEB13	14FEB13		
SHEET	CHANGE		
2	REFORMATED CONNECTION KEY INTO A TABLE; J.D. TIER 3 ENGINEER - 520339 ADDED TO ELECTRICAL DRAWING REFERENCE TABLE		
3	TO CB22 SHT 13 WAS TO CB22 SHT 12B; TO STARTER: 12 WAS 12A, 13 WAS 12B; TO P83@1: 13 WAS 12B; TO CB22: 13 WAS 12B; SHUT-DOWN OVERTIDE, GA5, GA4 MOVED TO SHEET 12;		
5	TB2 WAS TB4; 3 SECOND TRAVEL ALARM REMOVED FROM THIS SHEET		
7	REAR WIPERS UPDATED AS M32		
9	M29 ADDED; M14 FROM SHEET ADDED FROM SHEET 5; ADDED PERIMETER LIGHTS - STD, AND PERIMETER LIGHTS - CSX		
11	P7 6 WAS P7 7		
12	REMOVED CR2; ADDED NOTE TO WIRE 99 ENGINE START SIGNAL FROM SHEET 5		
13	REMOVED CR2; ADDED NOTE TO WIRE 99 ENGINE START SIGNAL FROM SHEET 5		
14	ADDED SHEET; JD TIER 3 ADDED		

ECO	600973	REV F	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
JMK	SCR	---	
23APRIL13	02MAY13		
SHEET	CHANGE		
1	CB19 DESCRIPTION - ADDED BORADING LIGHT AT STEP		
3	ADDED BOARDING LIGHT OPTION		
7	M32: 549 WAS 543; 572 WAS 570; ADDED OR P78@6; ADDED OR P78@5		
8	CB14 WAS CB13; CB12: TB3 WAS TB4		
10	TB2 REMOVED		
11	TB2 REMOVED		

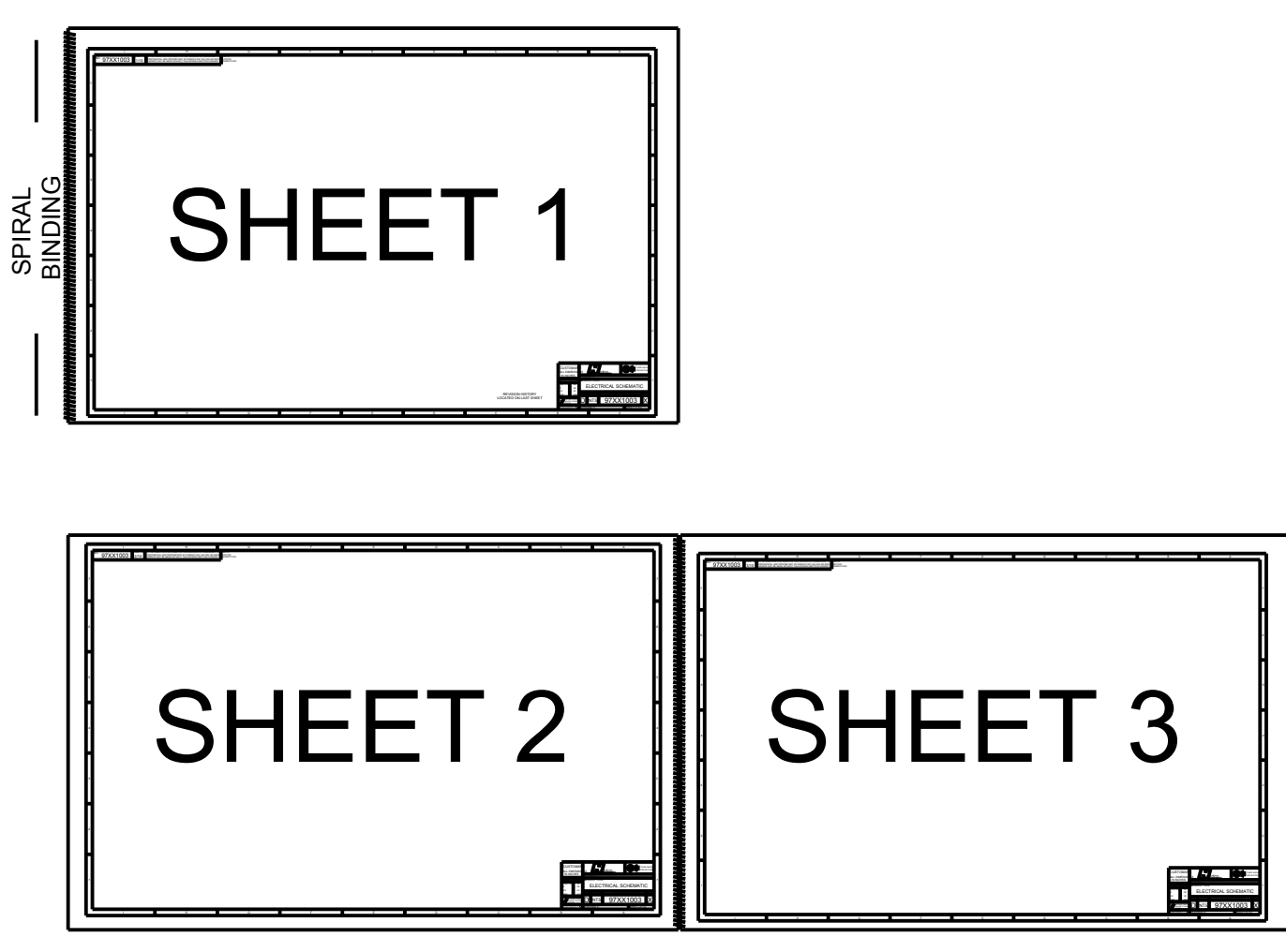
ECO	601065	REV G	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
JMK	CP	---	
01SEPT13	09-20-13		
SHEET	CHANGE		
ALL	REMOVED NOTE: S/N 290032 & UP		
1	ADDED NOTE: S/N290025-290035		
5	ADDED JOYSTICK LOCKOUT TO WIRE 6 - APPLIES TO S/N290032-290035		
9	ADDITIONAL VOLTAGE CONVERTER: FOR MACHINES S/N290032-290035		
10	UPDATED NOTE - ...W/ AUTO RAISE.		
11	ADDED SHEET		
12	WAS SHEET 11. UPDATED NOTE - ...W/ AUTO RAISE		
13	ADDED SHEET		
14	WAS SHEET 12		
15	WAS SHEET 13		
16	WAS SHEET 14		
17	WAS SHEET 15		



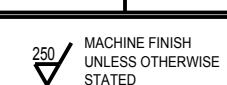
ECO	601213	REV H	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
SWA	---	---	
01-23-14			
SHEET	CHANGE		
3	BOARDING LIGHT OPTION- WIRE #250 ADDED.		

FLIP CHART PRINTING INSTRUCTIONS: 

ALL PAGES IN THIS DOCUMENT ARE TO BE PRINTED IN BLACK AND WHITE ON 11X17 SIZE PAPER. PRINT ON BOTH SIDES, LAMINATE, AND SPIRAL BIND AS SHOWN IN EXAMPLE.

EXAMPLE:



CUSTOMARY:					
ALL DIMENSIONS IN INCHES		PRODUCT: NSCA		DESCRIPTION: ELECTRICAL SCHEMATIC	
IMPLIED TOLERANCES	FRACTION	SIZE	SCALE	DRAWING CODE NUMBER	REV
	± 1/8				
X	± .06				
XX	± .03				
XXX	± .010				
		D NTS		97291003 H	
PLANE ANGLES 45-1°		ASSEMBLY:-		SHEET 17 OF 17	

LEGEND
 "X" = CURRENT CONFIGURATION
 "Xn" = SEE NOTES FOR OPTION HISTORY
 "-" = INDICATES OPTIONS PREVIOUSLY INSTALLED, NON-CURRENT

NORDCO P/N	CUSTOMER	CURRENT PRODUCTION	M01	M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	NORDCO P/N		
			CYCLE COUNTERS	HEATED MIRRORS	START SWITCH: LEVER	START SWITCH: KEYED	TURN TABLE WARNING	BRAKE LIGHT FLASHER	EMERGENCY STOPS	EXTRA HORN BUTTON	ALT. STROBE LIGHT CONN.	CASE DRAIN	SPEEDOMETER	HYD OIL MONITOR	PRESSURIZER	3-SECOND TRAVEL ALARM	HYD OIL TEMP GAUGE	WORKHEAD CENTERING	WORK HOUR METER	PERIMETER LIGHTS	WINDSHIELD WASHER FLUID	ENGINE: CUMMINS TIER 3	ENGINE: JD TIER 2	GAUGES: STANDARD	TACHOMETER	GAUGES: BNSF SPEC.	SHUTDOWN: AID WARNING	SHUTDOWN: MURPHY	SHUTDOWN: 30-SECOND WARNING	ALT. LIGHT CONNECTIONS	ISOLATED BACKUP ALARM	JOHN DEERE TIER 3 ENGINE	HANDLES	3-REAR WIPERS	BOARDING LIGHT AT STEPS			
31442900	STANDARD	NO			X																		X	X				X								31442900		
31442901	BNSF	NO	X	X		X	X	X				X											X		X	X	X										31442901	
31442902	CSX	NO		X			X		X	X	X												X	X				X									31442902	
31442903	CN	NO		X			X						X	X	X		X				X		X														31442903	
31442904	CPR	NO		X			X						X		X	X	X	X	X	X	X	X		X	X			X		X							31442904	
31442905	UPRR	NO		X																			X	X					X								31442905	
31442906	PNR	NO		X																X			X	X				X									31442906	
31442907	LIRR	NO		X									X									X	X					X									31442907	
31442911	BNSF	YES	X	X		X	X	X				X					X														X	X	X	X	X			31442911

NOTE:
 SEE SHEETS 2 TO 10 FOR BASE LOGIC BOX,
 AND SHEETS 11-20 FOR MODS

S/N290025 - 290035
 ELECTRICAL SCHEMATIC - 97291003DWG

CHART

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES:		DESCRIPTION: LOGIC BOX ASSEMBLY			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV
X	± .06	D NTS	31440080	F	F
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 1 OF 21	

REVISION HISTORY LOCATED ON LAST SHEET

BILL OF MATERIALS

BILL OF MATERIALS					
ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG PART NUMBER	DEVICE CODE
1	20293315	1	ENCLOSURE, OPERATOR BOX	HOFFMAN C-S24208	
2	56407062	1	PLAQUE, OPERATOR BOX		
3	57526366	1	PANEL, JUNCTION BOX	HOFFMAN C-P2416 MODIFIED	
5	5195889	20	CONTROL RELAY	FINDER 55.33.9.024.00.80	
6	5155165	20	SOCKET, RELAY	FINDER 94.73	
7	61231201	1	RELAY, POWER	COLE HERSE #24-063	CR42
8	5158420	20	RETAINER, RELAY CLIP	FINDER 094.71	
9	81941800	2	TRACK, RELAY MOUNTING	IDEC #BND-1000 18"x1.38"	
10	2837337	8	SCREW #6-32 x.5		
11	53110007	3	PANEL, FUSE	ETA #12-J20-60	CBP 1, 2
12	5104992	3	BAR, FUSE BUSS	ETA#430356311-071802	
13	5159052	6	JUMPER	McMASTER CARR 7527K39	
14	76481960	1	TERMINAL STRIP	MARATHON 603GP07 OR MOLEX/BEAU SERIES 28 P/N 280307	
15	5128935	3	CIRCUIT BREAKER 10 AMP	ETA #1170-02-10A MAN. RESET	CB1, 4, 10
16	5128936	8	CIRCUIT BREAKER 15 AMP	ETA #1170-02-15A MAN. RESET	CB2, 3, 5, 6, 8, 9, 15, 17
17	5128937	2	CIRCUIT BREAKER 20 AMP	ETA #1170-02-20A MAN. RESET	CB11, 12
18	5128938	1	CIRCUIT BREAKER 25 AMP	ETA #1170-02-25A MAN. RESET	CB7
20	5125579	5	SWITCH, TOGGLE	CH #8501K4 ON-ON DPDT	S5, 6, 10, 50, 53
21	5190950	6	LAMP HOLDER	DIALIGHT #508-7538-504	LT2, 3, 4, 5, 12, 13
23	5125582	4	SWITCH, TOGGLE	CH #8502K15 4PDT ON-ON-ON	S19, 20, 54, 55
24	29680002	7	DIODE	IN5059	
25	5159050	30	JUMPER	CINCH #140J1	
26	5190910	4	LIGHT, GREEN	DIALIGHT #507-4861-3732-500	LT3, 5, 12, 13
27	5190912	3	LIGHT, RED	DIALIGHT #507-4761-3731-500	LT2, 4
28	5155960	2	PUSH BOTTON,HORN	COLE HERSEE #9216-03	PB1, 4
29	5126636	1	PUSH BOTTON,EMERG.STOP		PB2
30	5126642	1	PUSH BUTTON, INTERLOCK	AB 800T-FX9A1	PB3
36	50180013	2	TIMING MODULE		TD1, 2
37	5120804	2	RECEPTICAL, MINI	LUMBERG RSF 70M-622/3F	P1, 3
38	2837613	12	SCREW, #10X.375		
39	61200074	2	POTENTIOMETER, 500K-OHM	AB800T-U55	POT1, 2
40	3025011	2	NUT, GROUND STUD 1/4-20		
41	5164270	AR	TERMINAL, RING (12-10 WIRE, 6 SCR)		
42	5164299	AR	TERMINAL, RING (16-14 WIRE, 8 SCR)		
43	5164305	AR	TERMINAL, RING (12-10 WIRE, 8 SCR)		
44	5164308	AR	TERMINAL, RING (10 WIRE, .25 SCR)		
45	5164405	AR	TERMINAL, RING (16-14 WIRE, 5-6 SCR)		
46	5164408	AR	TERMINAL,RING (16-14 WIRE, 10 SCR)		
47	5164492	AR	SLEEVEING, VINYL	COLEFLEX OR EQUAL PF130 1/2"	
48	5170240	AR	TIE, CABLE	TYTON CORP. T18R	
49	0650455	AR	HEAT SHRINK		
50	5103829	1	CONNECTOR, CORD	CROUSE-HINDS CGB-396-SG	H
51	7072100	1	GAGE,FUEL LEVEL	SW#82303 GAGE 829525-2D 24V CONV.KIT	
52	81941110	1	TRACK,RELAY MOUNTING	IDEC #BND-1000 10"x1.38"	
53	2774261	4	HEX, HD CAPSCREW 1/4-20 X .5		
54	3060464	4	SAE WASHER 1/4"		
55	5120803	6	RECEPTACLE	LUMBERG RSF 120M-624/3F	P2, 4, 6, 7, 23

BILL OF MATERIALS					
ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG PART NUMBER	DEVICE CODE
50	5103829	1	CONNECTOR, CORD	CROUSE-HINDS CGB-396-SG	H
51	7072100	1	GAGE,FUEL LEVEL	SW#82303 GAGE 829525-2D 24V CONV.KIT	GA6
52	81941110	1	TRACK,RELAY MOUNTING	IDEC #BND-1000 10"x1.38"	
53	2774261	4	HEX, HD CAPSCREW 1/4-20 X .5		
54	3060464	4	SAE WASHER 1/4"		
55	5120803	6	RECEPTACLE	LUMBERG RSF 120M-624/3F	P2, 4, 6, 7, 23
56	76485222	4	TERMINAL STRIP	CINCH 22-140	TB1-TB4
57	5196105	1	RELAY	RELECO C5-A20DX/24VDC	CR30
58	5155285	1	SOCKET,RELAY S5-S		
59	80010050	6	RELAY, ADJ. TIMER 0.1SEC-20HR	FINDER #80.01.0.240	TMR1-3, TMR11-13
65	5120807	1	RECEPTICAL,MINI	LUMBERG RFK 401-639-3F	P5
66	61231211	1	POWER RELAY	NEWARK # 44F3648	CR40
67	26690004	2	CONVERTER 24V-12V	ASTRON N2412-24	VC1, VC2
68		1	CONNECTOR	CA3103R24-19P-SPL	P10
69	5120753	1	CONNECTOR,CAB NO STRAIN RELIEF	DEUTSCH #HD44-24-31-PT-059	P70
70	5120744	1	CONNECTOR,ENGINE	DEUTSCH #HD44-24-18-PN	P75
71	2837475	4	SCREW, MACHINE RD HD #8-32 X .5		
72	3064455	4	WASHER, LOCK #8		
73	3048034	4	NUT, MACHINE SCREW #8-32		
74	5125587	5	SWITCH, TOGGLE	CH#8500K4	S8, 51, 52, 61, 62
75	5126088	1	SWITCH,HEATER FAN	RED DOT 71R1150	S47
76	47175201	1	KNOB,SWITCH		
77	5166764	1	MALE TOWER	PACKARD 12015797	
78	5166783	1	SOCKET FEMALE	PACKARD 12089188	
79		1	SEAL	PACKARD 12015899	P11
80	5103814	2	CORD GRIP	CROUSE HINDS CGB-194	
81	5125585	4	SWITCH, TOGGLE	CH#8502-K4	S17, 18, 42, 57
82	5270548	AR	CORD 16/4 SOWA BLK-WHT-RED-GRN		
83	520132	2	CONNECTOR, ENGINE	DEUTSCH #HD44-18-14-PN	P29, 74
84	5190300	1	LIGHT, DOME 24V/ SWITCH SIGNAL	STAT 549SD	
85	520166	1	BULB, 24V FOR DOME LIGHT	GE #1203	
86	2837619	2	MACHINE SCREW, ROUND HEAD, 10-24 X 1/2" LG		
87	3064458	2	LOCKWASHER, #10 SAE		
90	5125586	1	SWITCH, TOGGLE ON-OFF-ON DPDT	CH #8501K1	S56
91	700278	1	HINGE, LOGIC BOX		
97	2837481	4	MACHINE SCREW 8-32 X 3/4"		
98	3048034	4	NUT, HEX 8-32		
99	3060455	4	WASHER, FLAT #8 SAE		
100	3064455	4	WASHER, LOCK #8 SAE		
101	5270228	AR	CORD, 16/2C BLACK-WHITE		P61
102	5166762	1	CONNECTOR	PAKARD # 12015792	
103	5166783	2	TERMINAL SLEEVE	PAKARD #12034051	
104	53110008	2	BASE, 2 POS'N CB MOUNT	ETA#12-J20-20	
105	5128933	1	CIRCUIT BREAKER 6 AMP MAN. RESET	ETA #1170-02-6A	CB21
106	29680018	2	DIODE, 3 AMP	1N5624	D19, D20



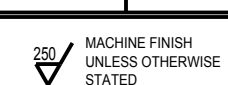
- NOTES: (APPLY TO ALL SHEETS)
- USE CABLE TIES AS REQUIRED.
 - ALL WIRES TO BE IDENTIFIED WITH WIRE MARKERS. MARKERS TO BE APPLIED ON WIRE, NOT ON TERMINALS.
 - ALL WIRE SIZES AND CONNECTIONS TO BE PER WIRE CONNECTION LISTS.
 - ROUTING OF WIRES TO ALLOW ACCESS TO INSIDE COMPONENTS AND FREE MOVEMENT OF THE COVER.
 - APPLY HEAT SHRINK MATERIAL OVER ALL DIODES (INDIVIDUALLY) TO ELIMINATE ANY BARE WIRES. LABEL WIRES ON ANODE SIDE OF EACH DIODE AS CLOSE AS POSSIBLE TO HEAT SHRINK.
 - ONLY ONE WIRE PER TERMINAL IS ALLOWED UNLESS OTHERWISE SPECIFIED.
 - ALL COMPONENT IDENTIFICATIONS ARE TO BE LABELED INSIDE OF ENCLOSURE WITH TEXT SHOWN. i.e. [CR25]
 - FORKED TERMINAL CONNECTIONS ARE LIMITED TO ONLY ONE TERMINAL PER CONNECTION POINT. (i.e. AT RELAYS)
 - WIRE SPECIFICATION - WIRE TO BE STRANDED COPPER OF THE INDICATED GAUGES, SXL TYPE, GXL TYPE OR NORDCO ENGINEERING APPROVED EQUIVALENT.
 - GAUGE GROUND CONNECTIONS MAY BE DESIGNATED AS "G"; "-" OR ⊥
 - GAUGE CONNECTIONS @B MAY BE DESIGNATED AS (+).
 - GAUGE CONNECTIONS @T MAY BE DESIGNATED AS (S)
 - SIMILAR TO NORDCO LOGIC BOX P/N31440031.
 - BLACK AND WHITE WIRES PROVIDED WITH DOME LIGHT TO BE RE-ROUTED THROUGH A 1/4" HOLE DRILLED THOUGH CLEAR PLASTIC SIDE. ITEM 86 MACH. SCREW HEAD TO OUTSIDE OF ENCLOSURE.
 - ANY UNUSED WIRES TO BE CUT TO 1" AND WRAPPED WITH HEAT SHRINK TO PREVENT SHORT CIRCUITING.
 - MACHINE SCREWS TO BE INSTALLED WITH HEADS OUT WHEN INSTALLING THRU SIDE WALLS OF BOX.

COMPONENT LEGEND

CB = CIRCUIT BREAKER
 PB = PUSH BUTTON SWITCH
 LT = INDICATOR LIGHT
 TGS = TOGGLE SWITCH
 TB = TERMINAL STRIP
 GA = GAUGE
 TMR = TIMER

BASE

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES			
	PRODUCT: NSCA - CLIP APPLICATOR		
IMPLIED TOLERANCES	DESCRIPTION: LOGIC BOX ASSEMBLY		
FRACTION	± 1/8	SIZE	SCALE
X	± .06	DRAWING CODE NUMBER	REV
XX	± .03	31440080	F
XXX	± .010		
		ASSEMBLY:-	
PLANE ANGLES W/ F		SHEET 2 OF 21	

WIRING CONNECTIONS TO PORT P1 (LEFT JOYSTICK)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
			WHITE w/ BLK
26	P1@1	S17@2	WHITE
30	P1@3	CR106@A1	BLACK
43	P1@2	CR104@A1	ORANGE
79	P1@5	CR107@A1	RED
108	P1@4	CR102@A1	GREEN
224	P1@7	TB3-224	

WIRING CONNECTIONS TO PORT P2 (LEFT MANIFOLD)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P2@10	TB5-2	RED
31	P2@4	CR103@4	RED w/ BLK
32	P2@3	CR107@6	WHITE w/ BLK
33	P2@7	TB1-33	BLUE w/ BLK
37	P2@6	TB1-37	ORANGE w/ BLK
112	P2@1	CR20@4	ORANGE
113	P2@8	CR21@4	BLACK w/ WHT
201	P2@5	CR101@3	GREEN w/ BLK
203	P2@2	CR103@6	BLUE
856	P2@12	TB3-856	BLACK

WIRING CONNECTIONS TO PORT P3 (RIGHT JOYSTICK)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
56	P3@1	S17@5	WHITE w/ BLK
60	P3@3	CR206@A1	WHITE
90	P3@5	CR207@A1	ORANGE
93	P3@2	CR204@A1	BLACK
188	P3@4	CR202@A1	RED
225	P3@7	TB3-225	GREEN

WIRING CONNECTIONS TO PORT P4 (RIGHT MANIFOLD)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P4@10	TB5-2	RED
856	P4@12	TB3-856	BLACK
61	P4@4	CR203@4	RED w/ BLK
62	P4@3	CR207@6	WHITE w/ BLK
63	P4@7	TB2-63	BLUE w/ BLK
67	P4@6	TB2-67	ORANGE w/ BLK
204	P4@5	CR201@3	GREEN w/ BLK
206	P4@1	CR203@6	BLUE
856	P4@12	TB3-225	GREEN

WIRING CONNECTIONS TO PORT P5 (WORK LIGHTS)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P5@2	TB1-2	WHITE
2	P5@4	TB1-2	GREEN
846	P5@1	S6@3	BLACK
847	P5@3	S6@6	RED

WIRING CONNECTIONS TO PORT P6 (LIMIT SWITCHES)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P6@10	TB1-2	RED
			BLUE w/ BLK
47	P6@5	CR105@7	GREEN w/ BLK
82	P6@12	TB4-6	BLACK
			ORANGE w/ BLK
97	P6@4	CR205@7	RED w/ BLK

WIRING CONNECTIONS TO PORT P7 (REMOTE BOXES)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
33	P7@5	TB1-33	GREEN w/ BLK
37	P7@7	TB1-37	BLUE w/ BLK
63	P7@4	TB2-63	RED w/ BLK
67	P7@6	TB2-67	ORANGE w/ BLK
83	P7@12	S18@3	BLACK
126	P7@3	CR103@A1	WHITE w/ BLK
156	P7@2	S17@4	BLUE

WIRING CONNECTIONS TO PORT P10 (FOOT PEDALS)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
81	P10@F	CR13@A1	16 AWG
104	P10@E	CR21@5	16 AWG
109	P10@B	CR21@A1	16 AWG
110	P10@A	CR20@A1	16 AWG
218	P10@C	S56@3	16 AWG
219	P10@D	S56@1	16 AWG
221	P10@H	S56@6	16 AWG
222	P10@J	S56@4	16 AWG

WIRING CONNECTIONS TO PORT P11 (CAB HEATER)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P11@D	TB1-2	16 AWG BLACK
130	P11@A	S47@H	16 AWG GREEN
131	P11@B	S47@M	16 AWG RED
132	P11@C	S47@L	16 AWG WHITE

WIRING CONNECTIONS TO PORT P29 (A/C HARNESS)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P29@C	TB3-2	16 AWG GREEN
2	P29@D	TB3-2	16 AWG GREEN
2	P29@F	TB3-2	14 AWG GREEN
117	P29@G	CR32@A1	16 AWG BLACK
117	P29@H	P74@M	16 AWG BLACK
122	P29@E	TB3-122	14 AWG RED
143	P29@A	CR32@5	16 AWG BLACK
144	P29@B	CR32@6	16 AWG BLACK

NOTE: PINS J, K, L, N & P NOT USED

WIRING CONNECTIONS TO PORT P61 (SPRAY TANK POWER)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
353	P61@A	-12V OUT- CVT	16 AWG BLACK
352	P61@B	S17@9	16 AWG WHITE

WIRING CONNECTIONS TO PORT P67 (LOCKUP & SPRAY SOL)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P67@10	TB5-2	RED
152	P67@1	S20@3	ORANGE
153	P67@3	S20@4	WHITE w/ BLK
162	P67@8	S19@3	BLACK w/ WHT
163	P67@2	S19@4	BLUE
214	P67@6	TB4-214	ORANGE w/ BLK
215	P67@5	TB4-215	GREEN w/ BLK
216	P67@7	S54@7	BLUE w/ BLK
217	P67@4	S55@7	RED w/ BLK

WIRING CONNECTIONS TO PORT P68 (UNDER RH MANIFOLD)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P68@10	TB3-2	RED
15	P68@6	GA6@S	ORANGE w/ BLK
36	P68@7	CR13@4	BLUE w/ BLK

WIRING CONNECTIONS TO PORT P74 (ENGINE HARNESS)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P74@B	TB1-2	14 AWG GREEN
2	P74@E	TB3-2	14 AWG GREEN
2	P74@G	TB5-2	16 AWG GREEN
18	P74@F	TB2-18	14 AWG BLACK
72	P74@A	TB2-72	14 AWG BLACK
117	P74@M	P29@H	16 AWG BLACK
124	P74@D	TB4-124	16 AWG BLACK
126	P74@K	TB4-126	16 AWG BLACK
479	P74@H	TB4-479	16 AWG BLACK
480	P74@J	TB4-480	16 AWG BLACK

NOTE: PINS L, N & P NOT USED

WIRING CONNECTIONS TO PORT P75 (ENGINE HARNESS)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P75@7	TB1-2	12 AWG GREEN
2	P75@1	TB5-2	10 AWG GREEN
11	P75@2	GA2@S	16 AWG RED
12	P75@11	TB2-12	16 AWG BLACK
13	P75@5	GA3@S	16 AWG BLACK
16	P75@9	GA4@S	16 AWG BLACK
17	P75@10	S2@5	16 AWG BLACK
35	P75@8	S10@6	16 AWG BLACK
99	P75@4	CR2@7	12 AWG BLACK
114	P75@6	CR30@7	12 AWG BLACK
115	P75@12	CR30@A	16 AWG BLACK
802	P75@17	LT2@A	16 AWG BLACK
803	P75@18	LT3@A	16 AWG BLACK
804	P75@14	LT4@A	16 AWG BLACK
805	P75@15	LT5@A	16 AWG BLACK
856	P75@16	TB3-856	16 AWG RED
857	P75@13	TB2-857	16 AWG RED

WIRING CONNECTIONS TO PORT P79 (ENGINE HARNESS)			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	P79@12	TB5-2	14 AWG GREEN
2	P79@13	TB5-2	14 AWG GREEN
2	P79@17	TB1-2	14 AWG GREEN
2	P79@18	TB1-2	14 AWG GREEN
9	P79@8	TB1-9	16 AWG RED
9	P79@10	TB1-9	14 AWG RED
9	P79@11	TB1-9	16 AWG RED
71	P79@25	S5@1	14 AWG BLACK
72	P79@16	TB2-72	14 AWG BLACK
304	P79@23	TB2-304	14 AWG BLACK
304	P79@24	TB2-304	14 AWG BLACK
550	P79@2	S50@1	16 AWG BLACK
551	P79@3	S50@3	16 AWG BLACK
552	P79@6	S51@1	16 AWG BLACK
553	P79@7	S51@3	16 AWG BLACK
554	P79@14	S52@1	16 AWG BLACK
555	P79@15	S52@3	16 AWG BLACK
556	P79@19	CR31@2	16 AWG BLACK
557	P79@20	CR31@5	16 AWG BLACK
560	P79@4	S50@4	16 AWG BLACK
561	P79@5	S50@6	16 AWG BLACK
566	P79@21	CR31@3	16 AWG BLACK
567	P79@22	CR31@4	16 AWG BLACK
855	P79@1	CR13@1	16 AWG BLACK

NOTE: PINS 27-31 NOT USED

PIN CONNECTORS

BASE

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES		THIRD ANGLE PROJECTION
IMPLIED TOLERANCES	PRODUCT: NSCA - CLIP APPLICATOR	
FRACTION ± 1/8 X ± 0.6 XX ± 0.3 XXX ± 0.10	DESCRIPTION: LOGIC BOX ASSEMBLY	
SIZE	SCALE	DRAWING CODE NUMBER
20 MACHINE FINISH UNLESS OTHERWISE STATED	D NTS	31440080
PLANE ANGLES W/ F	ASSEMBLY:-	SHEET 3 OF 21

WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
1	CR40-1	TB2-1	10 AWG RED
1	TB2-1	CB21-1	12 AWG RED
1	CB21-1	CB22-1	2-POS'N BUSS BAR
2	D2@ANODE	CR42-2	-
2	CR42-2	TB5-2	16 AWG GREEN
2	D1@ANODE	CR40-2	-
2	CR40-2	TB5-2	16 AWG GREEN
2	D16@ANODE	CR2@A2	-
2	CR2@A2	TB1-2	16 AWG GREEN
2	TB1-2	LT2@B	16 AWG GREEN
2	LT2@B	LT3@B	16 AWG GREEN
2	LT3@B	LT4@B	16 AWG GREEN
2	LT4@B	LT5@B	16 AWG GREEN
2	TB5-2	L12@B	16 AWG GREEN
2	GA6GND	TB5-2	16 AWG GREEN
2	CR30@B	TB1-2	16 AWG GREEN
2	TB1-2	DOVE LT.-WHT	16 AWG GREEN
2	TB5-2	VC1 -24v IN	16 AWG GREEN
2	TB4-2	CR102@A2	16 AWG GREEN
2	CR102@A2	CR103@A2	16 AWG GREEN
2	CR103@A2	TMR1@A2	16 AWG GREEN
2	TMR1@A2	TMR2@A2	16 AWG GREEN
2	TMR2@A2	TMR3@A2	16 AWG GREEN
2	TMR3@A2	CR104@A2	16 AWG GREEN
2	CR104@A2	CR105@A2	16 AWG GREEN
2	CR105@A2	CR106@A2	16 AWG GREEN
2	CR106@A2	CR107@A2	16 AWG GREEN
2	TB1-2	CR202@A2	16 AWG GREEN
2	CR202@A2	CR203@A2	16 AWG GREEN
2	CR203@A2	TMR11@A2	16 AWG GREEN
2	TMR11@A2	TMR12@A2	16 AWG GREEN
2	TMR12@A2	TMR13@A2	16 AWG GREEN
2	TMR13@A2	CR204@A2	16 AWG GREEN
2	CR204@A2	CR205@A2	16 AWG GREEN
2	CR205@A2	CR206@A2	16 AWG GREEN
2	CR206@A2	CR207@A2	16 AWG GREEN
2	TB4-2	TD1@8	16 AWG GREEN
2	TD1@8	TD2@8	16 AWG GREEN
2	TD1@8	CR13@A2	16 AWG GREEN
2	TB1-2	CR20@A2	16 AWG GREEN
2	CR20@A2	CR21@A2	16 AWG GREEN
2	CR21@A2	CR32@A2	16 AWG GREEN
2	TB1-2	CR31@A2	16 AWG GREEN
2	TB5-2	TB1-2	12 AWG GREEN
2	TB5-2	TB3-2	12 AWG GREEN
2	TB5-2	TB4-2	12 AWG GREEN
2	TB5-2	STUD-1	8 AWG GREEN
3	CR40-3	CBP1 - BUSS BAR	10 AWG RED
3	CBP1 - BUSS BAR	CB1 TO CB6	7-POS'N BUSS BAR
3	CBP1 - BUSS BAR	CBP2 - BUSS BAR	10 AWG RED
3	CBP2 - BUSS BAR	CB7 TO CB12	7-POS'N BUSS BAR
3	CBP2 - BUSS BAR	CBP3 - BUSS BAR	10 AWG RED
3	CBP3 - BUSS BAR	CB13 TO CB20	9-POS'N BUSS BAR
3	CR40-3	TB2-3	10 AWG RED
3	TB2-3	PB3@1	16 AWG RED
4	CB2-4	TB2-4	14 AWG RED
4	TB2-4	PB1@2	14 AWG RED
4	PB1@2	PB4@2	14 AWG RED



BASE

*-M05

WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
5	CB1-5	TB1-5	16 AWG RED
5	TB1-5	GA6@ +	16 AWG RED
5	TB1-5	S10@5	16 AWG RED
6	CR42	TB2-6	16 AWG BLACK
6	TB2-6	S42@3	16 AWG BLACK
6	S42@3	S42@4	16 AWG BLACK
6	TB2-6	CR20@7	16 AWG BLACK
6	CR20@7	CR20@8	16 AWG BLACK
6	CR20@8	CR21@7	16 AWG BLACK
6	CR21@7	CR21@8	16 AWG BLACK
6	TB2-6	S56@2	16 AWG BLACK
6	S56@2	S56@5	16 AWG BLACK
6	TB2-6	S54@8	16 AWG BLACK
6	S54@8	S55@8	16 AWG BLACK
6	S55@8	S18@2	16 AWG BLACK
7	CB3-7	S6@2	16 AWG RED
7	S6@2	S6@5	16 AWG RED
8	CB5-8	S4@2	16 AWG RED
8	CB5-8	CR13@7	16 AWG RED
9	CB8-9	TB1-9	16 AWG RED
9	CB8-9	DOVE LT.-BLK	16 AWG RED
25	CR104@9	CR105@4	16 AWG BLACK
27	CR105@A1	CR102@1	16 AWG BLACK
27	CR102@1	S61@3	16 AWG BLACK
28	S20@12	CR106@7	16 AWG BLACK
28	S20@12	TB3-28	16 AWG BLACK
28	TB3-28	D14-ANODE	16 AWG BLACK
29	CR104@3	CR102@7	16 AWG BLACK
31	CR103@4	CR106@4	16 AWG BLACK
32	CR101@1	POT1@1	16 AWG BLACK
32	CR101@1	CR107@6	16 AWG BLACK
33	S57@9	TB1-33	16 AWG BLACK
33	TB1-33	CR102@5	16 AWG BLACK
33	CR102@5	CR105@5	16 AWG BLACK
36	CR13@4	CR2@A1	16 AWG BLACK
37	S57@12	TB1-37	16 AWG BLACK
37	TB1-37	CR104@5	16 AWG BLACK
47	CR105@7	CR105@8	16 AWG BLACK
55	CR204@9	CR205@4	16 AWG BLACK
57	CR205@A1	CR202@1	16 AWG BLACK
57	CR202@1	S62@3	16 AWG BLACK
58	S19@12	CR206@7	16 AWG BLACK
58	S19@12	TB3-58	16 AWG BLACK
58	TB3-58	D24-ANODE	16 AWG BLACK
59	CR204@3	CR202@7	16 AWG BLACK
61	CR203@4	CR206@4	16 AWG BLACK
62	CR201@1	POT2@1	16 AWG BLACK
62	CR201@1	CR207@6	16 AWG BLACK
63	S57@3	TB2-63	16 AWG BLACK
63	TB2-63	CR202@5	16 AWG BLACK
63	CR202@5	CR205@5	16 AWG BLACK
66	CB6-66	CR42-66	16 AWG RED
67	S57@6	TB2-67	16 AWG BLACK
67	TB2-67	CR204@5	16 AWG BLACK
69	TD2@7	POT2@3	16 AWG BLACK
69	POT2@3	POT2@2	16 AWG BLACK
72	S5@3	TB2-72	14 AWG BLACK
73	CR103@3	CR101@7	16 AWG BLACK
73	CR101@7	CR101@8	16 AWG BLACK
73	CR101@8	CR101@9	16 AWG BLACK
73	CR101@9	CR101@A1	16 AWG BLACK
73	CR103@1	CR103@3	16 AWG BLACK

*-M05

WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
74	CR101@A2	TD1@2	16 AWG BLACK
75	S4@3	S5@2	16 AWG BLACK
76	TD1@7	POT1@3	16 AWG BLACK
76	POT1@3	POT1@2	16 AWG BLACK
77	S20@7	CR106@9	16 AWG BLACK
77	S20@7	TB3-77	16 AWG BLACK
77	TB3-77	D15-ANODE	16 AWG BLACK
82	TB4-82	D19-CATHODE	16 AWG BLACK
82	TB4-82	CR102@8	16 AWG BLACK
82	CR102@8	TMR1@15	16 AWG BLACK
82	TMR1@15	TMR2@15	16 AWG BLACK
82	TMR2@15	TMR3@15	16 AWG BLACK
82	TB4-82	S20@8	16 AWG BLACK
82	S20@8	S20@11	16 AWG BLACK
82	TB4-82	CR202@8	16 AWG BLACK
82	CR202@8	TMR11@15	16 AWG BLACK
82	TMR11@15	TMR12@15	16 AWG BLACK
82	TMR12@15	TMR13@15	16 AWG BLACK
82	TB4-82	S19@8	16 AWG BLACK
82	S19@8	S19@11	16 AWG BLACK
82	TB4-82	CR104@8	16 AWG BLACK
82	TB4-82	CR107@9	16 AWG BLACK
82	CR107@9	CR107@8	16 AWG BLACK
82	TB4-82	CR207@9	16 AWG BLACK
82	TB4-82	CR204@8	16 AWG BLACK
82	CR207@9	CR207@8	16 AWG BLACK
82	D20 CATHODE	TB4@82	16 AWG BLACK
83	S18@3	LT13@A	16 AWG BLACK
86	CR203@1	CR203@3	16 AWG BLACK
86	CR203@3	CR201@7	16 AWG BLACK
86	CR201@7	CR201@8	16 AWG BLACK
86	CR201@8	CR201@9	16 AWG BLACK
86	CR201@9	CR201@A1	16 AWG BLACK
87	S19@7	CR206@9	16 AWG BLACK
87	S19@7	TB3-87	16 AWG BLACK
87	TB3-87	D25-ANODE	16 AWG BLACK
88	TD2@2	CR201@A2	16 AWG BLACK
97	CR205@7	CR205@8	16 AWG BLACK
98	S42@8	TB2-98	16 AWG BLACK
98	TB2-98	CR2@1	16 AWG BLACK
99	CR2@7	D16@CATHODE	16 AWG BLACK
104	CR21@5	CR20@5	16 AWG BLACK
104	CR20@5	S42@5	16 AWG BLACK
114	CR30@7	CR30@9	12 AWG BLACK
120	CB10-120	S47@B	16 AWG RED
121	CB11-121	CR32@8	14 AWG RED
121	CR32@8	CR32@9	14 AWG RED
122	CB12@122	TB3-122	16 AWG BLACK
126	CR103@A1	TMR1@18	16 AWG BLACK
126	TMR1@18	S17@1	16 AWG BLACK
150	S17@3	TMR1@A1	16 AWG BLACK
150	TMR1@A1	TMR2@A1	16 AWG BLACK

CUSTOMARY: ALL DIMENSIONS IN INCHES		 	
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR	
FRACTION	± 1/8	DESCRIPTION: LOGIC BOX ASSEMBLY	
X	± .06	SIZE	SCALE
XX	± .03	DRAWING CODE NUMBER	
XXX	± .010	REV	
MACHINE FINISH UNLESS OTHERWISE STATED		D NTS	31440080
PLANE ANGLES W/ F°		ASSEMBLY:-	SHEET 4 OF 21

REVISION HISTORY LOCATED ON LAST SHEET

WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
840	PB3@2	CR42-840	16 AWG BLACK
840	CR42-840	D2@CATHODE	-
841	PB2-841	TB3-841	16 AWG BLACK
841	TB3-841	CR40-841	16 AWG BLACK
841	CR40-841	D1@CATHODE	-
856	CB4-856	TB3-856	16 AWG RED
856	TB3-856	CR20@9	16 AWG RED
856	CR20@9	CR21@9	16 AWG RED
857	CB7-857	TB2-857	12 AWG RED
857	TB2-857	CR30@4	12 AWG RED
857	CR30@4	CR30@6	12 AWG RED



