

To check oil pressure.—The only definite method of checking the minimum engine oil pressure is to drive the vehicle at 9 m.p.h. in second gear when the engine is hot. The oil gauge should then show a pressure of at least 25 lb. per sq. in.

STEERING.

- Do not snatch the steering levers, but use a firm steady pull.
- Do not steer and use your main brake at the same time.
- Do not touch either lever when the engine is idling.

STEERING FORWARD.

The vehicle is steered by altering the relative track speeds, and it follows, therefore, that by increasing the forward speed of the right-hand track the vehicle will turn to the left, and vice versa.

Steering control is by means of right and left-hand steering brake levers, one on each side of the driver's seat (see Fig. 3).

To turn the vehicle to the *left*, pull back the *left*-hand steering lever. To turn the vehicle to the *right*, pull back the *right*-hand steering lever.

Should the vehicle be moving forward on the higher gears and a sharp turn is required, the driver must change down to a lower gear.

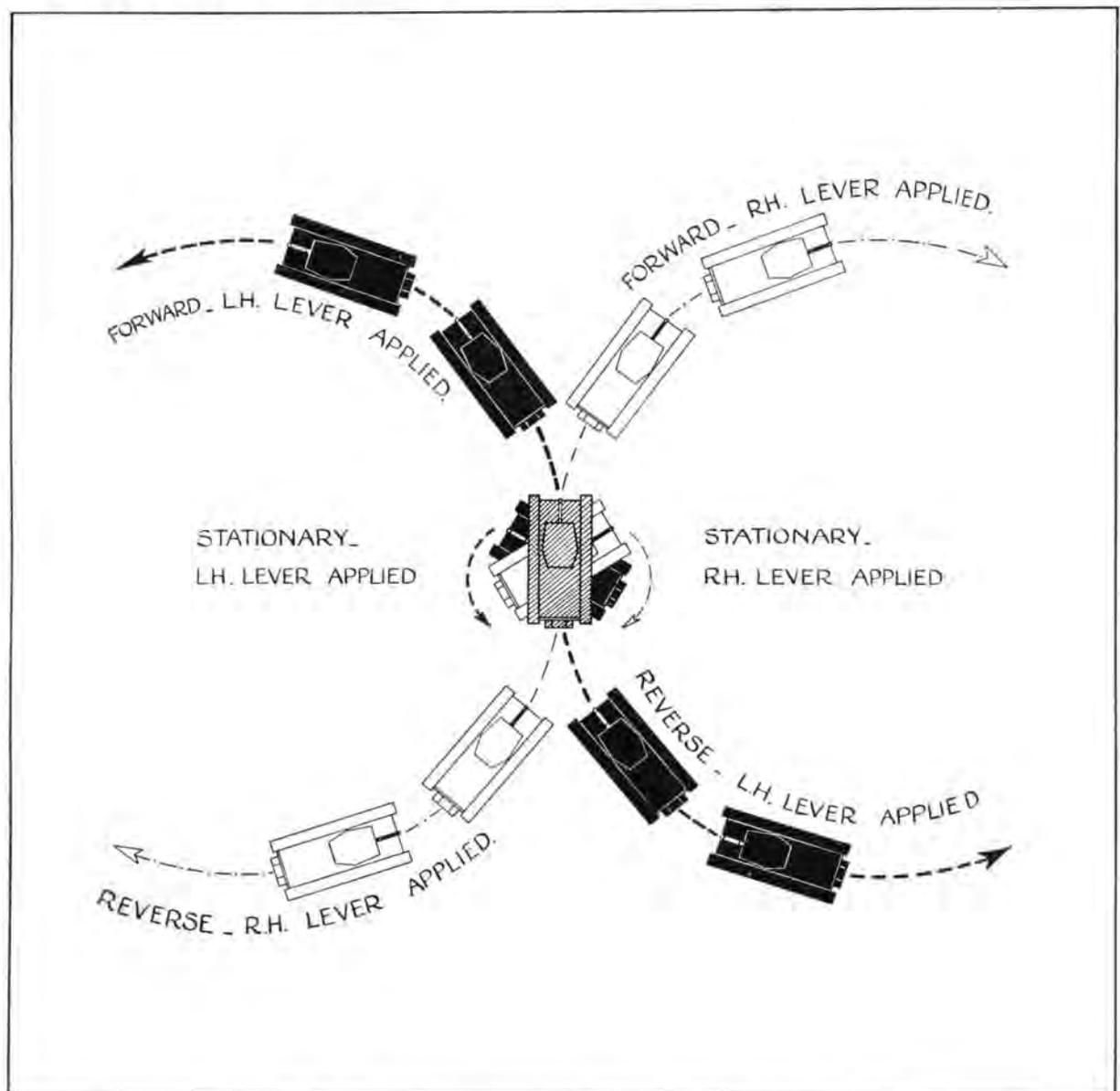


Fig. 5.—Diagram showing operation of steering levers.

