

## DIAGNOSING AND TESTING DIS (Continued)

**DIS ENGINE HARNESS CHECKS**  
(ICM HARNESS CONNECTOR REMOVED; ALL SENSORS CONNECTED TO HARNESS)

Test No.	Harness Connector PIN Nos.	DVOM Reading	Description of Circuit, Wires Checked & Circuit Function
1	2 to 3	200-300 $\Omega$	Engine RPM & Crank Position (Wires 264, 265 & CKP Sensor)
2	4 to 10	105,000 $\Omega$ at 0°C (32°F)	Eng. Coolant Temp. Sensor (Wires 354, 354A and 359)
3	6 to 7	Continuity (0 $\Omega$ )	ICM Spark Advance. A single wire connects Pins 6 and 7 in a closed loop. Cutting and grounding this wire changes the spark advance. See the following table for values.
4	11 to 12	0.5-1.0 VDC	Check for continuity in the DIS coil circuit (Wires 850/850A to 852/852A)
5	Coil Secondaries #1 to #4	14,000 $\Omega$ $\pm$ 5%	Remove the four spark plug wires and measure the secondary resistance from #1 to #4.
6	Coil Secondaries #2 to #3	14,000 $\Omega$ $\pm$ 5%	Remove the four spark plug wires and measure the secondary resistance from #2 to #3.

## SPARK TIMING

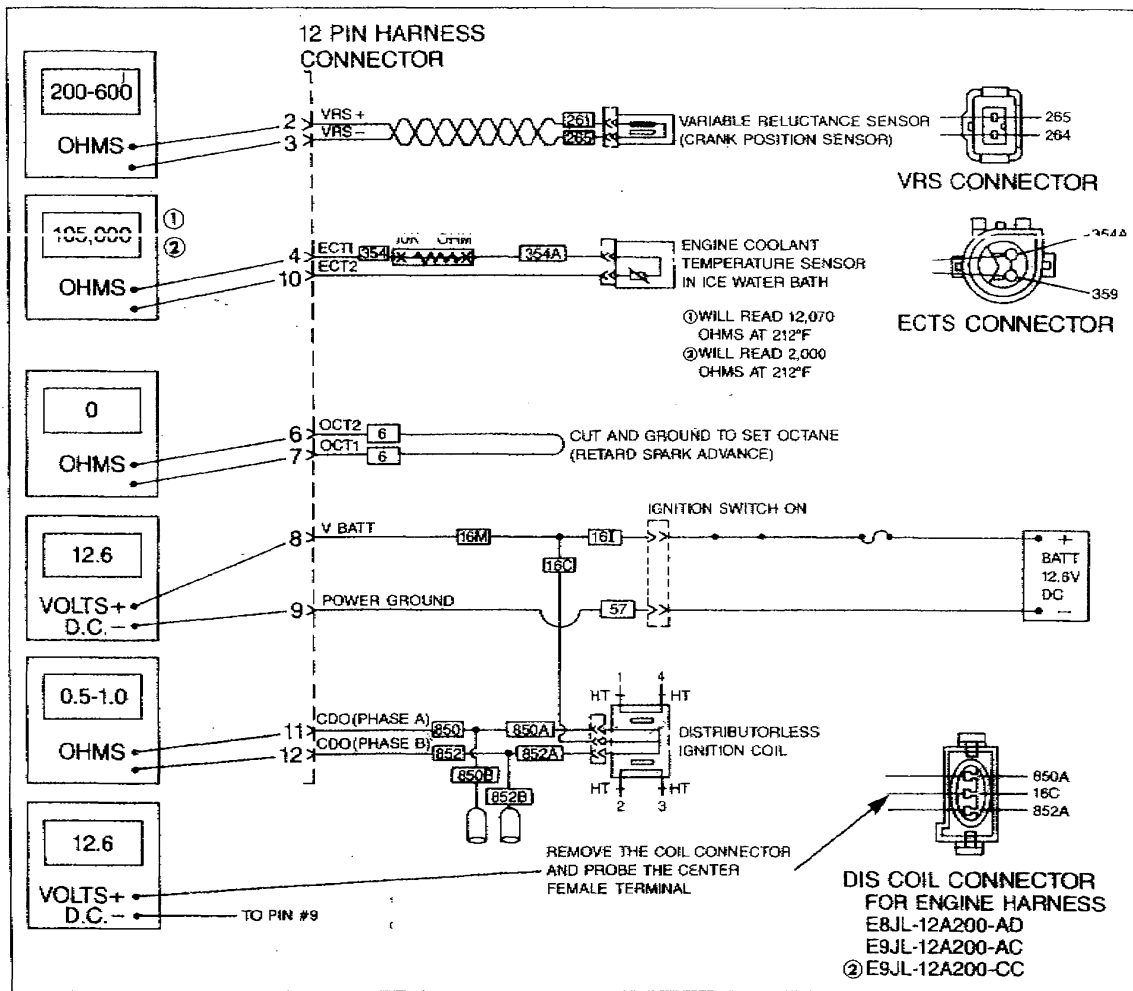
Action	Effect on Spark Timing
Loop between Pins 6 and 7 closed or open	None
Ground Pin 7	Retard Base Spark by 1-2 degrees
Ground Pin 6	Retard Base Spark by 2-4 degrees
Ground Pins 6 and 7	Retard Base Spark by 6-8 degrees

