



162-046-902  
Issue A 05/02/1997  
Sheet 1 of 5

Order Number

Serial Number

## PRODUCT/TEST MANUAL

**2P46K2**

**PHASE FAIL RELAY**

<b>Issue Level</b>	<b>Date</b>	<b>Summary of changes</b>
A	05/02/1997	Initial issue.

Due to RMS continuous product improvement policy this information is subject to change without notice.

<b>Document updated</b>	<b>Checked</b>	<b>Registered</b>	<b>.pdf file created</b>	<b>.pdf uploaded to web site</b>

## 1. DESCRIPTION OF OPERATION

The 2P46 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 undervoltage condition is removed. This relay is identical to the 2P46K1 but with the added option of magnetic blowouts on the output relay to improve its contact breaking capabilities

## 2. SPECIFICATIONS

Auxiliary Supply 415 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

162-046-102 Wiring diagram  
690-200-202 Circuit diagram, Phase PCB

## 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

All terminals

### Group B

Frame

## 6. CALIBRATION & TEST PROCEDURE

- a) Connect the DVM between TP 6 and TP 1 with range set to 100 V.
- b) Apply 415 V 3 Phase to the 2P46 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 % (332 volts) 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.

	Nominal	Actual
Drop out	332 volts	
Pick up	352 - 374 volts	

- f) Set front panel potentiometer to 15 % (fully clockwise). Decrease yellow phase so that the BLUE-YELLOW line voltage 85% (353) 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.

	Nominal	Actual
Drop out	353 volts	
Pick up	365 - 386 volts	

## 6. CALIBRATION & TEST PROCEDURE (Cont)

- g) Set front panel potentiometer to 5% (fully anti clockwise). Decrease yellow phase so that the BLUE-YELLOW line voltage is 95% (394) 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.

	Nominal	Actual
Drop out	394 volts	
Pick up	394 - 407 volts	

## 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 : \_\_\_\_\_

## 8. CONNECTION DIAGRAM