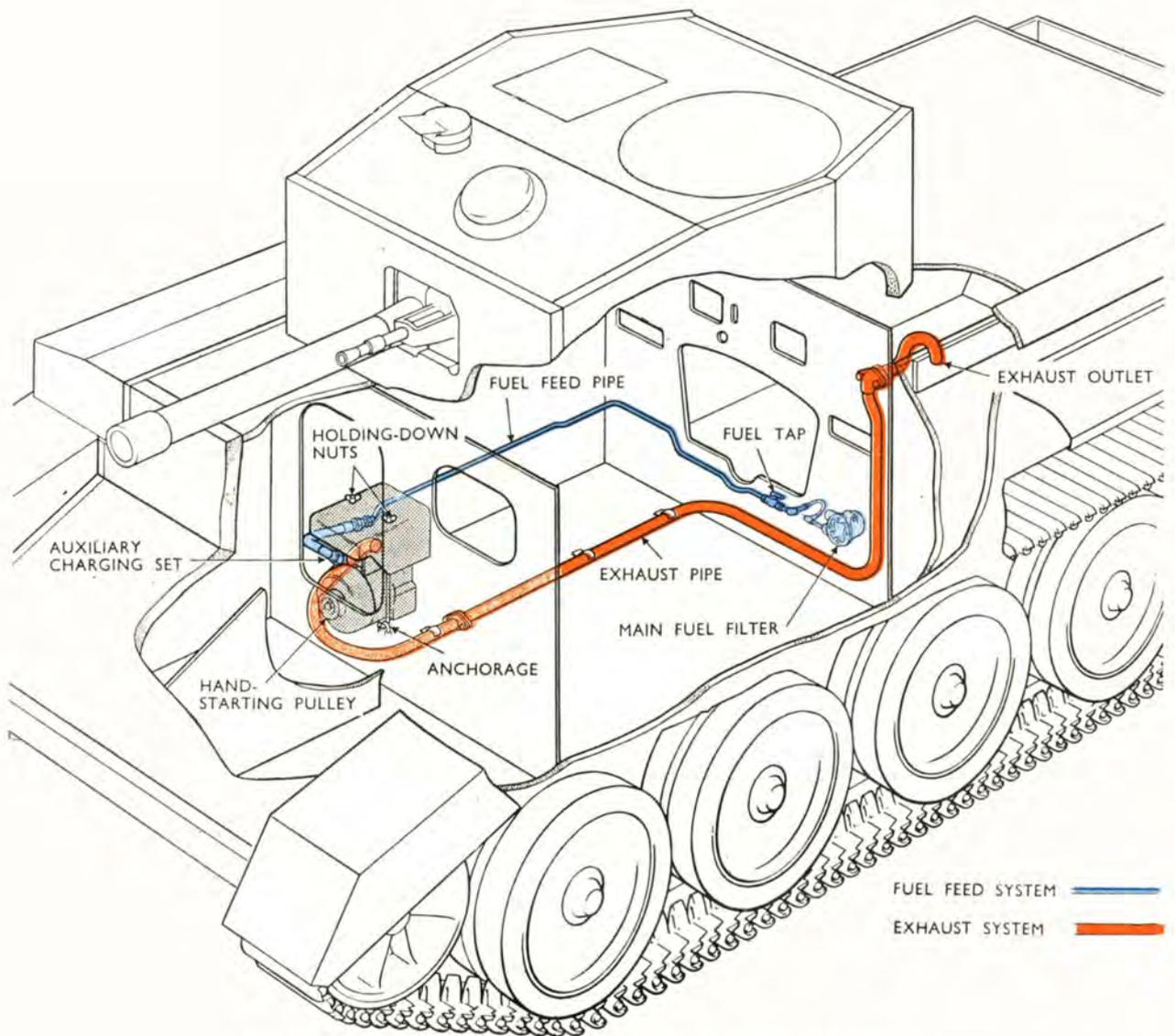


Fig. 46.—Layout of auxiliary charging set, fuel feed and exhaust.

The dynamo should give approximately 10-14 amps. charge, but this will not be shown on the ammeter. Charge is indicated by lights becoming brighter.

The throttle is set and should not be interfered with unless the set does not function satisfactorily. If adjustment is necessary, close the adjusting screw fully and then open gradually until the set runs satisfactorily.

To start up by hand (batteries almost discharged):—

- (1) Turn on fuel supply.
- (2) Switch ON ignition, listen for clicking noise as the fuel pump operates and then switch OFF ignition.
- (3) Press starter button for about one second to polarise dynamo.
- (4) Insert knot of starting rope in pulley slot and wrap rope several times round pulley.
- (5) Switch ON auxiliary set ignition.
- (6) Hold choke in almost closed position, but do not over-choke.
- (7) Turn engine by a sharp pull on the rope. Repeat if necessary, varying choke control, until engine fires.

To stop Auxiliary Charging Set.—First turn OFF fuel supply, allowing the engine to run until all fuel in the supply pipe and carburetter is used. Then press down stop lever above contact breaker housing. Finally switch OFF the ignition.

The cut-out is fitted under the protecting cover of the dynamo and is held in position by two nuts. No adjustment of this cut-out is possible. Do not interfere with the contact breaker.

EXTREME COLD OR FROSTY CONDITIONS.

6-pr. Gun.—Oiling should be reduced to a minimum.