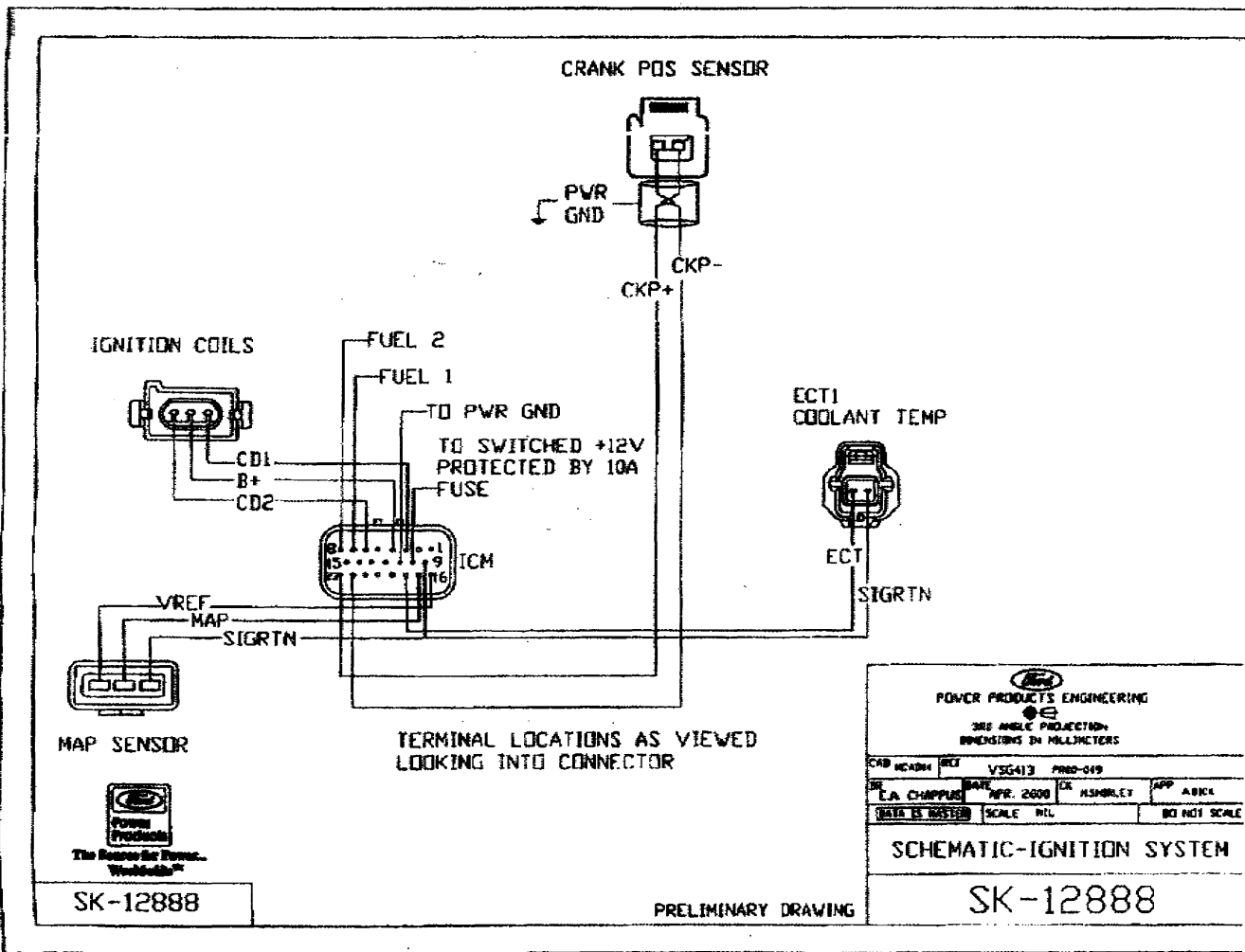
NOTE: For generator set application, the vacuum line between the intake manifold and the ignition module may be disconnected.

