

Rear Suspension

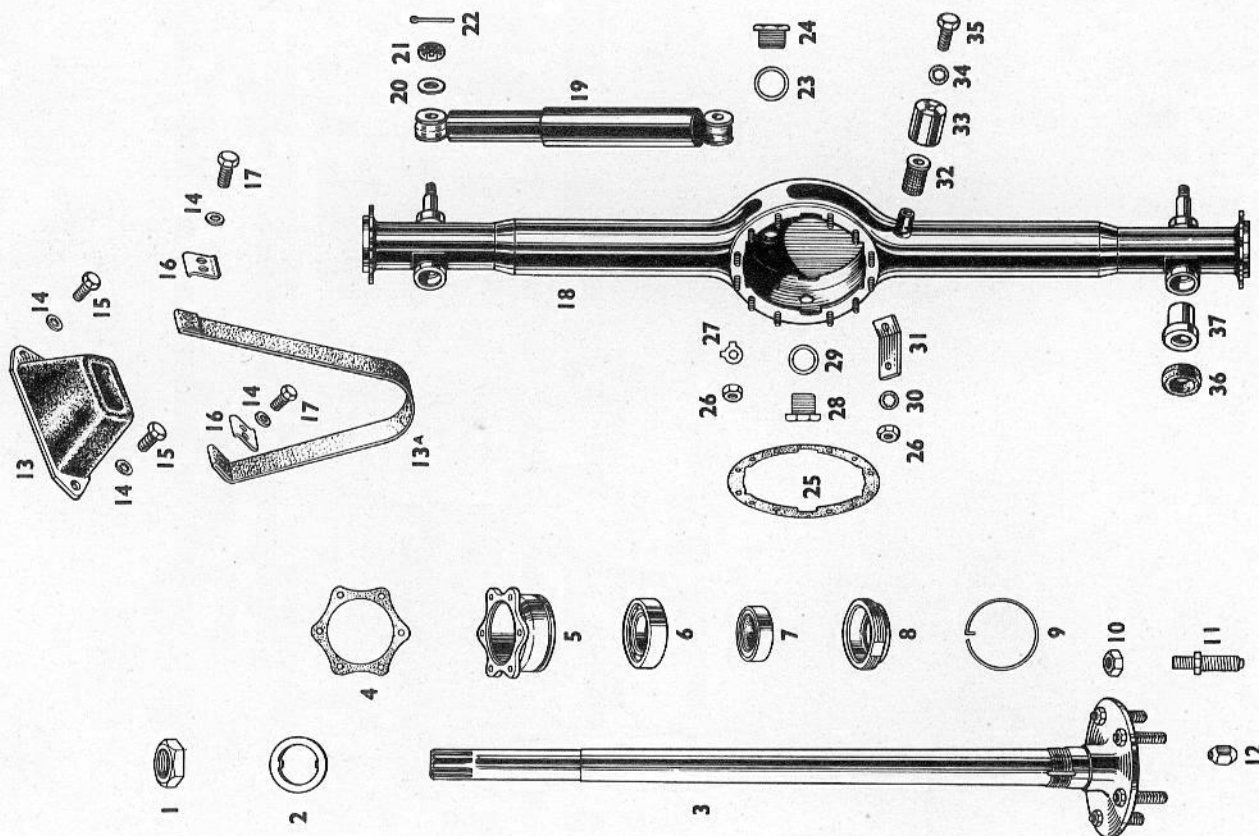
Rear Suspension

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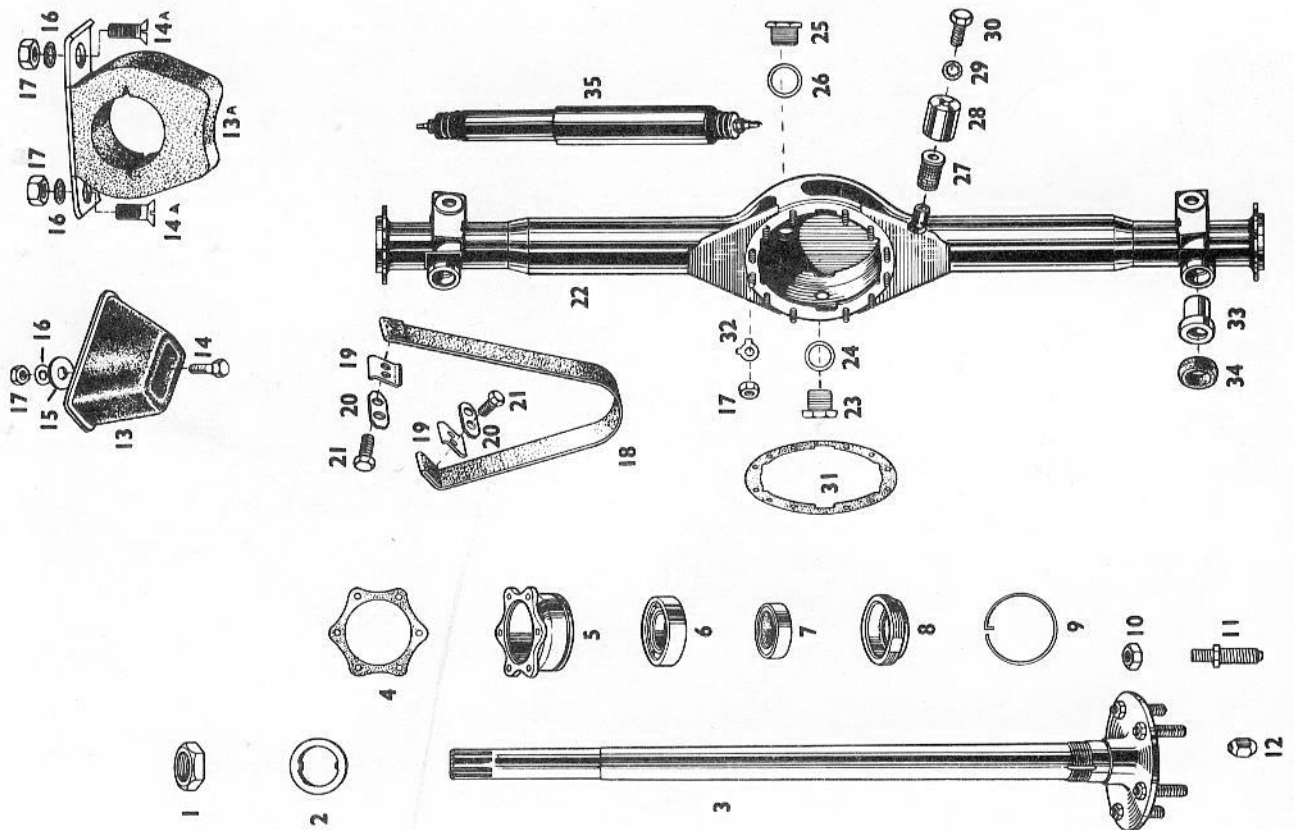
TYPE 404. REAR HALF SHAFTS AND AXLE CASING.

Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
N.501351	1	Retaining Nut R.H.	1	404-1-30008	18	Rear Axle Casing	1
N.501361	-	Retaining Nut L.H.	1	404-1-20114	19	Rear Telescopic Shock Absorber (Girling)	2
N.501371	2	Lockwasher	2	404-1-20124	-	Rear Telescopic Shock Absorber (Armstrong)	-
404-1-30030	3	Half Shaft L.H. complete with Wheel Studs	1	404-II-20153	-	Rear Telescopic Shock Absorber (Telford)	-
404-1-30031	-	Half Shaft R.H. complete with Wheel Studs	1	404-1-20116	20	Washer - Rear Shock Absorber	4
N.501431	4	Gasket	4	FN.408/L	21	Nut 1/2" BSF	4
N.501411	5	Bearing Housing R.H.	1	-	22	Split Pin 3/32" dia. 1 1/4" long	2
N.501421	-	Bearing Housing L.H.	1	N.501671	23	Gasket for Filler Plug	1
N.501501	6	Ball Race	2	N.501651	24	Filler Plug	1
N.719039	7	Oil Sealing Ring	2	N.502251	25	Gasket	1
N.501381	8	Retaining Ring R.H.	1	FN.105/K	26	Nut 5/16" BSF	13
N.510391	-	Retaining Ring L.H.	1	AGS.195/2	27	Tabwasher	12
N.502441	9	Locking Ring	2	N.501641	28	Drain Plug	1
FN.208/K	10	Nut 1/2" BSF Thin	10	N.501661	29	Gasket for Drain Plug	1
404-1-23041	11	Wheel Stud	10	-	30	Shakeproof Washer 5/16" dia.	1
N.580031	12	Wheel Nut	10	404-1-24038	31	Attachment Plate for 3 way Union	1
404-1-20112	13	Snubber Block	2	N.501271	32	Screen for Ventilator	1
404-1-20109	13A	Snubber Strap	2	N.501291	33	Cap for Ventilator	1
-	14	Shakeproof Washer 1/4" dia.	12	-	34	Shakeproof Washer 2BA	1
FS.104/4D	15	Setscrew 1/4" BSF	4	-	35	Screw 2BA Hex Hd 1/2" long	1
N.620311	16	Washer Plate	2	N.501211	36	Sealing Ring	2
FB.104/8D	17	Setscrew 1/4" BSF	8	N.501201	37	Bush	2



