

HUBS



SERVICE INSTRUCTION LEAFLET

ISSUED BY
ROLLS-ROYCE LIMITED

RR/V1.

SB/GS 3/LP.

Subject : HUBS, REMOVAL, FRONT AND REAR.
ALL MODELS.

Date of Issue 7th Jan. 1945.

I. General Description.

On all Rolls Royce models, except the Wraith which embodies knock-off hub caps, the road wheels are locked by means of the specially designed Dunlop wheel locking device. Part of this locking device is carried in the hub and must be removed before access is gained to the hub retaining parts.

The front hubs are carried on ball or roller bearings on the stub axles, the side thrust being taken by the outer ball bearing which controls the location of the hub. The inner or larger bearing carries journal load only. In most cases this is a roller bearing but in certain models it is a ball bearing free to slide on the stub axle.

The rear axle is of the fully floating type, the hubs being mounted on extensions of the axle tubes, thus driving torque is the only load taken by the axle shafts. Torque is transmitted from the axle shafts to the hubs by means of detachable driving dogs. Axial load is taken by the inner ball bearing.

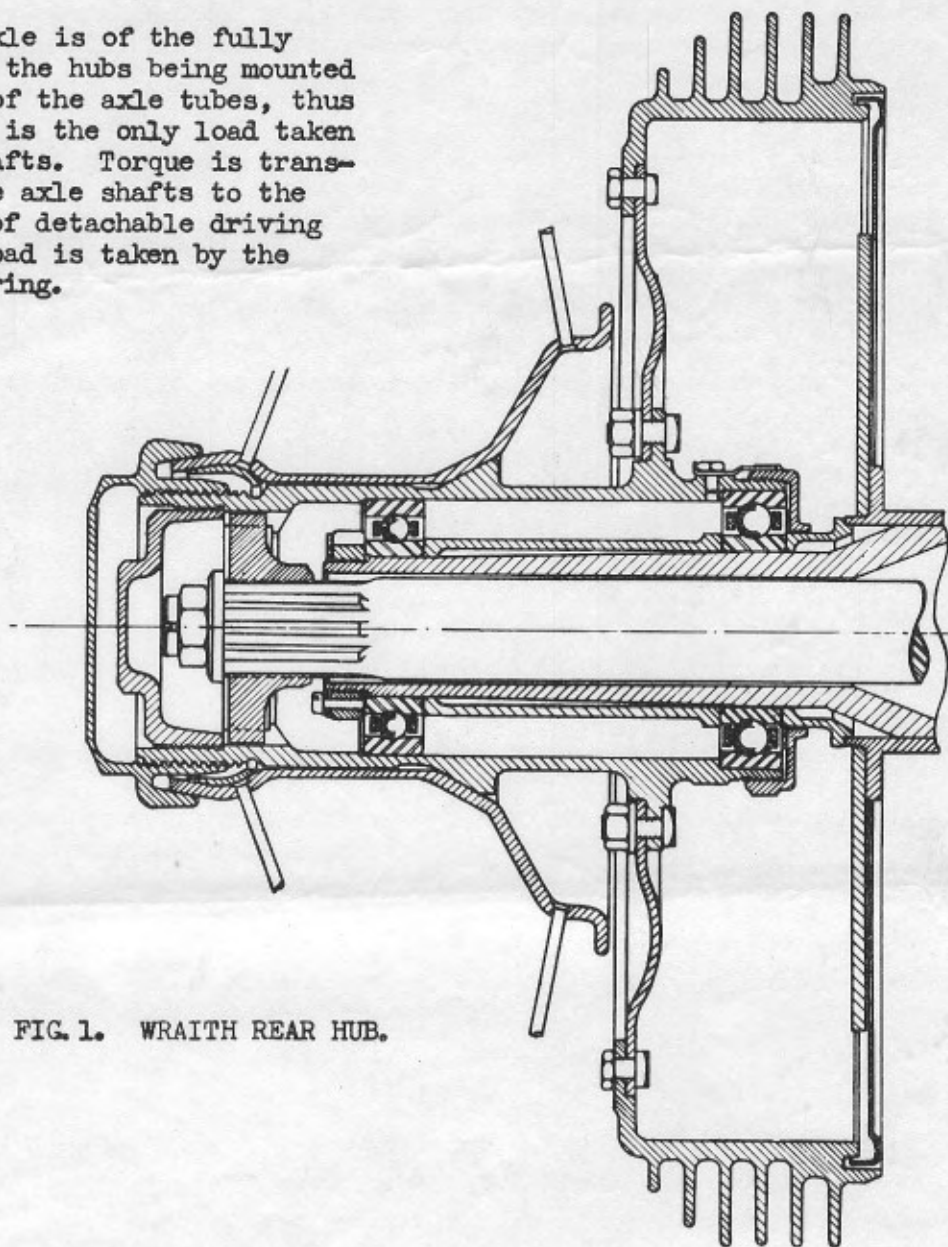


FIG. 1. WRAITH REAR HUB.

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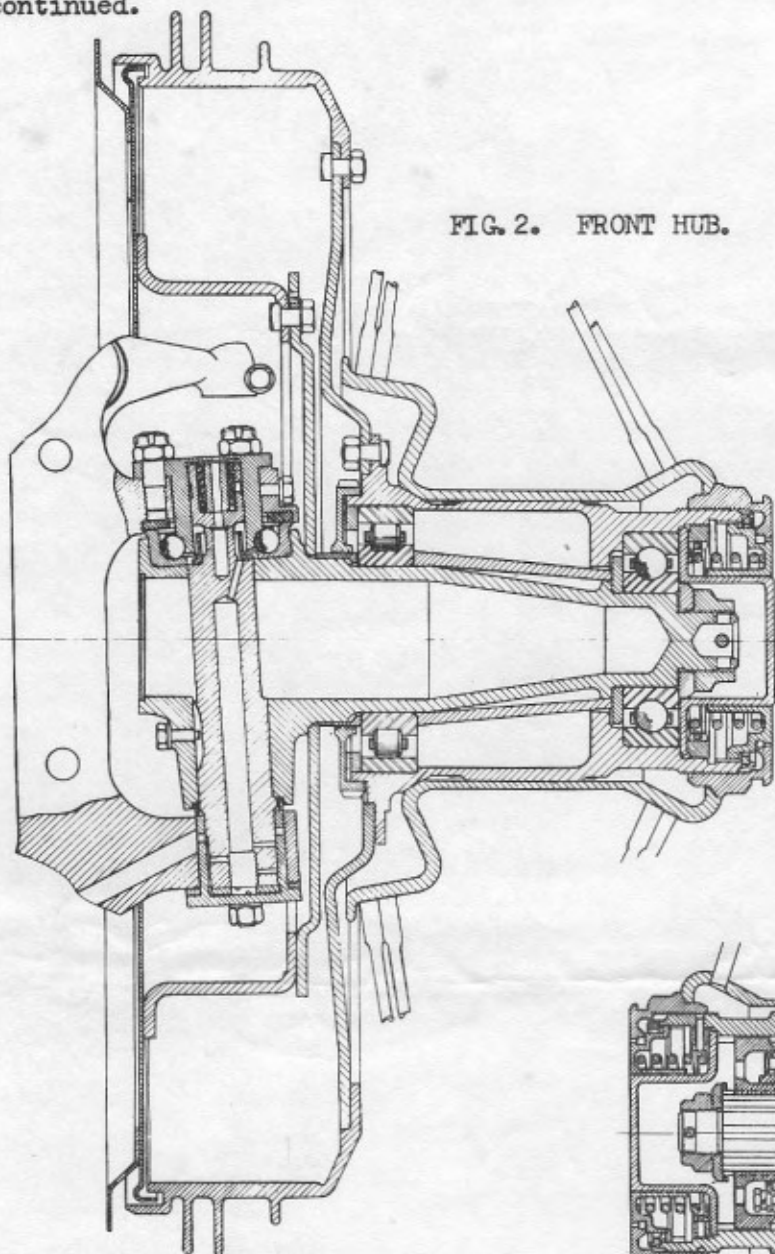


FIG. 2. FRONT HUB.