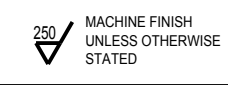
****FOR S/N290032-290035 ONLY**

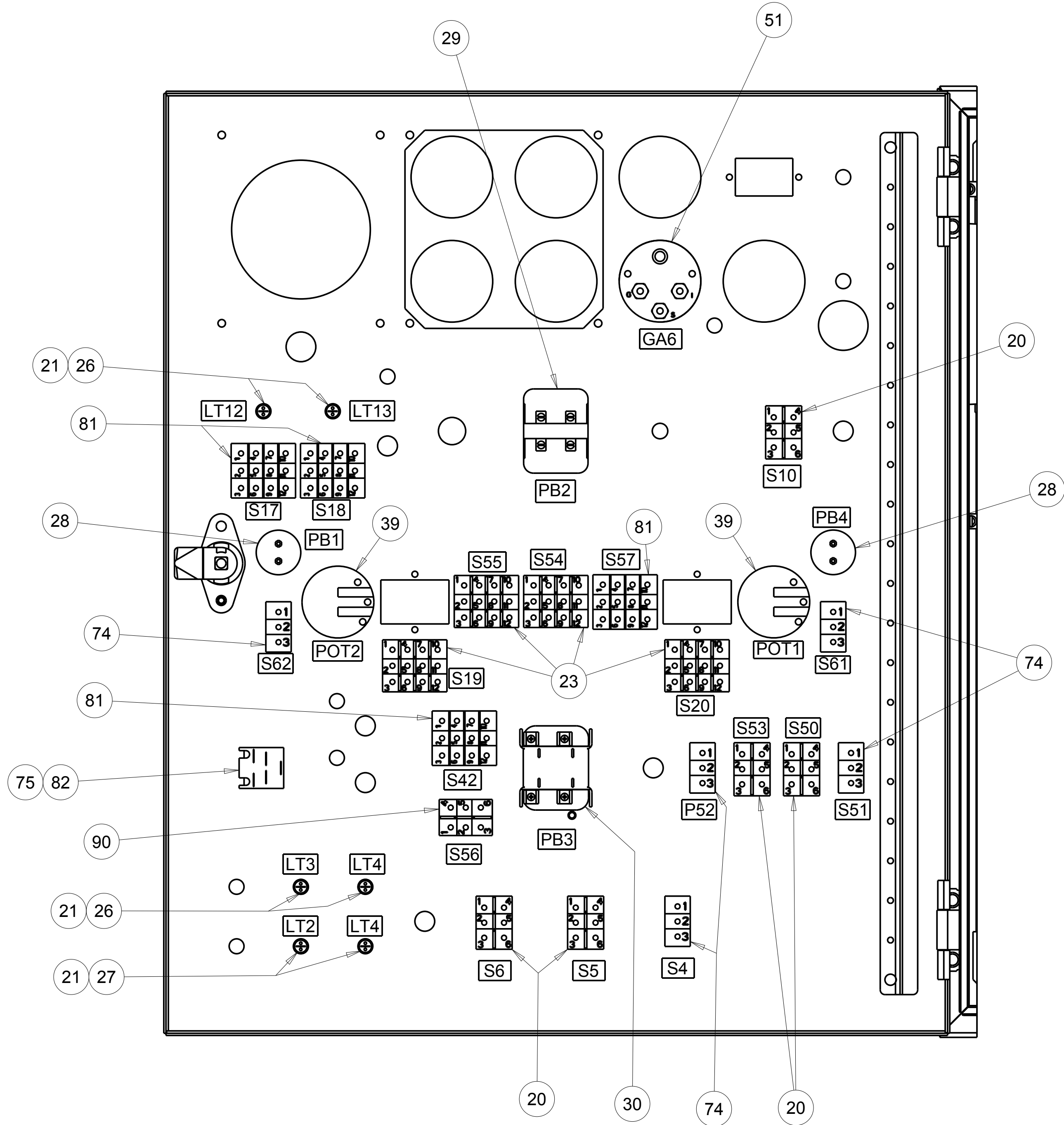
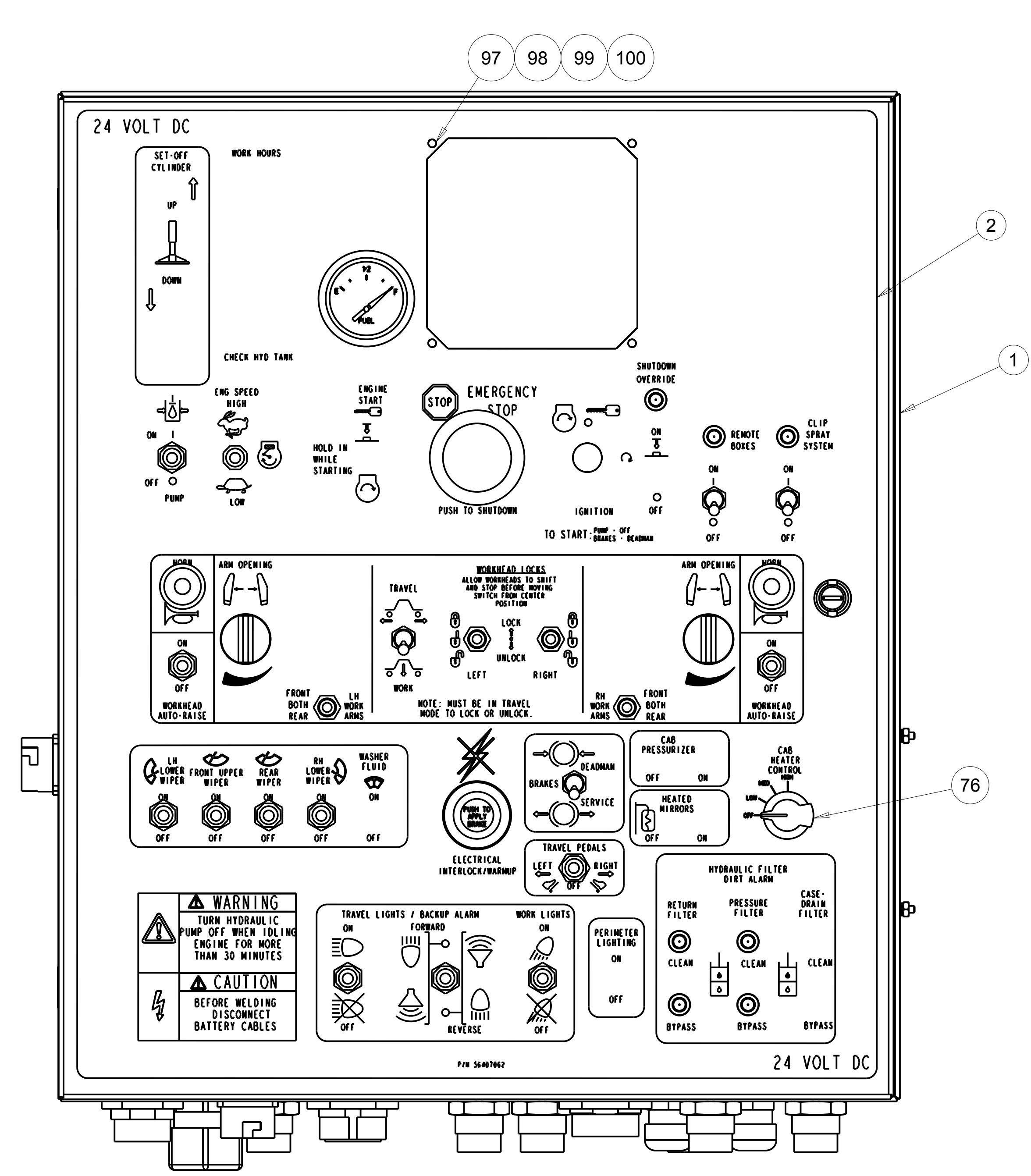
WIRE #	ADD/REMOVE	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
25	REMOVE	CR104@9	CR105@4	16 AWG BLACK
27	REMOVE	CR105@A1	CR102@1	16 AWG BLACK
27	REMOVE	CR102@1	S61@3	16 AWG BLACK
29	REMOVE	CR104@3	CR102@7	16 AWG BLACK
33	REMOVE	CR102@5	CR105@5	16 AWG BLACK
47	REMOVE	CR105@7	CR105@8	16 AWG BLACK
47	REMOVE	P6@5	CR105@7	GREEN w/ BLK
55	REMOVE	CR204@9	CR205@4	16 AWG BLACK
57	REMOVE	CR205@A1	CR202@1	16 AWG BLACK
57	REMOVE	CR202@A1	S62@3	16 AWG BLACK
59	REMOVE	CR204@3	CR202@7	16 AWG BLACK
63	REMOVE	TB2-63	CR202 @5	16 AWG BLACK
73	REMOVE	CR101@7	CR101@8	16 AWG BLACK
73	REMOVE	CR101@8	CR101@9	16 AWG BLACK
82	REMOVE	TMR2 @15	TMR3 @15	16 AWG BLACK
82	REMOVE	TMR12 @15	TMR13 @15	16 AWG BLACK
82	REMOVE	P6@12	TB4-82	BLACK
86	REMOVE	CR201@7	CR201@8	16 AWG BLACK
86	REMOVE	CR201@8	CR201@9	16 AWG BLACK
97	REMOVE	CR205 @7	CR205 @8	16 AWG BLACK
97	REMOVE	P6 @4	CR205 @7	ORANGE w/ BLK
157	REMOVE	TMR13 @B1	CR201 @2	16 AWG BLACK
158	REMOVE	TMR13 @18	S62 @2	16 AWG BLACK
167	REMOVE	CR101 @2	TMR3 @B1	16 AWG BLACK
168	REMOVE	TMR3 @18	S61 @2	16 AWG BLACK
2	ADD	VC2 24v IN-	TB5-2	16 AWG BLACK
3	ADD	CB19-3	CB21-3	16 AWG BLACK
6	ADD	P6@12	TB2-6	BLACK
37	ADD	CR103@5	CR104@5	16 AWG BLACK
67	ADD	CR203@5	CR204@5	16 AWG BLACK
73	ADD	CR101@7	CR101@9	16 AWG BLACK
82	ADD	CR103@8	CR104@8	16 AWG BLACK
82	ADD	CR203@8	CR204@8	16 AWG BLACK
86	ADD	CR201@7	CR201@9	16 AWG BLACK
404	ADD	CB21-404	VC2 24v IN+	16 AWG BLACK
405	ADD	VC2 12v OUT-	CUSTOMER SUPPLIED RADIO	16 AWG GREEN
406	ADD	VC2 12v OUT+	CUSTOMER SUPPLIED RADIO	16 AWG RED

WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
151	TMR2@18	S20@5	16 AWG BLACK
151	S20@5	S20@2	16 AWG BLACK
156	S17@4	TMR11@18	16 AWG BLACK
156	TMR11@18	CR203@A1	16 AWG BLACK
157	TMR13@B1	CR201@2	16 AWG BLACK
158	TMR13@18	S62@2	16 AWG BLACK
160	S17@6	TMR11@A1	16 AWG BLACK
160	TMR11@A1	TMR12@A1	16 AWG BLACK
161	TMR12@18	S19@5	16 AWG BLACK
161	S19@5	S19@2	16 AWG BLACK
167	CR101@2	TMR3@B1	16 AWG BLACK
168	TMR3@18	S61@2	16 AWG BLACK
199	S42@9	S10@1	16 AWG BLACK
201	CR107@2	CR101@3	16 AWG BLACK
203	CR106@6	CR103@6	16 AWG BLACK
204	CR207@2	CR201@3	16 AWG BLACK
206	CR206@6	CR203@6	16 AWG BLACK
210	S54@12	S57@11	16 AWG BLACK
211	S55@12	S57@5	16 AWG BLACK
212	S54@10	S57@8	16 AWG BLACK
213	S55@10	S57@2	16 AWG BLACK
214	S57@7	S18@8	16 AWG BLACK
214	S57@7	TB4-214	16 AWG BLACK
214	TB4-214	D19@ANODE	16 AWG BLACK
215	S57@1	S18@5	16 AWG BLACK
215	S57@1	TB4-215	16 AWG BLACK
215	TB4-215	D20@ANODE	16 AWG BLACK
216	S54@11	S54@7	16 AWG BLACK
217	S55@11	S55@7	16 AWG BLACK
224	S18@7	TB3-224	16 AWG BLACK
225	S18@4	TB3-225	16 AWG BLACK
226	D14-CATHODE	TB3-226	16 AWG BLACK
226	TB3-226	CR103@7	16 AWG BLACK
227	D15-CATHODE	TB3-227	16 AWG BLACK
227	TB3-227	CR103@9	16 AWG BLACK
228	D24-CATHODE	TB3-228	16 AWG BLACK
228	TB3-228	CR203@7	16 AWG BLACK
229	D25-CATHODE	TB3-229	16 AWG BLACK
229	TB3-229	CR203@9	16 AWG BLACK
304	TB2-304	PB1@1	16 AWG BLACK
304	PB1@1	PB4@1	14 AWG BLACK
350	CB15-350	VC1 +24V IN	16 AWG RED
351	VC1 +12V OUT	S17@8	16 AWG RED
351	VC1 +12V OUT	12" LEAD - INSULATED AND COILED IN BOX	16 AWG RED
352	S17@9	LT12@A	16 AWG BLACK
353	VC1 -12V OUT	12" LEAD - INSULATED AND COILED IN BOX	16 AWG GREEN
540	CB9-540	TB3-540	14 AWG RED
540	TB3-540	S50@2	16 AWG RED
540	S50@2	S50@5	16 AWG RED
540	TB3-540	S51@2	16 AWG RED
541	CB17-541	TB3-541	14 AWG RED
541	TB3-541	S53@2	16 AWG RED
541	TB3-541	S52@2	16 AWG RED

BASE

REVISION HISTORY LOCATED ON LAST SHEET

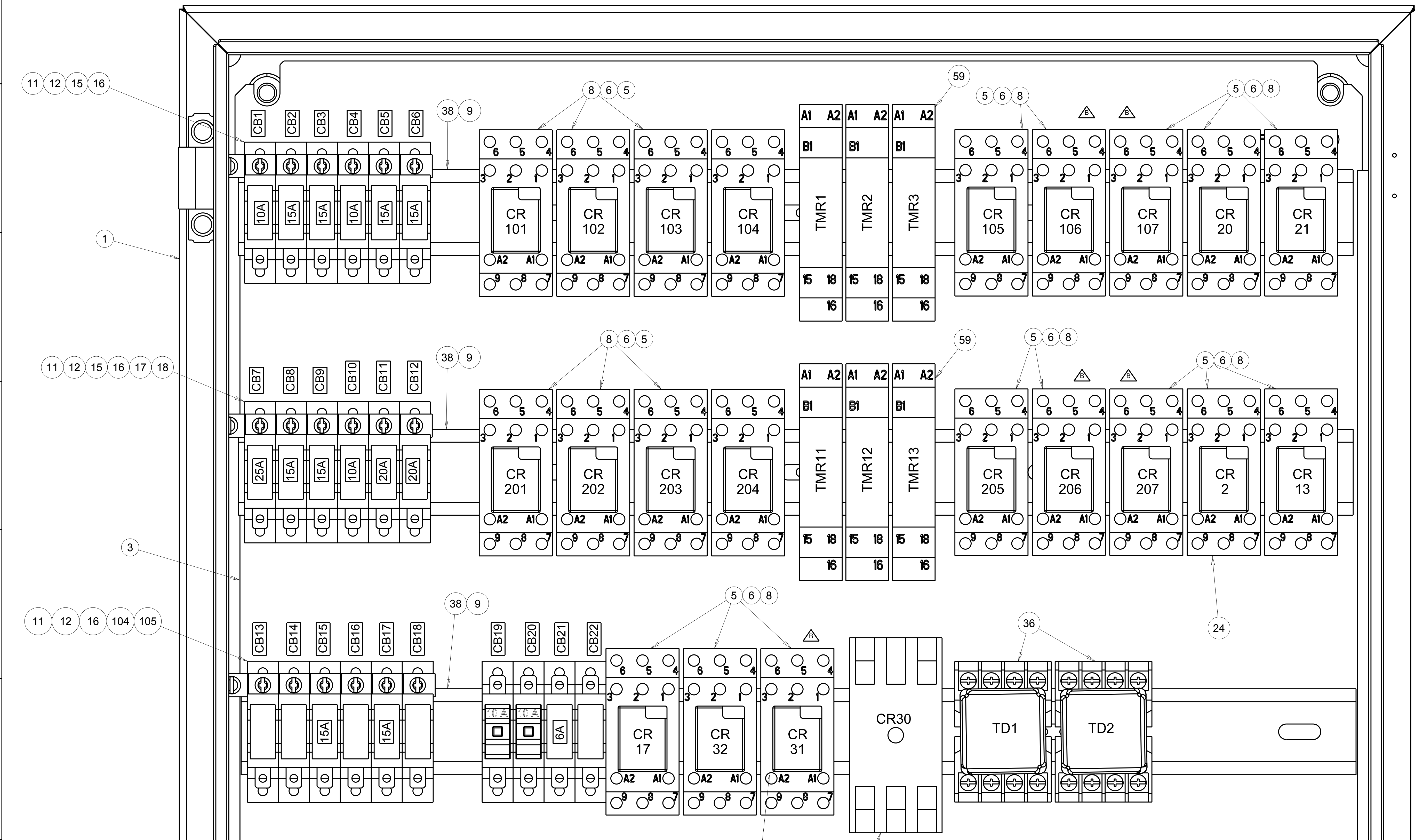
CUSTOMARY: ALL DIMENSIONS IN INCHES		 PRODUCT: NSCA - CLIP APPLICATOR		 THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		DESCRIPTION: LOGIC BOX ASSEMBLY			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV
X	± .06	D NTS	31440080	F	F
XX	± .03				
XXX	± .010				
 MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 5 OF 21	



BASE

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR			
FRACTION		DESCRIPTION: LOGIC BOX ASSEMBLY			
X	± .18	SIZE	SCALE	DRAWING CODE NUMBER	REV.
XX	± .06	D	1/2	31440080	F
XXX	± .03	PLANE ANGLES W/ F°		ASSEMBLY:-	SHEET 6 OF 21
	± .010				

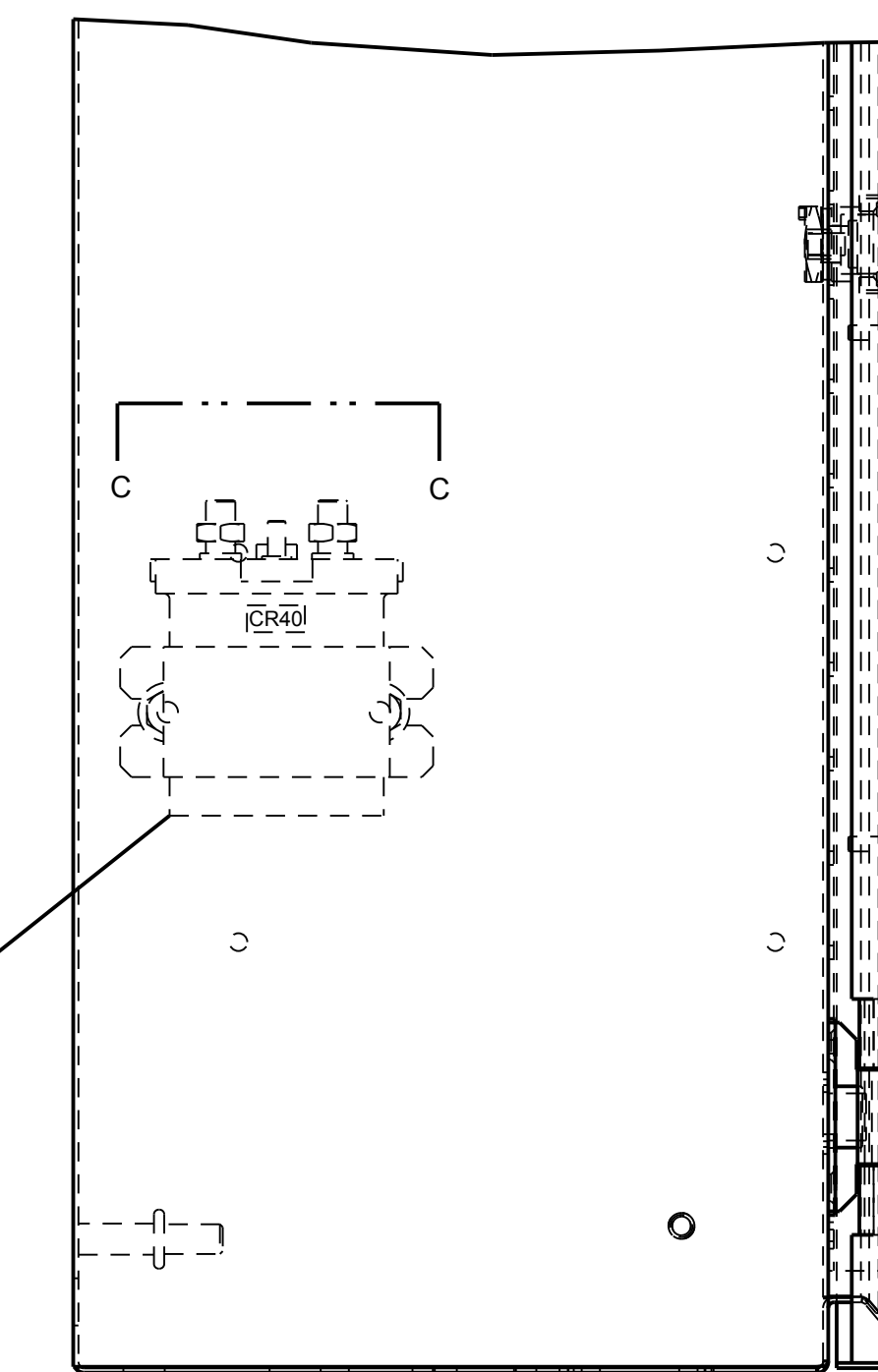
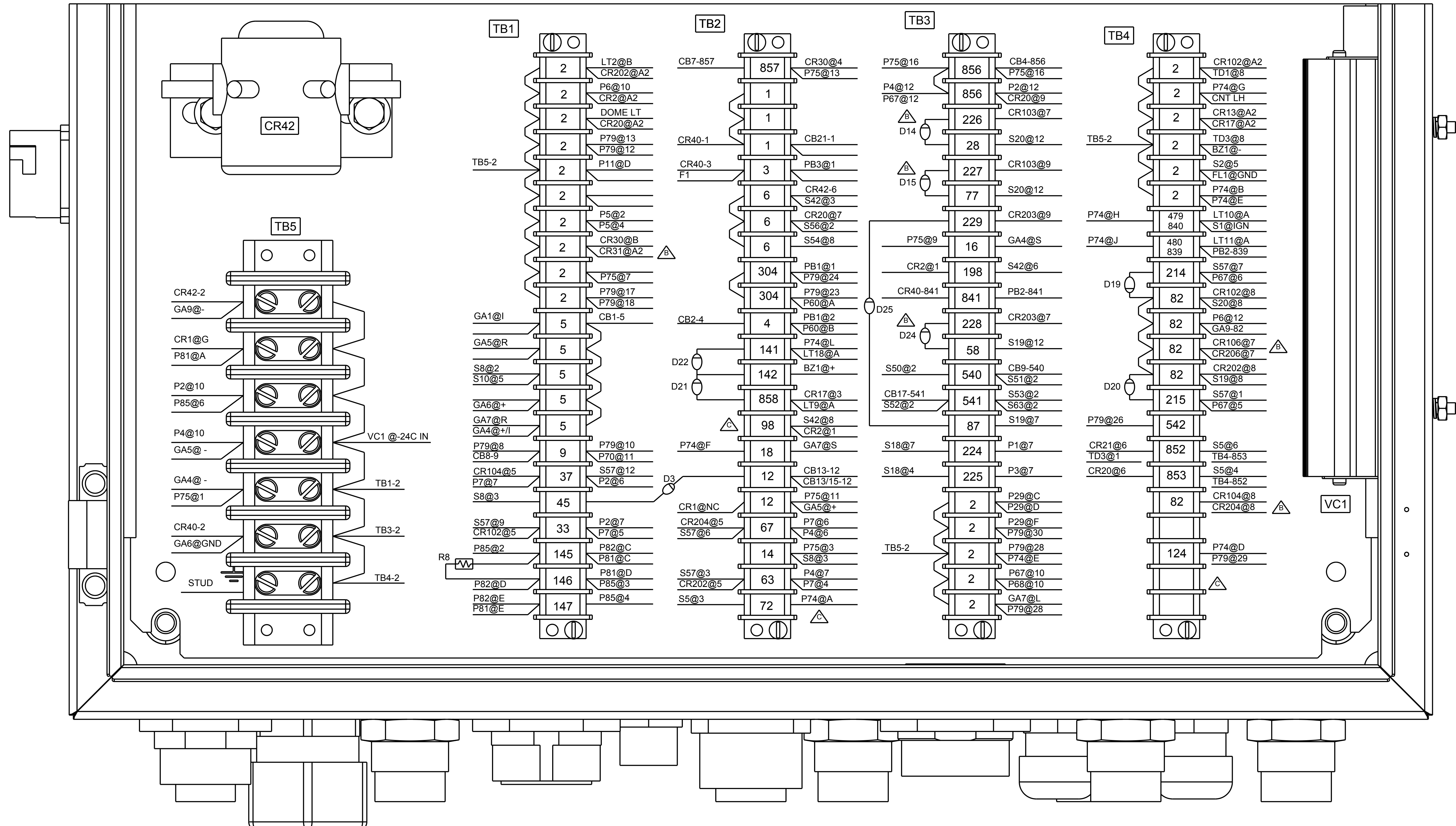


BASE

REVISION HISTORY
LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES:		PRODUCT: NSCA - CLIP APPLICATOR			
FRACTION ± 1/8		DESCRIPTION: LOGIC BOX ASSEMBLY			
X ± .06	XX ± .03	SIZE	SCALE	DRAWING CODE NUMBER	REV
XXX ± .010		D	5/4	31440080	F
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 7 OF 21	
PLANE ANGLES W/F					

TERMINAL STRIPS



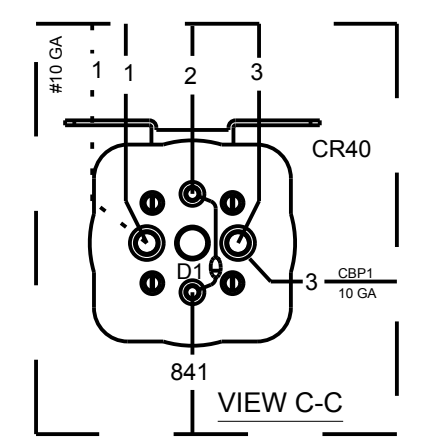
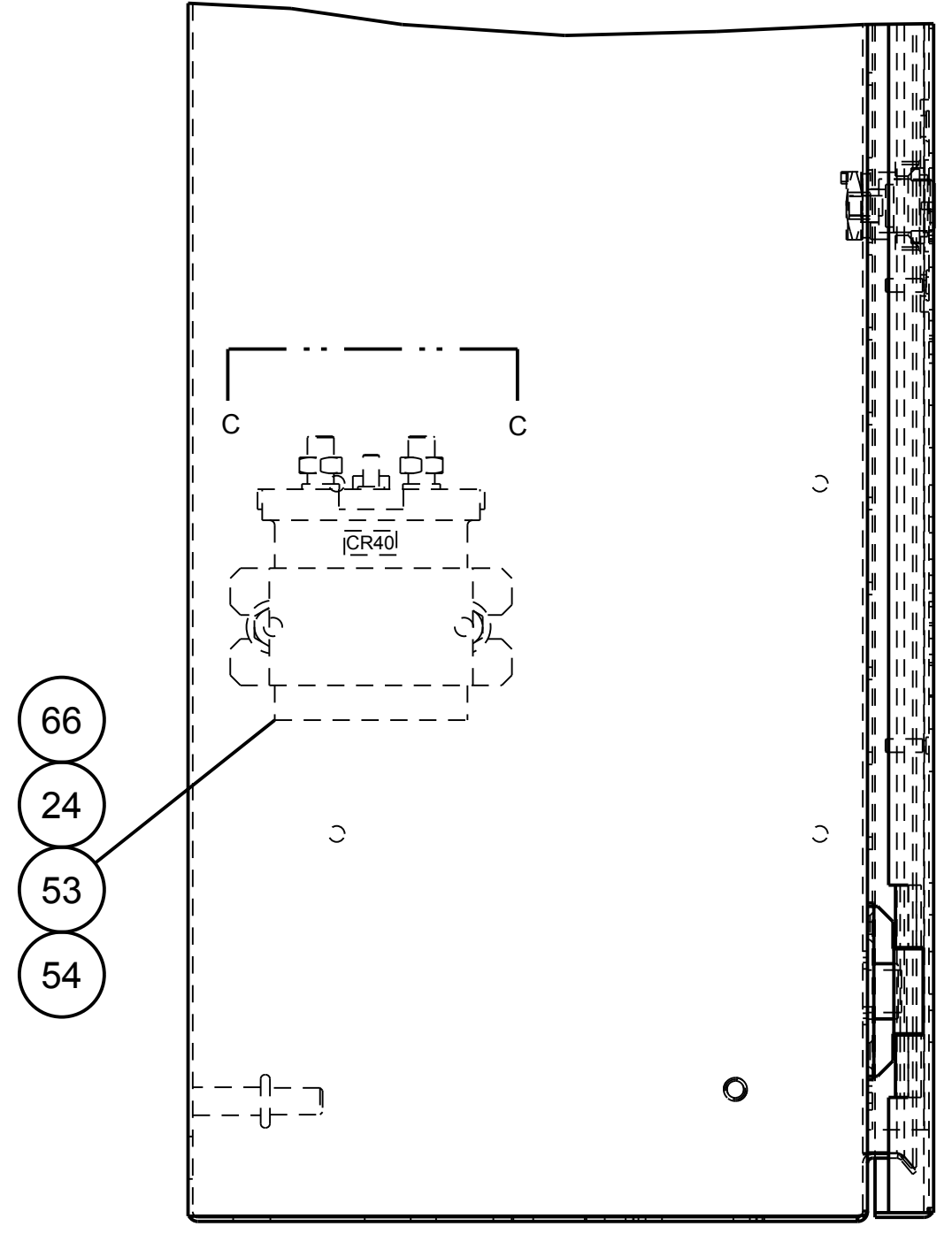
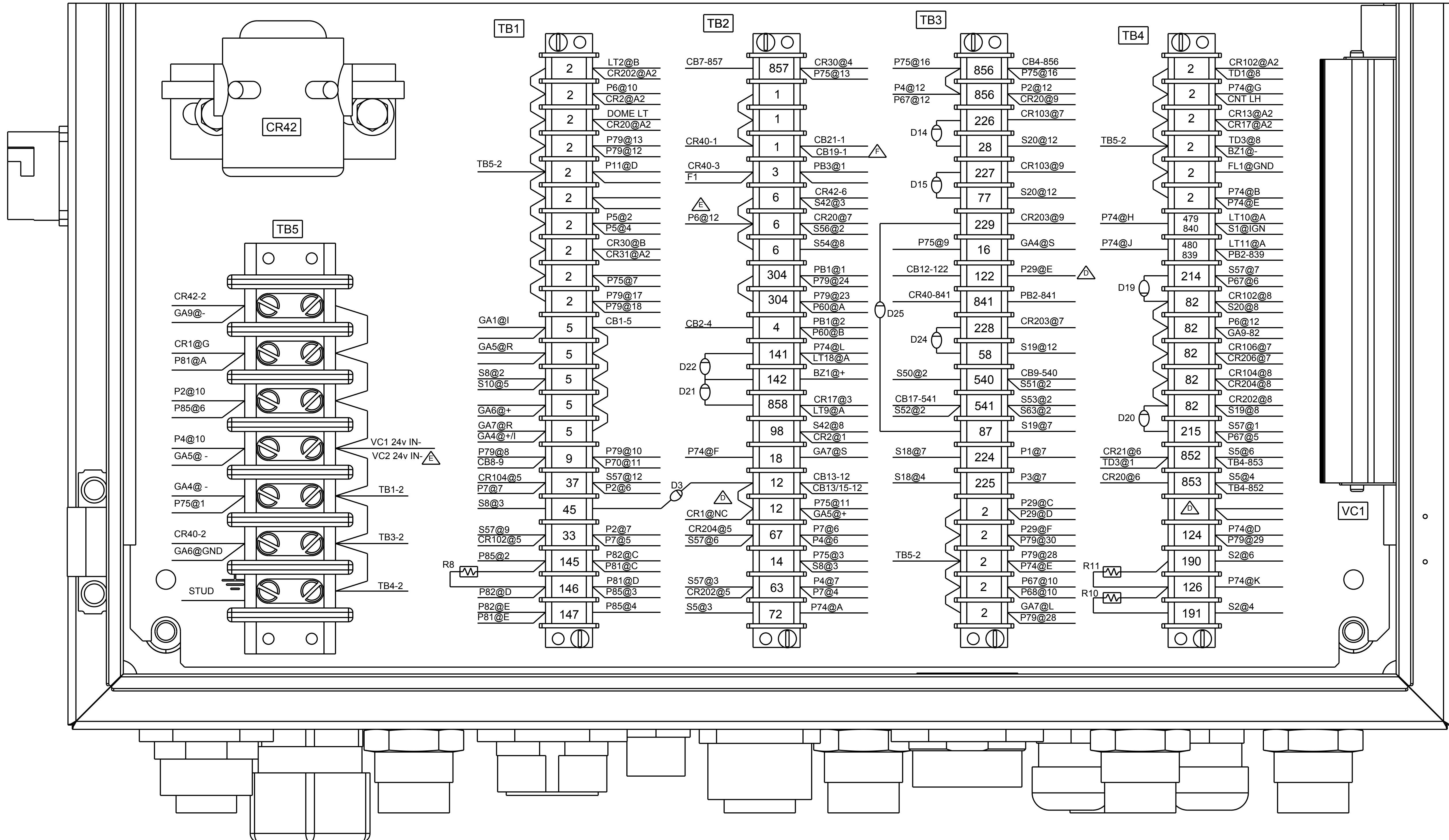
BASE

△ S/N290025 TO S/N290031

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES		 PRODUCT: NSCA - CLIP APPLICATOR		THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		DESCRIPTION: LOGIC BOX ASSEMBLY			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV
X	± .06	D	5/4	31440080	F
XX	± .03	ASSEMBLY:-			SHEET 8 OF 21
XXX	± .010				

TERMINAL STRIPS



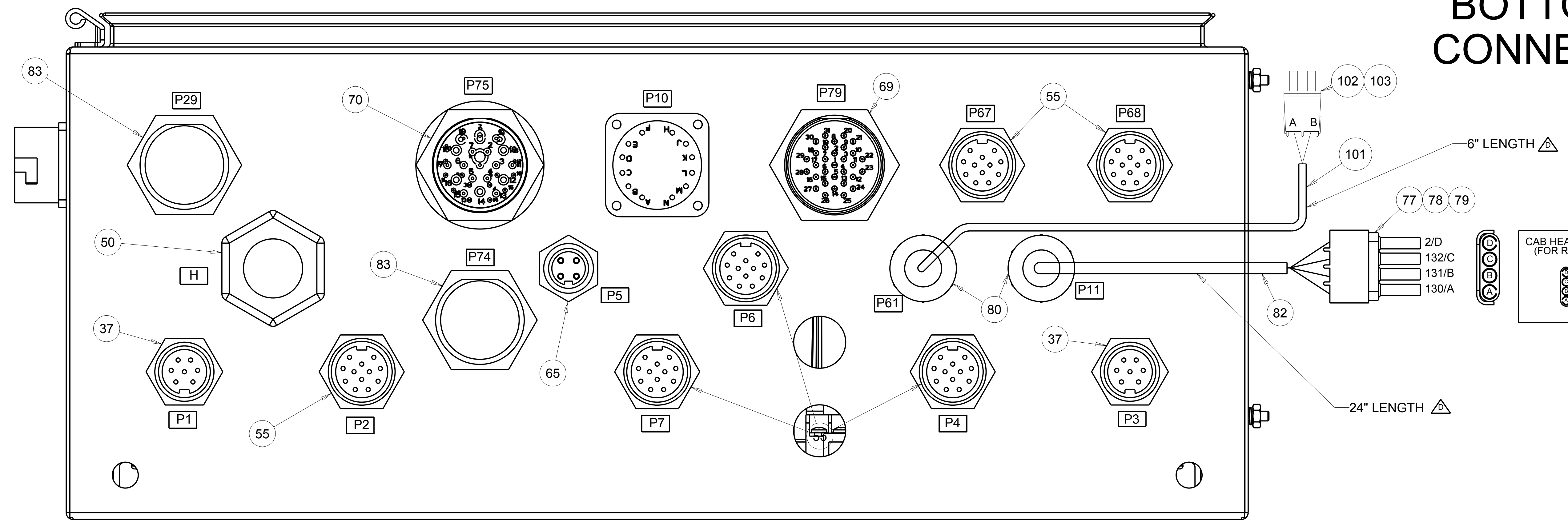
BASE

REVISION HISTORY LOCATED ON LAST SHEET

S/N290032 - 290035

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR			
FRACTION ± 1/8		DESCRIPTION: LOGIC BOX ASSEMBLY			
X ± .06		SIZE	SCALE	DRAWING CODE NUMBER	REV.
XX ± .03		D	5/4	31440080	F
XXX ± .010		ASSEMBLY:-		SHEET 9 OF 21	
MACHINE FINISH UNLESS OTHERWISE STATED					
PLANE ANGLES 90°-F					

BOTTOM PIN CONNECTORS



BASE

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR			
DESCRIPTION:		LOGIC BOX ASSEMBLY			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D	1/1	31440080	F
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 10 OF 21	
PLANE ANGLES \forall -F°					

M01 CYCLE COUNTERS

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	510	7057161	2	COUNTER,CYCLE	DURANT 6Y-41346-402-ME	CNT1 CNT2
ADD	511	2837337	4	SCREW,MACH #6-32 X 1/2 LG		
ADD	512	3048028	4	NUT,HEX #6-32		
ADD	513	3064452	4	WASHER,LOCK #6		

ADDED FOR SPECIAL

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	COUNTER RH	COUNTER LH	16 AWG GREEN
2	COUNTER LH	TB4-2	16 AWG GREEN
26	S17@2	COUNTER LH	16 AWG BLACK
56	S17@5	COUNTER LH	16 AWG BLACK

CYCLE COUNTERS FOR LEFT AND RIGHT WORKHEADS

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M03 LEVER (NON-KEYED) START SWITCH

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	531	5126082	1	SWITCH,IGNITION	COLE HERSEE 95612	S1

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
48	CB21-48	S1-BAT	16 AWG RED
98	S1@ST	S10@2	16 AWG BLACK
839	S1@IGN	PB2@839	16 AWG BLACK

* - M07

LEVER STYLE IGNITION KEYSWITCH

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M04 KEYED START SWITCH

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	531	5126094	1	SWITCH,IGNITION KEYED	COLE HERSEE 956-5307	S1

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
48	CB21-48	S1-BAT	16 AWG RED
98	S1@ST	S2@2	16 AWG BLACK
839	S1@IGN	PB2@839	16 AWG BLACK

* - M07

KEYED IGNITION SWITCH

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M02 HEATED MIRRORS

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	521	5125593	1	SWITCH,TOGGLE ON-OFF	CH 8500K9	S31
ADD	522	5190950	1	LAMPHOLDER	DIALITE 508-7538-504	LT16
ADD	523	5190912	1	LAMP, RED	DIALITE 507-4761-3731-500	
ADD	524	5128935	1	BREAKER 10A	ETA 1170-02-10A	CB16

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	LT16@B	LT11@B	16 AWG GREEN
542	S31@3	P79@26	16 AWG BLACK
542	S31@3	LT16@A	16 AWG BLACK
543	CB16	S31@2	16 AWG RED

SWITCH AND LIGHT FOR CONTROL OF HEATED MIRRORS

NOTE: GROUND LIGHT AT LT3 INSTEAD OF LT11 IF M10 IS NOT USED

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M05 TURNTABLE WARNING & STOP

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	551	31403510	1	BUZZER,WARNING	MALORY SC628ANP	BZ1
ADD	552	5190910	1	LAMP, GREEN	DIALITE 507-4861-3732-500	LT8
ADD	553	5190912	1	LAMP, RED	DIALITE #507-4761-3731-500	LT9
ADD	554	5190950	2	LAMPHOLDER	DIALITE 508-7538-504	
ADD	555	5195889	1	CONTROL RELAY	FINDER 55.33.9.024.00.80	
ADD	556	5155165	1	SOCKET,RELAY	FINDER 94.73	CR17
ADD	557	5158420	1	RETAINER, RELAY CLIP	FINDER 094.71	
ADD	558	29680018	1	DIODE	1N5624	D21

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB4-2	CR13@A2	16 AWG GREEN
6	S56@2	TB2-6	16 AWG BLACK
2	TB4-2	CR17@A2	16 AWG GREEN
2	CR17@A2	CR17@4	16 AWG GREEN
2	TB4-2	BZ1 @ -	16 AWG GREEN
2	BZ1	LT9@B	16 AWG GREEN
2	LT9@B	LT8@B	16 AWG GREEN
142	TB2-142	D21@CATHODE	-
142	TB2-142	BZ1 @ +	16 AWG BLACK
195	CR13@A2	CR17@7	16 AWG BLACK
856	TB3-856	CR17@8	16 AWG BLACK
856	CR17@8	CR17@9	16 AWG BLACK
858	CR17@3	TB2-858	16 AWG BLACK
858	TB2-858	LT9@A	16 AWG BLACK
858	TB2-858	D21@ANODE	-
864	CR17@6	LT8@A	16 AWG BLACK
865	P4@1	CR17@A1	ORANGE
867	CR17@5	S56@2	16 AWG BLACK
867	S56@2	S56@5	16 AWG BLACK

SUBTRACT FROM BASE

ADDED FOR SPECIAL

TO WARN OPERATOR THAT TURNTABLE IS NOT IN TOP STORED POSITION. BRAKES WILL APPLY IN EITHER DEADMAN OR SERVICE.

