

plunger rises, part of the fuel returns back to the gallery until the ports are covered by the plunger. The remainder is pumped through the delivery valve and pipe to the fuel injector in the cylinder head and so into the cylinder.

Part injection for normal running :—

When full power is not required and the accelerator pedal is not fully depressed, the plungers are rotated by movement of the accelerator pedal. Each plunger will pump as on full injection until its helical groove registers with the spill port. All remaining fuel will then be pumped back through the spill port into the fuel gallery as this is a much easier path than being forced through the delivery valve and injector into the cylinder against compression.

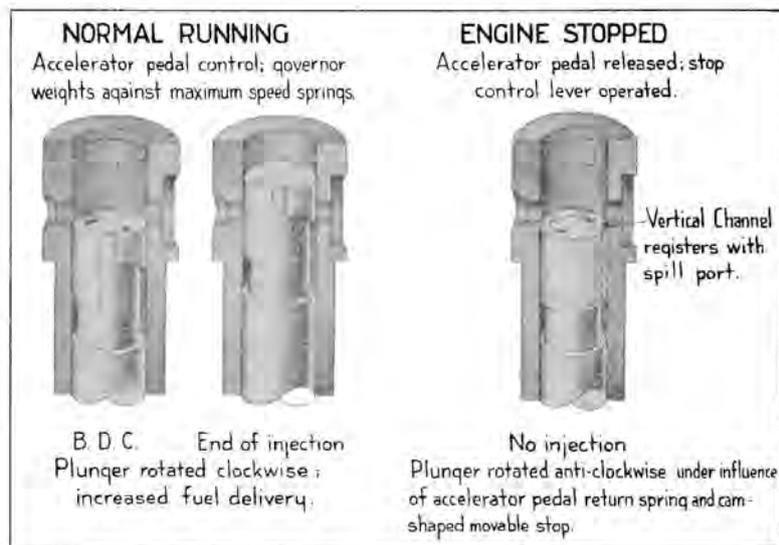


Fig. 2 (b).

No injection for stopping the engine :—

The groove in the plunger registers with the spill port throughout the plunger's stroke so that no fuel is pumped.

*Note.*—The delivery valve acts as a non-return valve which snaps shut as soon as the groove in the plunger registers with the spill port. Details in the design ensure that the delivery of fuel from the injector is cut off instantaneously without dribble.

(b) Engine Speed Control.

A maximum and idling speed governor is enclosed inside one end of the fuel injection pump housing. It is of the spring and centrifugal weight type and acts as a link between the accelerator pedal and the toothed control rod which rotates the fuel injection pump plungers.

loading. Each band is made in two pieces, the inner band being closed by the load applied to the outer band. The torque reaction of the inner band is taken by a strut and the torque reaction of the outer band by the hooks.

The bands are self-energising, thus greatly reducing the load required in the pull rod to hold a given torque reaction in the brake drum. Further, to increase the holding power of the bands, the brake drums are formed with annular grooves cut on the outside circumference. The reaction members allow the bands to take up their own position on the drums. When disengaged the bands are held away from the drums by centralisers.

(d) Brake Adjustment (see fig. 6).

To maintain the correct loading on the brake bands it is necessary that the bands are kept correctly compensated for wear. This is achieved by an automatic adjusting device which operates immediately wear takes place.

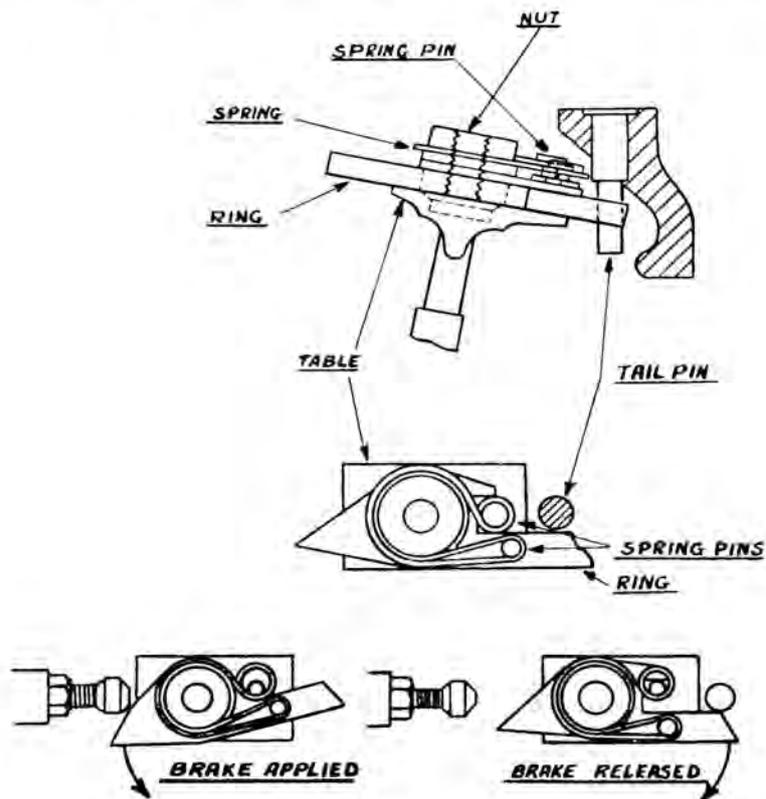


Fig. 6.

**AUTOMATIC ADJUSTER.**

The engine may now be started.

Notes. On no account should the Master Control Lever be turned "on" unless the system is full of oil.

If the system has been drained of oil, the engine should not be run unless the drive to the pump has been disconnected.

Do not depress the latch or trigger in the spade grip control when starting the engine.

The correct grade of oil is M.80.

(ii) To use. The engine must be running.

Ensure that the turret floor and the outside of the turret are clear of obstructions.

Set the pump Master Control Lever to the "on" position.

Move the "change over" selector lever upwards to engage power traverse.

Grasp the spade grip control and depress its latch or trigger to the full extent.

Twist the spade grip control gently to traverse the turret in the required direction. Avoid sudden movements. The greater the angle through which the spade grip control is twisted, the faster the turret will rotate. The response of the turret to inclination of the spade grip is proportional to the angle through which the latter is moved. Thus movement of the spade grip approximately  $5^\circ$  on either side of zero will produce no appreciable result; thereafter, further inclination, either "right" or "left" will produce gradually increasing turret speed up to an inclination of about  $30^\circ$  from zero in either direction. Further movement of the spade grip between  $30^\circ$  and its maximum travel of  $45^\circ$  will produce rapid increase of speed, up to the maximum. **Do not switch over from left to right traverse, or vice versa, too suddenly as the inertia of the rotating mass is considerable.**

A cam bolted to the turret race rack connects with the gun inside the turret and lifts the barrel to avoid fouling the air outlet louvres, should the barrel be in a depressed position when the turret is swinging the gun over the rear end of the tank.

**Take care that no part of the body is allowed to protrude outside the foot shield. The power of the traversing gear is sufficient to break a leg or arm should one become jammed between the stationary and rotating portions of the turret.**

(iii) After use. When powered traverse is no longer required, move the "change-over" lever to hand traverse (downwards). Move the master control lever to off unless it is likely to be needed again in a short time.

(iv) Maintenance. For correct operation, the system must be free from air and should be bled weekly. The procedure is described in Section 39.

TANK INFANTRY MARK II.