For the purpose of making clear the general construction of the hubs, sectional views of the Wraith rear hub and the Phantom III front and rear hubs are shown in Fig 1. 2 and 3. The other models are similar to the Phantom III and differ only in detail.

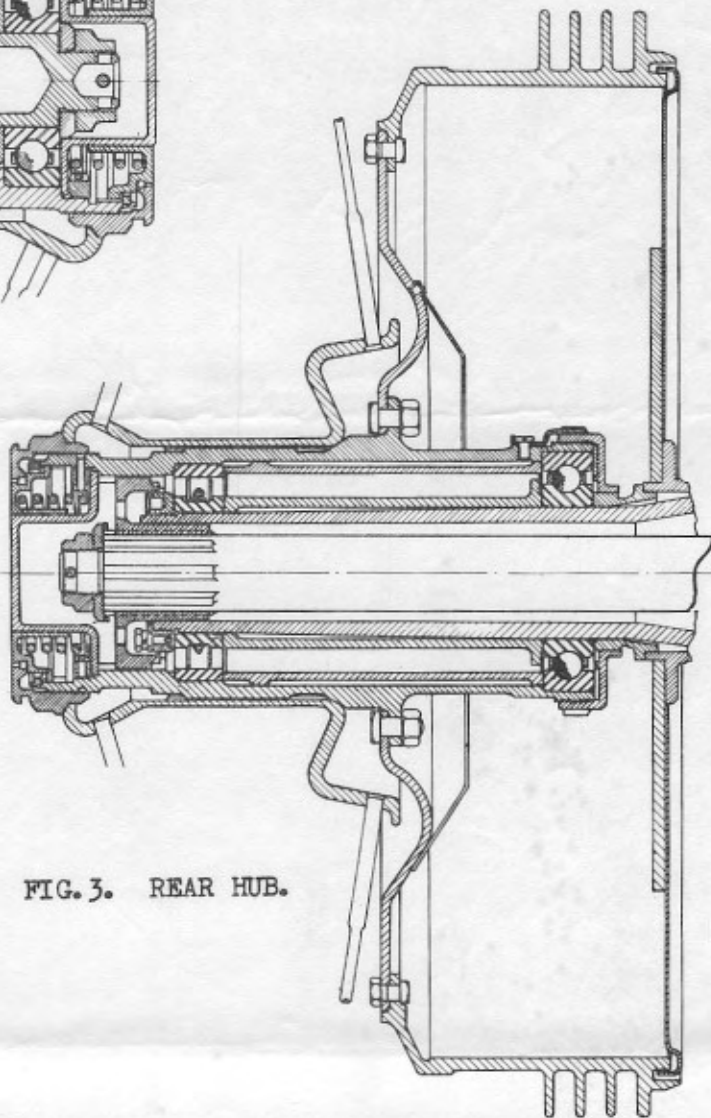


FIG. 3. REAR HUB.

With the exception of the nut securing the rear wheel driving dog, all the various hub retaining nuts are provided with right and left hand threads according to the direction of rotation. To avoid damage, it is important to note the correct handing of the thread, also it is most important to ensure that the hubs are not transposed after removal.

II. Special Tools.

Special tools are necessary to unscrew or extract the various hub retaining parts, and these tools vary for different models. A complete chart of hub removal tools is shown in Fig 4, and it is recommended that one or more sets of tools be made available in each Service Station.

ROLLS-ROYCE HUB REMOVAL TOOLS.