M. Gun.—For temperatures between 40° and -40°, thoroughly dry clean the gun and lubricate with low cold test oil. If the temperature drops below -40° F., dilute four parts of this oil with one of paraffin. For further falls of temperature, increase the amount of paraffin. If low cold test oil is not available, leave the gun dry. If possible keep some of the parts (breech block, return spring, return spring guide, etc.) in a warm place, e.g. near the engine, until required. Avoid breathing on the gun, as breath contains moisture which will freeze on the working parts. If the situation permits, fire occasional bursts to keep the gun warm.

HEAVY RAIN OR DAMP.

Routine cleaning must be carried out more frequently and exposed parts more heavily coated with oil than normally. Covers must be properly secured.

EXPOSURE TO SEA WATER.

Paint external non-working parts. Put on all covers securely. A small amount of Cooper's grease may be used, but it should be noted, *it is not a good lubricant.*

PART 6

AMMUNITION

MARKINGS ON Q.F. 6-PR. 7-CWT. AMMUNITION.

(a) General.

(i) Ammunition issued to the Service is marked to facilitate identification and to ensure segregation in store and transport. Markings also ensure that the correct types are used and assist in tracing defects in design and manufacture.

(ii) Care should be taken in handling ammunition, to avoid damage to the markings.

(iii) Q.F. fixed ammunition is batched for the purpose of recording the components used in the make-up of the cartridge, and ammunition of the same batch should give consistent shooting. Each batch contains a propellant charge of one lot only, i.e. it was all made at the same place and time, but the fuses may be of more than one lot.

