Technical Bulletins

Technische Bulletins

Bulletins Techniques

Technische Bulletins

Bollettini Tecnici

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Boletim Técnico

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
MINI

No: **0012**
Ref: **R0809bu**
Issue: **2**
Date: **26.07.95**

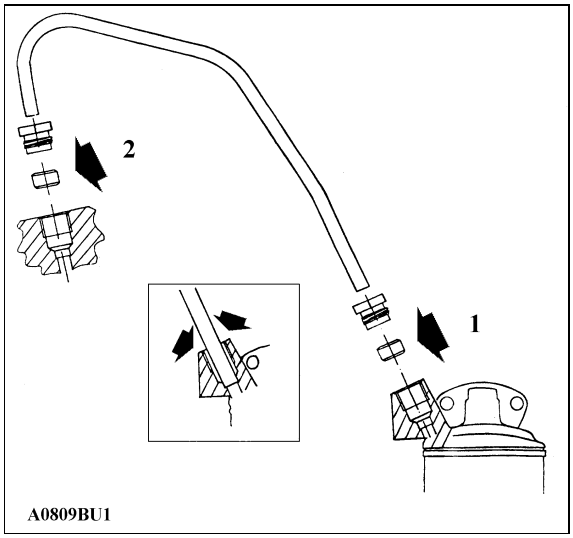
AFFECTED RANGE:
All versions up to engine number 12A... 317971.

PROBLEM:
OIL LEAK FROM EXTERNAL OIL PIPE CONNECTION - OLIVE

Oil leaking from external oil pipe to cylinder block via tube nut connection.

CAUSE:
Torque relaxation of tube nut

ACTION:
(This Bulletin replaces Mini Bulletin item 63 dated 07.04.93)



MANUAL VERSIONS

Remove external oil pipe completely, dismantle to retrieve tube nuts, discard pipe and both rubber seals.
Completely clean cylinder block, filter housing and tube nut mating threads.
Assemble new pipe part number LQP10033 and original tube nuts with new rubber seal part number LZB10017 to filter end (1 in illustration), and modified aluminium olive part number LZV100080 to cylinder block end, (2 in illustration).
Fit oil pipe to block and oil filter housing, ensure pipe is fully inserted into cavity recesses (see illustration inset), engage tube nut threads and apply "Loctite Lock'N Seal 242" to exposed threads and tighten tube nuts by hand alternating 1/4 turn at a time so as to avoid over stressing pipe in any one direction.
Finally tighten each tube nut with a suitable open ended spanner .

AUTOMATIC VERSIONS

As per Manual Versions, for oil pipe to cylinder block fitment. For opposite pipe connection (adapter to gearbox). Apply Loctite "Lock'N Seal 242", to existing fitting, no additional modified seal is used.
Again tighten progressively as described for Manual Versions.

Note: Due to location of tube nut (cylinder block end), the use of a 'Crows Foot' or cranked ended spanner will be beneficial.
When tight, the underside of the tube nut at the filter head end will make contact with housing, unlike the block end which is now prevented from making contact with block face due to the aluminium olive which does not compress.

PARTS INFORMATION:

LQP10033 - Pipe oil - filter to crankcase (Manual)
LQP10038 - Pipe oil - filter to crankcase (Automatic)
LZB10017 - Seal (rubber) - pipe - 1 off (Manual only)
LZV100080 - Aluminium Olive-External Oil Pipe-1 off- (Manual & Automatic)
Loctite - Lock'N Seal - 242

WARRANTY CLAIMS:

Manual and Automatic
Use Complaint Code: 2A5N
Use S.R.O.: 12.60.88/33
Time allowed: 0.40 hour

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

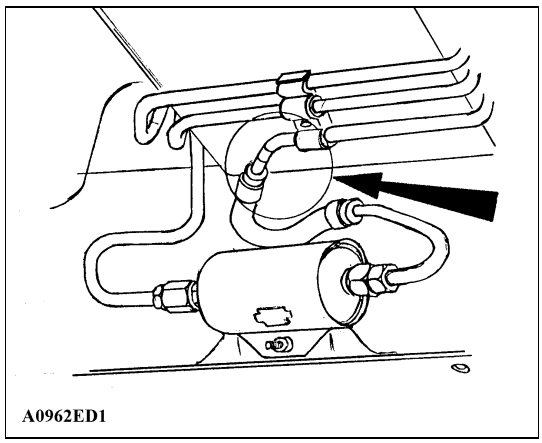
No: **014**
Ref: **R0962bu**
Issue: **1**
Date: **30.10.96**

AFFECTED RANGE:
All versions

PROBLEM:
ENGINE NON START / FUEL PUMP NOISE - PIPE DAMAGE

Either of the following:-
Engine non-start or difficult to start.
Excessive noise from fuel pump.

CAUSE:
Bent under floor fuel feed pipe particularly in area illustrated. This may result in the flexible fuel feed hose being kinked causing local fuel pressure build-up.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ACTION:
Carefully re-shape fuel feed pipe so that flexible hose returns to correct position.

PARTS INFORMATION:
Not applicable

WARRANTY CLAIMS:
Use complaint code: 2Q4C
Use S.R.O.: 19.40.88/40
Time allowed: 00.10 Hrs

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
All Models

No: **0003**
Ref: **R2276bu**
Issue: **1**
Date: **18.05.94**

AFFECTED RANGE:
Vehicles registered from January 1993

PROBLEM:
OIL CONSUMPTION

CAUSE:
Not applicable - Information only.

ACTION:
The acceptable maximum oil usage when confirmed by yourselves under controlled conditions are as follows:-
VEHICLE MILEAGE 3000 MILES (5000 Kilometres) ONWARDS
1000 miles per pint or 850 miles per 1/2 litre (0.35 litre per 1000 kilometres)
These figures are provided for guidance, and for Service Information only.

PARTS INFORMATION:
Not Applicable

WARRANTY CLAIMS:
Not Applicable

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
100, 200, 400, 600, 800, Metro, Maestro, Montego, Mini

Bull. Nº: **0003**
CDS. ref: **R3591bu**
Issue: **1**
Date: **22.02.95**

AFFECTED RANGE:
All

PROBLEM:
BRAKE JUDDER

CAUSE:
Excessive run-out on discs or rear drums where fitted, (either with original equipment parts or following fitment in service).
The primary cause of brake judder is excessive disc run out. As the maximum run out segment of disc touches the pads on each revolution, one sided wear occurs on the disc. The resulting thick/thin variation is the basic cause of judder.

ACTION:
Follow diagnostic repair chart on page 2 and refer to additional notes on pages 3 & 4

Note:
An additional A3 poster of the diagnostic repair has been included with this issue.

ADDITIONAL NOTES

ROLLER TEST
If you have access to a brake roller tester proceed as follows, if you do not have access to this equipment, please refer to ROAD TEST but note that this should not be carried out on public roads.

TEST FOR FRONT BRAKES
1. Position vehicle with front wheels on rollers and apply handbrake.

2. Set rollers in motion and gently apply footbrake, both gauge pointers should rise in unison in a smooth steady movement in relation to pressure being applied to footbrake. Maintain a firm pressure.

3.A fluctuating pointer indicates an irregularity as the disc rotates,

this can cause brake judder. Note any suspect wheel.
NOTE: Ensure that fluctuation is observed over at least six complete revolutions of wheel.

4. Release footbrake and stop rollers.

TEST FOR REAR BRAKES
5. Position vehicle with rear wheels on rollers and chock behind front wheels. Handbrake off.
6. Set rollers in motion and gently apply footbrake, both gauge pointers should rise in unison in a smooth steady movement in relation to pressure being applied to footbrake. Maintain a firm pressure.
NOTE: Brake effort readings on rear wheels will be lower than front. Rear brakes should not lock.

7. A fluctuating pointer indicates an irregularity as the disc/drum rotates, this can cause brake judder. Note any suspect wheel.
NOTE: Ensure that fluctuation is observed over at least six complete revolutions of wheel.

8. Release footbrake and stop rollers.

ROAD TEST
This test must be carried out by an experienced driver and must not be conducted on public roads.

Accelerate to approx 80 kph (50 mph), declutch and lightly apply footbrake to confirm that judder is present. When judder has been reproduced, repeat the test but apply the handbrake lightly instead of the footbrake. If, during the handbrake test, no judder is evident, proceed with front wheel diagnosis path. If judder is evident during the handbrake test, proceed with the rear wheel diagnosis path.

ADDITIONAL NOTES - continued:

SKIMMING BRAKE DISCS
Engineering tests have identified that the use of a lathe to skim brake discs, (as specified in the Service Tools & Equipment programme), will ensure that disc run out is reduced to the absolute minimum.

The lower the 'final' disc run out figure, the less chance there is of brake judder/vibration returning (i.e. repeat claims).

Fitting replacement brake discs will not minimise run out as effectively as skimming the existing discs. Replacement discs should ONLY be fitted where the existing disc thickness is outside the Service specification.

Please note that all current Rover Cars with the exception of the Mini are fitted with discs that can be skimmed. Current Mini discs are too thin to skim , but thicker discs and modified calipers are due to be introduced during 1995.

CHECKING RUN OUT

Mount a dial test indicator onto the caliper bolt as shown in the illustrations using tool 18G191-9. With the exception of the Metro/100, it is possible to measure run out with the caliper fitted. On the Metro/100 models, run out can only be checked with the caliper removed and it is therefore important to mark the final position of the wheel relative to the hub so that when it is removed to allow the caliper to be refitted, the wheel can be refitted in the correct position.

N.B. - When checking run out, the disc must be fully clamped to the drive flange. Therefore, after skimming, check run out BEFORE removing the lathe drive plate. When checking new discs, they must be clamped (to full wheel nut torque) onto the drive flange using washers and nuts (steel wheel type nuts fitted back to front can be used).

RUN OUT FIGURES

The run out limits of 0.020mm before fitting the wheel and 0.040mm after fitting the wheel quoted in the draft may be lower than figures quoted in individual repair manuals.

This is because tighter limits need to be applied to a vehicle which has suffered brake judder rather than a vehicle which is undergoing routine disc renewal.

CHECK/CLEAN MATING SURFACES

When fitting new discs it is essential that the mating surfaces of the drive flanges, discs and wheels are clean and free from corrosion otherwise the disc will distort when the wheel nuts are tightened, and the run out limits will not be achieved.

DISC PADS

Use only original vehicle specification brake pads. These have 5 digit part numbers with '90' prefix eg.GBP90315AF. IT HAS BEEN PROVED THAT NON ORIGINAL PADS CAN PROMOTE RECURRENCE OF JUDDER, EVEN UNDER MINIMUM RUN OUT CONDITIONS.

FRONT DISC MINIMUM THICKNESS FIGURES

Mini	**Not Specified**
100/Metro	**10.8 mm**
200/400 solid disc	**10.7 mm**
200/400 vented disc	**19.0 mm**
600	**21.0 mm**
800	**19.0 mm**
Maestro/Montego solid disc	**12.2 mm**
vented disc	**21.0 mm**

PARTS INFORMATION:

Refer to parts fiche.

WARRANTY CLAIMS:

Use complaint code: 6C1L - Front brake disc judder)

S.R.O information:

Time a) 70.10.39 Skim discs & check run out (wheel off & wheel on)

Time b) 70.10.12 Fit new discs & check run out (wheel off & wheel on)

Time c) 70.10.07 Fit new discs, check run out (wheel off & wheel on), skim & check run out (wheel off & wheel on)

NOTE: Times a) & c) are not applicable to Mini since disc cannot be skimmed.

Time Allowance

Mini

Time b): 2.60 hours

100/Metro

Times a): 2.60 hours
b): 1.20 hours
c): 2.80 hours

200, 400 (non vented & vented discs)

Times a): 2.60 hours
b): 1.50 hours
c): 2.80 hours

600

Times a): 2.60 hours
b): 2.10 hours
c): 3.50 hours

800

Times a): 2.60 hours
b): 1.50 hours
c): 2.40 hours

Maestro, Montego (non vented & vented discs)

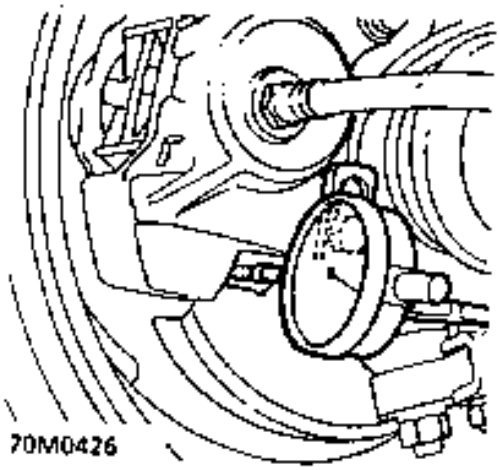
Times a): 2.60 hours
b): 1.60 hours
c): 2.80 hours

Maestro Van

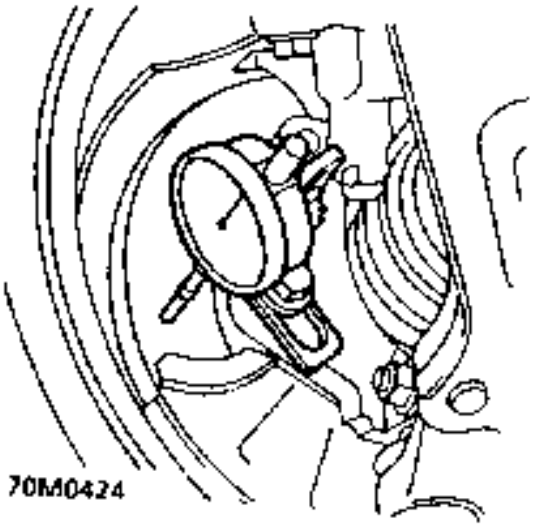
Times a): 2.60 hours
b): 3.50 hours
c): 4.20 hours

The above times relate to front disc repairs only. For rear disc/drum repairs refer to SRO manual.

