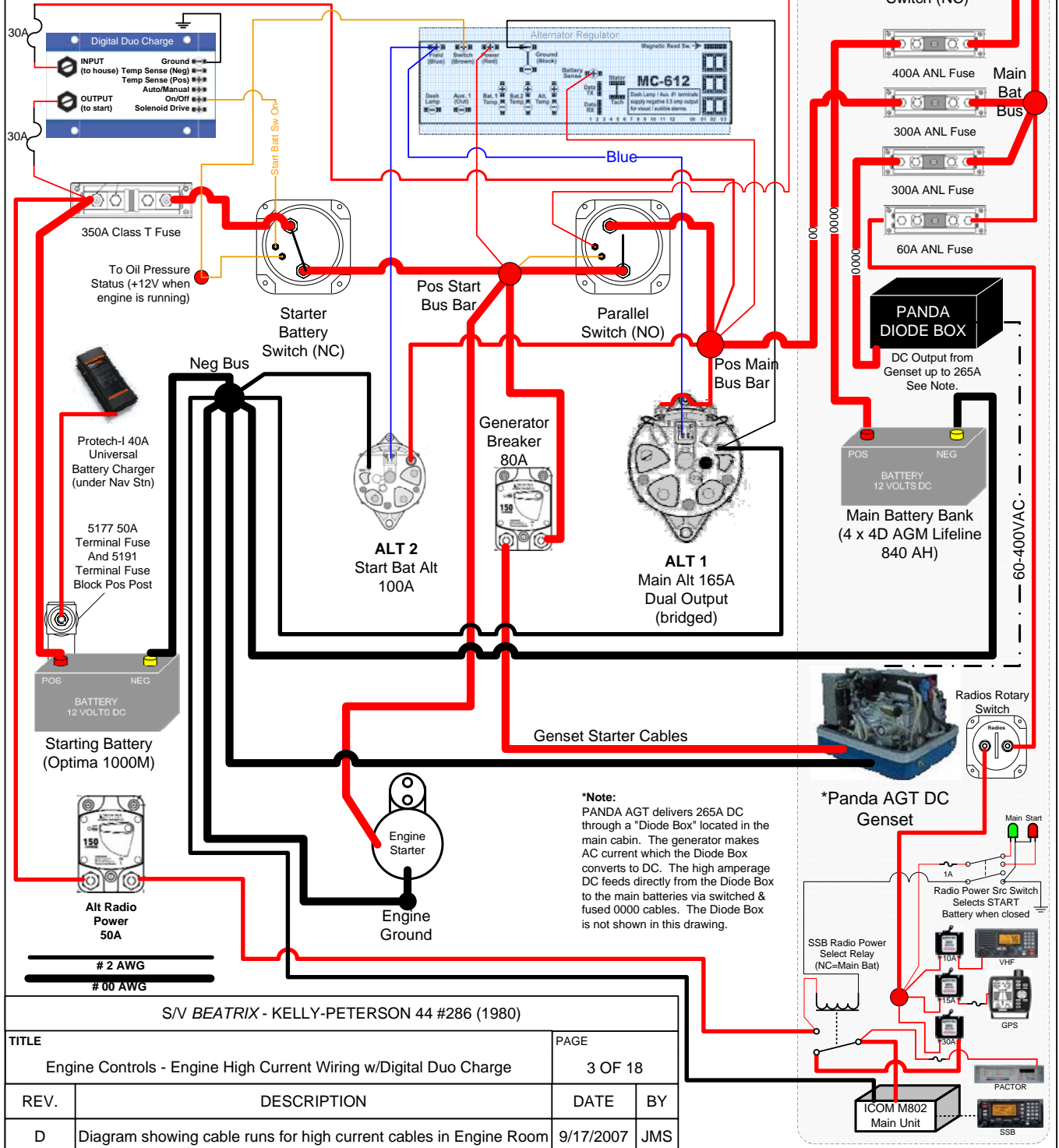


LOGIC TABLE FOR BATTERY AND PARALLEL SWITCH SETTINGS

SWITCHES			EXCITE	CHARGING SRC FOR	STARTER	HOUSE	GEN OK
MAIN	START	PARALLEL	ALTRNTR*	START	MAIN	POWER	TO RUN
X	O	O	NO	None	offline	Main Batt	No (No start)
X	X	O	YES	DDC	Alt1+Alt2	Start Batt	Yes (Start from Start)
X	O	X	YES	None	Alt1+Alt2	Main Batt	Yes (Start from Main)
X	X	X	NO	None	None	Main+Start	No
O	O	O	NO	None	None	offline	No
O	X	O	YES	DDC	None	Start Batt	No
O	O	X	NO	None	None	None	No
O	X	X	YES	DDC	None	Start Batt	No**

* Red Text indicates the Pos Start Bus Bar is energized to 12VDC and thus Power is supplied to the MC-612. "YES" indicates alternator should be on. The only problem occurs when both Parallel and Start switches are on and the engine is running.
 ** Voltage sense for Generator is on Main Batt, thus cannot charge Start Batt with Genset directly.
 Note: Radios and Pumps are on separate circuits and have independent power sources.



LOGIC TABLE FOR BATTERY AND PARALLEL SWITCH SETTINGS

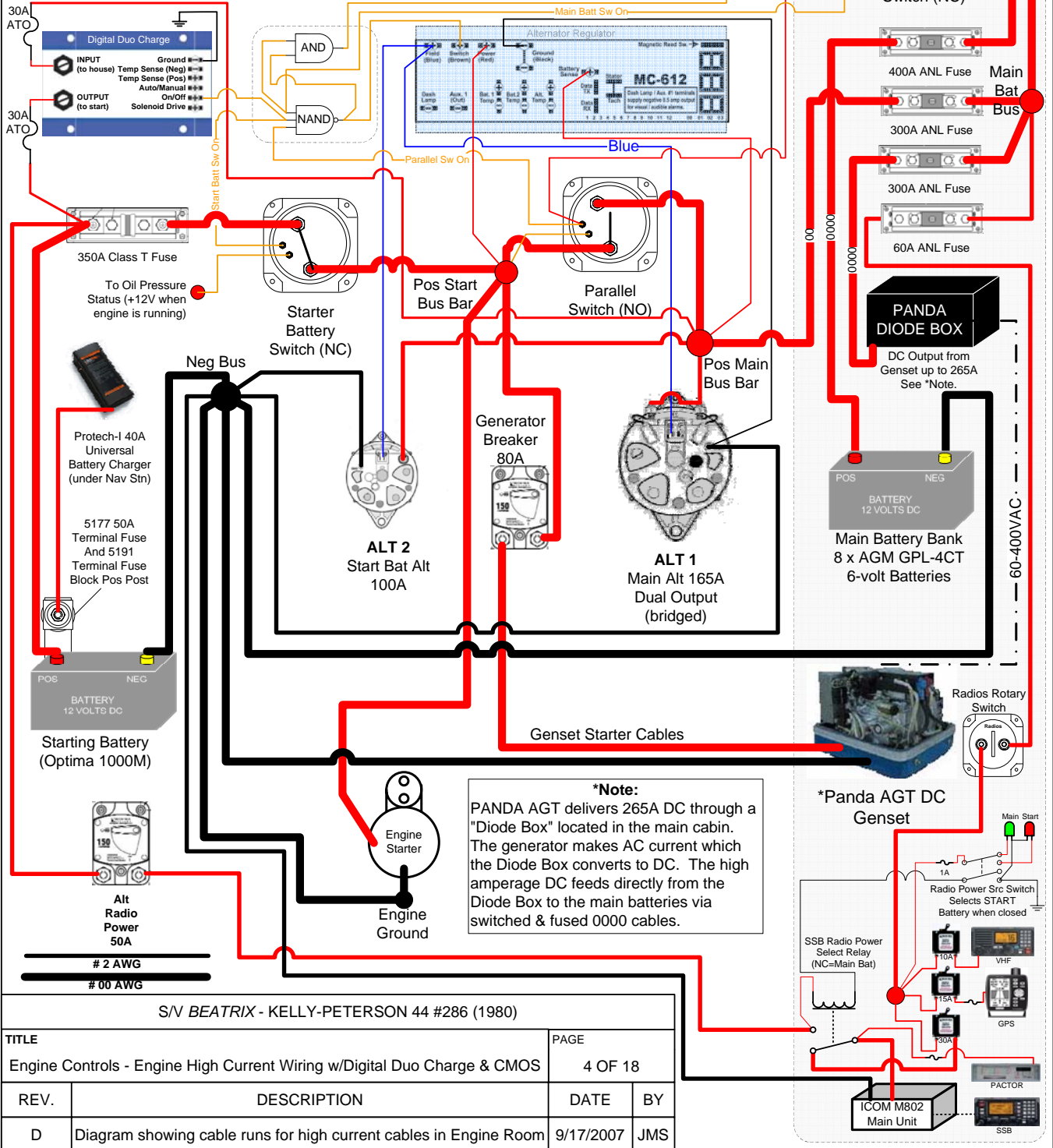
SWITCHES			ALTRNTR	CHARGING SRC FOR	STARTER	HOUSE	GEN OK
MAIN	START	PARALLEL	EXCITE*	START	POWER	POWER	TO RUN
X	O	O	NO	None	offline	Main Batt	No (No start)
X	X	O	YES	DDC	Alt1+Alt2	Main Batt	Yes (Start from Start)
X	O	X	YES	None	Alt1+Alt2	Main Batt	Yes (Start from Main)
X	X	X	NO	None	None	Main+Start	No
O	O	O	NO	None	None	offline	No
O	X	O	YES	DDC	None	Start Batt	No
O	O	X	NO	None	None	None	No
O	X	X	YES	DDC	None	Start Batt	No**