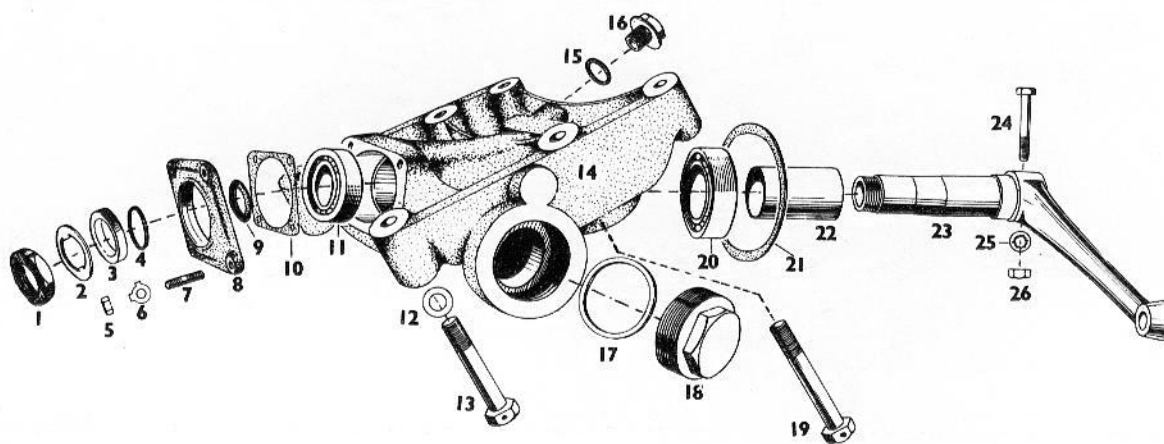
TYPE 405. REAR HALF SHAFT AND AXLE CASING.

Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
N.501351	1	Retaining Nut R.H.	1	405-1-20119	13	Bump Stop	2
N.501361	-	Retaining Nut L.H.	1	FS.105/5D	14	Setscrew 5/16" BSF 5/8" long	4
405-1-30063	2	Lockwasher	2	AGS.157E	15	Washer 5/16" large o/d	4
404-1-30030	3	Half Shaft L.H. complete with Studs	1	-	16	Washer 5/16" Shakeproof	4
404-1-30031	4	Half Shaft R.H. complete with Studs	1	FN.105/K	17	Nut 5/16" BSF Plain	4
N.501431	-	Gasket	4	405-1-20152	13A	Bump Stop	2
N.501411	5	Bearing Housing R.H.	1	-	14A	Screw 5/16" BSF Csk. 5/8" long	4
N.501421	-	Bearing Housing L.H.	1	FN.105/K	-	Nut 5/16" BSF	4
N.501501	6	Ball Race - Brass Cage	2	-	-	Washer 5/16" Shakeproof	4
405-1-30065	1	Retaining Nut R.H.	1	405-1-20114	18	Rear Check Strap	2
405-1-30066	-	Retaining Nut L.H.	1	N.620311	19	Washer Plate	4
-	2	No Lockwasher used	-	FB.104/8D	20	Shakeproof Washer 1/4" dia.	8
405-1-30059	3	Half Shaft L.H. complete with Studs	1	405-1-30001	21	Bolt 1/4" BSF x 1" long	8
405-1-30060	4	Half Shaft R.H. complete with Studs	1	N.501641	22	Rear Axle Casing	1
N.501431	-	Gasket	4	N.501661	23	Drain Plug	1
405-1-30055	5	Bearing Housing L.H.	1	N.510651	24	Drain Plug Gasket	1
405-1-30056	-	Bearing Housing R.H.	1	N.501671	25	Filler Plug	1
405-1-30061	6	Bearing - Halfshaft	2	N.501271	26	Filler Plug Gasket	1
405-1-30062	7	Oil Seal	2	N.501291	27	Screen for Ventilator	1
N.501381	8	Retaining Ring R.H.	1	-	28	Cap for Ventilator	1
N.501391	-	Retaining Ring L.H.	1	-	29	Washer 2BA Shakeproof	1
N.502441	9	Locking Ring	2	N.502251	30	Screw 2BA Hex. Hd. 1/2" long	1
FN.208K	10	Nut 1/2" BSF - Thin	10	AGS.195/2	31	Gasket - Diff. to Axle Casing	1
404-1-30032	11	Wheel Stud	10	N.501201	32	Tabwasher	12
N.580031	12	Wheel Nut	20	N.501211	33	Bush	2
				405-1-30023	34	Sealing Ring	2
					25	Rear Shock Absorber	2



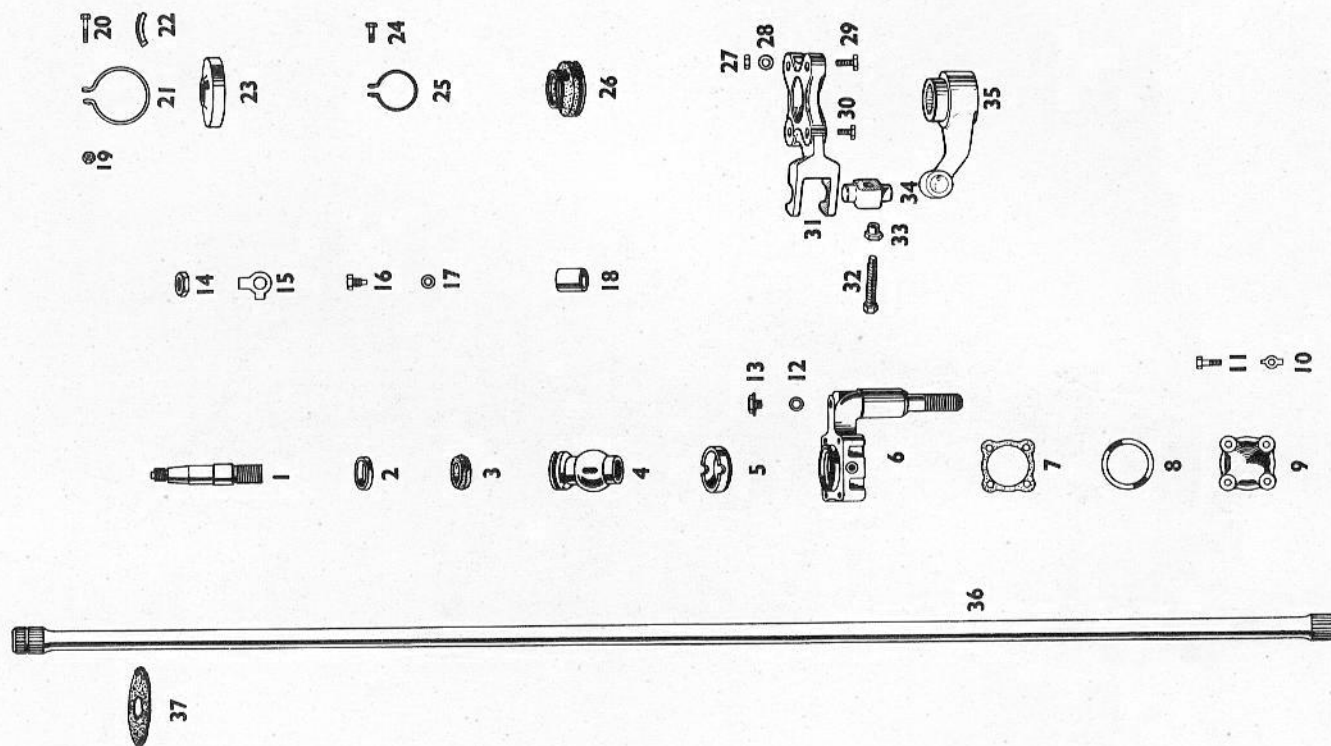
TYPE 405. REAR SUSPENSION UNIT.

Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
404-1-30007	-	Assy of Rear Suspension Unit	2	N.719014	14	Suspension Unit Body	2
N.502451	1	Special Nut	2	N.420401	15	Fibre Washer	2
N.500381	2	Lockwasher	2	N.420091	16	Filler Cap	2
N.500411	3	Oil Seal Spacer	2	N.420351	17	Washer	4
N.500161	4	Oil Seal Ring - Small	2	N.420191	18	Cap	4
FN105/K	5	Nut 5/16" BSF	16	404-1-20164	19	Bolt - FB107/24D	4
N.420471	6	Tabwasher	16	N.500451	20	Needle Roller Race	2
N.500321	7	Cover Plate Stud	16	N.500421	21	Cover Plate Gasket	4
N.500141	8	Cover Plate	4	N.500621	22	Distance Piece	2
N.500151	9	Oil Seal Ring	4	404-1-30006	23	Mainshaft and Arm	2
N.500581	10	Cover Plate Gasket	4	FB105/20D	24	Bolt 5/16" BSF	2
N.500461	11	Ball Race	2	-	25	Washer 5/16" BSF	2
-	12	Washer 7/16" Plain	12	FN105/K	26	Nut 5/16" BSF	2
404-1-20163	13	Bolt - FB107/19D	8				



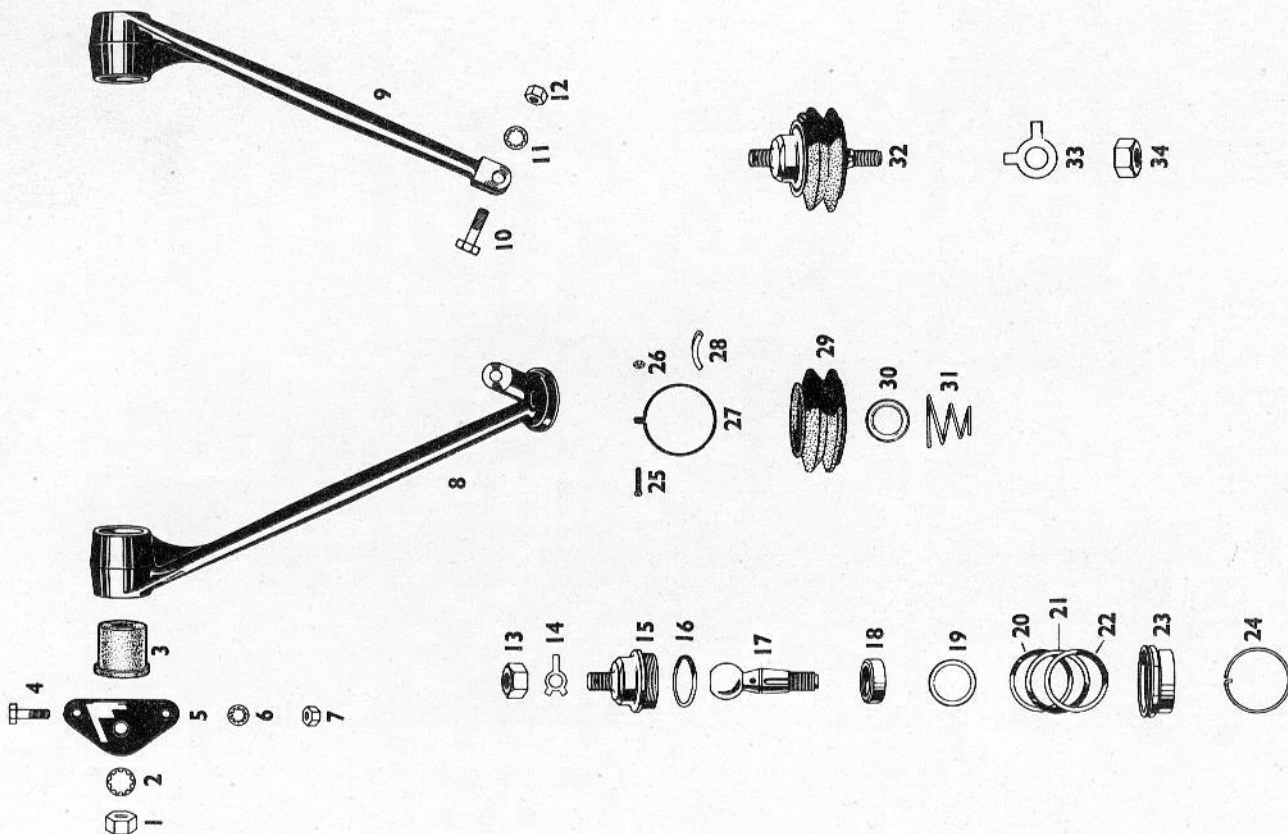
TYPE 405. SUSPENSION ARM AND TORSION BAR.

Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
N.500041	-	Suspension Arm Assy	2	-	20	2BA Bolt 1" long	2
N.500211	1	Suspension Arm Shaft	2	N.500331	21	Large Spring Clip	2
N.500301	2	Oil Seal Locating Ring	2	N.500351	22	Saddle Piece	4
N.500291	3	Oil Seal Ring	2	N.500282	23	Cover for Oil Retainer	2
N.500241	4	Ball Sleeve with Bush)	2	-	24	2BA Bolt 5" long	2
N.500251	5	Ball Sleeve Housing) paired	4	N.500341	25	Small Spring Clip	2
N.500111	6	Suspension Arm	2	N.500261	26	Flexible Oil Retainer	2
N.500441	7	Gasket	2	FN107/L	27	7/16" BSF Nut	6
N.500571-2	8	Shim .002 thickness	as reqd.	-	28	7/16" Shakeproof Washer	8
N.500571-3	-	Shim .003 thickness	as reqd.	FB.107/9D	29	7/16" BSF Bolt	6
N.500571-4	-	Shim .010 thickness	as reqd.	FB.106/5D	30	7/16" BSF Bolt	2
N.500271	9	Cap for Suspension Arm	2	N.704126B	31	Anchor Bracket RH	1
N.500561	10	Tabwasher	8	N.704126A	-	Anchor Bracket LH	1
FB.104/8D	11	Bolt 1/4" BSF 1" long	8	N.704129	32	Adjusting Screw	2
N.500541	12	Fibre Washer	2	N.704128	33	Locknut	2
N.500551	13	Flanged Plug	2	N.704130	34	Swivel Nut	2
FN210/K	14	Nut thin 5/8" BSF	2	N.704127	35	Torque Arm	2
N.500361	15	Lock Washer	2	404-1-30002	36	Torsion Bar LH)	1
N.500431	16	Ball Sleeve Stop Pin	4	404-1-30003	-	Torsion Bar RH) Type 404	1
N.420381	17	Fibre Washer	4	405-1-30016	-	Torsion Bar LH)	1
N.500231	18	Bush for Ball Sleeve	2	405-1-30017	-	Torsion Bar RH) Type 405	1
	19	2BA Nut	4				



TYPE 405. REAR BALL JOINT ASSEMBLY AND ATTACHMENT UNIT.

Part No.	Item	Description	No. off per car	Part No.	Item	Description	No. off per car
FN.108/K	1	Nut 1/2" BSF	2	N.501711	17	Ball Bolt	1
-	2	Washer Shakeproof 1/2"	2	N.501721	18	Socket Bearing - Ball Bolt	2
N.502241	3	Bearings	4	N.502111	19	Shim .002	as reqd.
FB.105/8D	4	Bolt 5/16" BSF	4	N.501751	20	Shim .020	as reqd.
N.620021	5	Washer Plate (Attachment Unit)	2	N.501761	21	Shim .005	as reqd.
-	6	Washer Shakeproof 5/16" Dia.	4	N.502101	22	Shim .002	as reqd.
FN.105/K	7	Nut 5/16" BSF	4	N.501741	23	Housing Inside Thread	1
404-1-30001-1	8	Major Arm) Type 404	1	N.501781	24	Locking Ring for Housing	1
404-1-30001-2	9	Minor Arm) Type 405	1	-	25	Screw 4BA 3/4" long	2
N.719044	-	Major Arm) Type 405	1	-	26	Nut 4BA plain	2
N.719043	-	Minor Arm) Type 405	1	N.501821	27	Wire Clip	1
FB.106/9D	10	Bolt 3/8" BSF	1	N.500351	28	Saddle Piece	1
-	11	Washer - Shakeproof 3/8" Dia.	1	N.502161	29	Rubber Oil Seal	1
FN.106/K	12	Nut 3/8" BSF	1	N.502171	30	Spring Cup	1
FN.109/K	13	Nut 9/16" BSF	1	N.501791	31	Spiral Spring	1
N.502131	14	Tabwasher	1	N.502371	32	Rear Ball Joint Assembly	1
N.501771	15	Housing Outside Thread	1	N.502191	33	Angle Tabwasher	1
N.502121	16	Shim .005	as reqd.	FN.110/K	34	Nut 5/8" BSF	1



Rear Suspension

Rear Suspension

This section covers the Axle casing, half shafts and hubs, suspension arms, suspension units, torsion bars and triangular attachment bracket attaching the top of the differential unit to the chassis frame.

The rear suspension for the Type 404 is shown in Fig.122 and for the Type 405 in Fig.123 and while they are basically the same the telescopic shock absorber attachment points to the rear axle are different.

