

Number F.1.
 Section Gearbox and
 Overdrive
 Sheet 1 (of 1)
 Date October, 1961

GEARBOX CONSTANT PINION OIL SEAL

<u>Models affected</u>	<u>Commencing Gearbox Numbers</u>
2.4 litre Mark 2	GBN.55050
3.4 litre Mark 2	
3.8 litre Mark 2	
"E" Type	EB.868

On cars with the above gearbox numbers and onwards, a flanged-type constant pinion oil seal (Part Number C.18739) is fitted to the recess in the clutch housing. The interchangeability is not affected but it should be noted that a chamfer of approximately 1/16" (1.6 mm) should be made on the edge of the recess to provide a "lead-in" for the seal. The oil seal should also be well lubricated before pressing into the recess.

Spares Bulletin Number D.5 refers.

Amendment to Service Bulletin Numbers FF.3 and FF.4.

Under commencing chassis numbers in the above bulletins insert the following:-

	R.H. Drive	L.H. Drive
2.4 litre Mark 2	109308	126499

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WARRANTY - LAYCOCK OVERDRIVE UNIT

(Home Trade only)

If trouble is experienced with an overdrive unit during the period of warranty (12 months) the unit should on no account be dismantled as the manufacturers are consequently unable to test and examine the parts in their original condition.

Only external checks, such as valve setting and hydraulic pressure testing should, therefore, be undertaken.

If, on dismantling a low mileage unit which is just outside the warranty period, it is found subsequent to examination that an out-of-warranty claim may be justified, the unit must be completely re-assembled and returned to these works in accordance with the normal warranty procedure. No claim will be considered if the unit is incomplete.

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BENCH TESTING THE OVERDRIVE SOLENOID.

(All Models)

It should be noted that on no account must a solenoid be energised before fitting to the car.

As the solenoid plunger has no load to carry, the impact of it opening the contact points will be sufficient to bend the contact arm, preventing the points from opening.



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Date January, 1964.

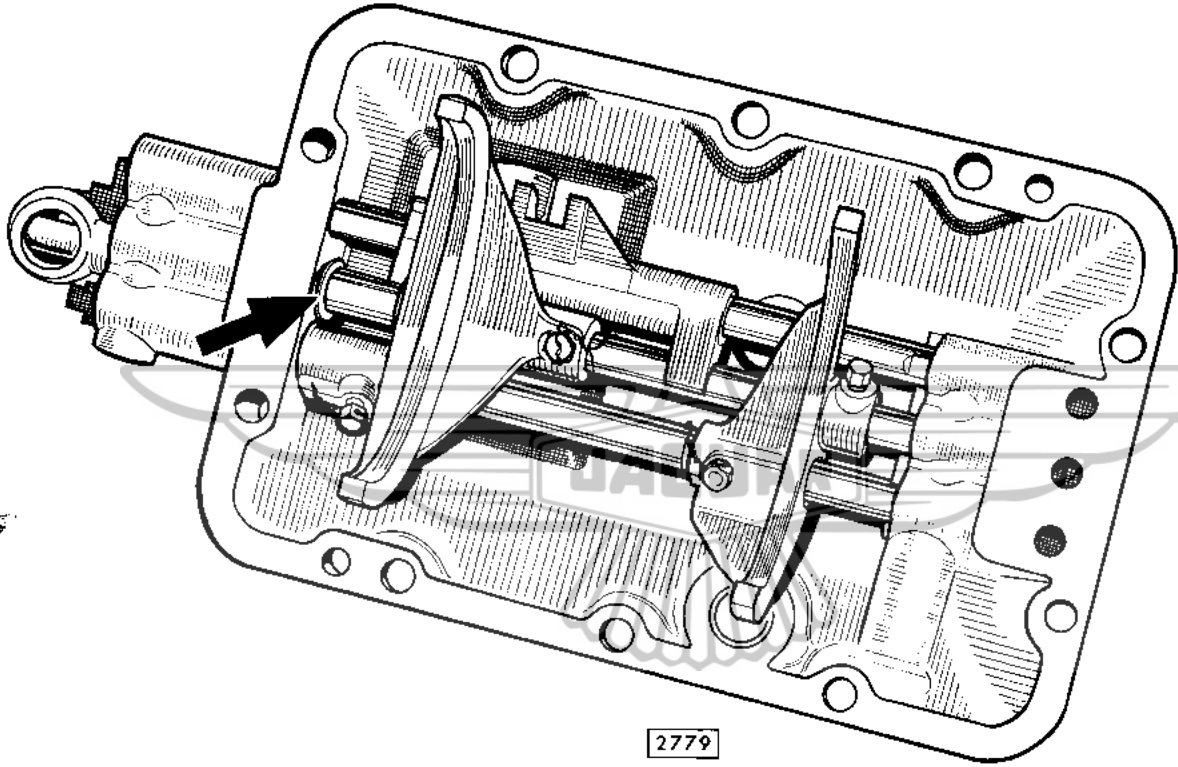
STICKING IN 1ST GEAR.~~(All synchromesh gearbox models)~~