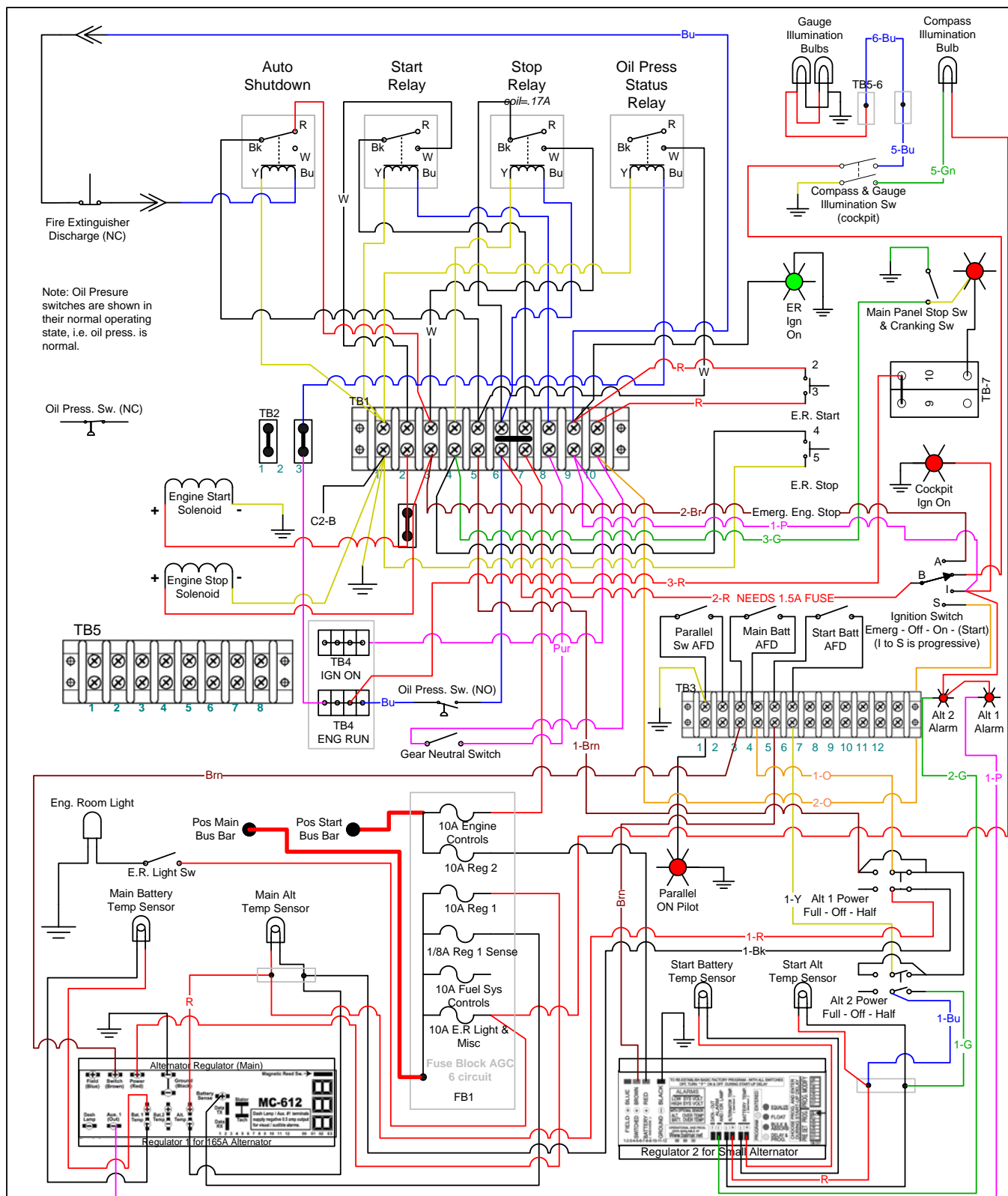
* Red Text indicates the Pos Start Bus Bar is energized to 12VDC and thus Power is supplied to the MC-612.

** Voltage sense for Generator is on Main Batt, thus cannot charge Start Batt with Genset directly.

Note: Radios and Pumps are on separate circuits and have independent power power sources.

Question for Panda: If voltage sense is 0 will gen. run? Is there a way to make sure GEN is shutdown?





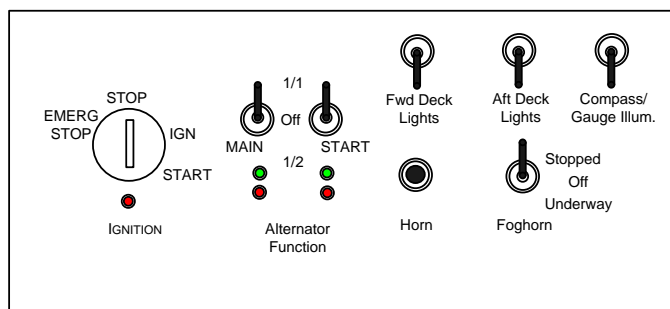
S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)

TITLE		PAGE	
Engine Controls - Eng & Alt Controls Schematic		5 OF 18	
REV	Wiring Diagram for Engine Control Functions Perkins 4-154 dual alternator	11/02/2002	JMS
D	Remove "Engine Status" Relay, simplify start circuit	9/17/2007	JMS

