Jaguar
Service and Spares Organisation

SERVICE BULLETIN No. 48.

ADVANCE INFORMATION ON MARK V AND XK SUPER SPORTS MODELS

REAR AXLE ASSEMBLY (E.N.V.)
SERVICE INSTRUCTIONS

GENERAL.

SALOON AND COUPE.

2½ Litre	...	...	...	Ratio 4·55 : 1.
3½ Litre	...	...	...	Ratio 4·30 : 1.

SUPER SPORTS.

2 Litre	...	...	...	Ratio 4·09 : 1.
3½ Litre	...	...	...	Ratio 3·64 : 1 (Standard). Ratio 3·27 : 1 (High).

All rear axles are of similar construction and are of semi-floating design with hypoid gears. Maintenance and servicing instructions are identical in all cases.

The axle can be either partially dismantled, *i.e.*, for purposes of examination of half shafts and hub races, or fully dismantled, *i.e.*, removal of differential, without necessarily removing axle casing from chassis.

In some cases a Salisbury type axle will be found to be fitted to Mk. V cars only and full servicing instructions will be found in the 1946-1948 Service Manual. Recognition features of the two axles are as follows:—

E.N.V. Differential unit bolted to axle casing and is withdrawn forward. Cover plate at rear welded to axle casing. Dipstick and filler plug situated at top left hand of pinion shaft housing. Hub greasers fitted at bottom face of axle extremities.

SALISBURY. Differential unit not dismountable with axle casing in chassis. Cover plate bolted to rear of axle casing. No dipstick fitted, filler and level plug in rear cover plate. Hub greasers fitted at top face of axle extremities.

DISMANTLE REAR AXLE.

Jack rear wheels clear of ground, remove spats, nave plates and wheels and lower car on to stands placed beneath axle casing side members. Remove countersunk screws securing brake drums and ease drums off registers. Remove cotter pins and nuts securing rear hub bearings to axle casing and withdraw axle shafts, together with housings and bearings, taking care not to damage inner oil seals by imposing full weight of shaft on seal. The shims for adjusting rear hub bearings will be found between housing and back plate. Replace two bolts and secure back plates to casing flanges in order to avoid damage to hydraulic pipe lines. Remove cotters and nuts securing rear universal joint of propeller shaft to pinion shaft flange. Remove ten nuts securing differential housing to axle casing and withdraw housing.

To dismantle rear hub races from axle shafts, bend back locking tab of tab washer. Remove securing nut and press axle shaft through housing, noting that a distance piece is fitted on the shaft to locate the inner race member. Extractor slots are provided in the bearing housing for purposes of removing outer ring of the hub bearing and oil seal.

DISMANTLE DIFFERENTIAL ASSEMBLY.

Lift tab washers and remove set bolts securing bearing caps and withdraw differential box complete with bearings and adjusting nuts from housing.

The crown wheel can then be dismantled, if necessary, from the differential box by removing ten setscrews locked by tab washers.

To inspect differential wheels and pinions, remove locking clips and eight set bolts and separate box at centre register.

To withdraw hypoid pinion, remove cotter pin and nut from pinion shaft and press pinion through coupling flange and bearings, the inner cone of pinion head bearing remaining *in situ*. The shims controlling bearing pre-load will be found between shoulder of pinion and thrust face of tail bearing, whilst the shims controlling pinion position are fitted behind the outer member of the head race and serve to permit correct meshing in relation to the crown wheel.

ASSEMBLE DIFFERENTIAL ASSEMBLY.

Secure crown wheel to differential box by ten set bolts and lock with tab washers, noting that to ensure concentricity the serial numbers of the parts should be adjacent one with another.

Insert shims to equal ·020″ (·51 mm.) in pinion head bearing housing and press outer ring into position.

Press outer ring of tail bearing into housing, the thrust face of bearing in both bearings being against the shoulder of housing.

Press inner member of head bearing on to pinion shank, with thrust face of bearing against shoulder of pinion. Assemble distance piece together with ·050″ (1·27 mm.) of shimming on to pinion shank tail shoulder and insert pinion through head bearing outer ring. Support pinion head and press inner member of tail bearing and coupling on to pinion and secure with slotted nut. There should now be no end float in pinion bearings. Adjust by reducing shims behind tail bearing inner member until a preload of 8-10 inch pounds (·092-·115 mkg.) pull is obtained.

