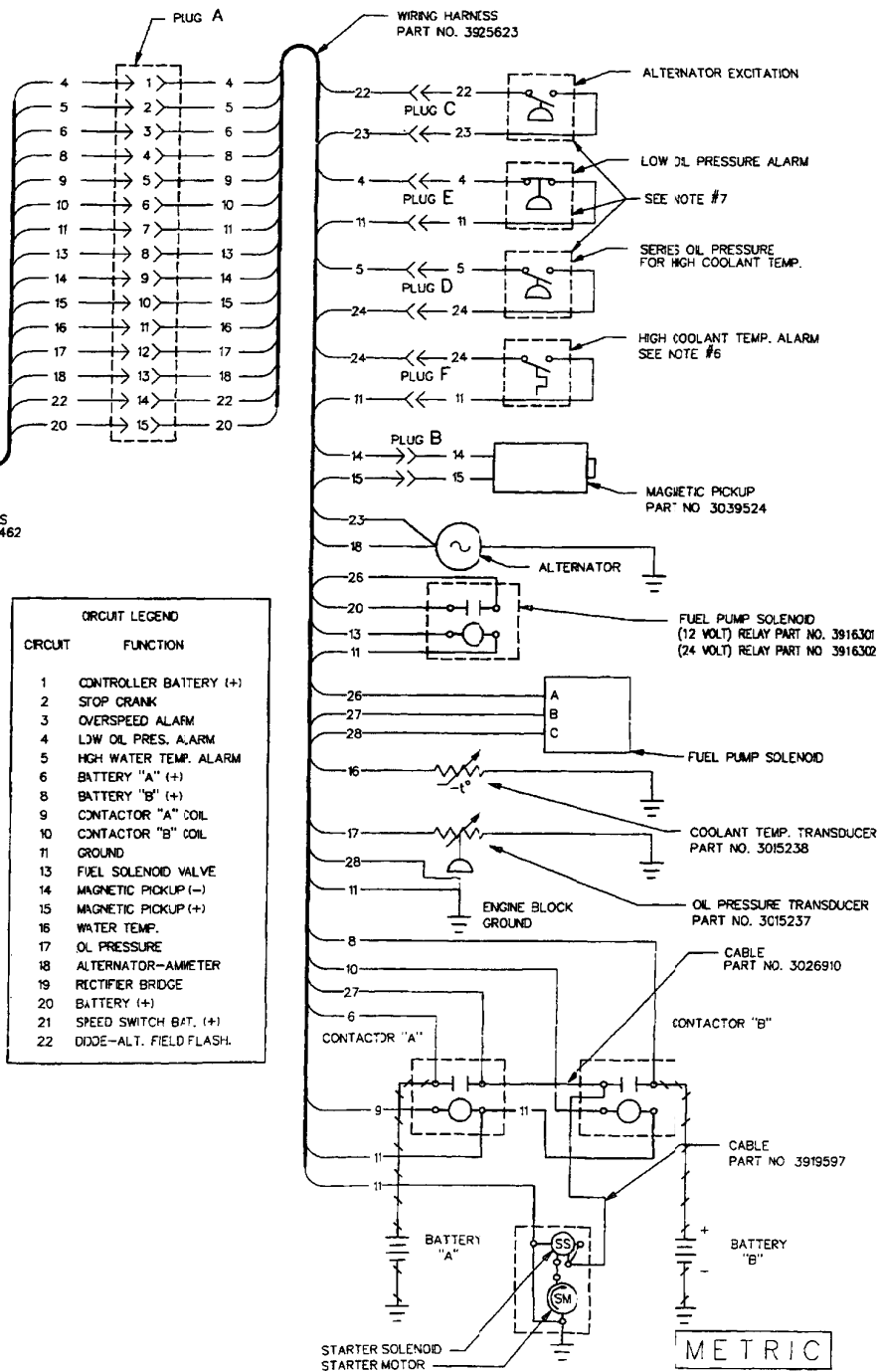


CIRCUIT LEGEND	
CIRCUIT	FUNCTION
1	CONTROLLER BATTERY (+)
2	STOP CRANK
3	OVERSPEED ALARM
4	LOW OIL PRES. ALARM
5	HIGH WATER TEMP. ALARM
6	BATTERY "A" (+)
8	BATTERY "B" (+)
9	CONTACTOR "A" COIL
10	CONTACTOR "B" COIL
11	GROUND
13	FUEL SOLENOID VALVE
14	MAGNETIC PICKUP (-)
15	MAGNETIC PICKUP (+)
16	WATER TEMP.
17	OL PRESSURE
18	ALTERNATOR-AMMETER
19	RECTIFIER BRIDGE
20	BATTERY (+)
21	SPEED SWITCH BAT. (+)
22	DIODE-ALT. FIELD FLASH.