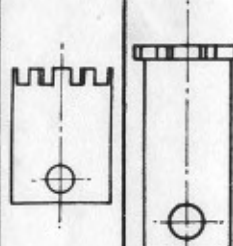
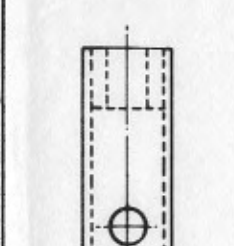
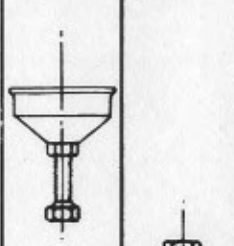
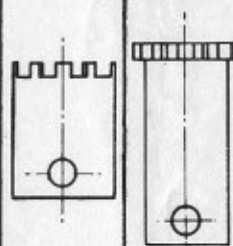
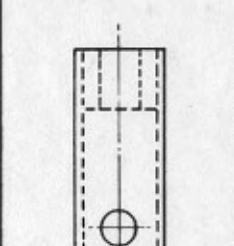
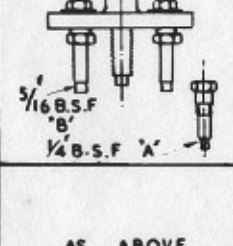
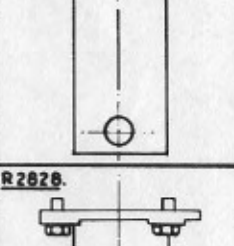
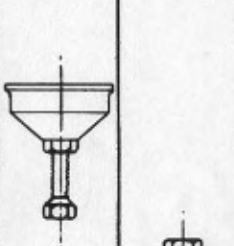


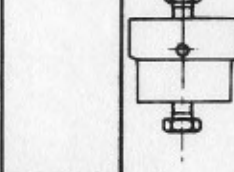
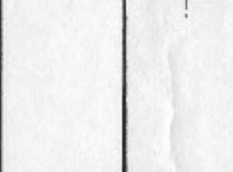
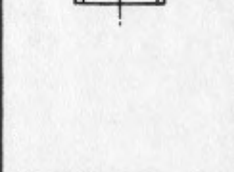
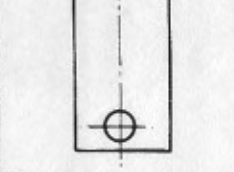
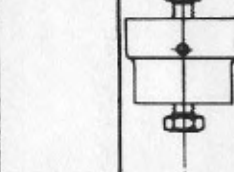
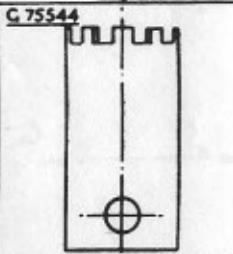
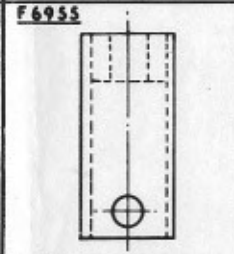
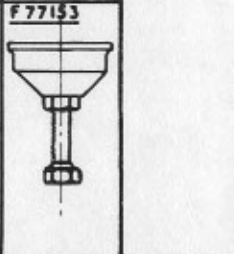
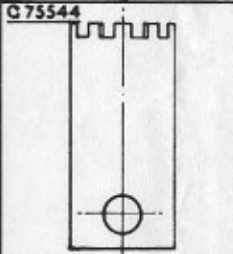
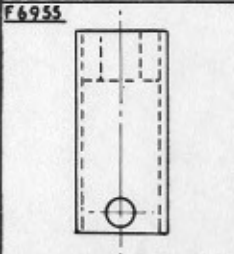
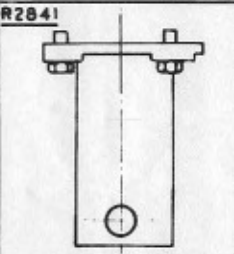
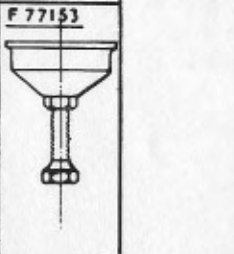
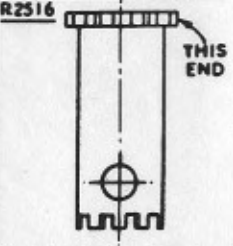
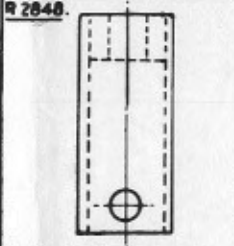
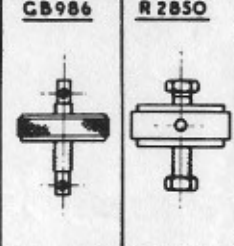

