

BROWN BOVERI (NOW ABB POWER
T&D COMPANY) INSTRUCTIONS FOR
ITE SOLID-STATE TIMING RELAYS
[PUB. # IB 18.7.7-1G].

01 of 11

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RIVER BEND STATION
DRAWING LIST FOR VTD-B455-0147

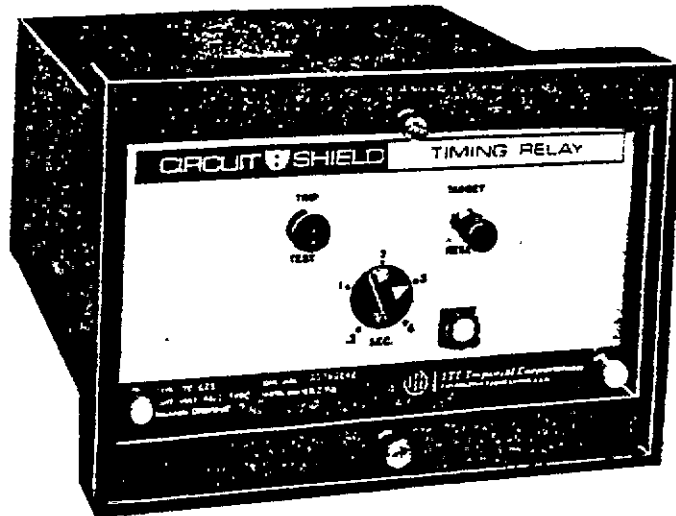
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VENDOR DRAWING.....TITLE.....RBS DRWG NUMBER.....

NONE INCLUDED

I-T-E SOLID-STATE TIMING RELAYS
INSTRUCTIONS

Type ITE-62K, Timing Relay
Type ITE-62S, Timing Relay



Type ITE-62 Timing Relay

**INSTRUCTIONS FOR CIRCUIT-SHIELD SOLID-STATE RELAYS
DRAWOUT SEMI-FLUSH MOUNTED**

TABLE OF CONTENTS

Introduction -----	Pg. 2
Precautions -----	Pg. 2
Placing Relay into Service -----	Pg. 3
Testing While in Service -----	Pg. 4
Application Data -----	Pg. 4
Calibration and Acceptance Testing -----	Pg. 6

INTRODUCTION

These instructions contain the information required to properly install, operate, and test the CIRCUIT-SHIELD line of solid-state timing relays.

The CIRCUIT-SHIELD Timing relay is housed in a semi-flush drawout relay case suitable for conventional panel mounting.

All connections to the relay are made at terminals located on the rear of the case and clearly numbered, one (1) through sixteen (16).

The time delay setting is located on the front panel behind a removable clear plexiglass cover.

A target indicator is also mounted on the front panel. The target is reset by means of a pushbutton extending through the relay cover.

PRECAUTIONS

The following precautions should be taken when applying solid-state relays:

1. Incorrect wiring may result in damage to solid-state relays. Be sure wiring agrees with the connection diagram for the particular relay before the relay is energized. Be sure control power is applied in the correct polarity before applying control power.

2. Apply only the rated control voltage marked on the relay front panel.

For relays with dual rated control voltage, withdraw the relay from the case and check that the movable wire on the circuit board is in the correct position for the system control voltage.

3. Do not attempt to manually operate target vanes on CIRCUIT-SHIELD timing relays. Although the targets return their indication under shock, they can be damaged by manual operation with a pencil or pointed object.

4. Do not apply high voltage tests to solid-state relays. If a control wiring insulation test is required, bond all terminals together and disconnect ground wire before applying test voltage.

5. The entire circuit assembly of the CIRCUIT-SHIELD Timing relay is removable. This board should insert smoothly. Do not use force.

6. Follow test instructions to verify that relay is in proper working order. If a relay is found to be defective, return to factory for repair. Immediate replacement of the removable element can be made available from the factory; identify by catalog number. We suggest that a complete spare relay be ordered as a replacement, and the damaged unit repaired and retained as a spare. By specifying the relay catalog number, a booklet containing a circuit description and schematic may be obtained from your ITE sales engineer should you desire to repair or recalibrate the relay.

