

Chapter 27D

CENTRE HOUSING, DETAIL INSPECTION

Contents

	Page		Page
Centre housing casing	1	Lower vertical gear assembly	3
Front angular contact bearing	2	Upper and lower vertical drive shafts ..	3
General	1	Upper vertical gear assembly	3
Horizontal gear assembly	2		

Illustrations

	Fig.		Fig.
Centre housing casing	1	Upper vertical gear assembly	4
Front angular contact bearing	2		
Horizontal gear assembly	3	Lower vertical gear assembly	5

THIS CHAPTER, which is applicable to the Ghost 48 Mk. 1, 48 Mk. 2, and 53 Mk. 1, describes the inspection requirements applicable to the component parts of the centre housing. Where, in the text, the term "inspect for condition" occurs, it implies that the appropriate general viewing requirements described in chapter 27A must be carried out as part of the inspection requirements applicable to a particular component. Similarly, reference to a repair scheme (T.R.) implies that the operator must refer to that scheme, contained in chapter 28D, for the relevant information. Dimensional checks required on components and assemblies are detailed in the Table of Fits and Clearances, and, except when instructions are necessary in the method of measuring a dimension, or in the use of special tools, or equipment, the checks are not specified in this chapter. The term "within the limits" implies that reference must be made to the Table.

CENTRE HOUSING CASING

The centre housing casing, Fig. 1, consists of a magnesium alloy casting and a light alloy bush which is secured in position by a retaining screw and tab-washer. The bush is shrunk into the casting and finally machined in position, and no attempt must be made to separate the two parts. If, however, the bush is worn or damaged, an oversize bush may be fitted in accordance with the instructions contained in the relevant repair scheme (T.R.399).

Inspect for cracks, nicks, and burrs, in particular the four bores which accommodate the ball and roller bearing housings. No cracks are permissible. Blend out small nicks and burrs. Ensure that the twelve stud holes in the

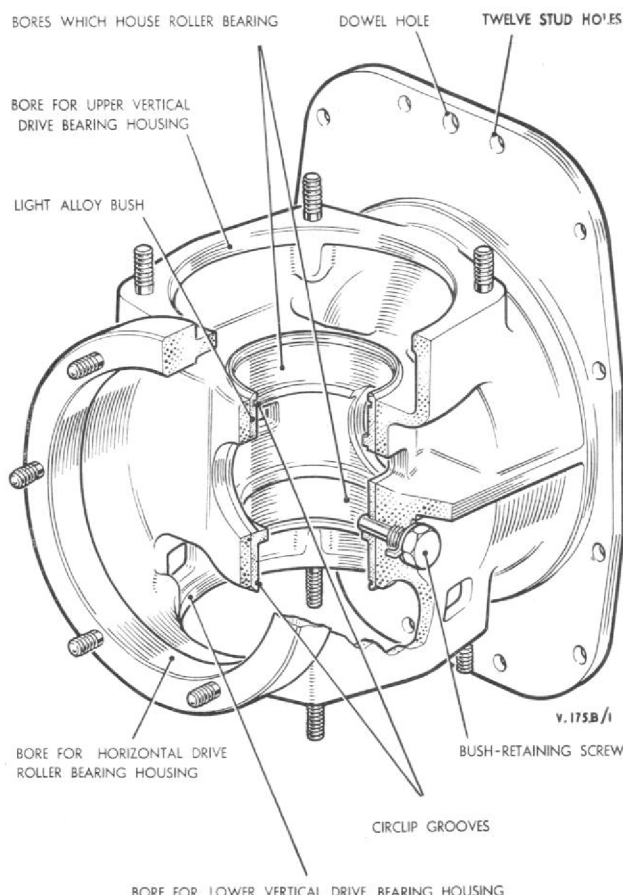


Fig. 1. Centre housing casing.

front flange are in good condition. Damaged stud holes may be rectified in accordance with the relevant repair scheme (T.R.270). Inspect the

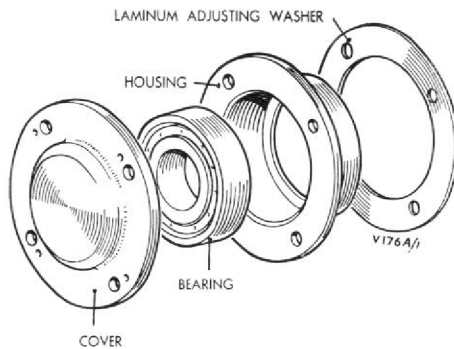


Fig. 2. Front angular contact bearing.

dowel hole for condition; if damaged it must be rectified in accordance with the relevant repair scheme (T.R.123). Inspect all studs for condition. Check the bores which house the roller bearings at each end of the bush, using a 2 to 6 inch bore gauge and setting ring T.70414. Inspect the two circlip grooves in the bush for condition.

