



Type CVQ Relay for Class 1E Applications

Effective: March 1982
Supersedes I.L. 41-223.1, Dated June 1980
and L-914542 Dated August 1980

These instructions are to be used in conjunction with I. L. 41-223 and differs as indicated for Type CVQ Class 1E relay applications.

CAUTION: Before putting relays into service, remove all blocking which may have been inserted for the purpose of securing the parts during shipment, make sure that all moving parts operate freely, inspect the contacts to see that they are clean and close properly, and operate the relay to check the settings and electrical connections.

APPLICATION

These relays have been specially designed and tested to establish their suitability for Class 1E applications. Materials have been selected and tested to insure that the relays will perform their intended function for their design life when operated in a normal environment as defined by ANSI standard C37.90-1971, when exposed to radiation levels up to 10^4 rads, and when subjected to seismic events producing a Shock Response Spectrum within the limits of the relay rating.

"Class 1E" is the safety classification of the electric equipment and systems in nuclear power generating stations that are essential to emergency shutdown of the reactor, containment isolation, cooling of the reactor, and heat removal from the containment and reactor, or otherwise are essential in preventing significant release of radioactive material to the environment.

Relay Style	Internal Schematic
1339D96A01	3526A50
1339D96A02	3528A01
1339D96A03	3533A31

CONSTRUCTION & OPERATION

The Class 1E Relay is different from the relay described in I.L. 41-223 in that special wire is used for interconnecting operating units. This wire does not have PVC insulation. Another difference is that a special slow-operate-slow-release telephone type relay is used to provide greater security against malfunction due to seismic vibration. See internal schematics 3526A50, 3528A01 and 3533A31. Also, the disc unit contains a special shield covering the spring located above the disc.

CHARACTERISTICS

The characteristics are the same as described in I.L. 41-223 except the T1 relay adds additional time delay and a burden of 3.1 volt-amperes at 125 volts dc nominal. Seismically rated contacts are both opened and closed T2 contacts and opened CV contacts. Closed CV contacts are seismically rated only when the ICS contacts are allowed to seal around them.

All possible contingencies which may arise during installation, operation or maintenance, and all details and variations of this equipment do not purport to be covered by these instructions. If further information is desired by purchaser regarding this particular installation, operation or maintenance of this equipment, the local Asea Brown Boveri Power T&D Company Inc. representative should be contacted.

SETTINGS

Settings are the same as I.L. 41-223 except the minimum recommended time dial setting is the No. 1 position. Delete any reference to the 0.5 time dial setting.

INSTALLATION

Installation is the same as I.L. 41-223 except use only semi-flush mounting. Projection mounting should not be used.

ADJUSTMENTS AND MAINTENANCE

Acceptance Check

Use appropriate internal schematic 3526A50, 3528A01 or 3533A31 for establishing the test circuit otherwise similar to I.L. 41-223. These test instructions apply except pickup of T2 should also be checked. This should be 150 to 200 milliseconds which includes operate time of both T1 and T2.

Routine Maintenance

Class 1E relays should be inspected periodically and the time of operation should be checked at least once every year or at such other time intervals as may be dictated by experience to be suitable to the particular application. These checks should catch any component failures which occur on a random basis.

All contacts should be periodically cleaned. A contact burnisher S#182A836H01 is recommended for this purpose. The use of abrasive material for cleaning contacts is not recommended, because of the danger of embedding small particles in the face of the soft silver contact and thus impairing the contact.

Calibration

Instructions in I.L. 41-223 apply except for the test diagram exceptions previously listed under Acceptance Check. Note that the special spring shield that covers the spring on this relay may be removed for making spring adjustments and then reassembled.

To remove the spring shield, requires that the damping magnet be removed first. The screw connection holding the lead to the moving contact should be removed next. The second screw holding the moving contact assembly should then be loosened not removed. (CAUTION: This screw terminates into a nut held captive beneath the molded block. If screw is removed, difficulty will be experienced in the re-assembly of the moving contact assembly.) Slide the spring shield outward and remove from relay. Tighten the screw holding the moving contact assembly to the molded block.