REVISIONS		
REV. NO.	DESCRIPTION	DATE
00	RELEASED PER 830195-229	1-28-68
01	REVISED PER 861500-054	1-28-68
02	REVISED PER 961700-359	1-28-68

- BATTERIES ARE NOT MOUNTED & CABLES ARE NOT FURNISHED FROM BATTERY TO ENGINE.
- NEGATIVE GROUND ONLY IS SUPPLIED.
- INTERNAL JUMPER BETWEEN TERMINALS E4 & E5 REQUIRED FOR 12 VOLT OPERATION.
- WIRE INSTALLATION RESPONSIBILITY CODE :
 — CUMMINS ENGINE CO. INC.
 -X-X- PUMP MANUFACTURER
 / OTHERS
- THE FOLLOWING MANUFACTURERS SUPPLY FIRE PUMP CONTROLLERS :
 METRON INDUSTRIES INC.; DENVER, CO.
 MASTER CONTROL SYSTEMS; SPOKANE, ILL.
 FIRETROL INC.; CARY, N.C.
 JOSLYN-CLARK CONTROLS; LANCASTER, S.C.
- COOLANT TEMPERATURE SWITCH (PART NO. 3056351) CLOSSES AT 205-215° F INCREASING TEMPERATURE.
- OIL PRESSURE SWITCH (PART NO. 3062867) ACTIVATES AT 6 PSI DECREASING PRESSURE AND 15 PSI INCREASING PRESSURE.
- DIODE (PART NO. 3920870) CONNECTIONS : WIRE 22 TO (+) TERMINAL AND WIRE 20 TO (-) TERMINAL.
- RECTIFIER (PART NO. 3031643) CONNECTIONS : WIRE 20 TO (+) TERMINAL AND WIRE 19 TO (-) TERMINAL. WIRES 6 AND 8 TO (AC) TERMINALS.
- TERMINALS 1-11 CONNECT TO FIRE PUMP CONTROLLER.

CLASSIFICATION OF CHARACTERISTICS	
CRITICAL	●
MAJOR	○
MINOR	○
(NONE)	○

LINE BELOW SYMBOL ● APPLIES TO UPPER LIMIT
 LINE ABOVE SYMBOL ○ APPLIES TO LOWER LIMIT
 NO LINE WITH SYMBOL APPLIES TO BOTH LIMITS

DESIGN ENGINEER :
 DRAWING PRACTICE : 99012

UNLESS OTHERWISE SPECIFIED THE FOLLOWING GENERAL NOTES SHALL APPLY TO ALL PARTS MUST BE CLEARLY IDENTIFIED BY THE LOCATION NOTED AS TO COUNTRY OF ORIGIN AND PART NUMBER PER MFG. MTD. BY

BREAK SHARP CORNERS AND REMOVE BURRS PER MFG. STD. 8001

MADE FROM ROUGH CASTING/FORGING NO.:

RIFLET RADI	REF. DRAWING NO. 3919460
EDGE RADI	LAYOUT NO.
WALL THICKNESS	INDUCE GRAPHS: INSTE
DRAFT ANGLES	FIRST USED ON C-SERIES
SURFACE FINISH	SEE AAMM/MATERIAL
FINISH STOCK	PROCESS
INSP. STD.	

LAST DATUM LETTER USED:	MFG. METHOD
LAST REF. LETTER USED:	INDGR. STD.
REF. DRAWING STANDARDS:	Cummins Engine Company, Inc
ANSI Y4.5M	

METRIC
DO NOT SCALE THIS DRAWING

Terminal Strip Functions - Diagram 3919460 (Used on 6CTA8.3F1)

TERMINAL NO. 1: WATER SOLENOID, SPEED SWITCH CONTACTS and GAUGES.