** NOTE: PARTS & WIRES IN COMMON WITH M12

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

M06 BRAKE LIGHT FLASHER

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	561	5188004	1	FLASHER	TRUCK LITE 97231	
ADD	562	2837337	2	SCREW, SELF SEALING PN HD 6-32 X .5		
ADD	563	3064452	2	LOCK WASHER #6		
ADD	564	3048028	2	NUT #6-32		

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
855	CR13@1	P79@1	16 AWG BLACK
2	TB4-2	FL1 @ GRND RING	16 AWG GREEN
464	CR13@1	FL1@RED	16 AWG BLACK
855	P79@1	FL1@BLACK	16 AWG BLACK

SUBTRACT FROM BASE

ADDED FOR SPECIAL

BRAKE LIGHTS WILL FLASH WHEN APPLIED

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

MODS

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY:			
ALL DIMENSIONS IN INCHES	PRODUCT: NSCA - CLIP APPLICATOR		
IMPLIED TOLERANCES	DESCRIPTION: LOGIC BOX ASSEMBLY		
FRACTION	± 1/8	SIZE	D NTS
X	± .06	SCALE	31440080
XX	± .03	DRAWING CODE NUMBER	F
XXX	± .010	REV	
<small>250</small>		ASSEMBLY:-	SHEET 11 OF 21

M07 EMERGENCY STOPS

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
839	S1@IGN	PB2@839	16 AWG BLACK
838	S1@IGN	TB4-838 (479)	16 AWG BLACK
839	TB4-839 (480)	PB2@839	16 AWG BLACK

SUBTRACT FROM BASE — * - M03/M04
 ADDED FOR SPECIAL —
 ADDITIONAL EMERGENCY STOP BUTTONS IN SERIES
 CANNOT BE IMPLEMENTED WITH M10. USES THE SAME P74 PINS, WIRES AND P19 CONNECTOR ON 4235 0007 HARNESS

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

M08 EXTRA HORN BUTTONS

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	581	5166783	2	TERMINAL	PACKARD 12089040	P60
ADD	582		2	SEAL	PACKARD 12015899	
ADD	583	5166772	1	CONNECTOR SHROUD	PACKARD 12010973	

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
4	TB2-4	P60@B	14 AWG GREEN
304	TB2-304	P60@A	14 AWG BLACK

EXTRA HORN BUTTON HARNESS TO BE INSTALLED IN CAB BY NORDCO.

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M09 ALTERNATE STROBE LIGHT CONNECTION

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
9	TB1-9	P79@8	16 AWG RED
48	S1-BAT	P79@8	16 AWG RED

SUBTRACT FROM BASE —
 ADDED FOR SPECIAL —
 STROBE LIGHT WILL FLASH AS LONG AS BATTERY IS CONNECTED

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

M10 CASE DRAIN

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	600	5190950	2	LAMPHOLDER	DIALIGHT 508-7538-504	
ADD	601	5190910	1	LIGHT GREEN	DIALIGHT 507-4861-3732-500	LT11
ADD	602	5190912	1	LIGHT RED	DIALIGHT 507-4761-3731-500	LT10

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	LT3@B	LT10@B	16 AWG GREEN
2	LT10@B	LT11@A	16 AWG GREEN
479	TB4-479	LT10@A	16 AWG BLACK
480	TB4-480	LT11@A	16 AWG BLACK

ADDING VISUAL LIGHTS TO SHOW THE STATUS OF THE CASE DRAIN FILTER
 CANNOT BE IMPLEMENTED WITH M07. USES THE SAME P74 PINS, WIRES AND P19 CONNECTOR ON 4235 0007 HARNESS

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M11 SPEEDOMETER

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	610	7085942	1	GAGE, SPEEDOMETER, 0-85MPH, 24V	DANIN 308017	GA8

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	LT16@B	LT11@B	16 AWG GREEN
542	S31@3	P79@26	16 AWG BLACK
542	S31@3	LT16@A	16 AWG BLACK
543	CB16	S31@2	16 AWG BLACK

CUSTOMER SPECIFIED NON-STANDARD GAUGE CANNOT BE IMPLEMENTED WITH M02

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M12 HYD OIL MONITOR

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	621	31403510	1	BUZZER,WARNING	MALORY SC628ANP	BZ1 **
ADD	623	5190912	2	LAMP, RED	DIALITE 507-4761-3731-500	LT18
ADD	624	5159050	2	LAMPHOLDER	DIALITE 508-7538-504	
ADD	625	29680018	2	DIODE	1N5624	D22

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB4-2	BZ1 @ -	16 AWG GREEN **
2	BZ1 @ -	LT18@B	16 AWG GREEN **
141	TB2-141	D22@ANODE	-
141	TB2-141	P74@L	16 AWG BLACK
141	TB2-141	LT18@A	16 AWG BLACK
142	TB2-142	D22@CATHODE	-
142	TB2-142	BZ1 @ +	16 AWG BLACK **

TO WARN OPERATOR OF HIGH TEMPERATURE OR LOW OIL CONDITION IN HYDRAULIC OIL TANK.

** NOTE: PARTS & WIRES IN COMMON WITH M05

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M13 PRESSURIZER

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	631	5125593	1	SWITCH, TOGGLE ON-OFF	CH 8500K9	S64
ADD	632	5190950	1	LAMPHOLDER	DIALITE 508-7538-504	LT17
ADD	633	5190912	1	LAMP, RED	DIALITE 507-4761-3731-500	
ADD	634	5128935	1	BREAKER 10A	ETA 1170-02-10A	CB20

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB3-2	P79@28	16 AWG GREEN
2	LT11@B	LT17 @ -	16 AWG GREEN
127	CB20	S64@2	16 AWG RED
128	S64@3	LT17 @ +	16 AWG BLACK
128	S64@3	P79@27	16 AWG BLACK



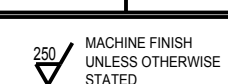
OPTION TO INCLUDE CIRCUIT BREAKER, SWITCH, INDICATOR LIGHT AND WIRING FOR OPTIONAL CAB PRESSURIZER.

NOTE: GROUND LIGHT AT LT3 INSTEAD OF LT11 IF M02 IS NOT USED

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

MODS

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES		 PRODUCT: NSCA - CLIP APPLICATOR		 THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		DESCRIPTION: LOGIC BOX ASSEMBLY			
FRACTION	± .18	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06				
XX	± .03				
XXX	± .010				
 MACHINE FINISH UNLESS OTHERWISE STATED		D NTS		31440080 F	
PLANE ANGLES +/- .1°		ASSEMBLY:-		SHEET 12 OF 21	

M14 3-SECOND TRAVEL ALARM

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	641	7055506	1	TIMER, SOLID STATE, 0.1-10 SEC	SSAC ERDI 323	TD3
ADD	642	2837361	2	SCREW, SELF SEALING PN HD 6-32 x 1		
ADD	643	3064452	2	LOCK WASHER #6		
ADD	644	3048028	2	NUT #6-32		

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
811	P79@9	S5@5	16 AWG BLACK
852	S5@4	TB4-852	16 AWG BLACK
853	S5@6	TB4-853	16 AWG BLACK

SUBTRACT FROM STD 31440080

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB4-2	TD3@8	16 AWG GREEN
811	P79@9	TMR1	16 AWG BLACK
852	TB4-852	TB4-853	16 AWG BLACK
852	TB4-852	TD3@1	16 AWG BLACK
853	TD3@1	TD3@7	16 AWG BLACK

ADDED FOR SPECIAL

INSTALL TIMER TO EMIT 3-SECOND ALARM AT START OF TRAVEL IN ANY DIRECTION.

NOTE: WIRES 852 & 853 WILL BE JOINED.

MOD. NEEDS	COMPONENT ADD <input checked="" type="checkbox"/>	COMPONENT SUBTRACT <input type="checkbox"/>	BOX MOD <input checked="" type="checkbox"/>	WIRE SUBTRACT <input checked="" type="checkbox"/>	WIRE ADD <input checked="" type="checkbox"/>
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M16 WORKHEAD CENTERING

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	661	29680018	2	DIODE	1N5624	D23, D24
ADD	662	5125593	2	SWITCH, TOGGLE, ON-OFF	CH 8500K9	S61, S62
ADD	663	5128935	1	CIRCUIT BREAKER, 10A	ETA 1170-02-10A	CB19
ADD	664	5120795	2	RECEPTACLE, 4-PIN	BERGQUIST 4/0.5M	P23, P24
ADD	665	80010050	1	TIMER, ADJ.	FINLEY 80.01.0.240	TMR2

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB3-2	TMR2@A2	16 AWG GREEN
3	BUSS BAR	CR109	16 AWG RED
129	CB19-129	TMR2@15	16 AWG RED
129	TMR2@A1	D23@CATHODE	16 AWG RED
150	TB4-150	D24@CATHODE	16 AWG BLACK
150	TB4-150	TMR2@B1	16 AWG BLACK
150	TMR2@A1	TMR2@15	16 AWG BLACK
150	CR109@6	CR109@9	16 AWG BLACK
151	CR109@6	CR209@9	16 AWG BLACK
152	S62@3	S61@2	16 AWG BLACK
133	S62@3	S62@2	16 AWG BLACK
134	P23@3	P23@1	16 AWG BLACK
135	P23@4	P24@1	16 AWG BLACK
136	P24@3	P7@3	16 AWG BLACK
137	P24@4	P7@2	BLUE
138	P24@3	P7@1	ORANGE
139	P24@4	P7@8	BLACK/WHITE
852	TB4-852	D23@ANODE	16 AWG BLACK
853	TB4-853	D24@ANODE	16 AWG BLACK

MOD TO CONTROL WORKHEAD AUTO-CENTERING EQUIPMENT

MOD. NEEDS	COMPONENT ADD <input checked="" type="checkbox"/>	COMPONENT SUBTRACT <input type="checkbox"/>	BOX MOD <input type="checkbox"/>	WIRE SUBTRACT <input type="checkbox"/>	WIRE ADD <input checked="" type="checkbox"/>
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M17 WORK HOUR METER

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	671	520094	1	HOUR METER, 10 000 HOURS	HOBBS 85094	GA9

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB5-2	GA9 @ -	16 AWG GREEN
82	TB4-82	GA9-82	16 AWG BLACK

HOUR METER TO RECORD NUMBER OF HOURS THAT MACHINE IS IN "WORK" MODE

MOD. NEEDS	COMPONENT ADD <input checked="" type="checkbox"/>	COMPONENT SUBTRACT <input type="checkbox"/>	BOX MOD <input type="checkbox"/>	WIRE SUBTRACT <input type="checkbox"/>	WIRE ADD <input checked="" type="checkbox"/>
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M18 PERIMETER LIGHTS

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	681	5128936	1	BREAKER 15A	ETA 1170-02-15A	CB18
ADD	682	5125579	1	SWITCH, TOGGLE, DPDT	CH 8501K4	S34

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB3-2	P79@30	16 AWG GREEN
2	TB3-2	P74@E	16 AWG GREEN
124	S34@3	S34@6	16 AWG BLACK
124	S32@6	TB4-124	16 AWG BLACK
124	TB4-124	P74 @ D	16 AWG BLACK
124	TB4-124	P79@29	16 AWG BLACK
125	CB18-125	S34@2	16 AWG RED
125	S34@2	S34@5	16 AWG RED

MODIFICATION TO ADD DPDT SWITCH FOR PERIMETER LIGHT OPTION

MOD. NEEDS	COMPONENT ADD <input checked="" type="checkbox"/>	COMPONENT SUBTRACT <input type="checkbox"/>	BOX MOD <input type="checkbox"/>	WIRE SUBTRACT <input type="checkbox"/>	WIRE ADD <input checked="" type="checkbox"/>
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M19 WINDSHIELD WASHER FLUID

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	691	5125592	1	SWITCH, TOGGLE (ON)-OFF	CH 8500K11	S63

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB3-2	P79@28	16 AWG GREEN
140	S63@3	P79@31	16 AWG BLACK
541	TB3-541	S63@2	16 AWG BLACK

MODIFICATION TO ADD MOMENTARY SWITCH FOR WINDSHIELD WASHER FLUID OPTION.

MOD. NEEDS	COMPONENT ADD <input checked="" type="checkbox"/>	COMPONENT SUBTRACT <input type="checkbox"/>	BOX MOD <input type="checkbox"/>	WIRE SUBTRACT <input type="checkbox"/>	WIRE ADD <input checked="" type="checkbox"/>
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M15 HYD OIL TEMP GAUGE

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	651	7050060	1	GAUGE, HYD OIL TEMP, 12V	STEWART WARNER 82740	GA7
ADD	652	6120106	1	RESISTOR 12V GAGE ADAPTOR	SW 829525-2D	
ADD	653	5150175	1	LAMP,BULB 24V BAYONET	G.E. 1873	

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB3-2	GA7@L	16 AWG GREEN
2	GA7@L	GA7 @ -	16 AWG GREEN
5	TB1-5	GA7@R	16 AWG RED
5	GA7@R	GA7 @ +	16 AWG RED
18	TB2-18	GA7S	16 AWG BLACK

ADDING HYDRAULIC OIL TEMPERATURE GAUGE - GA7

MOD. NEEDS	COMPONENT ADD <input checked="" type="checkbox"/>	COMPONENT SUBTRACT <input type="checkbox"/>	BOX MOD <input type="checkbox"/>	WIRE SUBTRACT <input type="checkbox"/>	WIRE ADD <input checked="" type="checkbox"/>
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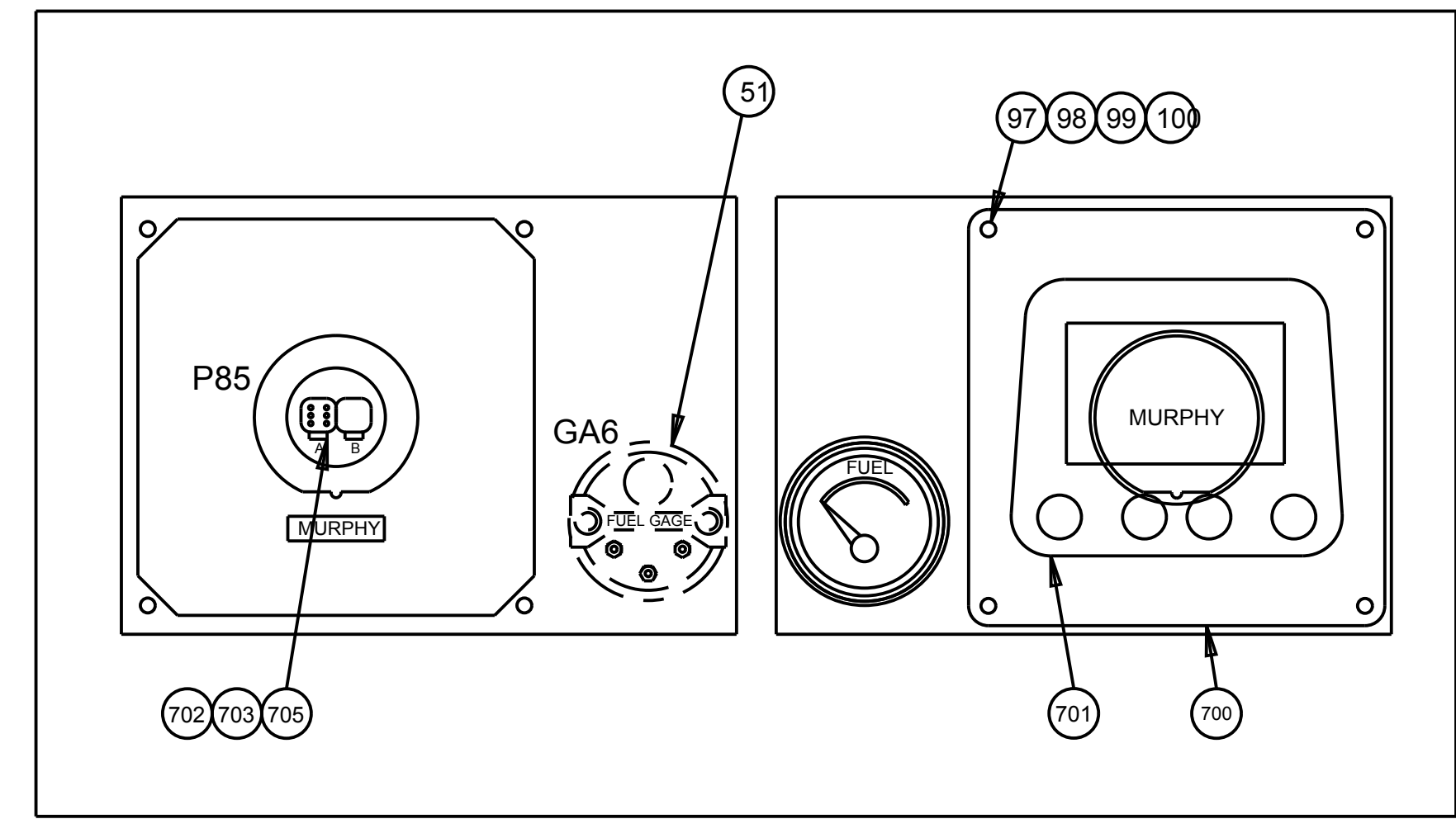
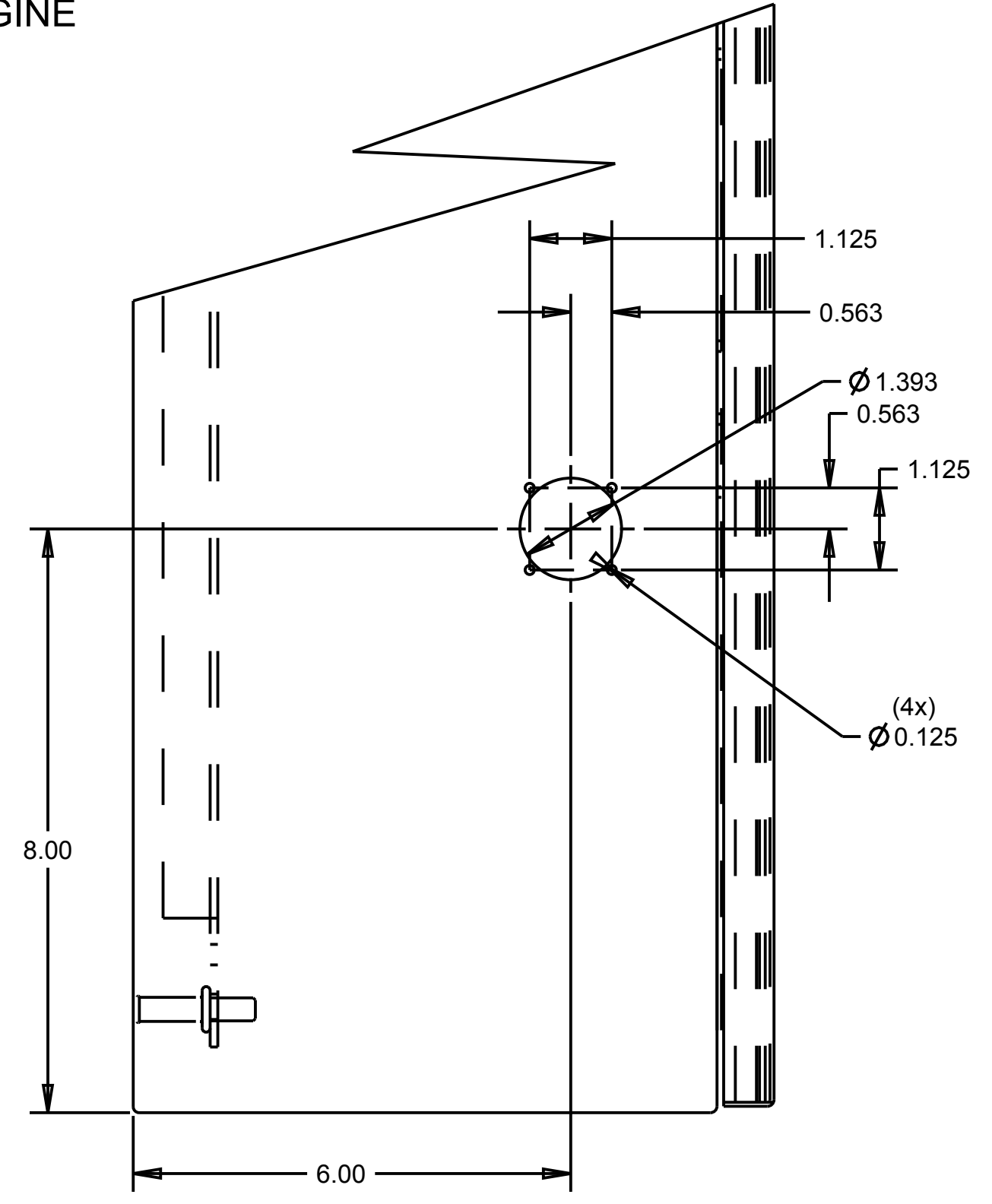
MODS

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES IMPLIED TOLERANCES: FRACTION ± 1/8 X ± .06 XX ± .03 XXX ± .010 MACHINE FINISH UNLESS OTHERWISE STATED PLANE ANGLES 45°-1°			THRD ANGLE PROJECTION	
	PRODUCT: NSCA - CLIP APPLICATOR			
	DESCRIPTION: LOGIC BOX ASSEMBLY			SIZE SCALE DRAWING CODE NUMBER REV D NTS 31440080 F
	ASSEMBLY:- SHEET 13 OF 21			

M20 CUMMINS TIER 3 ENGINE

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	700	700523	1	PANEL, MURPHY MOUNT	SEE DRAWING	
ADD	701	7079011	1	GAGE, DIGITAL	MURPHY POWERVIEW PV100-A	
ADD	702	5166816	1	PLUG, 6-SOCKET	DEUTSCH DT06-6S	P85
ADD	703	5112936	1	LOCKING WEDGE, FOR 6-SOCKET PLUG	DEUTSCH W6S	
ADD	704	5166809	2	RECEPTACLE, SQ FLANGE 9-PIN	DEUTSCH HD10-9-1939P	P81
ADD	705	5166796	AR	SOCKET CONTACT FEMALE 14-16GA DT	DEUTSCH 0462-209-16141	P82
ADD	706	690220	1	DECAL, ENGINE DIAGNOSTICS	SEE DRAWING	
ADD	707	2837225	8	SCREW, MACH #4-40 x 1-1/4 RD HD		
ADD	708	3048022	8	NUT, HEX #4-40		
ADD	709	3060451	8	WASHER SAE #4		
ADD	710	3064446	8	LOCKWASHER #4		
ADD	712	5128941	1	BREAKER, CIRCUIT 3 AMP	ETA 1170-01-3A	CB22
ADD	713	5128933	2	BREAKER, CIRCUIT 6 AMP	ETA 1170-02-6A	CB14
ADD	714	5125579	1	SWITCH, TOGGLE ON-ON DPST	CH 8501K4	S2
ADD	715	5128936	1	BREAKER, CIRCUIT 15A	ETA-1170-02-15A	CB13
ADD	718	5125587	1	SWITCH, TOGGLE	CH 8501K4	S8
ADD	719	5190912	1	LAMP, RED	DIALITE 507-4761-3731-500	
ADD	720	5190950	1	LAMPHOLDER	DIALITE 508-7538-504	LT7



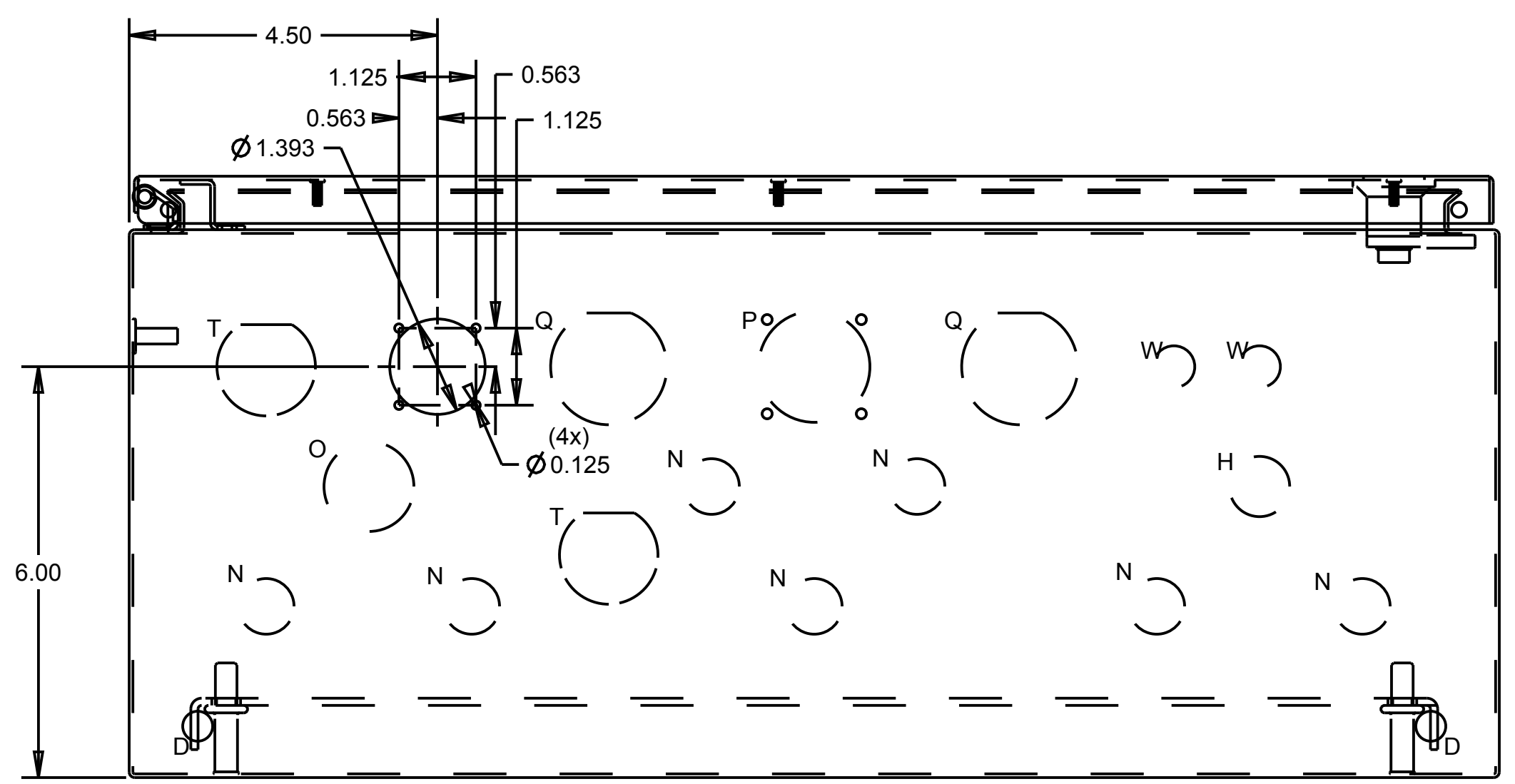
WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB5-2	P81@A	16 AWG GREEN
2	TB5-2	P85@6	16 AWG GREEN
2	TB4-2	P74@P	16 AWG GREEN
2	LT5-2	LT7@B	16 AWG GREEN
5	TB1-5	S8@2	16 AWG RED
12	CB14-12	TB2-12	16 AWG RED
12	TB2-12	P75@11	16 AWG RED
14	P75@3	TB2-14	16 AWG BLACK
14	S8@3	TB2-14	16 AWG BLACK
14	S8@3	LT7@A	16 AWG BLACK
17	S2@2	P75@10	16 AWG BLACK
126	S2@3	P74@K	16 AWG BLACK
145	TB2-145	P82@C	20 AWG
145	TB2-145	P81@C	20 AWG
145	TB2-145	P85@2	20 AWG
145	TB2-145	R8-145	20 AWG
146	TB2-146	P82 @ D	20 AWG
146	TB2-146	P81 @ D	20 AWG
146	TB2-146	P85@3	20 AWG
146	TB2-146	R8-146	20 AWG
147	TB2-147	P82@E	SHIELD
147	TB2-147	P81@E	SHIELD
147	TB2-147	P85@4	SHIELD
148	CB22-148	P81@B	16 AWG RED
148	CB22-148	P85@1	16 AWG RED
153	P82@F	P81@F	16 AWG BLACK
154	P82 @ G	P81 @ G	16 AWG BLACK
620	CB13-620	P74@N	16 AWG RED

ADDED FOR SPECIAL

CUSTOMER SPECIFIED CUMMINS TIER 3 ENGINE


INCLUDES FUEL HEATER

	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
MOD. NEEDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



MODS

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR			
FRACTION	± 1/8	DESCRIPTION: LOGIC BOX ASSEMBLY			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
XX	± .03	D	NTS	31440080	F
XXX	± .010	PLANE ANGLES \neq 90°		ASSEMBLY:-	SHEET 14 OF 21

M21 [△] ENGINE: JOHN DEERE TIER 2

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	721	5125588	1	SWITCH, TOGGLE (ON)-OFF-(ON) DPDT	CH 8501K2	S2
ADD	722	5128941	1	BREAKER, 3A	ETA 1170-22-3A	CB14

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB4-2	S2@5	16 AWG GREEN
17	P75@10	S2@6	16 AWG BLACK
17	S2@1	S2@6	16 AWG BLACK
126	S2@3	S2@4	16 AWG BLACK
126	S2@4	P74@K	16 AWG BLACK
570	CB14-570	S2@2	16 AWG RED

THROTTLE SWITCH CIRCUIT FOR JOHN DEERE ENGINE WITH ADDCO THROTTLE

COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
MOD. NEEDS <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M23 [△] TACHOMETER

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	731	7084830	1	GAUGE, HYD OIL TEMP, 12V	STEWART WARNER 82740	GA4
ADD	732	6120106	1	RESISTOR 12V GAGE ADAPTOR	SW 829525-2D	
ADD	733	5150175	1	LAMP,BULB 24V BAYONET	G.E. 1873	

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB5-2	GA4 @ G	16 AWG GREEN
2	GA4 @ G	GA5 @ -	16 AWG GREEN
5	TB1-5	GA4@I	16 AWG RED
5	GA4@I	GA4@LT	16 AWG RED
16	GA4S	TB2-16	16 AWG BLACK

CUSTOMER SPECIFIED 4" TACHOMETER

COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
MOD. NEEDS <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M22 [△] STANDARD GAUGES

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	724	7078084	1	GAGE,VOLT METER	DIPRICOL C301351	GA1
ADD	725	7055759	1	GAGE,ENGINE TEMP	DIPRICOL C302636	GA2
ADD	726	7022516	1	GAGE, OIL PRESSURE	DIPRICOL C130138	GA3
ADD	727	7085941	1	GAGE, TACH	VDO 333156 + KIT 391101	GA4
ADD	728	7088109	1	GAGE,HOUR METER	DIPRICOL C400862	GA5
ADD	729	700524	1	PANEL, ENGINE GAGE MOUNT	STEWART WARNER 82305	
ADD	730	61200040	1	RESISTOR, 120 OHM, 1/2 W	NEWARK 10N541	R8

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB5-2	GA4 @ -	16 AWG GREEN
2	GA4 @ -	GA4@L	16 AWG GREEN
2	GA4@L	GA5 @ -	16 AWG GREEN
2	GA5 @ -	GA5@L	16 AWG GREEN
2	GA5@L	GA1 @ -	16 AWG GREEN
2	GA1 @ -	GA1@L	16 AWG GREEN
2	GA1@L	GA3 @ -	16 AWG GREEN
2	GA3 @ -	GA3@L	16 AWG GREEN
2	GA3@L	GA2 @ -	16 AWG GREEN
2	GA2 @ -	GA2@L	16 AWG GREEN
5	TB1-5	GA1 @ +	16 AWG RED
5	GA1 @ +	GA4 @ +	16 AWG RED
5	GA4 @ +	GA4@R	16 AWG RED
5	GA4@R	GA5@R	16 AWG RED
5	GA5@R	GA1@R	16 AWG RED
5	GA1@R	GA3 @ +	16 AWG RED
5	GA3 @ +	GA2@R	16 AWG RED
5	GA2@R	GA2 @ +	16 AWG RED
5	GA2 @ +	GA2@R	16 AWG RED
11	P75@2	GA2 @ S	16 AWG BLACK
12	GA5 @ +	CR1@NC	16 AWG BLACK
13	P75@5	GA3 @ S	16 AWG BLACK
16	GA4 @ S	TB2-16	16 AWG BLACK

ANALOG GAUGES - VOLTAGE, ENG. TEMP., ENG. OIL PRESSURE, TACHOMETER AND HOUR METER

COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
MOD. NEEDS <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

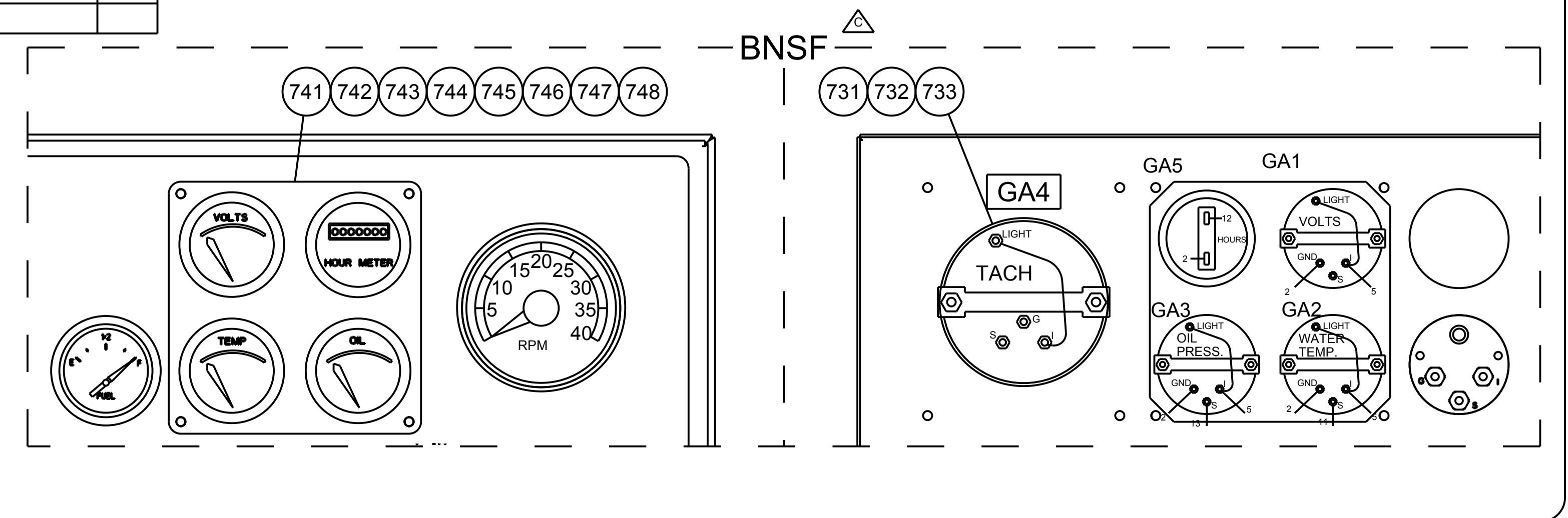
M24 [△] BNSF GAUGES

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	741	7022517	1	GAGE, OIL PRESSURE	STEWART WARNER 82305	GA1
ADD	742	7055750	1	GAGE,WATER TEMP	STEWART WARNER 82306	GA2
ADD	743	7078066	1	GAGE,VOLT METER	STEWART WARNER 82347	GA3
ADD	745	7088110	1	GAGE,HOURMETER	ENM SPECIAL T40A41124	GA5
ADD	746	61200106	3	RESISTOR 12V GAGE ADAPTOR	SW 829525-2D	
ADD	747	5150175	2	LAMP,BULB 24V BAYONET	G.E. 1873	
ADD	748	700524	1	PANEL, ENGINE GAGE MOUNT	SEE DRAWING	

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB5-2	GA5 @ -	16 AWG GREEN
2	GA5 @ -	GA1 @ GND	16 AWG GREEN
2	GA1 @ GND	GA3 @ GND	16 AWG GREEN
2	GA3 @ GND	GA2 @ GND	16 AWG GREEN
2	GA2 @ GND	GA6 @ GND	16 AWG GREEN
5	TB1-5	GA1@L	16 AWG RED
5	GA1@I	GA1@LHT	16 AWG RED
5	GA1@I	GA2@I	16 AWG RED
5	GA2@I	GA2@LHT	16 AWG RED
5	GA2@I	GA3@I	16 AWG RED
5	GA3@I	GA3@LHT	16 AWG RED
5	GA3@LT	GA5@LT	16 AWG RED
11	P75@2	GA2 @ S	16 AWG BLACK
12	GA5 @ +	TB2-12	16 AWG BLACK
13	P75@5	GA3 @ S	16 AWG BLACK

CUSTOMER SPECIFIED NON-STANDARD GAUGES - VOLTAGE, ENG. TEMP., ENG. OIL PRESSURE AND HOUR METER

COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
MOD. NEEDS <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



MODS

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR			
FRACTION	± 1/8	DESCRIPTION: LOGIC BOX ASSEMBLY			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV
XX	± .03	D	NTS	31440080	F
XXX	± .010	ASSEMBLY:-		SHEET 15 OF 21	
MACHINE FINISH UNLESS OTHERWISE STATED					
PLANE ANGLES 90°-F°					

M25

SHUTDOWN: AID WARNING SYSTEM

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	751	5128934	1	BREAKER 8A	ETA 1170-02-8A	CB13
ADD	752	5129205	1	FUSE 5A	WAYTEK 46105 AGC SERIES	F1
ADD	753	5138760	1	FUSE HOLDER INLINE WATERPROOF	WAYTEK 46004	

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
3	TB2-3	F1 - FUSE HOLDER	16 AWG BLACK
12	CB13-12	TB2-12	16 AWG BLACK
12	TB2-12	GA5 @ +	16 AWG BLACK

SHUTDOWN: AID WARNING SYSTEM

INCLUDE 12", 16 GA. RED LEAD FROM F1 COILED IN BOX

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M27

ENGINE SHUTDOWN WITH 30 SECOND WARNING

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	771	29680018	1	DIODE,SUPPRESSION	1N5624	D?
ADD	772	31403550	1	BUZZER,WARNING & LIGHT 2W	RACOR LB-2	

SUBTRACT FROM STD WIRING 31440080

ADDED FOR SPECIAL

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
14	CR1 @ S2	TB2@S	16 AWG
14	D4@CATHODE	CR1 @ S	16 AWG
	CR1 @ ANODE	D18@ANODE	
14	D18@CATHODE	TB2-14	
14	D4@CATHODE	TB2-14	14 AWG BLACK
14	TB2@S	LIGHT/BUZZER	14 AWG BLACK
14	LIGHT/BUZZER	CR1 @ B	14 AWG BLACK

TO WARN OPERATOR THAT IN 30 SECONDS THE ENGINE WILL SHUTDOWN

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

M29

ISOLATED BACKUP ALARM

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	790	5166812	1	RECEPTACLE, 12-PIN	DEUTSCH DT04-12P	P78
ADD	791	5166932	1	LOCKING WEDGE, FOR 12 PIN RECEPT.	DEUTSCH W12P	
ADD	792	520254	1	BOOT, 12 WAY PLUG	DEUTSCH DT12S-BT	
ADD	793	5166791	AR	PIN, 14-16 GA	DEUTSCH 0460-215-16141	

WIRES TO ADD

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB1-2	S5@5	16 AWG GREEN
360	S5@4	P78@1	16 AWG BLACK
361	S5@6	P78@2	16 AWG BLACK
852	P78@4	CR21@6	16 AWG BLACK
853	P78@3	CR20@6	16 AWG BLACK

FRONT BACKUP ALARM WILL SOUND IF TRAVELLING FORWARD AND REVERSE IS DOMINANT DIRECTION ACCORDING TO S5.

REAR BACKUP ALARM WILL SOUND IF TRAVELLING REVERSE AND FORWARD IS DOMINANT DIRECTION ACCORDING TO S5.