FRONT ANGULAR CONTACT BEARING

Inspect each part of the front bearing assembly, Fig. 2, for condition. Using a John Bull S.B.X. small bore gauge and setting ring T.71222, check that the bore of the bearing housing is within the limits. The bearing must be cleaned, as described in chapter 25, and checked to ensure that its dimensions are within the limits. Check the end-float on ball bearing checking fixture T.72851, as described in chapter 27A.

HORIZONTAL GEAR ASSEMBLY

Inspect each part of the horizontal gear assembly, Fig. 3, for condition, particular attention being given to the threads at the front end of

the integral shaft. Blend any small nicks, burrs or scratches. Inspect the 24 serrations at the rear end for wear and damage, noting the condition of the copper plating which is intended to reduce fretting; if bare steel is visible, the plating must be removed and the serrations replated. To check that wear on these serrations is within the limits, measure over six serrations (0.7812 inch approx.) with a 1 inch micrometer in a similar manner to that described in chapter 27A.

This gear must also be checked for distortion, which may be the result of faulty starting; such distortion usually occurs at the short, serrated end of the integral shaft. To check this, mount the roller bearing and ball bearing journals on V-blocks on a surface table; as the difference in the diameter of the two journals is 0.3942 inch, the V-block under the ball bearing journal must be raised by half this amount to ensure that the axis of the gear is horizontal with the surface table. Using a vernier height gauge, check that the difference in the height of the two journals is 0.197 inch and, if necessary, adjust the packing to obtain this condition. Using a dial test indicator mounted on a scribing block, or other suitable stand, position the stylus on a 0.111 inch diameter wire (No. 34 drill) placed in each serration in turn. Note the total amount of eccentricity. Adjust the position of the D.T.I. so that the stylus makes contact with the adjoining shank and check the amount of eccentricity as before. Ensure that the concentricity of the pitch diameter of the serrations, and of the adjacent diameter, is within a total dial test indicator reading of 0.003 inch. Inspect the gear teeth for wear, chipping, and stress marks; remove any slight defects by stoning. Check the roller bearing housing bore, using a 2 to 6 inch bore gauge and setting ring T.75045. The roller bearing must be cleaned, as described in chapter 25, and its dimensions checked to ensure that they are within the limits.

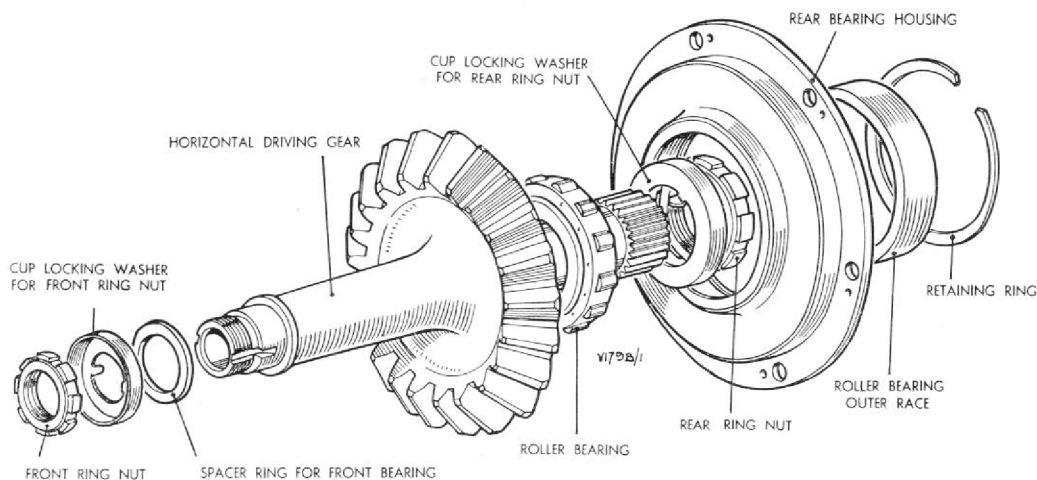


Fig. 3. Horizontal gear assembly.

UPPER VERTICAL GEAR ASSEMBLY

Inspect each part of the upper vertical gear assembly, Fig. 4, for condition. Inspect the gear teeth for wear, chipping, and stress marks; remove slight defects by stoning. Check that the three bearing extractor holes in the web of the gear are clear of foreign matter. Examine the threads at the upper end of the gear, and the ball bearing location. Blend any small nicks, burrs, or scratches. Examine the journal at the lower end of the gear, in particular the track on which the rollers of the lower bearing run; check that the diameter is within the limits. Inspect the serrations for wear and damage. Check that wear on the serrations is within the limits, using slip gauges between six serrations (0.7038 inch approx.).

