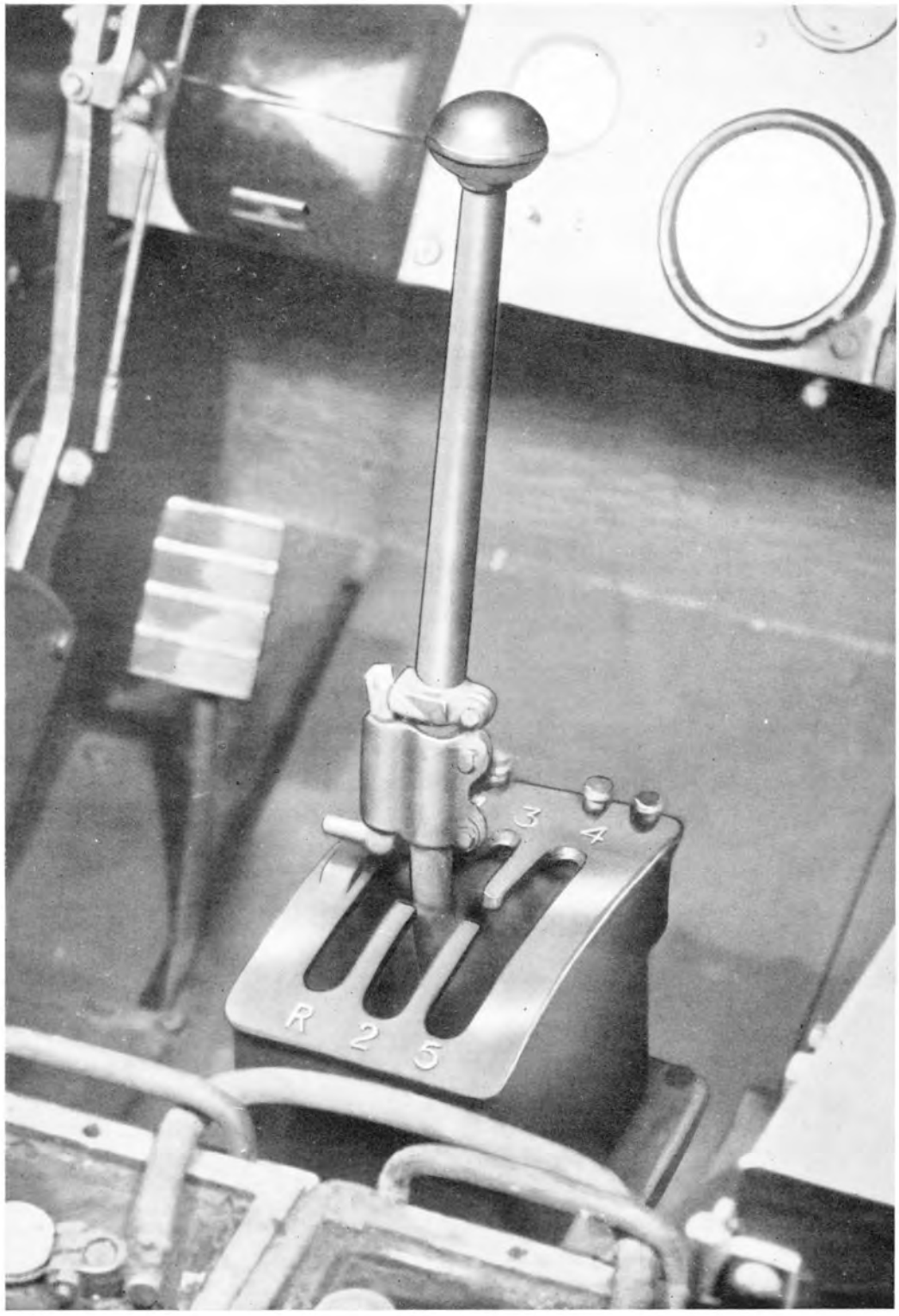

Fig. 9. **Gear change lever showing Gear Positions.**

LUBRICATION SYSTEM.

(*Fig.* 24)

DESCRIPTION.

The lubrication system consists of a 9¼ gallon capacity oil tank mounted in the engine compartment, from which oil is drawn by the pressure pump and circulated through the engine bearings and auxiliaries. Primary and secondary filters, and an internal cooler, fitted in the pressure circuit, ensure that only clean cool oil is delivered to the bearings and auxiliaries. A scavenge circuit consisting of a pair of scavenge pumps, recover the oil after use, from the engine sump and return it through an external cooler to the oil tank.

OPERATION.