If difficulty is experienced with sticking in first gear the following procedure should be adopted.

Remove the console trim and gearbox tunnel cover, then the top cover of the gearbox. It may then be necessary to use two levers to ease the 1st speed gear forward on the 2nd speed synchro-sleeve. Ignore the slight damage which may have occurred to the stop pin on the 2nd speed synchro-sleeve.

With the gearbox top cover on the bench, remove the selector housing by taking off the four retaining nuts. This will expose the three plunger springs which should be removed together with the plunger and balls (and shims if any). Withdraw the centre welch washer at each end of the top cover by piercing and prising as necessary. Then remove the wired dowel pins retaining the stop and the change speed fork on the centre striking rod so that this may be driven forward a sufficient amount to fit a washer $\frac{3}{4}$ " (19 mm) outside diameter and $\frac{1}{2}$ " (12.7 mm) inner diameter, thickness $\frac{1}{16}$ " (1.6 mm) onto the rod behind the change speed fork. Ensure that the washer clears the selectors on the other striking rods. (See illustration overleaf).

Replace the striking rod, change speed fork and stop and refit the two dowel pins wiring them up as before. Fit new welch washers either end of the top cover then replace the three balls, plungers, springs and shims (if fitted) in the respective holes. Use a new gasket when replacing the selector housing and fit a new gasket on the gearbox case top face. Place the gearbox in neutral offer up the top cover noting that it is located by two dowels and secure in position with the ten setscrews and spring washers (two long screws at rear and two short screws at front). Replace the tunnel cover and trim.



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Number F.8.

Section Gearbox and Overdrive.

Sheet 1 (of 1)

Date March, 1964.

GEARBOX NEEDLE ROLLERS.

(All models)

The needle rollers on which the countershaft and 2nd and 3rd speed gears rotate are now graded according to their diameter and rollers of one grade only must be used in individual gear assemblies.

The part numbers of the individual grades are as follows:-

<u>Part No.</u>	<u>Description.</u>	<u>No. off.</u>
C.918/1	Needle Roller, on Countershaft (3 mm $\begin{matrix} +.0001'' \\ -.0000'' \end{matrix}$)	58
C.918/2	Needle Roller, on Countershaft (3 mm $\begin{matrix} +.0000'' \\ -.0001'' \end{matrix}$)	58
C.918/3	Needle Roller, on Countershaft (3 mm $\begin{matrix} -.0001'' \\ -.0002'' \end{matrix}$)	58
C.1850/1	Needle Roller, in 2nd and 3rd Speed Gears (3.5mm $\begin{matrix} +.0001'' \\ -.0000'' \end{matrix}$)	82
C.1850/2	Needle Roller, in 2nd and 3rd Speed Gears (3.5mm $\begin{matrix} +.0000'' \\ -.0001'' \end{matrix}$)	82
C.1850/3	Needle Roller, in 2nd and 3rd Speed Gears (3.5mm $\begin{matrix} -.0001'' \\ -.0002'' \end{matrix}$)	82

Spares Bulletin No. D.15 refers.

Number F.13.
Section Gearbox and Overdrive.

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Date September, 1965.

4 SPEED ALL SYNCHROMESH GEARBOX.

Service Bulletin F.9 refers to the 4 speed all synchromesh gearbox as being optional extra on the 3.4/3.8 'S' Models. This gearbox has now become standard equipment on all 'S' models and also on the 2.4, 3.4 and 3.8 Mark 2 models.

