

## CHAPTER IV—INSTRUCTIONAL NOTES

### I—METHOD OF INSTRUCTION

1. To obtain full value from this chapter it is necessary that the principles on which it is composed should be understood as it will be necessary to conduct instruction on similar lines. The principles are fully described in the R.A.C. School Pamphlet "D & M Training in the Royal Armoured Corps," W.O. Code No. 8340 and summarised briefly in the following paragraphs:—

2. It is assumed that the student has already been fully trained on the lines indicated in the pamphlet "General Principles of A & B Vehicles, Instructor's Precis," W.O. Code No. 8347.

3. The three basic questions to which technical instruction must provide an answer are:—

- (a) How should I operate my vehicle?
- (b) How should I maintain it?
- (c) How can I detect and remedy known defects?

The answers to these three questions are the only essentials in technical training and time spent on imparting knowledge which does not contribute directly to these essentials is wasted.

Instruction on these questions is 100% practical. Each operation must be explained to and carried out on the vehicle by each student.

Classroom work or its equivalent will be confined to such explanation of the construction and action of the components as is necessary to emphasise the importance of the practical methods taught.

4. It is important that each part of the lesson is given its proper value. All too frequently Introduction and Demonstration are hasty and meaningless. Description and Action, on the other hand, sometimes assume the proportions of an identification list coupled with a lecture on the theory of design which might assist (or surprise) the manufacturer, but of which only a small part is of direct assistance to the crew in finding an answer to the three basic questions.

5. Maintenance must not be merely a list of points to be covered. Defects must be defects known to occur on the particular vehicle and not hypothetical ones.