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M26

SHUTDOWN: MURPHY

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	761	5126101	1	MAGNETIC SWITCH	MURPHY 520APH-30-24	CR1
ADD	762	29680002	2	DIODE	1N5059	D3 D4
ADD	763	5125587	1	SWITCH, TOGGLE	CH 8500K4	S8
ADD	764	5190912	1	LAMP, RED	DIALITE 507-4761-3731-500	
ADD	765	5190950	1	LAMPHOLDER	DIALITE 508-75388-504	LT7

SUBTRACT FROM BASE

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
542	P79@26	CR31@4	14 AWG BLACK
2	LT5@B	LT7@B	16 AWG GREEN
2	TB5-2	CR1 @ G	16 AWG GREEN
2	D4@ANODE	CR1 @ GND	16 AWG GREEN
5	TB1-5	S8 @ 2	16 AWG RED
12	GA5 @ +	CR1 @ NC	16 AWG BLACK
12	CR1@NC	TB2-12	16 AWG
12	D3@CATHODE	TB2-12	16 AWG
14	P75@3	CR1 @ SW2	16 AWG
14	D4@CATHODE	CR1 @ SW2	16 AWG BLACK
45	S8@3	TB1-45	16 AWG BLACK
45	S8@3	LT7@A	16 AWG BLACK
45	TB1-45	D3-ANODE	16 AWG BLACK
45	S8@3	LT-7@8	16 AWG BLACK
46	S8@1	CR1@8	16 AWG BLACK

MAGNETIC SHUTDOWN / PUSHBUTTON SWITCH AND OVERRIDE CIRCUITS FOR JOHN DEERE ENGINE

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

M28

ALTERNATE LIGHT CONNECTIONS

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
REMOVE	16	5128936	1	BREAKER, 15A	ETA 1170-02-15A	CB5

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	781	5104992	2	BAR, FUSE BUSS BREAK INTO (1) 5-SECTION AND (1) 3-SECTION PIECE	ETA 92N56311-071802	
ADD	782	5128938	1	BREAKER, 25A	ETA 1170-02-25A	CB5
ADD	783	520079	5	STAND-OFF, MALLEABLE IRON #6-32 X 1/4 LG.	NEWARK 92N5264	

SUTRACT FROM STD 31440080

ADDED FOR SPECIAL

WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
3	BUSS BAR	CB3-3	BUSS BAR
3	BUSS BAR - 3	CB5-3	BUSS BAR
3	BUSS BAR - 3	CB8-3	BUSS BAR
3	BUSS BAR - 3	CB18-3	BUSS BAR
3	CR18@7	CR13@7	16 AWG BLACK
1	CR1	CB3-1	14 AWG RED
1	TB1-1	CB5-1	14 AWG RED
1	TB1-1	CB8-1	14 AWG RED
1	TB1-1	CB18-1	14 AWG RED
3	CB2-3	CB4-3	RAISED BUSS BAR
3	CB4-3	CB6-3	RAISED BUSS BAR
3	CB7-3	CB9-3	RAISED BUSS BAR
8	CB5-8	CR13@7	16 AWG BLACK

BUSS BAR TO BE BROKEN AT APPROPRIATE POINTS AND RAISED BARS INSTALLED TO BY-PASS THE BREAKS.

ALL LIGHTS WILL OPERATE REGARDLESS OF THE POSITION OF THE IGNITION SWITCH.

CR5 CHANGED FROM 15A TO 25A FOR BRAKE LIGHTS.

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

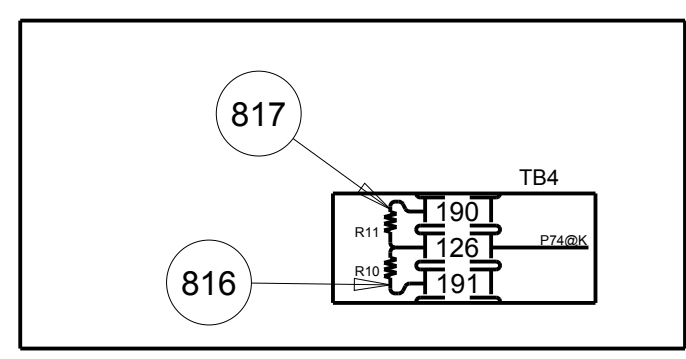
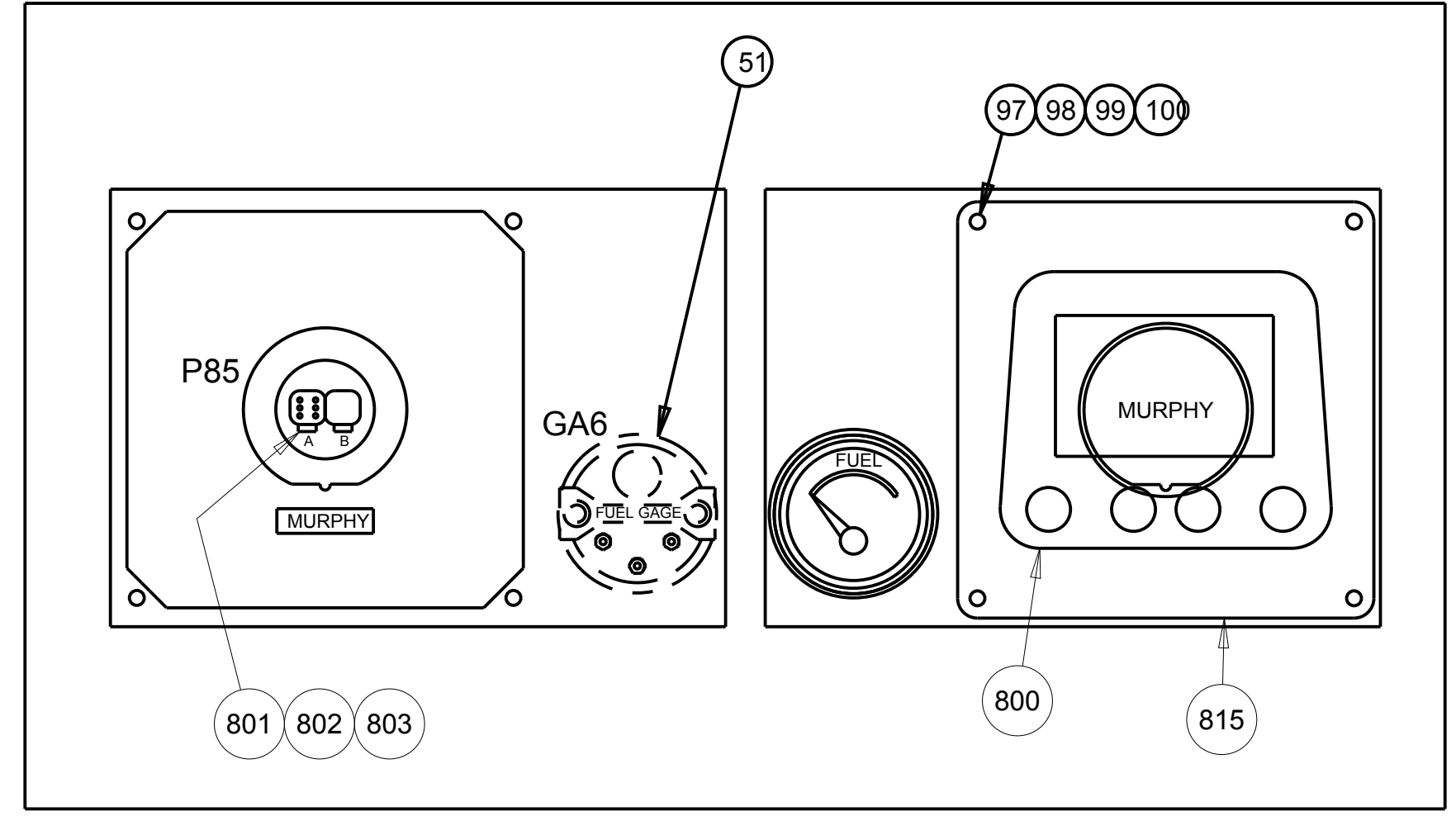
MODS

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR			
FRACTION	± 1/8	DESCRIPTION: LOGIC BOX ASSEMBLY			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
XX	± .03	D NTS		31440080	F
XXX	± .010	ASSEMBLY:-		SHEET 16 OF 21	
PLANE ANGLES W/ F°					

M30
JOHN DEERE TIER 3 ENGINE

BILL OF MATERIAL						
ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	800	7079011	1	GAGE, DIGITAL	MURPHY POWERVIEW PV100-A	
ADD	801	5166816	1	PLUG, 6-SOCKET	DEUTSCH DT06-6S	
ADD	802	5112936	1	LOCKING WEDGE, FOR 6-SOCKET PLUG	DEUTSCH W6S	
ADD	803	5166809	2	RECEPTACLE, SQ FLANGE 9-PIN	DEUTSCH HD10-9-1939P	
ADD	804	5166796	AR	SOCKET, 14 - 16 GA	DEUTSCH 0462-209-16141	
ADD	805	690220	1	DECAL, ENGINE DIAGNOSTICS	SEE DRAWING	
ADD	806	2837225	8	SCREW, MACH #4-40 x 1-1/4 RD HD		
ADD	807	3048022	8	NUT, HEX #4-40		
ADD	808	3060451	8	WASHER SAE #4		
ADD	809	3064446	8	LOCKWASHER #4		
ADD	810	5128936	1	BREAKER, CIRCUIT 15A	ETA 1170-02-15A	CB14
ADD	811	61200040	1	RESISTOR, 120 OHM, 1/2 WATT		R8
ADD	812	5128933	2	BREAKER, CIRCUIT 6 AMP	ETA 1170-02-6A	CB13, CB21
ADD	813	5125579	1	SWITCH, TOGGLE ON-ON DPST	CH 8501K4	
ADD	814	53110008	1	BASE, 2 POS'N CB MOUNT	ETC 12-J20-20	
ADD	815	700523	1	PANEL, MURPHY MOUNT		
ADD	816	61200048	1	RESISTOR, 390 OHM, 1/2 WATT	NEWARK 10N553	R10
ADD	817	61200055	1	RESISTOR, 1.3KOHM, 1/2 WATT	NEWARK 73K0212 OR 40M8604	R11



WIRE LIST			
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
1	TB2-1	CB21-1	16 AWG RED
2	TB5-2	P81@A	16 AWG GREEN
2	TB2-2	P85@6	16 AWG GREEN
2	TB2-2	P75@5	16 AWG GREEN
3	TB2-3	CB22-3	16 AWG RED
5	TB1-5	P85@1	16 AWG RED
5	TB1-5	P81@B	16 AWG RED
12	CB13-12	P75@11	16 AWG RED
17	P75@10	S2@5	16 AWG BLACK
48	CB21-48	S1@BAT	16 AWG RED
98	S1 @ ST	S2@2	16 AWG BLACK
126	P74@K	TB4-126	16 AWG BLACK
126	TB4-126	R10-126	16 AWG BLACK
126	TB4-126	R11-126	16 AWG BLACK
145	TB2-145	P82@C	YELLOW
145	TB2-145	P81@C	YELLOW
145	TB2-145	P85@2	YELLOW
145	TB2-145	R8-145	YELLOW
146	TB2-146	P82 @ D	GREEN
146	TB2-146	P81 @ D	GREEN
146	TB2-146	P85@3	GREEN
146	TB2-146	R8-146	GREEN
147	TB2-147	P82@E	SHIELD
147	TB2-147	P81@E	SHIELD
147	TB2-147	P85@4	SHIELD
190	S2@6	TB4-190	16 AWG BLACK
190	TB4-190	R11-190	RESISTOR WIRE
191	S2@4	TB4-191	16 AWG BLACK
191	TB4-191	R10-191	RESISTOR WIRE
197	S2@1	S10@2	16 AWG BLACK
620	CB14-620	P74@N	16 AWG RED

WIRES TO ADD

CUSTOMER SPECIFIED JOHN DEERE TIER 3 ENGINE
 SEE M20 FOR P81/P82 MOUNTING LOCATION AND HOLES.
 INCLUDES FUEL HEATER.

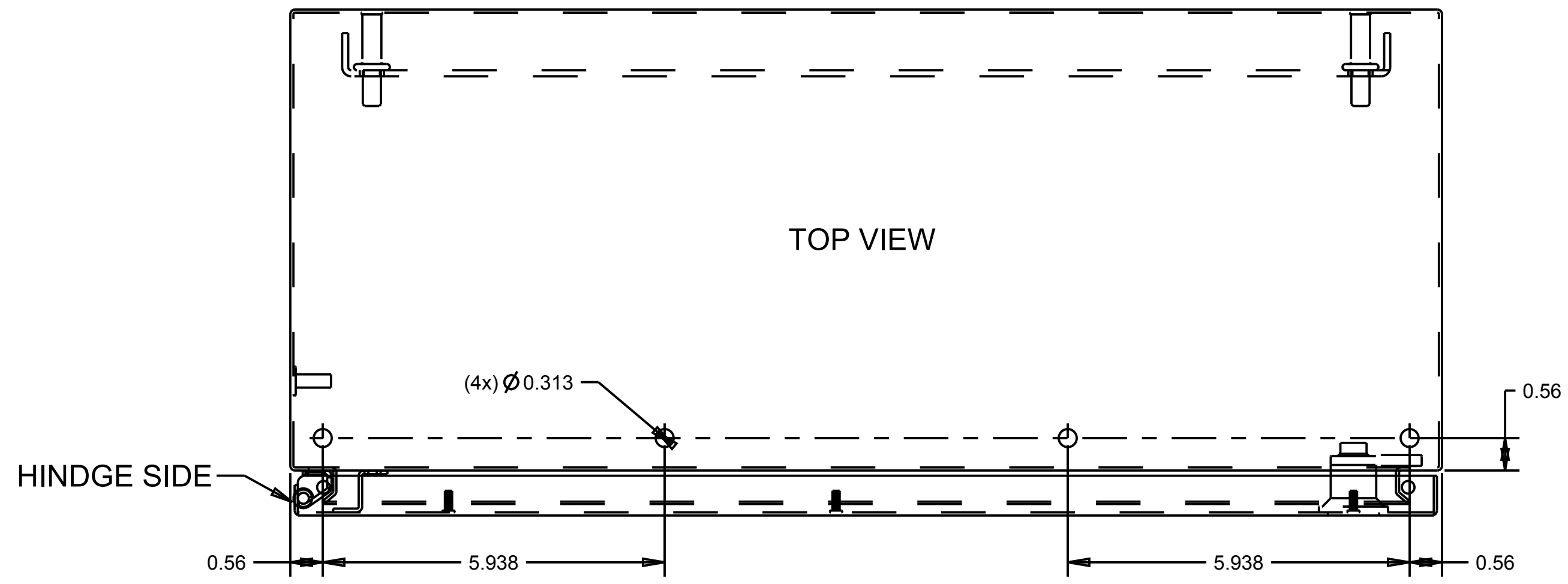
COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
MOD. NEEDS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

MODS

REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR			
FRACTION	± 1/8	DESCRIPTION: LOGIC BOX ASSEMBLY			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
XX	± .03	D NTS		31440080	F
XXX	± .010	ASSEMBLY:-		SHEET 17 OF 21	

M31 HANDLES



ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	820	42017988	2	HANDLE OFFSET PULL	MCMASTER-CARR 1979A3	

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTES:
1. DRILL 4 HOLES IN TOP OF LOGIC BOX.

M32 3 REAR WIPERS

ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	830	5195889	1	CONTROL RELAY	FINDER 55.33.9.024.00.80	CR31
ADD	831	5155165	1	SOCKET, RELAY	FINDER 94.73	
ADD	832	5158420	1	RETAINER, RELAY CLIP	FINDER 094.71	

WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
2	TB1-2	CR31@A2	16 AWG GREEN
541	TB3-541	CR31@7	16 AWG RED
541	CR31@7	CR31@8	16 AWG RED
541	CR31@8	CR31@9	16 AWG RED
549	S53@1	CR31@A1	16 AWG BLACK
556	CR31@2	P79@19	16 AWG BLACK
557	CR31@5	P79@20	16 AWG BLACK
566	CR31@1	P79@21	16 AWG BLACK
567	CR31@4	P79@22	16 AWG BLACK
571	CR31@6	* P78@5 OR P79@26	16 AWG BLACK
572	CR31@3	* P78@6 OR P79@30	16 AWG BLACK

WIRES TO ADD

RELAY ADDED TO WIPER CIRCUITS TO ALLOW INSTALLATION OF CENTER REAR WIPER.

WIPER CIRCUITS NEED TO BE ISOLATED TO ELIMINATE FEEDBACK VIA THE PARK FUNCTION.

* NOTE: USE P79 CONNECTIONS WHEN P78 (MOD M29) IS NOT PRESENT.

MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

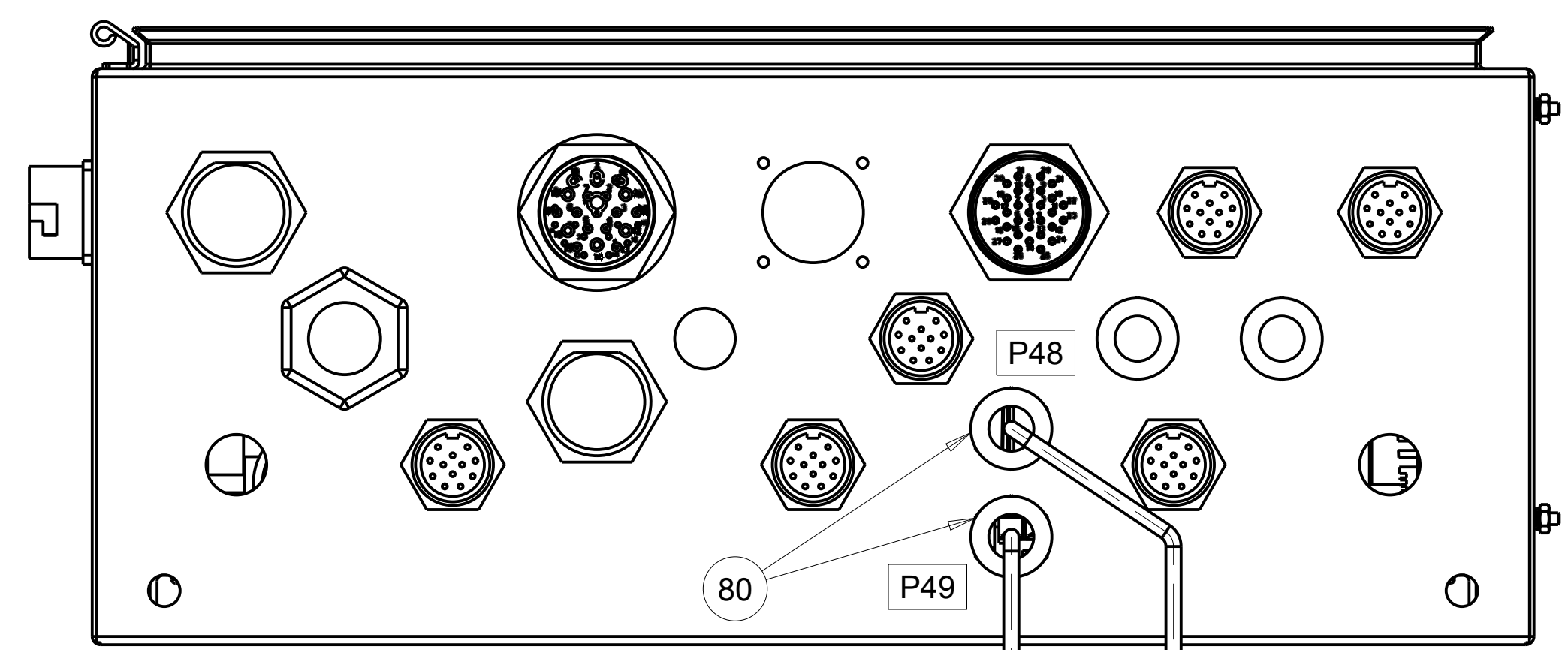
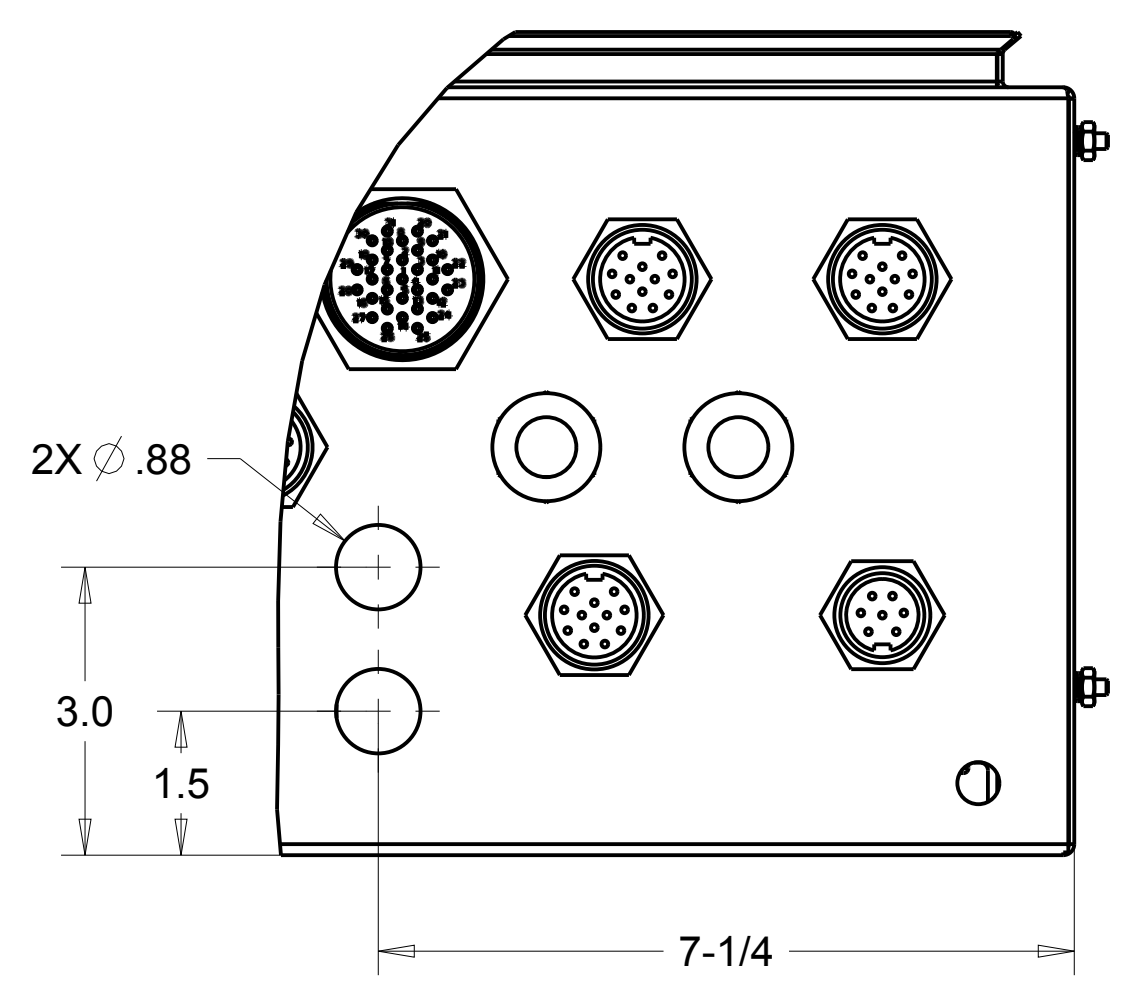
MODS

M33 BOARDING LIGHT AT STEP

ADD/REMOVE	ITEM #	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	MFG NUMBER	DEVICE CODE
ADD	840	5128941	1	BREAKER, CIRCUIT 3A MANUAL RESET	ETA 1170-22-3A	
ADD	841	5166772	2	CONNECTOR SHROUD	PACKARD 12010973	
ADD	842	5166781	4	TERMINAL	PACKARD 12089040	P48 & P49
ADD	843	5166777	4	CABLE SEAL	PACKARD 12015323	
ADD	80	5103814	1	CORD GRIP	CROUSE HINDS CBG-194	
ADD	101	5270228	AR	CORD, 16/2C BLACK-WHITE		

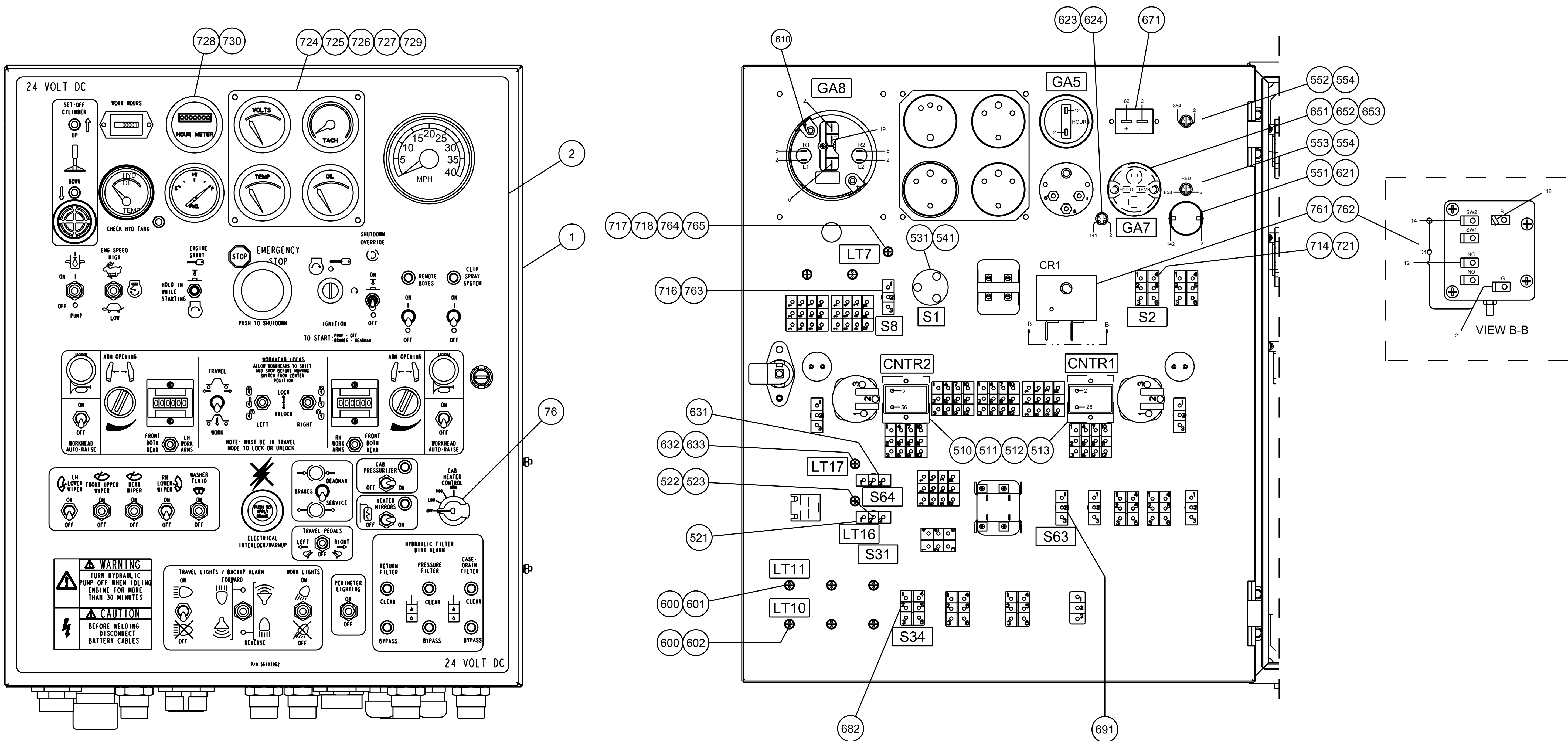
WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
1	CB19-1	TB2-1	16 AWG RED
2	TB1-2	P48@B	16 AWG GREEN
2	TB1-2	P49@B	16 AWG GREEN
250	CB19-250	P49@A	16 AWG BLACK
250	CB19-250	P48@A	16 AWG BLACK

WIRES TO ADD



MOD. NEEDS	COMPONENT ADD	COMPONENT SUBTRACT	BOX MOD	WIRE SUBTRACT	WIRE ADD
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

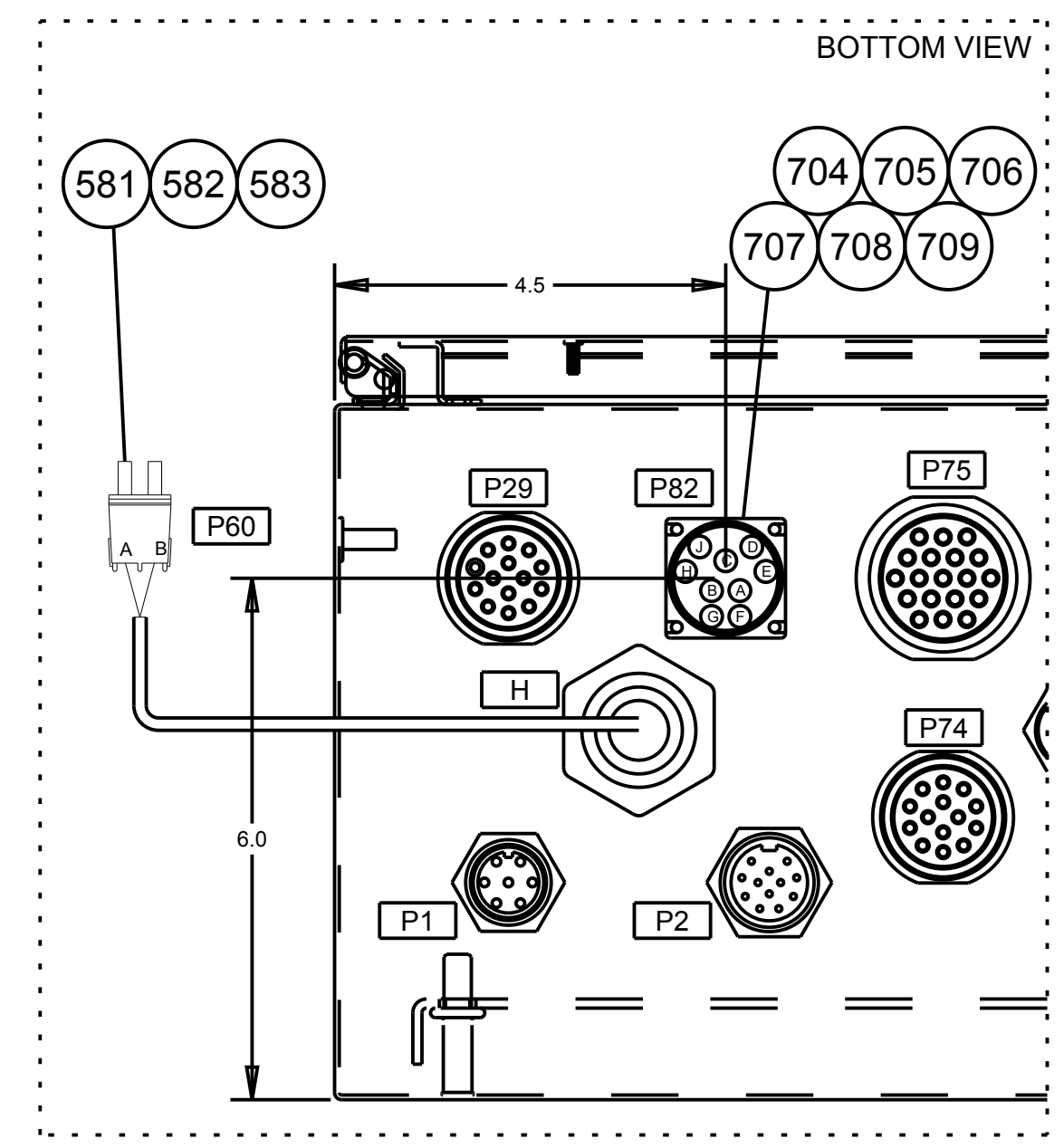
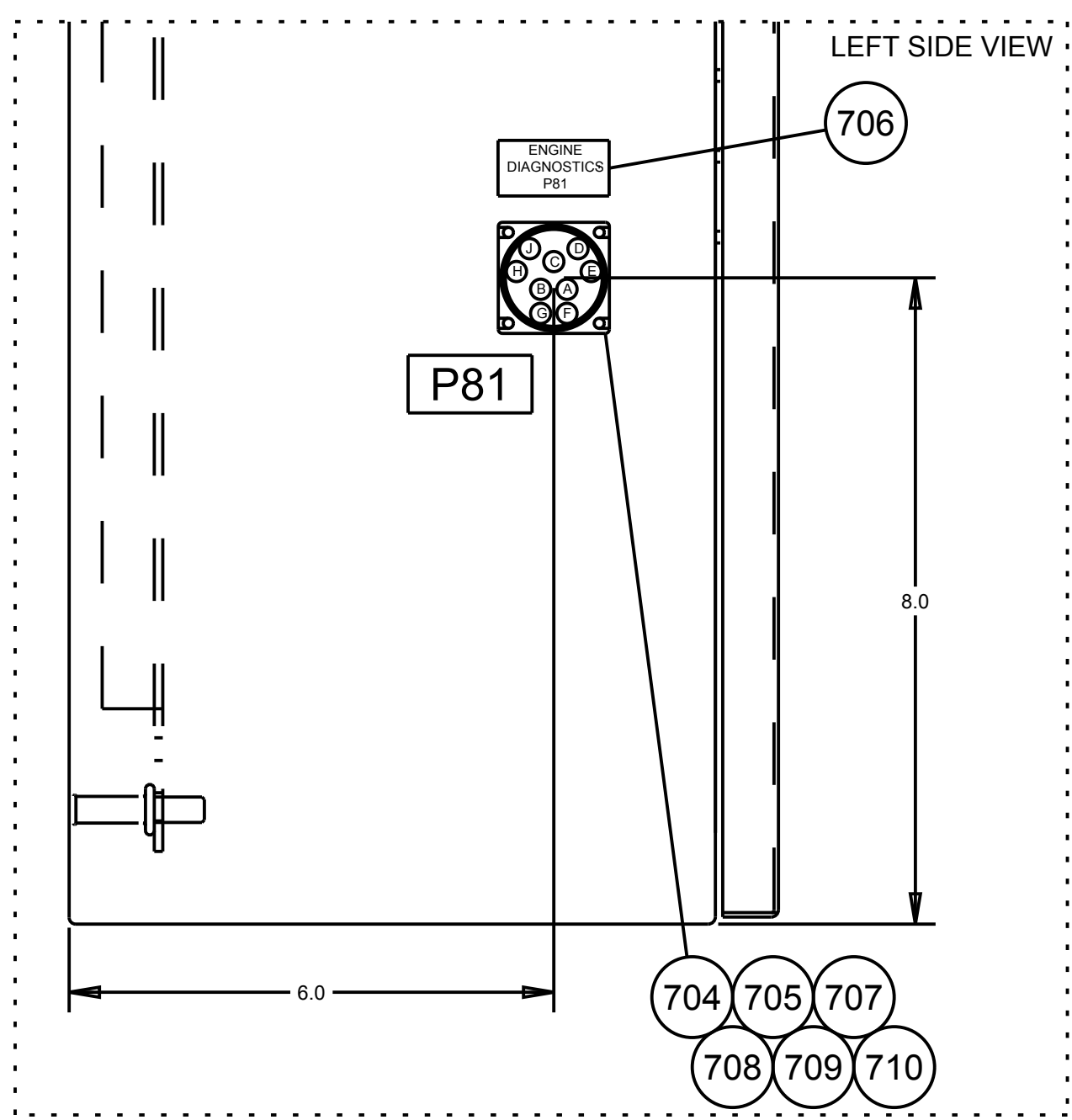
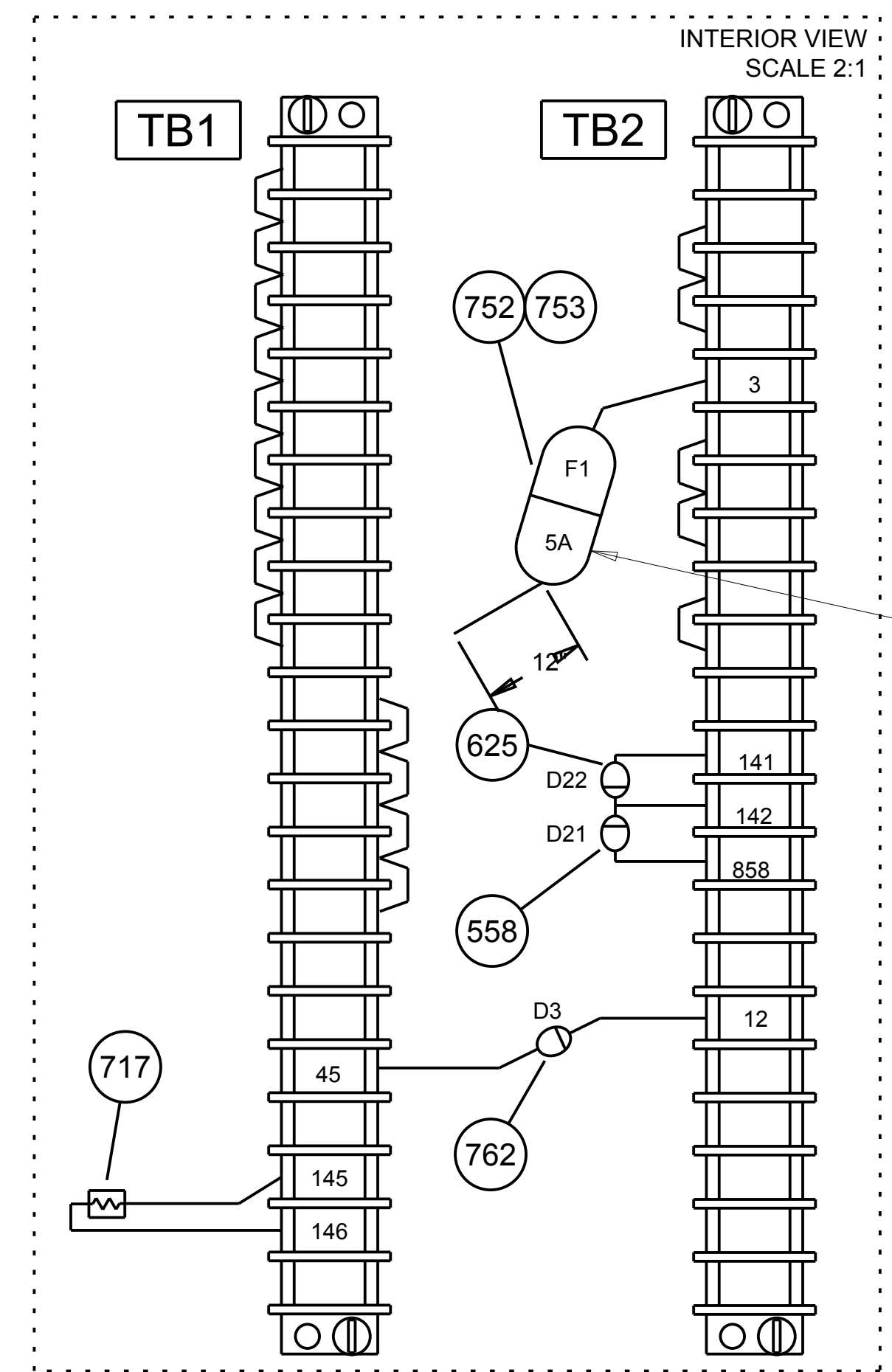
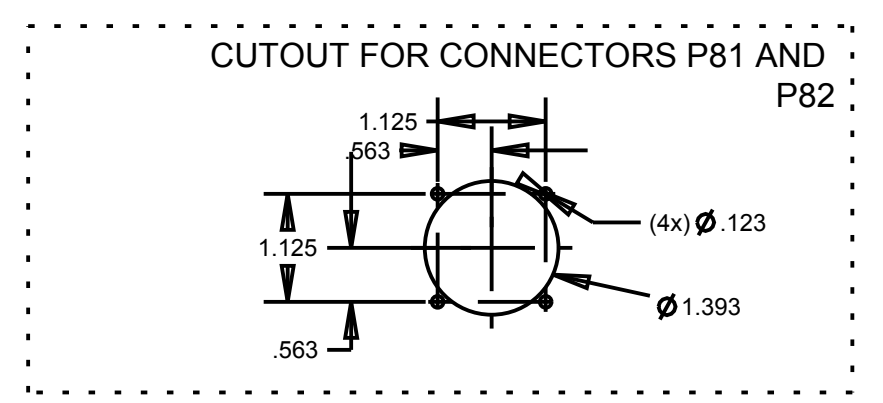
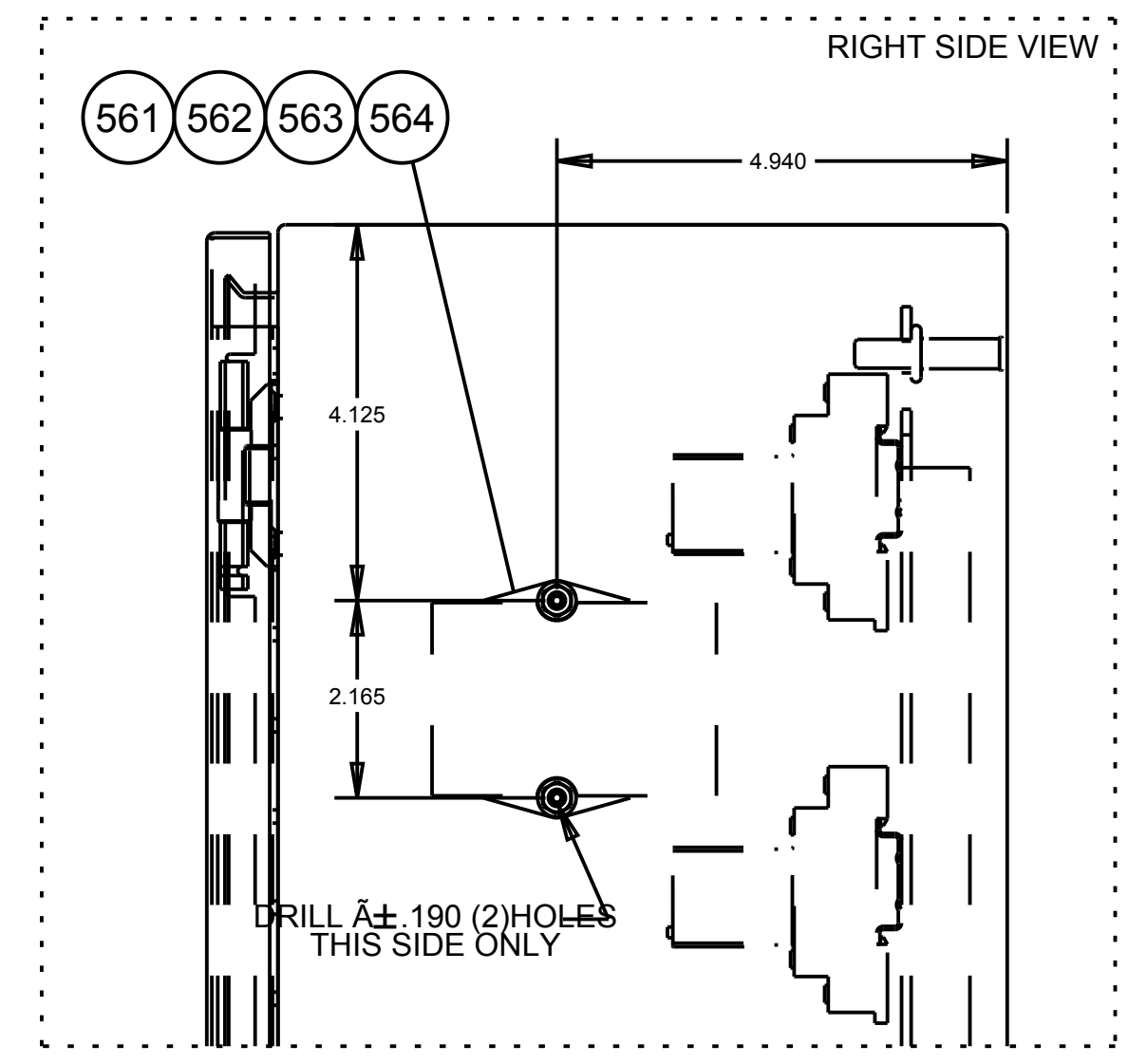
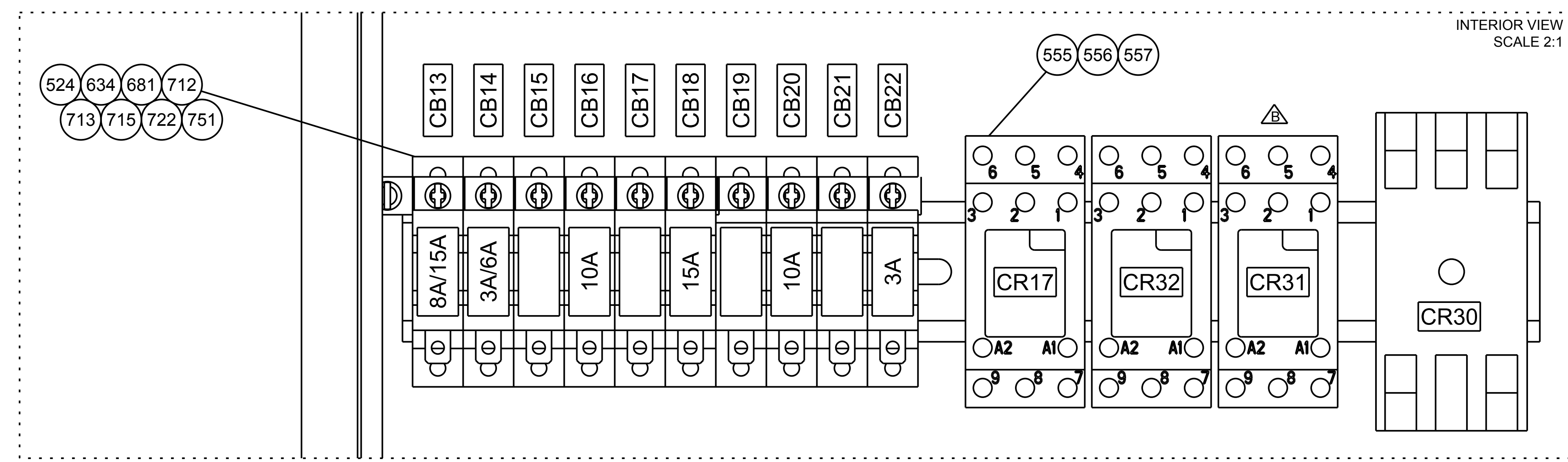
CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR			
FRACTION	± 1/8	DESCRIPTION: LOGIC BOX ASSEMBLY			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV
XX	± .03	D	NTS	31440080	F
XXX	± .010	ASSEMBLY:-		SHEET 18 OF 21	
MACHINE FINISH UNLESS OTHERWISE STATED		REVISION HISTORY LOCATED ON LAST SHEET			
PLANE ANGLES 45-90°					