The chassis introduction numbers of the Mark 2 models are given below:

<u>Model affected.</u>	<u>Commencing chassis numbers.</u>	
	<u>R.H.Drive.</u>	<u>L.H.Drive.</u>
2.4 litre Mark 2	119200 plus 119149 to 119151	127822
3.4 litre Mark 2	169341 and 169285	180188
3.8 litre Mark 2	234125 plus 234079 to 234089	224150

The engine idling speeds and recommended lubricants are as stated on Service Bulletin F.9.

DISMANTLING (Mark 2 Models)

Removal of Clutch Housing.

Detach the springs and remove the carbon thrust bearing.

Unscrew the two nuts and remove the clutch slave cylinder.

Remove the allen screw, push out the fulcrum pin and detach the clutch fork.

Tap back the locking tabs and break the locking wire and remove the eight setscrews.

Detach the clutch housing.

Removal of Top Cover.

Remove the ten setscrews and lift off the lid.

Removal of Overdrive. (Overdrive Models)

Remove the six nuts securing the overdrive to the extension, that is two nuts at each side and the two lowermost nuts of the four on the long studs. Withdraw the overdrive.

Unscrew the seven setscrews securing the extension to the rear of the gearbox.

Withdraw the cam, tap back the tab washer and unscrew the large nut.

Removal of Countershaft.

Remove the fibre plug from the front end of the countershaft.

Drive out the countershaft from the front of the casing.

Important: Ensure that the rear washer (pegged to casing) drops down in a clockwise direction looking from the rear to avoid trapping the washer with the reverse gear when driving the mainshaft forward (see illustration). This is effected by rocking the gearbox casing and moving the reverse lever backwards and forwards.

Removal of Constant Pinion Shaft.

With the aid of two tyre levers ease the constant pinion shaft forward until it can be withdrawn.

Removal of Mainshaft.

Tap the mainshaft through the rear bearing ensuring that the reverse gear is kept tight against the first gear.

After removal of the rear bearing from the casing fit a hose clip to the mainshaft to prevent the reverse gear from sliding off.

Slacken the reverse lever bolt until the lever can be moved to the rear.

Lift out the mainshaft forward and upward.

Lift out the countershaft gear unit and collect the needle bearings.

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Withdraw the reverse idler shaft and lift out the gear.

Reassembly.

Reassembly is the reverse of the dismantling procedure but the following points should be noted.

1. Attach the rear thrust washer to the casing with grease and retain in position with the countershaft.
2. Fit the needle rollers to the countershaft gear unit with grease.
3. To mesh the countershaft gear unit with the mainshaft turn the gearbox upside down and enter the countershaft taking care not to displace the needle rollers.

When refitting the overdrive align the splines in the usual way, push the overdrive on as far as possible and rotate the overdrive flange until the oil pump plunger engages the cam on the mainshaft.

Spares Bulletin No. D.26 refers.

Number F.15

Section Gearbox and Overdrive

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Date December, 1966

GEAR LEVER RETAINING WASHER
(Standard and Overdrive Transmission)

<u>Models affected</u>	<u>Commencing Gearbox Numbers</u>
2.4 Litre Mark 2)	
3.4 Litre Mark 2)	JCN.3467
3.8 Litre Mark 2)	
3.4 Litre 'S' Type)	
3.8 Litre 'S' Type)	JBN.8121
4.2 Mark 10	JZN.923
4.2 'E' Type F.H.C.	EJ.7920
4.2 'E' Type Open	EJ.7920
4.2 'E' Type 2+2	EJS.7920

Isolated instances have occurred where the bonded rubber bush at the bottom of the gear lever has allowed the lever to become detached.

To prevent this, a dished retaining washer has now been fitted between the bush and lever securing nut, and the above serial numbers record the commencement of the modification.

The retaining washer may, if desired, be fitted to gearboxes prior to the above numbers as follows:-

Remove the console and gear lever grommet as detailed in the appropriate Service Manual.

On 4.2 'E' Type cars it will also be necessary to remove the tunnel cover.

Remove the retaining nut at the base of the lever.

Fit the washer with the hollow face to the bonded rubber bush and refit the retaining nut.

Refit the gear lever grommet and console.