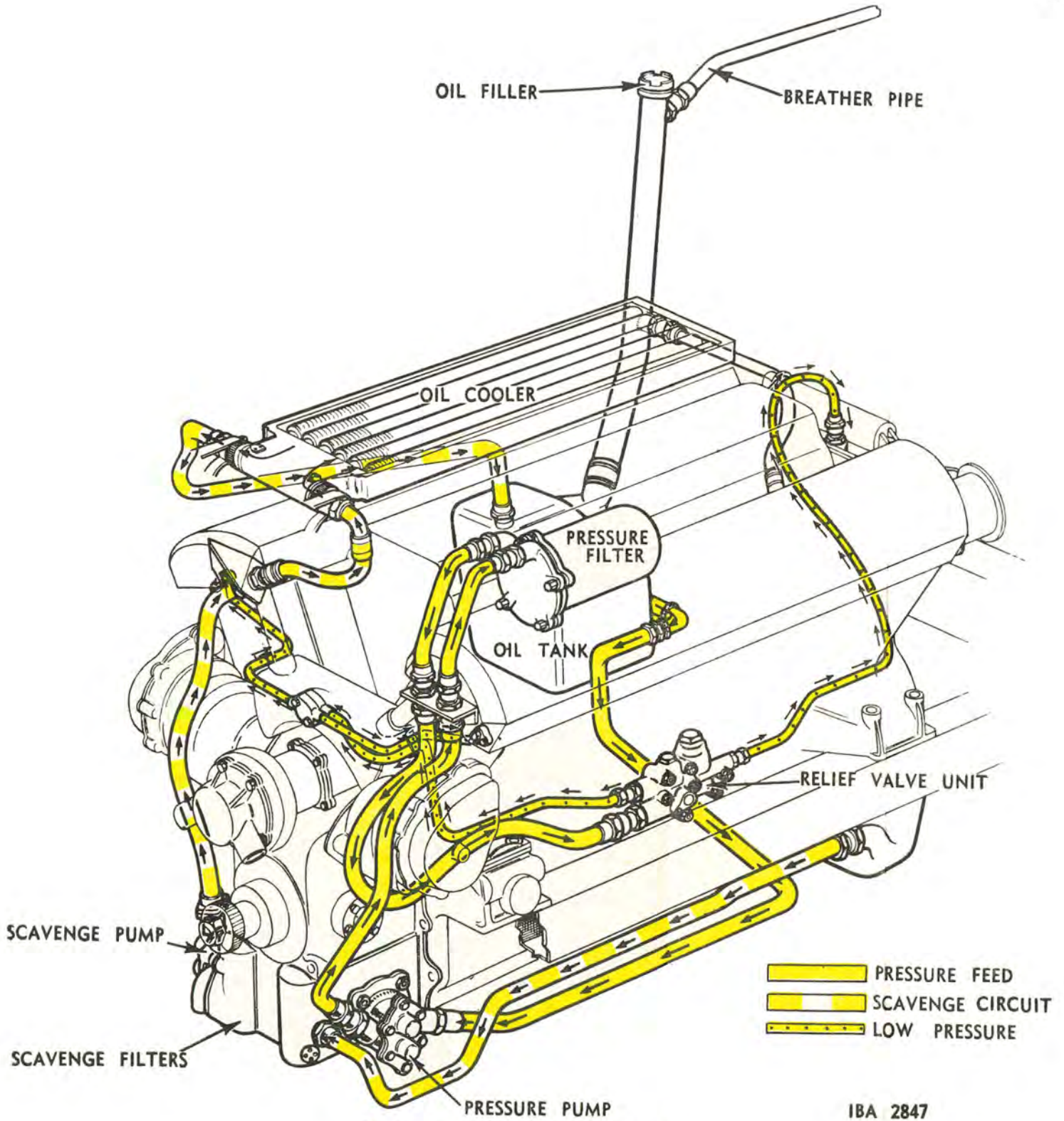


Fig. 16—Engine lubrication system

IBA 2847

(f) M.G. switch panel (driver's compartment), Centurion I only.

This unit houses a special fuse which protects the M.G. solenoid.

Spare fuse wire is wound round each fuse holder. This is the correct gauge for the fuse