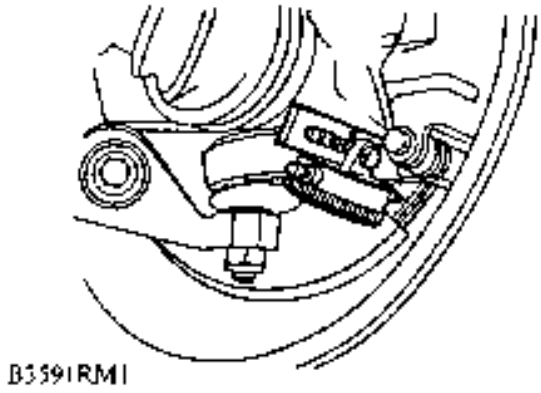
NOTE: The above times supersede all previous SRO manual times, the SRO manual will be amended in due course.



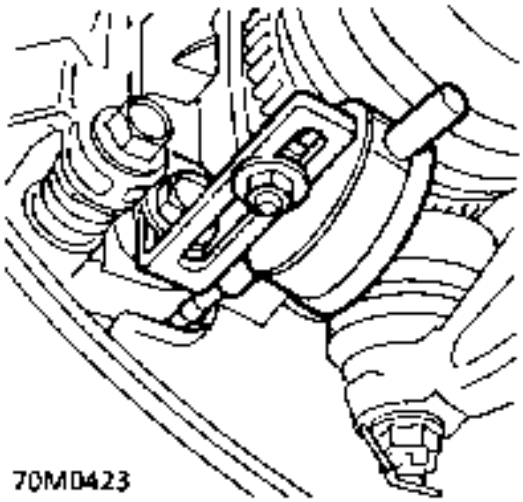
MINI



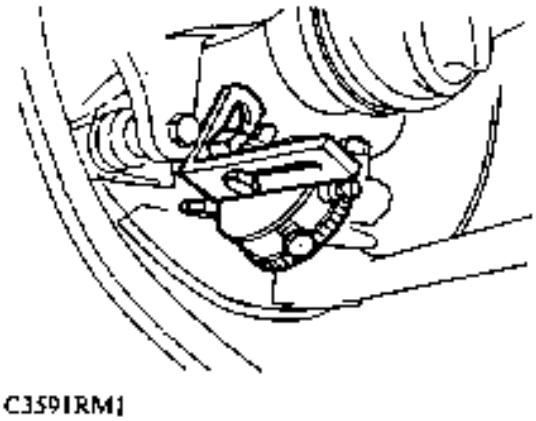
R100/METRO



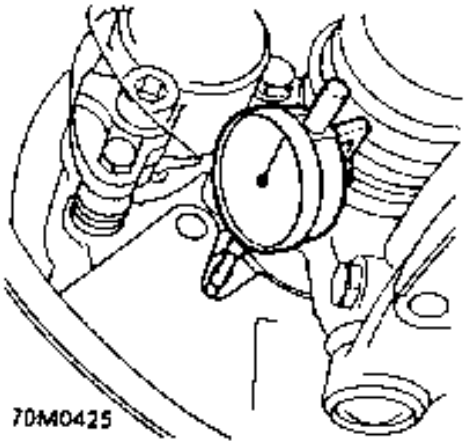
R200/400



R600

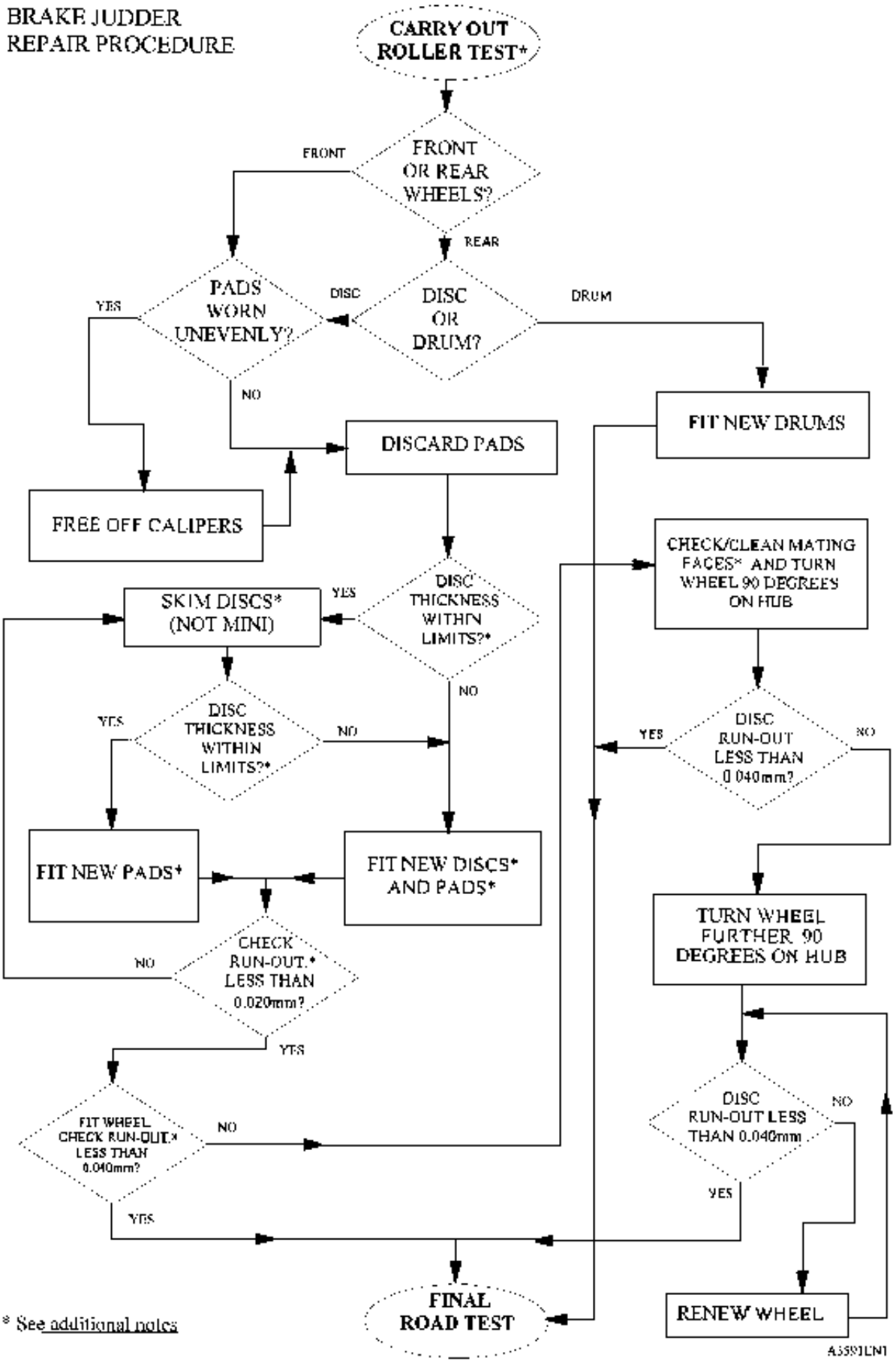


R800



MAESTRO/MONTEGO

BRAKE JUDDER
REPAIR PROCEDURE



* See additional notes

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
MINI, METRO, MONTEGO, 200, 400, 100

Bull. Nº: **0008**
CDS. ref: **R3814bu**
Issue: **1**
Date: **8.02.95**

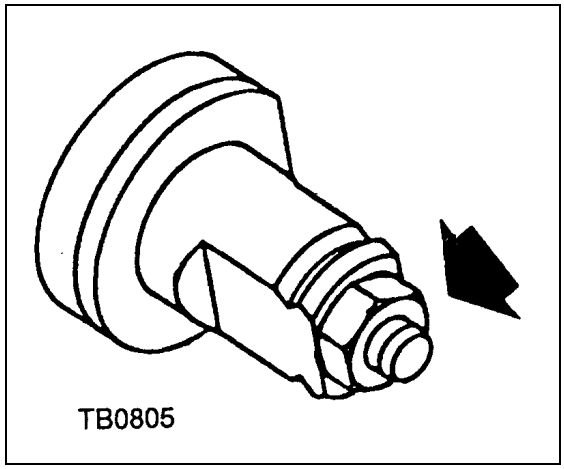
AFFECTED RANGE:
from the following Vins:-

Mini	**- 078248**
Metro	**- 873074 and 527728**
Montego	**- 656852**
100	**- 001001**
200/400	**- 791251**

PROBLEM:
SEAT SQUAB 'CREEP BACK' - RECLINER NUT

Seat squab suffers regression or creep back and requires frequent adjustment.

CAUSE:
Torque relaxation of recliner mechanism nut.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ACTION:
Remove recliner hand wheel to expose the die casting and M4 nut (see illustration.
NOTE: take care not to damage recliner hand wheel, refer to 'Seat Overhaul Manual' for full removal information.
Hold die casting with an 8mm spanner across the flats and tighten the M4 nut a quarter of a turn (one and a half flats). check operation of recliner, if OK apply Loctite 924 or 638 to end of nut / thread. Refit hand wheel.

PARTS INFORMATION:
loctite 924 or 638

WARRANTY CLAIMS:
Use Complaint Code 8A4G
Use S.R.O. 78.10.88/37
Time allowed: 0.15 hour
(Time allowed is sufficient to cover both seats if required).

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
All Models

Bull. Nº: **0022**
CDS. ref: **R4083bu**
Issue: **1**
Date: **21.02.96**

AFFECTED RANGE:
All versions

PROBLEM:
INADVERTENT OPERATION OR MALFUNCTION OF AIRBAG

Allegations (not particularly in respect of Rover Cars) of possible inadvertent operation or malfunction of air bag due to installation of electrical equipment such as car / mobile telephones.

CAUSE:
See below.

ACTION:
All Rover cars are tested for immunity to 'Radio Frequency Fields'. Under normal operating conditions we would not therefore expect the fields produced by car/mobile telephones to exceed the levels simulated in our testing. It is possible however, that the fitting of such items as power boosters could cause localised effects which result in higher field strengths than those used in testing and Rover cannot therefore guarantee immunity.
A more likely cause of inadvertent operation of an air bag would be splicing into the yellow coloured air bag harness to provide a feed or earth for electrical accessories.
Power feeds and earths for such items as car/mobile telephones must always be taken direct from the battery and incorporate their own fuses.

PARTS INFORMATION:
Not Applicable

WARRANTY CLAIMS:
Not Applicable

TECHNICAL BULLETIN

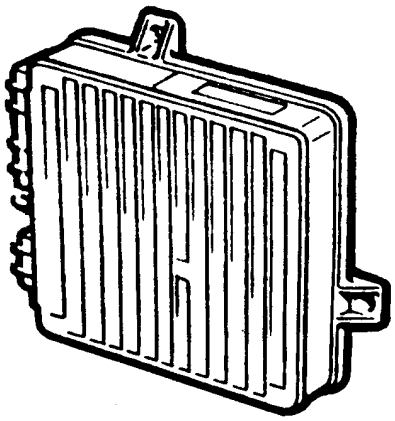
MODEL/DERIVATIVE:
All Models

Bull. Nº: **0009**
CDS. ref: **R5424bu**
Issue: **1**
Date: **10.08.94**

AFFECTED RANGE:
All petrol engined vehicles fitted with MEMS E.C.U's.

PROBLEM:
E.C.U. FAILURE - WATER INGRESS

E.C.U. failure, either permanent or for a short period of time.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CAUSE:
Water ingress into E.C.U. due to various power wash operations.
The E.C.U. is designed to be splash proof only, therefore it is possible
under an extreme power wash situation to force water into the E.C.U. via the casing or drain holes.

ACTION:
Inform all relevant service staff of this possibility and ensure adequate protection for the E.C.U. is provided if a power wash is used in the engine compartment.

PARTS INFORMATION:
Not Applicable

WARRANTY CLAIMS:
Not Applicable

TECHNICAL BULLETIN

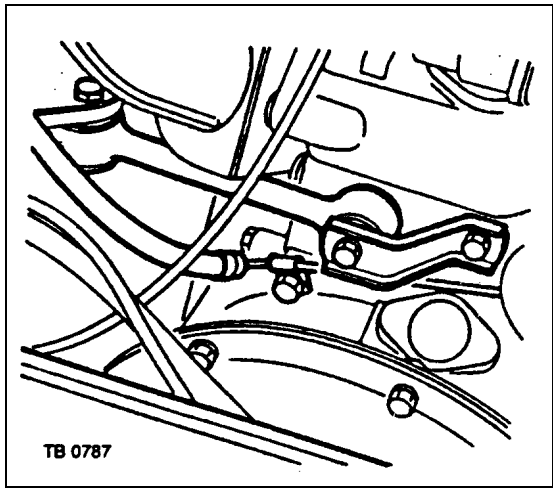
MODEL/DERIVATIVE:
MINI

Bull. Nº: **0004**
CDS. ref: **R5898bu**
Issue: **1**
Date: **25.05.94**

AFFECTED RANGE:
All versions

PROBLEM:
ENGINE SHUNT - WEAK STEADY BAR BUSHES

Engine shunt / kick, at light throttle. This condition may appear from approximately 6000 miles (9600 Kilometres) onwards.



CAUSE:
Upper engine steady bar bushes providing insufficient damping

ACTION:
Replace existing bushes with heavy duty bushes.

PARTS INFORMATION:
KKF100390 - Bush Engine Steady (heavy duty) - 4 off

WARRANTY CLAIMS:
Use complaint code: 5B2U
Use S.R.O.: 12.45.16
Time allowance: 0.35 hour - Non SPI
.....0.65 hour - SPI only.