MODS

REVISION HISTORY
LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA - CLIP APPLICATOR			
FRACTION		DESCRIPTION: LOGIC BOX ASSEMBLY			
X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV
XX	± .03	D NTS	31440080	F	F
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 19 OF 21	
PLANE ANGLES 91°-1°					



MODS

REVISION HISTORY
LOCATED ON LAST SHEET

CUSTOMARY:				THIRD ANGLE PROJECTION	
ALL DIMENSIONS IN INCHES		PRODUCT: NSCA - CLIP APPLICATOR			
IMPLIED TOLERANCES		DESCRIPTION: LOGIC BOX ASSEMBLY			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D NTS	31440080	F	F
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 20 OF 21	
PLANE ANGLES 90°-1°					

ECO	NONE	PRELIMINARY	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
PJP 08/15/2008	---	---	
SHEET	CHANGE		
ALL	PROTOTYPE LEVEL		

ECO	NONE	REV -	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
PJP 09/05/2008			
SHEET	CHANGE		
ALL	UPDATED SHEETS WHERE APPLICABLE COMPONENTS MATCH TO THE SP2R LOGIC BOX 31440031 REV K		

ECO	80088	REV A	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
JWW 23-JAN-09			
SHEET	CHANGE		
1	ADDED THIS SHEET; CONFIGURATION CHART. BOM WAS SHEET 4.		
2	ADDED DEVISE CODE COLUME. ITEMS 15-18: CB QUANTITIES CORRECTED ITEM 39: 61200076 WAS 61200074, U55 WAS U50 ITEMS 4, 19M 22, 31-35, 60-63, 88, 89, 92-96 REMOVED. ITEMS 104, 105 ADDED. ADDED NOTES 13, 14, AND 15		
3	PIN CONNECTION CHARTS - WAS SHEET 5. ADDED NOTE #1. VARIOUS MINOR CORRECTIONS MADE.		
4	WIRE CONNECTIONS ADDED THIS SHEET		
5	DOOR FRONT AND BACK DRAWINGS WERE ON SHEETS 1 AND 2. OPTIONAL EQUIPMENT MOVED TO MODS SECTION.		
6	UPPER BOX COMPONENTS - WAS ON SHEET 2. VARIOUS MINOR CORRECTIONS MADE. CR17 MOVED TO MODS SECTION. ADDED ITEMS 104 AND 105.		
7	WAS SHEET 3. VARIOUS MINOR CORRECTIONS MADE.		
8	ADDED THESE SHEETS, MODS		

ECO	80088	REV B	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
CP 10-MAY-10	---	---	
SHEET	CHANGE		
1	MODIFY CONFIGURATION CHART TO 22220125 STYLE AND ADDED "LEGEND"		
2	ITEMS 5, 6, & 8 QTY 20 WAS 15 ITEM 24N QTY 9 WAS 5 ITEM 52, 81941120 (12") WAS 81941110 (10")		
3	P1, WIRE 30 ADDED, WIRE 108 WAS 27, CR102@A1 WAS CR105@A1, WIRE 79, CR107@A1 WAS CR104@A1 P2, WIRE 112-P2@1 WAS P4@2, WIRE 113, P2@8 WAS P4@8 P3, WIRE 60 ADDED, WIRE 188 WAS 57, CR202@A1 WAS CR205@A1, WIRE 90, CR207@A1 WAS CR202@A1 P4, WIRE 206, P4@2 WAS P4@1, BLUE WAS ORANGE P6, WIRES 42 & 92 REMOVED P79, WIRES 570 & 571 ADDED, WIRE 556, C31@2 WAS S53@1, WIRE 557, C31@5 WAS S53@3, WIRE 566, C31@3 WAS S53@4, WIRE 567, C31@6 WAS S53@6		
4	WIRES (5x) 2, (2x) 28, 31, (1x) 32, (2x) 58, 61, (1x) 62, (2x) 77, (6x) 82, (2x) 87, 201, 203, 204, 206, (2x) 226, (2x) 227, (2x) 228, (2x) 229, (2x) 541 & (1x) 543 ADDED WIRES 38, 42, 43, 68, 92, 93, 177 & 187 REMOVED WIRE 28, CR106@7 WAS CR103@7, WIRE 58, CR206@7 WAS CR203@7, WIRE 77, CR106@9 WAS CR103@9, WIRE 87, CR206@9 WAS CR203@9, WIRE 541, C31@7 WAS S53@3		
6	CR31, 106, 107, 206 & 207 ADDED CR40 MOVED TO SHEET 7		
7	CR31@A2 ADDED TO TB1-2 D14, D15, D24 & D25, INCLUDING WIRES & CONNECTIONS, ADDED TO TB-3 CR106@7, CR206@7, CR104@8 & CR204@8 ADDED TO TB4-82 CR40 MOVED FROM SHEET 6		
14	CR31 ADDED		

ECO	600880	REV C	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
JMK 8FEB13	CP 14FEB13	---	
SHEET	CHANGE		
1	CURRENT PRODUCTION COLUMN ADDED M29, M30, M31, M32 ADDED; 31442911 ADDED; UPDATED NOTE: SHEETS 2-10 FOR BASE AND SHEETS 11-20 FOR MODS		
2	MFG PART NUMBER COLUMN ADDED		
3	P79, WIRE 72: TB2-72 WAS TB4-72; P74, WIRE 72: TB2-72 WAS TB4-72		
4	REMOVED WIRES 158 THROUGH 857 FROM THIS SHEET; ADDED WIRE 98		
5	ADDED SHEET; MOVED WIRES 158 THROUGH 857 TO THIS SHEET; REMOVED WIRES 852 & 853 USED ONLY FOR MODS		
8	WAS PAGE 7; BOTTIM PIN CONNECTORS REMOVED FROM THIS SHEET; MOVED 72: TB2-72 WAS AT TB4-72; ADDED 98 TO TB2		
9	SHEET ADDED		
10	SHEET ADDED; BOTTOM PIN CONNECTORS MOVED TO THIS SHEET		
14	WAS SHEET 11; ADDED DETAIL DRAWINGS TO M20; REMOVED MODS 21-24 FROM THIS SHEET		
15	ADDED SHEET; ADDED MODS 21-24 TO THIS SHEET; BNSF GAUGES (DRAWING) ADDED FROM SHEET 19		
16	WAS SHEET 12; M29 ADDED		
17	SHEET ADDED; M30 ADDED		
18	SHEET ADDED; M31 & M32 ADDED		
19	REMOVED BNSF GAUGES DRAWING; REMOVED MMINIS TIER 3 ENGINE GUAGE DRAWINGS		

ECO	600973	REV D	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
JMK 15APRIL13	SCR 06MAY13		
SHEET	CHANGE		
3	P2 WIRE 32: CR107@6 WAS CR101@1 P2 WIRE 112: ORANGE WAS BLUE P4 WIRE 62: CR207@6 WAS CR201@1 P4 WIRE 206: BLUE WAS ORANGE P5 WIRE 2: WHITE WAS 16 AWG P5 WIRE 2: GREEN WAS 16 AWG P5 WIRE 846: BLACK WAS 16 AWG P5 WIRE 847: RED WAS 16 AWG P29 WIRE 122: TB3-122 WAS TB4-122 P67 WIRE 153: WHITE W/ BLK WAS RED W/ BLK P67 WIRE 162: BLACK W/ WHT WAS WHITE W/ BLK P67 WIRE 163: BLUE WAS ORANGE W/ BLK P67 WIRE 214: TB4-214 WAS TB3-214 P67 WIRE 214: ORANGE W/ BLK WAS BLUE P67 WIRE 215: TB4-215 WAS TB3-215 P67 WIRE 126: TB4-126 WAS S2@3 P74 WIRE 126: TB4-126 WAS TB3-126 P75 WIRE 14: REMOVED P75 WIRE 17: S2@5 WAS S2@6 P79 WIRE 542: REMOVED; P79 WIRE 570: REMOVED P79 WIRE 571: REMOVED; P79 WIRE 811: REMOVED		
4	WIRE 6: *-M05 WAS ADDED WIRE 72: TB2-72 WAS TB4-72 WIRE 73: CR103... WAS CR101... WIRE 98: TB2-98 WAS TB3-98 MOVED WIRES 151 THRU 157 TO SHEET 5		
5	WIRE 198 REMOVED; WIIRE 352 REMOVED		
9	TB2: ADDED JUMPER TO 12 REMOVED TB3-198; ADDED TB3-122: P29@E TB3-122: ADDED CB12 TB4: MOVED 82 UP WITH OTHER 82'S AND SHIFTED OTHERS DOWN TB4: REMOVED 542		
10	ADDED LENGTH TO P61 & P11; TB2-12: ADDED JUMPER; TB3-122 WAS TB3-198		
11	M02 WIRE 543: 16 AWG RED WAS 16 AWG BLACK M04 WIRE 839: S2@2 WAS S10@2 M05 WIRE 6: ADDED TO SUBTRACT FROM BASE M05 BOTH WIRES 867: ADDED TO MOD		
16	M26: ADDED WIRE 542 & NOTE; M29: ADDED WIRE 2		
17	ITEM 800: GAGE, DIGITAL MURPHY POWerview #PV100-A WAS RECEPTACLE, 12-PIN DEUTSCH #DT04-12P P78; ITEM 801: PLUG, 6-SOCKET DEUTSCH #DT06-6S WAS LOCKING WEDGE, FOR 12 PIN RECEPT DEUTSCH #W12P; ITEM 802: LOCKING WEDGE, FOR 6-SOCKET PLUG DEUTSCH #W6S WAS BOOT, 12 WAY PLUG DEUTSCH #DT12S-BT; M20 WAS M34 ADDED WIRES 98 & 197		
18	M32 WIRE 543: S53@1 WAS S53@3 M32 WIRE 541: TB3-541 WAS S53@2		

ECO	601065	REV E	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
JMK 03SEPT13	CP 09-20-13		
SHEET	CHANGE		
1	UPDATED NOTE: S/N 290025 - 290035 WAS S/N 290032 & UP		
2	ITEM 24: QTY 7 WAS QTY 9 ITEM 67: QTY 2 WAS QTY 1 ITEM 106: ADDED		
3	P79 WIRE 567 CR31@4 WAS CR31@6		
5	ADDED TABLE FOR S/N290032-290035		
9	UPDATED NOTE: S/N 290032 - 290035 WAS S/N 290032 & UP.		
13	REMOVED "FUTURE" FROM M14.		

ECO	601213	REV F	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
SWA 01-23-14			
SHEET	CHANGE		
11-18	ALL BOMS - MFG INFO SEPARATED FROM PART NAME.		
9	TB2-1 - CB19-1 ADDED.		
18	M33 - WIRE LIST TABLE: ROW 1 - TB2-1 WAS P48@A ROW 2 - WAS ROW 4 - TB19-1 & P49@B ROW 3 - ROW ADDED TO TABLE. ROW 4 - WAS ROW 2 - WIRE #1 - CB19-1 & 16 AWG RED ROW 5 - WAS ROW 3 - WIRE #2 - TB19-1 - P48@B & 16 AWG GREEN		

CUSTOMARY:					
ALL DIMENSIONS IN INCHES		PRODUCT: NSCA - CLIP APPLICATOR			
IMPLIED TOLERANCES		DESCRIPTION: LOGIC BOX ASSEMBLY			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV
X	± .06	D NTS	31440080	F	F
XX	± .03				
XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY:-		SHEET 21 OF 21	

NO. 31440086

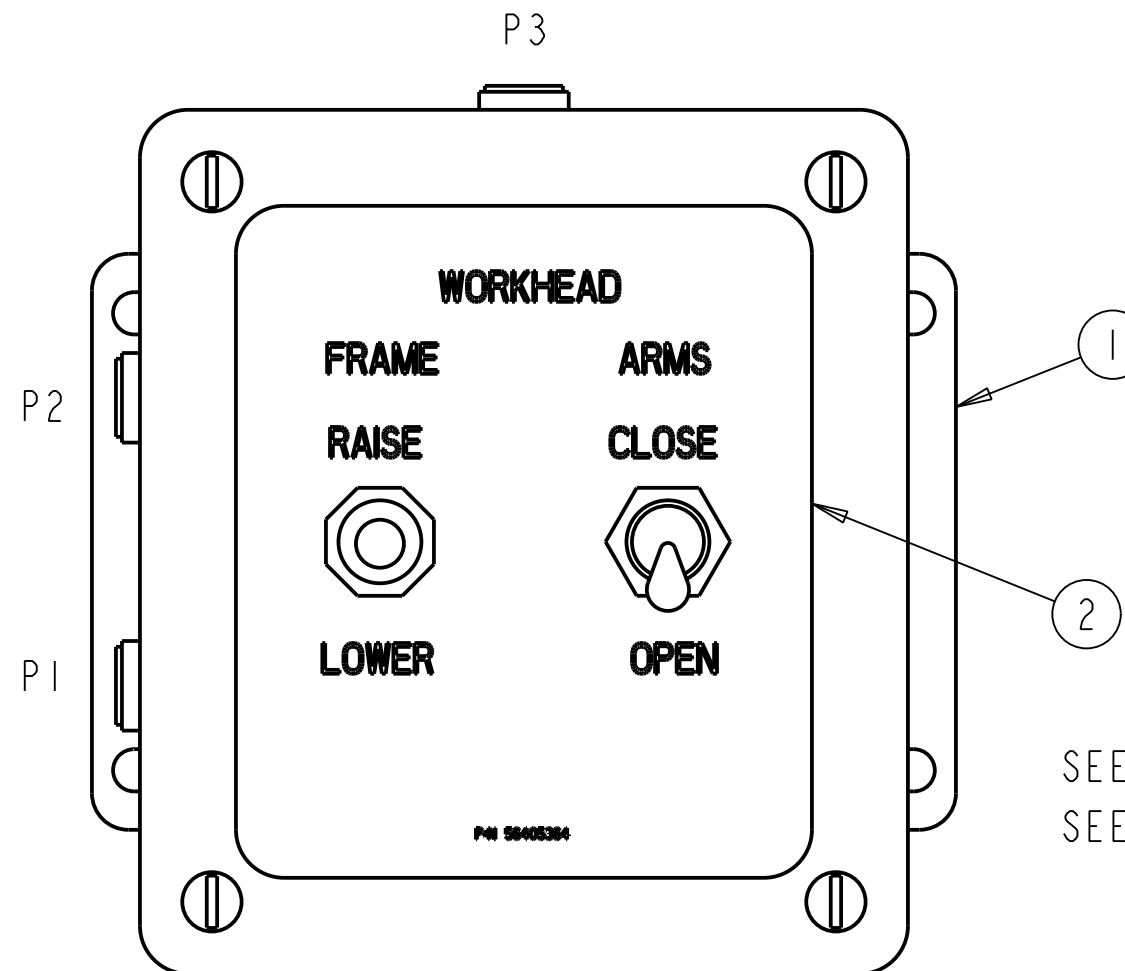
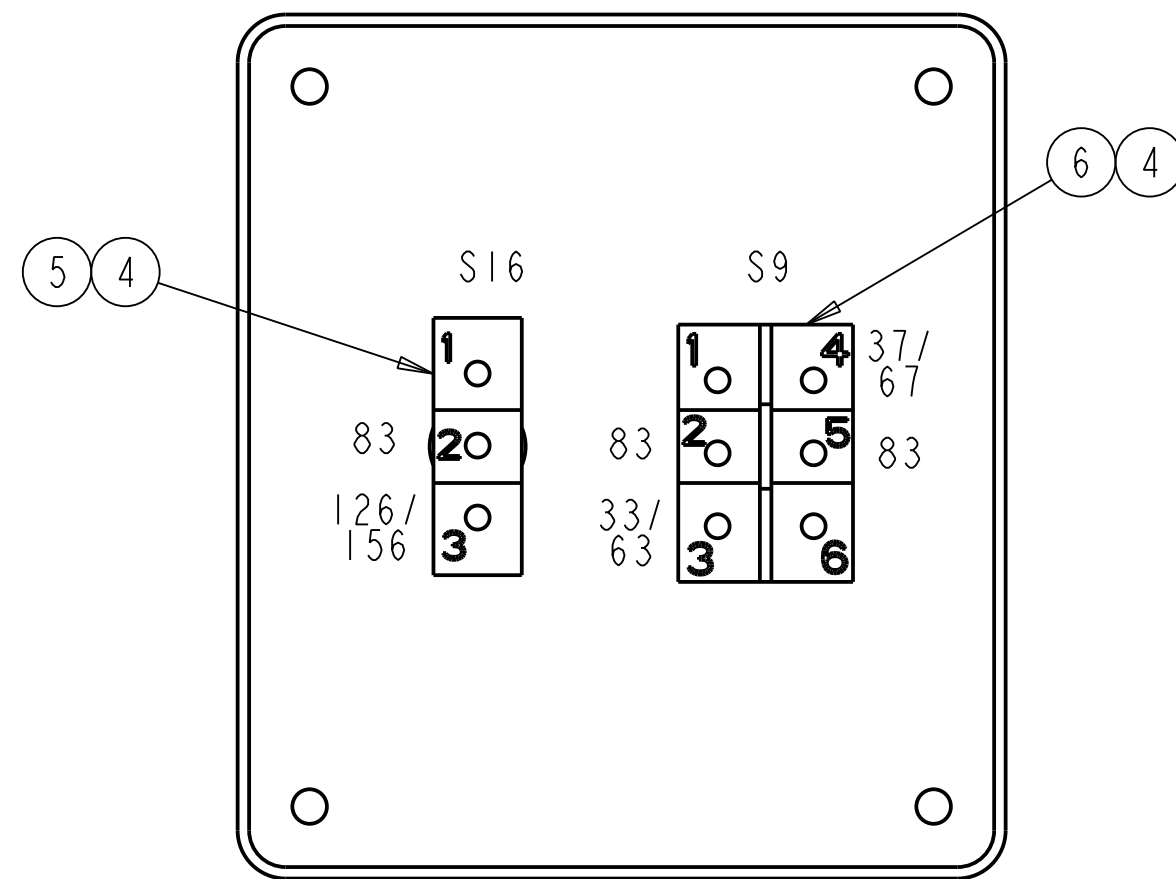
SHEET NO. 1/1

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SURFACE PREPARATION:
WELD SLAG AND SPATTER TO BE REMOVED. ENTIRE UNIT THEN CLEANED AND APPROPRIATELY PRIME-PAINTED ONE COAT.

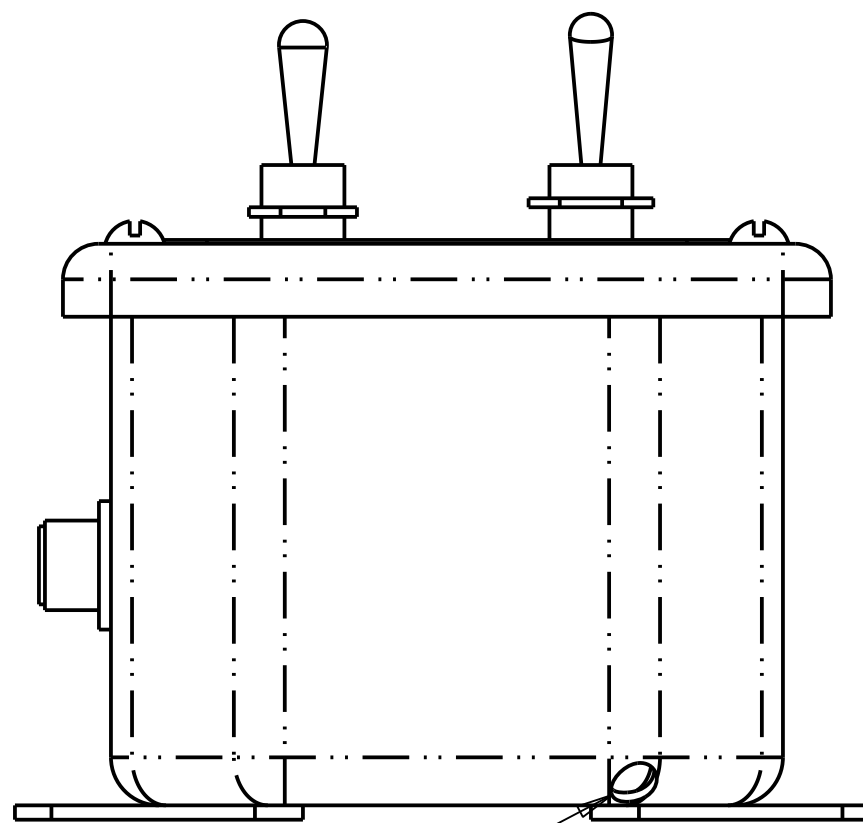
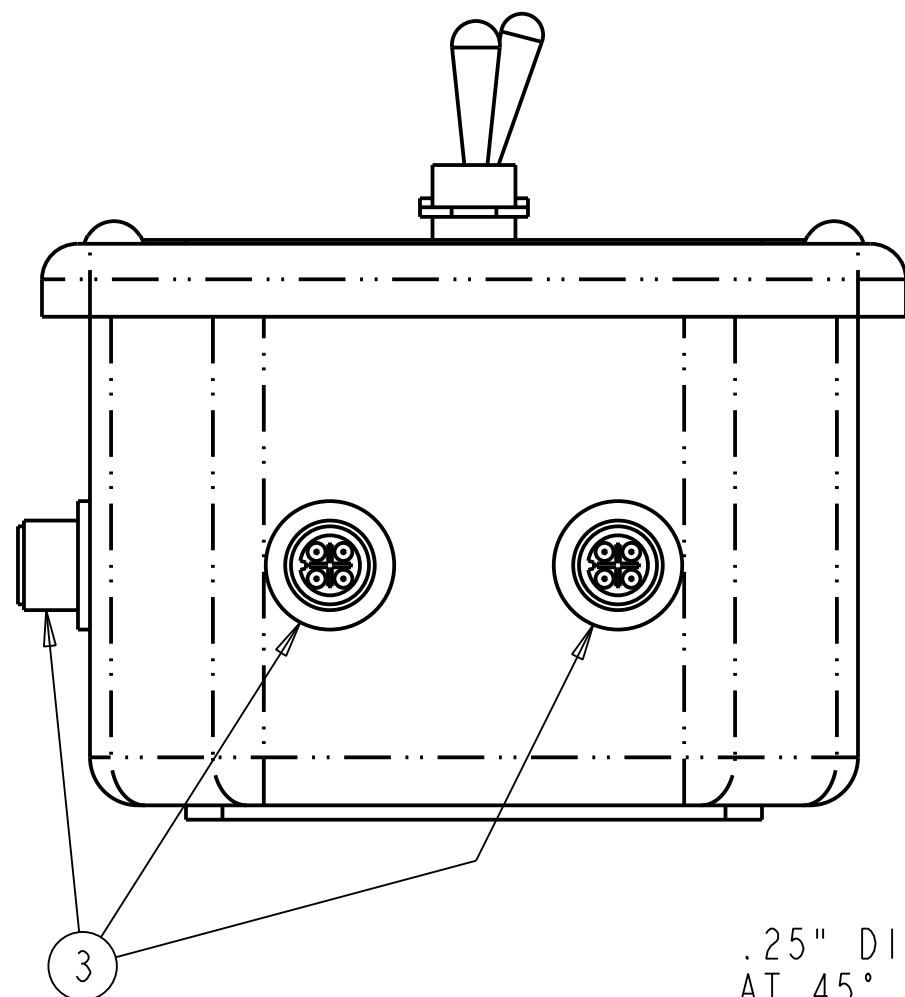
LIST OF MATERIALS

ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	D T L	PART NAME	DWG SIZE
1	20292591	1		BOX, REMOTE SWITC	
2	56405364	1		PLAQUE, REMOTE BC	
3	5120797	3		RECEPTACLE, MICROF	
4	5164299	6		TERMINAL, RING,	
5	5125592	1		TOGGLE SWITCH, CF	
6	5125588	1		TOGGLE SWITCH, CF	



WIRE #	END 1 LOCATION	END 2 LOCATION	DESCRIPTION
33/63	P9@3	P2@4	BLACK
37/67	S9@4	P1@4	BLACK
83	S9@2	P2@1	BROWN
83	S9@5	P1@1	BROWN
126/156	S16@3	P3@4	BLACK
83	S16@2	P3@1	BROWN

SEE NOTE 1
SEE NOTE 1
SEE NOTE 1



.25" DIA. DRAIN HOLES. DRILL AT 45° FROM INSIDE SO THAT HOLE BREAK THROUGH PARTIALLY ON BOTTOM AND PARTIALLY ON SIDE.

NOTES:

1. LABEL WIRES WITH NUMBERS CLOSE TO TERMINAL RINGS. NUMBERS SHOWN ARE FOR RIGHT AND LEFT BOXES.
2. PRIME AND FINISH PAINT GLOSS BLACK.
3. CONNECTORS COME W/ WIRES, USE FULL WIRE LENGTH.
4. SIMILAR TO NORDCO P/N 31440026.

CUSTOMARY: ALL DIMENSIONS IN INCHES	NORDCO		THIRD ANGLE PROJECTION
	PRODUCT: NSCA		
IMPLIED TOLERANCES	DESCRIPTION: BOX, WORKHEAD REMOTE SWITCHES		
FRACTION	± 1/8	SIZE	SCALE
.X	± .06	C	1.000
.XX	± .03	DRAWING CODE NUMBER	
.XXX	± .010	31440086	
MACHINE FINISH UNLESS OTHERWISE STATED		PLANE ANGLES +/- 1°	REV.
ASSEMBLY: -		SHEET 1 OF 1	

NEW ISSUE	PJP		
30-Sep-08			
REV	CHANGE	DATE:	CHECKED BY: DATE:
		DATE:	E.C.O. #

NORDCO STANDARD CABLES - QUICK REFERENCE

22311600-XXX

MALE PLUG, 90° M12x1 THREAD

1 - NO CONNECTION
2 - NO CONNECTION
3 - BLUE (NEGATIVE)
4 - BROWN (LOAD)
5 - GREEN/YELLOW (GROUND)

20 GA. 3 WIRE

DIN PLUG WITH GROUNDED TERMINALS, DIODE SUPPRESSION, AND LED.

1 - BROWN (LOAD)
2 - BLUE (NEGATIVE)

22311616-XXX

PACKARD (2) PORT MALE TOWER, WITH SOCKET TERMINALS AND SEALS.

A - BLUE - GROUND (WIRE #2)
B - BLACK - N.O. SIGNAL

18 GA. 4 WIRE

MALE PLUG, 90° M12x1 THREAD

1 - BROWN (NO CONNECTION)
2 - WHITE (NO CONNECTION)
3 - BLUE (GROUND)
4 - BLACK (N.O. SIGNAL)

22311601-XXX

MALE PLUG, 90° M12x1 THREAD

1 - BROWN (POWER)
2 - NO CONNECTION
3 - BLUE (GROUND)
4 - BLACK (LOAD)

22 GA. 3 WIRE

FEMALE PLUG, STRAIGHT M12x1 THREAD

1 - BROWN (POWER)
2 - NO CONNECTION
3 - BLUE (GROUND)
4 - BLACK (LOAD)

22311620-XXX

FEMALE PLUG, STRAIGHT 1-1/8-16 THREAD

1 - ORANGE
2 - BLUE
3 - WHT/BLK
4 - RED/BLK
5 - GREEN/BLK
6 - ORANGE/BLK

16 GA. 12 WIRE

7 - BLUE/BLK
8 - BLACK/WHT
9 - GREEN
10 - RED
11 - WHITE
12 - BLACK

22311602-XXX

MALE PLUG, 90° M12x1 THREAD

1 - BROWN
2 - WHITE
3 - BLUE
4 - BLACK

22 GA. 4 WIRE

FEMALE PLUG, 90° M12x1 THREAD

1 - BROWN (POWER)
2 - NO CONNECTION
3 - BLUE (GROUND)
4 - BLACK (LOAD)

22311621-XXX

6-PIN FEMALE SHROUD

A - WHT/BLK - TO PIN 1
B - BLACK - TO PIN 2
C - WHITE - TO PIN 3
D - GREEN - TO PIN 7
E - RED - TO PIN 4
F - ORANGE - TO PIN 5
NOT USED: BLUE - TO PIN 6

22 GA. 4 WIRE

FEMALE, STRAIGHT, 7-PIN PLUG MINI-STYLE

22311603-XXX

#10 STUD RING TERMINALS 14-18 GA WIRE

BLUE - GROUND (WIRE #2)
BLACK - N.O. SIGNAL

18 GA. 4 WIRE

MALE PLUG, 90° M12x1 THREAD

1 - BROWN (NO CONNECTION)
2 - WHITE (NO CONNECTION)
3 - BLUE (GROUND)
4 - BLACK (N.O. SIGNAL)

CLIP APPLICATOR NSCA MODEL A CABLING

QUICK REFERENCE CHART

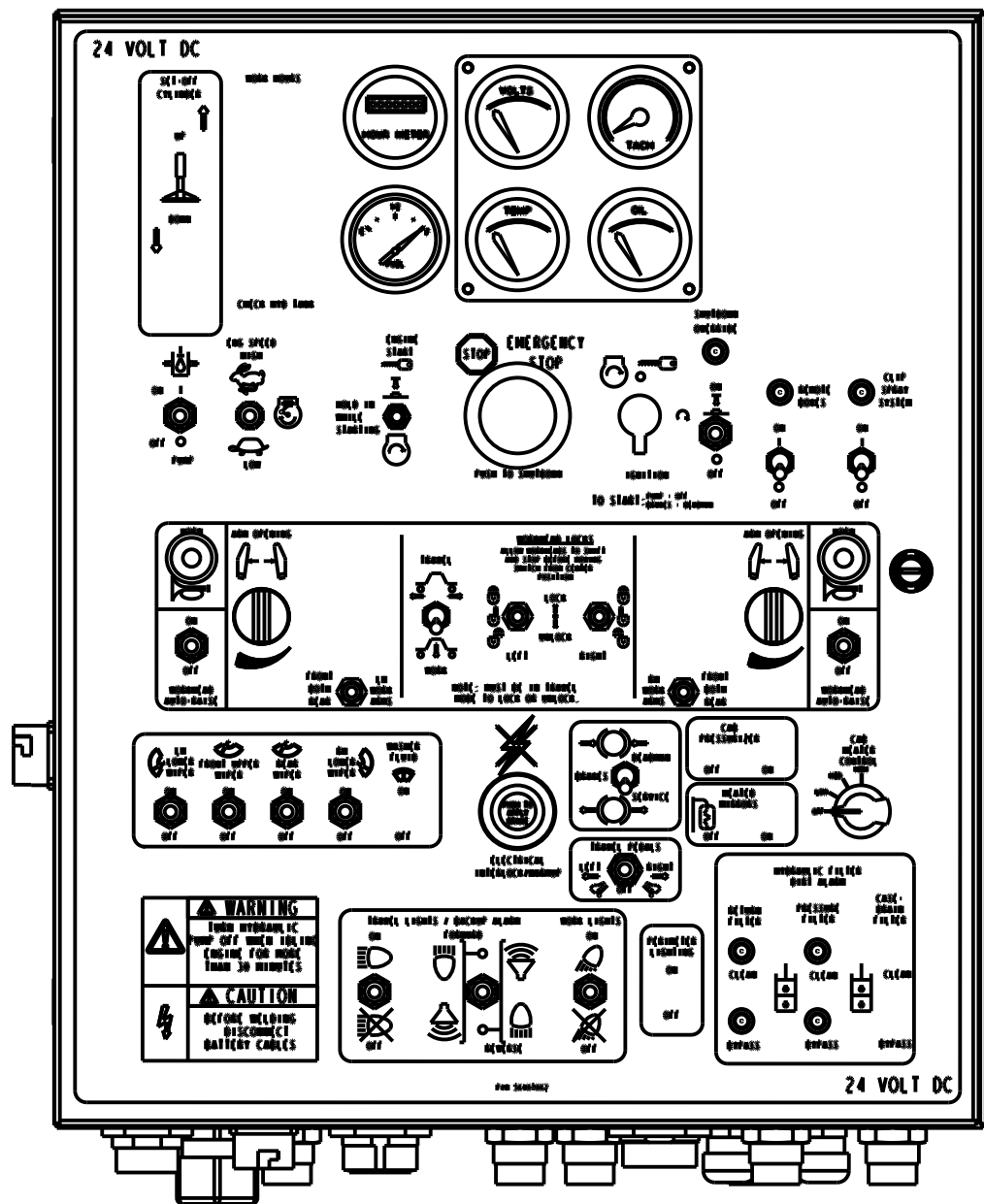
* FLIP CHART REORDER P/N 30602901

NOTES:

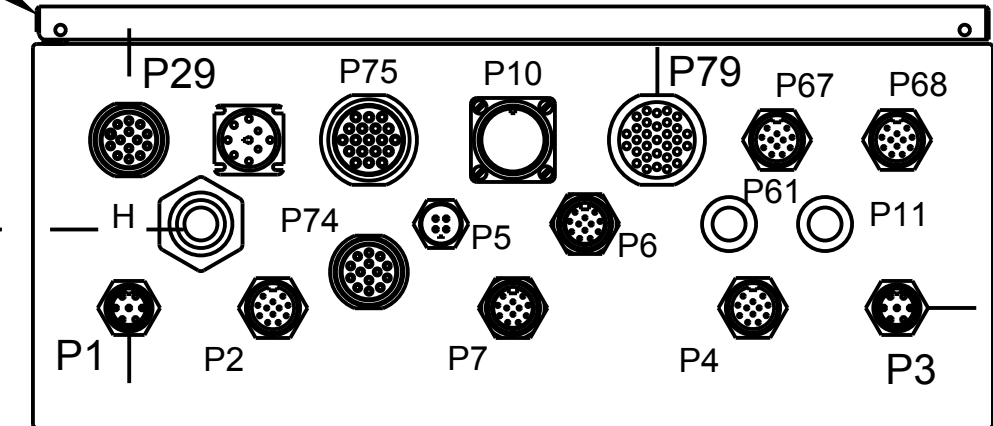
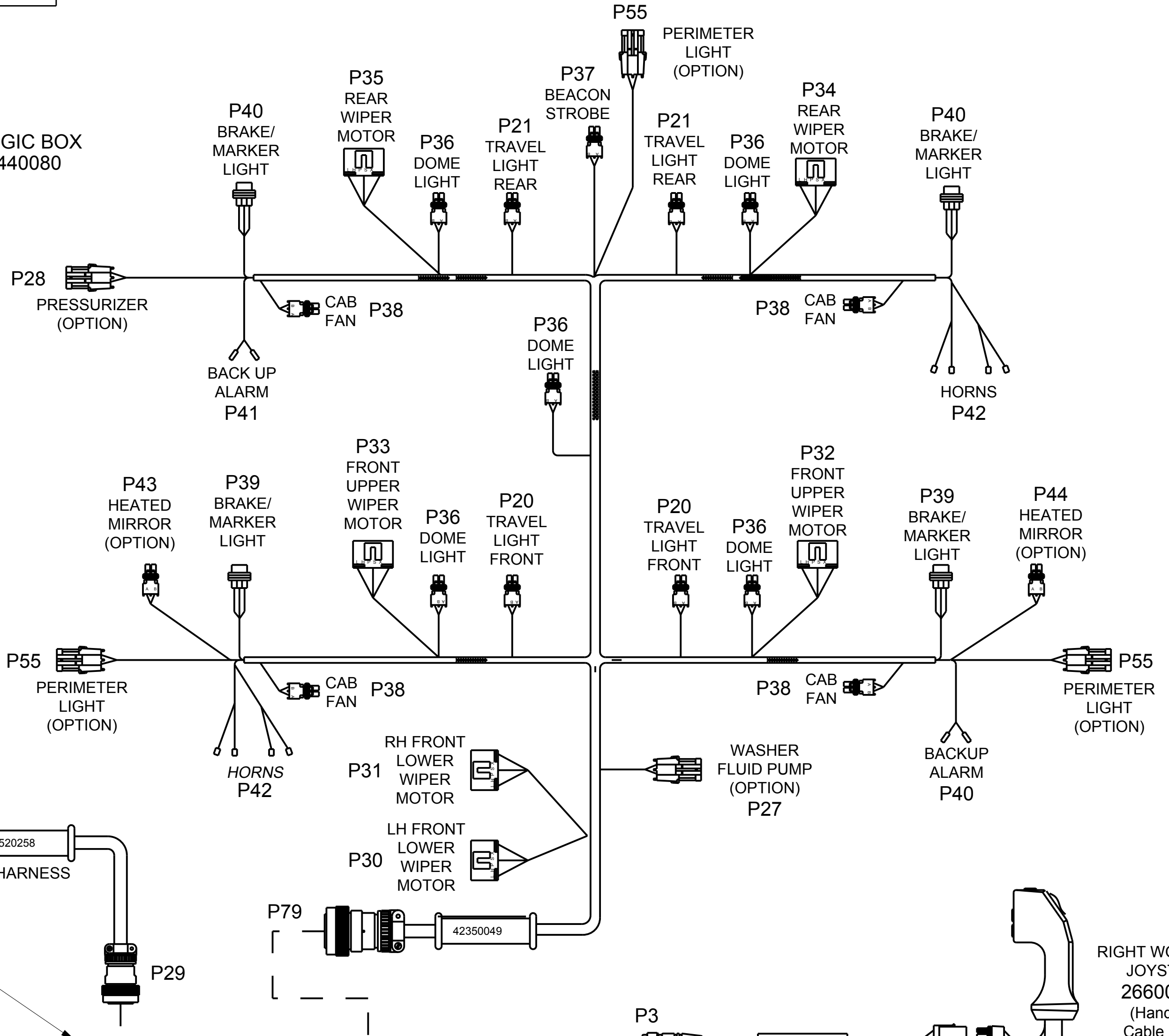
1. -XXX = LENGTH IN INCHES (i.e. 22311600-024 IS A 24" LONG CABLE)