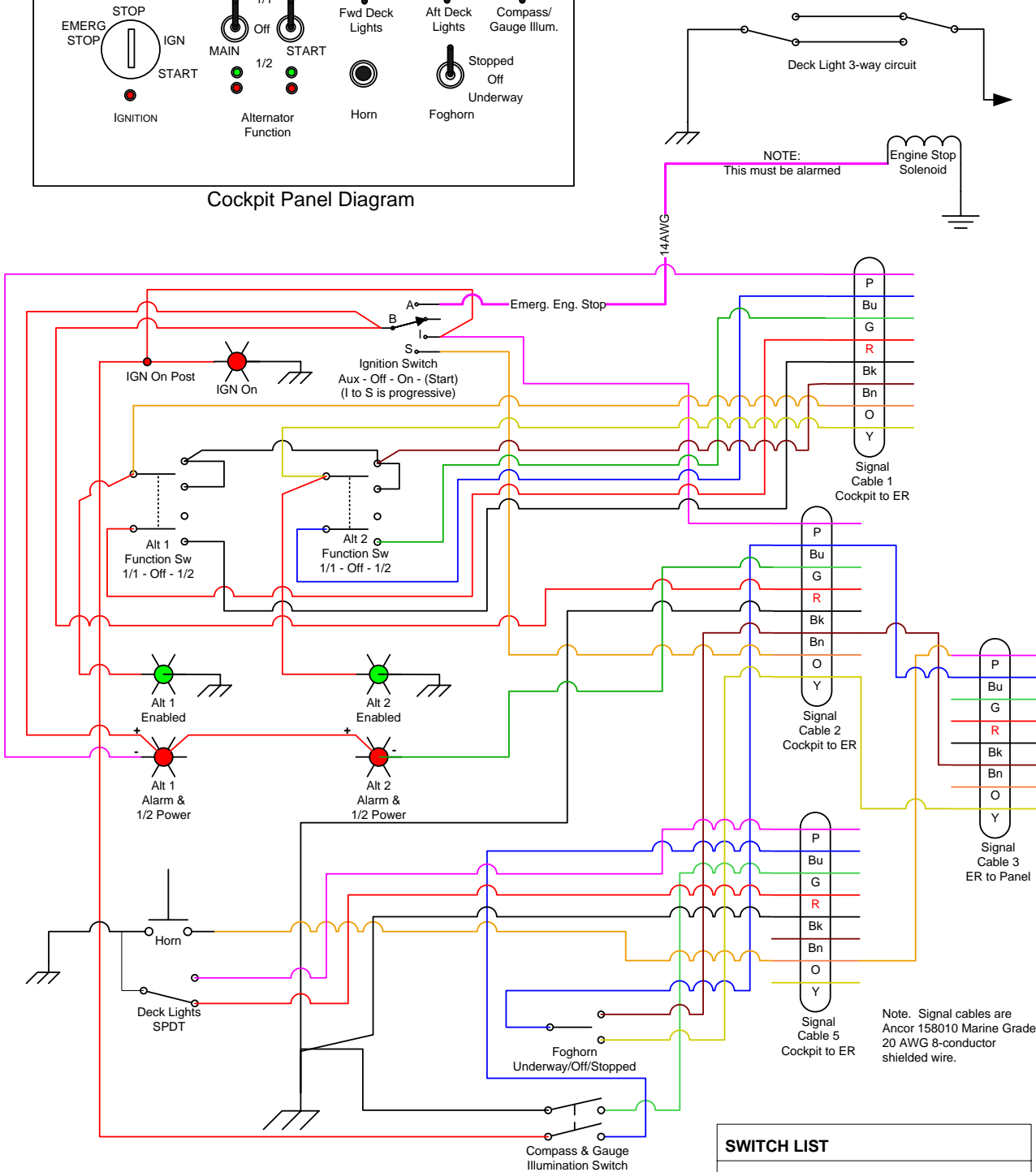
Note 1. References such as 1-R refer to the signal cable number and conductor color, e.g. Cable #1 - Red.



Note 1. References such as 1-R refer to the signal cable number and conductor color, e.g. Cable #1 - Red.



Cockpit Panel Diagram

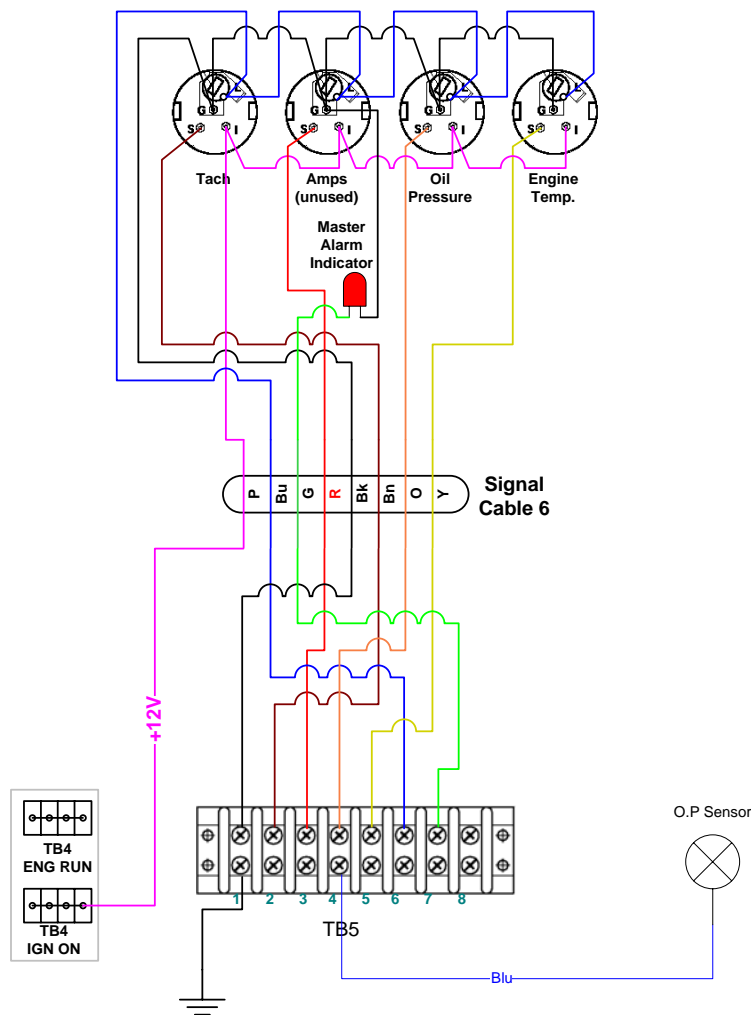


SWITCH LIST

- (1) Ignition switch w/key
- (3) DPDT ON-OFF-ON
- (1) DPDT OFF-ON
- (1) SPST Horn Button OFF-(ON)
- (2) SPST OFF-ON

S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)

TITLE		PAGE	
Engine Controls - Cockpit Control Panel Schemati		7 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Wiring Diagram for Cockpit Control Panel	9/17/2007	JMS



TB5 - TERMINAL BLOCK 5	
1	Negative Ground
2	To Alternator 2 Stator wire
3	unused
4	To Oil Pressure Sensor
5	To High Temperature Sensor
6	To Gauge Illumination Switch in Cockpit
7	From Alarm Panel (+12V when alarmed)
8	unused

C6 - SIGNAL CABLE 6	
RUN	Engine Room to Engine Gauge Panel
COLOR	DESCRIPTION
PUR	Ignition ON (+12V)
BLUE	Gauge Illumination
GRN	Master Alarm Indicator
RED	
BLK	Negative Ground
BRN	To Tachometer from Alternator 2 Stator
ORN	Oil Pressure Low Sensor
YEL	Over Temperature Sensor

S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)			
TITLE		PAGE	
Engine Controls - Engine Gauges		8 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Schematic for Engine Gauges & Master Alarm Light	9/17/2007	JMS