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
All Models

Bull. Nº: **0017**
CDS. ref: **R6255bu**
Issue: **1**
Date: **1.11.95**

AFFECTED RANGE:
All versions

PROBLEM:
USE OF WIRING HARNESS CONNECTORS

Wiring or electrical component failure following previous wiring rectification.

CAUSE:
Unsuitable wiring connectors used for wiring repair resulting in subsequent failure in service.

ACTION:
THIS BULLETIN REPLACES THE OLD STYLE BULLETINS AS FOLLOWS:-
Mini no. 15 - item 29
Metro 1.0 & 1.3 no. 24 - item 56
Maestro no. 31 - item 77
Montego no. 36 - item 89
Rover 800 no. 42 - item 135

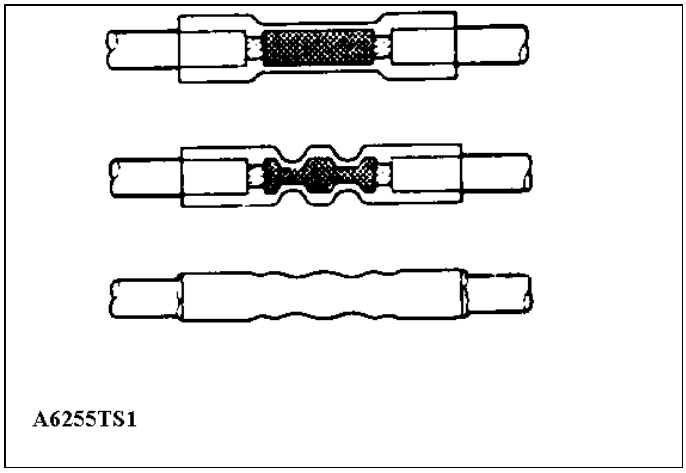
In the event of wiring rectification being required or where such action cannot be carried out by replacement of the existing type of connector, then it is permissible to use 'Crimp and Heatseal' type connectors supplied to Rover by Duraseal.
These connectors are available through normal parts supply channels, see parts information for details.

Note: These connectors were originally introduced for the Rover 'after market' burglar alarm installation kits and have been progressively supplied with other Rover and Unipart approved accessories.

INSTRUCTIONS FOR USE OF CONNECTORS
Full instructions are supplied with parts, however if mislaid, a copy of this information is as follows:-

DURASEAL SEALED CRIMP SPLICES:
For reliable crimping and sealing use the recommended crimping tool and heat gun with reflector.

1). Strip wires 7.5mm and insert into crimp barrel of the correct Duraseal size (see below).
2). match the colour of the splice and the colour of the crimp cavity on the crimping tool.
3). Crimp.
4). Heat crimping splice with heat gun until tubing recovers and adhesive melts and flows.



CONNECTOR SIZES:-
Ensure correct connector is used for cable size as follows:-

RED - part number GHF2512 - cables up to 1.5mm
BLUE - part number GHF2513 - cables up to 2.5mm
YELLOW - part number GHF2514 - cables up to 6mm

USAGE:
Where connectors are used in a suitable environment e.g. within the passenger compartment, crimping without heat sealing is permissible, however for external or engine compartment usage, the use of crimping and heat sealing must be undertaken.

Note: Spliced in connectors are permissible providing not more than two wires are inserted into any one cavity and connector is of adequate size for total cable size.

PARTS INFORMATION:
GHF2512 - Connector - RED
GHF2513 - Connector - BLUE
GHF2514 - Connector - YELLOW

WARRANTY CLAIMS:
Select a suitable complaint code as appropriate and apply a realistic non schedule time.

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
All Models

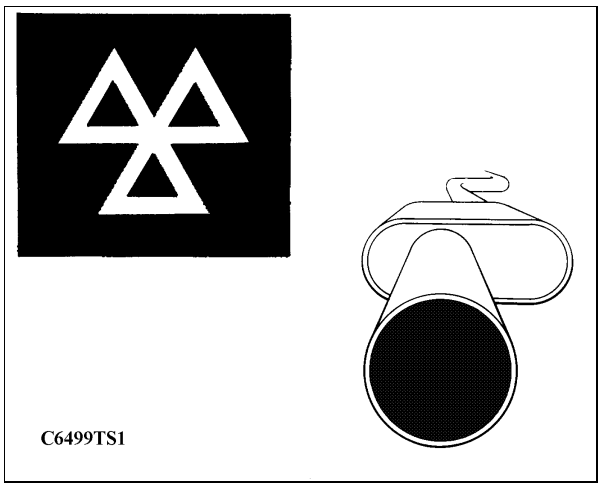
Bull. Nº: **0013**
CDS. ref **R6499bu**
Issue: **1**
Date: **21.08.96**

AFFECTED RANGE:
All fuel injected petrol engine vehicles fitted with closed loop catalyst.

PROBLEM:
EXHAUST EMISSIONS FAILURE, VARIOUS - due to any of following:-

- **High Lambda reading.**
- **High CO reading at idle / fast idle.**
- **High HC reading.**
- **Incorrect idle/fast idle.**

This bulletin is primarily intended as a diagnostic aid for vehicles which have failed the UK ministry of Transport emissions test, but it may also help diagnose engine running faults.
All emission readings provided are the test limits currently agreed for UK vehicles with standard 95 Ron fuel.



CAUSE:
Any of the following:-

- **Exhaust leak.**
- **Rich mixture.**
- **Rich mixture with misfire.**
- **Weak mixture.**
- **Oxygen sensor inoperative.**
- **Catalyst fault.**
- **Miscellaneous MEMS system faults.**

ACTION:
INTRODUCTION;
This bulletin should be used with reference to workshop poster D6499TS1, a copy of which is included with this bulletin. A reduced size copy is also included for bulletin record purposes.

Following emissions test failure, the car should be re-checked in accordance with the top row of boxes on the poster and the readings recorded. The boxes include Rovers recommended readings. Having established which readings are outside recommended values, the 'Result' boxes on the lower part of the poster should be applied along with rectification advice suggested later in this bulletin, see 'Result Action' section.

CHECKS AND READINGS EXPLAINED (POSTER);
From left to right - upper row

1. Oil temperature is not only a requirement of the UK ministry test but is considered necessary to confirm engine is fully warm and provide accurate engine readings, coolant temperature alone is not sufficient since coolant reaches its correct temperature prematurely.

2. By raising engine speed to fast idle the fuelling changes from open loop to 'closed loop' (catalyst lit). Fast idle speed parameters vary dependent on MEMS tune, i.e. K 1.4 requires a lower parameter to prevent system inadvertently returning to an 'open loop' condition.

3. CO (Carbon Monoxide) at fast idle is only relevant if found to be higher than limits. Lower readings can be ignored.

4. HC (Hydrocarbons) readings are necessary to give indications as to a possible engine malfunction.

5. Lambda is a calculation of the actual fuel ratio divided by a standard air fuel ratio, for example 16.1 (recorded AFR) divided by (14.7 (standard AFR) = 1.09 Lambda. Lambda may be considered as a variation around the ideal mixture value.

6. Re-checking CO (Carbon Monoxide) at idle will provide a reading in an open loop condition, if CO is within limits this confirms catalyst is still efficient in this mode.

7. O2 (Oxygen) reading obtained at idle. Reading provides a measure of oxygen content, relevant for diagnosis of certain conditions.

8. Oxygen sensor voltage swing test to confirm correct oxygen sensor function.

Voltage stuck high or low may indicate fuel mixture errors, see 'Poster Results' for further information.

RESULTS ACTION (POSTER)

EXHAUST LEAK:
Inspect complete exhaust system, including manifold for leaks. To exaggerate leak, partially block off tail pipe during inspection. Exhaust system joints may require re-sealing even if they appear intact, even minute leaks, i.e.

around clamped connection joints will have an adverse affect on emissions reading.

Note: If CO reading was high, this may indicate leak is before the oxygen sensor, i.e. exhaust manifold joint.

RICH MIXTURE

Possible causes:

- **pressure high (manifold pressure).**
- **Valve timing incorrect.**
- **Injectors over-fuelling.**
- **High fuel pressure - kinked return pipe.**

Run TestBook 'Healthcheck' to test complete MEMS system, view results and correct any failures.

RICH MIXTURE WITH MISFIRE

Possible causes:

- **Valves burnt.**
- **Valves bent or seating badly (see Note:).**

Check with KV tester or oscilloscope to diagnose HT related causes. If no HT faults are found, check cylinder compression or carry out cylinder leakage test. Rectify electrical or mechanical cause as necessary.

Note: Condition may be due to valve sticking, refer to appropriate Technical Bulletins for advice. 'K' Series - Bulletin 0001, (engine section) or 'T' Series - Bulletin 0015 (engine section).

WEAK MIXTURE

Possible causes:

- **Fuel pressure too low (e.g. Blocked fuel filter)**
- **Blocked fuel injector.**

Run TestBook 'Healthcheck' to test complete MEMS system, view results and correct any failures.

OXYGEN SENSOR INOPERATIVE

Oxygen sensor testing;

The oxygen sensor operation can be tested via TestBook. If unavailable, use Tool 18G1639. Either can be used to view an actual voltage swing to confirm correct oxygen sensor function.

Note: An added advantage with TestBook is the ability to view other related information, on the same screen, i.e., engine speed, throttle angle, MAP reading, stepper steps, ignition advance, coolant temp, inlet air temp, battery volts, ignition switch and injector dead time.

Oxygen Sensor Check - TestBook:

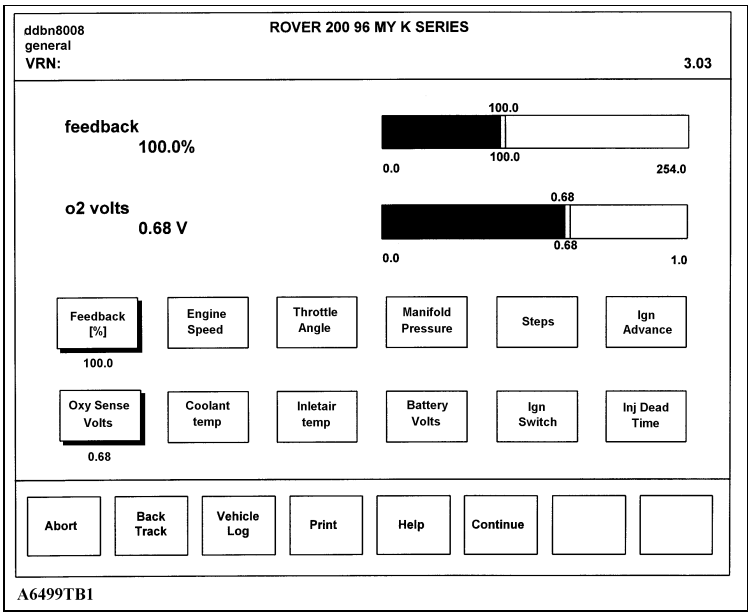
From the welcome screen , select - 'Diagnostic System'.

When requested select appropriate MEMS system.

Proceed as instructed until menu screen appears, select - 'Sub System Tests'.
From this screen select - 'Display Outputs'.
From this screen select - 'General'.
Select OxySense Volts and Feedback % (see illustration 2).

OxySense Volts - See 'Test Results' later in this bulletin for acceptable readings.

Feedback - Display of feedback fuelling correction. This is shown as a percentage of the mapped (open loop) value. Percentage is continuously updated by the MEMS ECM whenever the conditions for closed loop fuelling are present.
High values of feedback (e.g. above 100%) indicate that feed back is attempting to compensate for fuelling being too lean. Lean values (e.g. below 100%) indicate fuelling being too rich.



Note: Misfire condition will be shown as high values as feedback will be fooled into compensating for a system running too lean.

<u>Oxygen Sensor Check - Tool 18G1639 (alternative method)</u>
A voltmeter may be connected between the sensor and engine harness connection.
A tee-in tool is available for this purpose, part number:-
18G 1639 (for square type engine harness connections)

Procedure:
Ensure engine is at correct running temperature.
Switch off engine and connect 'T' lead 18G 1639 between oxygen sensor and engine harness.
Connect 'T' lead voltmeter connections, yellow to voltmeter negative and green to voltmeter positive.

<u>Oxygen Sensor Check - Method (for both TestBook and Tee-in tool use):</u>
Increase engine speed to 3000 r.p.m for approximately 30 seconds then allow to idle, this is necessary to ensure oxygen sensor is at operating temperature. If voltage swings regularly between below 0.4 and above 0.6 volts, sensor is operating correctly. If reading is stuck high or low (see associated readings detailed on poster) this will indicate sensor is not working.

Oxygen Sensor voltage stuck high or low:

If engine has been idling or running at low rpm for long periods prior to test, sensor may have become sooted, road test with engine speed held high in an attempt to clean sensor without removal.

If above fails to resolve condition, remove sensor and view tip, if still sooted, carefully clean and refit to vehicle for re-test.

If sensor voltage refuses to swing and remains high, fault may be rich mixture. Check fuel return lines for kinks or restrictions or carry out fuel pressure check.

If fuel system faults are eliminated and sensor refuses to swing correctly, replace sensor.

Oxygen sensor testing - General;

If the system is working properly, the meter reading will switch regularly between below 0.4v and above 0.6v. The actual meter readings are not too important, the fact that it oscillates between low and high values is enough to prove the system is working and hence, that fuelling is unlikely to be the cause of any running problems.

If during the test, readings did not oscillate but remained high, the mixture is over rich. Check for kinks or restrictions in the fuel return line or use TestBook to diagnose the fuel system.