(iv) Batches are distinguished by consecutive numbers, preceded by the appropriate letter, e.g. "Batch E.1" denotes the first batch of shell ammunition. When it is found necessary to use more than one lot of fuses in a batch, it is divided into sub-batches, as follows:—"Batch E.1"—containing rounds with first lot of fuses; "Batch E.1—A"—containing rounds with second lot of fuses; "Batch E.1—B"—containing rounds with third lot of fuses.

(v) Batches will be stored separately and will be so arranged as to avoid dividing a batch or sub-batch.

(vi) A label is affixed to the inside of each box giving particulars of the components contained in the ammunition. When it is necessary to replace original components by those of other lot numbers, the letter "X" will be appended to the batch or sub-batch numbers on the box. It will also be stencilled on the side of the cartridge case when the fuse is changed. The letter "X" denotes that the box contains components other than those originally packed.

(vii) If possible, ammunition will be repacked in the boxes from which it was removed. Failing this, the batch or sub-batch number on the box must be amended.

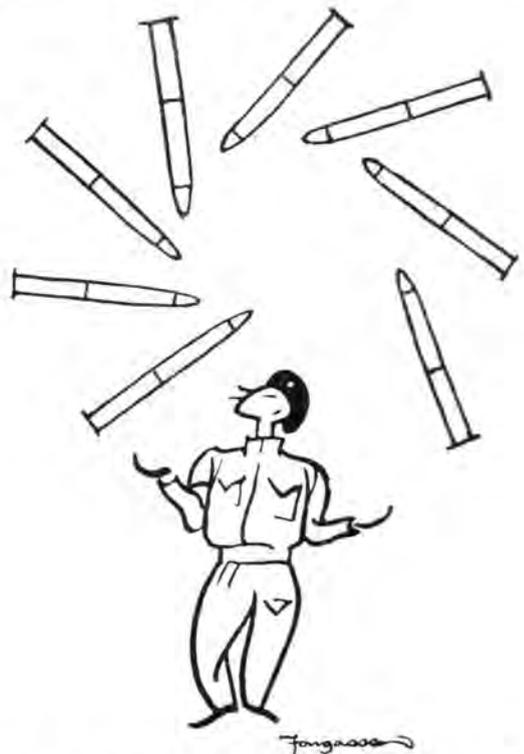


Fig. 87.—Don't be careless with ammunition.

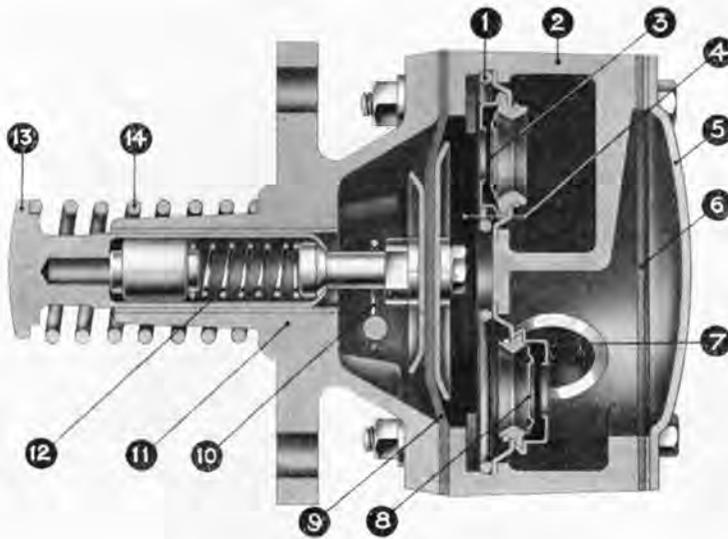


Fig. 131.—Section through fuel pump.