The lubrication system operates on the dry sump principle. One pressure and two scavenge pumps of the helical gear type are driven by gears from the engine crankshaft and are located in the forward end of the engine sump. The pressure pump is connected externally to the oil tank and delivers oil under pressure to the working parts of the engine and its auxiliaries. The oil drains back after use to the engine sump, where it is picked up by the scavenge pumps and returned through a cooler to the oil tank.

MAINTENANCE.

For period of servicing and type of lubricant see Lubrication Chart.

A dipstick is screwed into the oil tank and when checking the level the engine oil must be HOT.

Keep all oil pipe unions and other connections tight and clean.

If the gauge fails to record oil pressure, STOP engine immediately and report.

Drain oil filters when changing engine oil.

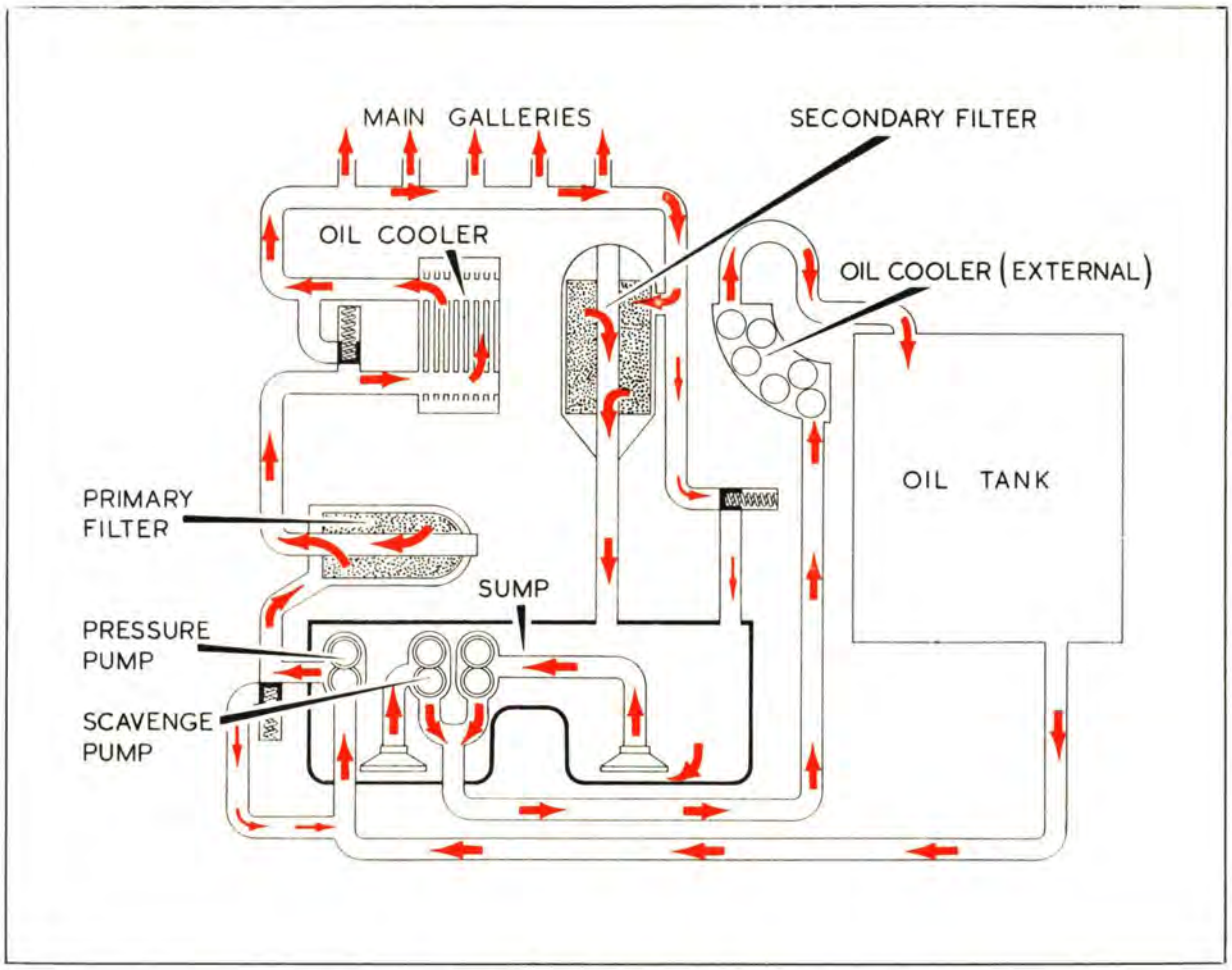

Fig. 24. **Lubrication System—diagrammatic.**

ADJUSTMENT.

The dynamo is belt driven from a crankshaft pulley, the tension being correct when the belt can be depressed 1/2in. midway between the two pulleys.

To Adjust. (*Fig.* 42).