A constantly low reading could be due to one of two things, either the fuelling is too weak, or the oxygen sensor is not working. With the engine running, clamp the fuel return line for a maximum of 10 seconds, this will create an over rich mixture which in turn should prompt a high voltage reading (above 0.6v) from the oxygen sensor. If this is the case then check for a blocked fuel filter, kinked fuel feed line or any other possible causes.

Note: Fuel hoses must be clamped for a short periods with approved Girling brake hose clamp No. 64947017.

CATALYST FAULT

It is unlikely that the catalyst has failed unless it has been subjected to an unchecked misfire condition or incorrect fuel use. Since a new catalyst is a very expensive component it should only be replaced as a last resort.

A catalyst which has completely failed will on removal from the vehicle either deposit loose matrix particles and when shaken be heard to rattle in casing or if viewed through open end show that matrix is blocked or melted.

MISCELLANEOUS RESULTS

Run TestBook 'Healthcheck' to test complete MEMS system, view results and correct any failures. Healthcheck can be accessed via the following route:

From the welcome screen , select - 'Diagnostic System'.
When requested select appropriate MEMS system.
Proceed as instructed until menu screen appears, select - 'Healthcheck'.

CONCLUSION

Applying poster:

- **Identify emission irregularities by comparing actual readings with those from poster.**
- **Compare result combinations with those from poster for likely cause.**

Recommended diagnostic tools:

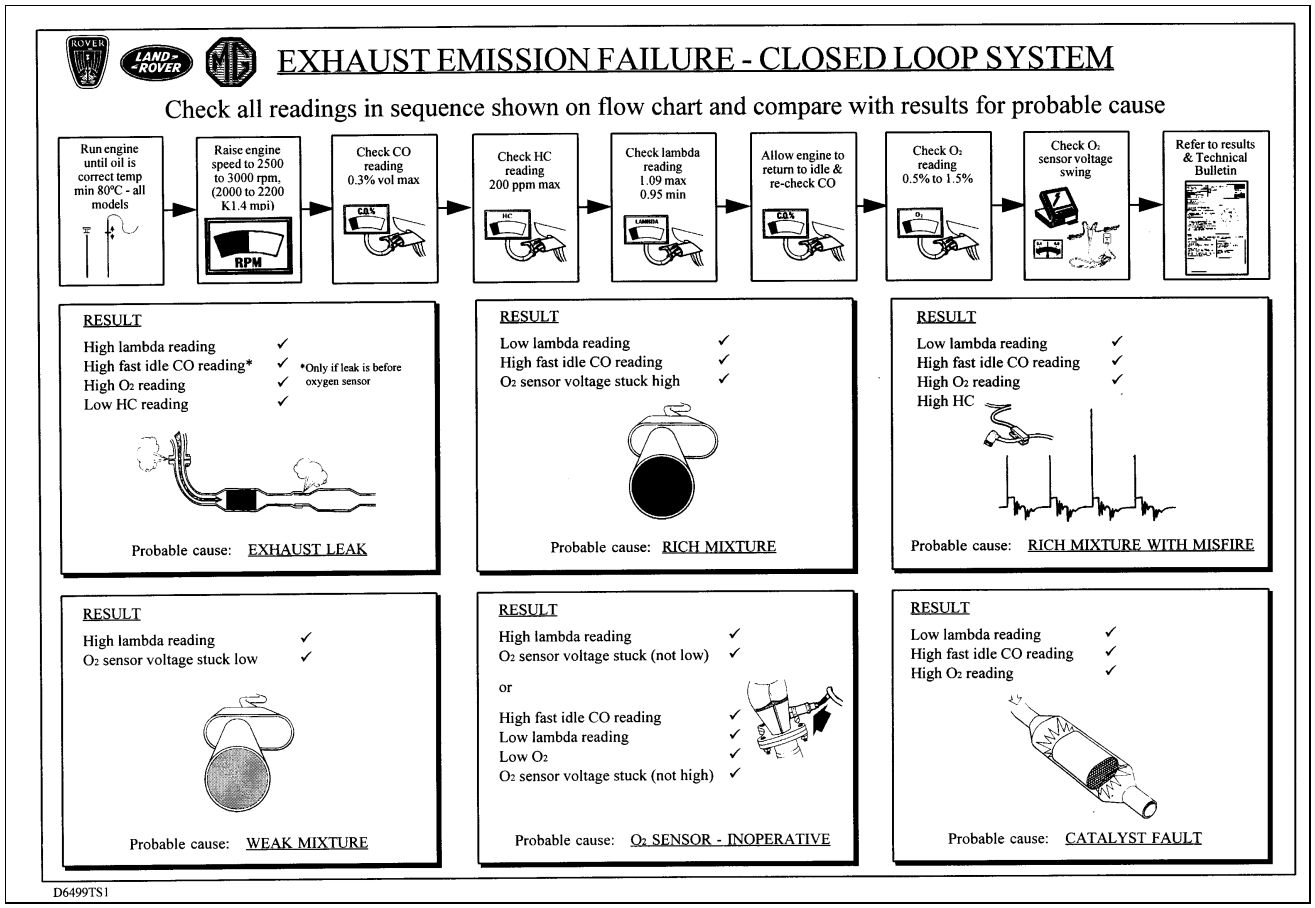
- **Use TestBook (display outputs) or Tool 18G1639 for checking voltage swings.**
- **Use TestBook (Healthcheck) for general MEMS check.**
- **Use oscilloscope to diagnose HT faults.**
- **Use compression tester or leakage tester for checking engine condition.**

PARTS INFORMATION:

Replace as required - not warranty

WARRANTY CLAIMS:

Not applicable.



TECHNICAL BULLETIN

MODEL/DERIVATIVE:
All Models

Bull. Nº: **0001**
CDS. ref: **R6529bu**
Issue: **1**
Date: **23.03.94**

AFFECTED RANGE:
All vehicles with Radio Data System (RDS) Radio.

PROBLEM:
RADIO - POOR RECEPTION - RDS INOPERATIVE

Radios are being returned under warranty with the above alleged faults which, when tested, cannot be substantiated.

CAUSE:
Radio preset buttons have never been used to select locally available stations.

ACTION:
In order for the RDS to work, the radio must be tuned to locally available stations which must then be istored' using the preset buttons in accordance with the ICE handbook.

NOTE:- This is currently a customer assurance and vehicle validation reauirement.

In future, radios returned under the warranty exchange scheme, which show only the manufacturers original test station frequencies on the preset buttons, will be subjected to a handling charge.

PARTS INFORMATION:
Not applicable.

WARRANTY CLAIMS:
Not applicable.

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
New 214/216, New 414/416/420, 111/114, 214/414/220/420, 620 Turbo, 820, Mini

Bull. Nº: **0012**
CDS. ref: **R6538bu**
Issue: **1**
Date: **3.04.96**

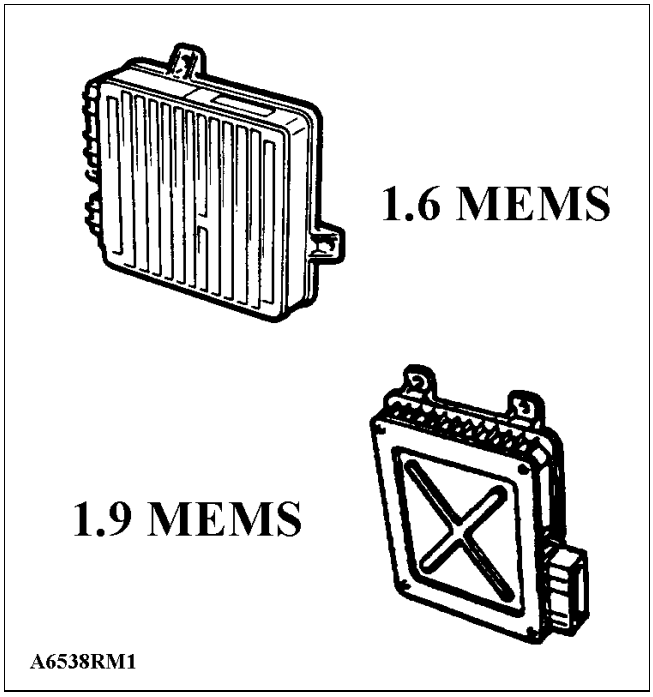
AFFECTED RANGE:
MEMS vehicles only.

All with the following ECM cover identification:-
ECM covers with no screws visible (1.6 MEMS version ECM tin type covers with 4 screws visible, also 'X' impression (1.9 MEMS version)

Note: ECM covers with 6 screws visible are not applicable (1.3 MEMS version)

PROBLEM:
POOR IDLE FOLLOWING ENGINE/MEMS REPAIR - ECU ADAPTION

Following certain Engine/Engine Management related repairs, customer may complain of poor engine idle quality, either too high, too low, idles erratically or has a tendency to stall. Such repair types are as follows:-



Engine replacement.
- **Cylinder head/valve decoke i.e. to correct valve sticking.**
- **Fuel pressure related repairs.**
- **Oxygen sensor replacement.**
- **Injector replacement.**

If vehicle is returned to customer in the condition described it may then be rejected as unacceptable, this may then result in an ECM replacement in an attempt to provide an immediate solution.
Investigation of ECM's replaced under warranty show no real fault exists other than map settings away from standard.

CAUSE:
When any MEMS vehicle develops certain engine component faults which affect tune condition, the ECM will try to 'adapt' in an attempt to correct the tune irregularity. If the source of the problem is subsequently corrected, the

ECM may not immediately re-set back to standard but take several miles and a variety of driving conditions to re-adapt.
All MEMS vehicles have the ability to adapt and will eventually re-adapt on their own following a repair, however 1.6 MEMS and 1.9 MEMS vehicles only can be corrected instantly by using TestBook, see procedure below.

ACTION:
The ECM may be returned to its original default condition by using the 'Re-Set Adaptions' facility introduced with the latest TestBook CD release - 'DRC0003', although this CD is primarily for New 200 & New 400 it may be used for MEMS 'Re-Set Adaption' on any MEMS 1.6/1.9 vehicle by using 'Expert Toolbox'.

Procedure:

Response & Action

1. **Select 'Expert Toolbox'.**

2. **Select New Rover 400, New 200 or other, - Press 'Continue'.**

3. **Enter Vin if New 400 or New 200, press continue, skip by pressing 'Continue' if other models.**
   Note: If no Vin can be entered a Warning message appears, - press 'Ignore'.

4. **If New 400 or New 200, confirm Vin and press 'Continue', skip by pressing 'Continue' if other models.**

5. **'EXPERT TOOLBOX AUTHORISATION' screen appears, press 'Continue'.**

6. **'SYSTEM SELECTION' screen appears - select either engine size 1.4/1.6 or 2.0 for New 400 or 1.4/1.6 for New 200, if other vehicles select engine size as appropriate.**

7. **'MEMS ECM COMMUNICATION' screen appears, prepare vehicle as per screen instructions, then press 'Continue'.**

8. **'INITIALISATION' screen appears with information.**

9. **'Select Required Option' screen appears - select 'ECM Options'.**

10. **Option screen appears, select 'Reset Adaptions'.**

11. **'RESET ADAPTIVE VALUES' screen appears, press 'Continue' and proceed as instructed.**

PARTS INFORMATION:
Not Applicable

WARRANTY CLAIMS:
The above 'Re-Set' procedure should only be carried out following the repair conditions mentioned in the 'Problem' section, therefore use the appropriate MEMS system check SRO as per the SRO manual. This may be used in addition to the causal component SRO time.

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
100, New 200, New 400, Mini

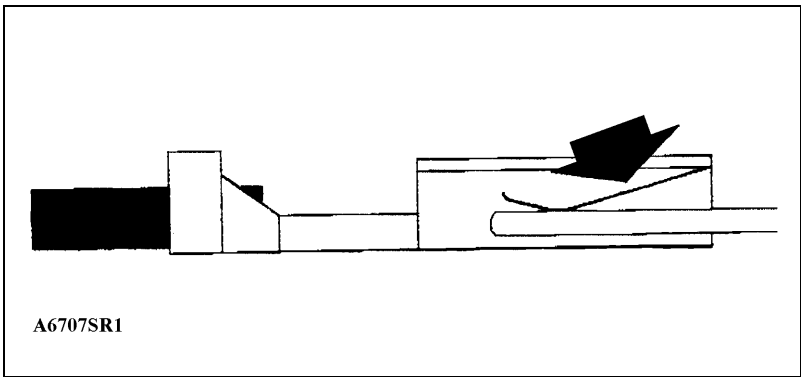
Bull. No: **0024**
CDS. Ref: **R6707bu**
Issue: **1**
Date: **03.04.96**

AFFECTED RANGE:
All vehicles with 5AS alarm systems

PROBLEM:
ALARM ECU CONNECTOR PINS DAMAGED BY TEST PROBES

Intermittent immobiliser and alarm problems caused by damage to the ECU connector pins, this condition may follow a previous repair where incorrect probes have been used.

CAUSE:
The connector uses 2 sizes of contacts pins, 040 and 070. Incorrect test probes will cause damage to the contact spring leaf (arrowed in illustration) and result in intermittent failure.


A6707SR1

ACTION:
The only tools that should be used to probe the connectors on their mating faces are TestBook part numbers DTC0009A or DTC0036A, these contain a male orange probe which can be used for 070 size pins, however there is no probe for size 040 pins.

If size 040 pins require to be probed or if the Testbook tools are unavailable, the only satisfactory way is to snap up the anti-backout flange on either side of the connector and probe from the side where the wires enter.