ELECTRICAL CHECKPOINTS/ TROUBLESHOOTING

Instructions in I.L. 41-223 apply.

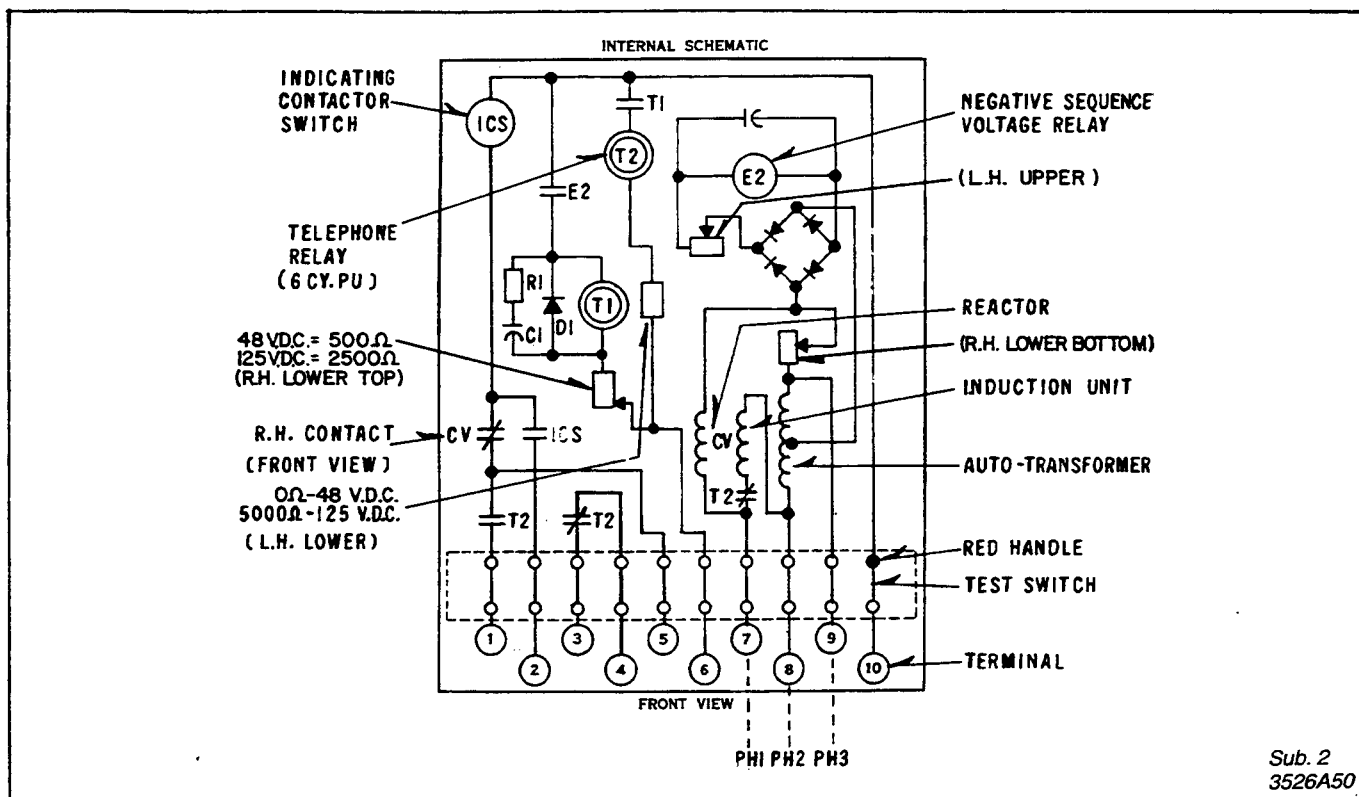


Fig. 1. Relay-Type CVQ Negative Sequence and Undervoltage Relay with Telephone Relay in FT-31 Case