ENGINE COOLANT TEMPERATURE  
SENSOR CHARACTERISTICS

Temperature		Column A Sensor (Ohms) $\pm$ 5%	Column B Sensor & Harness (Ohms) $\pm$ 5%
°C	°F		
-30	-22	481,000	491,000
-20	4	271,200	281,200
-10	14	158,000	168,000
0	32	95,000	105,000
10	50	58,750	68,750
20	68	37,300	47,300
30	86	24,270	34,270
40	104	16,150	26,150
50	122	10,970	20,970
60	140	7,600	17,600
70	158	5,360	15,360
80	176	3,840	13,840
90	194	2,800	12,800
100	212	2,070	12,070
110	230	1,550	11,550
120	248	1,180	11,180
130	266	903	10,903
140	284	701	10,701
150	302	550	10,550

1. Use column A to check the ECT sensor resistance at the sensor (not through the harness).
2. Use column B to check the ECT sensor resistance at the ICM connector. This value includes the 10,000 ohm series resistor in the harness.





TERMINAL LOCATIONS AS VIEWED  
LOOKING INTO CONNECTOR



SK-12888

PRELIMINARY DRAWING

**POWER PRODUCTS ENGINEERING**  
3RD ANGLE PROJECTION  
DIMENSIONS IN MILLIMETERS

CRD NUMBER	REV	VSG413	PRD-019
DR	DATE	CHK	APP
E.A. CHAPMAN	APR. 2008	HSBURY	ABCK
DATA IS MASTER	SCALE	NIL	DO NOT SCALE

**SCHEMATIC-IGNITION SYSTEM**

**SK-12888**

02-14

Ignition System - Distributorless

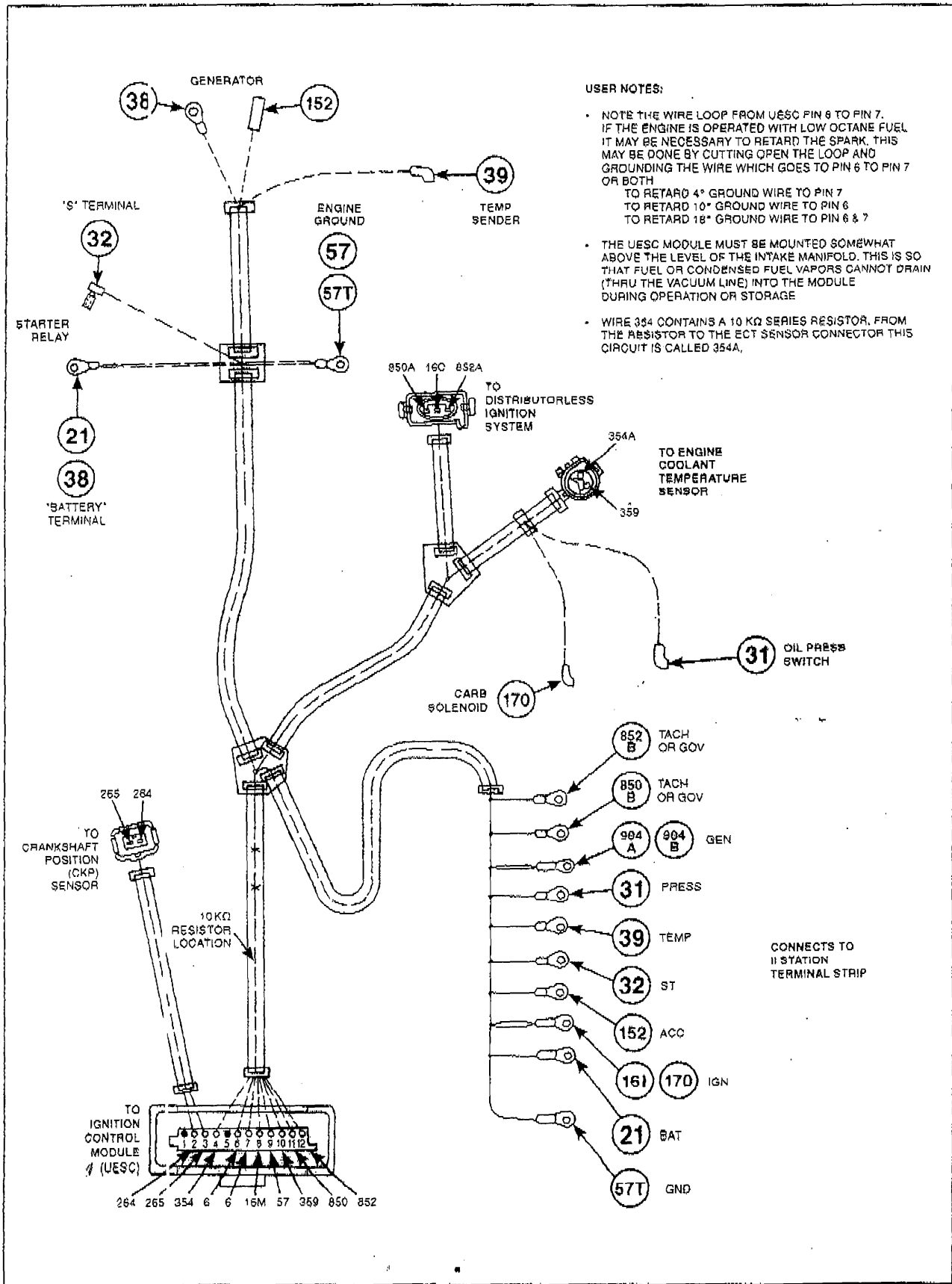
02-14

## DIAGNOSING AND TESTING DIS (Continued)

## WIRING HARNESS CIRCUIT IDENTIFICATION - F4JL-14305-BA

No.	Circuit Description	GA	Base Color	Stripe Color