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|-----------------------------|--------------------------|
| 1. Valve retaining circlip. | 8. Delivery valve. |
| 2. Pump body. | 9. Pump diaphragm. |
| 3. Suction valve. | 10. Hand priming device. |
| 4. Pump chamber. | 11. Plunger housing. |
| 5. Pump end cover. | 12. Internal spring. |
| 6. Pulsometer diaphragm. | 13. Plunger. |
| 7. Outlet to carburetters. | 14. External spring. |

at the outer end of the pump body assists in maintaining a steady flow of fuel in the delivery pipe. When the carburetter float needle valve closes down, the pressure set up between it and the pump causes the pump diaphragm (9) to be pressed back upon the internal pressure spring (12) within the plunger tube, so that the plunger (13) continues to reciprocate under the influence of the driving cam without movement of the pump diaphragm (9).

KI-GASS PUMP AND PRIMING PIPES.

A Ki-gass priming pump (see Fig. 132) is fitted on the intermediate bulkhead, for use when starting the engine under cold conditions, its operating knob being located inside the fighting compartment.

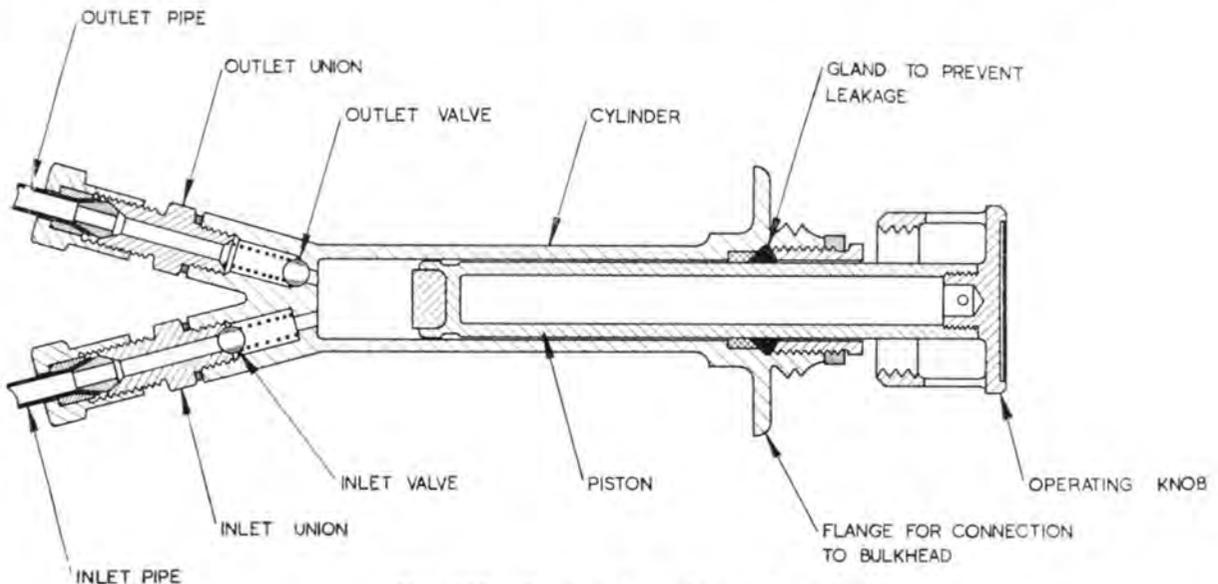


Fig. 132.—Section through priming pump.

carburetters before starting the engine. The plunger housing, pump body and end cover are all held together by means of six bolts and spring-washeders.