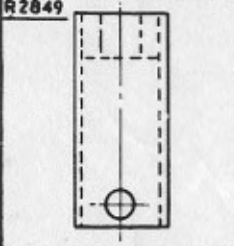
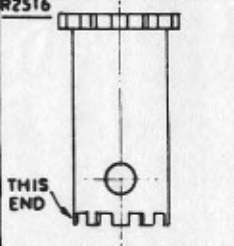
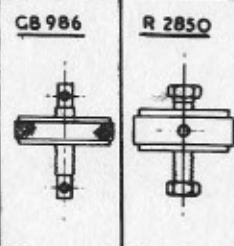
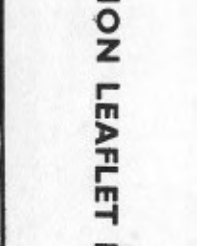
		FRONT.				REAR.													
TOOL MODEL.	CASTELLATED SPANNER FOR RETAINING RING		BOX SPANNER AXLE PIVOT NUT.		HUB EXTRACTOR.		CASTELLATED SPANNER FOR RETAINING RING		BOX SPANNER AXLE SHAFT NUT.		DRIVING DOG EXTRACTOR.		SPANNER FOR AXLE TUBE NUT.		HUB EXTRACTOR.				
	ALTERNATIVES.				ALTERNATIVES.		ALTERNATIVES.						ALTERNATIVES.						
PHANTOM III	G52664.	R2851	F52716.		F55116	R 2837	G52664	R 2851	R 2848		R2831	R2845.		F 55116	R 2837				
																			
20/25 & 25/30											<p style="text-align: center;">AS ABOVE.</p> <p style="text-align: center;">USE WITH SET SCREWS 'B'</p>								
PHANTOM II	G75544		F6955		F77153		G75544		F6955		AS ABOVE		R2841		F 77153				
										<p style="text-align: center;">AS ABOVE</p> <p style="text-align: center;">USE WITH SET SCREWS 'B'</p>									
WRAITH	R2516		R 2848.		GB986		R 2850		NONE REQUIRED		R2849		R2516		GB 986		R 2850		
								<p style="text-align: center;">NONE REQUIRED</p>				<p style="text-align: center;">AS ABOVE</p> <p style="text-align: center;">USE WITH SET SCREWS 'A'</p>							

FIG. 4a

continued:

continued.