16I	Ignition Switch to Splice	18	Red	Green
852B	Splice to Electronic Governor or Tachometer	18	Yellow	White
852A	Splice to DIS Coil 2	18	Yellow	White
850B	Splice to Electronic Governor or Tachometer	18	Yellow	Black
850A	Splice to DIS Coil 1	18	Yellow	Black
354A	Resistor to ECT Sensor	18	Brown	White
16C	DIS Coil to Splice	18	Red	Green
852	ICM (Ignition Control Module, or UESC) to Splice	18	Yellow	White
850	ICM to Splice	18	Yellow	Black
359	ICM to ECT Sensor Ground	18	Green	White
57	ICM to Battery Ground	18	Black	
16M	ICM Pin 8 to Splice	18	Red	Green
6	ICM Spark Retard 2° OS1	18	Brown	
6	ICM Spark Retard 4° OS2	18	Brown	
354	ICM to Resistor	18	Brown	White
265	ICM to Crankshaft Position Sensor (CKP) (-)	18	Green	
264	ICM to Crankshaft Position Sensor (CKP) (+)	18	White	
152	Terminal Strip to Generator-Mounted Regulator	18	Yellow	
170	Carburetor Solenoid	18	Blue	Red
39	Temperature Gauge to Temp Sending Unit	18	Red	White
31	Oil Pressure Indicator Light to Oil Pressure Switch	18	White	Red
57T	Ground Circuit - Temperature Gauge	10	Black	
38	GEN "BATT" Terminal to Starter Solenoid "BATT" Terminal	10	Black	Red
32	Ignition Switch to Starter Motor Relay	18	Red	Blue
21	Starter Solenoid Battery Terminal to Ignition Switch Feed	14	Yellow	

DIAGNOSING AND TESTING DIS (Continued)



- USER NOTES:**
