Order Number _____ Serial Number _____

PRODUCT / TEST MANUAL

2V47K6

HIGH IMPEDANCE DIFFERENTIAL RELAY

Issue Level	Date	Summary of changes
A	26/06/1998	Initial issue.

Author	Checked & Registered	.pdf file created	Released
ERL	MW	MW	Digitally signed by Michael Williams cn=Michael Williams, ou=Test Room, o=Relay Monitoring Systems, c=AU Date: 2001.06.22 09:48:47 +11'00' Reason: Document is released

1. BROAD DESCRIPTION OF RELAY

The 2V47K6 is a 3 phase AC High Impedance relay containing three independent phase inputs. The relay measuring element is basically an attracted armature unit powered from a bridge rectifier. A capacitor is connected in series with the operate coil to make the relay insensitive to the DC component of fault current. The ferranti flag indicator is remotely reset by an external contact closure.

2. SPECIFICATIONS

DC AUXILIARY VOLTAGE	24 - 150V DC
AC SENSING VOLTAGE	20 - 115 V AC
AC SENSING CURRENT	< 25mA
OPERATE TIME	< 20 mS at 4 times Vin
AMBIENT TEMPERATURE RANGE	-5 to 55^{O}c

3. TEST EQUIPMENT REQUIRED

Auxiliary DC Power Supply	AC Supply
Digital Voltmeter	Decade Box
Pickup and Dropout Time Measuring Apparatus	
High Voltage Test Equipment	

4. ASSOCIATED DRAWINGS

165-047-106	Wiring Diagram
165-047-206	Circuit Diagram
660-265-301	Loading Diagram
165-047-706	Front Label

5. HIGH VOLTAGE TESTING

a) Apply 2KV RMS. between the terminal groups as listed in A & B below for 1 minute.

b) Apply three 5KV 1/50usec pulses of each polarity as listed in A & B below.

GROUP A	**GROUP B**
All Terminals	Frame
Inputs	Outputs & Frame

c) Apply three 5KV 1/50usec pulses of each polarity between Aux Supply inputs.

6. CALIBRATION AND TEST PROCEDURE

6.1 Voltage Sensing

a) Apply 24V DC Auxiliary supply.

b) Connect volt source to terminals 3 and 4. A ∅

c) Select on test resister in series with the coil has to be no greater than 1K8 otherwise relay is too sensitive. Tension contact blades to bring the sensitivity down.

d) Use decade box to calibrate 20 V tap then all other taps and record results trimming the appropriate resistors to obtain scale points.

MIN	MAX	NOM	ACTUAL	UNITS
19.0	21.0	20.0		Volts
38.0	42.0	40.0		Volts
53.0	57.0	55.0		Volts
66.5	73.5	70.0		Volts
81.0	89.3	85.0		Volts
95.0	105.0	100.0		Volts
109.0	121.0	115.0		Volts

e) Connect volt source to terminals 5 and 6. B ∅
Use decade box to calibrate 20V tap then all other taps and record results trimming the appropriate resistors to obtain scale points.

MIN	MAX	NOM	ACTUAL	UNITS
19.0	21.0	20.0		Volts
38.0	42.0	40.0		Volts
53.0	57.0	55.0		Volts
66.5	73.5	70.0		Volts
81.0	89.3	85.0		Volts
95.0	105.0	100.0		Volts
109.0	121.0	115.0		Volts

f) Connect volt source to terminals 7 and 8. C ∅
Use decade box to calibrate 20 V tap then all other taps and record results trimming the appropriate resistors to obtain scale points.

MIN	MAX	NOM	ACTUAL	UNITS
19.0	21.0	20.0		Volts
38.0	42.0	40.0		Volts
53.0	57.0	55.0		Volts
66.5	73.5	70.0		Volts
81.0	89.3	85.0		Volts
95.0	105.0	100.0		Volts
109.0	121.0	115.0		Volts

6.2 DC Voltage No Operation Test

a) Set A ∅ setting to 20 V and apply 50 V DC.
Check that no operation occurs.

b) Set B ∅ setting to 20 V and apply 50 V DC.
Check that no operation occurs.

c) Set C ∅ setting to 20 V and apply 50 V DC.
Check that no operation occurs.

PASS ☐

6.3 Timing Checks

a) Set A ∅ setting to 20 V and apply 100 V AC.

PU time <20 ms ☐ ms

b) Set B ∅ setting to 20 V and apply 100 V AC.

PU time <20 ms ☐ ms

c) Set C ∅ setting to 20 V and apply 100 V AC.

PU time <20 ms ☐ ms

7. GENERAL & FUNCTIONAL

a) Check for correct operation of magnetic disc flags.

b) 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

Refer to wiring diagram 165-047-106