DIRECTION INDICATOR SIGNALS

Direction Indicators

The correct operation of direction signals requires that the flasher filament in the lamp bulbs (depending on the position of the switch) flash intermittently whether or not the headlamps, parking lamps, tail lamps or stop lamps are "on".

A correctly operating direction signal will be indicated by a regular intermittent flashing of the green pilot lamp located on facia panel. If, when the direction indicator is switched on, the warning (or pilot) lamp does not flash in the usual manner but remains unlit, first check that this is not due to filament failure in either the front or rear lamp on that side. This can be checked by turning the switch to the opposite side—if the pilot lamp now flashes, the circuit is in order and bulb replacement is indicated. On the other hand, if the pilot lamp still does not flash, inspect the indicator lamps. If these are working normally, failure of the pilot lamp bulb is indicated. If, however, the indicator lamps are not functioning, it will be necessary to proceed to check the wiring and flasher unit.

The efficiency of the flasher unit may be readily checked by fitting a known substitute.

The inoperative flasher lamp bulbs should be checked for a burned-out filament. Where it is found that neither lamp has a burned-out filament the wiring between the defective lamp and indicator switch must be checked.

The flasher unit is located inside the car and is attached to the underside of the facia. No servicing of the flasher is required, and where this unit breaks down in service it must be renewed.

Operation of Flasher Unit (See Fig. 29)

This unit depends for its operation on the linear expansion of a piece of wire which becomes heated as current flows through it.

The actuating wire controls the movement of a spring-loaded main armature hinged to a central steel core and carrying the moving member of a pair of contacts ("A", Fig. 29).

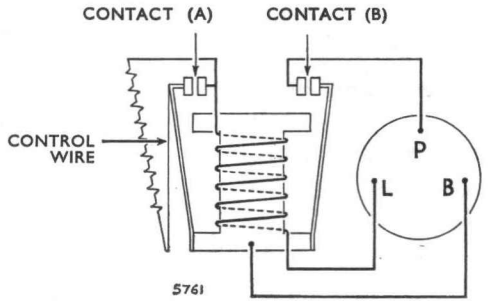

Fig. 29. *Internal connections of flasher unit*

As current flows from terminal "B" to terminal "L" and the lamps *via* the actuating wire and an additional ballast resistor, the wire heats up and expands.

This allows the main armature to move inwards towards the core, closing contacts "A" and short-circuiting the ballast resistor and actuating wire, so that full voltage is applied to the indicator lamps, which now illuminate.

The increased electromagnetic attraction due to full lamp current now flowing through the coil wound on the core, holds the armature firmly so that the contacts are fully closed. It also attracts the pilot or secondary armature to the core, closing contacts "B" and illuminating the pilot lamp.

Since the actuating wire is by-passed when the main contacts are closed, the wire cools and contracts. Eventually, the tension of the contracting wire is sufficient to overcome the electromagnetic attraction and the hinge spring force, resulting in contacts "A" being separated, the lamps being extinguished, and the pilot armature being released.

This sequence of operations continues until the indicator switch is returned to the OFF position.

The pilot lamp on the facia panel will not flash unless sufficient current to light the filaments in front flasher lamp and rear flasher lamp is passing through the windings of the electro-magnet to close contacts (B). The flashing pilot lamp, therefore, gives the driver a clear indication that the direction signals are working correctly. It will be noted that in order to maintain the desired rate of flashing (British Ministry of Transport regulations, 60–120 per minute) the filaments of the front and rear lamps are "pre-heated" *via* the resistance wire during "out" period of the flash.