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA			
FRACTION	±	DESCRIPTION: ELECTRICAL CABLING DWG			
.X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
.XX	± .03	C	NTS	97291001	B
.XXX	± .010	ASSEMBLY: -		SHEET 1 OF 8	
MACHINE FINISH UNLESS OTHERWISE STATED		PLANE ANGLES ±1°			

REVISION HISTORY LOCATED ON LAST SHEET

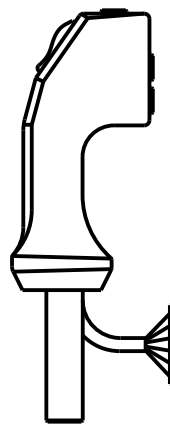


LOGIC BOX
31440080

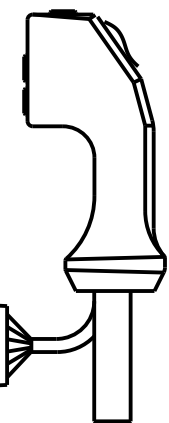


BOTTOM OF LOGIC BOX

LEFT WORKHEAD
JOYSTICK
26600610
(Handle & Cable Only)

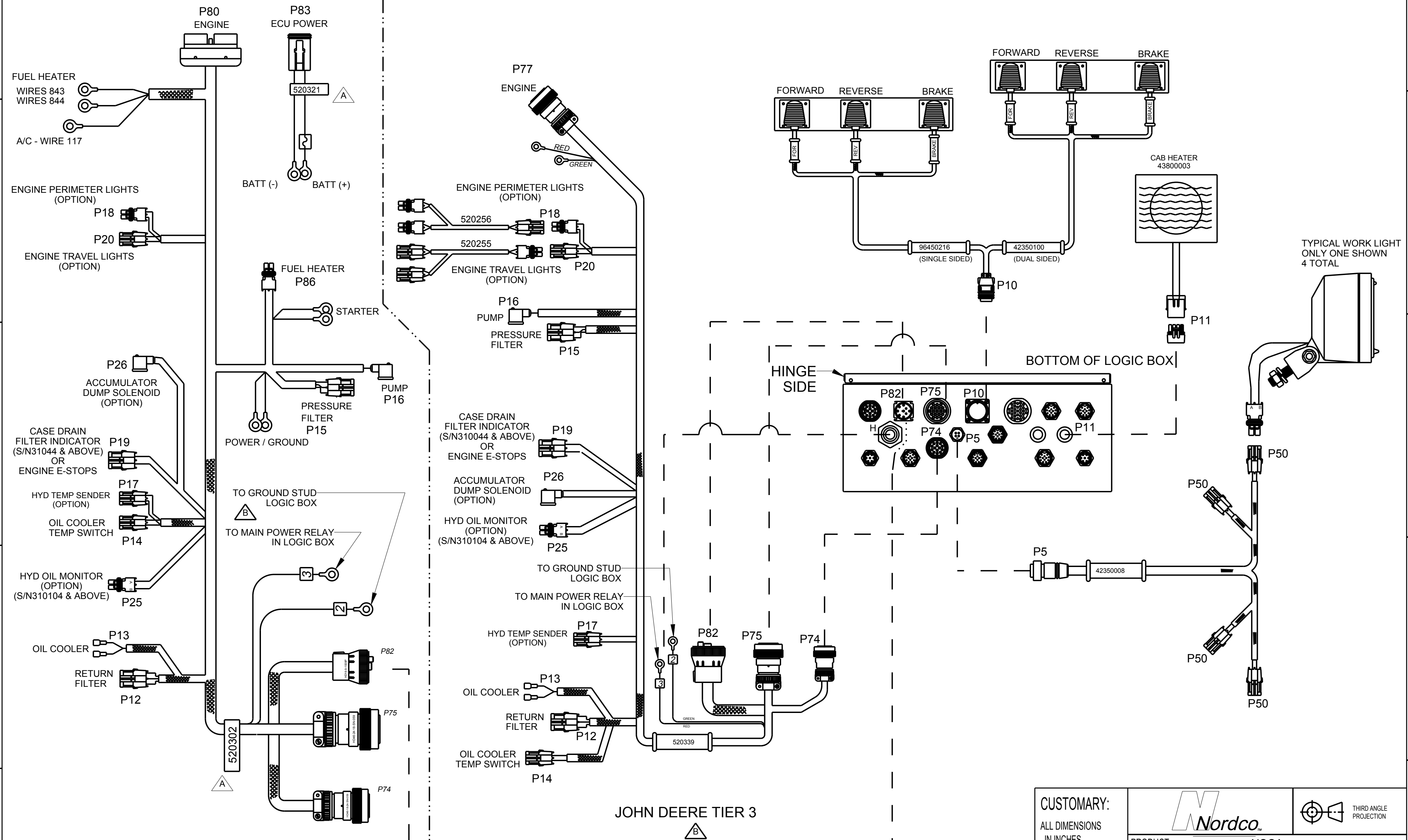


RIGHT WORHEAD
JOYSTICK
26600610
(Handle & Cable Only)



REVISION HISTORY
LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA			
FRACTION	± 1/8	DESCRIPTION: ELECTRICAL CABLING DWG			
.X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
.XX	± .03	C	1/4	97291001	B
.XXX	± .010	ASSEMBLY: -		SHEET 2 OF 8	
MACHINE FINISH UNLESS OTHERWISE STATED		PLANE ANGLES ±1°			

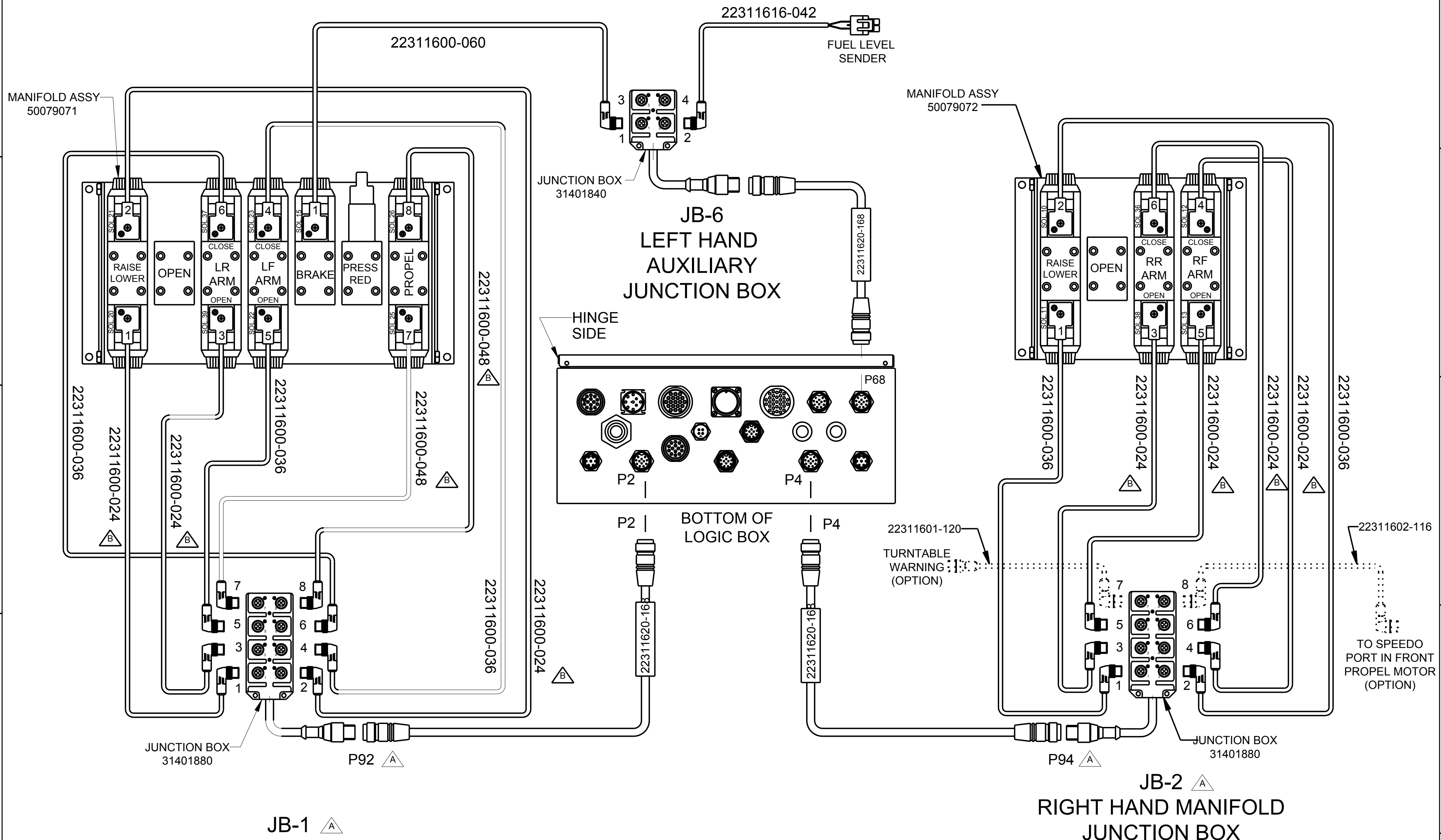


CUMMINS TIER 3 (OPTION)

JOHN DEERE TIER 3

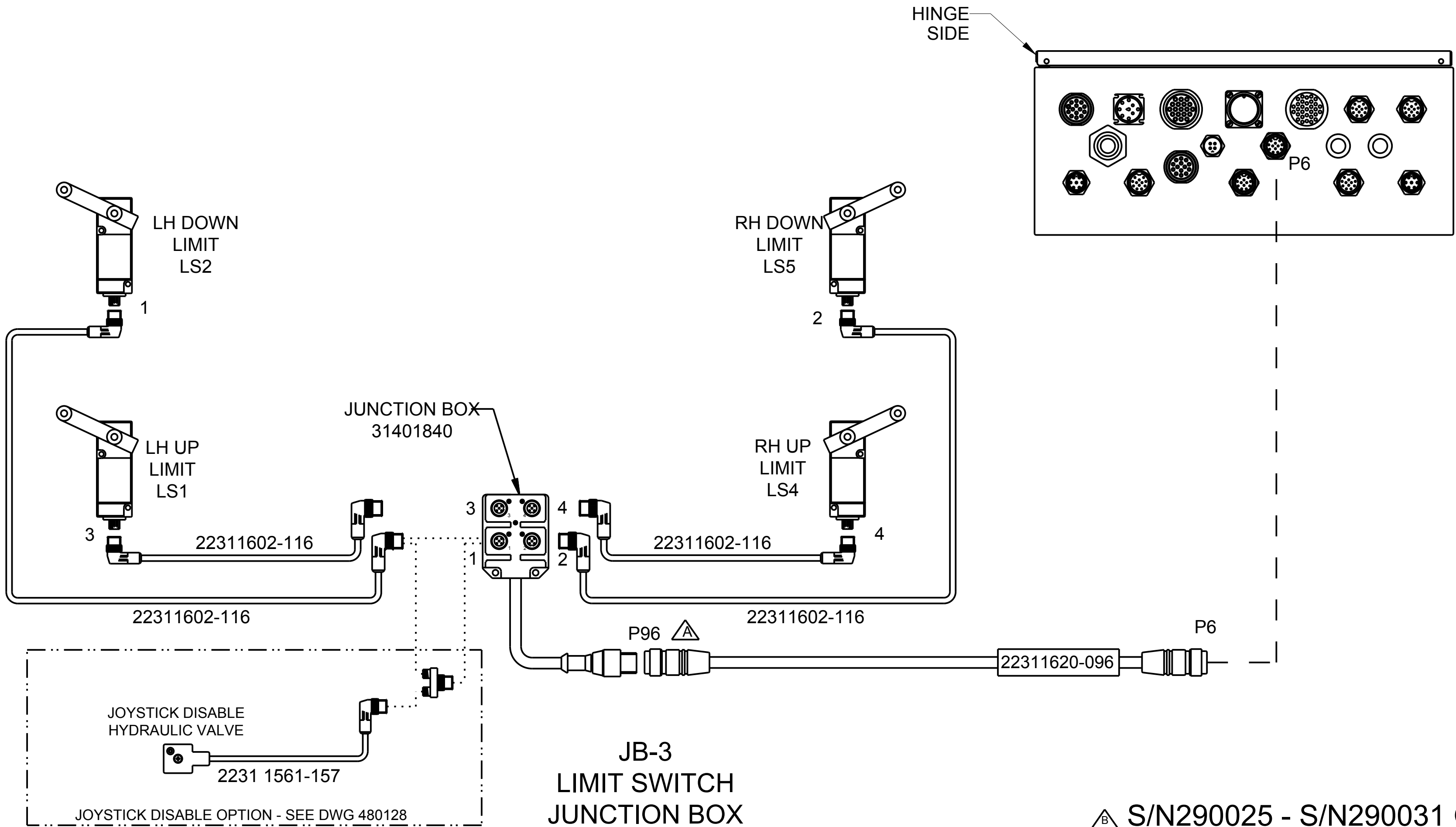
REVISION HISTORY LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA			
DESCRIPTION:		ELECTRICAL CABLING DWG			
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
.X	± .06	C	1/8	97291001	B
.XX	± .03	ASSEMBLY: -		SHEET 3 OF 8	
.XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED					
PLANE ANGLES ±1°					



REVISION HISTORY
LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA			
DESCRIPTION: ELECTRICAL CABLING DWG					
FRACTION	± 1/8	SIZE	SCALE	DRAWING CODE NUMBER	REV.
.X	± .06	C	1/8	97291001	B
.XX	± .03				
.XXX	± .010				
MACHINE FINISH UNLESS OTHERWISE STATED		ASSEMBLY: -			
PLANE ANGLES ±1°		SHEET 4 OF 8			

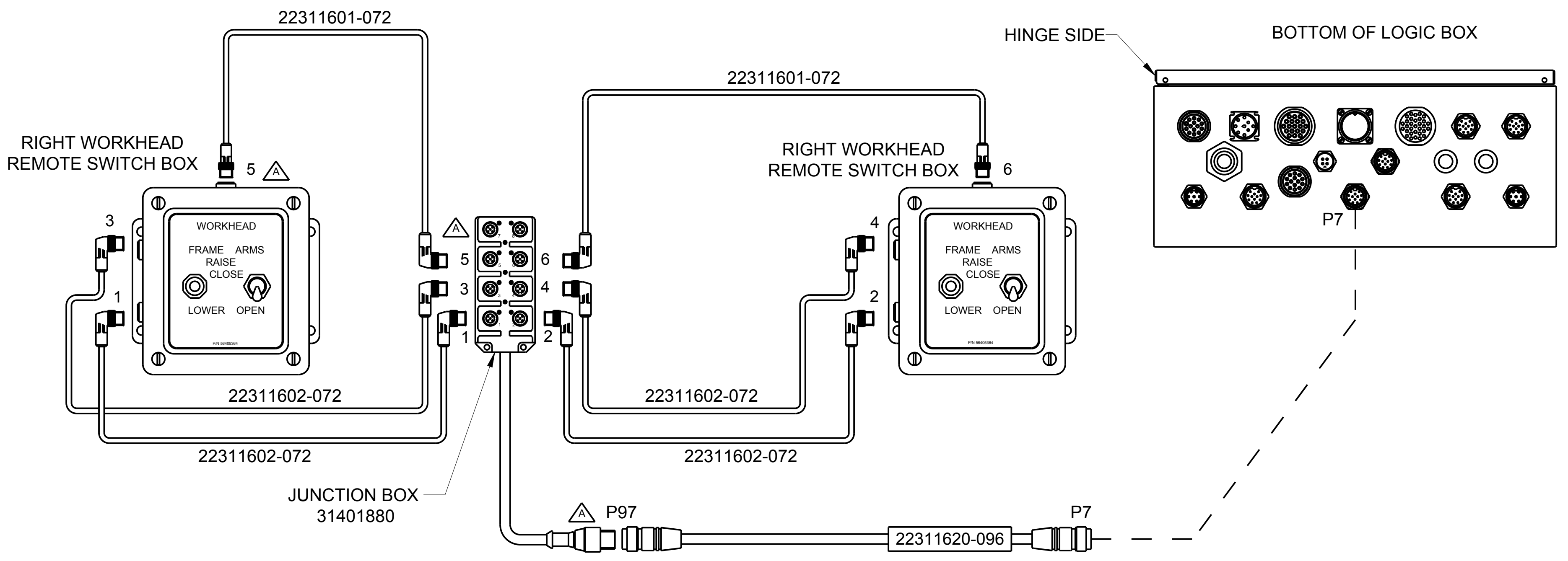


**JB-3
LIMIT SWITCH
JUNCTION BOX
31401880
(ON HYD TANK -
RIGHT)**

△ S/N290025 - S/N290031 ONLY

REVISION HISTORY
LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA			
FRACTION	± 1/8	DESCRIPTION: ELECTRICAL CABLING DWG			
.X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
.XX	± .03	C	1/8	97291001	B
.XXX	± .010	ASSEMBLY: -		SHEET 5 OF 8	
MACHINE FINISH UNLESS OTHERWISE STATED		PLANE ANGLES ±1°			



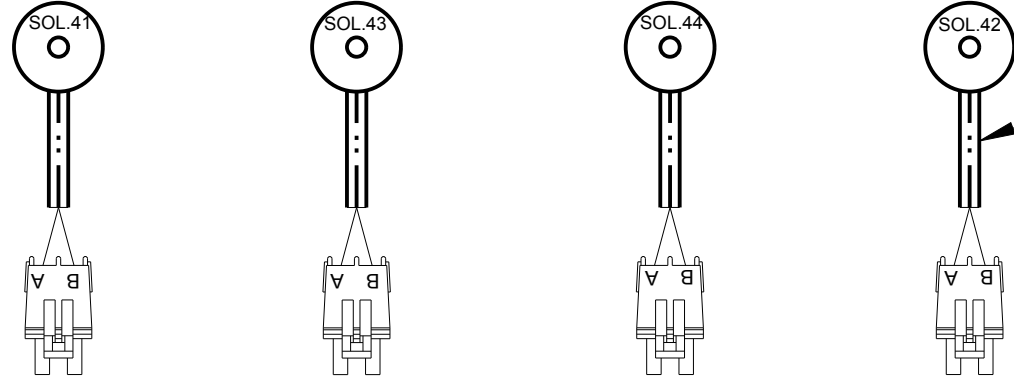
**JB-4
REMOTE WORKHEAD
SWITCHES JUNCTION
BOX
(ON HYD. TANK - LEFT)**

REVISION HISTORY
LOCATED ON LAST SHEET

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: NSCA			
FRACTION	± 1/8	DESCRIPTION: ELECTRICAL CABLING DWG			
.X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
.XX	± .03	C	1/8	97291001	B
.XXX	± .010	ASSEMBLY: -		SHEET 6 OF 8	
MACHINE FINISH UNLESS OTHERWISE STATED		PLANE ANGLES ±1°			

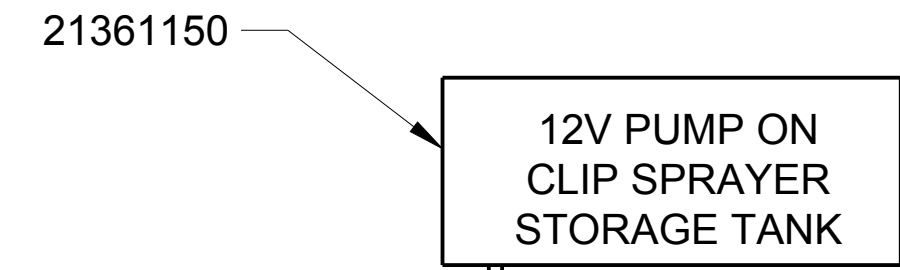
CLIP SPRAY SOLENOIDS

LEFT REAR LEFT FRONT RIGHT FRONT RIGHT REAR

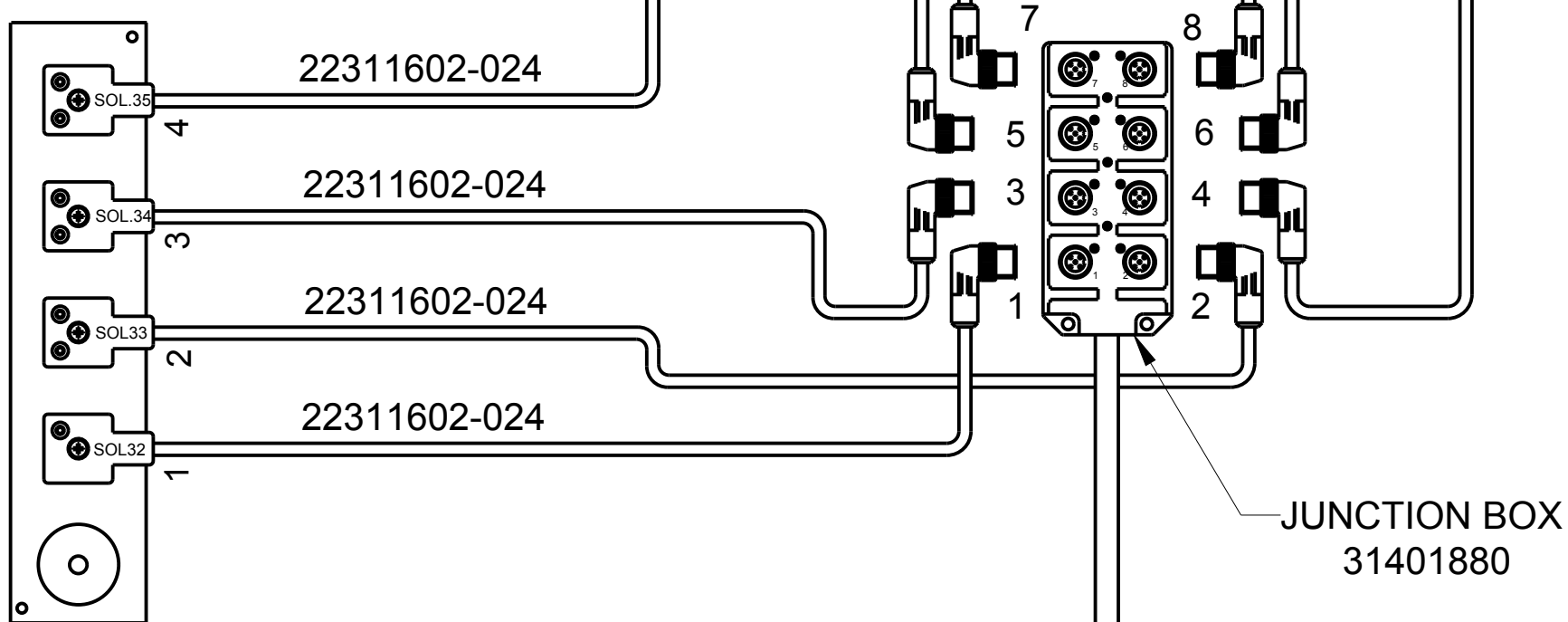
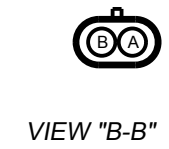


(4x) 1698880 (SOLENOIDS MOUNTED ON WORKHEAD)

(4x) 22311616-120



22311908-160

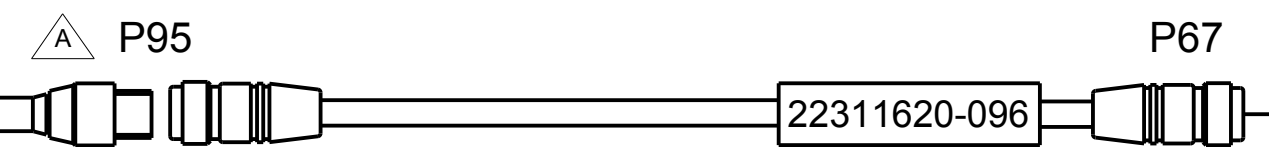
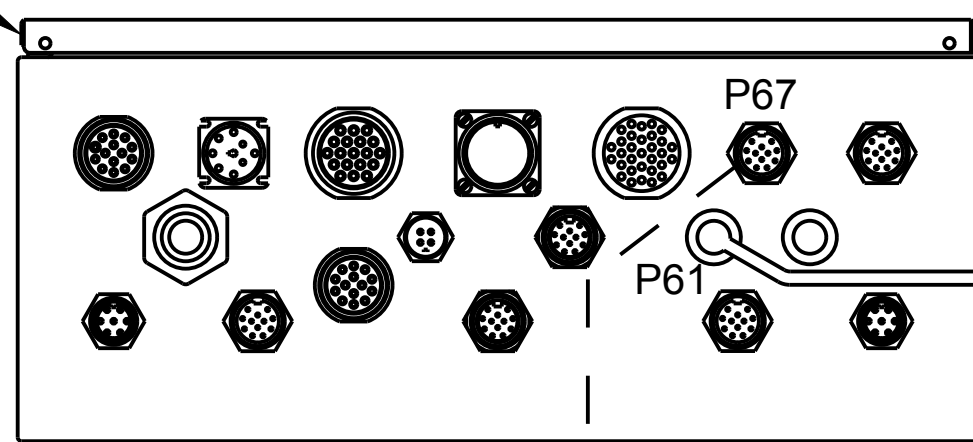


JB-5
LOCKUP
MANIFOLD
SPRAY
SOLINIODS
JUNCTION BOX
(ON LIFT MAST)

JUNCTION BOX 31401880

HINGE SIDE

BOTTOM OF LOGIC BOX






CUSTOMARY: ALL DIMENSIONS IN INCHES				THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES		PRODUCT: NSCA			
FRACTION	± 1/8	DESCRIPTION: ELECTRICAL CABLING DWG			
.X	± .06	SIZE	SCALE	DRAWING CODE NUMBER	REV.
.XX	± .03	C	1/8	97291001	B
.XXX	± .010	ASSEMBLY: -		SHEET 7 OF 8	
MACHINE FINISH UNLESS OTHERWISE STATED		PLANE ANGLES ±1°			

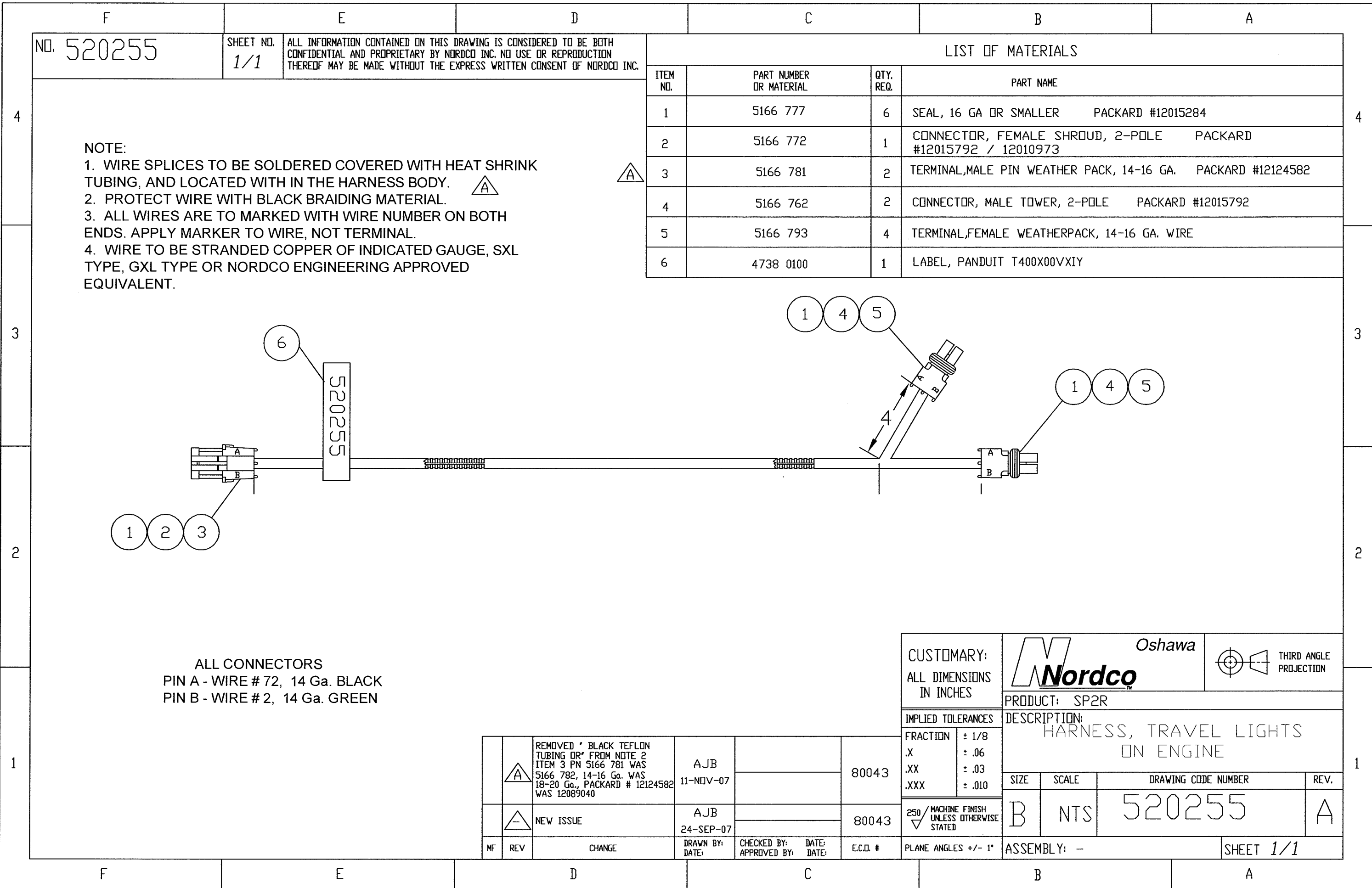
REVISION HISTORY
LOCATED ON LAST SHEET

ECO	NONE	REV -
DRAWN BY:	CHECKED BY:	APPROVED BY:
PJP 10/23/2008		
SHEET	CHANGE	
ALL	PRODUCTION LEVEL	

ECO	80088	REV A
DRAWN BY:	CHECKED BY:	APPROVED BY:
JWW 23JAN09	CP 26JAN09	SCR 30JAN09
SHEET	CHANGE	
1	ADDED THIS SHEET.	
2	-120 WAS -090	
3	UPDATED HARNESS 520302. ADDED HARNESS 520321.	
4	CORRECTED PORT NUMBERS FOR JB1 AND JB2. ADDED P92 AND P94 LABELS. JB1 WAS JB2, JB2 WAS JB1. MOVED 7-STATION MAIFOLD TO LHS OF MACHINE. MOVED 4-STATION MANIFOLD TO RHS OF MACHINE. CHANGED JB CABLES ACCORDINGLY.	
5	ADDED P96 LABEL.	
6	ADDED P97 LABEL. PORT 5 WAS LABELED PORT 7.	
7	ADDED P95 LABEL.	

ECO	601182	REV B
DRAWN BY:	CHECKED BY:	APPROVED BY:
DLH 12-DEC-13		
SHEET	CHANGE	
3	ADDED NOTES FOR WIRES 2&3 ON CUMMINS ENGINE HARNESS. CHANGED JD ENGINE HARNESS FROM TIER 2 TO TIER 3.	
4	REDUCED DIN CABLES LABELED BY 12" EACH	
5	ADDED S/N NOTE.	

CUSTOMARY: ALL DIMENSIONS IN INCHES			
	PRODUCT: NSCA		
IMPLIED TOLERANCES	DESCRIPTION: ELECTRICAL CABLING DWG		
FRACTION	± 1/8	SIZE	SCALE
.X	± .06	DRAWING CODE NUMBER	REV.
.XX	± .03	97291001	B
.XXX	± .010		
	MACHINE FINISH UNLESS OTHERWISE STATED	C NTS	8
PLANE ANGLES ±1°	ASSEMBLY: -	SHEET 8 OF 8	





NO. 520255

SHEET NO. 1/1



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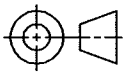
LIST OF MATERIALS

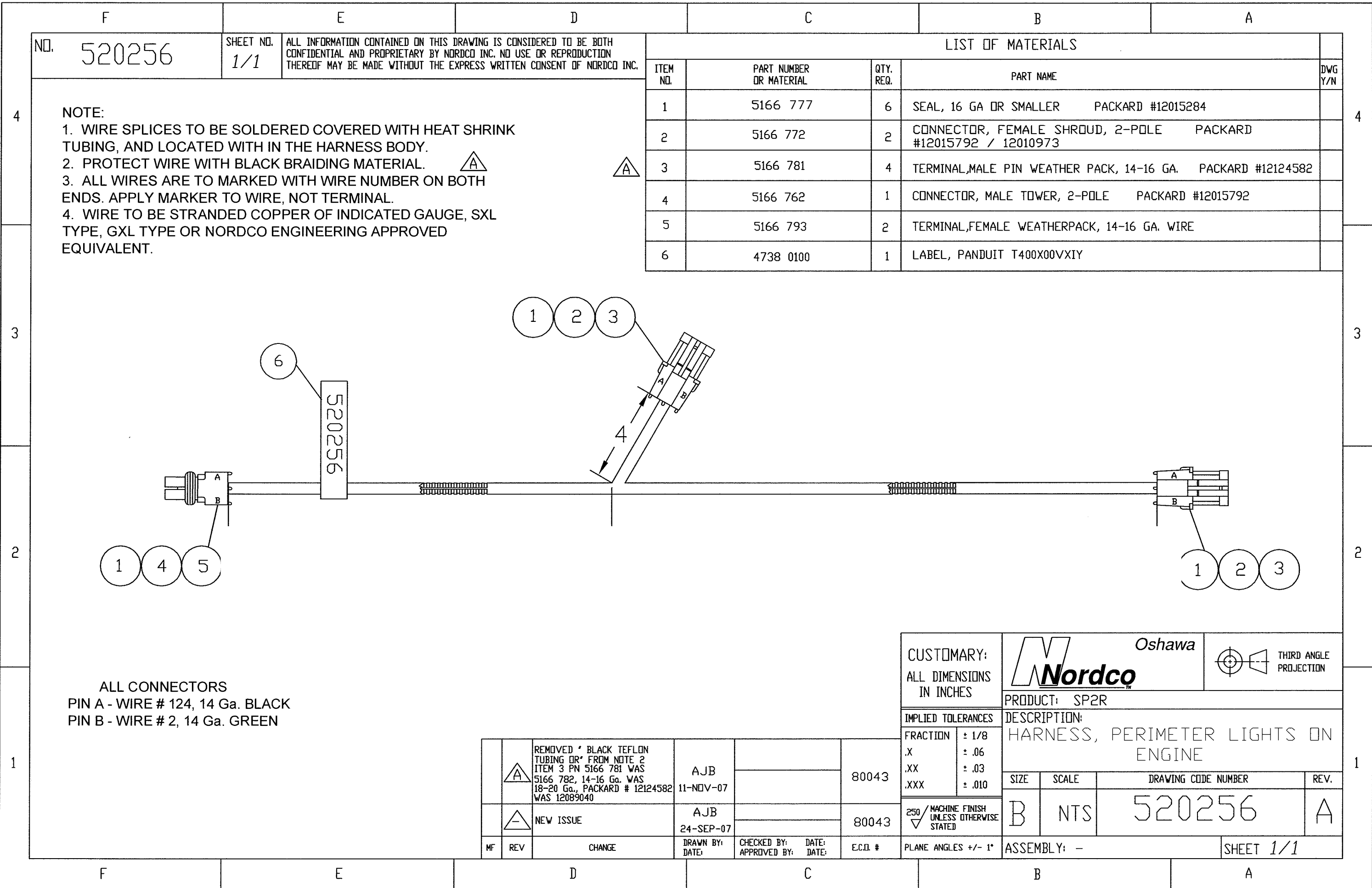
ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME
1	5166 777	6	SEAL, 16 GA OR SMALLER PACKARD #12015284
2	5166 772	1	CONNECTOR, FEMALE SHROUD, 2-POLE PACKARD #12015792 / 12010973
3	5166 781	2	TERMINAL, MALE PIN WEATHER PACK, 14-16 GA. PACKARD #12124582
4	5166 762	2	CONNECTOR, MALE TOWER, 2-POLE PACKARD #12015792
5	5166 793	4	TERMINAL, FEMALE WEATHERPACK, 14-16 GA. WIRE
6	4738 0100	1	LABEL, PANDUIT T400X00VXIY

NOTE:
 1. WIRE SPLICES TO BE SOLDERED COVERED WITH HEAT SHRINK TUBING, AND LOCATED WITH IN THE HARNESS BODY. 
 2. PROTECT WIRE WITH BLACK BRAIDING MATERIAL. 
 3. ALL WIRES ARE TO MARKED WITH WIRE NUMBER ON BOTH ENDS. APPLY MARKER TO WIRE, NOT TERMINAL.
 4. WIRE TO BE STRANDED COPPER OF INDICATED GAUGE, SXL TYPE, GXL TYPE OR NORDCO ENGINEERING APPROVED EQUIVALENT.

ALL CONNECTORS
 PIN A - WIRE # 72, 14 Ga. BLACK
 PIN B - WIRE # 2, 14 Ga. GREEN

MF	REV	CHANGE	DRAWN BY: DATE:	CHECKED BY: APPROVED BY:	DATE: DATE:	E.C.D. #	 REMOVED * BLACK TEFLON TUBING OR * FROM NOTE 2 ITEM 3 PN 5166 781 WAS 5166 782, 14-16 Ga. WAS 18-20 Ga., PACKARD # 12124582 WAS 12089040 A J B 11-NOV-07 80043
							 NEW ISSUE A J B 24-SEP-07 80043

CUSTOMARY: ALL DIMENSIONS IN INCHES	 Oshawa  THIRD ANGLE PROJECTION	
IMPLIED TOLERANCES	PRODUCT: SP2R	
FRACTION ± 1/8 .X ± .06 .XX ± .03 .XXX ± .010	DESCRIPTION: HARNESS, TRAVEL LIGHTS ON ENGINE	
250 / MACHINE FINISH UNLESS OTHERWISE STATED	SIZE	SCALE
PLANE ANGLES +/- 1°	B	NTS
	DRAWING CODE NUMBER	
	520255	
	ASSEMBLY: -	REV. A
	SHEET 1/1	



NO. 520256

SHEET NO. 1/1

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LIST OF MATERIALS

ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	DWG Y/N
1	5166 777	6	SEAL, 16 GA OR SMALLER PACKARD #12015284	
2	5166 772	2	CONNECTOR, FEMALE SHROUD, 2-POLE PACKARD #12015792 / 12010973	
3	5166 781	4	TERMINAL, MALE PIN WEATHER PACK, 14-16 GA. PACKARD #12124582	
4	5166 762	1	CONNECTOR, MALE TOWER, 2-POLE PACKARD #12015792	
5	5166 793	2	TERMINAL, FEMALE WEATHERPACK, 14-16 GA. WIRE	
6	4738 0100	1	LABEL, PANDUIT T400X00VXIY	

NOTE:
 1. WIRE SPLICES TO BE SOLDERED COVERED WITH HEAT SHRINK TUBING, AND LOCATED WITH IN THE HARNESS BODY.
 2. PROTECT WIRE WITH BLACK BRAIDING MATERIAL. **A**
 3. ALL WIRES ARE TO MARKED WITH WIRE NUMBER ON BOTH ENDS. APPLY MARKER TO WIRE, NOT TERMINAL.
 4. WIRE TO BE STRANDED COPPER OF INDICATED GAUGE, SXL TYPE, GXL TYPE OR NORDCO ENGINEERING APPROVED EQUIVALENT.