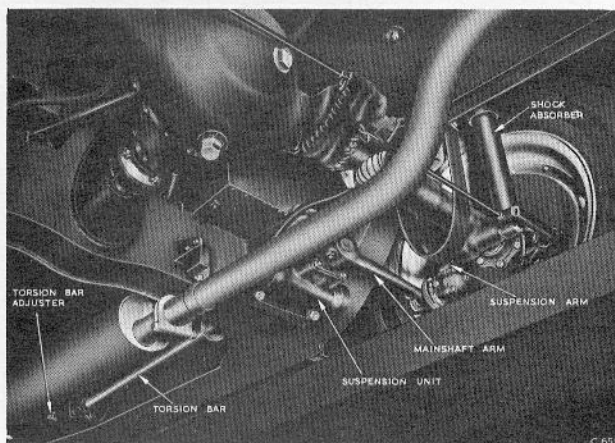


Fig. 122. Type 404 rear suspension

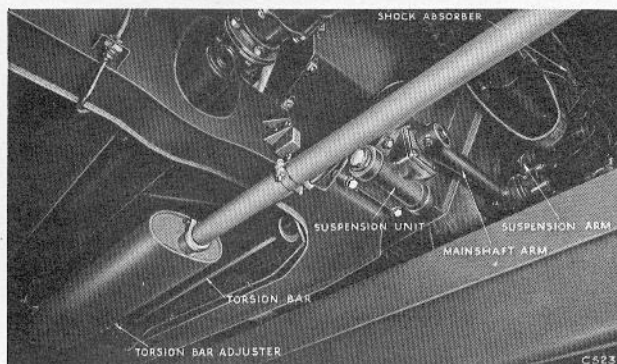


Fig. 123. Type 405 rear suspension

Removing Rear Axle Complete

Jack up the car and support with chassis stands under the chassis frame side members, well towards the rear wheels.

Remove both rear wheels.

Jack up and support the axle casing and detach the rear attachment bolts of the snubber straps.

Detach the lower end of the telescopic shock absorbers.

Manipulate the jack until the axle is in a neutral position i.e. with no load on the torsion bars.

Referring to Fig.124 detach the attachment unit from the top of the differential unit.

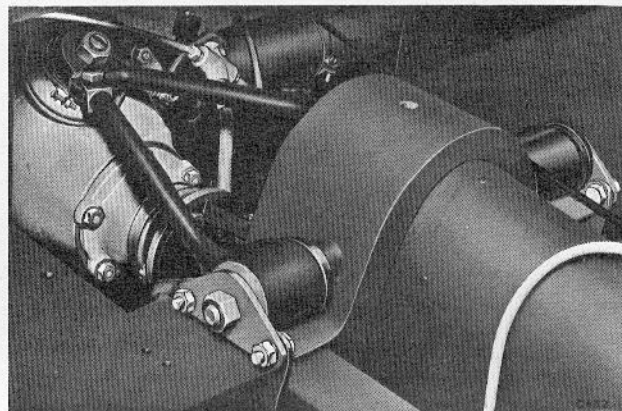


Fig. 124. Attachment unit

Disconnect the rear universal joint of the propeller shaft.

Disconnect the brake fluid flexible pipe.

Detach the gaiter and disconnect the handbrake operating connection to the brake operating lever.

Unlock the tabwasher and remove the nut, then using extractor TFN.8039 as shown in Fig.125 break the taper joint between the suspension unit mainshaft arms and the suspension arm shafts. Do not turn the suspension arm shafts since this is the adjustment for the rear tracking.

The axle casing can now be removed from the car.

Refitting the Axle

First check the position of the suspension arms relative to the faces of the phosphor bronze bushes in the axle casing. This should give 1/16 inch (1.59 mm) clearance as shown in Fig.126 when the arm is hanging

downwards and the end of the suspension arm shaft is level with the back of the ball sleeve. This setting is important since it forms the initial setting for the tracking.

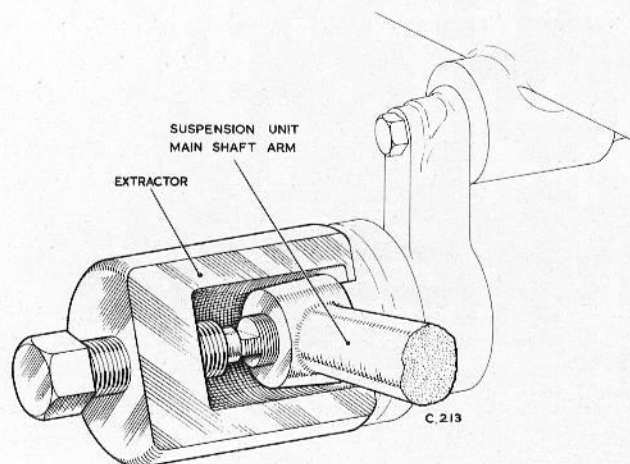


Fig. 125. Suspension arm shaft extractor

connection to the brake lever followed by its protective gaiter.

Reconnect the rear of the snubber strap and then the telescopic shock absorbers.

Refit the wheels and lower the car.

Bleed the brake system and carry out an alignment check.

Attachment Unit

The rear suspension is stabilized by the triangular attachment unit which is secured to the ball joint at the top of the differential gear housing and is pivoted laterally to the top of the chassis frame cross member, Fig.124.

Little attention is needed at these points but if, after considerable time, the four rubber bushes at the chassis attachment require replacement they can be removed by detaching the plate shown in the illustration held in position by two small and one large nut.

When fitting new rubber bushes coat them inside and out with colloidal graphite.

Axle Casing

The axle casing itself required little attention but in the event of damage a check for alignment may be necessary and dimensioned drawings of the Type 404 and Type 405 Axle Casings are given in Fig.127 and Fig.128.

A small breather unit is situated on the top left hand side of the casing.

A replaceable phosphor bronze bush near each end of the casing is grooved to receive an oil sealing ring and locates the suspension arms.

Replacing the Phosphor Bronze Bushes

Remove the old bush and dress any withdrawal scores in the casing. There are two methods of replacing a bush:-

Method (a).....without special tools.

Method (b).....with special tools.

Method (a).

If freezing facilities are available, freeze and insert the bush, if these facilities are not available press in the bush.

Using a standard 1.3/16 (1.1875) inch dia. reamer carefully ream the diameters to size. If this is carried out carefully the bush bore and the rear threaded portion should align. Test this, and carefully scrape, if necessary, by screwing in the suspension arm before the rubber oil seal is fitted.

Method (b).

Enter the bush slightly into the bore and pull the bush

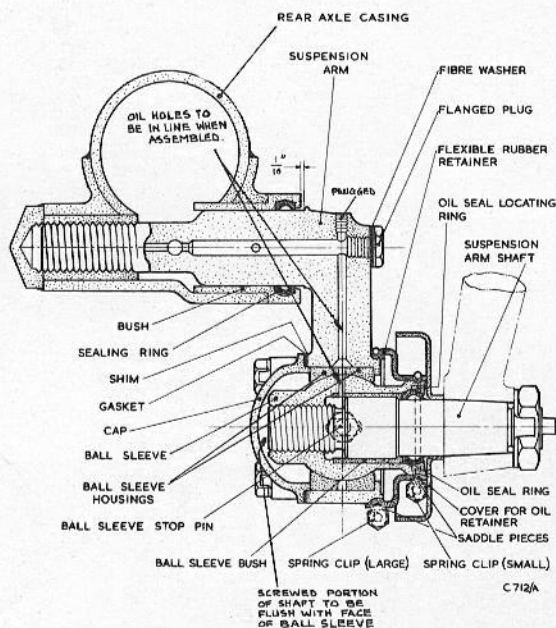


Fig. 126. Suspension arm (section)

With the axle below its location in the car, jack it up until the suspension arm tapers can be located in their respective mainshaft arms. Fit a tabwasher and tighten but do not lock the tabwashers until the final alignment check has been made.

Connect the attachment unit to the joint at the top of the differential housing fit a tabwasher tighten and lock.

Re-connect the rear joint of the propellor shaft.

Refit the brake fluid flexible pipe and the hand brake

into position using the tool TFN.5067. Remove the tool and insert the pilot of the reamer TFN.4662. Locate the reamer over the pilot and ream the bush bore. This assures alignment of the bore with the threaded portion. Check with the suspension arm before the rubber seal is fitted.