Rescal the tunnel cover on 4.2 'E' Type cars with a good quality sealing compound to prevent the entry of water.

Spares Bulletin D.31 refers.

Number F.16
Section Gearbox and Overdrive

Sheet 1 of 1
Date March, 1967

COMPACT OVERDRIVE UNITS

(ALL MODELS)

A recent modification has been introduced to the Adaptor Plate fitted to Compact Overdrive units.

Whilst this modification in no way affects interchangeability (in consequence, the Part Numbers remain unchanged) it is ESSENTIAL that in the future only the new item is used with replacement units fitted to a car.

It is IMPORTANT that all Compact Overdrive Units which are to be returned under guarantee claim should be removed from the gearbox COMPLETE WITH THE ADAPTOR PLATE and returned to the Works as an assembly.

IT IS EMPHASISED THAT FAILURE TO ADHERE TO THESE INSTRUCTIONS WILL RESULT IN THE GUARANTEE CLAIM BEING NULLIFIED.

January, 1956

JAGUAR
SERVICE AND SPARES ORGANISATION

SERVICE BULLETIN NO: 179

OVERDRIVE UNITS.

Models affected
Mark VII
XK.140
2.4 litre.

This Service Bulletin is issued to show the variation of internal parts of the Laycock de Normanville Overdrive Units fitted to Mark VII, XK.140 and 2.4 litre models. The items affected are listed below, together with the part number applicable to the respective Units.

Description.	Part No.	Part No.	Part No.	Remarks.
	Mark VII	XK.140	2.4 litre.	
Overdrive Unit complete.	C.7365	C.8561	C.11032	
Spring for Accumulator Piston.	C.11836	C.11837	C.11838	C.11836 supersedes previous Spring C5974 on Mark VII models only.
Solenoid Mounting Bracket.	C.5980	-	-	Mark VII only up to Overdrive Unit Serial No.28/1270/1618.
Solenoid Mounting Bracket.	C.8559	C.8559	-	Mark VII Overdrive Unit Serial No. 28/1270/1619 onwards. ALL XK.140 Overdrive Units.
Solenoid Mounting Bracket.	-	-	C.11203	
Solenoid Operating Lever.	C.5985	-	-	Mark VII up to Overdrive Unit Serial No.28/1270/1618.
Solenoid Operating Lever.	C.8766	C.8766	-	Mark VII Overdrive Serial No. 28/1270/1619 onwards. ALL XK.140 Overdrive Units.
Solenoid Operating Lever.	-	-	C.11208	
Thrust Ring for Clutch.	C.5929	C.11697	C.11697	
Thrust Springs for Clutch.	C.5655	C.11699	C.11699	
Brake Ring.	C.5934	C.11433	C.11433	C.11433 may also be used on Mark VII models to replace C.5934.
Sunwheel, Planetary Carrier and Annulus Assembly.	C.5672	C.11698	C.11431	
Annulus only.	C.5933	C.11743	C.11432	
Rear Casing.	C.5925	C.11696	C.11429	
Packing-Rear Casing.	-	-	C.11427	
Pilot Bush-Speedometer Gear.	-	C.11226	C.11210	
Gasket for Pilot Bush.	-	C.8774	-	
Speedometer Drive complete.	C.5679	C.11953	C.11929	
Speedometer Drive Bearing.	C.5986	C.11927	C.11927	
Speedometer Driven Gear.	C.5988	C.8764	C.11209	
'O' Ring for Speedo Bearing.	-	C.11211	C.11211	
Centrifugal Switch.	C.7473	-	-	
Connecting Flange.	C.5683	C.5683	C.11206	
Rubber Support Buffer.	C.8281	C.8398	-	
Packing Shim for Support Buffer.	C.8268	C.8399	-	

Attention is also drawn to a constructional change in the Planetary Carrier. On Mark VII Overdrive Unit Serial No.28/1270/4913 and on XK.140 Overdrive

Cont'd.....