PLACING THE RELAY INTO SERVICE

1. RECEIVING, HANDLING, STORAGE

Upon receipt of the CIRCUIT-SHIELD relay (when not included as part of a switchboard) examine for shipping damage. If damage or loss is evident, file a claim at once and promptly notify the nearest Gould, Incorporated Sales Office. Use normal care in handling to avoid mechanical damage. The CIRCUIT-SHIELD system has no vital moving parts and if kept reasonably clean and dry, has no practical limit to its operating life.

2. INSTALLATION

Mounting

The outline dimensions and panel drilling and cutout information is given in Figure 1.

Connections

All CIRCUIT-SHIELD relays have metal front panels which are connected through printed circuit board runs and connector wiring to a terminal at the rear of the relay case. The terminal is marked "G" and is located as shown in Fig. 1 below. In all applications this terminal should be wired to ground.

Special care must be taken to connect control power in the proper polarity.

External connection diagrams for each relay type are shown in the APPLICATION section, page 5.

For units with dual rated control voltage: before energizing the relay, the relay element should be withdrawn from its case, and a visual check be made to insure that the movable control voltage selection wire has been placed on the correct terminal for the system control voltage.

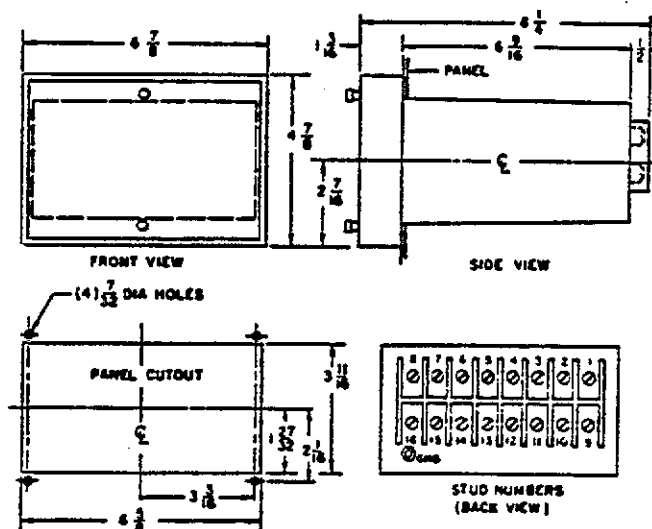


Figure 1
Outline and Drilling

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3. SETTINGS

Seconds

The time delay is set by means of this control on the front panel. If the relay has only one knob, the relay's function (delay on pickup or delay on dropout) will be specified on the nameplate label.

Relays with dual function (delay on pickup and delay on dropout) have two setting knobs for independent adjustment of the timing of each function.

TESTING IN SERVICE

In general, it is not necessary to schedule periodic maintenance and testing of this relay. However, if tests are desired to confirm the proper functioning of the system, the following procedure can be used.

Mounted in Switchgear

Tests should be made on a de-energized main circuit. If tests are to be made on an energized circuit, be sure to take all necessary precautions.

It is customary to test the trip circuit of electromechanical relays by manually closing the trip contacts to trip their associated circuit breakers. If the contacts are allowed to part before the seal-in contact closes, the relay contacts are eroded by the arc. Also, high transient voltages will appear from trip bus to positive.

This problem is avoided in the CIRCUIT-SHIELD relay by the operational test feature. A pushbutton labeled "TRIP" is provided. The pushbutton, recessed to prevent accidental operation, will cause the relay to operate.

To exercise the solid state circuitry, a portion of the control voltage is applied to the circuit when the test button is depressed. If held for the time set on the front panel, the relay contacts will close to trip the breaker or auxiliary associated.

Drawout Element

Drawout circuit boards of the same catalog number are interchangeable. The board is removed by using the metal pull knobs on the front panel. The relay is identified by a catalog number on the front panel and a serial number on the under side of the circuit board.

APPLICATION DATA

Type ITE-62 dc operated timing relays are available with the following characteristics:

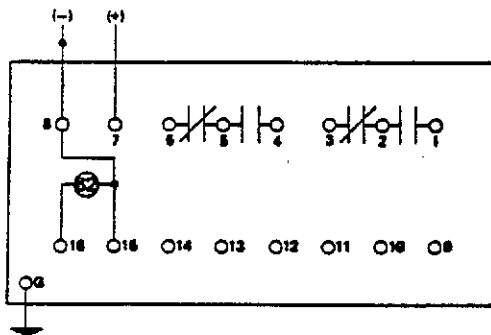
1. Adjustable delay on pickup, instantaneous dropout
2. Instantaneous pickup, adjustable delay on dropout
3. Adjustable delay on pickup, adjustable delay on dropout*

These general purpose relays may be used in many applications such as bus transfer schemes or breaker failure schemes. The relays offer accurate and repeatable timing with fast reset and negligible overtravel.