C1 - SIGNAL CABLE 1	
RUN	Engine Room to Cockpit
COLOR	DESCRIPTION
PUR	1/2 power signal ALT 1 - Reg 1 AUX 1*
BLUE	1/2 power Alt 2 - Alt Temp Sensor
GRN	1/2 power Alt 2 - Alt Temp Sensor
RED	1/2 power Alt 1 - Alt Temp Sensor
BLK	1/2 power Alt 1 - Alt Temp Sensor
BRN	+12 VDC from Oil Pressure Switch (Eng. On)
ORN	Alt 1 Brown wire
YEL	Alt 2 Brown wire

C2 - SIGNAL CABLE 2	
RUN	Engine Room to Cockpit
COLOR	DESCRIPTION
PUR	IgnitionSwitch "I" (+12VDC Out)
BLUE	+12V input Fogmate Mode Sw (from C2-Blu)
GRN	horn button neg output to C3-PUR
RED	Ignition Switch "B" (+12VDC In)
BLK	Negative Ground
BRN	+12V when Fog Underway selected (output)
ORN	Ignition Switch "S" (Start)
YEL	+12V when Fog Stopped selected (output)

C3 - SIGNAL CABLE 3	
RUN	Engine Room to Main Panel
COLOR	DESCRIPTION
PUR	Electric Horn Button (neg output) frm C2-GRn
BLUE	to C2-Blue from Nav Lt (+12V)
GRN	Engine Stop (mom. connect to Neg)
RED	Hour Meter
BLK	Neg output* when engine is off (to Fogmate) ³
BRN	FogMate "Underway" mode - cnct to C2-BRN
ORN	Start Battery Voltage Sense Wire
YEL	Fogmate "Stopped" Mode - cncts to C2-YEL

C4 - SIGNAL CABLE 4	
RUN	Engine Room to Status Panel
COLOR	DESCRIPTION
PUR	Oil Presure Sensor*
BLUE	Starting Battery Continuity
GRN	Ignition "ON"
RED	Parallel "ON" (+12V when batts are parallel)
BLK	Parallel "ON"* (to Neg when batts are parallel)
BRN	High Temp. Sensor*
ORN	Exhaust Temp Sensor*
YEL	Water Flow Sensor*

C5 - SIGNAL CABLE 5	
RUN	Engine Room to Cockpit
COLOR	DESCRIPTION
PUR	Deck Light 3-way sw (neg output)
BLUE	Engine Gauges Illumination Switch (+12V)
GRN	Compass Illumination Switch (Neg output)
RED	Deck Lights 3-way sw (neg output)
BLK	Negative Ground
BRN	Spare
ORN	1/2 power signal Alt 2 - Reg 2 ALARM
YEL	Spare

C6 - SIGNAL CABLE 6	
RUN	Engine Room to Engine Gauge Panel
COLOR	DESCRIPTION
PUR	Ignition ON (+12V)
BLUE	Gauge Illumination
GRN	Master Alarm Indicator
RED	
BLK	Negative Ground
BRN	To Tachometer from Alternator 2 Stator
ORN	Oil Pressure Low Sensor
YEL	Over Temperature Sensor

S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)				Note 1. Items marked with an asterisk (*) output battery negative. In the case of sensors, battery negative is the normal situation.	
TITLE Engine Controls - Signal Cables (Part 1)			PAGE 9 OF 18		
REV.	DESCRIPTION		DATE	BY	Note 2. Signal cables are Ancor 158010 Marine Grade 20 AWG 8-conductor shielded wire.
D	Signal Cable Function List		9/17/2007	JMS	

C7 - SIGNAL CABLE 7	
RUN	Instrument/Alarm Panel to Nav Station
COLOR	DESCRIPTION
PUR	
BLUE	
GRN	
RED	
BLK	
BRN	
ORN	
YEL	

C8 - SIGNAL CABLE 8	
RUN	Instrument/Alarm Panel to Instrument Pod
COLOR	DESCRIPTION
PUR	Autopilot Control
BLUE	From Autopilot NMEA OUT to Multi-2000
GRN	From Autopilot Signal GND to Multi-2000
RED	Autopilot Control
BLK	Autopilot Control
BRN	Autopilot Control
ORN	Autopilot Control
YEL	Autopilot Control

C9 - SIGNAL CABLE 9	
RUN	Instrument/Alarm Panel to ER
COLOR	DESCRIPTION
PUR	
BLUE	
GRN	
RED	
BLK	
BRN	
ORN	
YEL	

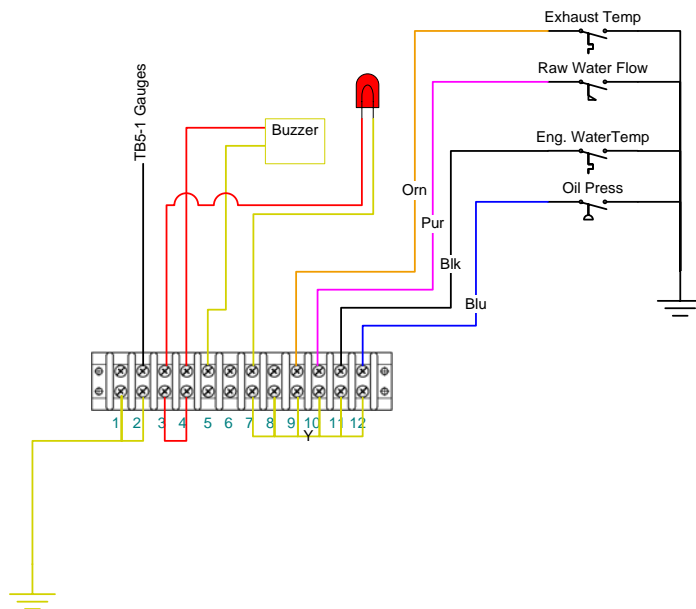
C10 - SIGNAL CABLE 10	
RUN	Pumps Panel to Main Panel
COLOR	DESCRIPTION
PUR	
BLUE	
GRN	
RED	
BLK	
BRN	
ORN	
YEL	