Check the bore of the angular contact bearing housing, using a 2 to 6 inch bore gauge and setting ring T.73170. Clean the ball and roller bearings, as described in chapter 25, and check that their dimensions are within the limits; the inner race for the roller bearing is integral with the gear. Check the end-float of the ball bearing on end-float checking fixture T.72851 as described in chapter 27A.

LOWER VERTICAL GEAR ASSEMBLY

Inspect each part of the lower vertical gear assembly for condition; the differences between the assembly for the 48 Mk. 1 and that for the 48 Mk. 2 and 53 Mk. 1 are shown in Fig. 5. Inspect the gear teeth for wear, chipping, and stress marks; remove slight defects by stoning. Check that the three bearing extractor holes in the web of the gear are clear of foreign matter. Examine

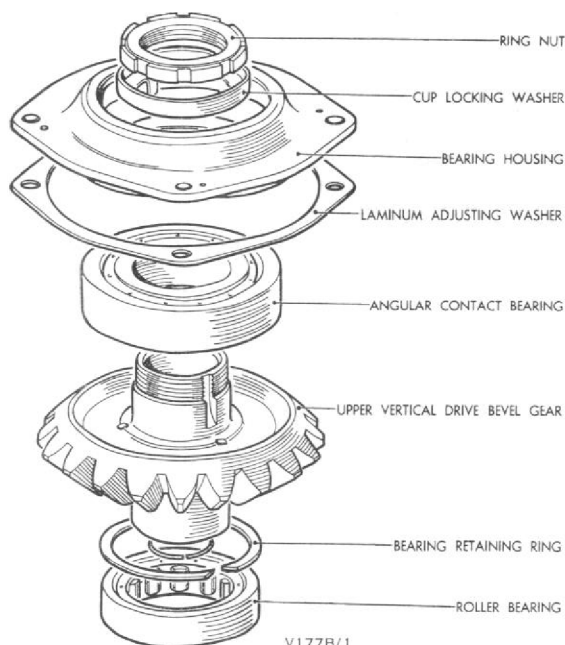


Fig. 4. Upper vertical gear assembly.

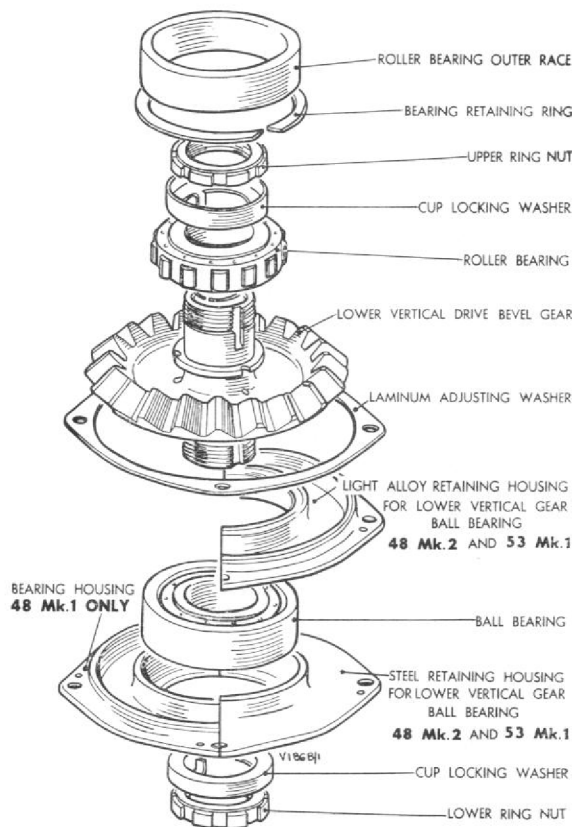


Fig. 5. Lower vertical gear assembly.

(Components which are annotated to show that they are peculiar to a particular Mark of engine, are normally symmetrical in shape, but to clarify their differences they are shown as half-sections in this illustration).

the threads and the bearing locations, at each end of the gear. Blend small nicks, burrs, or scratches. Inspect the serrations for wear and damage. Check that wear on the serrations is within the limits, using slip gauges between five serrations (0.4577 inch approx.). Check the bore of the ball bearing housing, using a 2 to 6 inch bore gauge, and setting ring T.70414. Clean the ball and roller bearings, as described in chapter 25, and check that their dimensions are within the limits. Check the end-float of the ball bearing on ball bearing end-float checking fixture T.72851 as described in chapter 27A.

UPPER AND LOWER VERTICAL DRIVE SHAFTS

Inspect the upper and lower vertical drive shafts for condition. The serrations at each end of both shafts must be checked to ensure that wear is within the limits. Using a 1 inch micrometer, measure the upper shaft over six serrations and the lower shaft over five serrations. By comparing the dimensions obtained during this check with those measured when checking the mating gears, as described in the previous paragraphs, the backlash between the serrations can be assessed.



This file was downloaded
from the RTFM Library:

Link: www.scottbouch.com/rtfm

Please see site for usage terms,
and more aircraft documents.