PARTS INFORMATION:
Not applicable

WARRANTY CLAIMS:
Not applicable

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini, 100, 200/400, New 200, New 400

Bull. No: **0028**
CDS. Ref: **R6957bu**
Issue: **1**
Date: **25.09.96**

AFFECTED RANGE:
Mini - XN 117711 onwards
100 - XP 066946
200/400 - XW 235024
New 200 - All
New 400 - All

PROBLEM:
REMOTE HANDSET, BUTTON DAMAGE

CAUSE:
Either:

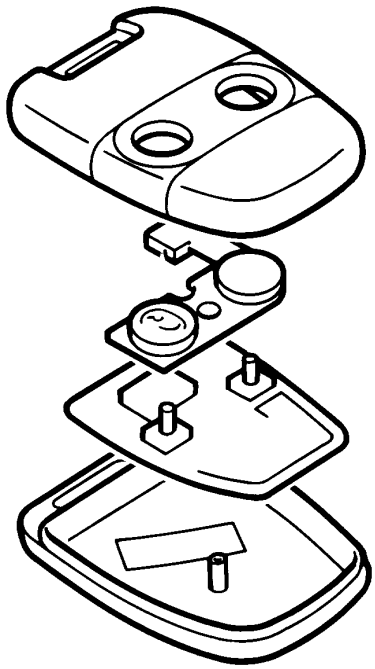
Buttons split (damage by finger nail).
Buttons stuck down (displaced and trapped under casing).

ACTION:
Remote handset service kit, part number YWX101010 introduced to enable button and casing replacement whilst retaining the original transmitter component. This improved housing is supplied with modified rubber buttons to prevent reoccurrence of the above problems.

Note: Anti-static precautions must be observed when performing the procedure.

<u>Replacement procedure:</u>

- **Prise original handset apart, with a small screwdriver, inserted into the cut-out at the rear (key ring end) of the remote handset.**
- **Using finger pressure only, prise apart the two clips holding the printed circuit board and remove it from the remote handset.**



A6957TC1

Note: Handle printed circuit board by its edges only, therefore avoiding any form of contamination to electrical components.

- **Press the new button moulding into the new upper casing.**
- **Clip the original printed circuit board into the new upper housing assembly taking care to align it correctly.**

  Note: Do not stress the thin circuit board material during fitment.

- **Transfer the week/year code label from the inside of the original lower case to the new lower case.**
- **Fit upper housing assembly to the new lower casing supplied in kit.**
- **Fix appropriate type approval label (supplied in kit).**

PARTS INFORMATION:
YWX101010 - Kit remote handset

Kit contents:

- **Upper casing half**
- **Lower casing half**
- **Button moulding**

WARRANTY CLAIMS:
Use Complaint Code: 8K1E
Use S.R.O. 86.77.88/26
Time allowed: 0.10 hour

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bull. Nº: **0018**
CDS. ref: **R7303bu**
Issue: **1**
Date: **5/03/97**

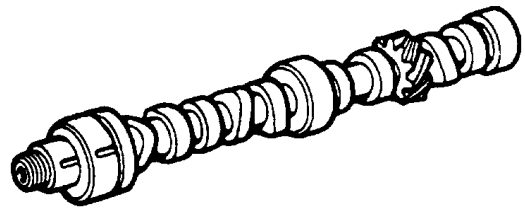
AFFECTED RANGE:
All multi point injection vehicles up to engine number 12A2LK70 345346

PROBLEM:

ENGINE MISFIRE, HESITATION, ETC - CAM RELUCTOR

May also suffer reluctance to rev freely. Condition may be intermittent, i.e. may run normally on some journeys.

CAUSE:
Camshaft reluctor teeth not to specification resulting in irregular cam sensor pick-up. Since the cam sensor only requires synchronising on start-up, it is likely that some starts will not detect an error resulting in normal running for that journey.



A7303RM1

ACTION:
Condition described above will be apparent from new even though condition may not occur on every journey. If no other faults are apparent, e.g. ignition or fuel related then replace camshaft. If symptoms develop after a period of time suspect causes other than cam reluctor.

PARTS INFORMATION:
LGC 105380.....Camshaft

WARRANTY CLAIMS:
Use complaint code: 1H8U
Use S.R.O.: 12.13.02
Time allowed: 11.60 Hrs

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bull. Nº: **0019**
CDS. ref: **R7518bu**
Issue: **2**
Date: **4/06/97**

AFFECTED RANGE:
1997 model year vehicles only, with manual gearbox

Engine number range 342982 to 349174 and with engine prefix's: 12A2LK70 (Mpi) and 12A2DK71 (Spi).

RE-ISSUE INFORMATION:
Ammendment to warranty claims information.

PROBLEM:
OIL LEAK FROM PRIMARY DRIVE GEAR - GALLERY PLUG

Oil leaking from the end cover to flywheel housing joint or starter motor flanges/bolts.

If leakage is only from split pin in the flywheel housing, there is almost certainly another cause.

Leakage is more likely following repeated use of the clutch, i.e. urban type driving conditions.

CAUSE:
Oil leaking between primary drive gear and crankshaft.

Condition is caused by a recent modification to the relief valve drain exit drilling in the cylinder block.

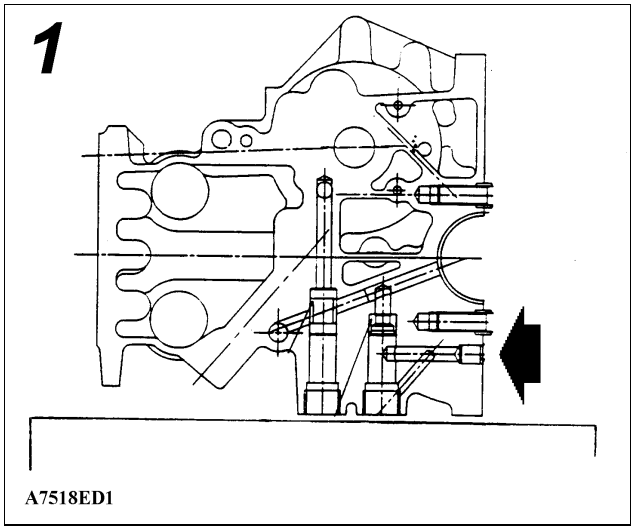
ACTION:

- **Remove oil sealing plug from the relief valve drain drilling at the sump face.**
- **Plug existing 'angled' relief valve drilling at the block rear end face.**

<u>Preparation:</u>
Referring to the Repair manual 'Engine Repairs Section'

- **Remove engine.**
- **Separate engine from gearbox.**
- **Remove oil pressure relief valve assembly.**
- **Place engine on bench with oil filter facing down (engine on its side).**

Sealing Plug Removal Procedure:
Referring to illustration 1 and 2



- **Locate the oil sealing plug (arrowed in illustration 1) situated adjacent to the rear main bearing cap. The plug outer is aluminium and the centre core made from steel.**

- **Using a suitable flat ended punch (illustration 2), gently tap the steel core of the plug until level with the aluminium plug body.**

- **Using a smaller punch (3 mm dia), tap the plug centre core completely through, it should drop clear from the relief valve hole and onto the bench, if it doesn't, lift the engine slightly and retrieve with a magnet.**

IMPORTANT:
The centre core must be retrieved and discarded.

- **Remove rear main bearing cap.**

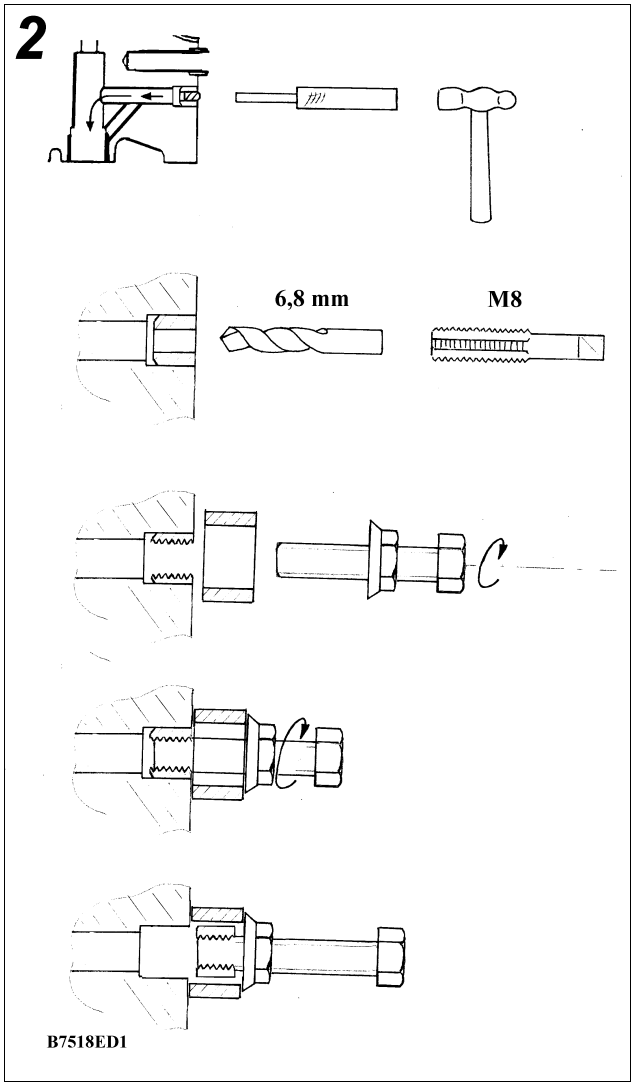
- **CLEANLINESS CARE POINT!**

  Adequately protect the exposed main bearing journal and surrounding 'dirt sensitive' components to prevent debris contamination.

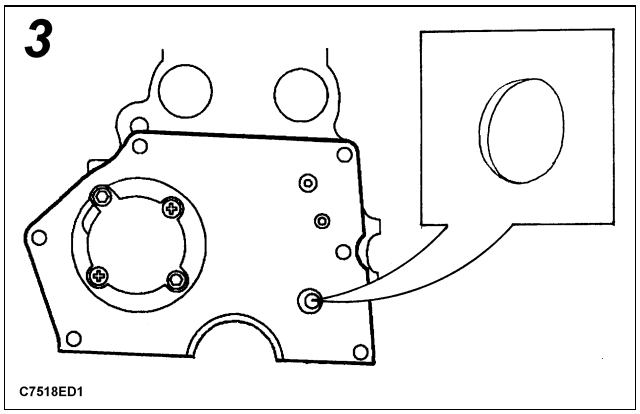
- **Drill out plug with a 6.8 mm drill and tap hole with an M8 tap, load both with grease to reduce swarf contamination.**

- **Assemble an M8 nut bolt and washer/spacer and extract the remainder of the plug by tightening the nut against the spacer.**

- **Clean the surrounding area of swarf and flush out the relief valve hole.**



Insertion of tapered oilway plug:
Referring to illustration 3



- **Locate the oil drilling in the end face of the cylinder block (arrowed), this is a large shallow countersunk drilling leading into a smaller hole.**

  IMPORTANT:
  Carefully remove all traces of oil from oil drilling and tapered plug using a suitable degreaser.

- **Obtain tapered plug, part number LCM 100140. Apply a bead of Loctite 638 around the taper portion of plug and tap securely into the position shown.**

- **Wipe off any surplus Loctite and clean excessive oil from primary gear, flywheel and flywheel housing before re-assembly.**

- **Rebuild engine observing correct torque figures etc.**

PARTS INFORMATION:

LCM 100140 - Plug oilway

LUF 10005 - Oil seal

AHU 1959 - Oil seal

2A 3606 - 'O' ring

GUG 703049 SG - Transmission gasket (pair)

GUG 705563 GM - Housing gasket

WARRANTY CLAIMS:
Use complaint code: 1A3S

Use S.R.O.: 37.20.02/99
Time allowed: 9.70 hrs (MPI - less air con)
Time allowed: 7.80 hrs (SPI - less air con)

Use S.R.O.: 37.20.02/99 (SPI - with air con)
Time allowed: 11.10 hrs

Above SRO represents scheduled time allowed for 'engine and gearbox assembly' remove for access and refit. This should be used with the following additional SRO for sealing plug removal and fitment of tapered plug (engine on bench).

Use S.R.O.: 12.37.88/26
Time allowed: 0.50 hrs

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
MINI

Bull. Nº: **0031**
CDS. ref: **R7532bu**
Issue: **1**
Date: **19.11.97**

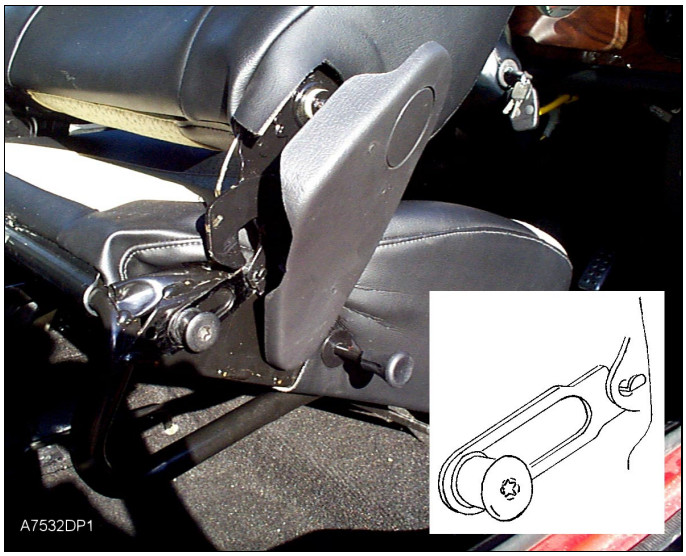
AFFECTED RANGE:
Vin 134455 (97 MY) to 151917 only

PROBLEM:
SEAT CUSHION DAMAGED - UNRESTRAINED TIPPING

Seat cushion cover damaged by hinge escutcheon when seat squab is tipped fully forward.

CAUSE:
Unrestrained squab tipping resulting in hinge escutcheon fouling cushion cover.