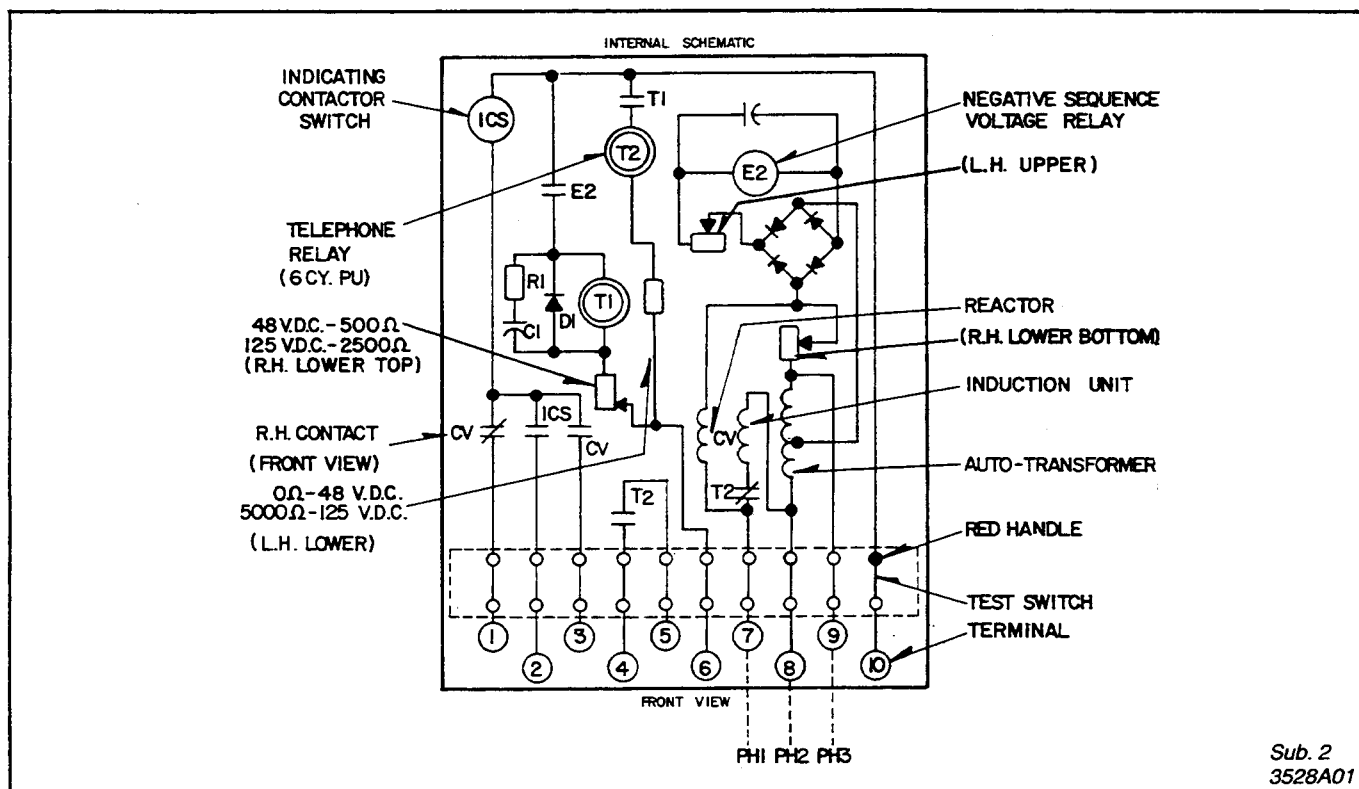
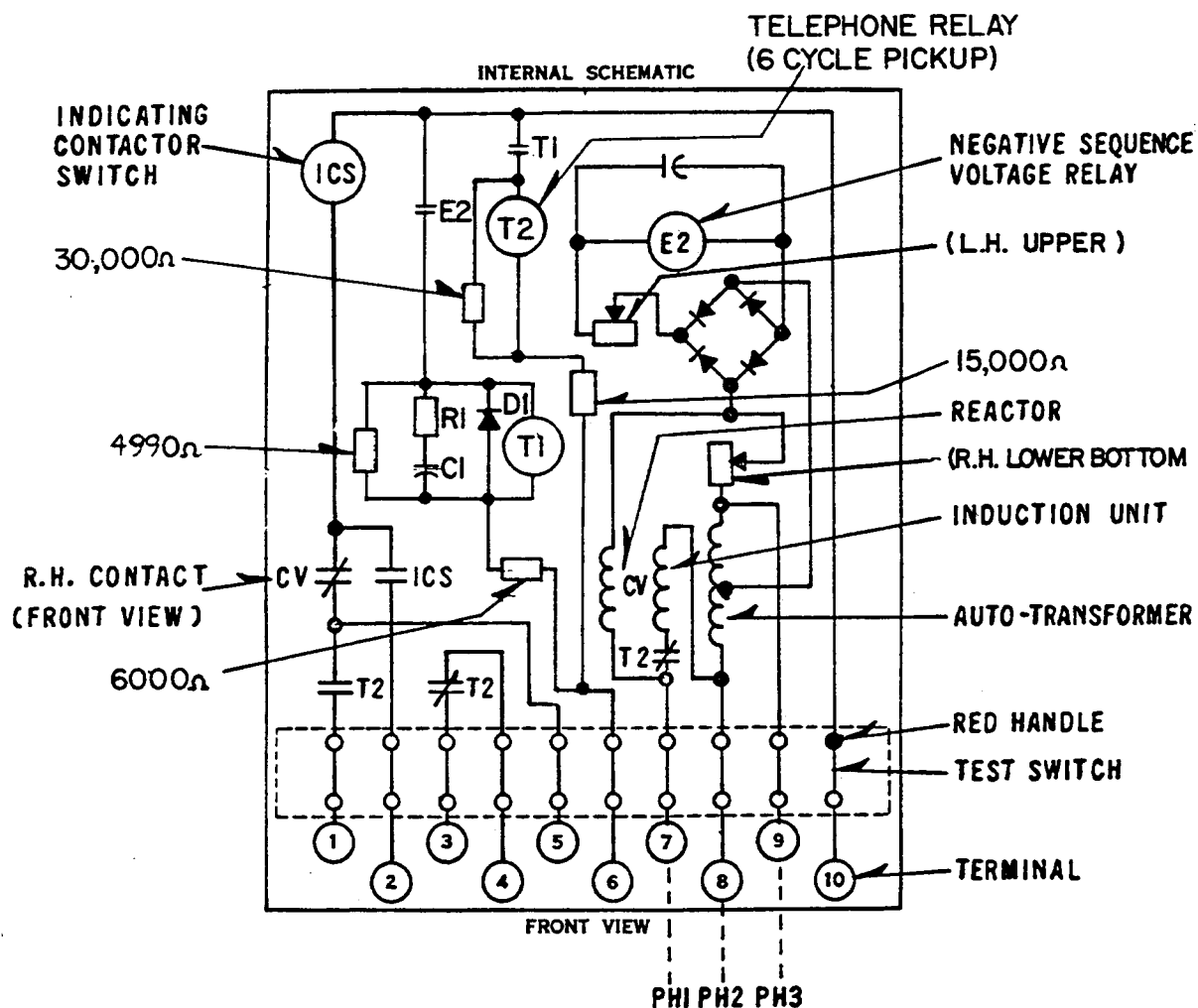


Fig. 2. Relay-Type CVQ Negative Sequence and Over and Undervoltage Relay with Telephone Relay in FT-31 Case



Sub. 1
3533A31

Fig. 3. Relay-Type CVQ Negative Sequence and Undervoltage Relay with Telephone Relay in FT-31 Case (330 VDC Trip Ckt.)

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