to which it is attached. Always fit the correct gauge of fuse wire as specified in this section and ensure that ample spare is carried on each holder. Spare fuse wire must be replaced by an electrician.

### Exterior lamps.

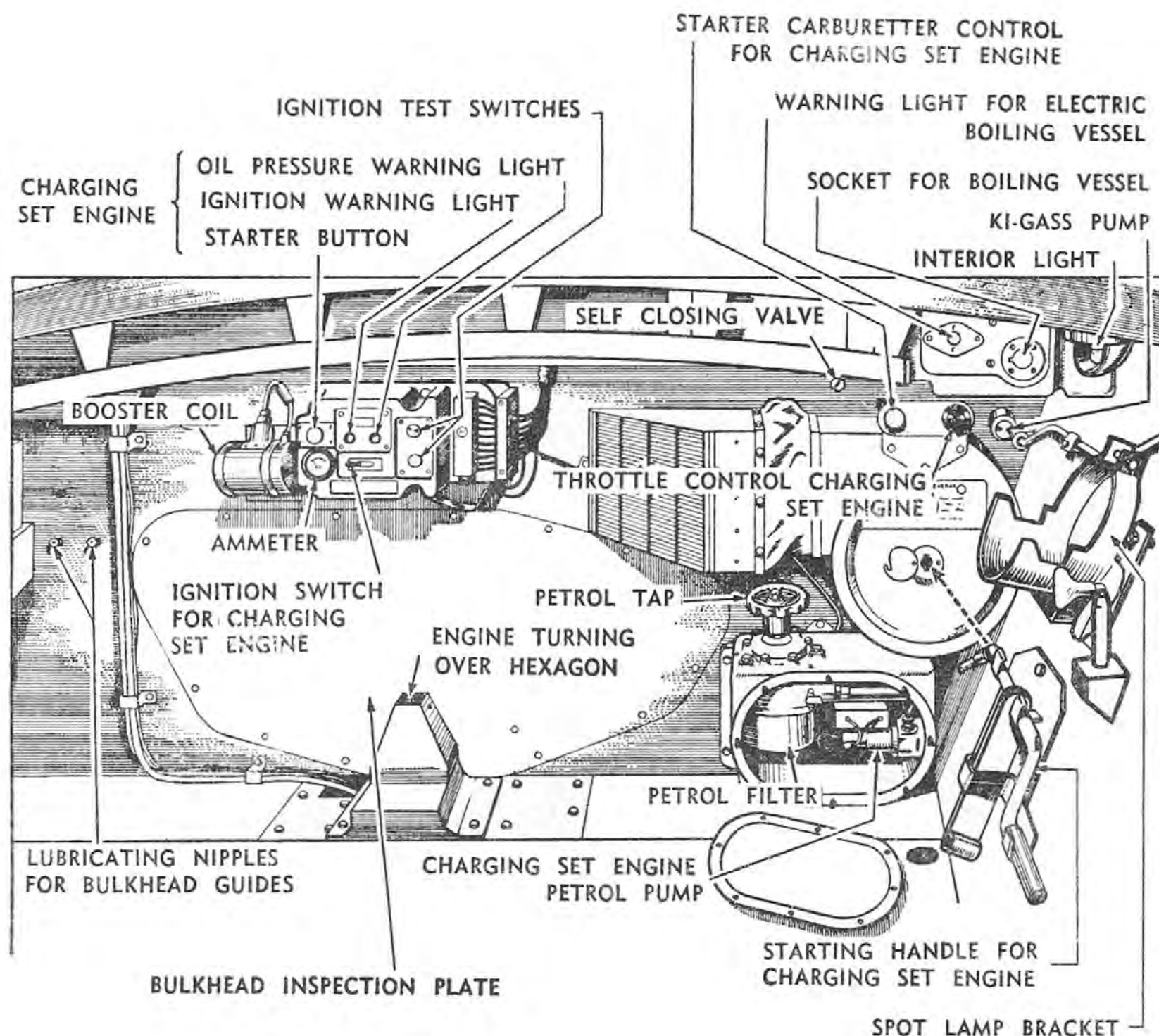
180. To change a bulb in either head lamp:—