C11 - SIGNAL CABLE 11	
RUN	
COLOR	DESCRIPTION
PUR	
BLUE	
GRN	
RED	
BLK	
BRN	
ORN	
YEL	

C12 - SIGNAL CABLE 12	
RUN	
COLOR	DESCRIPTION
PUR	
BLUE	
GRN	
RED	
BLK	
BRN	
ORN	
YEL	

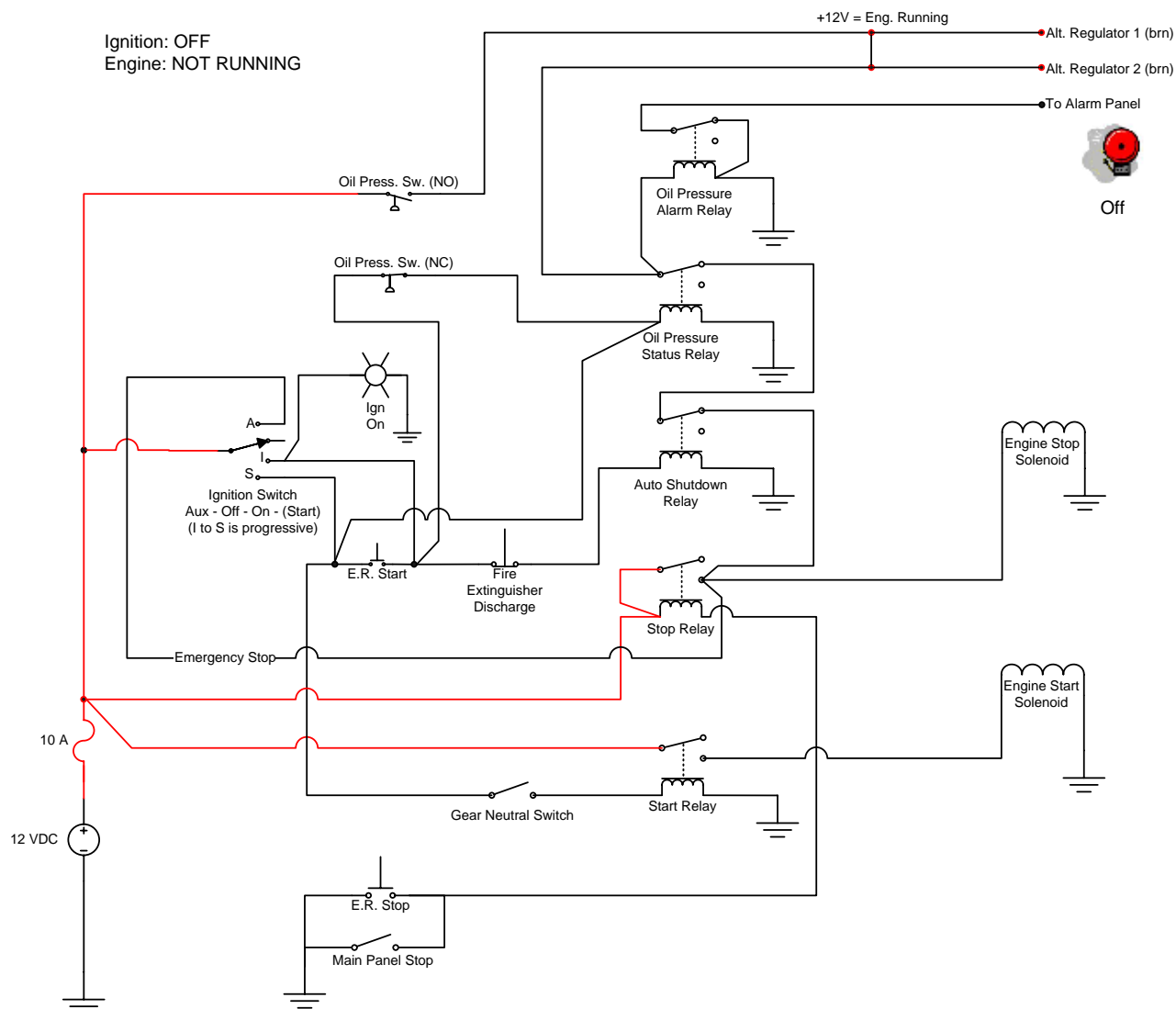
S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)					Note 1. Items marked with an asterisk (*) output battery negative. In the case of sensors, battery negative is the normal situation.
TITLE			PAGE		
Engine Controls - Signal Cables (Part 2)			10 OF 18		Note 2. Signal cables are Ancor 158010 Marine Grade 20 AWG 8-conductor shielded wire.
REV.	DESCRIPTION		DATE	BY	
D	Signal Cable Function List		9/17/2007	JMS	

All sensors are normally closed.
Sensors are open when operating.



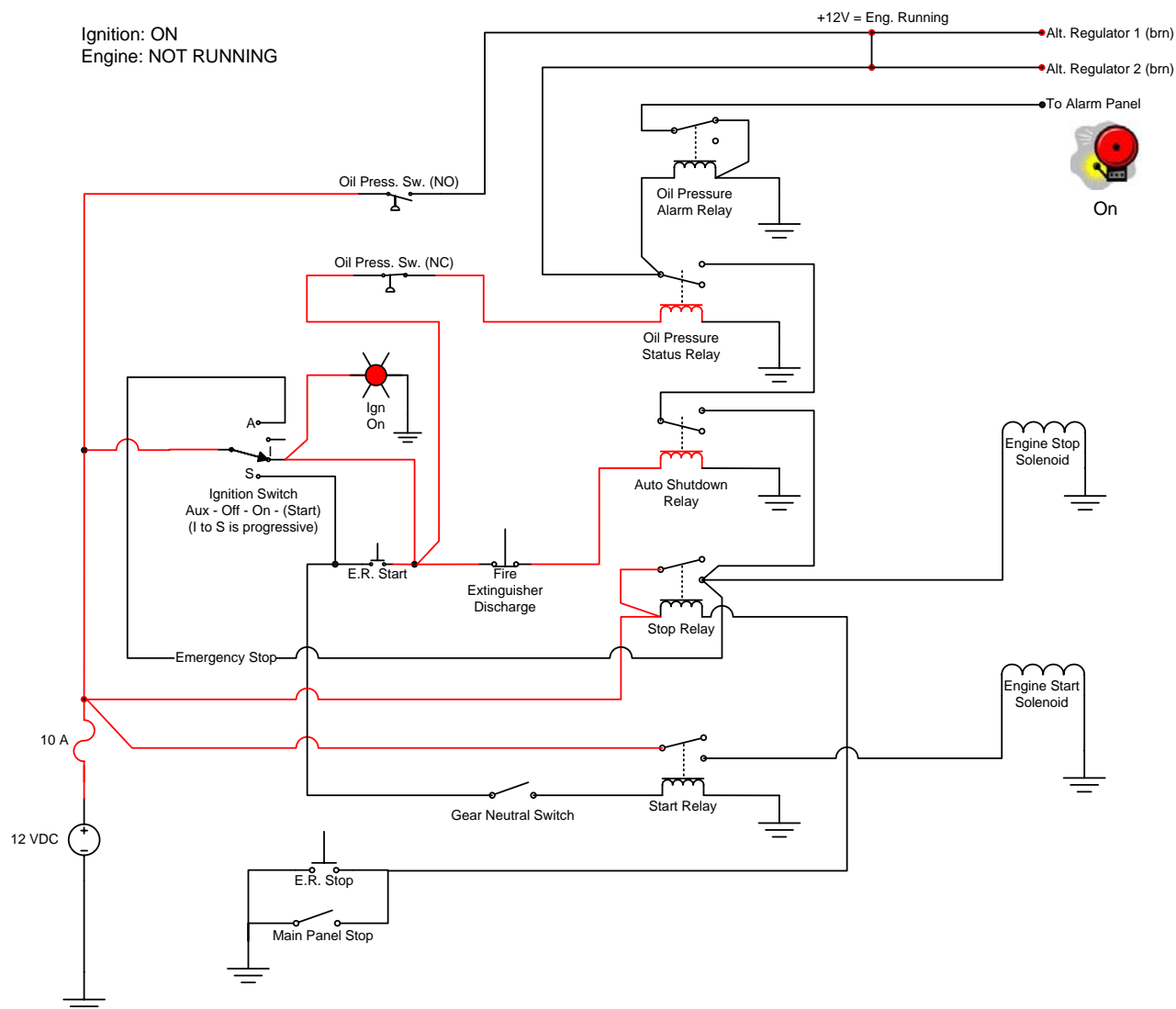
S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)

TITLE		PAGE	
Engine Controls - Temporary Alarm Panel		11 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Schematic for Engine Gauges & Master Alarm Light	9/17/2007	JMS