Remove .303 ammunition box and 17-Pr. cartridge tray.
Slacken the three screws in the adjustable pulley on dynamo.
Turn adjustable pulley as required and re-lock by tightening the three screws.
Replace ammunition box and cartridge tray.

To Fit New Belt.

Traverse gun to left.
Remove gunner's seat.
Remove foot firing gear pedal.
Remove .303 ammunition and 17-Pr. cartridge tray.
Slacken dynamo pulley locking screws (three).
Remove adjustable pulley to allow the belt to be lifted from the dynamo pulley and the crankshaft pulley.
Fit new belt and adjustable pulley, then adjust to correct tension and replace equipment.

SMOKE EJECTORS.

MAINTENANCE.

Check that all terminals are tight and clean.

WIRING.

MAINTENANCE.

Inspect all terminals for tightness and cables for damage.

VEHICLE FUSE CHART

Unit	*Fuse*	*Component*	*S.W.G.*	*Material*
Driver's Instrument Panel	A	Smoke Candles and Panel Light	27	Tinned Copper
	B	Head Lamps and Convoy Lamp	34	
	C	Inspection Lamp Sockets	34	
	D	Side Lamps and Tail Lamp	34	
	E	Flame Primer and Inspection Lamp Socket ...	34	
	Fuse No. 1 M	Starter Push, Head Lamps and Convoy Lamp ...	34	
Fuse Box No. 3.A	1	Telescope Graticule Lamp	34	Tinned Copper
	2	Sighting Gear Lamp	34	
	3	Spare	27	
Commander's Panel	Fuse No. 1	Spot Lamp (if fitted) and Commander's Lamp ...	34	Tinned Copper
Fuse 60 amp.		Power Traverse (spare fuse clipped to inside of cover)	—	—
Control Board	Main Fuse	(spare fuse clipped to inside of cover)	—	—

CHAPTER IV.

ELECTRICAL EQUIPMENT.

BATTERIES.

Four six-volt batteries are installed to store the energy required for operating the electrical components fitted throughout the vehicle. They are connected to give a supply of either 12 or 24 volts with a current capacity of 150 amp. hours.

Two batteries are situated side by side beneath the driver's seat and retained by clamping bars secured with wing nuts, the other two batteries being positioned in the right hand side of the engine compartment and retained in a similar manner.

CONTROL BOARD. (*Fig.* 92),

The control board situated in the fighting compartment, regulates the output of the dynamo according to the degree to which the battery is discharged. It comprises a base board on which are mounted the voltage regulators with their resistances and a cut-out switch. Enclosing these is a metal cover which must not be removed, as the units can only be adjusted by qualified personnel with the necessary special testing equipment.

At the bottom of the board is a terminal and fuse-box provided with a cover held in position by two hinged screws with wing nuts.

At each entry point the cables pass through glands which contact and earth the external metal braid.

At the rear of the base board are situated the choke coils and condensers fitted for the suppression of interference to the wireless.

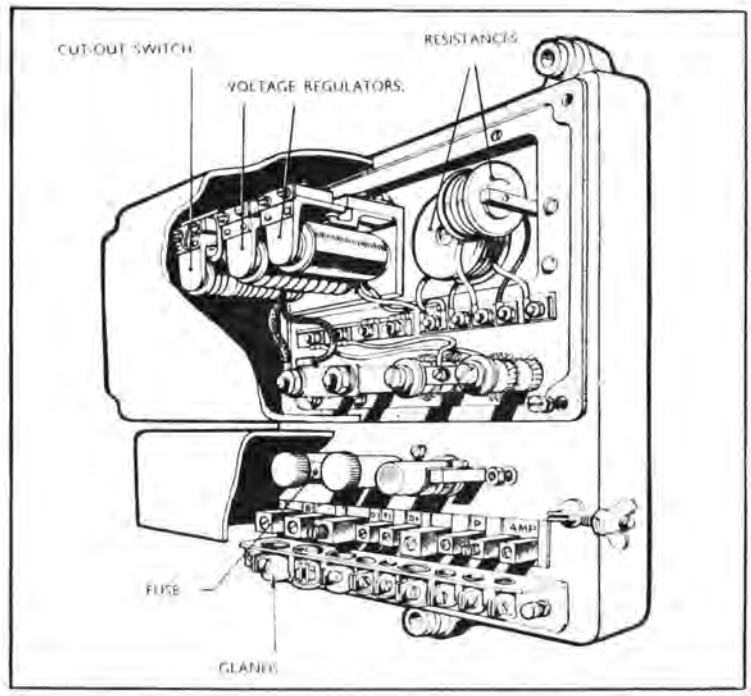

Fig. 92. **Control Board.**

Field Magnet Circuit.

This is connected to the dynamo positive in the control board, to ensure that the current passes through the regulator windings.