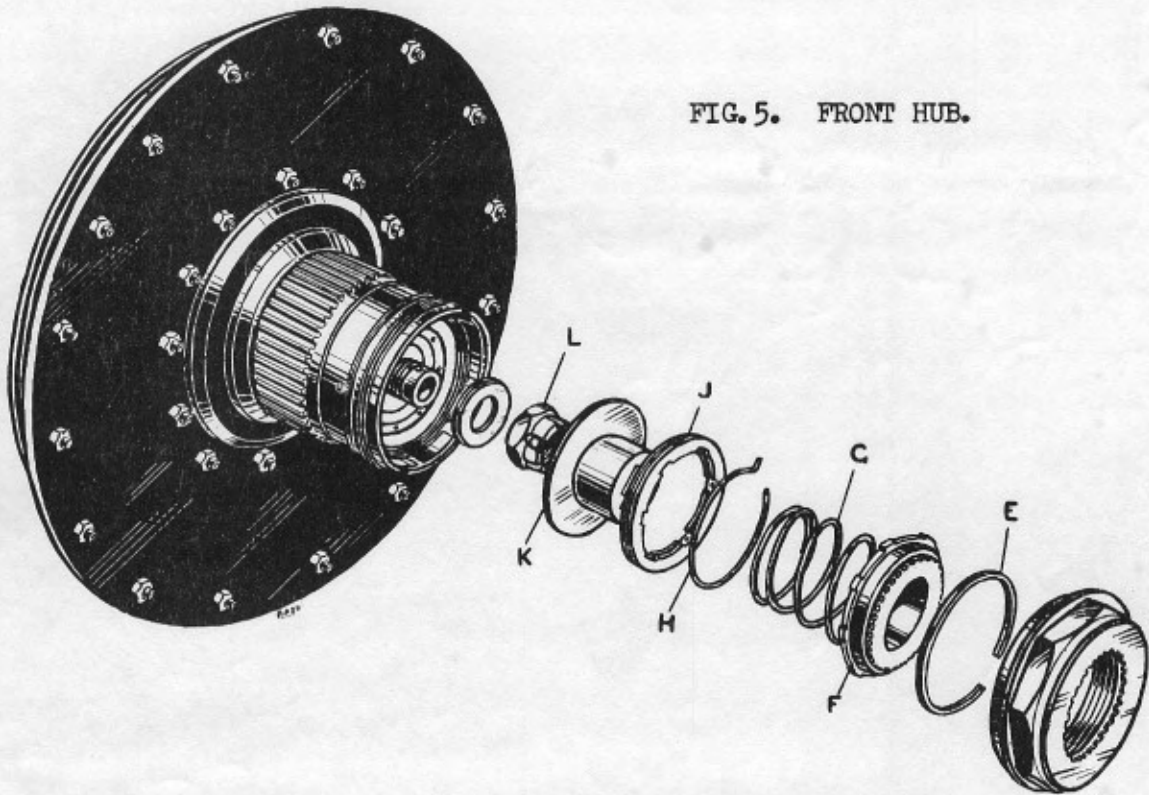


FIG. 5. FRONT HUB.

III. Method of Hub Removal.

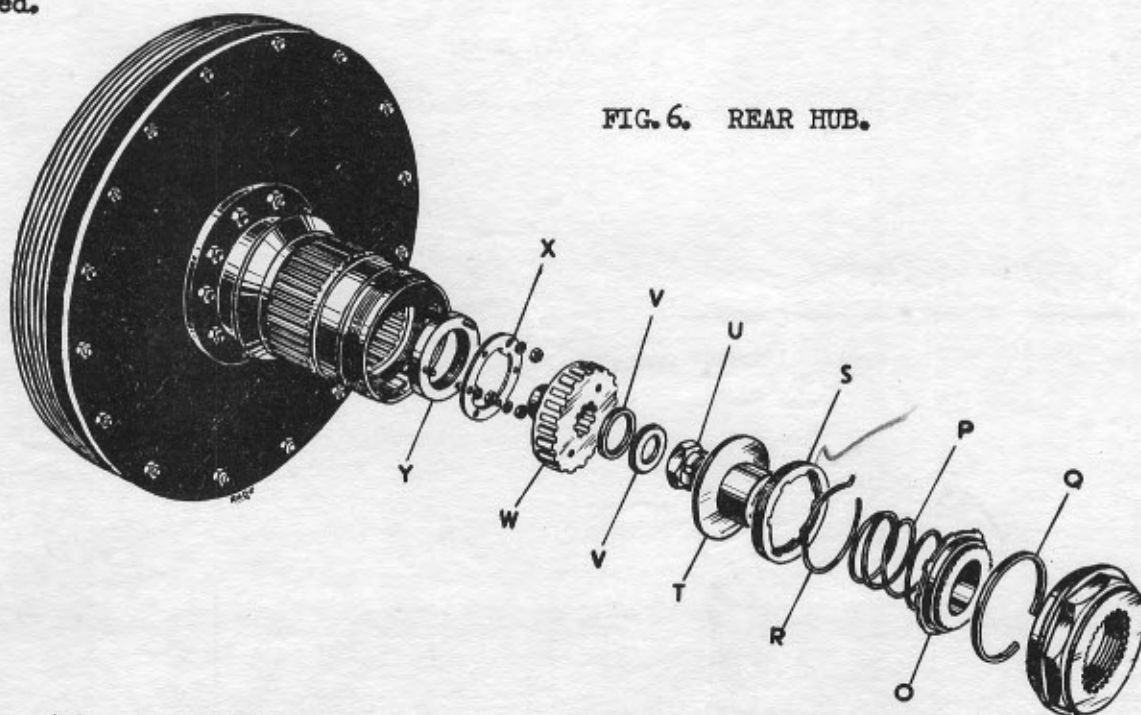
(A) Front Hubs.