Removing the Half Shaft Assembly from the Axle Casing

Jack up the car, remove the road wheel, remove the brake drum by releasing the two countersunk screws. From behind the backplate, release the tabwashers and

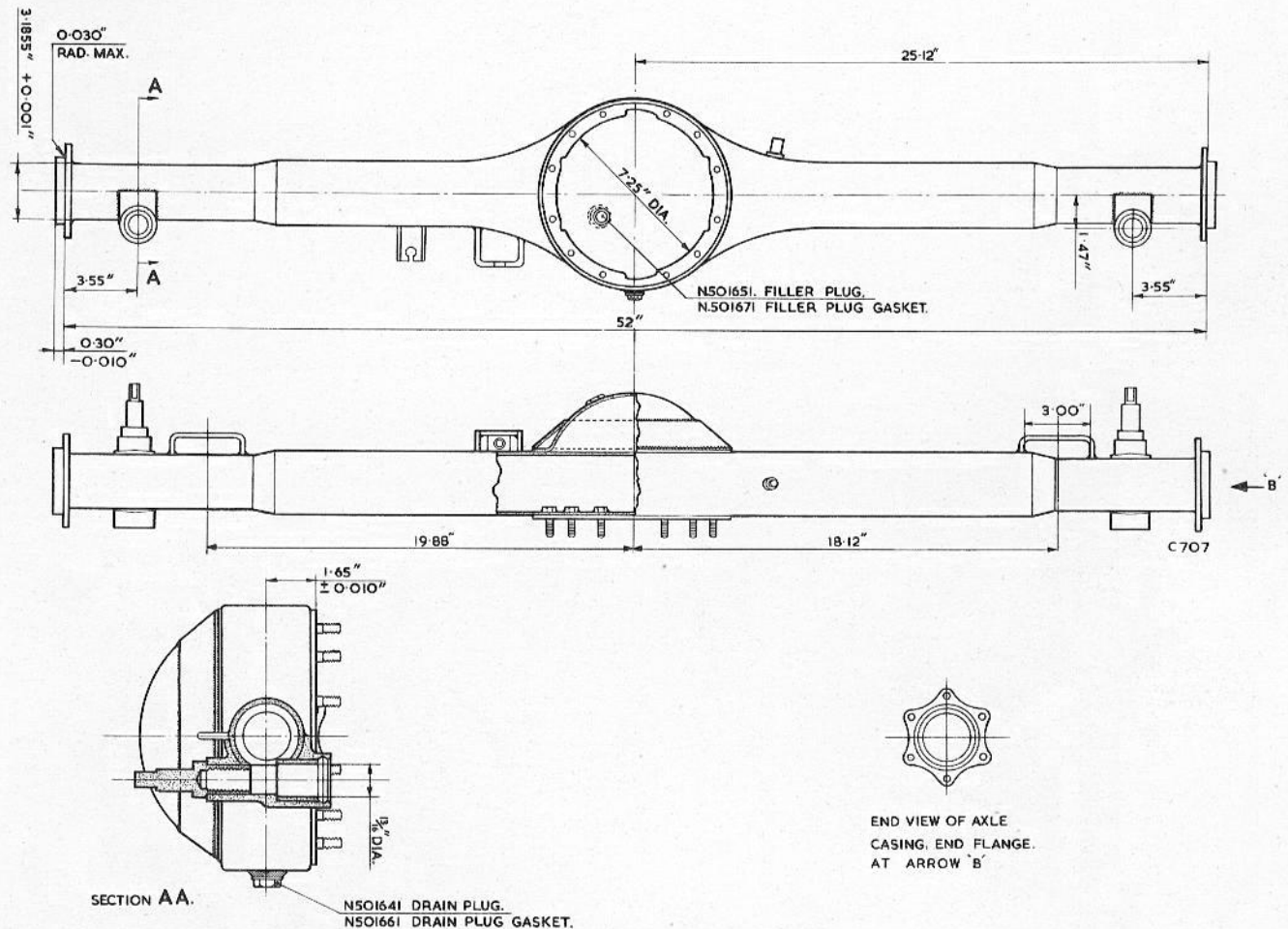


Fig. 127. Type 404 rear axle casing

Fitting Rubber Oil Seal

With both methods of sizing the bush, remove the sharp edges and clean the bore thoroughly. Apply colloidal graphite to a new oil seal and fit into the recess of the bush.

Half Shafts

The half shafts used on all Type 404 Cars and on Type 405 cars up to Chassis 4171 are fitted with a single row ball race (brass caged) R & M. LJ.40 (3 spot). On Chassis 4172 and onwards a double row race R & M. LDJ40 was fitted with redesigned hubs and half shafts. Basically the assembly of the parts is unchanged.

remove the six bolts.

Withdraw the half shaft complete with bearing housing then fit a temporary nut and bolt to secure the backplate to the axle flange Fig.129.

To Replace Ball Race or Oil Seal

On all Type 404 Cars and on Type 405 Cars up to Chassis 4171 bend back the lockwasher fitted to the hexagon nut in the recess of the bearing housing.

On Chassis 4172 there is no lockwasher fitted but the nut is deeper and is assembled considerably tighter.

Using special spanner TFN.5022 and with the half shaft vertically located on its wheel studs, in vice plate

TFN.5084, slacken and remove the nut. The right hand shaft has a right hand thread and the left hand shafts a left hand thread.

No.44 Drill. Drill for depth carefully otherwise the drill will penetrate into the oil seal.

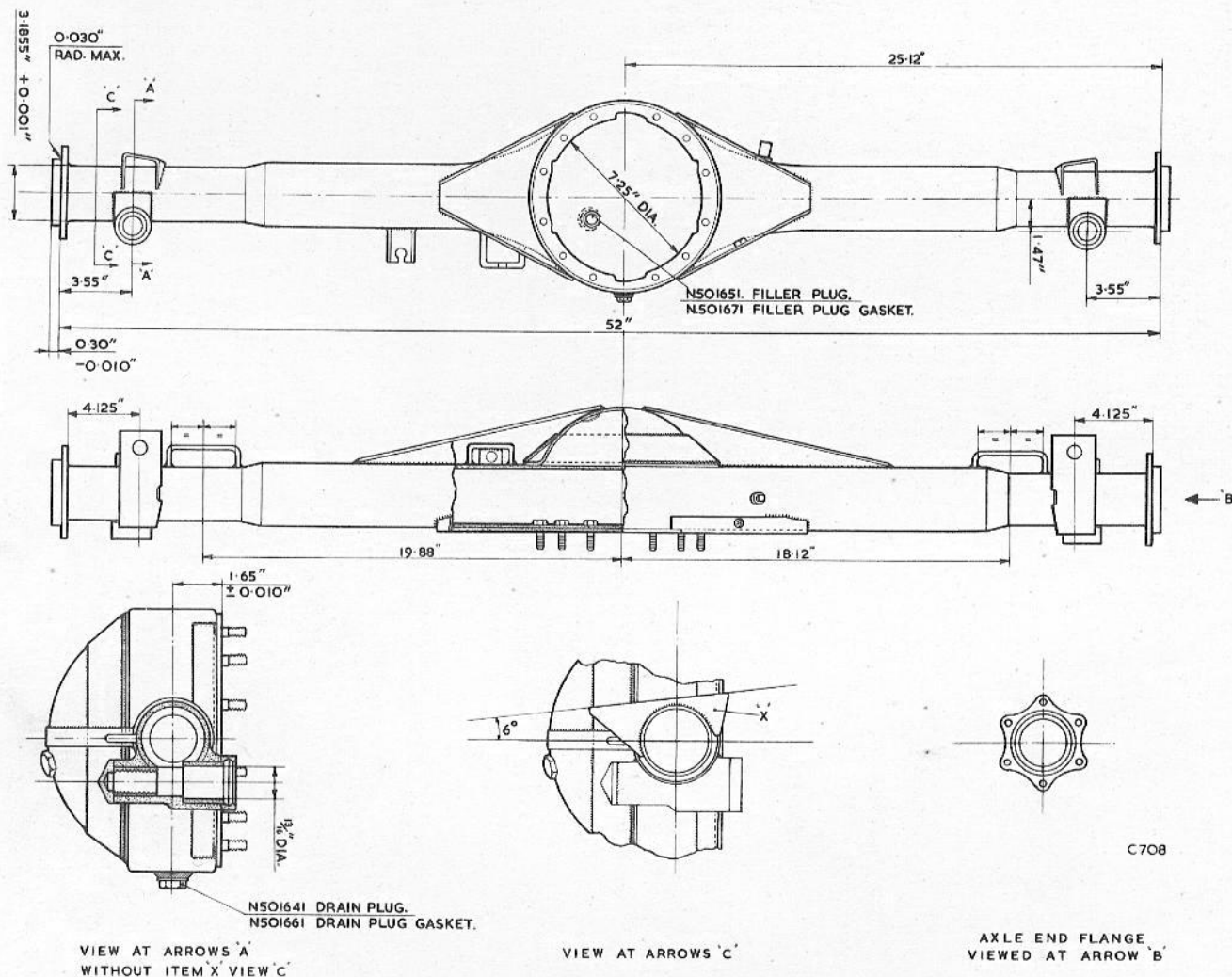


Fig. 128. Type 405 rear axle casing

Supporting the bearing housing, press or carefully drive the half shafts out, this is held in the housing by the interference fit of the ball race to the shaft.

Remove the external wire lock ring from the bearing housing and using spanner TPN.5023 and vice plate TPN. 5085 unscrew the retaining ring. Again the right hand side has a right hand thread and the left hand side a left hand thread.

Press the oil seal from the retaining ring and the ball race from the bearing housing.