Unit Serial No.28/1390/1298 a one-piece Planetary Carrier was introduced as opposed to the previous rivetted type of Planetary Carrier. As both types are fully interchangeable, no alteration has been made to the part number (i.e.C.5932). However, this modification does affect the Thrust Washers which are fitted between the rear face of the Sunwheel and the Planetary Carrier, and if it becomes necessary to replace Thrust Washers it is IMPORTANT that they are replaced to the following tables:-

<u>Planetary Carrier fitted.</u>	<u>Washers to be fitted.</u>	<u>Overdrive Unit Serial No.</u>
Rivetted type.	1.off. C.5978 Thrust Washer. 1.off. C.5975 Thrust Washer. 1.off. C.5976 Spacing Washer.	Up to and including 28/1270/4912 - Mark VII or 28/1390/1297 - XK.140.
One-piece type.	1.off. C.5975 Thrust Washer	28/1270/4913 onwards-MarkVII 28/1390/1298 onwards-XK.140 All 2.4 litre Units.

It follows, of course, that if a Planetary Carrier of one type is replaced by the opposing type, then the requisite Thrust Washer/s should be fitted in accordance with the above details.

Index Reference - Section F.



June, 1956.

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

SERVICE BULLETIN NO.191

INSTRUCTIONS FOR FITTING AN OVERDRIVE UNIT TO THE
2.4 LITRE MODEL.

General.

If the chassis number of the car concerned is prior to 901582 R.H.Drive or 940606 L.H.Drive the existing rear axle can be retained. On cars on and after the above chassis numbers it will be necessary to change the existing 4.27:1 ratio rear axle for one of 4.55:1 ratio Part No.C.8951.(see Service Bulletin No.188).

It will be found advantageous to carry out the installation of the wiring harnesses and the relay while the engine and gearbox is removed from the car. See "Electrical Installation".

Remove Engine and Gearbox.

- As described in Service Bulletin No.181.

Fit Overdrive Mainshaft to Gearbox.

Detach the clutch housing from the engine.

Dismantle gearbox and fit the overdrive mainshaft in place of the existing mainshaft.

The circlip C.5685 and spacing washer C.5983 supplied are fitted on the mainshaft behind the gearbox rear bearing. Shims C.8458/1,2 & 3(.002", .003" and .004" thick) are to take up clearance, if any exists, between the rear bearing and the spacing washer.

Fit Overdrive Unit to Gearbox.

- As described on page 14 of the "Service Manual" for the Laycock de Normanville overdrive unit for the Mark VII model".

If it is found necessary to align the splines in the overdrive unit turn the rearmost splines anti-clockwise with a long bladed screwdriver.

Refit Engine, Gearbox and Overdrive.

Assemble the gearbox and overdrive to the engine.

Refit the engine, gearbox and overdrive as a unit - see Service Bulletin No.181.

Fit Overdrive Type Propellor Shaft.

Fit propellor shaft assembly supplied in place of the existing shaft.

Remove Centre Facia Panel.

Remove the dash casing situated between the facia panel and the toe-boards.

Withdraw the ash tray fully and from the underside remove the four screws securing the ash tray bracket at front and rear.

Remove the lighting switch lever knob and the windscreen wiper knob, both being retained by a spring-loaded pin registering with a hole in the side of the knob; press in pins and withdraw knobs.

cont'd
Overleaf.....

Unscrew the two thumbscrews at the top corners of the centre facia panel.

Unscrew the two round-headed screws securing the brackets at the underside of the centre facia panel.

The centre facia panel can now be withdrawn.

Remove Windscreen Rail.

Remove the centre facia panel as described above.

From the underside of the windscreen rail remove the four nuts and washers when the rail can be withdrawn by lifting upwards.

Remove Side Facia Panel(Drivers Side)

Remove the centre facia panel and the windscreen rail as described above.

Remove the two countersunk screws securing the side facia panel to the body facia support; these screws are visible on the front face of the panel.

From underneath the side facia panel remove the nut at the rear of the body facia support which secures the panel bracket. The side facia panel can now be withdrawn.

ELECTRICAL INSTALLATION.

Fit Top Gear Switch.

Remove the brass blanking plug from the gearbox top cover and fit the top gear switch and gasket.

Fit Wiring Harnesses.

It will be found advantageous to fit the two wiring harnesses while the engine and gearbox unit is removed from the car.

The gearbox harness connections are as follows:-

Top Gear Switch	Green/Purple and Green.
Reverse Light Switch	Green/Brown and Green.(2 off to one side of switch).
Solenoid	Green/Black.