Assemble differential box with crown wheel attached into the housing, replace bearing caps and adjusting nuts and lightly tighten bearing cap bolts.

Adjust until there is no end play in the bearings and backlash between gears equals ·006″ (·15 mm.), measured at the periphery of crown wheel.

Paint gear teeth with marking and rotate gears in both directions and note marking on teeth.

Adjust pinion backwards or forward as required by removing or adding an equal thickness of shims behind head bearing outer member and inner member of tail bearing. This will move the pinion and at the same time maintain pre-load on the bearings.

The efficiency and quietness of the gears is dependent upon correct setting and profile bearing. When making the last adjustment, press tail bearing oil seal into position, the location having previously been painted with jointing compound, and liberally smear the bearings with grease.

It will also be necessary to pre-load the differential bearings, this being obtained by rotating adjusting nuts until no end float exists, and then tightening adjuster one extra castellation, making sure that backlash between gears is ·006″ (·15 mm.).

Replace all lock plates, finally tighten all set bolts and turn over tab washers and fit split cotter pins where required.

ASSEMBLE REAR AXLE.

Assemble hub bearings on axle shaft as follows:—

Press oil seal with lip facing centre of axle and outer ring of bearing into bearing housing.

Drop bearing spacer on to axle shaft with large diameter facing flange and then assemble bearing housing, taking care to ensure that oil seal is correctly located on parallel section of spacer. Press inner member of hub bearing on to shaft, fit distance washer and tab washer and secure with nut, locking after finally tightening.

Clean axle case and differential housing joint faces. Apply paper gasket and jointing compound over studs of axle casing. Assemble housing over studs and dowel pins and secure with ten nuts provided. Assemble propeller shaft to flange and secure with nuts and bolts.

Thread bearing adjusting shims on the axle shaft and insert shaft through oil seal in casing and secure housing, shims and back plate to axle with nuts and bolts.

Adjust bearings by either reducing or adding shims until the combined end float of the two axle shafts is ·005″-·008″ (·13-·20 mm.).

Finally fit cotter pins to nuts, replace brake drums and setscrews and fill axle with correct grade of lubricating oil.

Replace road wheels and nave plates, jack up car and remove axle stands.

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J A G U A R

S E R V I C E A N D S P A R E S O R G A N I S A T I O N

SERVICE BULLETIN NO. 90

XK.120 MODELS

E.N.V. REAR AXLES - MODIFICATION.

It should be noted that two modifications which affect interchangeability have been introduced, these being as follows:-

1. Axle Casing.

Casing, Part No. A.254/1, is used on rear axle assemblies, Part No's C.3452, C.3821, C.4460 and C.4462 (these assembly numbers covering the various alternative gear ratios). With this casing a packing piece Part No. C.3829, is fitted between the road spring and the spring seat on the axle casing.

Axle unit numbers with which this casing is used are JHS.1-JHS.1602, the unit number being stamped on the top side of the axle nose piece.

Casing, Part No. A.259/1, is used on rear axle assemblies, Part No's, C.3452/1, C.3821/1, C.4460/1, C.4461/1 and C.4462/1. This casing has modified spring seats with which the packing piece, Part No.C.3829, is NOT used.

Axle unit numbers with which this casing is used are JHS.1603 and onwards.

Note that the two axle unit assemblies are only interchangeable by deleting the packing piece when a /1 unit is fitted in place of a plain number unit, for example when C.3852/1 is fitted in place of C.3852, or by obtaining and fitting packing piece C.3829, when a plain number unit is fitted in place of a /1 unit, for example when C.3852 is fitted in place of C.3852/1.

2. Axle Shafts.

With axle unit No's JHS.1 - JHS.1839 rear axle shafts, Part No. A.259/11, were fitted, the axle unit having a four star differential unit through which the axle shafts butted one to the other.

Axle units JHS.1840 and onwards are fitted with axle shafts, Part No. A.272/11 the axle units having a two star differential fitted with a spacer block on to which the axle shafts butt.

Axle shaft A.259/11 is, therefore, longer than shaft A.272/11 and these shafts are NOT interchangeable.