



162-740-900  
Issue A 15/07/98  
Sheet 1 of 4

Order Number

Serial Number

## PRODUCT/TEST MANUAL

**2P740**

**PHASE FAIL RELAY**

**THIS INCLUDES**

<b>110 VAC</b>	<b>50 Hz</b>
<b>415 VAC</b>	<b>50 Hz</b>
<b>440 VAC</b>	<b>50 Hz</b>

## 1. DESCRIPTION OF OPERATION

The 2P740 is designed to provide an alarm if any of the incoming voltage supplies are lost or an under voltage condition exists. The relay will remain in the dropped out condition until the faulted phase returns to normal or the under voltage condition is removed.

## 2. SPECIFICATIONS

Auxiliary Supply 110 volts AC 50 Hz  
415 volts AC 50 Hz  
440 volts AC 50 Hz

Undervoltage 80% of nominal (factory set)

Phase imbalance 5 to 15%  $\pm$  2% of nominal voltage expressed as a phase to phase voltage difference as a percentage of nominal voltage when two phase to phase voltages are reduced equally with the third at nominal voltage.

The LED front panel indicators indicate total loss of phase only.

## 3. TEST EQUIPMENT REQUIRED

Three Phase adjustable Supply  
Digital Multimeter

## 4. ASSOCIATED DRAWINGS

690-207-201, 2, & 3                      Circuit diagram  
690-207-301                                Loading diagram

## 5. HIGH VOLTAGE TESTING

- a) Apply 2KV 50Hz test for 1 minute between terminal Groups A and B.
- b) Apply three 5KV 1/50 impulses of each polarity between terminal Groups A and B.

### Group A

Inputs

### Group B

Outputs

## 6. CALIBRATION & TEST PROCEDURE

- a) Connect the DVM between TP 6 and TP 1 with range set to 100 V.
- b) Apply nominal 3 Phase volts to the 2P740 as per the connection label. The output relay should be picked up.
- c) Adjust Balance trimpot (R3) for a minimum reading between TP6 & TP1

Checked

- d) Connect the DVM between TP 5 and TP 1 with range set to 20 V.  
Decrease yellow phase so that the BLUE-YELLOW line voltage is 95 % of the normal line voltage. Adjust trimpot R8 while monitoring TP5. Set R8 so that TP5 gives a maximum reading.

Checked

- e) Set the three phase supply to the nominal line voltage. Decrease all three phases slowly to 80 % of nominal voltage. Adjust trimpot R14 until the relay just drops out.. Slowly Increase voltage until the relay picks up. The pick up voltage should be in the range of 85 to 90%.  
Return all phases to normal line voltage.

	110 VAC	415 VAC	440 VAC	Actual
Drop-out	88	332	352	
Pick-up	93.5 - 99	353 - 374	374 - 396	

- f) Set front panel potentiometer to 15 % (fully anti-clockwise). Decrease yellow phase so that the BLUE-YELLOW line voltage 85% of normal line voltage. Adjust R21 until the relay drops out. Increase voltage and check that the relay picks up at between 88 and 93% of normal line voltage.

	110 VAC	415 VAC	440 VAC	Actual
Drop-out	93.5	353	374	
Pick-up	96.8 - 102.3	365 - 384	387 - 409	

**6. CALIBRATION & TEST PROCEDURE (Cont)**

- g) Set front panel potentiometer to 5% (fully clockwise). Decrease yellow phase so that the BLUE-YELLOW line voltage is 95% of the nominal line voltage. Adjust R23 until the relay drops out at 95 % of line voltage. Pick up should be 95 to 98% of nominal line voltage.

	110 VAC	415 VAC	440 VAC	Actual
Drop-out	104.5	394.5	418	
Pick-up	104.5 - 107.8	394.5 - 406.7	418 - 431	

**7. GENERAL & FUNCTIONAL**

- a) Check that the relay is electrically sound and mechanically robust as per Standard Inspection & Test Schedule 903-000-026.

PASS

TESTED BY : \_\_\_\_\_ DATE : \_\_\_\_\_