

Reyrolle  
Protection  
Devices

## **7PG17 – XR**

Intertripping, Interposing, Supervision and Special Purpose Relays

**Answers for energy**

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# 7PG17– XR105/XR106, XR205/XR206

Intertripping, Interposing, Supervision and Special Purpose Relays

## Description

Type XR relays are developments for specific applications from the type AR relay range. Types XR105 and XR106 are intended for the remote control of switchgear and associated equipment over pilot wires with a maximum resistance of 200 ohms. These relays are designed so that they are not susceptible to certain a.c voltage levels which may be induced onto the pilot wires

## Safety

The commissioning and future maintenance of this equipment should only be carried out by skilled personnel trained in protective relay operation and capable of observing all the necessary safety precautions and regulations appropriate to this equipment and also the associated primary plant.

Equipment should be isolated from auxiliary supplies and the circuit breaker trip circuit prior to commencing any work on an installed product.

## Unpacking, handling & storage

On receipt unpack the relay and inspect for any obvious damage.

If damage has been sustained a claim should immediately be made against the carrier, also inform Siemens Protection Devices Limited.

When not immediately required return the relay to its carton and store in a clean, dry place.

## Preliminary Tests

For routine maintenance proceed from paragraph 3.

On receipt of the relay check that the packing is not damaged and that there are no visible signs of any damage to the relay.

Check that the operating voltage is correct for the auxiliary voltage to be used. In some instances relays are to be used with the coil in series with a voltage dropper resistor, this is advised on our Order Acknowledgement and

shown on the relay label as "+Ext R", suitable resistors are supplied with the relay, ensure that such resistors are mounted vertical, are secure and wired to the correct coil.

If the relay is wired into the circuit isolate from the auxiliary supply(s) by removing fuses and links as necessary.

Physically check the wiring to the relay terminals for security and to prove that it is correct to the circuit schematic/wiring diagrams.

## Insulation Tests

Using a 500V insulation test set:

- Connect all relay terminals together and measure the resistance to earth
- Connect the d.c. input terminals together and measure the resistance between these terminals and all other terminals connected together and to earth.
- Connect the relay output contacts together and measure the resistance between these terminals and all other terminals connected together including earth.

A value of 2.5 to 3.0 megohms obtained from the above tests is considered satisfactory, a value of less than 1.0 megaohm is not satisfactory and the cause of such a low reading should be determined and corrected.

## Mechanical Settings

It should not be necessary to adjust settings during routine tests unless parts have been replaced or other repairs carried out. Adjustment of one setting will often influence another, therefore all settings must be checked after the final adjustment.

The table of Mechanical Settings provides the basic settings necessary before finally setting the relay to obtain its performance, they are generally minimum figures.

## Electrical Tests

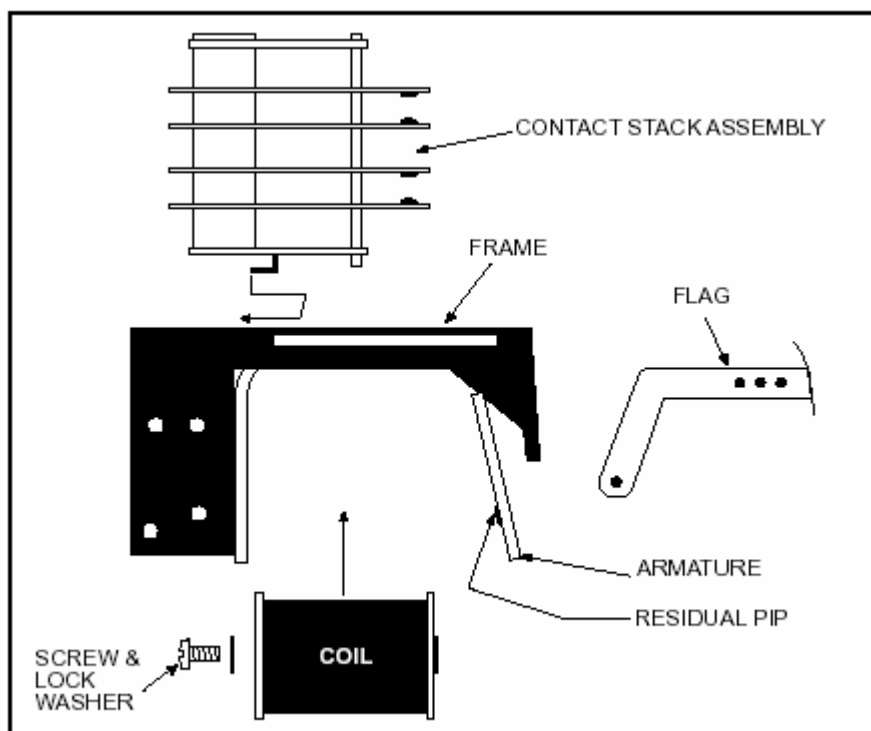
Check that the relay operates over its operating range, it should operate smoothly and the armature go fully home.

**Electrical Settings**  
50V d.c. rated relay

**Operating range:-**  
zero pilot resistance 35V to 60V d.c.  
200 ohm pilot resistance 42V to 60V d.c.

Minimum operating current: 25mA  
Relay to reset at: 15mA minimum

Relay contacts must not make when 110V a.c. rms 50Hz  
is applied to the coil terminals.



Typical relay sub-assemblies.

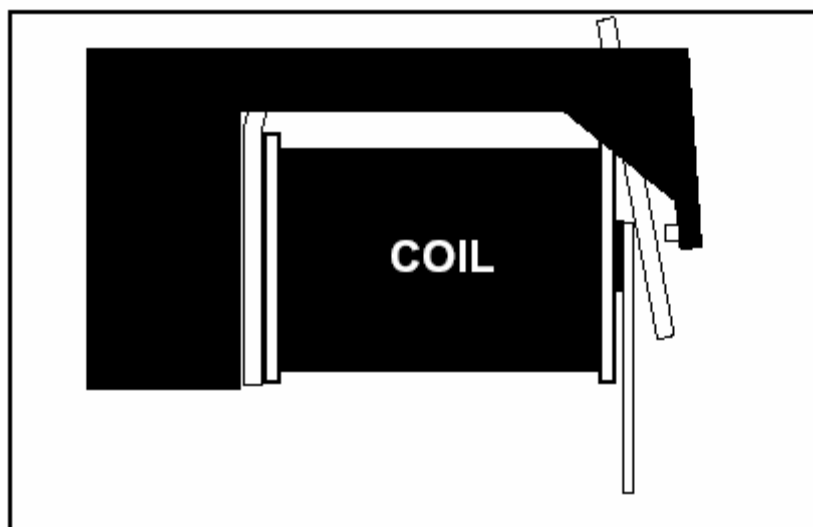


Fig 2. Residual gap setting.

<b>MECHANICAL SETTINGS</b>		
1. Residual gap measured at the top of the core.		0.45mm
2. Armature gap measured at the residual screw.		2.0mm
3. Normally open contact	a) Remaining armature travel, measured at the residual screw, minimum.	0.4mm
	b) Contact separation, minimum.	1.8mm
	c) Force required to lift moving contact off comb, minimum.	8gms
	d) Force required to lift the fixed contact off its backing strip, minimum.	10gms

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