

Nov. 10, 1952

Measured up field requirements of alternator

AC volts	Volts	Field current	resistance	
115	35.0	1.15a	30.5 Ω	} 30.2 Ω average
125	38.5	1.30a	29.9 Ω	

Listening tests on HRO showed the commutator of exciter to be making a lot of electrical noise. Condensers (.006 and 0.5 mfd) from each brush to frame were tried. The first helped some. The second added very little. The frame was then grounded by a strap to ground lead. This showed no improvement. The residual noise might be acceptable for the reception of strong signals. However it was far above that allowable for Cosmic Static measurements. The exciter must be eliminated and alternator field supplied from batteries. As a test, two 12v batteries should be borrowed from auto shop. These plus 12v of starting battery will supply 36v which is adequate for field of alternator.

(over)

Revised field connection has all four coils in parallel.
This gives $30.2/16 = 1.89$ ohms.

Voltage required is $35.0/4 = 8.75$

Current = $8.75/1.89 = 4.63$ amps

From 13V supply Drop = 4.25V } range of field rheostat
From 11V supply Drop = 2.25V }

Field rheostat requires $\frac{7.25}{4.63} = .49 \Omega$ to $\frac{4.25}{4.63} = .92 \Omega$ to
compensate for battery changes, a larger range in rheostat
is necessary for variations in line voltage.

*Transformers for
Battery Charger*

THORDARSON

ELECTRIC MANUFACTURING DIVISION

Maguire Industries

INCORPORATED

500 WEST HURON STREET · CHICAGO 10, ILLINOIS, U.S.A.

SD-2100

OPERATING DATA SHEET

FILAMENT TRANSFORMERS

All primaries are 117V -50/60 cycles, coded Black except otherwise noted*

T-21F02-P

2.5VCT at 10A - Brown - Brown - Brown/Yellow CT

T-21F14

Secondary tapped: 2.5V at 2.5A - White - Brown

5.0V at 2.5A - White - Yellow

6.3V at 2.5A - White - Green

* T-21F19

For 11V at 11A - Green - Green - Green/Yellow CT

Primary: Black - White

For 10V at 12A - Green - Green - Green/Yellow CT

Primary: Black - Red

T-21F20-P

5VCT at 20A - Black Extr. Tubing - Black E.T. - Blk/Yel. CT

Insulation Test - 10,000 Volts

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Insulation Test 10,000 Volts

Phase
Line

DC
Amps

4-10-52

90
100
110
120
130

~~2~~
~~5~~
~~8~~
11
14

wired up $\Delta \Delta$

120 V line

Battery charger performance

136 V } trans
136 V } prim
138 V }

31 Aug 58 { Apparently the dry disk battery charger was not used several months before the generator field was changed to battery excitation.

5-30-52

Ran engine without fan but with heater going in building. after 40 minutes the temperature gauge had risen to "N" in run and steam with a trace of water was coming out of radiator overflow. Obviously the engine would overheat on a protracted run. The fan appears necessary. Perhaps when some glycol antifreeze is added it can run at a higher temperature safely. Also if air intake is made to flow thru radiator it may just get by.

EIR = 58.2.2

$$\frac{116}{1276 \text{ watts}}$$

$$\frac{140}{14} = \frac{208}{159} \text{ drop}$$

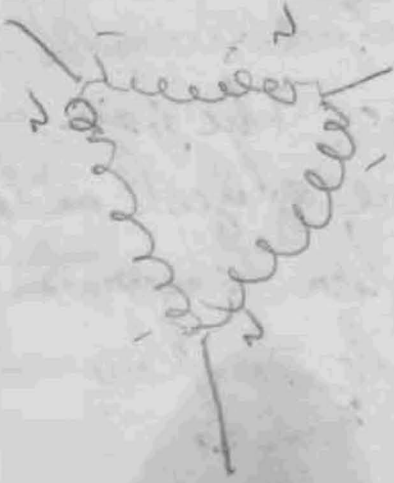
$$\frac{58}{26} = \text{max}$$
$$\frac{2758}{140} = \frac{13}{80}$$

$$P = \sqrt{3}EI = \frac{600}{\sqrt{3} \cdot 154} = \frac{600}{266}$$

$$I = \frac{P}{\sqrt{3}E} = \frac{600}{266} = 2.25 \text{ amp}$$

$$\frac{154}{1.73} = \frac{266}{266} = \frac{600}{680}$$

$$\frac{154}{30a} = \frac{420 \text{ watts}}{600 \text{ Watts}}$$



Brackets for battery charger
rectifier