The Relay Harness connections are as follows:-

Relay.	
Terminal W1.	Green/Yellow.
Terminal W2.	Black.
Terminal C1.	Green/Black.
Terminal C2.	Green/Purple.
Manual Switch.	
Terminal B.	Green/Purple.
Terminal E.	Black.
Terminal-blank.	Green/Yellow.

Remove the existing reverse light switch wires from the snap connectors at the front of the scuttle and fit the new wires in their place. Dispense with the old reverse light switch wires.

Connect up the wires from the top gear switch with similar coloured wires in the relay harness.

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(Service Bulletin No. 191)

After connecting up the wires to the relay fit the relay to the cover. Attach the cover to the left hand wing valance between the windscreen washer bottle and air cleaner intake pipe. The holes are already drilled in the valance and cage nuts are provided.

Take the wires for the manual switch through the hole in the scuttle adjacent to the heater box and fit a rubber grommet to the hole.

Take the wires for the manual switch through the hole in the metal dash behind the position for the manual switch and fit a rubber grommet to the hole. Connect up the wires to the manual switch (the earth wire from the manual switch is positioned under the nut securing the side facia panel and is connected when the panel is refitted).

Fit Manual Switch to Facia Panel.

A rebate for the overdrive switch is already made in the back of the side facia panel (drivers side).

Drill a 5/8" hole in the facia panel to take the threaded portion of switch. The switch is fitted with the terminals at the bottom and is secured with the knurled bezel behind which the escutcheon plate is fitted.

Fit Overdrive Speedometer and Cable.

Remove the three setscrews which secure the metal instrument panel.

Withdraw panel slightly and disconnect the oil gauge pipe and the speedometer and revolution cable cables.

Remove the three screws at back of the speedometer and withdraw the instrument. Fit speedometer provided to suit the overdrive speedometer gear ratio.

Remove the existing speedometer cable and fit the longer cable supplied, following the same run.

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SEPTEMBER, 1956.

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SERVICE AND SPARES ORGANISATION

SERVICE BULLETIN NO. 196.

GEARBOX IDENTIFICATION.

The following details are issued to assist Distributors and Dealers in identifying the various types of gearboxes and the gears which are fitted to each type. This information supplements that already given in Service Bulletin No. 145.

It will be appreciated that it is more than ever important to quote the gearbox number together with any prefix or suffix letters when ordering parts for a particular gearbox.

The details given below apply to gearbox types:-

JH, JL, JLN, GB, GBN, SH, SL, JLE.

	<u>STANDARD RATIO</u>	<u>CLOSE RATIO.</u>
IDENTIFICATION	No suffix letters after gearbox number.	Suffix letters to gearbox number. CR or MS.

GEARBOX RATIOS.

Top.	1:1	1:1
3rd.	1.367:1	1.24:1
2nd.	1.982:1	1.74:1
1st.	3.375:1	2.98:1
Reverse	3.375:1	2.98:1

CONSTANT MESH GEARS -
NUMBER OF TEETH.

Constant pinion.	26	28
Constant wheel (layshaft)	39	37

PART NUMBER OF GEARS.

	JH, JL, JLE, JLN, GB, GBN,	SH, SL.	CR.	MS.
Constant pinion	C6751	C.1836	C.9252	C.8912
Mainshaft-1st speed gear.	C2040	C.1897	C.2040	C.1897
" -2nd speed gear.	C4125	C.4118	C.4125	C.4118
" -3rd speed gear.	C4123	C.4117	C.4123	C.4117
Layshaft -constant wheel.	C2045		C.5826	
" -1st speed gear.	C2041	C.1857	C.2041	
" -2nd speed gear.	C2047		C.2047	C.8913
" -3rd speed gear.	C2046		C.2046	

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PROTECTIVE TREATMENT ON NEW CARS

To preserve the exterior finish, cars now being produced are treated with a protective wax coating.

This protective coating must be removed when the car is being prepared for delivery to the customer or before the car is placed in your Showrooms.

REMOVAL OF PROTECTIVE COATING.

1. Wash car to remove any grit or abrasive dirt.
2. Remove wax using white spirit (petroleum distillate) or petrol applied with mutton cloth or similar non-abrasive cloth.
Use of petrol having alcohol must be avoided.
3. Polish car.

Index Reference - Section C.