A fire signal or weekly test run makes the fire pump controller supply positive 12 volts to Terminal No. 1. This energizes the water solenoid valve in the raw water supply line to the heat exchanger. It also supplies power to two different sets of contacts in the speed switch and to the gauges and the tachometer. Power from Terminal No. 1 goes to the normally open, stop crank speed switch contacts and the normally closed overspeed switch contacts. Power from the overspeed contacts goes to the coil of the fuel pump solenoid. This caused the solenoid to retract and allows the spring loaded fuel shutoff lever to go to the run position.

TERMINAL NO. 2: CRANK TERMINATION:

During a cranking cycle, when adequate engine cranking speed has been reached, the stop crank terminals in the speed switch close and energize Terminal No. 2. This signals the controller to terminate the cranking cycle.

TERMINAL NO. 3: OVERSPEED SHUTOFF:

In the event of an overspeed condition, the normally open overspeed contacts in the speed switch close and energize Terminal No. 3 to signal an overspeed to the controller. At the same time, the normally closed overspeed switch contacts open and remove power from the fuel pump solenoid. The spring in the fuel pump solenoid forces the shutoff lever to the stop position and the engine stops.

TERMINAL NO. 4: LOP ALARM SIGNAL:

The ground lead from the low oil pressure alarm in the controller is connected to Terminal No. 4. When the engine is operating, normal oil pressure will open the normally closed contacts of the oil pressure switch. In the event of a low oil pressure condition, the normally closed contacts in the oil pressure switch will close; and the low oil pressure alarm in the controller will energize.

TERMINAL NO. 5: HWT ALARM SIGNAL:

The ground lead from the high water temperature alarm in the controller is connected to Terminal No. 5. In the event of a high water temperature condition, the normally open contact in the water temperature switch will close; and the high water temperature alarm in the controller will energize if the engine is operating.

HIGH COOLANT TEMPERATURE ALARM ISOLATION:

Because the fire pump drive engines must stop from full speed or full load with no idle cool down period, the engine coolant temperature will rise immediately after the engine stops. This condition can result in a high coolant temperature alarm signal while the engine is stopped and in a stand-by condition. To prevent the high water temperature alarm from sounding due to these circumstances, an oil pressure switch with normally open contacts is wired in series with the water temperature switch. When the engine is stopped, the oil pressure switch contacts are open. This prevents a high water temperature alarm signal when the engine is stopped.

TERMINAL NO. 6: BATTERY SET "A" LEAD:

Terminal No. 6 is the positive lead from battery "A". Alternator current goes through one leg of the rectifier bridge to battery "A" through Terminal No. 6. The controller also senses battery "A" voltage through this lead. Power to the speed switch (Terminal 4, wire 21) is also supplied from Terminal No. 6 through a leg of the rectifier bridge and the normally closed pushbutton reset switch. Power is supplied to the speed switch at all times except while the pushbutton reset switch is pushed open.

TERMINAL NO. 7:

Is NOT used for engine wiring connections.

TERMINAL NO. 8: BATTERY SET "B" LEAD:

Terminal No. 8 is the positive lead from battery "B". Alternator current goes through one leg of the rectifier bridge to battery "B" through Terminal No. 8. The controller also senses battery "B" voltage through this lead. Power to the speed switch (Terminal 4, wire 21) is also supplied from Terminal No. 8 through a leg of the rectifier bridge and the normally closed pushbutton reset switch. Power is supplied to the speed switch at all times except while the pushbutton reset switch is pushed open.

TERMINAL NO. 9: CRANK 1:

During a cranking cycle, the controller energizes the coil of starter contactor "B" through Terminal No. 9 to start the engine. If the engine does NOT start within 15 seconds, the controller will de-energize Terminal No. 9, wait 15 seconds, then begin a cranking cycle through Terminal No. 10.

TERMINAL NO. 10: CRANK 2:

During a cranking cycle, the controller energizes the coil of starter contactor "A" through Terminal No. 10 to start the engine. If the engine does NOT start within 15 seconds, the controller will de-energize Terminal No. 10, wait 15 seconds, then begin a cranking cycle through Terminal No. 9.

TERMINAL NO. 11: GROUND:

Terminal No. 11 is a ground connection for the starter contactor coils, the speed switch, the gauges in the engine instrument panel, and the controller.

TERMINAL NO. 12:

Is NOT used for engine wiring connections.