**Note:**—*In the event of a fuse blowing continuously, check for shorting between the connection at the back of the bulb holder and the screw bracket at the rear of the lamp.*

(a) Equipment required:—

$\frac{1}{4}$  in. spanner.

26v., 50w., S.P. bulb.



IBC 2854

Fig. 27—Fighting compartment rear bulkhead

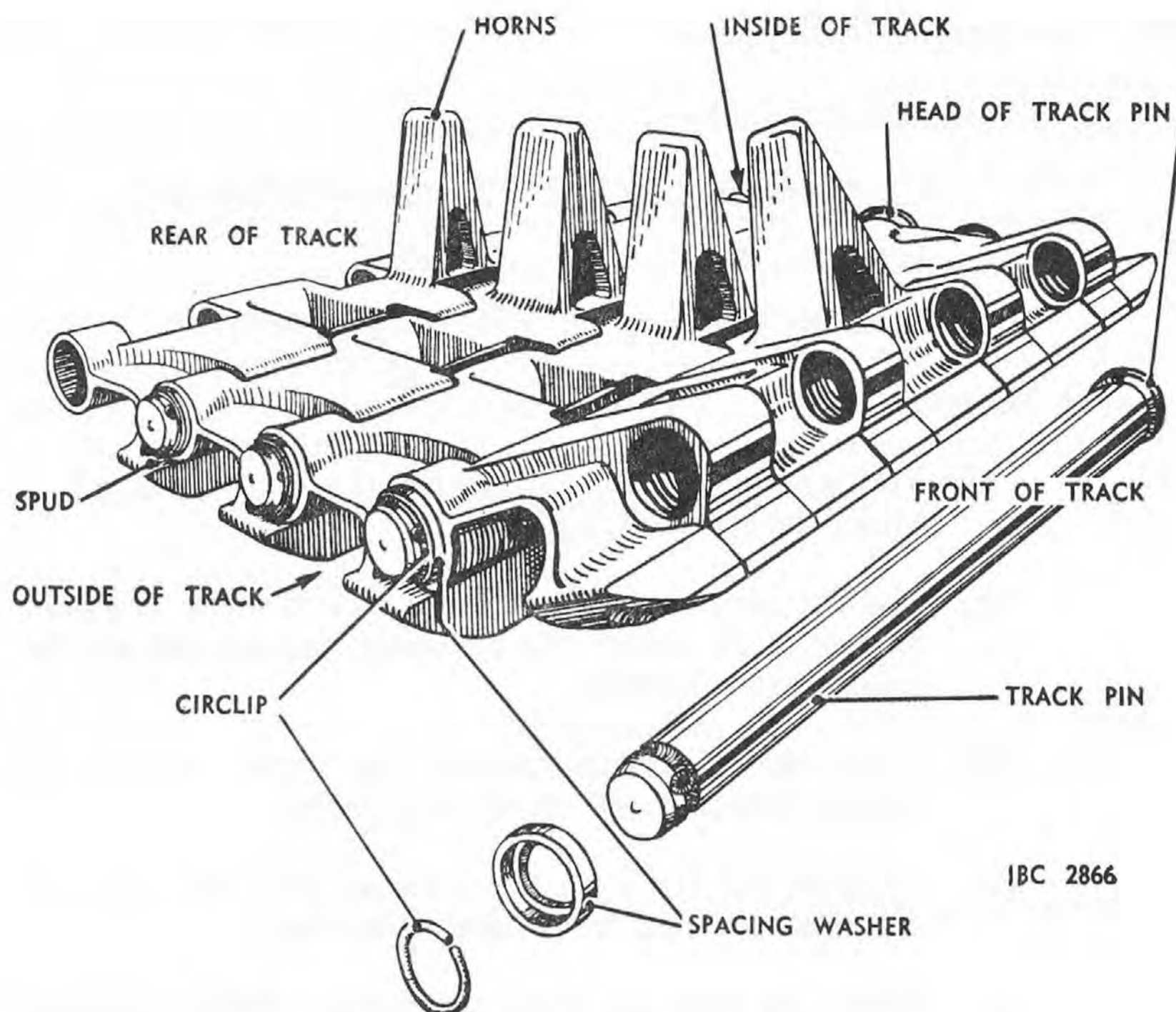


Fig. 39—Track links and pins (R.H. track)

(b) Method:—

- (i) Position the vehicle so that the two ends of the broken track are under the sprocket and use the neutral turn as in para. 271 (i) and (ii) in order to gather all the slack under the sprocket.
- (ii) Support both ends of the track with a crowbar and insert the track assembling tool from the outside, to join the two end links.
- (iii) Insert a new pin from the inside and drive the assembling tool out.
- (iv) Fit the spacing washer over the end of the pin ensuring that the recess is to the outside, so that it will retain the circlip when in position, fig. 39.
- (v) Fit the circlip on to the circlip assembling tool and place the tool end over the end of the pin. The assembling tool is telescopic and may have to be washed in petrol on receipt, fig. 40.
- (vi) Support the head of the pin with the sledge hammer and drive the circlip into position by striking the circlip tool with a hammer.

## Gear changing

**Warning.**—*High reverse gear must not be engaged unless the vehicle is fitted with a Mark "C" gearbox.*

342. The engine is very silent (silencers are fitted) and when driving, even without headsets, it is not possible to gauge the engine speed by ear.

Consequently, it is necessary to refer to the tachometer if the engine is to be operated correctly both as regard gear changing and to prevent running on the governor.

The maximum torque for the two types of engine are as follows :—

Meteor IV 1430 lb. at 1500 r.p.m.

Meteor IVA 1510 lb. at 1600 r.p.m.

This indicates that the maximum pulling power will be produced from the engine speed quoted.

The maximum speed of the vehicle in different gears at 2550 r.p.m. (governed speed) is as follows :—

Centurion I		Centurion II and III	
1st gear	... 2.7 m.p.h.	1st gear	... 2.5 m.p.h.
2nd gear	... 6.75 m.p.h.	2nd gear	... 6.3 m.p.h.
3rd gear	... 10.9 m.p.h.	3rd gear	... 10.1 m.p.h.
4th gear	... 17.3 m.p.h.	4th gear	... 15.0 m.p.h.
5th gear	... 23.7 m.p.h.	5th gear	... 21.5 m.p.h.
Low reverse	1.36 m.p.h.	Low reverse	1.26 m.p.h.
High reverse	8.0 m.p.h.	High reverse	7.4 m.p.h.

343. To change up :—

The double declutch method should be used when changing up under normal conditions. This usually entails a noticeable pause in neutral before the higher gear can be engaged silently. The length of the pause will vary in proportion to the speed of the vehicle and of the engine.

The gear lever should always be operated with a quick clean movement. *Do not attempt to force the gears into engagement.*

There is no clutch stop as fitted to other vehicles, but there are two methods of obtaining a quick change up on heavy ground :—

- (a) At the moment of gear changing, use small downward slopes to maintain the vehicle speed, thereby affording time to complete the change.