To re-assemble inspect the ball race location in the housing, remove and scores or burrs and press in the ball race to its shoulder. Press a new seal into the retaining ring with the open end upwards. Screw the assembled retaining ring into the housing and tighten using the special spanner and vice fixture. If the existing locking holes in the housing and retaining ring do not register drill a new hole half way into the retaining ring using a

Press the half shaft into the ball race of the bearing housing assembly until the face of the race is tight against the shoulder of the shaft.

On all Type 404 Cars and on Type 405 Cars up to Chassis 4171 proceed as follows:

Fit a lockwasher 405-1-30063 and screw on and tighten the hexagon retaining nut using the special spanner and vice plate. Bend up two sides of the lockwasher using tool TPN.5024.

On Type 405 Car Chassis 4172 and onwards no lock-washer is fitted but it is essential that the hexagon nut is tightened to a torque loading figure of 500-580 lb. ft. If the special spanner TFN.5022, fitted with its extensions, and vice plate TFN.5084, is used then this approximate torque figure can be obtained.

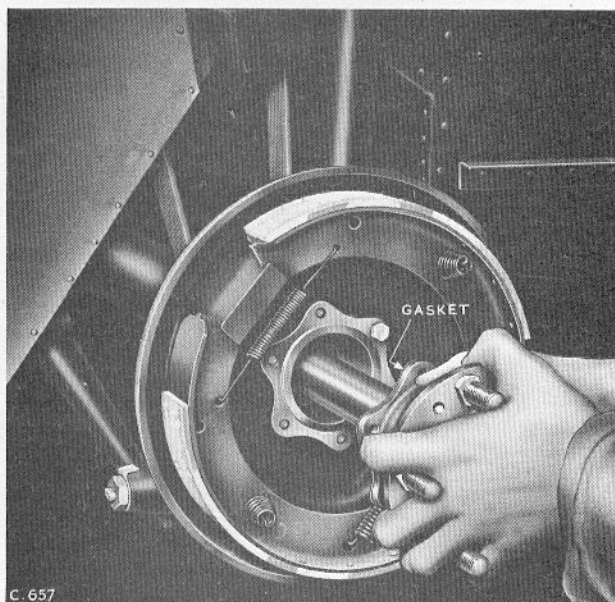


Fig. 129. Withdrawing half shaft assembly

To Refit the Half Shaft Assembly to the Axle Casing

Remove the temporary nut and bolt previously fitted to hold the brake backplate in position and fit a new joint N.501431 to the inner and outer faces of the backplate.

Insert the half shaft assembly and using new tabwashers N.501441 with the special bolts, secure the bearing housings. Lock the bolts with the tabwashers.

Refit the brake drum and road wheel.

Replacing Wheel Studs

Remove the peening which secures the locknut and remove the nut. The flange is threaded and to avoid damage when unscrewing the stud saw the peened end of the stud away. Screw the stud out carefully.

Screw in the new stud, fit and tighten the locknut and finally peen.

Suspension Units

This unit was filled with oil on earlier cars but is now packed with grease. Apart from the deterioration of the rubber oil seals at each end of the main shaft and arm they need little attention.

Should there be an oil leakage to the extent that they would become dry remove the units dismantle and re-assemble with new rubber seals and at the same time pack with grease.

To Remove the Suspension Units

Jack up the car and support on chassis stands well towards the rear wheels.

Jack up the axle until the torsion bars are relieved of all strain.

Unlock the tabwasher and remove the nut, then using extractor TFN.8039 as shown in Fig.125 break the taper joint. Do not turn the suspension arm shaft since this is the adjustment and setting for the rear tracking.

Remove the 5/16 bolt from the top of the mainshaft arm. This bolt retains the torsion bar. Using extractor TFN5026 Fig.130 withdraw the torsion bar from the serrations in the suspension unit. Withdraw the torsion bar from under the axle noting the circular rubber stone guard Fig.131.

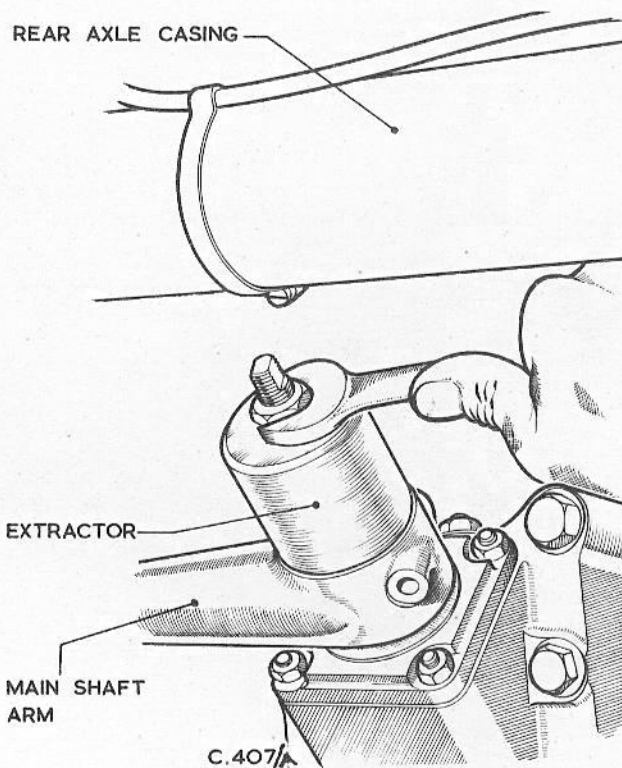


Fig. 130. Torsion bar extraction

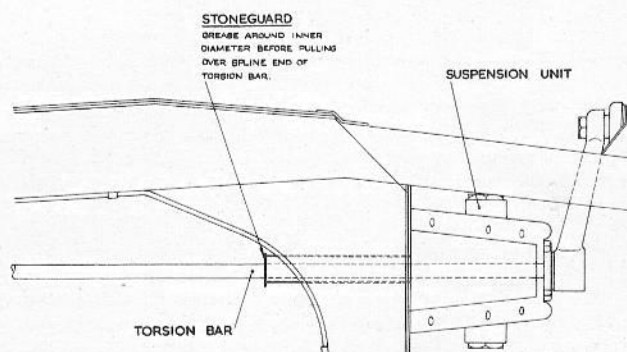


Fig. 131. Torsion bar stoneguard

Remove the wire locking and remove the bolts securing the suspension unit to the chassis frame.

Dismantling and Re-assembly

See Sectional view Fig.132.

Remove the filler plug and drain any oil from the casing.

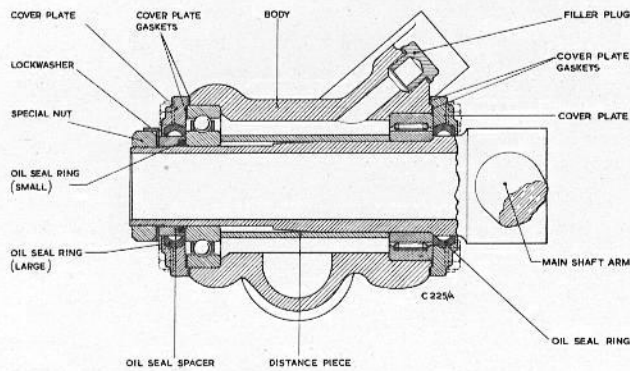


Fig. 132. Suspension unit (section)

Release the lockwasher and remove the special nut from the rear end of the mainshaft. The mainshaft is now only held in position by its interference fit in the bearings.

Release the tabwashers and remove the nuts securing the cover plates.

Taking care not to damage the threads drive the mainshaft out of the casing, this will leave the ball race and the outer race of the needle roller bearing, with its needles, in the casing.

The inner race of the needle roller bearing will remain on the mainshaft and should be pressed off to release the cover plate with its oil seal.

To Re-assemble

Fit a replacement rubber seal and a new circular joint into the recesses of the cover plate and then position the cover plate with its seal on the mainshaft. Press on the inner race of the needle roller bearing.

Fit the distance piece to the mainshaft and liberally pack the body and mainshaft with grease (not oil even if oil was removed). Fit a square type joint, over the studs of the body and feed the mainshaft into the body through the needle race already in position.

With the mainshaft entered into the ball race already in the body, support the centre of the ball race and drive or press the mainshaft fully into position at the same time entering the studs into the cover plate.

Fit a new oil seal and circular joint to the remaining cover plate and fit a square type cover joint over the studs. Fit a small rubber seal to the spacer and fit the spacer to the mainshaft. Fit the cover plate, fit tabwashers and nuts to all cover plate studs and tighten evenly.

Fit a large lockwasher to the end of the shaft then fit the nut, tighten and lock.

To Refit the Suspension Units

Bolt the unit to its bracket on the chassis frame, tighten and lock with wire Fig.133.

