



INSTRUCTIONS

AUTOMATIC TRACKING PANEL (3S7932AT100A4)

INTRODUCTION

The Automatic Tracking Panel 3S7932AT100A4, senses the difference in output between the DC (Manual) regulator and the AC (Auto) regulator while operating on Auto regulator and adjusts the Manual regulator output up or down until the outputs of the two regulators are equal. This keeps the manual regulator output 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 that 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

(See Figure 1)

The Automatic Tracking Panel consists of two time delay relays and a voltage differential sensing relay.

This differential relay (ATMR) is connected across the AC and DC regulator outputs to sense the difference between the two outputs. Its contacts are used to actuate two time delay relays. The time delay relays (AT/R and AT/L) 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 that could be caused by transient changes in the output of the AC regulator.

At this point, a brief description of the voltage differential sensing relay may be helpful. This device is basically a polarized DC relay that has contacts mounted on each end of an armature that is pivoted about its center. When a voltage differential exists, the resultant magnetic force will cause the armature to pivot in one of two directions and close one of the two sets of contacts. The polarity of the input signal determines which of the contacts will close. This relay has a non-adjustable deadband of slightly over 0.5 volts.

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 deactivated. That is, all N.O. contacts in series with AT/R and AT/L are open. Now, assume that the AC regulator output is greater than that of the DC regulator. The polarity of the differential voltage input signal to the ATMR causes the ATMR-PLUS contacts to close energizing T.D. relay AT/R. After 60 seconds, a N.O. 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 (no differential voltage). At this point, the voltage differential relay is nulled and relay AT/R is de-energized.

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 ATMR-MINUS contacts that are closed 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).

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These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

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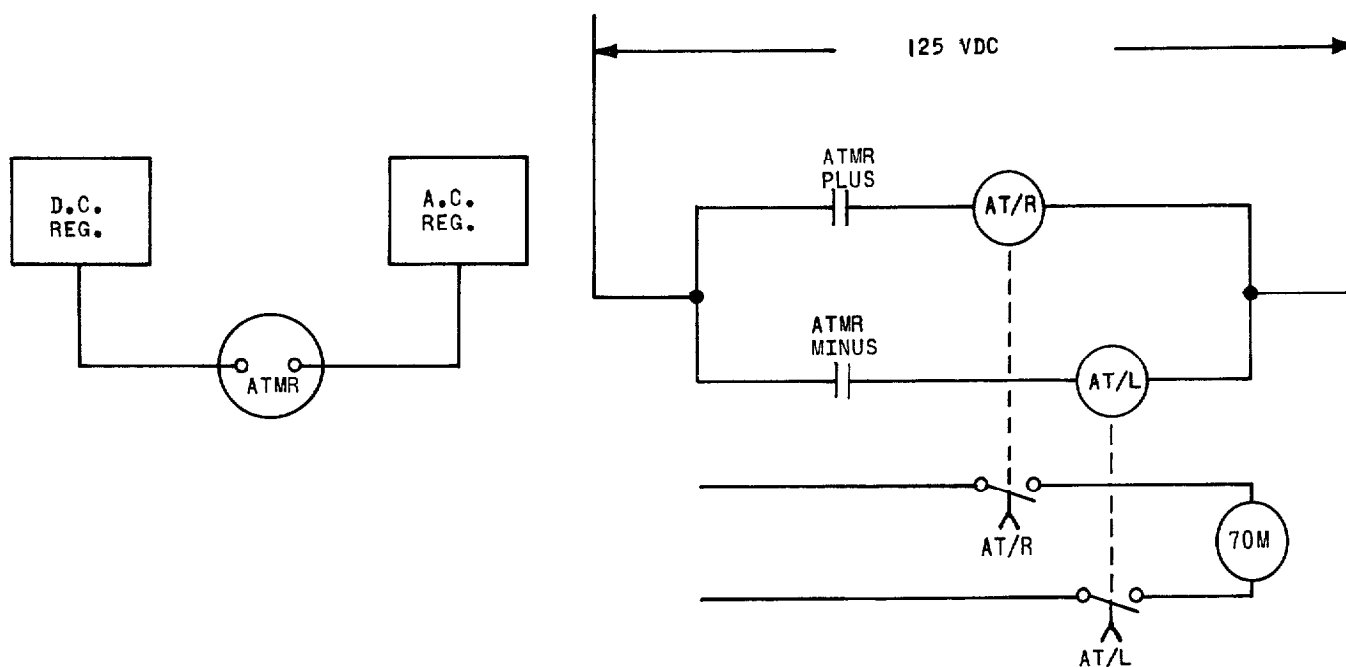


Figure 1. Automatic Tracking Panel Typical Hook-Up

INSTALLATION

The 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 correct to avoid damaging the equipment. Connection drawing 44B-302779 applies.

ADJUSTMENT

Although each tracking panel has been adjusted at the factory for optimum performance readjustment 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 and contact gap on the voltage differential sensing relay has been preset at the factory and should under no circumstances be altered. If the relay does not operate properly, the factory should be contacted.

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.

RENEWAL PARTS

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

1. Catalogue 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 supplied, including all numerical references.

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