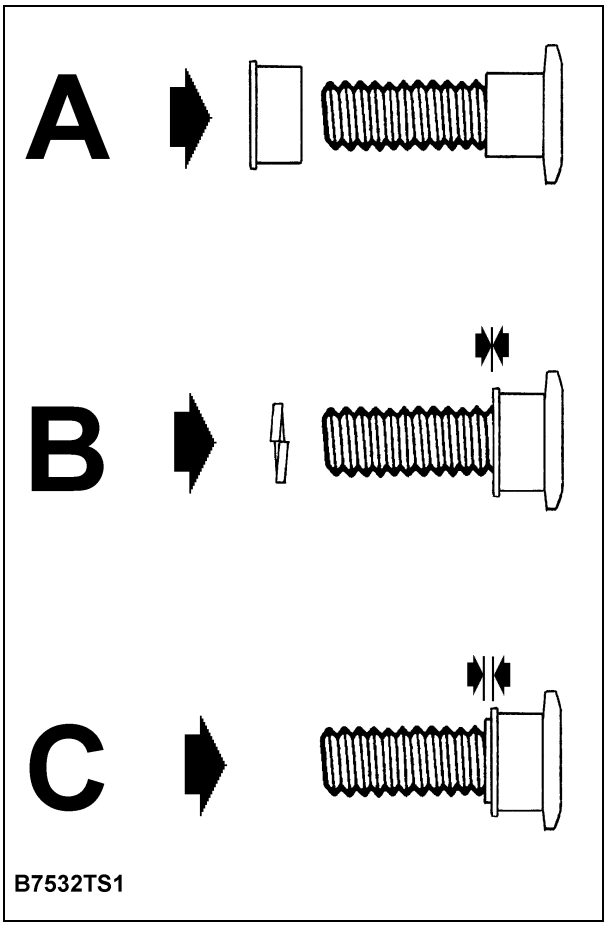
ACTION:
The damaged seat cushion cover(s) will require replacement.
To prevent re-occurrence of seat cover damage, fit two check straps per seat part number HZU 100050.
This modification should be applied to both front seats even if opposite seat has not sustained damage requiring cover replacement.
All vehicles from Vin 151917 onwards have check straps fitted.



<u>Fitting instructions</u>:

1. **Carefully disengage the rear escutcheon fixing from one seat side to expose hinge.**
   Note: try not to bend escutcheon excessively as this may break plastic fixings or bruise the outer escutcheon surface.
2. **Remove the black Torx 50 squab striker and plastic sleeve. If a flat washer is also fitted retain this for re-fitment.**
3. **Reverse the sleeve position on striker so that sleeve flange is now adjacent to thread (illustration 'A').**

4. **View sleeve end in relation to striker shoulder. If flush with shoulder (illustration B), fit a suitable size spring washer to provide a shoulder extension, 'see parts information'. If shoulder protrudes slightly (illustration 'C'), no spring washer is required.**
5. **Fit check strap by hooking tab into redundant hole position in hinge (see photo inset).**
6. **Re-fit and tighten striker bolt so that the exposed striker shoulder or spring washer locates check strap slot. If a flat washer was originally fitted, refit between check strap and seat frame.**
7. **Re-fit escutcheon rear fixing.**
8. **Repeat modification for opposite side of seat.**
9. **Ensure that squab tips satisfactorily and that seat locks securely in upright position.**



PARTS INFORMATION:
HZU 100050 - Buffer stop (check strap)...quantity required - 4

WM 110001 - Spring washer... quantity required - 4

<u>Seat covers:</u>
Refer to parts fiche for correct part dependent on vehicle model and colour.

WARRANTY CLAIMS:
Use Complaint code: 8B1J

Use S.R.O 78.30.88/31
Time allowance 0.40 Hrs (includes fit straps to both front seats)

Use S.R.O. 78.30.01
Time allowance 1.15 Hrs (single cushion cover renew)

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
100, 200, 400, 200 Coupe/Cabriolet, 400 Tourer, Mini

Bull. Nº: **0027**
CDS. ref: **R7965bu**
Issue: **1**
Date: **23.07.97**

AFFECTED RANGE:
All vehicles - progressive introduction from March 1997

PROBLEM:
BODY PRIMER AND PROCESS CHANGE - INFORMATION

Concerns may be expressed over the change to appearance of various inner body panels.

CAUSE:
Rover Cars, along with a number of other motor manufacturers, are gradually introducing coloured primers as part of a drive to further improve the quality of the paintwork. This will provide the following benefits:

- **Improved opacity and lustre of the exterior colour coat; (the colour coat no longer needs to obliterate the light grey primer previously used).**
- **A significant reduction in dust inclusions in the exterior colour coat and clearcoat. The bonnet and boot lid/ tail door remain closed during most of the final spraying operations.**
- **Impact damage from road debris should be less obvious and lead to a reduction in customer criticism of stone chips.**

Whilst line trials were completed during the latter part of 1996, full introduction for Rover 400, Rover 400 Tourer and some of Rover 100 volume took place gradually between March and June 1997. Nightfire Red and Platinum Silver will not be introduced until September 1997. Introduction for the remainder of Rover 100's, Rover 200 (including Coupe & Cabriolet) and Mini will start from July 1997.

Note:
The engine bay, engine bay shuts, boot floor, boot lid/tail door shuts, and boot lid/ tail door inner panels will be finished in coloured primer. The boot lid/tail door shuts will receive clear coat over the coloured primer WITH NO FINAL COLOUR COAT BEING APPLIED. This is quite normal and will not be regarded as a fault.

ACTION:

Please ensure that your Bodyshop staff are aware that coloured primers should be used for refinishing to ensure a good colour match to the original paint. Your paint supplier will be able to support you with the relevant formulation.

PARTS INFORMATION:

Not applicable

WARRANTY CLAIMS:

Not applicable

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
100, 200, 400, Mini, 200 Cabriolet, Coupe, 400 Tourer, (200/400 previous model)

Bull. Nº: **0030**
CDS. ref: **R8101bu**
Issue: **1**
Date: **1.10.97**

AFFECTED RANGE:
All vehicles fitted with Lucas 5AS security ECU's, introduction is as follows:

100 - All vehicles

200 - All vehicles

400 - All vehicles

Mini - From 95 model year onwards, start Vin 103113

200/400 including Cabriolet, Coupe and Tourer - From 94.5 MY onwards start Vin 001001

PROBLEM:
SECURITY ECU PROGRAMMING - PARTS CHANGE

The introduction of a new non-programmed ECU may initially cause part ordering confusion. Technicians may also be unfamiliar with the correct programming technique.

CAUSE:
Previously, many pre-programmed ECU's were required to cover a variety of models and territories resulting in parts ordering and stocking problems.

ACTION:
Two new 'non-programmed' ECU's have been introduced allowing many model versions and territories to be programmed from the same ECU.

The new ECU can only be fitted to vehicles having the latest Lucas 5AS security ECU.

<u>Identification of vehicles having Lucas 5AS is as follows:</u>

- **Check model has Lucus 5AS (see 'Affected Range').**
- **The latest 5AS ECU has two connectors, one grey 26 way and one white 12 way (the white connector is unused on some models).**

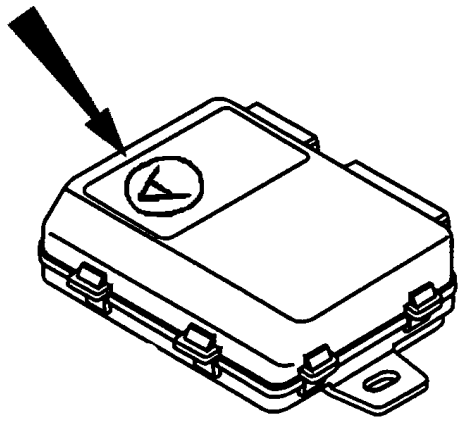
Ordering correct part:

The replacement ECU will require to be the same radio remote frequency as the original, hence two ECU part numbers (see 'Parts Information').

As a general guide 433 MHz frequency remotes are fitted to UK and European vehicles and 315 MHz to the rest of the world. If the territory frequency is uncertain, confirmation may be established as follows:

The frequency of the original ECU can be identified by a single large letter printed on the ECU casing:

- **Letter 'L' 'H' 'R' or 'A' indicates frequency is 433 MHz (replacement ECU has ID 'A').**
- **Letter 'M' 'K' 'S' 'T' or 'B' indicates frequency is 315 MHz (replacement ECU has ID 'B').**



A8101RM1

The frequency of the remote transmitter can be identified by carefully opening the casing and viewing the printed circuit board from the battery side. Look for a small silver cap (approximately 8 mm dia), the markings on this will indicate frequency.

- **1207 indicates 433 MHz**
- **1239 indicates 315 MHz**

ECU location:

100 - Located on the facia rail behind the glove box.
200 - Located under right hand side of facia for right hand drive models and left hand side for left hand drive models.
400 - Located behind front of centre console.
Mini - Located behind the facia/instrument pack.
200/400 - As per new 200.

ECU programming:

The new 5AS ECU can only be programmed using TestBook CD - DRE0001 onwards. Use TestBook 'Diagnostics' to program ECU.

Select: 'Security' - 'Programming Options' - 'Market Program'.

This TestBook sequence will then allow ECU programming to the correct vehicle type and territory.

NOTE: 400 series 97.5 MY onwards (automatic and manual) and 96 MY (1.6 automatic) cannot be programmed with DRE0001, for these models use DRE0002.

Confirmation that ECU has been programmed (200 and 400):
Applies only to 200 and 400 series (not previous models).

If the ECU has not been successfully programmed, a 'Not Market Programmed' warning will sound when ignition is turned on. This consists of the following:

A few seconds of the usual engine immobilised 'two-tone' chime, followed by a few seconds of silence and then a repeat of the chime etc. This will sound regardless of immobiliser cancellation with remote.

When ECU has been programmed to the relevant market the warning sound will cease.

Re-programming:
If an error occurs during programming, the same ECU may be re-programmed more than once.

PARTS INFORMATION:
YWC105330 - ECU (433 MHz identification code 'A')
YWC105340 - ECU (315 MHz identification code 'B')

For vehicles prior to those quoted in affected range (prior to Lucas 5AS introduction), ECU part numbers are unchanged.

WARRANTY CLAIMS:
Refer to the original cause of ECU failure and apply warranty claim as appropriate.

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
All models

Bulletin Nº: **0004**
CDS. ref: **R8381bu**
Issue: **1**
Date: **27.05.98**

AFFECTED RANGE:
All vehicles

PROBLEM:
MILLENNIUM COMPLIANCE CONCERN

Concern over millennium compliance of vehicle components.

ACTION:
Advise the following on request:

All Rover Group vehicles are millennium compliant in their standard production form. None of the vehicle components utilise 'calendar locked real time clocks' and therefore will be unaffected by the passing of the millennium.

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
All models

Bulletin Nº: **0009**
CDS. ref: **R8411bu**
Issue: **1**
Date: **23.12.98**

AFFECTED RANGE:
All vehicles fitted with front mounted air bags (SRS)

PROBLEM:
AIR BAG DEPLOYMENT - MISUNDERSTANDING OF PRINCIPLE

Belief that an air bag under certain situations should have deployed, and concern that it may not have been operational.

CAUSE:
The basic principle of an air bag design is as follows:

To only deploy in a frontal accident of such force as to endanger the seat occupant WHO IS WEARING A SEAT BELT from coming into contact with the forward interior structure of the vehicle e.g. steering wheel / column.

NOTE: **The seat belt is the primary restraint and the air bag is designed to provide additional protection.**

The critical factors which determine air bag deployment are:

- **Direction of impact.**
- **Rate at which the vehicle decelerates in an accident.**

Situations where air bag may not deploy are as follows:

- **Side, rear, corner or rollover damage. Such damage may be severe but does not involve heavy frontal impact.**
- **Frontal impact where significant damage is evident to the relatively 'soft' exterior panels but where the structure, i.e. longitudinal rails, bulkhead, sills and floor, remain largely undamaged. This is particularly applicable where the impact has been above the level of the body longitudinal rails e.g. where the vehicle has partially under-ridden the rear of a heavy goods vehicle.**

An effective example which illustrates the need for a carefully designed air bag deployment threshold is in the frequent situation where a vehicle strikes a kerb or minor object before it strikes a major object. Clearly, the air bag is NOT required to deploy when striking the minor object as it will have deflated by the time the major object is struck.

ACTION:

Should an enquiry be received in respect of a front mounted air bag non deployment, the following procedure should be followed:

Examine the vehicle to establish direction of impact. Also ascertain, if possible, whether seat belts were being worn and if so, whether the driver contacted the steering wheel. If it was not a frontal impact or the driver (wearing seatbelt) did not contact the steering wheel, then the front mounted air bag operated correctly in NOT deploying. If, having considered the above, it is your judgment that the front mounted air bag should have deployed, please contact your technical help desk for guidance.

Help Desks:

- **UK After Sales Technical Support (Rover/MG/Mini) - Tel: 01865 745333, Fax 01865 746515**
- **Dealers outside UK - contact your National Sales Company**
- **International markets - contact your Import Distributor**

PARTS INFORMATION:

Not applicable

WARRANTY CLAIMS:

Not applicable

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
All models

Bulletin Nº: **0004**
CDS. ref: **R8413bu**
Issue: **1**
Date: **10.02.99**

AFFECTED RANGE:
All vehicles

PROBLEM:
WHEEL ALIGNMENT SETTING PROCEDURE - MISINTERPRETATION

Incomplete wheel alignment setting procedure resulting in incorrect wheel alignment.

CAUSE:
Wheel alignment instructions supplied by various wheel alignment equipment suppliers are incomplete. Implications are that 'run-out' compensation is not required.

