SERVICE AND MAINTENANCE NOTES for the TYPE 716-A AND 716-B CAPACITANCE BRIDGE

Although the Type 716 Bridge is a carefully designed and constructed piece of equipment capable of very accurate measurements, it is mechanically quite simple. A few points on the instrument should be given occasional attention to maintain the bridge in first-class condition.

1.0 MAIN CONDENSER

1.1 The contact ring on the rotor against which the phosphor-bronze brushes bear should be kept clean. Old grease can be removed with a solution of half ether and alcohol. If the surface of the ring is dull it can be polished with a piece of crocus cloth. It should then be lubricated with a very light smear of grease. Lubriko grease, density MD, manufactured by the Master Lubricants Company of Philadelphia, Pennsylvania, is particularly recommended for this purpose.

1.2 The main shaft of this condenser runs in ball bearings which have been packed in grease and will not require lubrication.

1.3 The worm shaft has a ball bearing at the panel end and a conventional bearing on the lower end. This should be inspected from time to time and lubricated with Lubriko if it appears to be getting dry.

1.4 The worm gear and pinion should be greased with Lubriko whenever an inspection indicates that they are becoming dry.

2.0 POWER-FACTOR CONDENSER

2.1 The cone-type bearings on the condenser may require occasional lubrication with Lubriko grease. Never attempt to readjust these cone bearings or the calibration of the condenser will be spoiled.

2.2 Provision has been made for readjusting the friction of the vernier drive on the dial if slippage should develop. First remove any excess grease on the drive discs. If this does not correct trouble, the thin nut around the vernier shaft should be turned until the shaft is brought closer to the dial by rotating the eccentric bushing. It may be necessary to first loosen the nut behind the panel before the bushing can be rotated.

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3.0 ERRORS IN POWER-FACTOR DIAL

3.1 If dust collects inside the instrument it may cause errors in the Power Factor indications. The plates of the precision condenser may be cleaned with a pipe cleaner, but care should be taken to see that these plates do not become bent and the calibration impaired.

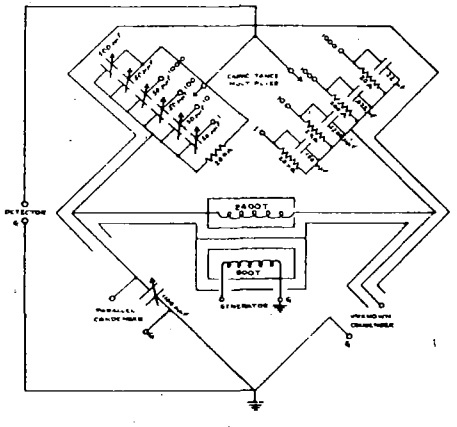
4.0 CALIBRATION

4.1 The final section of the instruction book gives directions for readjusting the Power Factor reading by means of the small compensating trimmer condenser.

4.2 There is very little possibility that the calibration of the main CAPACITANCE condenser will change. Should this occur, however, the bridge must be returned to the factory.

5.0 CAPACITANCE MULTIPLIER SWITCH

5.1 The switch contacts should be kept clean and lubricated as in Paragraph 1.1.



Circuit Diagram of Type 716-A
Capacitance Bridge

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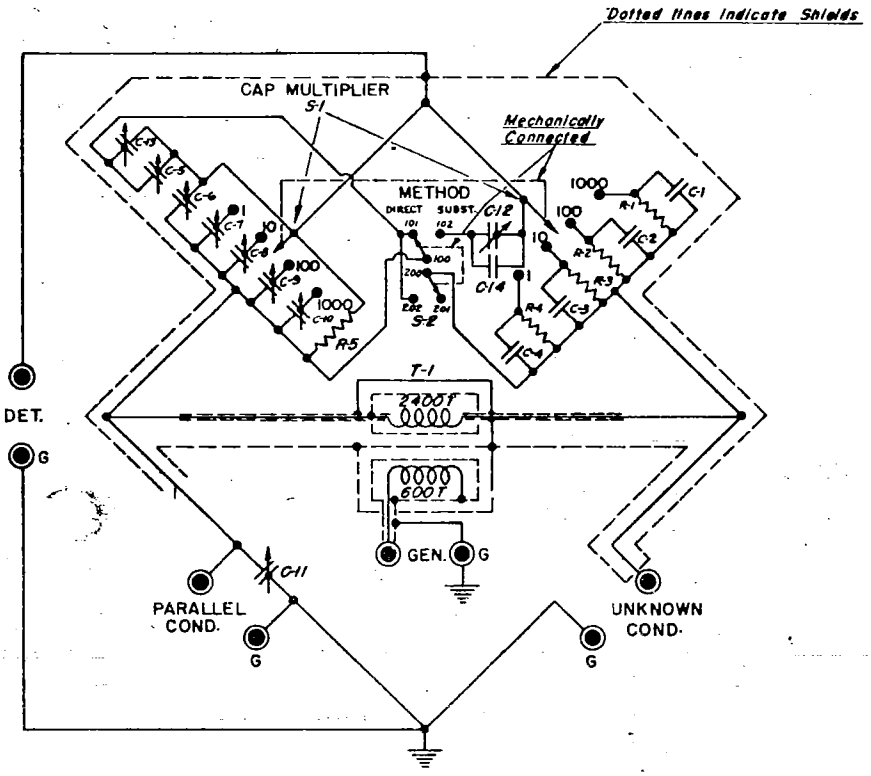

WIRING DIAGRAM
OF
716-B CAPACITANCE BRIDGE

RESISTORS

R-1= 20Ω 510-340
R-2= 200Ω 500-30E
R-3= 2KΩ 510-341
R-4= 20KΩ 602-305 (2 in series)
R-5= 20KΩ 602-305 (2 in series)

CONDENSERS

C-1= 0.270μf Type 505
C-2= 0.0269μf Type 505
C-3= 0.00263μf Type 505
C-4= 0.000200μf Type 505
C-5= 500μμf 539-T (reverse rotor)
C-6= 50μμf } Hammarland APC
C-7= 50μμf } Type C
C-8= 50μμf } G.R.Co. #139-1203C
C-9= 50μμf }
C-10= 50μμf }
C-11= 1100μμf 722-402
C-12= 50μμf 139-1203C
C-13= 380-400
C-14= 0.0001μf Dubilier Type 5W

SWITCHES

S-1= 716-33
S-2= 139-1430-1

TRANSFORMER

T-1= 578-401

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