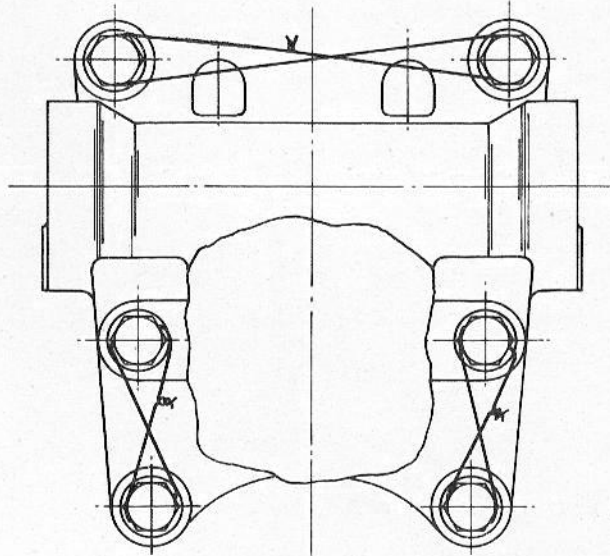


Fig. 133. Wire locking—suspension unit attachment bolts

Pass the small end of the correct handed torsion bar through the suspension unit and referring to Fig.131 fit the stoneguard, then pass the torsion bar through to locate in its bracket on the chassis cross member.

Manoeuvre the axle until the suspension arm shaft will locate in the tapered hole of the mainshaft then fit the tabwasher and nut. Do not lock the nut if the car tracking is to be checked.

Set the torsion bars and check the tracking.

Torsion Bars

The torsion bars are located on each side of the car, at the rear, along the inside of the chassis side members. They are left-hand and right-hand and are clearly marked 'L' or 'R' on the rear ends. Under no circumstances should they be assembled incorrectly. Each bar is serrated at both ends, the front end engages the torsion bar adjuster which is secured to No.2 chassis cross member, while the rear end engages the suspension unit main shaft. Both bars have 25 serrations at the front end and 27 serrations at the rear end, thus providing accurate settings.

The rear end of each bar has a 5/16" BSF hole to provide for extraction and a half round annular groove accommodates the bolt which secures the shaft to the suspension unit mainshaft.

A flat rubber stoneguard positioned where the torsion bar passes through the chassis frame is an important point. Small stones thrown up by the car could, without this guard, wedge themselves between the bar and the wall of the aperture and cause damage and considerable inconvenience.

Torsion Bar Adjusters

The adjuster for each bar is shown in Fig.134 and with the .300 inch dimension determined at the initial setting, adjustment can be made as required.

Removing Torsion Bars

Jack up the car and place on chassis stands well towards the rear wheels.

Disconnect the telescopic shock absorbers lower location, the rear attachment of the snubber strap and the rear coupling of the propeller shaft.

Jack up the rear axle casing until the load is relieved from the torsion bar. Remove the bolt securing the torsion bar in the suspension unit mainshaft, then withdraw the torsion bar with the extractor Fig.130.

Jack up the axle and pull the bar completely clear.

Refitting Torsion Bars

With the rear axle casing jacked up, pass the small end of the torsion bar through the suspension unit. It is now positioned for setting.

Using Fig.134 set the bars and finally insert the bolt in the suspension arm to lock the torsion bar in position.

Suspension Arms

These identical units are positioned between the mainshaft arm of the suspension units and the rear axle casing and they do not normally require attention.

They are lubricated from the supply of oil in the rear axle casing Fig.126.

The initial settings of this unit are indicated in this illustration and they form the basis of the alignment of the car tracking.

Removing the Suspension Arms

Jack up the car and support on chassis stands towards the rear wheels.

Jack up the axle and remove the rear attachment of the snubber straps.

Remove the road wheel, remove the brake drum by releasing the two countersunk screws. From behind the backplate release the tabwashers and remove the six bolts, this will release the half shaft and hub which should be withdrawn with the backplate.

With the axle jacked up to take the tension off of the torsion bars, release the tabwasher and remove the nut from the suspension arm shaft. Using extractor TFN8039 as shown in Fig.125 disconnect the taper joint.

Roll back the axle until the mainshaft arm is clear of the suspension unit. Remove the oil retainer cover.

Referring to Fig.126 it will be noted that the suspension arm is screwed into the rear axle casing. To unscrew it the cap must be removed to clear the axle casing.

Release the tabwashers and remove the four bolts and the cap together with the shims and gasket. The shims must be carefully retained as they are selective.

The unit can now be unscrewed (anti-clockwise) from the axle casing.

Dismantling

Take off the oil retainer cover and remove both spring clips from the rubber oil retainer. Break the locking wire and remove the two ball sleeve stop pins. Push out the suspension arm shaft together with the ball sleeve and the two ball sleeve housings.

Unscrew the shaft from the ball sleeve, bringing with it the rubber oil seal and its retaining ring. Remove the flanged plug at the top of the suspension arm to facilitate cleaning.

Assembly

Clean all parts and flush out the oilways. Refit the fibre washer and flanged plug to the arm.

Check that the shaft is a good fit in the phosphor bronze bush of the ball sleeve and if necessary renew the bush.

Check the ball sleeve and the two ball sleeve housings to see that they are a good spherical fit. In manufacture these parts are lapped with grinding compound to obtain a high percentage of blue marking.

With the bush and housings in good order screw the shaft into the ball sleeve until the rear faces are level. This is important for control of the tracking.

Fill the inner groove of a new oil seal with colloidal graphite and slide on to the front of the shaft. Fit the oil seal retaining ring.

With the housings in their correct positions on the ball sleeve, line up the stop pin holes and with the oil hole towards the screwed arm push the assembly into the arm. Finally align the stop pin holes, then fit the fibre washers and stop pins. Wire lock the stop pins Fig.135.

Refit the shims, gasket, cap and nuts and tighten evenly. Referring to Fig.126 check the movement of the ball joint. Some difficulty may be experienced in acquiring the correct "feel" of the ball joint since the housings are sufficiently well fitted to require a distinct jerk to free the surfaces. It should, however, be movable by a fair amount of manual force only. Adjust with shims available in .002 inch, .003 inch and .010 inch thicknesses.

Refit a rubber oil retainer with its clips and saddle pieces at the clip gaps.

The assembly is now ready to fit into the rear axle casing.

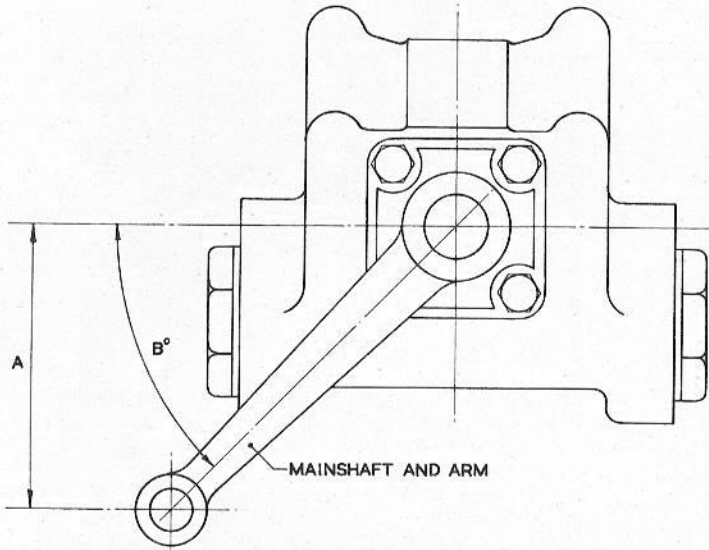


FIG. 1. NO LOAD SETTING OF MAINSHAFT AND ARM.

ASSEMBLY OF TORSION BARS.

THE TORQUE ARM SHOULD BE TOUCHING THE ADJUSTING SCREW WITH .300" THREAD SHOWING BETWEEN THE TORQUE ARM AND THE TOP FACE OF THE SWIVEL NUT. THE MAINSHAFT AND ARM SHOULD BE ROTATED UNTIL IT MAKES AN ANGLE OF APPROXIMATELY B° BELOW THE HORIZONTAL OR A VERTICAL HEIGHT OF A". EACH END OF THE TORSION BAR CARRIES A DIFFERENT NUMBER OF SPLINES (THUS PROVIDING A VERNIER ADJUSTMENT) AND SHOULD BE ROTATED UNTIL IT FREELY ENTERS BOTH LOCATIONS AND THEN PUSHED INTO POSITION.

SEE FIGS. 1 & 3.