Refer to Fig. 5.

- ★ 1. Push in the chromium sliding barrel (F) against the spring (G) behind it, and prise out the spring retaining ring (E) by means of a screwdriver inserted in one of the two slots in the hub. The sliding barrel and spring can now be removed.
2. By means of a screwdriver remove the wire locking ring (H) from inside the grease cap retaining nut (J) and unscrew the nut with the special spanner. Remove the grease cap (K). Note:- The nut is left hand thread on the off side and right hand on the near side.
3. Remove the split pin and unscrew the stub axle nut (L). Note:- Left hand thread on the near side and right hand on the off side.
4. Withdraw the hub with the special extractor.

★ Operation 1 does not apply to the Wraith models.

continued.



(B) Rear Hubs.

Refer to Fig. 6.

- ★ 1. Push in the chromium plated sliding barrel (O) against the spring (P) behind it, and prise out the spring retaining ring (Q) by means of a screwdriver inserted in one of the two slots in the hub. The sliding barrel and spring can now be removed.
- † 2. By means of a screwdriver remove the wire locking ring (R) from inside the grease cap retaining nut (S) and unscrew the nut with the special spanner. Remove the grease cap (T). Note:- The nut is right hand thread on both sides.
3. Remove the split pin and unscrew the axle shaft nut (U). In addition to the plain washer (V) there may be a packing washer (V) fitted behind the nut and special note must be made of this in order that it is not forgotten when re-assembling. Note:- The nut is right hand thread on both sides.
4. Withdraw the driving dog (W) with the special extractor.
5. Remove the three 2 BA nuts and spring washers that hold the locking plate (X) to the axle tube nut (Y) and remove the locking plate.
6. Unscrew the axle tube nut with the special spanner. Note:- The thread is left hand on the near side and right hand on the off side.
7. Withdraw the hub with the special extractor.

★ Operation 1 does not apply to the Wraith.

† The Wraith grease retaining cap screws into the hub. It has no locking piece and can be removed with a box spanner on its hexagon head. Note:- The thread is right hand on both sides.

continued:

IV. Hub Bearings.

(A) Removal of Bearings.

If necessary the hub bearings may be removed from the hub shells in the following manner:-

Front Hubs.

Pass a hardwood drift through the inner bearing and knock out the outer race. Remove the locking plate and unscrew the retaining nut* of the inner race, which can now be knocked out.

Rear Hubs.

Remove the locking plate and unscrew the retaining nut* of the inner race, which can then be knocked out. Remove the distance piece between the bearings and knock out the outer race.

* Note:- The retaining nut thread is left hand on the near side and right hand on the off side on both front and rear hubs.

- (B) Ball bearings may require replacement or inspection due to noise or wear. The only method of inspection, apart from obvious damage, is to test for side play and noise. In regard to side play, it must be borne in mind that as the ball bearings have to take considerable side thrust, special Hoffman bearings are used, having greater diametric clearance for the balls than is normal in order that the resolved line of force is brought round to a more favourable angle. For this reason, bearings should not be condemned merely because the side play appears to be excessive, judge for noise as well, and if O.K. pass the bearings unless the side play denotes obvious wear.

In testing for noise, wash the bearing out in paraffin to remove old grease and foreign matter, and oil with good quality engine oil. Then spin the bearing by hand, when it should be possible to feel any roughness caused by worn or damaged balls and tracks. Replace the bearing if lumpy or excessively rough.

(C) Greasing the Bearings.

The recommended grease is Duckham's Adcol HBB. Ball Bearing Grease. In addition to packing the bearings, the hubs should be packed inside between the bearings to a thickness of approximately $\frac{1}{2}$ ". This quantity should not be exceeded otherwise the surplus will leak out. In order to minimise leakage of grease into brake drums, it is advisable to face the inner bearing with a layer of high melting point grease before replacing the retaining nut.