INSTRUCTIONS

GEK-15025B

AUTOMATIC TRACKING PANEL

CATALOG NO. 3S7932AT100A8,A9

INTRODUCTION

The automatic tracking panel, 3S7932AT100, senses the difference in output between the DC (manual) regulator and the AC (auto) regulator while operating on auto regulator. The panel adjusts the manual regulator output up or down until the outputs of the two regulators are equal. Thus, the manual regulator output is continuously adjusted so that any trip from auto to manual regulator will not cause an abrupt change in excitation.

RECEIVING AND HANDLING

Immediately upon receipt, the equipment should be carefully unpacked and examined for any damage which might have been sustained in transit. If injury or rough handling is evident, a damage claim should be filed immediately with the transportation company and the nearest General Electric sales office should be notified promptly.

DESCRIPTION

The automatic tracking panel consists of two time-delay relays and a General Electric Type 195 zero-center meter relay with an adjustable high and low set-point. (See Figure 1)

The meter relay (ATMR) is connected across the AC and DC regulator outputs to sense the difference between the two outputs. The meter-relay contacts are used to actuate two time-delay relays. The time-delay relays are connected in the DC regulator raise-lower circuit (70M) in such a manner that they will either raise or lower the DC regulator output as required.

Time-delay relays are used to eliminate hunting by the 70M circuit which could be caused by transient changes in the output of the AC regulator.

Loss of AC power removes power from time-delay relays AT/R and AT/L.

Basically, the ATMR (General Electric Type 195 meter relay) is a voltmeter which has an indicator set-point and a control unit. The indicator set-point unit consists of control point adjustment knobs, pointers, light, and voltmeter. The control unit consists of relays and a power supply. The power supply requires 117 VAC, 50/60 Hz, 4 VA maximum for the double set-point unit. For a more complete description of the ATMR unit, see General Electric instruction book 4556K52-001.

The set-point accuracy (at 77°F) is ± 2% of full scale and the dead band between high and low set-points is ± 0.5% of full scale, which is approximately two angular degrees between the two set-point pointers.

The load relays are DPDT for each set-point with a rating of 5 amps AC, non-inductive, at 120 VAC and 5 amps DC, noninductive, at 28 VDC.

The following table gives the various modes of relay operation.

Instrument Pointer Relative to Set-Point	High Set-Point Relay	Low Set-Point Relay
I. Downscale from set-point	energized	deenergized
II. Between set-points	energized	energized
III. Upscale from set-point	deenergized	energized

The circuit operation is as follows. Assume that the outputs of the AC and DC regulators are equal (TVM and ATMR are at zero or nulled). Therefore, the ATMR is at its zero or null point and all contacts on the high and low set-points are activated. This means that the normally closed contacts in series with the coils of AT/R and AT/L are open and the time-delay relays AT/R and AT/L are deenergized.

Now, assume that the AC regulator output is greater than that of the DC regulator.

The meter pointer deflects to the high side of the upper set-point and causes the high set-point relay to become deenergized. The low set-point relay stays energized. The normally closed contacts 1-ATMR, close and energize the time-delay relay AT/R, whose contacts are connected in the raise portion of the 70M circuit. After 60 seconds, a normally open AT/R contact closes and causes the 70M motor to run in the regulator output raise-direction until the outputs of the two regulators are equal. At this point the meter relay is nulled and relay AT/R is deenergized.

The same sequence of events takes place if the DC regulator output is greater than that of the AC regulator. The only differences are that it is the low set-point contacts on ATMR that are deenergized and time-delay relay AT/L that is energized. Relay contacts AT/L are across the lower portion of the DC regulator potentiometer motor (70M).

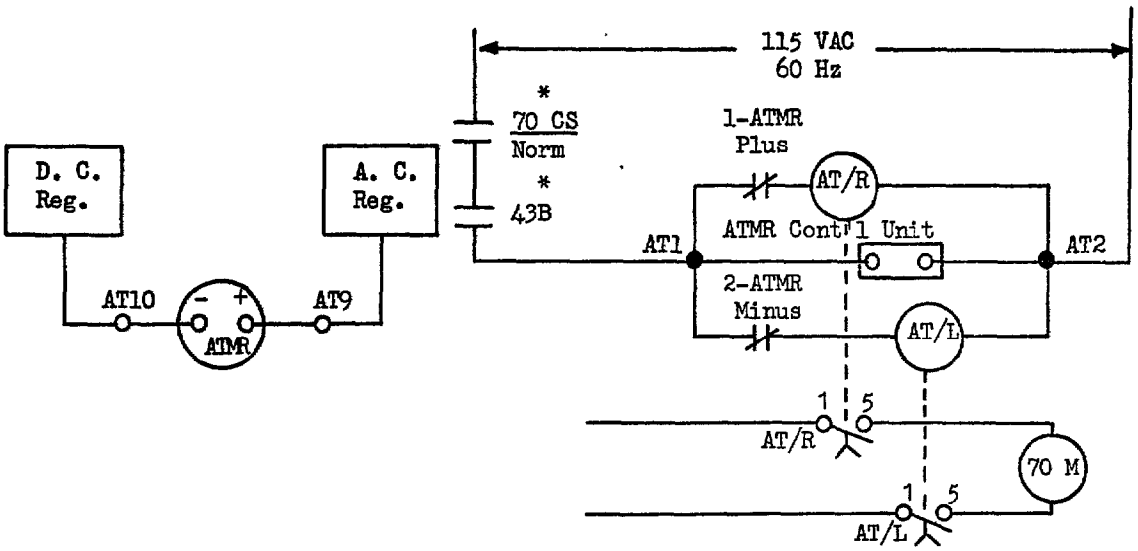

Figure 1 - Automatic Tracking Panel Typical Hook-Up

INSTALLATION

The automatic tracking panel is usually supplied in an enclosing case with the voltage regulator which should be installed in a well ventilated, clean, dry location where the normal ambient temperature is not greater than 50°C. The equipment should be readily accessible for adjustment and testing. Connections must be made in accordance with the diagrams supplied for each particular installation. Care must be exercised to determine that the connections are made correctly in order to avoid damaging the equipment. Connection drawings 44C306517 and 44C306519 apply.

ADJUSTMENT

Although each tracking panel has been adjusted at the factory for optimum performance, readjustments in the field may be necessary due to operating conditions and/or procedures.

The following procedure should be followed:

The time-delay relays AT/R and AT/L are adjusted for 60 seconds at the factory, but their setting may be changed to suit operating conditions. It should be noted that shortening the time-delay too much could cause hunting of the 70M circuit by transient changes in the output of the AC regulator.

The deadband adjustment (position of high and low set-point indicators) may be changed by means of the control point adjustment knobs.

ADJUSTMENT (continued)

The high and low set-point adjustment pointers are adjusted at the factory to give as small a differential between the two settings as possible and not have interference between the two. Therefore, no attempt to decrease this differential (move the high and low pointers closer together) should be made. The only adjustment permissable is to increase the differential (move the high and low pointers further apart) between the two settings.

MAINTENANCE

The equipment should be kept relatively clean and dry. If vibration is present, all screw-type connections should be checked regularly to determine that they are properly tightened.

The meter relay should also be checked periodically to determine that the set-point settings are correct and the meter is operating.

RENEWAL PARTS

When ordering renewal parts, the following information should be given:

1. Catalog number stamped on the part, with a complete description, including use and location.

2. Complete nameplate data appearing on the assembly of which the part is a component.

3. If possible, data on original order on which equipment was first applied, including all numerical references.

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