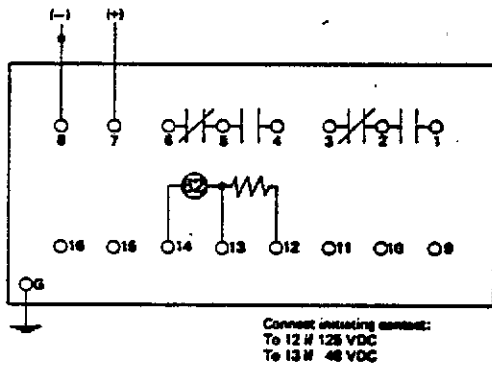
* On units with adjustable delay on pickup and dropout, separate targets are provided for the dropout and pickup functions.

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**16D217B
TIME DELAY RELAYS
TYPE ITE-62S**



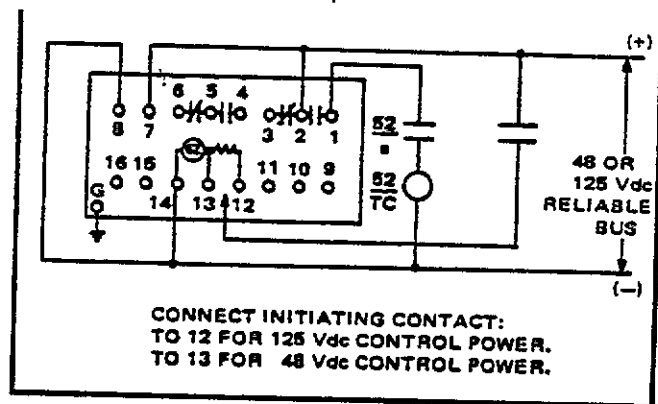
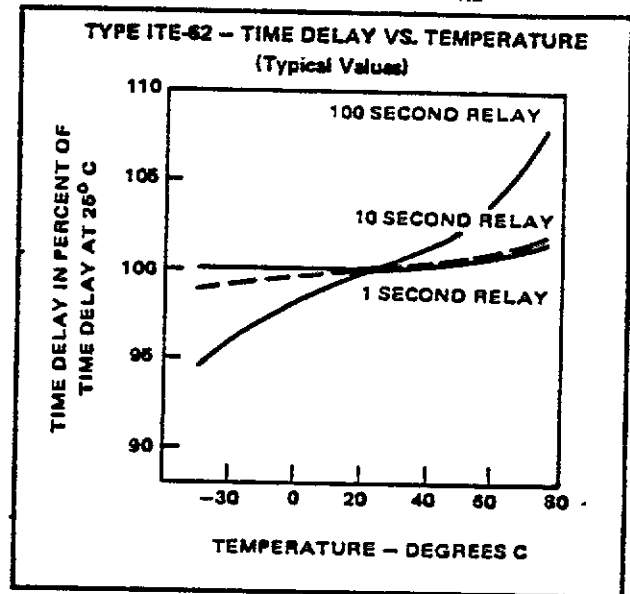
**16D217D
TIME DELAY RELAYS
TYPE ITE-62K**



IMPORTANT NOTES FOR ITE-62K

1. Contacts shown de-energized for units with delay on pickup.
2. Contacts shown energized for units with delay on dropout.

Figure 3



TYPICAL CONNECTIONS

Type ITE-62K with Delay on Pickup.

RATINGS

Output Contacts:

10A Tripping Duty
5A Continuous
1A Break, Resistive
0.3A Break, Inductive

Operating Temperature:

-30°C to +70°C

Control Power:

Standard Units: Dual rated 48/125Vdc at 0.04 ampere. Other control voltages may be supplied as specials - check relay nameplate for control voltage rating.

Input Circuit Burden (initiating contact input):

2.5 VA at 125 Vdc
1.0 VA at 48 Vdc

Reset Time:

Approximately 7 milliseconds

Setting Error:

Maximum of $\pm 10\%$ of the time dial markings at any repetition rate of timing intervals.

