

## Chapter 12

## REVERSE PHASE

## PROTECTION UNIT, ROTAX, TYPE U3613

## LIST OF CONTENTS

|                            | Para. |                            | Para. |
|----------------------------|-------|----------------------------|-------|
| <i>Introduction</i> ... .. | 1     | <i>Installation</i> ... .. | 6     |
| <i>Description</i> ... ..  | 2     | <i>Servicing</i> ... ..    | 7     |
| <i>Operation</i> ... ..    | 3     | <i>Testing</i> ... ..      | 8     |

## LIST OF TABLES

|   | Table |
|---|-------|
| <i>Circuit component details</i> ... .. | 1     |

## LIST OF ILLUSTRATIONS

|  | Fig. |                               | Fig. |
|--|------|-------------------------------|------|
| <i>General view of Type U3613</i> ... .. | 1    | <i>Circuit diagram</i> ... .. | 2    |

## LIST OF APPENDICES

|  | App. |
|--|------|
| <i>Standard serviceability test for reverse phase protection unit, Rotax, Type U3613</i> | A    |

## LEADING PARTICULARS

## Reverse phase protection unit, Type U3613

|  |                          |
|--|--------------------------|
| <i>Line voltage</i> ... ..                 | 200 volts, 3-phase, a.c. |
| <i>Relay coil operating voltage</i> ... .. | 24 volts d.c.            |
| <i>Overall dimensions—</i>                 |                          |
| <i>Length</i> ... ..                       | 3.500 in.                |
| <i>Width</i> ... ..                        | 3.750 in.                |
| <i>Height</i> ... ..                       | 2.343 in.                |
| <i>Weight</i> ... ..                       | 14 oz.                   |

RESTRICTED

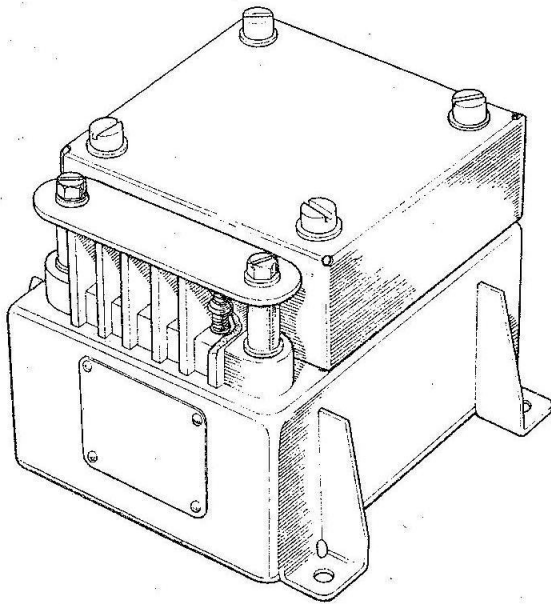


Fig. 1. General view of Type U3613

### Introduction

1. The U3613 reverse phase protection unit is designed to break a 200 volt, three-phase a.c. supply system if phase reversal should occur.

### DESCRIPTION

2. The aluminium alloy chassis of the protection unit supports a group board assembly on which is mounted resistors R1, R2, R3, capacitors C1, C2, and silicon

rectifier MR1. The relay RL1, with normally closed contacts, is mounted on the underside of the chassis and secured in position by a bracket. A terminal block, containing five 6-32 U.N.C. terminals, is fitted at one end of the chassis. All components on the group board are enclosed and protected by a top cover assembly, while the relay and terminal internal connections are protected by a bottom cover assembly.

### Operation

3. Terminals 1, 2 and 3 are used to sample the three phase ground supply. Terminal 5 connects to a ground supply switch while terminal 4 is connected to an external solenoid coil which operates the normally open, make or break contacts in the three phase supply.

4. The supply sample at terminals 1, 2, and 3 is fed through a CR network (R1, R2, R3, C1, C2) and the resultant mean voltage is applied across the coil of relay RL1. Under normal conditions of phasing this mean voltage will be zero.

5. If phase reversal occurs the resultant mean voltage will no longer be zero and a working voltage will be applied across the coil of relay RL1, thus opening the contacts (1 and 2). This in turn results in the operation of the external solenoid and thus the ground supply circuit is broken.

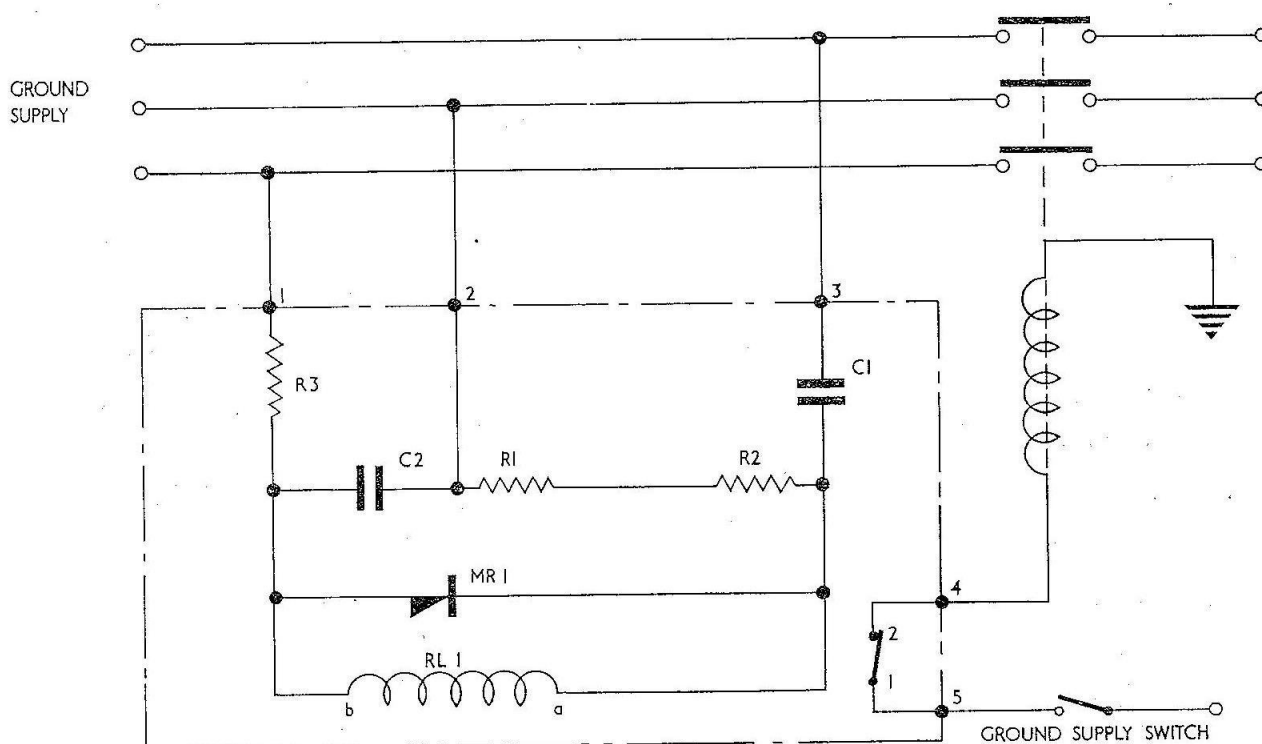


Fig. 2. Circuit diagram

RESTRICTED