ALL CONNECTORS
 PIN A - WIRE # 124, 14 Ga. BLACK
 PIN B - WIRE # 2, 14 Ga. GREEN

A	REMOVED * BLACK TEFLON TUBING OR* FROM NOTE 2 ITEM 3 PN 5166 781 WAS 5166 782, 14-16 Ga. WAS 18-20 Ga., PACKARD # 12124582 WAS 12089040	AJB	11-NOV-07	80043
-	NEW ISSUE	AJB	24-SEP-07	80043
MF	REV	CHANGE	DRAWN BY: DATE:	CHECKED BY: DATE:

CUSTOMARY: ALL DIMENSIONS IN INCHES	Nordco Oshawa		THIRD ANGLE PROJECTION
IMPLIED TOLERANCES	PRODUCT: SP2R		
FRACTION ± 1/8 .X ± .06 .XX ± .03 .XXX ± .010	DESCRIPTION: HARNESS, PERIMETER LIGHTS ON ENGINE		
250/ MACHINE FINISH UNLESS OTHERWISE STATED	SIZE	SCALE	DRAWING CODE NUMBER
PLANE ANGLES +/- 1°	B	NTS	520256
ASSEMBLY: -	SHEET 1/1		REV. A

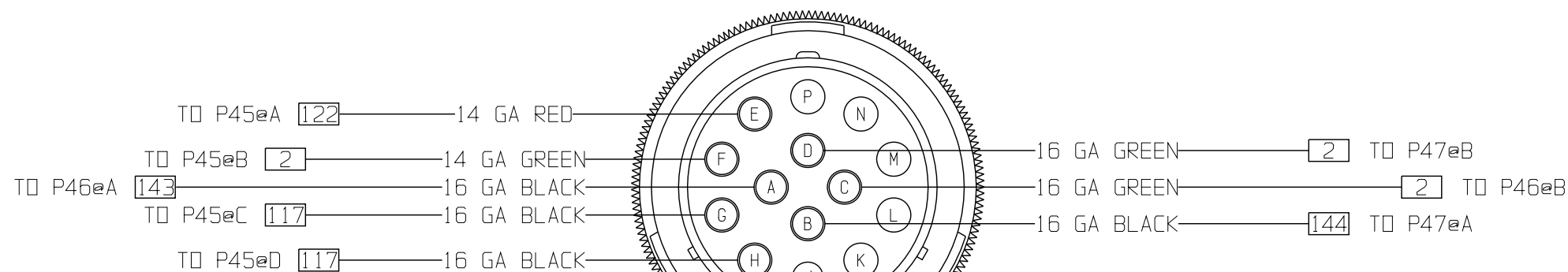
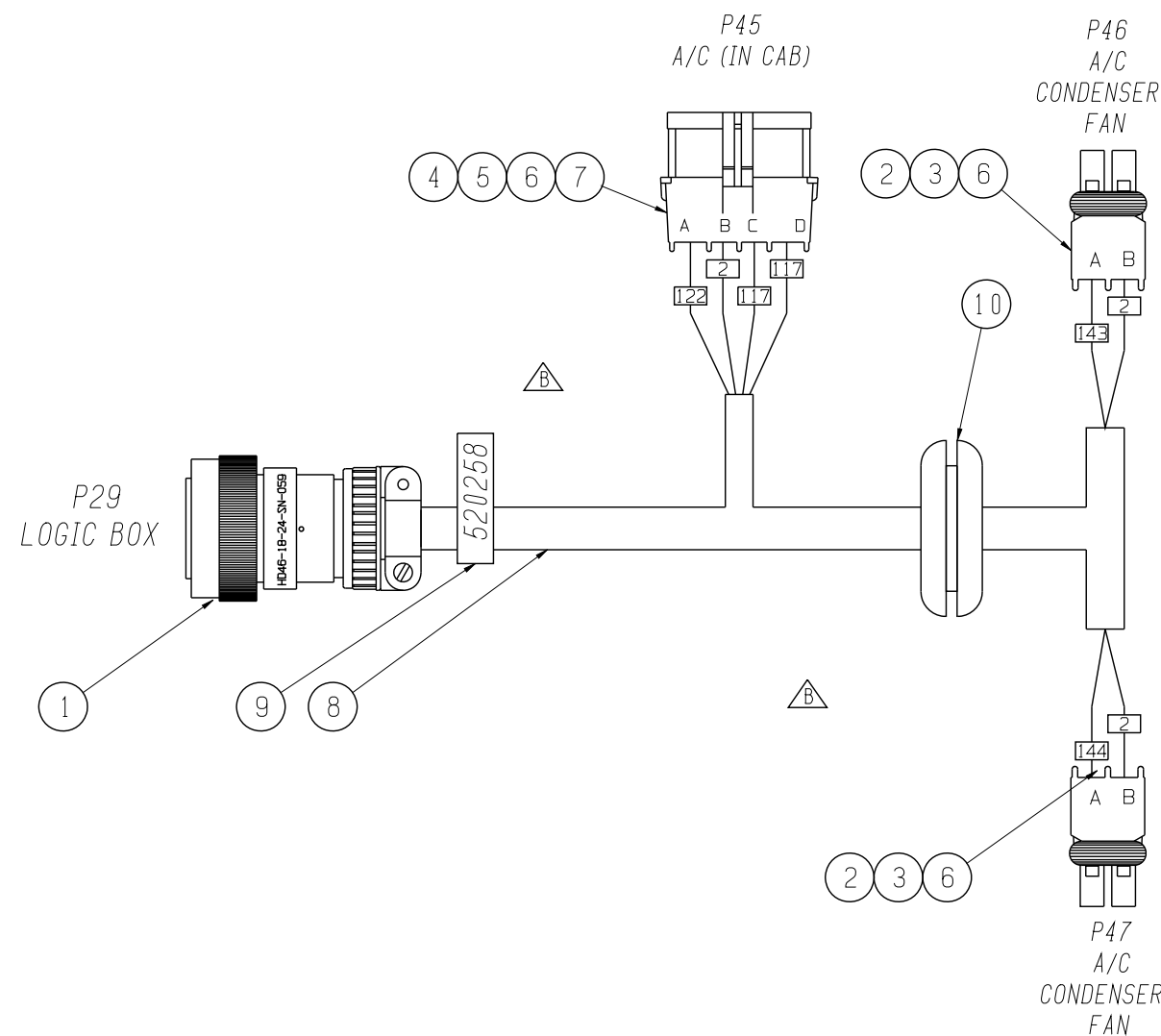
NO. 520258

SHEET NO. 1/1

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LIST OF MATERIALS

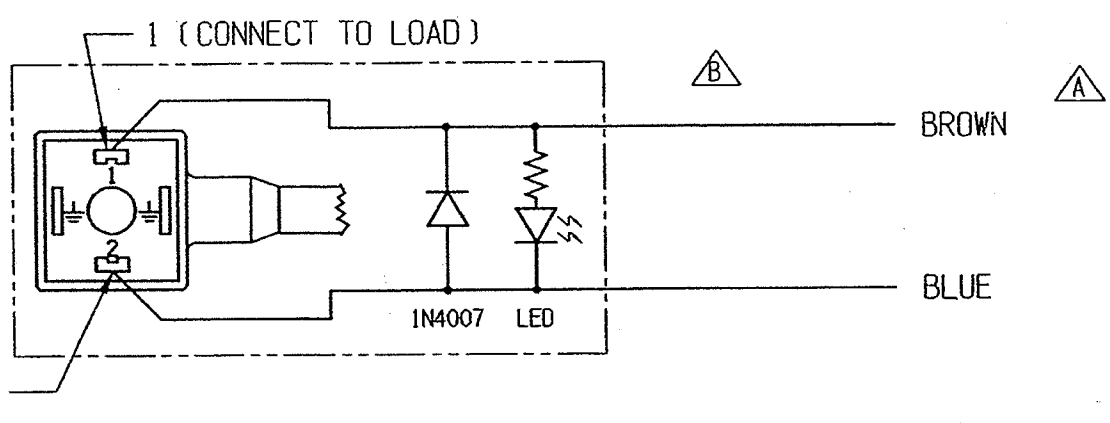
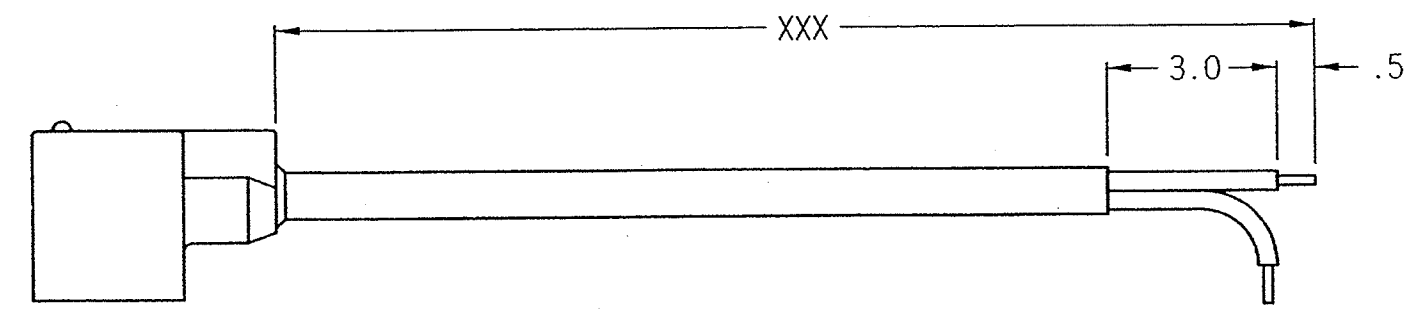
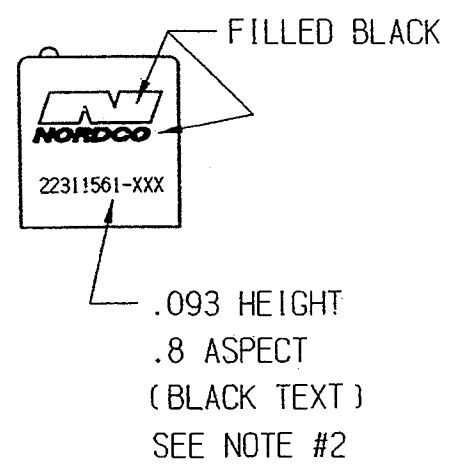
ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME	DWG Y/N
1	520131	1	CONNECTOR	
2	5166 793	4	SLEEVE	
3	5166 762	2	CONNECTOR	
4	5166 781	4	TERMINAL	
5	5166 774	1	CONNECTOR, FOUR WAY	
6	5166 777	6	SEAL, 16 GA OR SMALLER	
7	5166 778	2	SEAL, 14 GA OR LARGER	
8	-	AR	BLACK BRADING MATERIAL	
9	4738 0100	1	LABEL	
10	620119	1	GROMMET	



OUTSIDE VIEW
PLUG P29

CUSTOMARY: ALL DIMENSIONS IN INCHES	Oshawa Nordco	THIRD ANGLE PROJECTION
IMPLIED TOLERANCES		PRODUCT: SP2R
FRACTION : 1/8 .X : .06 .XX : .03 .XXX : .010		DESCRIPTION: HARNES, AIR CONDITIONING
SIZE	SCALE	DRAWING CODE NUMBER
C	NTS	520258
ASSEMBLY: -		REV. B
SHEET 1/1		

180 WAS 100. 196 WAS 116.	JWW	12-DEC-07	NONE
ITEM 2 6166 793 WAS 6166 783 ITEM 4 6166 781 WAS 6166 782	AJB	24-OCT-07	NONE
NEW ISSUE	JWW	24-OCT-07	80029
MF REV	CHANGE	DRAWN BY: DATE:	CHECKED BY: DATE:
		E.C.O. #	PLANE ANGLES +/- 1 °



NOTE:

1. CORDSET WITH GREY DIN PLUG, OIL RESISTANT GREY PUR JACKET CABLE, GROUNDED TERMINALS, IN4007 SUPPRESSION DIODE AND L.E.D.
2. "XXX" IN CABLE PART NO. INDICATES SPECIFIC LENGTH, IN INCHES OF INDIVIDUAL CABLES. DIN CONNECTOR HEAD IS TO BE MARKED WITH THIS COMPLETE PART NO. (EXAMPLE: 22311561-048 IS A CABLE ASSEMBLY 48" IN LENGTH)
3. CABLES ARE DEFINED BY THIS DOCUMENT & HAVE NO INDIVIDUAL DRAWINGS. PART NO. INDICATES GENERAL CABLE CONFIGURATION WITH INCLUDED LENGTH.

(REF: 2231 1550) (REF: TURCK #VAS22-F669-*M)

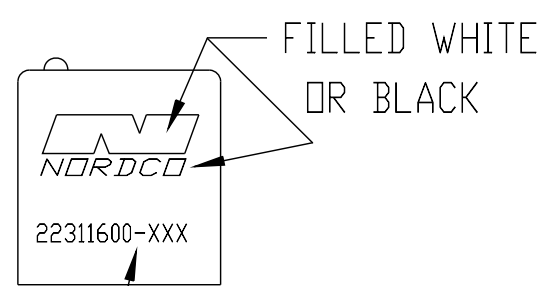
CUSTOMARY: ALL DIMENSIONS IN INCHES	Equipment DRAWN: GDS CHECKED: JLE 9-7-2000 DATE: 12-15-99 APPROVED: RMB 9-22-00	
	IMPLIED TOLERANCES Finished Dimensions DECIMAL INCH .X = .1 .XX = .06 .XXX = .010	
PRODUCT: MODEL 99C DESCRIPTION: <h3 style="text-align: center;">MANIFOLD DIN CABLE</h3>		
SIZE	SCALE	DRAWING CODE NUMBER
B	FULL	2231 1561 B
ASSEMBLY: -		SHEET 1 OF 1

COMPLETED SCHEMATIC FOR CLARITY	JLE	NONE
NOTE 1: PUR JACKET WAS PVC SCHEMATIC REVISED	SWA	NONE
NEW ISSUE	GDS	NONE
CHANGE	BY: DATE:	ENG. ORDER #

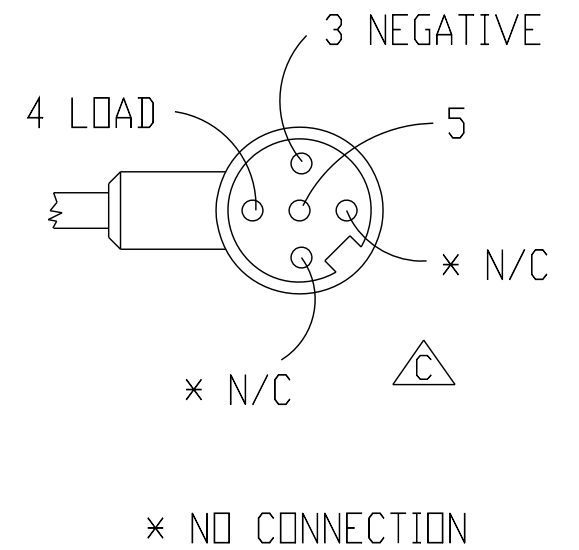
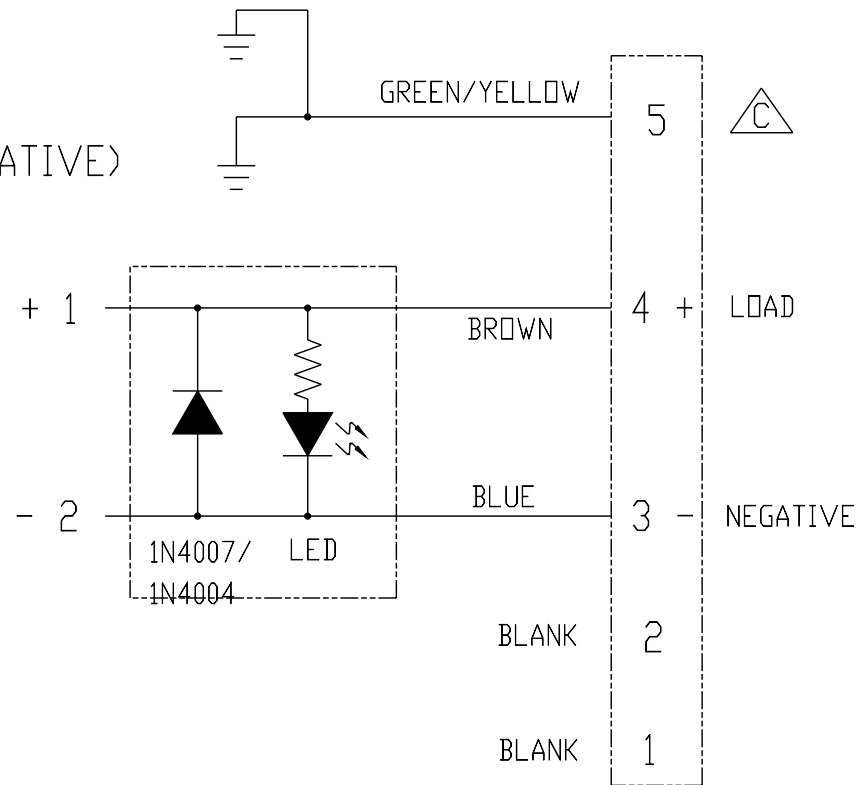
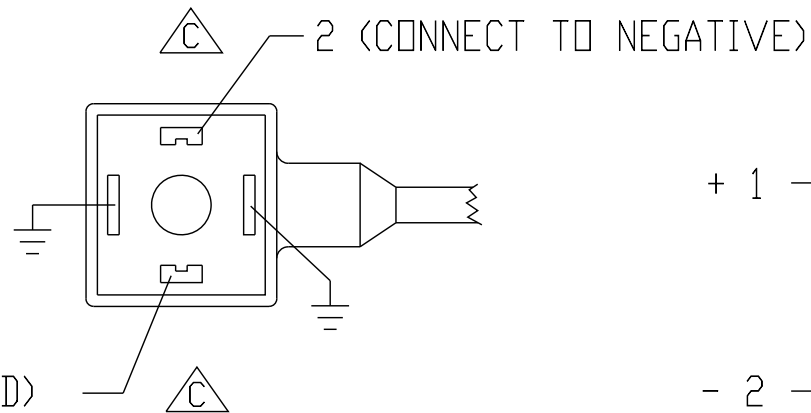
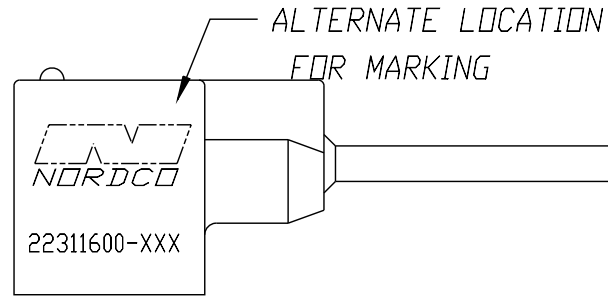
NO. 2231 1600

1/1

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.093 HEIGHT
.8 ASPECT
(WHITE OR
BLACK TEXT)
SEE NOTE #2



CUSTOMARY:
ALL DIMENSIONS
IN INCHES

IMPLIED TOLERANCES
Finished Dimensions

DECIMAL INCH	
.X	: .1
.XX	: .06
.XXX	: .010

250
MACHINE FINISH
UNLESS OTHERWISE
STATED

PLANE ANGLES
: ONE DEGREE



DRAWN: LCP
DATE: 1/11/99

CHECKED:
APPROVED:

PRODUCT: ALL

DESCRIPTION:
MANIFOLD DIN CABLE

SIZE	SCALE	DRAWING CODE NUMBER	REV.
B	FULL	2231 1600	C

ASSEMBLY: - SHEET 1 OF 1

C	PRODUCTION RELEASE; REVERSED TERMINAL #'S AT DIN PLUG; ADDED POSITION	LCP 4/26/99	51759
	# WIRING N/C NOTE NEW ISSUE	LCP 1/15/99	51740
M	20/3 WAS 22/3	BY: DATE:	ENG. ORDER #
MF	REV	CHANGE	

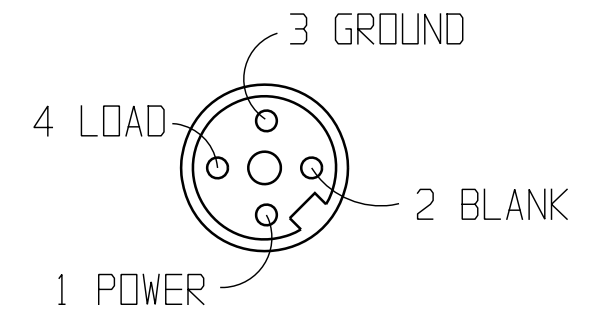
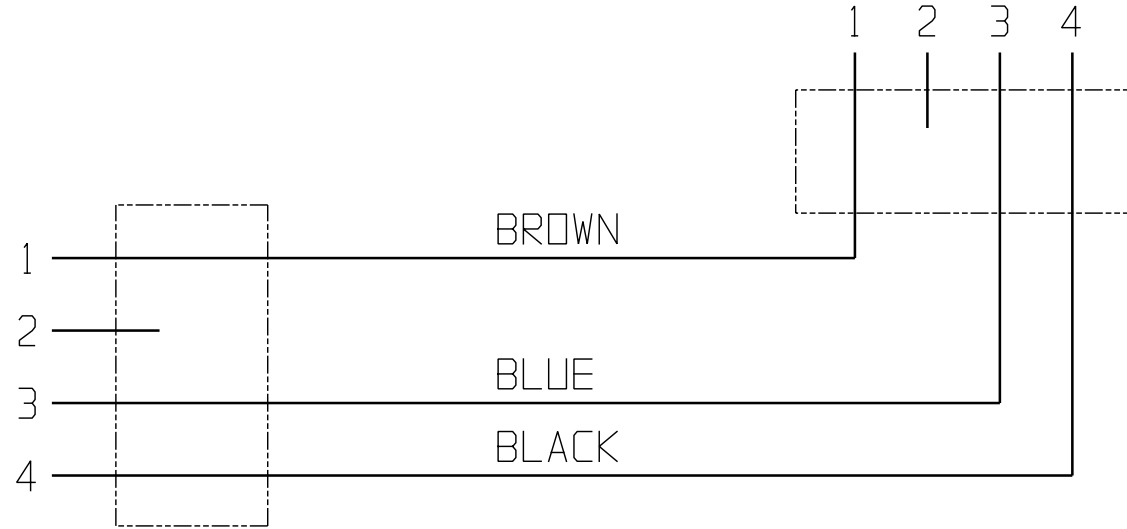
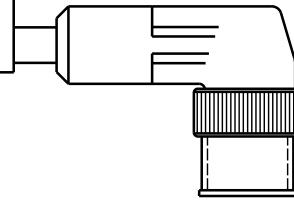
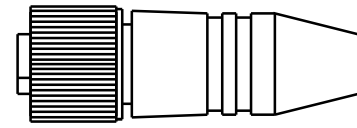
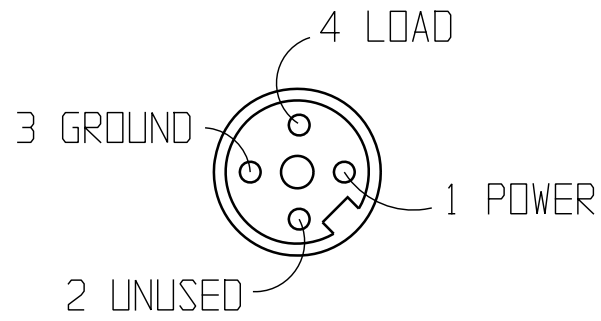
NO. 2231 1601

SHEET NO. 1/1

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△ B APPLY FLAG TAG SHOWING NORDCO PART NUMBER AT THIS END OF CABLE. (SEE NOTE #2).

2231 1601-XXX



NOTE :

CUSTOMARY: ALL DIMENSIONS IN INCHES		N NORDCO Equipment			
IMPLIED TOLERANCES Finished Dimensions		DRAWN: LCP DATE: 1/15/99	CHECKED: APPROVED:		
DECIMAL INCH		PRODUCT: ALL			
FRACTION	±	DESCRIPTION: JUNCTION BOX PROX SWITCH CABLE			
.X	.06				
.XX	.03				
.XXX	.010	SIZE	SCALE	DRAWING CODE NUMBER	REV.
250 / MACHINE FINISH UNLESS OTHERWISE STATED		B	FULL	2231 1601	B
PLANE ANGLES ± ONE DEGREE		ASSEMBLY: -		SHEET 1 OF 1	

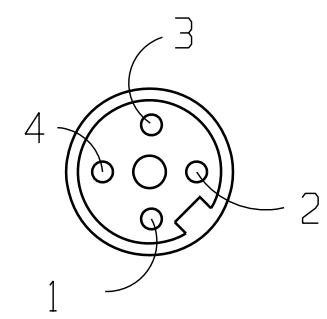
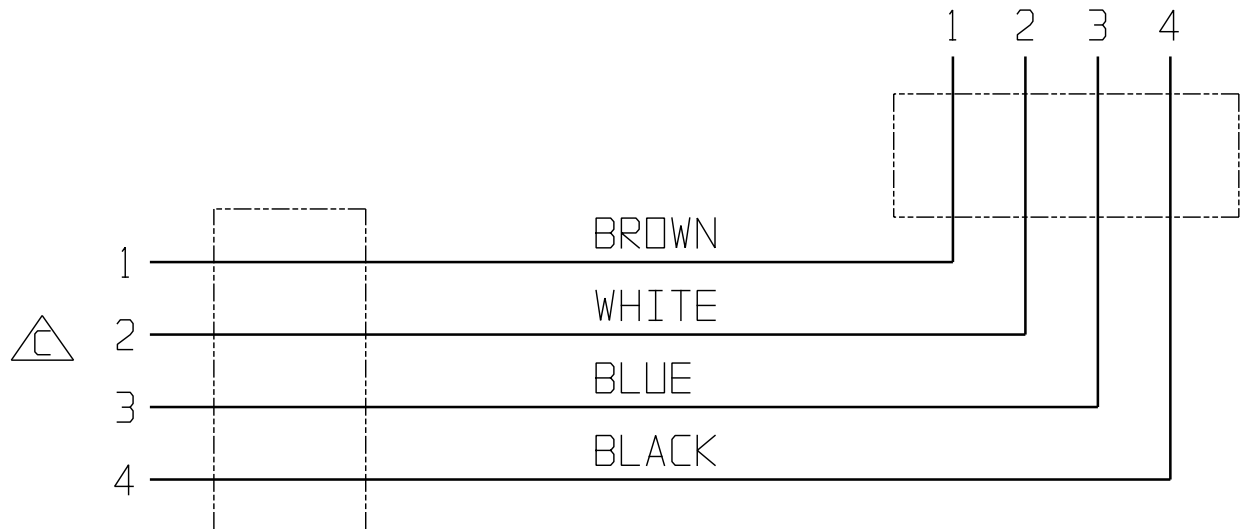
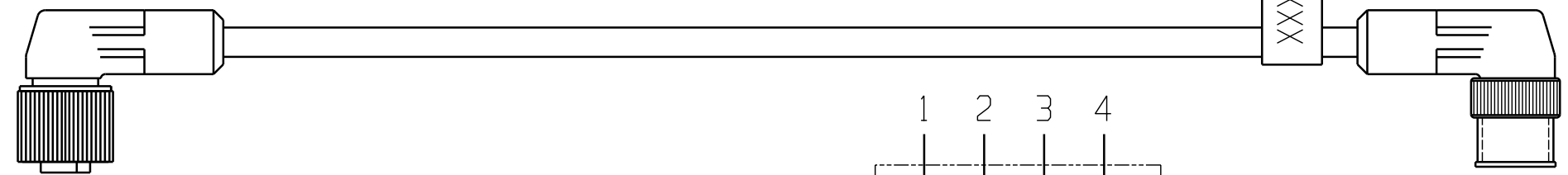
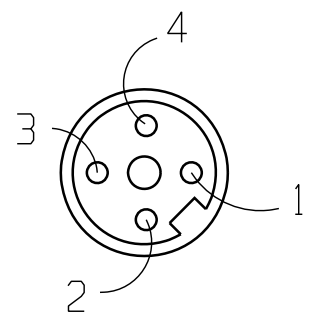
△ B	ADDED PART NUMBER TAG	LCP	8/9/99	51798
△ A	NEW ISSUE	LCP	1/18/99	51740
MF	REV	CHANGE	BY: DATE:	ENG. ORDER #

NO. 2231 1602

SHEET NO. 1/1

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APPLY FLAG TAG SHOWING NORDCO PART NUMBER AT THIS END OF CABLE. (SEE NOTE #2).



NOTE:

1. 4 PIN MICROFAST MALE PLUG WITH SINGLE KEYWAY AND 90° MALE COUPLING (RATCHET) NUT W/MALE M12X1 THDS., 22/4 CORD WITH OIL RESISTANT PUR JACKET, 4 POLE MICROFAST 90° FEMALE PLUG WITH SINGLE KEYWAY AND FEMALE COUPLING (RATCHET) NUT WITH FEMALE M12X1 THREADS.

2. CABLES ARE DEFINED BY THIS DOCUMENT AND HAVE NO INDIVIDUAL DRAWINGS. PART NUMBER INDICATES GENERAL CABLE CONFIGURATION WITH INCLUDED LENGTH. "XXX" IN CABLE PART NUMBER INDICATES SPECIFIC LENGTH IN INCHES OF INDIVIDUAL CABLES. (EX. 22311602-024 IS A CABLE ASSEMBLY 24" IN LENGTH)

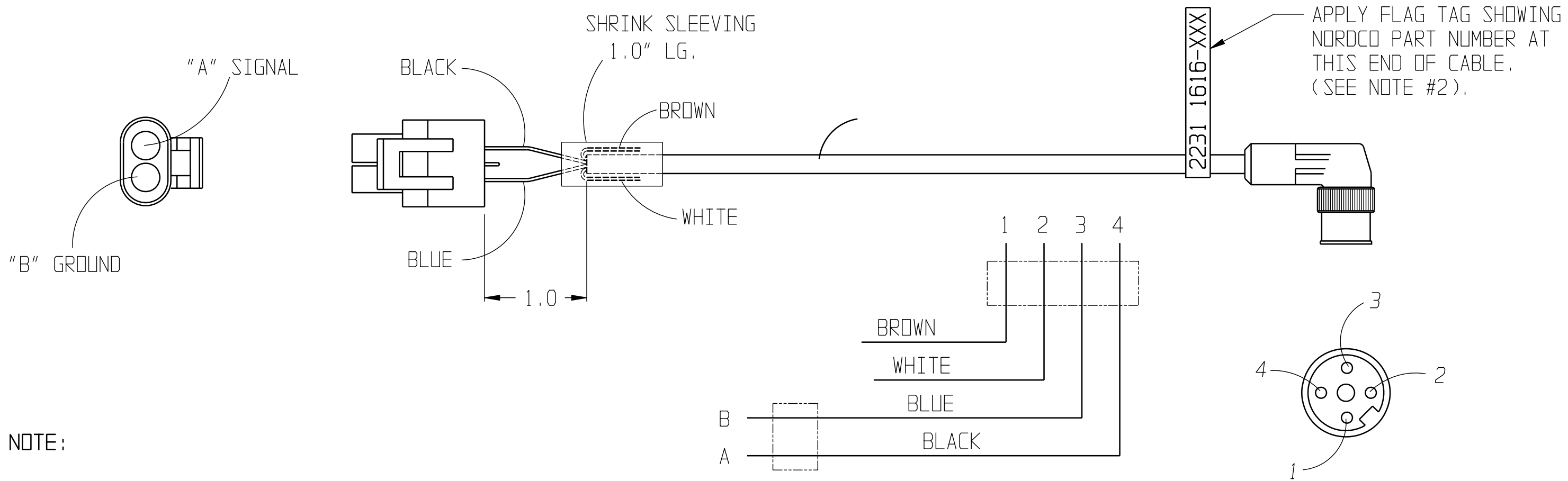
CUSTOMARY: ALL DIMENSIONS IN INCHES		NORDCO Equipment	
IMPLIED TOLERANCES Finished Dimensions		DRAWN: BW	CHECKED:
DECIMAL INCH		DATE: 1/14/00	APPROVED:
FRACTION	±	PRODUCT: ALL	
.X	± 1/8	DESCRIPTION: JUNCTION BOX PROX	
.XX	± .06	CABLE W/90° ENDS	
.XXX	± .03	SIZE	SCALE
	± .010	DRAWING CODE NUMBER	
250/ MACHINE FINISH UNLESS OTHERWISE STATED		B	N/A
PLANE ANGLES ± ONE DEGREE		2231 1602 C	
ASSEMBLY: -		SHEET 1 OF 1	

△	WAS 3-WIRE CABLE	BW	02-18-00	51768
△	NEW ISSUE	BW	1/14/00	51768
MF	REV	CHANGE	BY: DATE:	ENG. ORDER #

NO. 2231 1616

SHEET NO. 1/1

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NOTE:

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: ALL			
FRACTION	± 1/8	DESCRIPTION: REMOTE CABLE MICRO/2 POLE PKD			
.X	± .06				
.XX	± .03				
.XXX	± .010				
250/ MACHINE FINISH UNLESS OTHERWISE STATED		SIZE	SCALE	DRAWING CODE NUMBER	REV.
		B	1/1	2231 1616	-
PLANE ANGLES +/- 1°				ASSEMBLY: -	
				SHEET 1/1	

MF	REV	CHANGE	DRAWN BY: DATE:	CHECKED BY: APPROVED BY:	DATE: DATE:	E.C.D. #
			BW 11-25-02			53112

F E D C B A

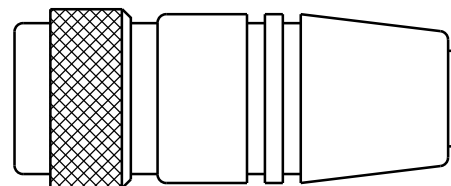
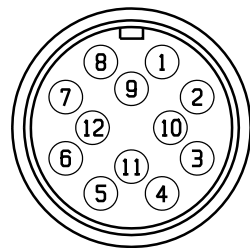
NO. 2231 1620

SHEET NO. 1/1

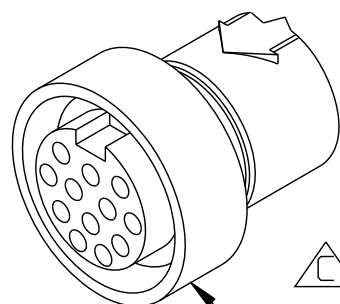
ALL INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED TO BE BOTH CONFIDENTIAL AND PROPRIETARY BY NORDCO INC. NO USE OR REPRODUCTION THEREOF MAY BE MADE WITHOUT THE EXPRESS WRITTEN CONSENT OF NORDCO INC.

SURFACE PREPARATION: WELD SLAG AND SPATTER TO BE REMOVED. ENTIRE UNIT THEN CLEANED AND APPROPRIATELY PRIME-PAINTED ONE COAT.

INCHES

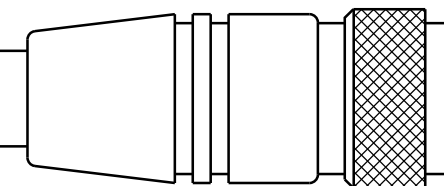


FEMALE PLUG (RK120M)
(2231 1619-XXX)

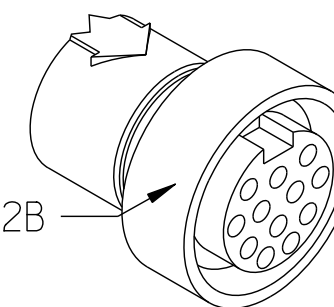
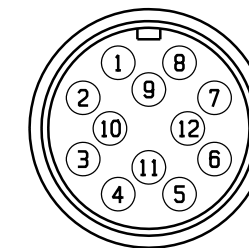


FEMALE 1 1/8-16 UN-2B
THREAD INSIDE RING

2231 1620-XXX



FEMALE PLUG (RK120M)
(2231 1619-XXX)



FEMALE 1 1/8-16 UN-2B
THREAD INSIDE RING

LUMBERG MINI STYLE P/N -
RKRK 120M-624/XXF

LENGTH (FT)
16/12 HIFLEX STD CABLE (16 GA WIRES)
NUMBER OF POLES (12 PINS)
FEMALE CONNECTOR STRAIGHT
FEMALE CONNECTOR STRAIGHT

A B C

CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: TIE PLUGGER			
FRACTION		DESCRIPTION: JUNCTION BOX CABLE			
.X ± .06		SIZE	SCALE	DRAWING CODE NUMBER	REV.
.XX ± .03		B	NTS	2231 1620	C
.XXX ± .010					
250/ MACHINER FINISH UNLESS OTHERWISE STATED		ASSEMBLY: -		SHEET 1/1	

MF	REV	CHANGE	DRAWN BY: DATE:	CHECKED BY: APPROVED BY:	DATE:	E.C.D. #	PLUGS ISO VIEWS ADDED	SWA	NONE	
							LUMBERG P/N LEGEND ADDED	02-14-05		
							NOTE 1 REMOVED	GDS		JKH 06-15-99
							NOTES 1 WAS 2 & 2 WAS 3.	06-15-99		BMB 06-29-99
			GDS			51768				
			GDS			51768				
			GDS			51768				
			05-21-99							

NO. 2231 1621

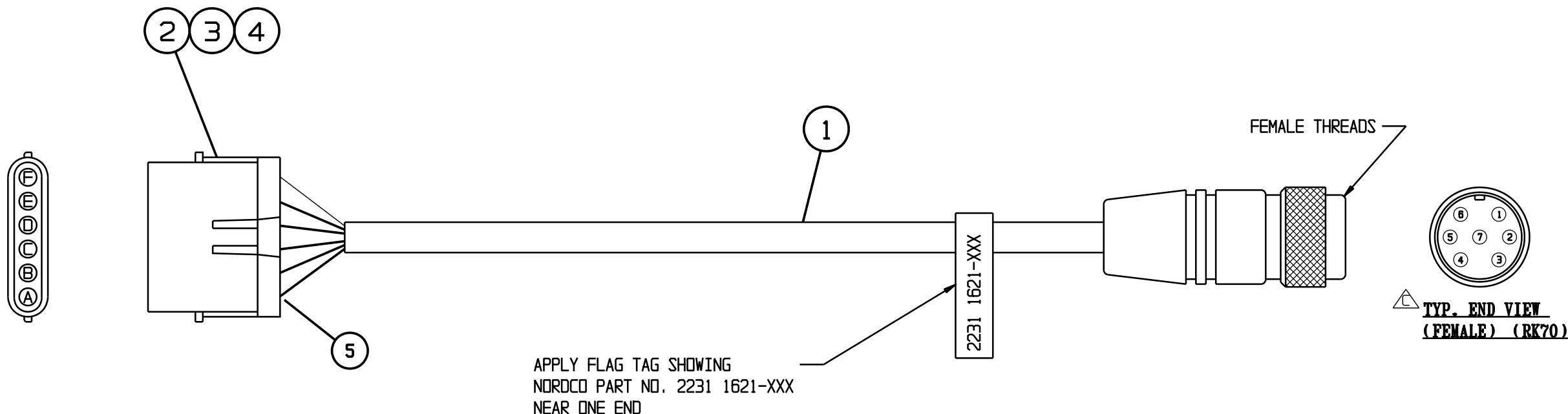
SHEET NO. 1/1

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SURFACE PREPARATION: WELD SLAG AND SPATTER TO BE REMOVED. ENTIRE UNIT THEN CLEANED AND APPROPRIATELY PRIME-PAINTED ONE COAT.

PIN LETTER	WIRE COLOR	PIN NO.	FUNCTION
A	WHT/BLK	1	CLOSE CLAWS & RELEASE TO PULL
B	BLACK	2	LOWER WORKHEAD
C	WHITE	3	OPEN CLAWS
D	GREEN	7	POWER
E	RED	4	NOT USED
F	ORANGE	5	EXTEND
	BLUE	6	NOT USED

BILL OF MATERIALS					
ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	D T L	PART NAME	DWG SIZE
1		1		PLUG, CONNECTOR & CABLE -	
2	5166 776	1		CONNECTOR, FEMALE SHROUD	
3	5166 782	6		PIN, MALE	
4		6		SEAL	
5		AR		FLEXI-COAT WATERBASE RUBBER COATING BLACK	



CUSTOMARY: ALL DIMENSIONS IN INCHES			THIRD ANGLE PROJECTION
PRODUCT: GRABBER		DESCRIPTION:	
HAND CONTROLLER CABLE			
SIZE	SCALE	DRAWING CODE NUMBER	REV.
C	1/1	2231 1621	C
ASSEMBLY: -		SHEET 1/1	

REV	CHANGE	DATE	DRAWN BY	CHECKED BY	DATE	E.C.D. #
△	CORRECTED PIN NUMBERS MIRRORED ABOUT KEY	10-13-05	SWA			NONE
△	ITEM 1 WAS RK70-622/15F	04-29-03	ADN	JLE	04-29-03	53256
△	WAS RF15	11-08-00	ADN	JLE	11-08-00	NONE
△	NEW ISSUE	09-02-00	SWA	JLE	10-31-00	NONE
			BMB	BMB	11-03-00	

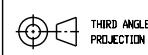
IMPLIED TOLERANCES	FRACTION	± 1/8
	.X	± .06
	.XX	± .03
	.XXX	± .010
250/	MACHINE FINISH UNLESS OTHERWISE STATED	
	PLANE ANGLES ± 1°	

NO. 42350007 SHEET NO. 2/2 ALL INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED TO BE BOTH CONFIDENTIAL AND PROPRIETARY BY NORDCO INC. NO USE OR REPRODUCTION THEREOF MAY BE MADE WITHOUT THE EXPRESS WRITTEN CONSENT OF NORDCO INC.