ACTION:
WHEEL 'RUN-OUT' COMPENSATION:
The normal wheel setting procedure is to register the alignment equipment measuring head against the wheel rim, however this is not a tightly controlled and toleranced area of the wheel. Any dimensional variation in this area will result in a level of 'run-out' relative to the axis of the wheel, causing inaccurate geometry readings which will need to be compensated for.

When carrying out wheel alignment checks using ANY type of alignment equipment, 'run-out' compensation MUST be carried out. ALWAYS TAKE AN AVERAGE OF 3 READINGS.

PARTS INFORMATION:
Not applicable

WARRANTY CLAIMS:
Not applicable

TECHNICAL BRIEF

MODEL/DERIVATIVE:
All Models

Ref: **RT0003bu**
Issue: **1**
Date: **17/03/97**

AFFECTED RANGE:
All Disc (English only)

PROBLEM:
IN SUFFICIENT DETAIL BEING RELATED TO TESTBOOK HELP DESK

CAUSE:
The need for this information not fully communicated and appreciated, resulting in delay in handling the problem.

ACTION:
The following information is the basic minimum that the Technician needs to communicate to the Help Desk either by fax or phone:

1. **Dealer Name.**
2. **Corporate I.D. No.**
3. **Contact Name with phone and fax number.**
4. **TestBook Serial/Model No (located on rear of TestBook screen).**
5. **Screen ref/Node ID when the fault occurred (alpha-numeric data displayed top left hand corner of the screen).**
6. **Compact Disc reference (printed on the disc or displayed on welcome screen under the "i" button).**
7. **RDS release number (displayed on top right of screen).**
8. **Vehicle details: including model, model year, engine, transmission, derivative.**
9. **Details of test being used.**
10. **Error message displayed on the screen.**
11. **Cabling Diagram being used. This information should be given either verbally or by using the TestBook Help Desk report form.**

PARTS INFORMATION:
Not applicable

WARRANTY CLAIMS:
This Brief is intended only as a suggestion to resolve a problem, therefore an SRO and time is not provided. Claims should be submitted in the normal way by using published SRO's and reducing time claimed where applicable. If non schedule operations are required the claim should be completed, noting the requirements of the Policy & Procedure Manual page 'Two ·5'.

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

No: **0046**
Ref: **X1885bu**
Issue: **1**
Date: **22.03.2000**

AFFECTED RANGE:
All

PROBLEM:
AUXILIARY DRIVE BELT RIB CRACKING

Cracked ribs, either noted by the customer, or identified during vehicle service.

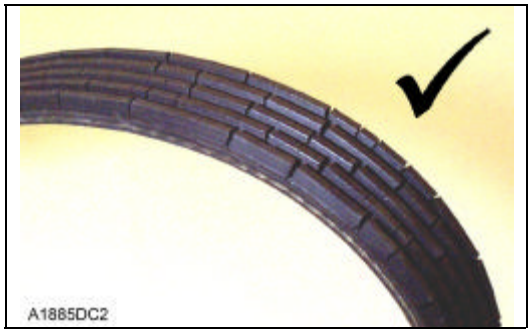
CAUSE:
Cracks are entirely normal and a result of the belt ageing process.

ACTION:
Following a customer concern, examine belt around its entire length.
The illustrations show drive belts in 'acceptable' and 'unacceptable' conditions.

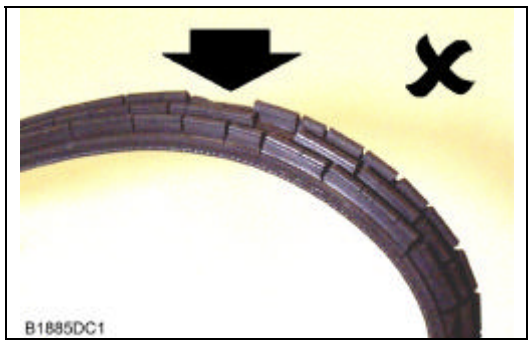
- ***Illustration 1*** **shows a belt with typical rib cracking which must be regarded as acceptable.**
- ***Illustration 2*** **shows a belt with abnormal degradation, e.g. portions of ribs missing. A belt in this condition must be replaced.**

Conclusion: No action should be taken providing ribs are still intact, i.e. they have no loose or missing portions.

1



2



PARTS INFORMATION:
Not applicable

WARRANTY CLAIMS:
Not applicable

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bull. Nº: **0045**
CDS. ref: **X6255bu**
Issue: **1**
Date: **22.03.2000**

AFFECTED RANGE:
All

PROBLEM:
USE OF WIRING HARNESS CONNECTORS

Wiring repairs/connections - uncertainty of correct method.

CAUSE:
Unsuitable wiring connectors used for wiring repair resulting in subsequent failure in service.

ACTION:
If wiring rectification is considered necessary and the existing wiring section or connector cannot be replaced, an approved crimp type connector can be used.

The connectors are available in 3 sizes and must be selected to match cable size, the correct fitting procedure must also be applied.

CRIMP CONNECTOR FITTING PROCEDURE:

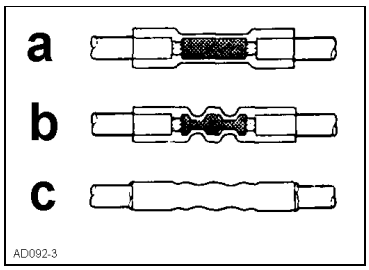
Tools required:

- **Crimping tool (with colour and crimp size identification).**
- **Heat gun.**

1. **Strip wires 7.5mm and insert into crimp barrel of the correct size connector ('a' in Illustration).**
2. **Match the colour and size of the crimp connector with the colour and size of the crimp cavity on the crimping tool and apply crimps 'b'.**
3. **Apply heat gun to crimp connector until tubing shrinks and seals connector 'c'.**

CONNECTOR SIZES:-
Ensure correct crimp connector is selected to match the cable conductor size, refer to *PARTS INFORMATION* **to order/select correct connector.**

NOTE: **Crimp connectors are permissible providing not more than two wires are inserted into any one cavity and connector is of adequate size for total conductor size.**



PARTS INFORMATION:

Part number:	Description:	Colour identification:	Conductor size:	Unit of issue
GES165	**Connector**	**Red**	**0.25 - 1.65 mm²**	**25**
GES166	**Connector**	**Blue**	**1.04 - 2.63 mm²**	**25**
GES167	**Connector**	**Yellow**	**2.63 - 6.64 mm²**	**10**

WARRANTY CLAIMS:
Information only.

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bulletin Nº:	**0006**
CDS. ref:	**X8386bu**
Issue:	**1**
Date:	**1.07.98**

SUBJECT:
RAVE TECHNICAL BULLETINS - CD INTRODUCTION (English Language Only)

INTRODUCTION:
In addition to the already successful RAVE Technical Information CD's, Rover Group are now launching a collection of Technical Bulletin CD's which will be re-issued quarterly.

NOTE:
THESE WILL BE IN ENGLISH ONLY TO BEGIN WITH. TRANSLATED VERSIONS ARE TARGETED FOR RELEASE DURING QUARTER 4 1998.

Specific CD's, one for each brand name will be issued initially to each relevant dealer franchise free of charge.

Each CD contains an archive of Technical Bulletins from 1994 up to the date stated on the CD label.

The CD program provides two ways of finding Technical Bulletins, by 'Index Selection' or 'Word Search'. Both methods can be used to find Technical Bulletins quickly and when viewed will have the advantage of utilising the latest built in electronic links to view additional related documents, e.g. Workshop Manual pages. Included with this Information Bulletin is the first issue of the RAVE Technical Bulletins CD, (where applicable, see note above).

PC REQUIREMENTS:
The RAVE CD-ROM has been designed to run on a wide variety of standard PC's. However, for optimum viewing, the following requirements should be treated as a minimum.

- **Intel 486DX2/66 (or equivalent)**
- **16Mb RAM**
- **Approximately 10 Mb free disk space**
- **CD-ROM drive (quad speed or better recommended)**
- **SVGA Graphics Adapter (capable of 800X600 resolution 256 colours)**
- **Windows 3.1 / Windows 95 / Windows NT 3.51 / Windows NT 4.0**

CAUTION: **Do <u>not</u> attempt to use RAVE Technical Bulletin CD's with TestBook.**

GETTING STARTED:

Insert your CD into your PC CD-ROM drive, 'autorun' will begin to operate. If operating RAVE Technical Bulletins for the first time, a set-up operation will be performed, this will install the necessary Acrobat support files. Follow instructions on screen until complete. Once set-up has been performed, the next time your CD is inserted, RAVE Technical Bulletins will load immediately.

The following are intended as initial steps only, for full information follow the guidance notes provided in 'Guide' located in the CD 'Information' directory.

1. **When the brand logo appears, click the logo centre to activate next screen.**
2. **The 'Caution' page appears, acknowledge and click 'OK' to continue.**
3. **The main menu screen appears with directory options, i.e. 'Index Selection', 'Word Search' and 'Information'.**
4. **To open any directory, click the right pointing triangle adjacent to the option. Additional directories can be opened until only a file title exists. Click on the chosen title text to open document.**
5. **To close documents, either double click the square symbol to the far left of the Acrobat title bar, click file then close or press the 'Ctrl' and 'W' keys on your keyboard.**
6. **To understand other techniques such as 'Linked Documents' and 'Word Search' etc, refer to the 'Information' 'Guide'.**

CD STORAGE:

RAVE Technical Bulletins CD's should be stored in the recently provided CD ROM Wallet. Insert behind the 2nd divider titled 'Technical Bulletins'.

OBTAINING HELP:

- **For new user guidance, follow the CD on-line 'Information' 'Guide'.**
- **For additional help with Acrobat function tools etc, select 'Help' then 'Reader On-line Guide, from the Acrobat title bar.**
- **Additional program notes can be obtained by clicking the 'Readme' file found in the program root directory.**
- **If program cannot be started, or you require additional help, contact the After Sales Technical Support help desk by:**
  - **Fax - 01865 746653 (using fax form provided).**
  - **Telephone - 01865 746699 (for urgent contact only).**

CONCLUSION:

The purpose of RAVE Technical Bulletins is to provide a new dimension in technical communication. Although it is intended that paper Technical Bulletins will continue for the foreseeable future, electronic methods can provide many additional features. It is our intention to improve on RAVE Technical Bulletins as technology allows and any improvements or modifications suggested by yourselves will be thoughtfully considered.

Please use the fax form provided for any comments you may have.

RAVE *Technical Bulletins*

Help Desk:
Fax: #44(0) 1865 746653

Please use this fax to report any concerns you may have regarding your **RAVE** technical bulletin CD. Please ensure all relevant information is included to allow a prompt reply.

Dealer Address :

Corporate ID :
Contact Name :
Telephone :
Fax :

Dealer Stamp

CD version number: *Found on CD label or bulletin index page*

Issue Date: *Found on CD label or bulletin index page*

Tick method of viewing: CD ☐ CDS ☐

If concern is with a particular bulletin, index or search screen please indicate the file name in question, this can be found in the coloured bar at the top of the Acrobat window.

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Enter Details of problem:

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bulletin Nº: **0008**
CDS. ref: **X8408bu**
Issue: **1**
Date: **25.11.98**

RAVE TECHNICAL BULLETINS CD - VERSION 2

VERSION DESCRIPTION:

Since the introduction of 'Version 1' CD (produced in English language only), a significantly modified CD 'Version 2' has been issued worldwide to all dealers who have previously received paper bulletins in the following languages:

ENGLISH	**ITALIAN**
DUTCH	**PORTUGUESE**
FRENCH	**SPANISH**
GERMAN	

Technical Bulletins are now available for viewing in all of the above languages. Due to limited translation availability, non English bulletins are only available from 1996 onwards. However English speaking users can view English language bulletins from 1994. Users in countries speaking a selection of above languages can choose the language of their choice.

The operating system for RAVE Technical Bulletins is Acrobat Reader. To provide the correct language version of Acrobat Reader, the CD setup program has been specially modified. The setup routine differs considerably from that of RAVE Technical Bulletins Version 1 or that of the already established RAVE Technical Information CD.

VERSION 2 - SETUP ROUTINE:

Step 1. ***Windows 95/98***
Insert CD and allow autorun to load language selection screen.

Windows NT
Setup requires PC to be logged on as administrator, (ask your local systems administrator for help). Insert CD and allow autorun to load language selection screen.

Windows 3.1 / 3.11
Insert CD and double click file - SETUP.EXE from the CD
route directory in file manager, the language selection screen should appear.

Step 2. Choose a language by clicking one of the language buttons.

Step 3. Follow instructions on screen. The last message to appear will ask if you want to restart windows 'now' or 'later'. If you want to install more languages select 'later' and repeat Step 2 above. Close Rave Technical Bulletins and Acrobat Reader when complete.

Step 4. Acrobat Reader will now have been installed in the chosen language(s). To open RAVE Technical Bulletins, insert CD again and allow to autorun (Win 95/98/NT) or insert CD and double click RAVE icon (Win 3.1/3.11) as appropriate.

Step 5. Click the chosen language button once more from the selection screen and the program will run.
NOTE: **If a different language button is selected this time from that of the initial setup, an additional setup routine will run to include this language.**

Step 6. Follow screen information and proceed onto main Technical Bulletin screen. If you have not used RAVE or Acrobat before, refer to *BASIC OPERATION* below for guidance.

BASIC OPERATION:

Opening and closing directories:

You will notice that the options listed on the left of your screen have a right pointing triangle. By clicking on this triangle the directory opens and the triangle then points down. Open any further directories until only a list of options exist. Finally click on option of choice to open and view file. To close a directory click on downward pointing triangle. The directory then closes and points to right.

Closing files/bulletins:

To close any file/bulletin when viewing is complete, either double click the square symbol to the far left of the Acrobat title bar or select 'File' then 'Close' from title bar or press keys 'Ctrl' and 'W'.