Voltage Regulator.

The regulator is shunt wound, and receives the full dynamo voltage.

When the contact points of the regulator are closed, the field windings are connected to the dynamo positive through them, and excessive voltage causes the points to open, thus introducing a resistance into the

CHAPTER VII.

ARMAMENT.

ORDNANCE, Q.F., 17-Pr., Mk. II.

DESCRIPTION.

The **Mark II** gun consists of a body and a breech mechanism, the former being composed of a barrel, a muzzle recoil brake and a breech ring.

The **barrel** is a single tube forging which may, or may not, be autofrettaged. It is chambered and rifled internally and has a tapered exterior. Near the muzzle end are left-handed screw-threads to which a muzzle brake is secured on the Mark I and Mark II guns. A fine line to facilitate the assembly of the muzzle brake is provided in rear of the threads. The barrel is stepped and screw-threaded near the breech end to receive the breech ring and a line to facilitate assembly is cut in the upper surface in front of the threads. A recess for the point of the breech ring securing screw is provided at the right horizontal axis of the barrel in rear of the screw-threads. Vertical and horizontal axis lines are cut across the face of the muzzle for use when testing sights.

The breech face bears the contractor's initials, the registered number of the barrel, and the nature and Marks of the guns in which it can be used. The Mark of rifling, the maker of the steel and the forging number are shewn on the muzzle face. The actual weight of the gun, without a breech mechanism, is stamped on the upper surface of the barrel in front of the threads for the breech ring and a line between the bearing for the rear securing strap and a Royal monogram indicates the centre of gravity of the gun without breech mechanism and unloaded.

The **muzzle recoil brake** (*Fig.* 100) has internal left-handed screw-threads to engage similar threads on the front end of the barrel and is secured with a locking nut, having four tommy holes, and a locking ring. The brake has side vents and an internal baffle. Care must be taken on assembly that the fine lines of the barrel and brake are coincident before being secured by the locking nut and ring. Muzzle recoil brakes of an earlier manufacture were secured with a set screw and lock nut.

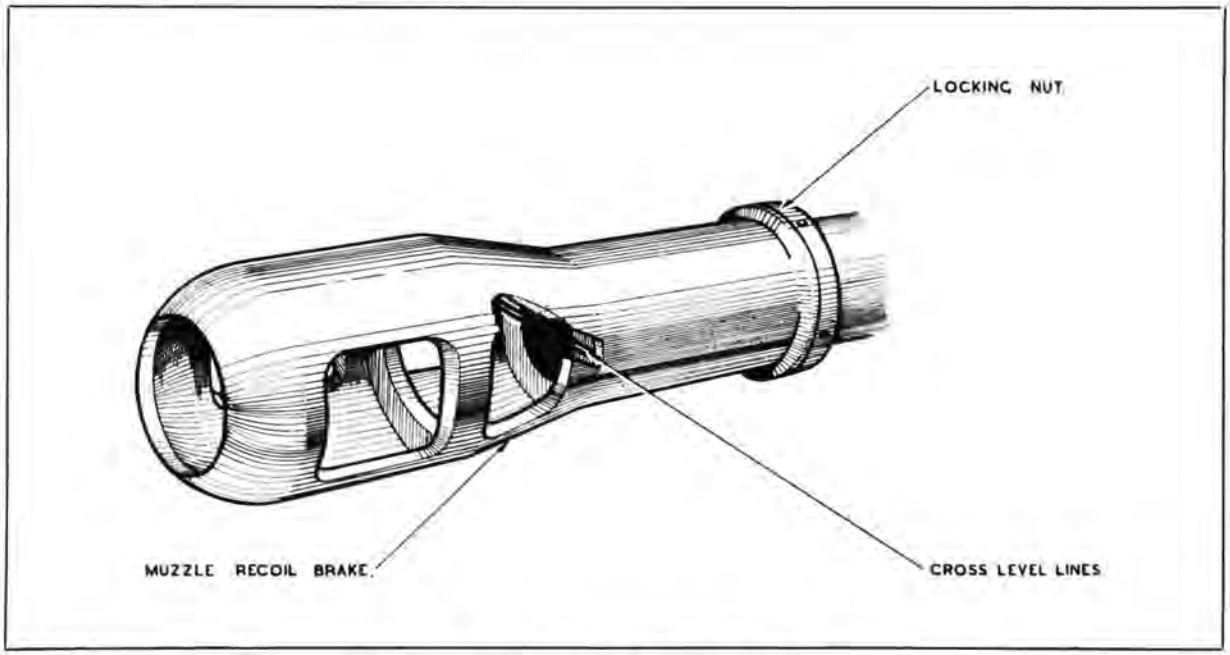

Fig. 100. **Muzzle Recoil Brake.**