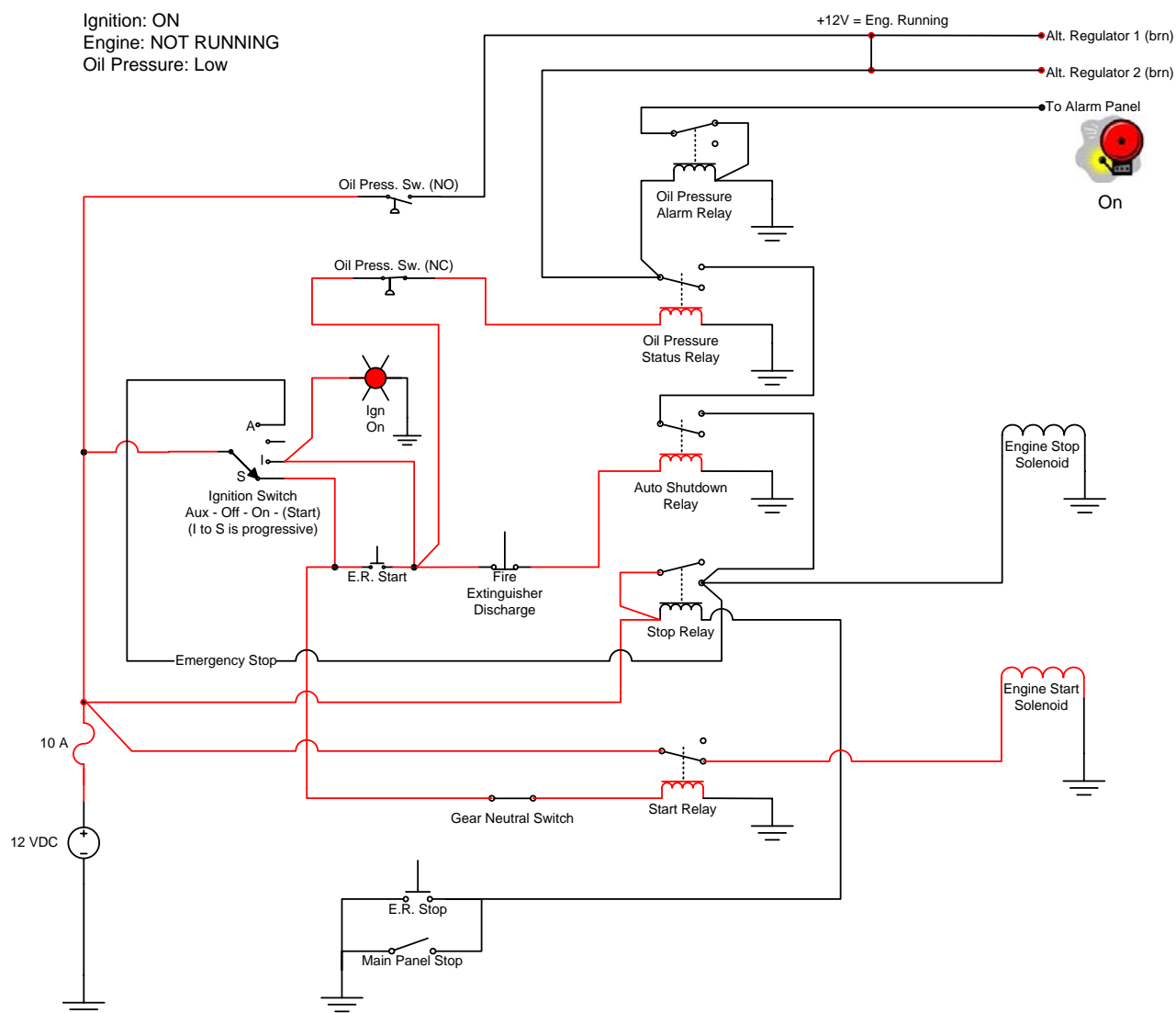
1. Wiring diagram for Perkins 4-154 on *Beatrix*. This Perkins does not require glow plugs or pre-heaters.
2. Relays are standard automotive 30A/40A SPDT "ice cube" relays.
3. There are 5 normal states to this circuit: OFF, IGN ON, IGN RUN, START, STOP.
4. IGN ON state energizes the Auto Shutdown Relay and, once the engine is running, energizes the Oil Pressure Status Relay.
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The stop solenoid is energized when the STOP state is entered by turning off the key or pressing one of the two Stop momentary switches. either in the Engine Room or at the Main Panel are optional.
8. Fire Extinguisher is Xintex Fireboy CG2-125-FE241 automatic discharge. This circuit is designed to shut down the engine on discharge.
9. Engine warning & alarm system is not shown.

S/V <i>BEATRIX</i> - KELLY-PETERSON 44 #286 (1980)			
TITLE		PAGE	
Engine Controls - Logical Schematic OFF State		12 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Gross Logical Wiring Diagram for Engine Stop/Start Functions	09/05/2002	JMS
B	Eliminate "Engine Status" Relay. Simplify start circuit		JMS
C	Override shutdown function in Start Mode. Change OP Sw function	9/17/2007	JMS



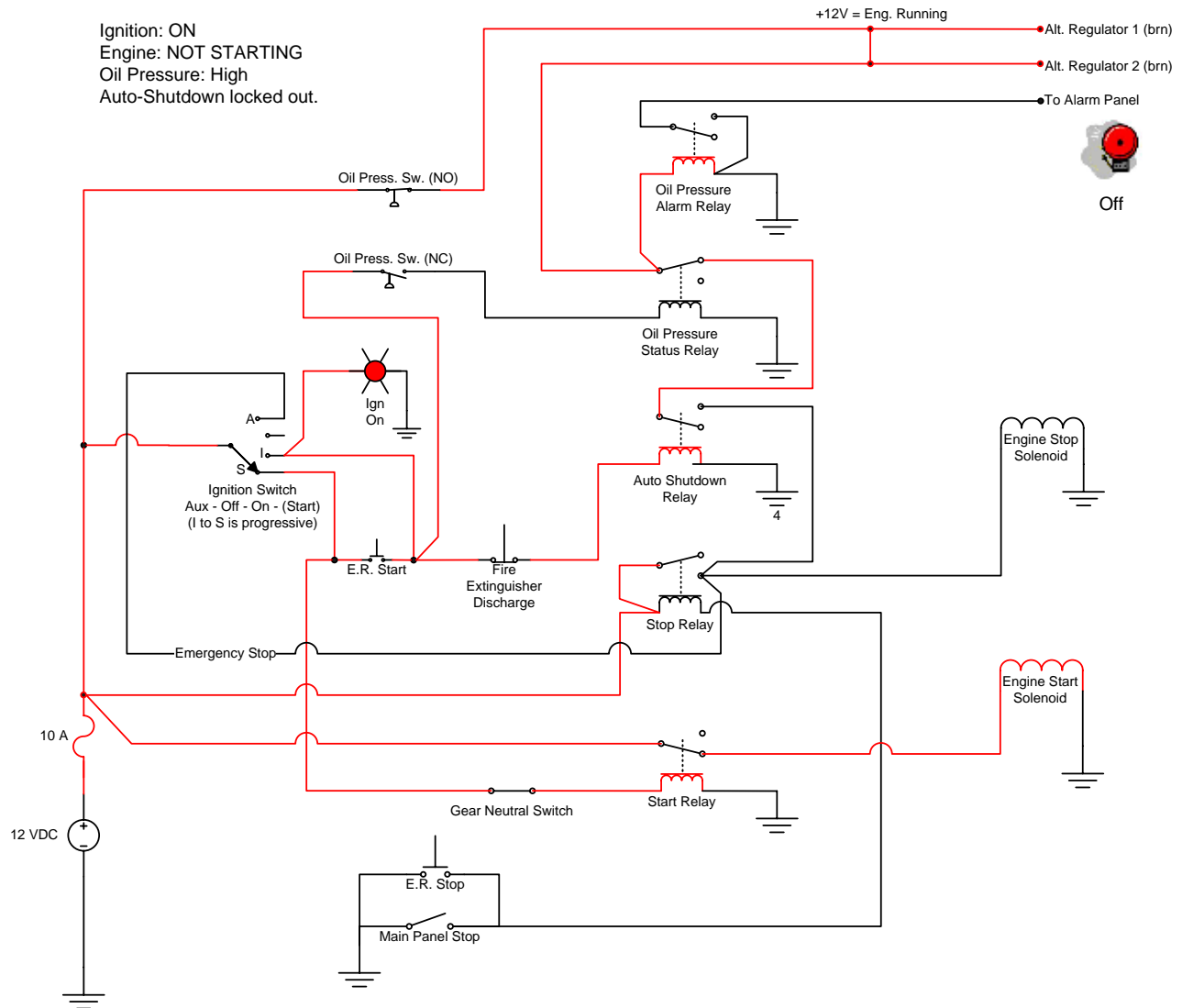
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S/N BEATRIX - KELLY-PETERSON 44 #286 (1980)			
TITLE		PAGE	
Engine Controls - Logical Schematic IGN ON State		13 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Gross Logical Wiring Diagram for Engine Stop/Start Functions	09/05/2002	JMS
B	Eliminate "Engine Status" Relay. Simplify start circuit		JMS
C	Override shutdown function in Start Mode. Change OP Sw function	9/17/2007	JMS