The action of the pump is as follows:—As the engine-operated cam rotates and permits the plunger (13) to be moved away from the pump body (11) by the outer spiral spring (14), the diaphragm (9) moves with it and fuel is drawn through the suction pipe and thence through the suction valve (3) into the pump chamber (4). Further rotation of the cam reverses the movement of the plunger and the diaphragm forces the fuel from the pump chamber (4) through the delivery valve (8) into the delivery pipe to the carburetters. The pulsometer diaphragm (6) mounted

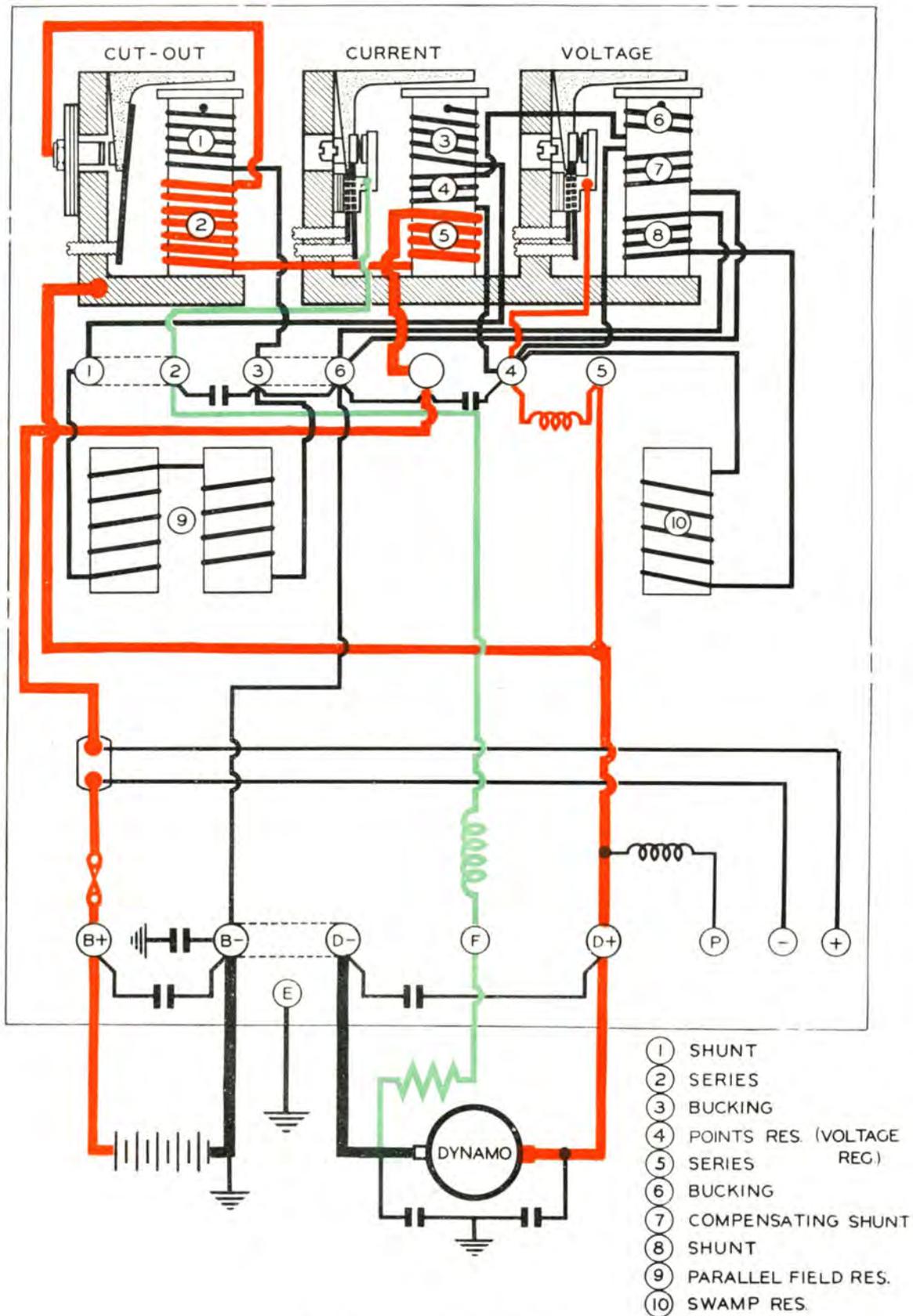


Fig. 205.—Main charging circuit.