Repeatability:

$\pm 1\%$ of setting

Variation in timing with change in control voltage:

$\pm 1\%$ or ± 5 milliseconds whichever is greater for -20% , $+10\%$ voltage change.

Variation in timing with change in ambient temperature:

$\pm 6\%$ or ± 30 milliseconds whichever is greater for -15°C to $+55^\circ\text{C}$

CALIBRATION TESTING

1. MAINTENANCE AND RENEWAL PARTS

No maintenance is required on the CIRCUIT-SHIELD relay. Should the relay be damaged physically or electrically due to improper connections or applications, we recommend that a new relay be ordered from the factory. Certain relays have a plug-in control relay as the output stage. This output relay may be ordered from the factory. When ordering state the type relay, catalog number, control voltage and serial number. A booklet containing a circuit description and schematic is available should you wish to repair the relay.

Also available from the factory are circuit card extenders.

2. HIGH POTENTIAL TESTS

Do not apply high voltage tests to solid-state relay circuits. If a control wiring insulation test is required, bond all terminals together and disconnect grounding wire before applying test voltage.

3. ACCEPTANCE TESTS

Connect the relay to the proper DC control voltage (to match relay) and to the synchronous timer as shown in Fig. 4. Timing should be within $\pm 10\%$ of the TIME DELAY setting.

4. CALIBRATION TESTS

Connect the relay to the proper DC control voltage and to the synchronous timer as shown in Fig. 4.

Withdraw the circuit board element from the case and insert an extender board and then the relay board into the extender.

Type ITE-62S Calibration

1. Set the TIME DELAY setting on the relay front panel to minimum (fully CCW). Adjust calibration potentiometer R44 to obtain the correct timing.
2. Set the TIME DELAY setting to its maximum position (fully CW). Adjust R30 to obtain the correct timing.
3. Repeat steps 1 and 2 as needed.
4. Set the TIME DELAY setting to the value required by the application. Check time delay value obtained and make final adjustments as required.

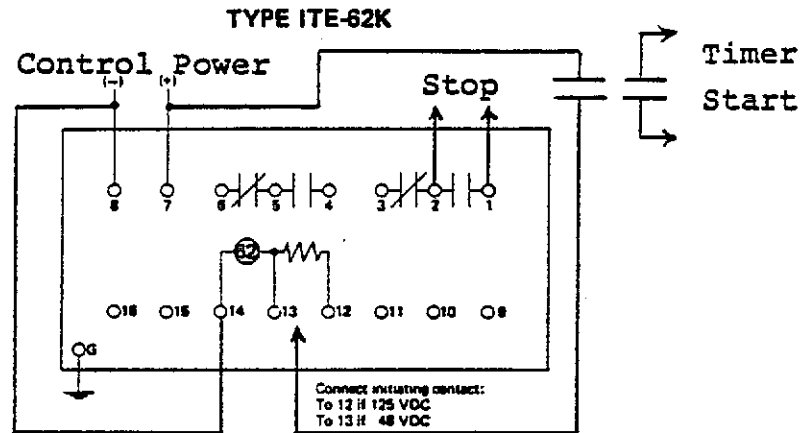
Type ITE-62K Calibration (single function units)

1. Set the TIME DELAY setting on the relay front panel to maximum (fully CW). Adjust calibration potentiometer R9 to obtain the correct timing.
2. Set the TIME DELAY setting to the value required by the application. Check the time relay obtained and make final adjustments as required.

Type ITE-62K Calibration (dual function units)

1. Set the TIME DELAY setting on the front panel to maximum (fully CW). Adjust calibration potentiometer R11 for delay on pickup and adjust calibration potentiometer R28 for delay on dropout. CCW rotation increases time delay.
2. Set the TIME DELAY setting to the value required by the application. Check the time delay obtained and make final adjustments as required.

FIGURE 4: TYPICAL TEST CONNECTIONS



Use appropriate contacts to initiate relay timing and to start and stop external timer, depending on whether relay under test is delay on pickup or delay on dropout.

SPECIAL NOTE: This instruction book does NOT cover Type ITE-62S units with catalog numbers 217S0242 and 217S2042. For these units, request Issue A from the factory.

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 GOULD, INC.