- NOTE THE WIRE LOOP FROM UESC PIN 6 TO PIN 7. IF THE ENGINE IS OPERATED WITH LOW OCTANE FUEL IT MAY BE NECESSARY TO RETARD THE SPARK. THIS MAY BE DONE BY CUTTING OPEN THE LOOP AND GROUNDING THE WIRE WHICH GOES TO PIN 6 TO PIN 7 OR BOTH
    - TO RETARD 4° GROUND WIRE TO PIN 7
    - TO RETARD 10° GROUND WIRE TO PIN 6
    - TO RETARD 18° GROUND WIRE TO PIN 6 & 7
  - THE UESC MODULE MUST BE MOUNTED SOMEWHAT ABOVE THE LEVEL OF THE INTAKE MANIFOLD. THIS IS SO THAT FUEL OR CONDENSED FUEL VAPORS CANNOT DRAIN (THRU THE VACUUM LINE) INTO THE MODULE DURING OPERATION OR STORAGE
  - WIRE 354 CONTAINS A 10 KΩ SERIES RESISTOR. FROM THE RESISTOR TO THE ECT SENSOR CONNECTOR THIS CIRCUIT IS CALLED 354A.

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P.05/06

PWA CIRCUIT	WIR COLOR	DESCRIPTION
1	W/A	NOMINAL WIRE SIZE
2	W/A	NOT USED
3	W/A	ON FIRST CONNECTOR (E.D.)
4	W/A	ON FIRST POWER SUPPLY
5	W/A	NOT USED
6	W/A	ON FIRST CONNECTOR (E.D.)
7	W/A	ON FIRST POWER SUPPLY
8	W/A	NOT USED
9	W/A	ON FIRST CONNECTOR (E.D.)
10	W/A	ON FIRST POWER SUPPLY
11	W/A	NOT USED
12	W/A	ON FIRST CONNECTOR (E.D.)
13	W/A	ON FIRST POWER SUPPLY
14	W/A	NOT USED
15	W/A	ON FIRST CONNECTOR (E.D.)
16	W/A	ON FIRST POWER SUPPLY
17	W/A	NOT USED
18	W/A	ON FIRST CONNECTOR (E.D.)
19	W/A	ON FIRST POWER SUPPLY
20	W/A	NOT USED
21	W/A	ON FIRST CONNECTOR (E.D.)
22	W/A	ON FIRST POWER SUPPLY
23	W/A	NOT USED