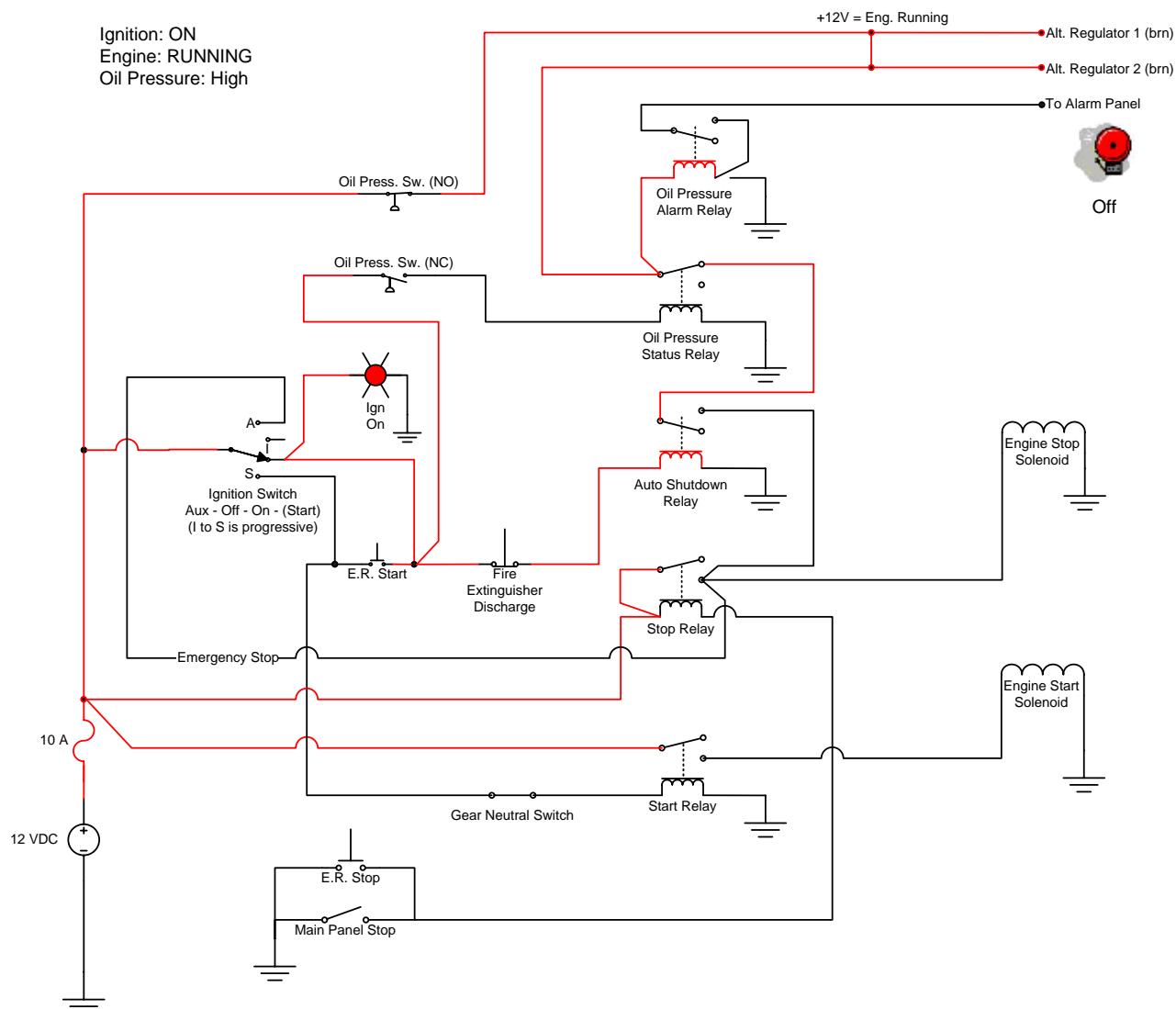
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8. Fire Extinguisher is Xintex Fireboy CG2-125-FE241 automatic discharge. This circuit is designed to shut down the engine on discharge.
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S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)			
TITLE		PAGE	
Engine Controls - Logical Schematic START State		14 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Gross Logical Wiring Diagram for Engine Stop/Start Functions	09/05/2002	JMS
B	Eliminate "Engine Status" Relay. Simplify start circuit		JMS
C	Override shutdown function in Start Mode. Change OP Sw function	9/17/2007	JMS



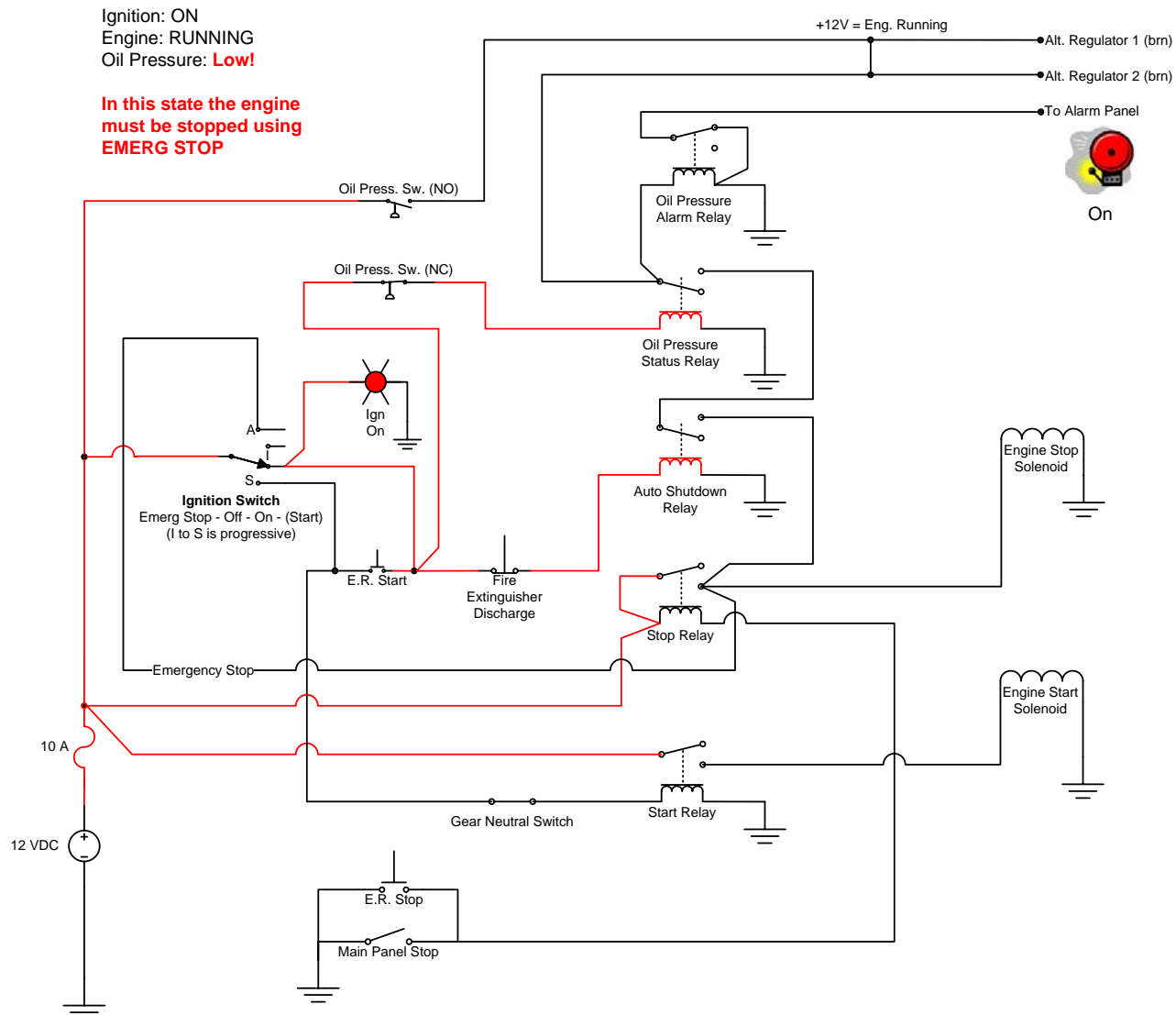
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8. Fire Extinguisher is Xintex Fireboy CG2-125-FE241 automatic discharge. This circuit is designed to shut down the engine on discharge.
9. Engine warning & alarm system is not shown.