LIST OF MATERIALS				
ITEM NO.	PART NUMBER	QTY. REQ.	PART NAME	DWG. SIZE
△ ^F 1	5166772	1	CONNECTOR	
△ ^F △ ^B 2	5166781	11	PIN	
△ ^B 3	5166773	3	CONNECTOR	
4				
5				
△ ^F 6	5168029	2	CONNECTOR	
△ ^F 7	5166693	4	DISCONNECT	
8		2	BLACK DIN	
△ ^F 9	5166434	4	RING TERMINAL #4 x 3/8	
10		AR	TEFLON TUBING	
△ ^F △ ^B 11		11	SEAL	
12		-	YELLOW BRADING MATERIAL 21.2 FT.	
△ ^B 13	47380100	1	LABEL	
14		AR	16 AWG SXL WIRE - BLACK	
△ ^F 15				
16		AR	12 AWG SXL WIRE BLACK	
17		AR	4 AWG SXL WIRE - RED	
18		AR	4 AWG SXL WIRE - GREEN	
19		AR	10 AWG SXL WIRE - BLACK	
△ ^A 20		AR	14 AWG SXL WIRE - BLACK	
△ ^A 21	520131	1	CONNECTOR	
△ ^B △ ^A 22	5166793	6	SLEEVE	
△ ^B △ ^A 23	5166762	3	CONNECTOR	
△ ^B 24		AR	16 AWG SXL WIRE - GREEN	
△ ^F 25	5166778	6	SEAL	

△ ^G	NO CHANGE THIS SHEET.	JWW	13-MAR-09	80094
△ ^F	ITEM 1: QTY 1 WAS 2. ITEM 2: QTY 11 WAS 13. ITEM 7: QTY 4 WAS 2. ITEM 8: QTY 2 WAS 1. ITEM 9: QTY 4 WAS 3. ITEM 11: QTY 11 WAS 13. ITEM 15 REMOVED. ITEM 22: QTY 6 WAS 4. ITEM 23: QTY 3 WAS 2. ITEM 25 ADDED.	JWW	27-NOV-08	80075
△ ^E	NO CHANGE THIS SHEET.	JWW	24-MAR-08	NONE
△ ^D	ADDED WIRE 141 AND 117 UPDATED NOTE 6. WIRES TO BE SPLICED WAS WIRE #857 ITEM 13 - PANDUIT WAS FASTAG.	AJB	16-OCT-07	80043
△ ^C	ADDED NOTE 8. "THROTTLE, HIGH SPEED" WAS "HIGH-SPEED SOLENOID". ADDED WIRE 126, P74BK TO P76BIE.	JWW	24-APR-08	C06018
△ ^B	ADDED NOTE 7. ADDED P74BF THRU J. ITEM 2: 13 WAS 10. ITEM 3: 3 WAS 2. ITEM 11: 13 WAS 10. ITEM 24: ADDED. ITEM 28: 4 WAS 2. ITEM 23: 2 WAS 1.	JWW	15-FEB-06	C05046
△ ^A	ADDED SMT 2. ADDED ITEMS 20, 21, 22, 23, 24. ADDED GLDW PLUG WIRE & LIGHT CONNECTIONS TO P76.	JWW	10/27/05	C05046
NO	REV	CHANGE	DRAWN BY: DATE:	CHECKED BY: DATE:

CUSTOMARY: ALL DIMENSIONS IN INCHES

Nordco Oshawa  THIRD ANGLE PROJECTION

PRODUCT: SP2R MODEL A

DESCRIPTION: ENGINE/COOLER/TEMP SWITCH/ PUMP HARNESS 24V

IMPLIED TOLERANCES	SIZE	SCALE	DRAWING CODE NUMBER	REV.
FRACTION : 1/8 X : .06 .XX : .03 .XXX : .010	D	NTS	42350007	G

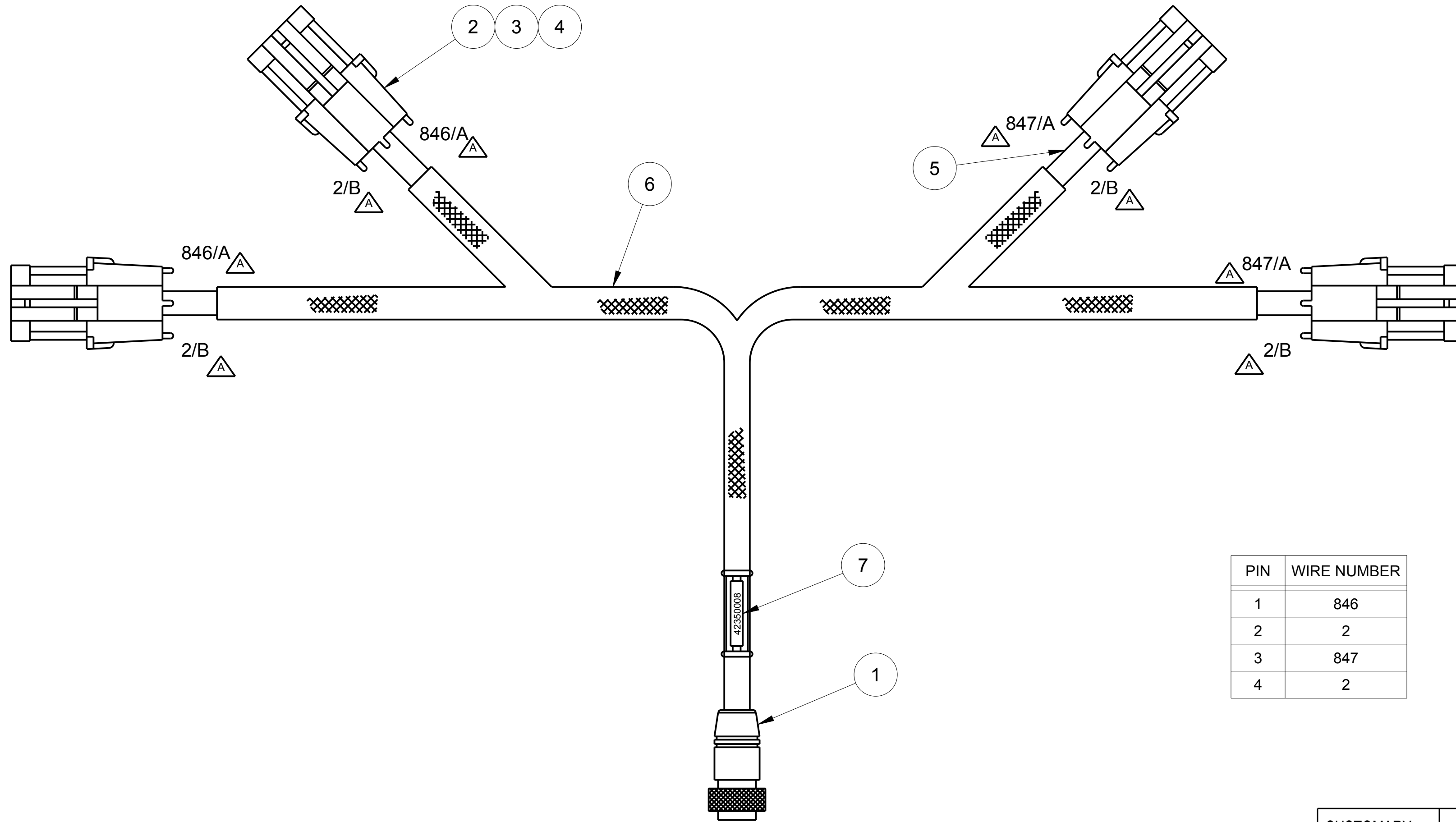
250 / MACHINE FINISH UNLESS OTHERWISE STATED

PLANE ANGLES +/- 1°

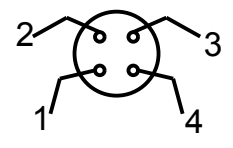
ASSEMBLY: - SHEET 2/2

LIST OF MATERIALS

ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	D T L	PART NAME	DWG SIZE
1		1		CORDSET	
2	5166782	8		TERMINAL, MALE	
3	5166772	4		CONNECTOR, SHROUD	
4	5166777	8		SEAL	
5		AR		TEFLON TUBING	
6		1		YELLOW BRAIDING MATERIAL	
7		1		FASTAG PHF HOLDER	
8		AR		16 AWG WIRE	



PIN	WIRE NUMBER
1	846
2	2
3	847
4	2



CUSTOMARY:
 ALL DIMENSIONS IN INCHES

IMPLIED TOLERANCES
 FRACTION ± 1/8
 .X ± .06
 .XX ± .03
 .XXX ± .010

PRODUCT: SP2R MODEL A
DESCRIPTION: HARNESS, WORK LIGHTS

SIZE: C NTS SCALE: - DRAWING CODE NUMBER: 42350008 REV: A

ASSEMBLY: - SHEET 1 OF 1

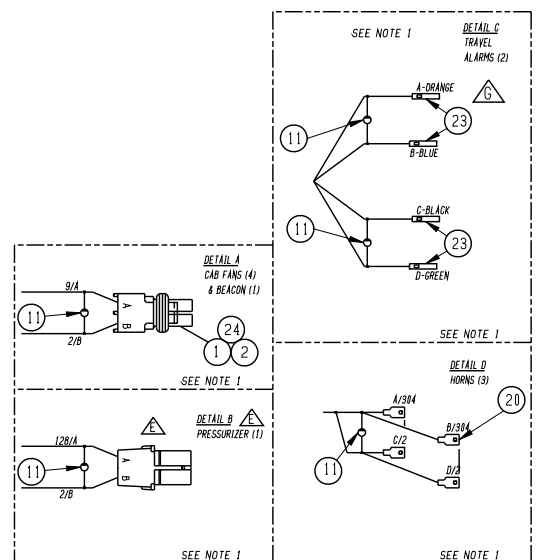
A	2 WAS 846; 846 WAS 2; 847 WAS 2; 2 WAS 847	JMK		600940
		27MAR13		
-	NEW ISSUE	ADN	JLE 08JUL04	53304
		03SEPT03	WDS 08JUL04	
REV	CHANGE	DRAWN BY: DATE:	CHECKED BY: DATE:	E.C.O. #

MACHINE FINISH UNLESS OTHERWISE STATED

PLANE ANGLES +/- 1°

LIST OF MATERIALS

ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME
1	5166783	32	SLEEVE,FEMALE
2	5166762	16	CONNECTOR
3	5120440	7	CONNECTOR
4			
5			
6		4	PLUG,3 POS
7		12	SEAL,CABLE
8		12	TERMINAL,RECTANGULAR
9	520295	1	PLUG, 3-PIN
10	5102448	AR	1/4 POLYOLEFIN HEAT SHRINK TUBING 1.0 FT
11	29680018	14	DIODE
12		AR	BLACK BRADING MATERIAL 25 FT
13	47380100	1	LABEL
14	5120774	1	PLUG
15			
16		21	TERMINAL,1/4" FEMALE SPADE,W/TANG KEEPER
17			
18	5166782	14	TERMINAL
19	5112933	1	LOCKING WEDGE
20	1566693	6	TERMINAL
21	5166772	7	CONNECTOR
22	620119	10	GROMMET
23	1566663	4	TERMINAL
24	5166777	46	SEAL, 16 GA OR SMALLER
25	5166798	AR	TERMINAL
26	5166822	1	PLUG, 12-SOCKET
27	5112942	1	LOCKING WEDGE
28	520254	1	BOOT, 12 WAY PLUG



△	P776, PINS 1 & 2 SWAPPED, 3 & 4 SWAPPED. WIRE 672 WAS 678. P42 & P43, PINS 1 & 2 DESTINATIONS CHANGED.	JW	4-JUL-11		600438
△	ADDED DESTINATIONS TO ALL WIRES. P36: P79810 WAS P79828.	JW	17-MAR-11		80116
△	UPDATED FORMAT. BOM MOVED TO THIS SHEET. ADDED ITEMS 28-29. P78: WIRES ADDED TO TRAVEL ALARMS. ITEM 1: QTY 32 WAS 28. ITEM 2: QTY 16 WAS 14. ITEM 11: QTY 14 WAS 11. ITEM 12: BLACK WAS YELLOW. ITEM 18: QTY 14 WAS 12. ITEM 21: QTY 7 WAS 6. ITEM 24: QTY 40 WAS 10. ITEM 25: QTY 40 WAS 2. P79828 WIRE 642 WAS 671. P79851 WIRE 140 WAS 670. WIRES 2, 9, & 304 ADDED LETTERS TO DESIGNATE SPLICE USE.	JW	27-FEB-11		80116
△	CONNECTOR CHANGED FOR LED DOME LIGHT	CP	27-JUL-10		80116
△	REMOVED HEATED MIRROR & WASHER FLUID PUMP OPTIONS. ADDED CENTRE REAR WIPER MOTOR P79-PIN 26. WIRE 671 WAS 642. CENTRE...LW" WAS "HEATED MIRRORS" PIN 54. WIRE 670 WAS 144. "CENTRE...PARK" WAS "WASHER FLUID"	CP	08-FEB-10		80116
△	ADDED (2) PERIMETER LIGHT CONNECTIONS TO REAR. EXTENDED 14 GA WIRES FOR PERIMETER LIGHTS.	JWW	24-NOV-08		80076
△	NO CHANGE THIS SHEET.	JWW	16-JAN-08		80049
△	ADDED (3) PERIMETER LIGHTS. HEATED MIRROR 2-PIN CONNECTORS. WIRE (24) 1-PIN 16 GA WAS 14 GA. ADDED PRESSURIZER CONNECTOR. ADDED WASHER FLUID PUMP. ADDED CONNECTOR TO HORNS.	JWW	23-OCT-07		80044
△	LH WAS RH. RH WAS LH. 662 SWITCHED W/ 666. 665 SWITCHED W/ 664.	JWW	2-MAR-06	CP, 2-MAR-06	C06060
△	NEW ISSUE	ADN	1/3/05		63609

(REF. 97311003DWG ELECTRICAL SCHEMATIC) (PREDECESSOR 42350048)

CUSTOMARY: ALL DIMENSIONS IN INCHES

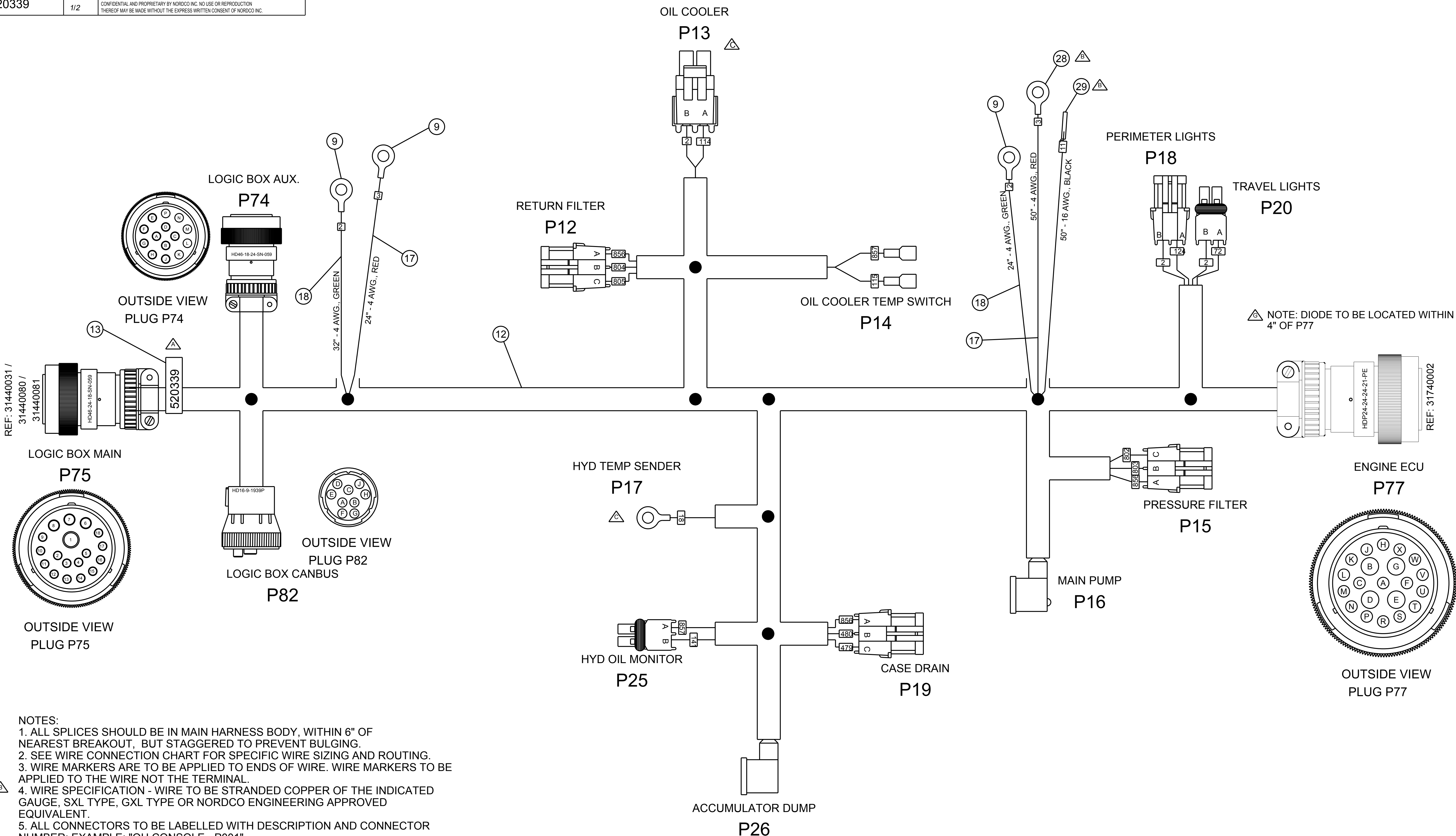
PRODUCT: SP2R

DESCRIPTION: HARNESS,CAB

IMPLIED TOLERANCES: FRACTION: 1/8, .X: .06, .XX: .03, .XXX: .010

SIZE: D NTS SCALE: 42350049 REV: I

PLANE ANGLES +/- 1° ASSEMBLY: - SHEET 2/2



NOTE: DIODE TO BE LOCATED WITHIN 4" OF P77

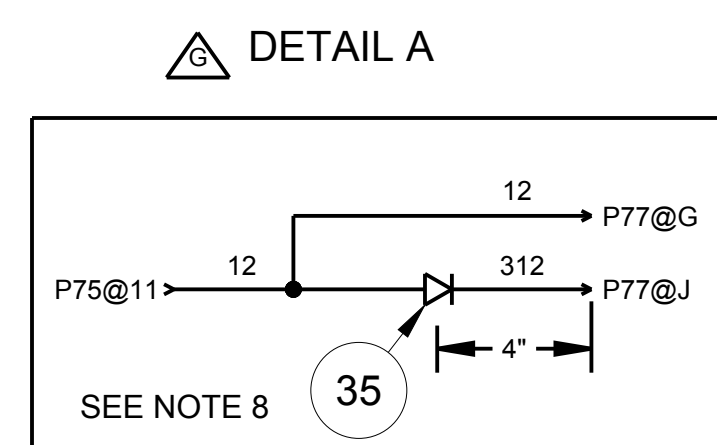
- NOTES:
1. ALL SPLICES SHOULD BE IN MAIN HARNESS BODY, WITHIN 6" OF NEAREST BREAKOUT, BUT STAGGERED TO PREVENT BULGING.
 2. SEE WIRE CONNECTION CHART FOR SPECIFIC WIRE SIZING AND ROUTING.
 3. WIRE MARKERS ARE TO BE APPLIED TO ENDS OF WIRE. WIRE MARKERS TO BE APPLIED TO THE WIRE NOT THE TERMINAL.
 4. WIRE SPECIFICATION - WIRE TO BE STRANDED COPPER OF THE INDICATED GAUGE, SXL TYPE, GXL TYPE OR NORDCO ENGINEERING APPROVED EQUIVALENT.
 5. ALL CONNECTORS TO BE LABELLED WITH DESCRIPTION AND CONNECTOR NUMBER; EXAMPLE: "OH CONSOLE - P001".
 6. BRAIDING MATERIAL TO SURROUND WIRES AS CLOSE TO CONNECTORS AS POSSIBLE.
 7. PACKAGE AND ATTACH DIN CONNECTOR HARDWARE AND GASKET TO HARNESS.
 8. SPLICES AND DIODES TO BE COVERED WITH HEAT-SHRINK TUBING.

REV	CHANGE	DRAWN BY:	CHECKED BY:	DATE:	E.C.O.#
		JMK		20MAR13	600940
		CP		08JAN13	600879
		CP		03JAN13	600879

NO CHANGE TO THIS SHEET	CP	24JAN12	600502
P13 & P17: REPLACED CONNECTORS PER EXISTING PRODUCTION	CP	10JAN12	600502
LAYOUT OF HARNESS MODIFIED SLIGHTLY. NOTES UPDATED TO REFLECT NORDCO STANDARDS. MOVED TO THIS SHEET. ITEM 9 REMOVED. ITEMS 28 & 29 ADDED	JWW	30MAY11	600393
LABEL (ITEM 13): 520339 WAS 520302	CP	28JUL10	80116
NEW ISSUE	CP	03FEB10	80116

CUSTOMARY:		NORDCO		THIRD ANGLE PROJECTION	
ALL DIMENSIONS IN INCHES		PRODUCT: SP2R / AA2R / NVCAR / NSCA			
IMPLIED TOLERANCES		DESCRIPTION: HARNESS, FRAME TIER3 ENGINE			
FRACTION	± .18	SIZE	SCALE	DRAWING CODE NUMBER	REV.
X	± .06	D	NTS	520339	G
XX	± .03	ASSEMBLY:		SHEET	1 OF 2
XXX	± .010				

ITEM NO.	PART NUMBER OR MATERIAL	QTY. REQ.	PART NAME
1	5166772	1	CONNECTOR, PACKARD
2	5166781	11	PIN, PACKARD
3	5166773	3	CONNECTOR, PACKARD
4	520131	1	CONNECTOR, DEUTSCH
5	5166820	1	CONNECTOR, 9-PIN
6	5168029	1	CONNECTOR, DEUTSCH
7	5166693	2	DISCONNECT, FEMALE
8		2	BLACK DIN NORSTAT
9	5166434	3	RING TERMINAL #4 x 3/8
10		AR	TEFLON TUBING
11		11	SEAL, CABLE 16-14 GA
12		-	YELLOW BRADING MATERIAL 21.2 FT.
13	47380100	1	LABEL
14			
15	520340	AR	CABLE, 18/2 AWG J1939 SHIELDED
16			
17			
18			
19			
20	5166778		
21	5166793	4	SEAL, CABLE 14-12
22		4	SLEEVE, FEMALE
23	5166762	2	CONNECTOR, TWO WAY TOWER
24	5120782	1	CONNECTOR, 21-PIN DEUTSCH
25	5166797	13	PIN, 16 GA
26	5166799	3	PIN, 12 GA
27	5166788	10	SEALING PLUG, 12-16 GA
28	5166432	1	RING TERMINAL, PVC INSULATED #4 x 1/4
29	5166663	1	TERMINAL, BUTT, PVC INSULATED 14-16 GA. T.S.
30		1	CONNECTOR, 2 WAY
31		2	TERMINAL, FEMALE
32		2	SEAL, BLUE
33		1	RETAINER, TERMINAL POSITION ASSURANCE
34	5164408	1	TERMINAL, RING 14-16 GA #10 STUD
35	29680018	1	DIODE, 1N5624 3 AMP



E	P75: WIRE #1 10 GA WAS 16 GA ITEM 11: 15324985 WAS 12089679 ITEM 21: 15324980 WAS 12010293. PACKARD WAS WEATHERPACK DEUTSCH	CP		600940
		03JAN13		
D	P17: WIRE #2 REMOVED. P75: WIRE #14 REMOVED. P74: WIRES #479 & 480 ADDED. WIRE #2 REMOVED	CP		600502
		24JAN12		
C	P13: REMOVED ITEM 7, ADDED ITEMS 30 - 33. P17: ADDED ITEM 34. REMOVED ITEMS 21 TO 23. ITEM 7: QTY 2 WAS 4. ITEM 21: QTY 4 WAS 6. ITEM 22: QTY 4 WAS 6. ITEM 23: QTY 4 WAS 6. ITEM 27: ADDED PIN. ADDED ITEMS 30 TO 34	CP		600502
		10JAN12		
B	ITEM 9: QTY 3 WAS 4. ADDED ITEMS 28 & 29. WIRES 620 & 2 REMOVED FROM P74@N@P. ADDED TABLED FOR ALL CONNECTORS. CHANGED FORMAT ITEM 24: NORDCO PIN ADDED. REMOVED WIRES FROM LIST OF MATERIALS	JWW		600393
		30MAY11		
A	ITEM 24: DEUTSCH CONNECTOR HD34-24-21PN WAS HD24-24-21-PE P75: WIRES 48 & 2 ADDED TO PINS 2 & 5	CP		80116
		28JUL10		
F	ITEM 11: 15324982 WAS 15324985	CP		600879
		03FEB10		
REV	CHANGE	DRAWN BY: DATE:	CHECKED BY: DATE:	E.C.O.#
		JMK 21MAR13		600940
		CP 08JAN13		600879

CUSTOMARY:
ALL DIMENSIONS IN INCHES

IMPLIED TOLERANCES:
FRACTION ± .18
X ± .06
XX ± .03
XXX ± .010

INCHES FINISH UNLESS OTHERWISE STATED

PLANE ANGLES 45-90°

THIRD ANGLE PROJECTION

PRODUCT: SP2R / AA2R / NVCAR / NSCA

DESCRIPTION: HARNESS, FRAME TIER3 ENGINE

SIZE SCALE DRAWING CODE NUMBER REV.

D NTS 520339 G

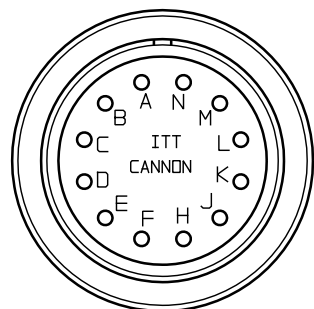
ASSEMBLY: SHEET 2 OF 2

NO. 4235 0100

SHEET NO. 1/2

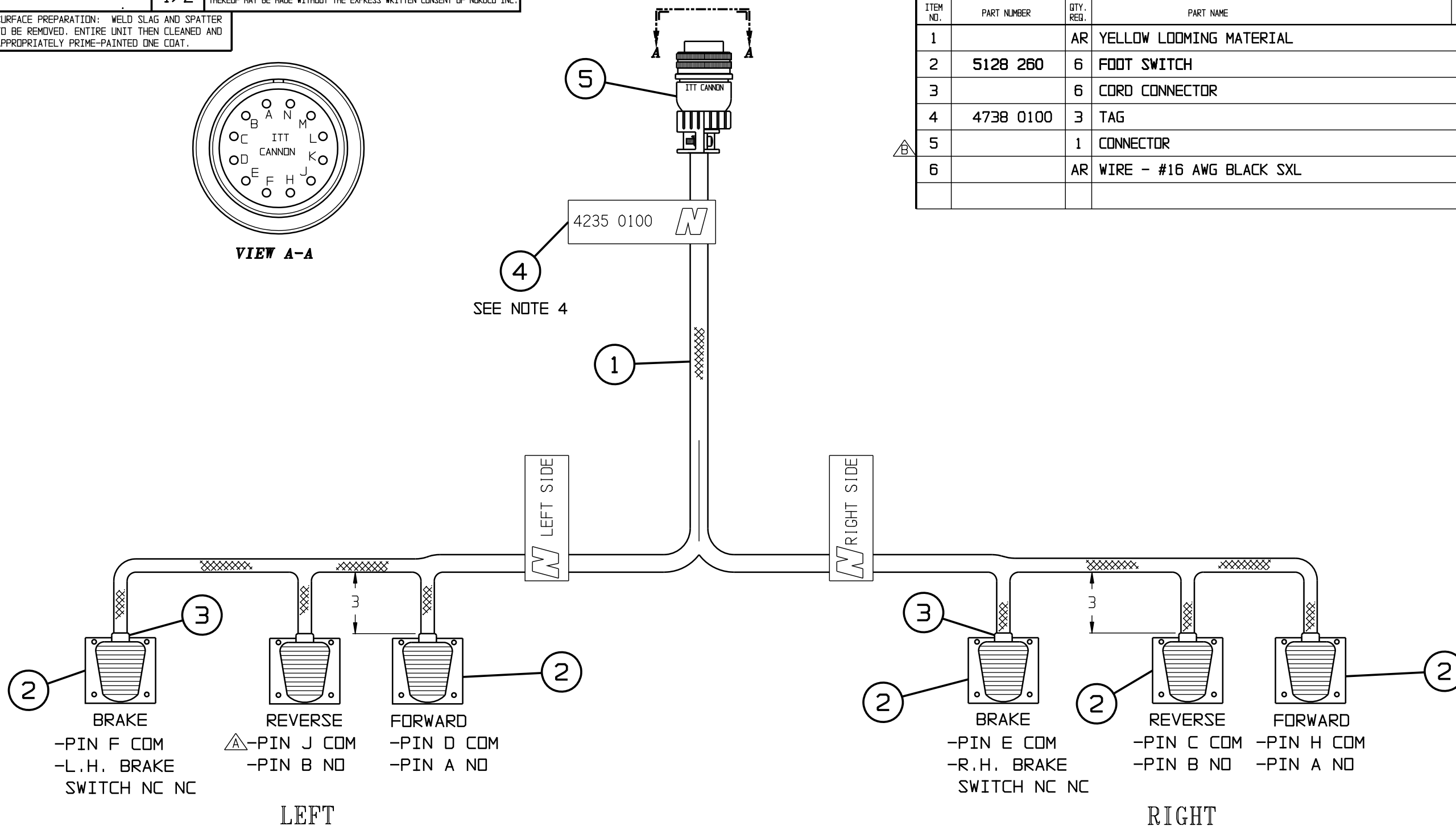
ALL INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED TO BE BOTH CONFIDENTIAL AND PROPRIETARY BY NORDCO INC. NO USE OR REPRODUCTION THEREOF MAY BE MADE WITHOUT THE EXPRESS WRITTEN CONSENT OF NORDCO INC.

SURFACE PREPARATION: WELD SLAG AND SPATTER TO BE REMOVED. ENTIRE UNIT THEN CLEANED AND APPROPRIATELY PRIME-PAINTED ONE COAT.



VIEW A-A

LIST OF MATERIALS				
ITEM NO.	PART NUMBER	QTY. REQ.	PART NAME	DWG. SIZE
1		AR	YELLOW LOOMING MATERIAL	
2	5128 260	6	FOOT SWITCH	
3		6	CORD CONNECTOR	
4	4738 0100	3	TAG	
5		1	CONNECTOR	
6		AR	WIRE - #16 AWG BLACK SXL	



NOTE:

1. ALL WIRES 16 AWG.
2. FOOT SWITCH CONNECTIONS TO BE MADE WITH RING TERMINALS AT THE END OF THE WIRE INSIDE THE SWITCHES. INCLUDE 6" OF EXCESS WIRE INSIDE R.H. BRAKE SWITCH BETWEEN CORD CONNECTOR AND RING TERMINALS.
3. WIRE SOLDER JOINT AT CANNON CONNECTOR TO BE COVERED WITH HEAT SHRINK SLEEVING.
4. HARNESS IS TO BE IDENTIFIED WITH CORRESPONDING NORDCO PART NUMBER PRINTED ON PANDUIT THERMAL TAPE AND ASSEMBLED AS NEAR AS POSSIBLE TO THE MAIN CONNECTOR. TAPE WIDTH IS 1"; TAPE LENGTH TO BE DETERMINED BY THE HARNESS DIAMETER.

PREDECESSOR: 9641 0050

CUSTOMARY: ALL DIMENSIONS IN INCHES			 THIRD ANGLE PROJECTION
DESCRIPTION: HARNESS, FOOT SWITCH			
IMPLIED TOLERANCES	SIZE	SCALE	DRAWING CODE NUMBER
FRACTION ± 1/8 .X ± .06 .XX ± .03 .XXX ± .010	C	NTS	4235 0100 B
250 / MACHINE FINISH UNLESS OTHERWISE STATED	ASSEMBLY: -		SHEET 1/2

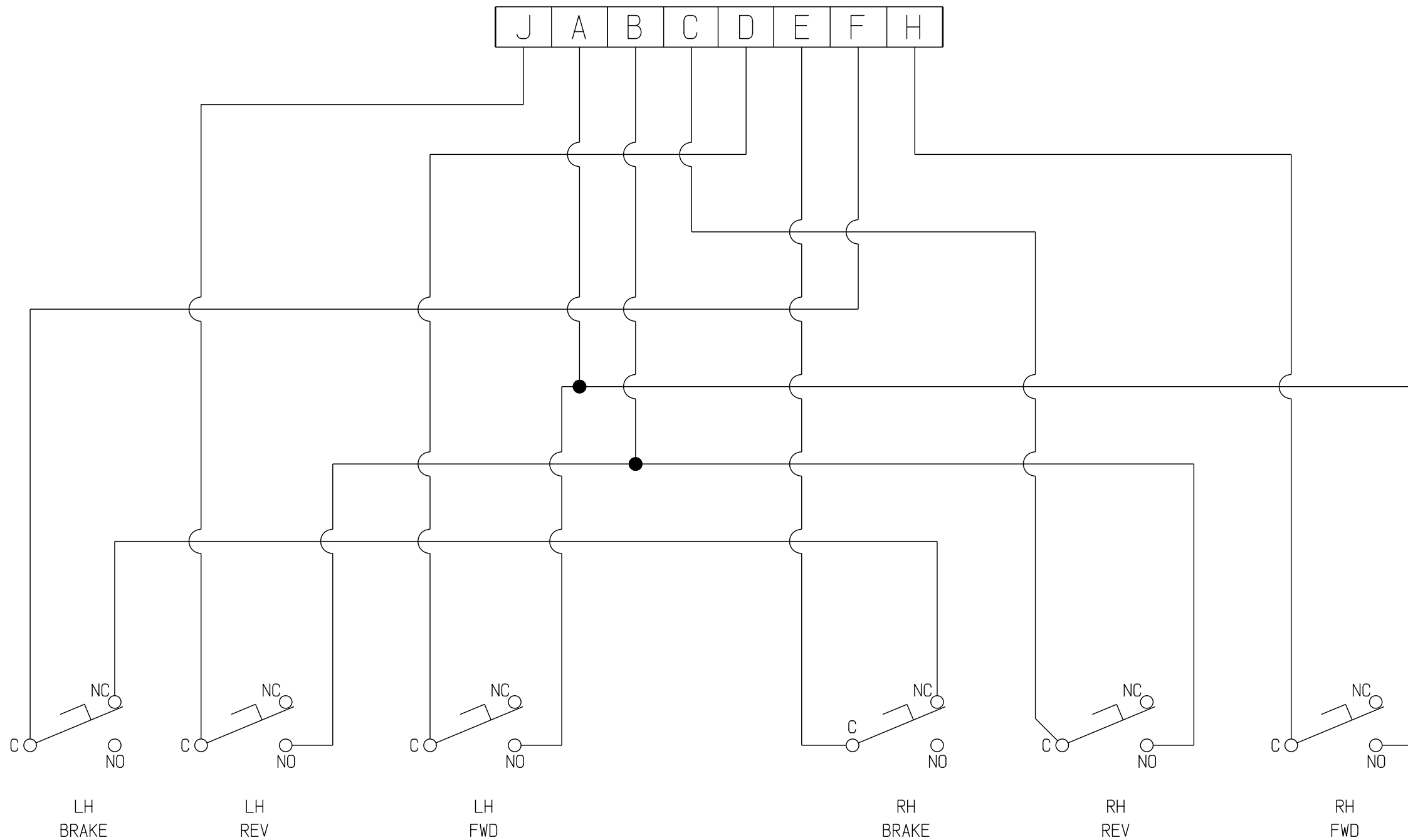
△	ADDED "OR EQUIV." TO ITEM 5 IN LIST OF MATL.	SWU	04-15-09	600035
△	LEFT REVERSE PEDAL PIN LETTER WAS G	SWA	11-10-08	54497
△	NEW ISSUE	NEB	02-04-08	54248
MF	REV	CHANGE	DRAWN BY: DATE:	CHECKED BY: DATE:
			E.C.D. #	PLANE ANGLES ± 1°

NO. 4235 0100

SHEET NO. 2/2

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SURFACE PREPARATION: WELD SLAG AND SPATTER TO BE REMOVED. ENTIRE UNIT THEN CLEANED AND APPROPRIATELY PRIME-PAINTED ONE COAT.



CUSTOMARY: ALL DIMENSIONS IN INCHES					
IMPLIED TOLERANCES		PRODUCT: CX HAMMER			
FRACTION		DESCRIPTION:			
.X ± .06		HARNES, FOOT SWITCH			
.XX ± .03					
.XXX ± .010		SIZE	SCALE	DRAWING CODE NUMBER	REV.
250 / MACHINE FINISH UNLESS OTHERWISE STATED		C	NTS	4235 0100	A
PLANE ANGLES +/- 1°		ASSEMBLY: -			SHEET 2/2

NO CHANGE THIS SHEET	SWU		600035
NO CHANGE THIS SHEET	SWA	SCR 11-11-08	54497
NEW ISSUE	NEB	MK 12-01-08	54248
MF	REV	CHANGE	
	DRAWN BY:	CHECKED BY:	E.C.D. #
	DATE:	APPROVED BY:	

NO. 96450216

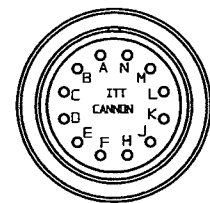
SHEET NO.
1/1

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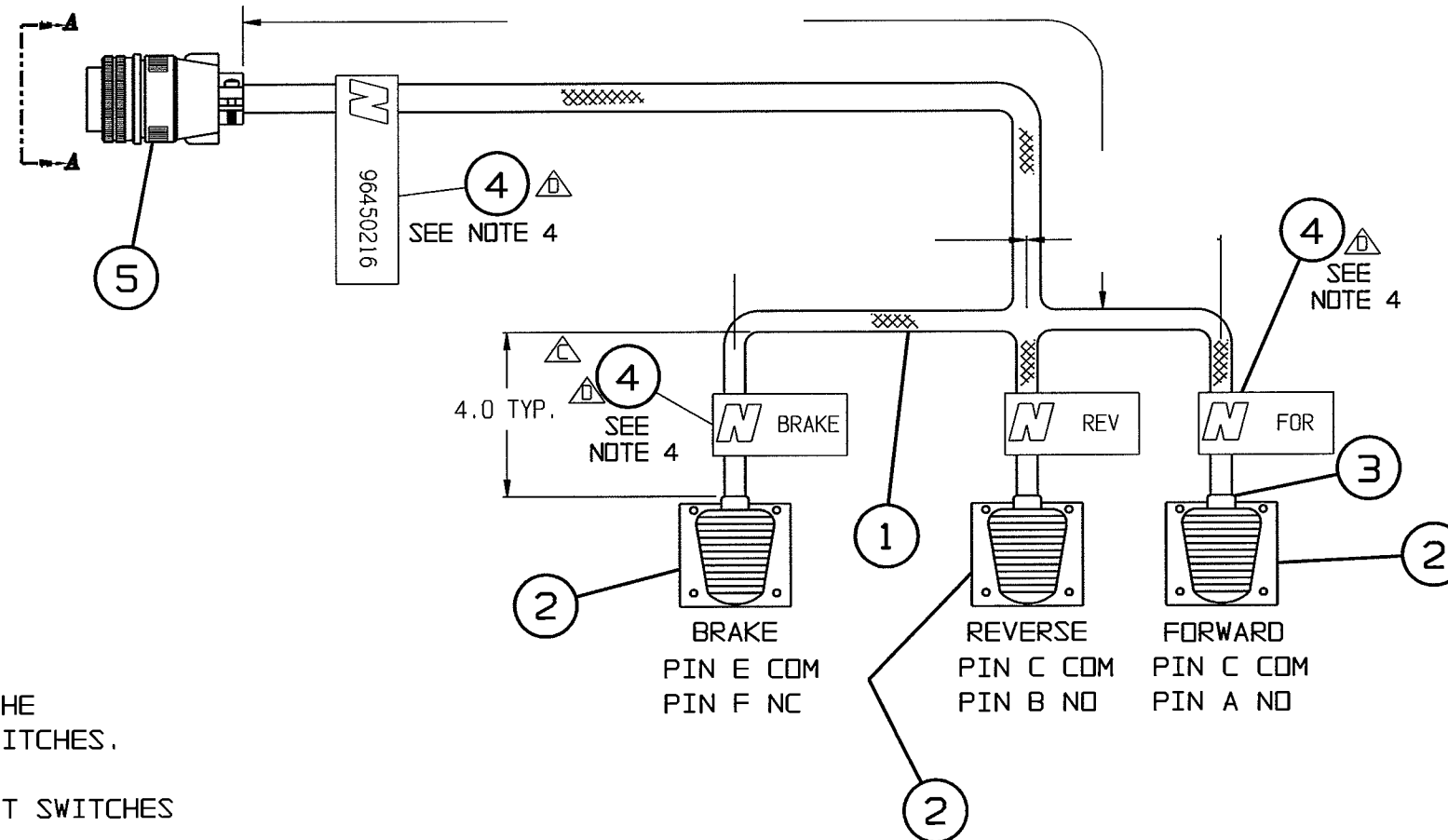
SURFACE PREPARATION: WELD SLAG AND SPATTER TO BE REMOVED. ENTIRE UNIT THEN CLEANED AND APPROPRIATELY PRIME-PAINTED ONE COAT.

BILL OF MATERIALS

ITEM NO.	PART NUMBER	QTY. REQ.	PART NAME	DWG. SIZE
1		-	7 1/2 FT. YELLOW LOOMING MTL.	
2	5128260	3	FOOT SWITCH	
3		3	CORD CONNECTOR	
4	47380100	4	PANDUIT T400X000VXIY	
5			ITT CANNON CONNECTOR, # MS3106E 24-19S OR EQUIV	
6		-	WIRE - #16 AWG BLACK SXL 65 FT.	



VIEW A-A



NOTE:

1. ALL WIRES 16 AWG.
2. FOOT SWITCH CONNECTIONS TO BE MADE WITH RING TERMINALS AT THE END OF THE WIRE INSIDE THE SWITCHES.
3. PIN C COMMON WIRE BETWEEN FOOT SWITCHES IS TO BE A WIRE JUMPER AND NOT AN INLINE SPLICE.
4. HARNESS IS TO BE IDENTIFIED WITH CORRESPONDING NORDCO PART NUMBER PRINTED ON PANDUIT THERMAL TAPE AND ASSEMBLED AS NEAR AS POSSIBLE TO THE MAIN CONNECTOR. TAPE WIDTH IS 1"; TAPE LENGTH TO BE DETERMINED BY THE HARNESS DIAMETER.
5. WIRE SOLDER JOINT AT CANNON CONNECTOR TO BE COVERED WITH HEAT SHRINK SLEEVING.

CUSTOMARY: ALL DIMENSIONS IN INCHES	Nordco	THIRD ANGLE PROJECTION
PRODUCT: M3-B		
DESCRIPTION: FOOT-SWITCH HARNESS		
IMPLIED TOLERANCES	SIZE	SCALE
FRACTION ± 1/8	C	NTS
.X ± .06	DRAWING CODE NUMBER	
.XX ± .03	96450216	
.XXX ± .010	REV. E	
250/ MACHINE FINISH UNLESS OTHERWISE STATED	ASSEMBLY: -	SHEET 1/1

REV	CHANGE	DRAWN BY:	CHECKED BY:	DATE:	E.C.O. #
1	ADDED "OR EQUIV." TO ITEM 5 IN LIST OF MATL.	SWJ		04-15-09	600035
2	ITEM 4 WAS FASTAG PWF HOLDER NOTE 4 WAS ATTACH PASTAG...	SWA	JLE 10-31-06	10-30-06	53890
3	ITEM 4 WAS QTY 1	MKS	JKH 08-14-01	08-14-01	52097
4	NEW ISSUE	LCP	BMB 08-14-01	03-17-95	50986