9-19-80	B	REV'D PER J226PR00-113	EC	SS	AS-CD
9-19-88	A	REV'D PER J226PR00-113	EC	SS	AS-CD
DATE	LET	REVISION	BY	CK	APP

**POWER PRODUCTS ENGINEERING**

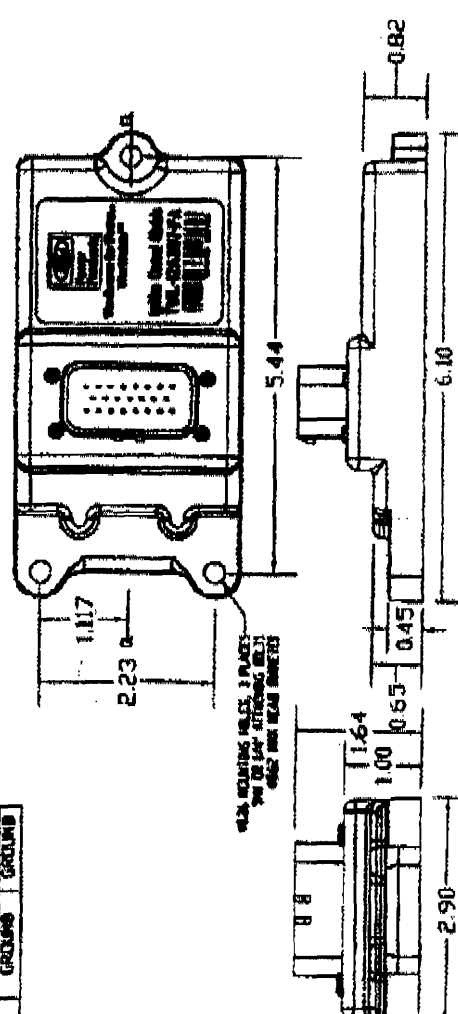
3RD ANGLE PROJECTION  
DIMENSIONS IN INCHES

CAD MODEL REF: V56413 PR00-049

DATE: APR 2000  
APP: MSHARLEY

SCALE: NPL  
NO NET SCALE

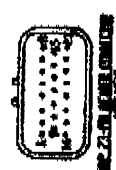
**ICM INSTALLATION**



WIR COLOR

W/A	W/A	W/A	W/A	W/A	W/A	W/A	W/A	W/A	W/A
W/A	W/A	W/A	W/A	W/A	W/A	W/A	W/A	W/A	W/A

**GENERAL SPECIFICATIONS:**  
 FOR USE ONLY WITH THE APPROVED 4-CYLINDER SPARK COILS, PWA BODY SERIES 250-254, OR EQUIVALENT  
 COMPLETE WITH FORD REQUIREMENTS FOR ON-ENGINE MOUNTING (TEMPERATURE, VIBRATION, OIL  
 OPERATING VOLTAGE: 8 TO 16 VDC  
 WATER TEMPERATURE: -40C TO 125C  
 CONSTRUCTION ALUMINUM OR CAST ENCLOSE, CLEAR CHROME FINISH, POTENTIAL ELECTRONICS,  
 SEALED HEAVY DUTY CONNECTOR  
 TOTAL ASSEMBLY WEIGHT: 425 LB (190 GR)  
 DIMENSIONS SHOWN FOR PACKAGING ONLY  
 REMOTE TO BE RELIABLE SHIP FROM REAR END PINS ARE HORIZONTAL TO GRASSHOPPER MOUNTING IN ORIENTATION  
 USER TO PROVIDE THE PINS TO CONNECTOR IS AND 25A CONNECTOR TOTAL)  
 UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES  
 MOUNTING DIMENSIONS ARE 7/16-32, 21-POSITION, 1/2" DEEP; REMOVAL: AMP 7/16-32, FEMALE, 1/4" PLATED



**SK-12889**

**PRELIMINARY DRAWING**