S/V <i>BEATRIX</i> - KELLY-PETERSON 44 #286 (1980)			
TITLE		PAGE	
Engine Controls - Logical Schematic OVERSTART		15 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Gross Logical Wiring Diagram for Engine Stop/Start Functions	09/05/2002	JMS
B	Eliminate "Engine Status" Relay. Simplify start circuit		JMS
C	Override shutdown function in Start Mode. Change OP Sw function	9/17/2007	JMS



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9. Engine warning & alarm system is not shown.

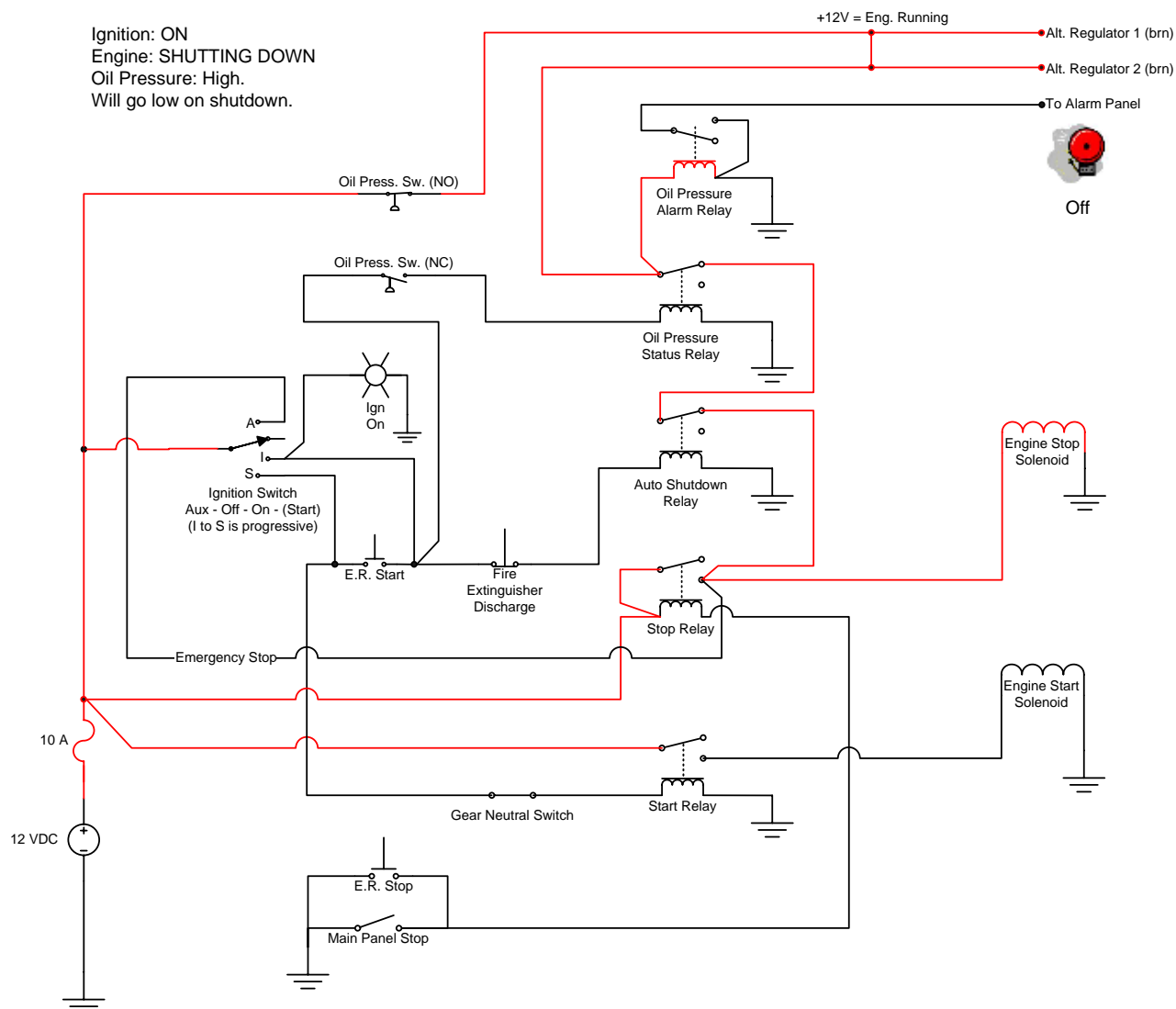
S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)			
TITLE		PAGE	
Engine Controls - Logical Schematic IGN RUN Stat		16 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Gross Logical Wiring Diagram for Engine Stop/Start Functions	09/05/2002	JMS
B	Eliminate "Engine Status" Relay. Simplify start circuit		JMS
C	Override shutdown function in Start Mode. Change OP Sw function	9/17/2007	JMS



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9. Engine warning & alarm system is not shown.

S/N BEATRIX - KELLY-PETERSON 44 #286 (1980)

TITLE		PAGE	
Engine Controls - Logical Schematic IGN ERR State		17 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Gross Logical Wiring Diagram for Engine Stop/Start Functions	09/05/2002	JMS
B	Eliminate "Engine Status" Relay. Simplify start circuit		JMS
C	Override shutdown function in Start Mode. Change OP Sw function	9/17/2007	JMS



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either in the Engine Room or at the Main Panel are optional.
8. Fire Extinguisher is Xintex Fireboy CG2-125-FE241 automatic discharge. This circuit is designed to shut down the engine on discharge.
9. Engine warning & alarm system is not shown.

S/V BEATRIX - KELLY-PETERSON 44 #286 (1980)			
TITLE		PAGE	
Engine Controls - Logical Schema AUTOSTOP State		18 OF 18	
REV.	DESCRIPTION	DATE	BY
D	Gross Logical Wiring Diagram for Engine Stop/Start Functions	09/05/2002	JMS
B	Eliminate "Engine Status" Relay. Simplify start circuit		JMS
C	Override shutdown function in Start Mode. Change OP Sw function	9/17/2007	JMS