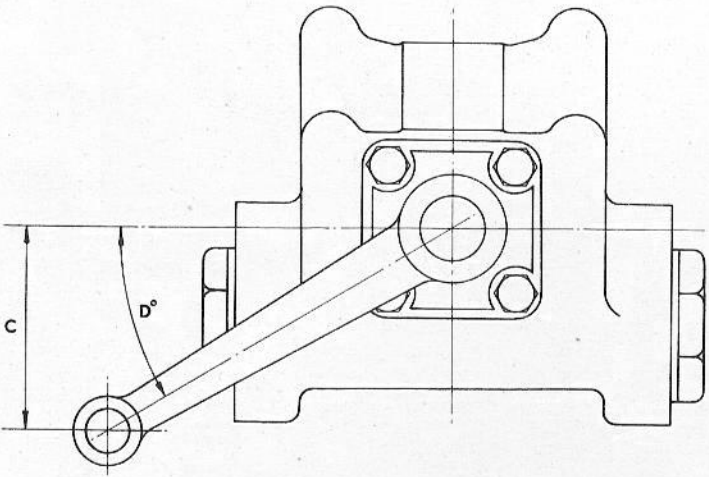


FIG. 2. KERB WEIGHT SETTING OF MAINSHAFT AND ARM.

THIS SETTING SHOULD BE CHECKED WHEN THE CAR IS IN THE KERB CONDITION I.E. CAR WITH OIL, WATER, TOOLS, SPARE WHEEL, BATTERY COMPLETE, WINDSCREEN WASHER WATER AND 1 GALLON OF PETROL. THE ANGLE BETWEEN THE MAINSHAFT AND ARM AND THE HORIZONTAL SHOULD BE ADJUSTED BY MEANS OF THE ADJUSTING SCREW TO AN ANGLE OF D° OR A VERTICAL HEIGHT OF C".

SEE FIG. 2.

A MAXIMUM OF .400" OF THREAD SHOULD BE SHOWING FINALLY TO ENSURE ADEQUATE FUTURE ADJUSTMENT.

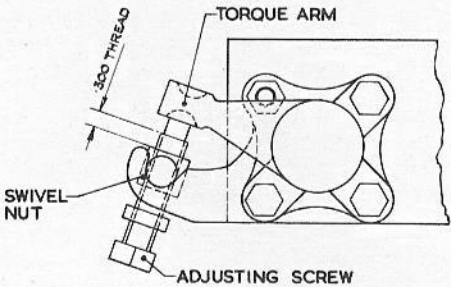


FIG. 3. INITIAL SETTING OF ADJUSTING SCREW.

	TYPE 404	TYPE 405
A"	APPROX. 6 1/8 INCH.	6 1/8 INCH.
B°	—	50°
C"	2 3/4 INCH.	2 3/4 INCH.
D°	20°	20°

SKN4379.

Fig. 134. Torsion bar setting

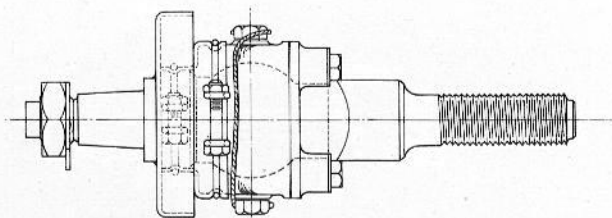


Fig. 135. Ball sleeve stop pins—wire locking

Re-assembly to the Axle Casing

Remove the four screws from the end cap and remove the cap complete with the pre-determined shims and gasket.

Screw the arm into the casing noting carefully the $\frac{1}{16}$ " dimension between the face of the bush and the lip of the arm Fig.126 when the arm is hanging downwards. If the dimension is less than $\frac{1}{16}$ " unscrew the arm one turn. This is important for control of the tracking.

Fit the cap, gasket and shims to the arm fit the tabwashers and bolts and lock.

Fit the cover for oil retainer and connect the tapered end of the shaft into the taper of the mainshaft. Fit a tabwasher and fit and tighten the nut but do not lock if alignment checks are to be taken.

Fasten the rear locations of the snubber straps and finally refit the brake backplate half-shaft, brake drum and road wheel.

Rear Ball Joint Assembly

This assembly can be seen in location in Fig.124 at the top of the differential housing and secured to the attachment unit ('A' frame). It is lubricated by the oil in the differential unit and rear axle casing.

Any slackness of the ball bolt in its housings see Fig.136 can only be corrected by removing the complete assembly.

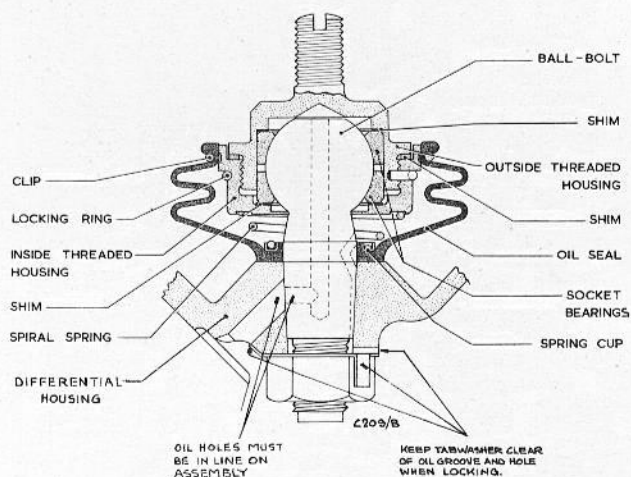


Fig. 136. Rear ball joint assembly

Removing

The rear ball joint can only be removed from inside the differential unit. It is therefore necessary to partially withdraw the half shafts, remove the differential unit and to remove the crown wheel mounting from the differential unit. When this has been done, remove the nut and its tabwasher from inside the differential housing and tap out the ball bolt from its taper location.

Dismantling

Referring to Fig.136 remove the clip and saddle piece securing the rubber oil seal and withdraw the seal over the taper of the ball bolt followed by the spiral spring and the spring cup. Disengage and remove the locking ring.

Unscrew the housings using the vice plate TFN.8792 and the ring spanner TFN.10085 see Fig.137. Retain the shims fitted between the housings and at the top and bottom of the socket bearings.

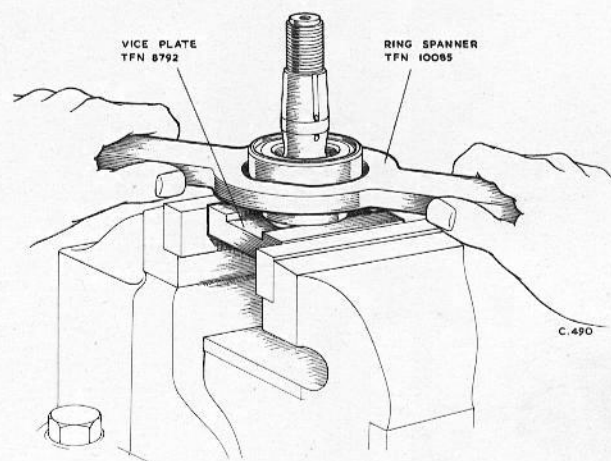


Fig. 137. Unscrewing ball joint housings

To Re-assemble

The spherical fit of the ball bolt and housings is important and either new parts or carefully prepared parts should be refitted. Any ridges should be polished away and the parts should be lapped to provide a good spherical bearing. In manufacture this has not been less than 75% blueing area.

Assemble the ball bolt and sockets into the housings with the removed shims in position and tighten securely using the ring spanner and vice plate.

The ball bolt should be capable of movement by a fair amount of manual force and careful shim adjustment is necessary to provide this.

When this is finalised drill the hole for the locking ring into the inside thread but do not drill right through. Fit the locking ring. Fit the spiral spring, the spring cup and a new rubber oil seal with its clip and saddle piece.

Refitting the Ball Joint to the Differential Housing

Ensure that the oil passage on the side of the ball bolt taper coincides with the oil passage in the differential housing. See Fig.136. Fit the angle tabwasher and nut and tighten and lock. See that the tabwasher does not obstruct the oil groove.

Telescopic Shock Absorbers

On the rear suspension of Type 404 Cars the following types of telescopic shock absorbers were fitted. On every car, however, the both shock absorbers were the same type.

Girling. Ref. DAS9. N/F Assembly. Eye fittings at both ends. Part No.9046/353.

Settings) Bump 175/15
) Rebound 225/15

Armstrong. Ref. AT.7-1186. Eye fittings at both ends.

Settings) 1150/75
) 75/900

Tefaflo. Ref. 9-T1-EE. High Duty. Eye fittings at both ends. Open length 23". Closed length 14".

Setting. AS. SP.5000.

On the rear suspension of Type 405 Cars the following telescopic shock absorbers are fitted.

Girling. DAS9/137NF. Assembly. Stem type fittings at both ends. Open length 23". Closed length 14".

Settings) Bump 175/15
) Rebound 275/15

Replacements

Should it be considered that a telescopic shock absorber requires replacement a check should first be taken to see that the taper rubbers, two at each end, are in good order and securely fitted. Replacement rubbers are available.

Serviced replacement shock absorbers are normally available from the manufacturers agents.

Removing

On Type 404 Cars it may be necessary to disconnect the fork end of the handbrake rods at the brake backplate to allow the shock absorber to be taken off of its spigot on the axle casing.

Other than this the rear shock absorbers on both the Type 404 and 405 cars can be detached at their location points without interference with other parts.