ON-LINE GUIDE:

User Information can be obtained by selecting 'Guide' from the 'Information' directory e.g.

- **Index Selection (method of selecting bulletins by section and title)**
- **Word Search (alternative method if section and title is unknown)**
- **Linked documents (feature provided to allow viewing of additional related documents).**

PC OPERATING SYSTEMS AND RELATED RAVE CD FEATURES:

Operating system	RAVE feature
Windows 95 / 98	· **Initial set-up as guided after inserting CD or selecting 'SETUP' from the CD route directory in explorer.** · **CD will 'auto-run' on insertion if feature is turned on. Program can also be run from 'RAVE' icon on desktop.**
Windows NT	· **Initial set-up can only be performed with PC signed on as administrator.** · **Proceed as guided after inserting CD or selecting 'SETUP' from the CD route directory in explorer.** · **CD will always 'auto run' on insertion. Program can also be run from 'RAVE' icon on desktop.**
Windows 3.1 / 3.11	· **Initial set-up by selecting 'SETUP.EXE from the CD route directory in file manager.** · **Once set-up, program can only be run by selecting 'RAVE' icon from Program Manager.**

OPERATING PROBLEMS:

Fault:	Suggested action:
Colour reproduction is poor. **Colour screens images appear slowly.**	**Recommended screen size settings are 600 X 800.** **Recommended colour settings are 64K** **Consult your PC administrator for advice.**
Program stops running	**Restart windows. If program still refuses to run, repeat SETUP routine after first running 'REINSTAL.EXE' from the CD route directory.**
CD will not 'Autorun' (Windows 95 / 98)	**Look for 'Auto Insert' in 'Control panel' 'System' 'Properties', ensure box is checked.**
Various features will not open, i.e. 'Word Search'	**If feature has been working correctly previous to now but has since stopped, the fault is likely to be PC memory low. Close any unwanted applications and try again. If still a problem, close program and windows to release memory then re-open. If fault continues, your PC may require more memory, (16 MB RAM minimum is recommended).**

MISCELLANEOUS PROBLEMS:

- **Use the attached Help Desk fax form to report any additional problems. Send completed form to the fax number provided on form header.**

- **The fax number supplied will provide either direct contact with RAVE/TestBook helpdesk (UK dealers) or with your local Rover Group National Sales Company Technical helpdesk.**

- **Importers should send their completed fax form to the International Help Desk, fax number: +44 (0) 1865 745487**

VERSION 2 CD IDENTIFICATION:

Model	**CD reference number**
Land Rover - all models	**VDW 101060**
Rover - all models	**VDW 101070**
Mini	**VDW 101080**
MGF	**VDW 101090**

NOTE: **This CD cannot be purchased by part number order. If you have not obtained your CD copy or it has arrived damaged, contact the relevant helpdesk area with the fax form provided.**

RAVE *Technical Bulletins*

Help Desk:
Fax: #44(0) 1865 746653

Please use this fax to report any concerns you may have regarding your RAVE Technical Bulletin CD. Please ensure all relevant information is included to allow a prompt reply.

Dealer Address :

Dealer Stamp

Corporate ID :

Contact Name :

Telephone :

Fax :

CD version number: *Found on CD label or bulletin index page*

Issue Date: *Found on CD label or bulletin index page*

If concern is with a particular bulletin, index or search screen please indicate the file name in question, this can be found in the coloured bar at the top of the Acrobat window.

								.pdf

Enter details of problem:

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bulletin Nº: **0041**
CDS. ref: **X8414bu**
Issue: **1**
Date: **10.02.99**

AFFECTED RANGE:
Option fit and all 'Mini 40th Anniversary' vehicles

RADIO/CD HEAD UNIT INTRODUCTION - ENTERING SECURITY CODE AND REGION

A new combined radio/CD head unit has been introduced into the vehicle range starting with the above limited edition models. These new head units have a unique method of security code entry and a radio region requirement.

CAUSE:
All new head units are fitted with the default radio region - 'AREA EUROPE' irrespective of destination country. For vehicles outside of the UK or Europe, the required radio region will have to be entered.

ACTION:
Before releasing new vehicle to customer, ensure radio has been set correctly. In addition to the familiar security code, a change to the default radio region will be required on vehicles which go to markets outside UK and Europe.

ENTERING SECURITY CODE:
(ALL VEHICLES)

1. **Turn radio on, 'CODE' will be displayed.**
2. **Use preset buttons 1 to 4 to enter each digit of the code.**

Example:

CODE = 1234
Press preset button 1 - until '1' appears in display
Press preset button 2 - until '2' appears in display
Press preset button 3 - until '3' appears in display
Press preset button 4 - until '4' appears in display

3. **When the correct 4 digit code is displayed, press the '▷' tuning button, a radio station will now appear and radio is operational.**

NOTE: **If an incorrect code is entered three consecutive times, a delay period of 1 hour commences, during this delay period 'WAIT' appears in the display. DO NOT switch radio off (leave ignition switched to position 1), at the end of the delay period, 'CODE' reappears in the display and the correct code can be entered.**

ENTERING RADIO REGION:
(VEHICLES OUTSIDE UK AND EUROPE ONLY)
The procedure for entering the radio region is as follows:

1. **Enter security code as described above.**
2. **Turn radio 'off'.**
3. **Within 8 seconds of turning radio back on, press the 'm' button until display changes (this should be between 5 - 15 seconds).**
4. **Using the ' ▬ ' button (adjacent to tone control button), cycle through the display options until the region 'AREA EUROPE' is displayed (this is the pre-installed default radio region).**
5. **Press 'preset 1' button until the required country region is displayed, i.e. 'AREA JAPAN'.**
6. **Press the '▷' button, the display will blink indicating new radio region has been stored.**

PARTS INFORMATION:
Not required

WARRANTY CLAIMS:
Not required

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bulletin Nº: **0011**
CDS. ref: **X8417bu**
Issue: **1**
Date: **17.02.99**

RAVE CDs - MAINTAINING UPDATES

Rave CDs are produced in two variants, 'RAVE Technical Information' and 'RAVE Technical Bulletins'. Each contain significantly different information. Both CD types require the user to be familiar with their identification and differences.

CD CONTENTS:

Technical Information CD	***Technical Bulletins CD***
Includes: Workshop Manuals Overhaul Manuals Electrical Circuit Diagrams Body Repair Manuals Owners Handbook In-car Entertainment (ICE) Book PDI and Maintenance Repair Times Warranty Codes	Includes: Technical Bulletins

FREQUENCY OF RAVE CD ISSUE:
The frequency of RAVE CD updates depend on type, e.g. Technical Information CDs are produced randomly as required, unlike Technical Bulletin CDs which are produced at regular three monthly intervals.

UPDATING RAVE CDs:
Before replacing expired RAVE CDs for a new issue, confirm they are of the same type, i.e. compare model, version number and date. The version number is always one higher than the CD to be replaced. Refer to *RAVE CD IDENTIFICATION.*

DISPOSAL OF EXPIRED RAVE CDs:
It is vital that expired RAVE CDs are disposed of correctly. Failure to achieve this may result in accidental re-use with unpredictable consequences.
A satisfactory method of making the CD unusable is to cut the disc with a suitable pair of scissors.

RAVE CD IDENTIFICATION:

B8417TC4

	CD label identifier	*Technical Information CD*	*Technical Bulletins CD*
A	CD type	Quoted in user language on 'pink' background	Quoted in English on 'black' background
B	Model identifier	<u>CD types:</u> • Rover 600, 400, 200, 100 • MGF • Mini Cabriolet, Cooper • Land Rover Range Rover Discovery Defender • Land Rover Freelander • Land Rover Discovery II	<u>CD types:</u> • Rover All Models • MG • Mini • Land Rover All Models
C	Version number	Incremental with each new CD issued	
D	Country code	Abbreviation for language version	Not applicable CDs are multi-language
E	Date identifier	Expiry date (if applicable)	Bulletins *'UP TO'* date, e.g. includes Technical Bulletins up to the CD production date.
F	Part number	Provided for identification purposes	

OBTAINING RAVE CD ACCESSORIES:

Additional RAVE CD wallets, dividers and CD pockets can be obtained by ordering through your normal parts ordering process, quoting the following numbers:

RCL0258 CD Wallet & Dividers
RCL0259 CD Pockets (pack of 10)

OBTAINING ADDITIONAL OR REPLACEMENT RAVE CDs:

If replacement RAVE CDs are required due to problems being experienced, a request should be made to the RAVE/TestBook helpdesk by using the fax form provided.

Additional copies of CDs over and above your normal allocation are not normally provided. However, if a request for additional copies is considered to be justified, the help desk will advise on the procedure necessary to obtain them.

To obtain assistance on RAVE/TestBook issues, the following lines of communication should be observed:

- **UK dealers should fax completed forms to the UK help desk (see attached fax form for number).**
- **Dealers outside the UK should fax completed forms to their NSC or importer (attached fax form includes European NSC fax numbers).**
- **Importers and NSCs should fax completed forms to the UK help desk.**

RAVE Feedback

Help Desk Fax:
01865 746653 (UK)
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+32 (0) 2.725.59.35 (Belgium)
01.39.98.40.77 (France)
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Technical Information CD : ☐ Technical Bulletins CD : ☐

Model type : ☐ *Found on CD label*

CD part number: ☐ *Found on CD label*

PC operating system: Windows 3.1/3.11 ☐
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TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

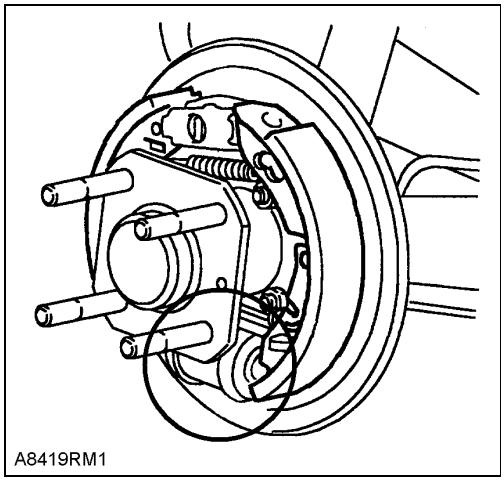
Bulletin Nº: **0007**
CDS. ref: **X8419bu**
Issue: **1**
Date: **17.03.99**

AFFECTED RANGE:
All vehicles

PROBLEM:
BRAKE WHEEL CYLINDER SUSPECT LEAKAGE

Wheel cylinders considered to be leaking when carrying out routine service inspection.

CAUSE:
Incorrect diagnosis. In the majority of instances, fluid seen around a wheel cylinder boot is assembly fluid. Assembly fluid is used by the wheel cylinder manufacturer to assist the piston to cylinder assembly process. If excess amounts are used inadvertently, fluid may be forced past the cylinder boot and become visible.


A8419RM1

ACTION:
DO NOT replace brake wheel cylinder if fluid signs are isolated to cylinder boot only and are showing no additional brake fluid loss or lining contamination signs.

PARTS INFORMATION:
Not applicable

WARRANTY CLAIMS:
Not applicable

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bulletin Nº: **0025**
CDS. ref: **X8420bu**
Issue: **1**
Date: **2.06.99**

AFFECTED RANGE:
All vehicles up to VIN XN 172842

PROBLEM:
ENGINE STEADY BUSHES WEAK - MODIFICATION

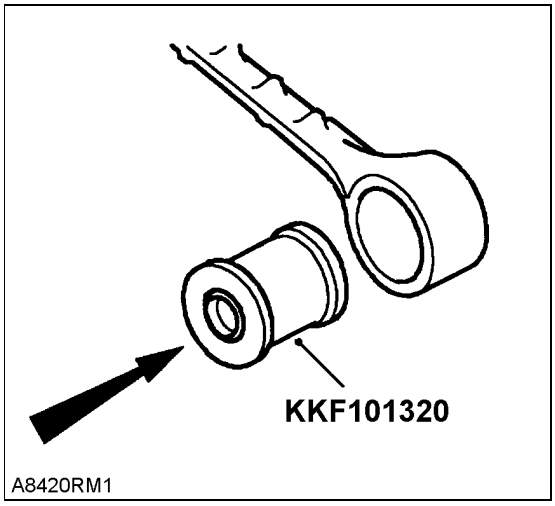
Knock from engine compartment when clutch is engaged or throttle is applied.

CAUSE:
Upper engine steady bushes not capable of withstanding increased engine torque*.

Therefore bushes have become weak or worn prematurely.

* **Current engines i.e. 1298cc MPI produce considerably more torque than earlier 998 cc carb type engines for which the original bushes were designed.**

ACTION:
To increase upper engine steady bush durability, replace the 2 upper rubber bushes for single bush part number KKF101320.



NOTE: **This bush cannot be used on the lower tie bar. This is due to the fixing bolt being a different size to the upper.**

1. **Remove upper engine steady from vehicle and remove worn bushes and spacer tube from steady.**

2. **Press new single bush KKF101320 complete with bonded internal spacer tube into engine steady. To assist fitment, the new single bush assembly can be pushed into steady with the help of a vice and a suitable spacing tube such as a socket, (there is no special tool available for this purpose).**

3. **Refit upper engine steady to vehicle.**

PARTS INFORMATION:
KKF101320 Bush - engine steady - upper

WARRANTY CLAIMS:
Use Complaint Code: 5B2J

Use S.R.O.: 12.45.16
Time allowance:
0.65 Hrs - SPi
0.50 Hrs - MPi

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bulletin Nº: **0043**
CDS. ref: **X8479bu**
Issue: **1**
Date: **19.01.2000**

AFFECTED RANGE:
All vehicles with MEMS multi point injection

PROBLEM:
COOLING FAN RUNS CONTINUOUSLY – TEMPERATURE SENSOR

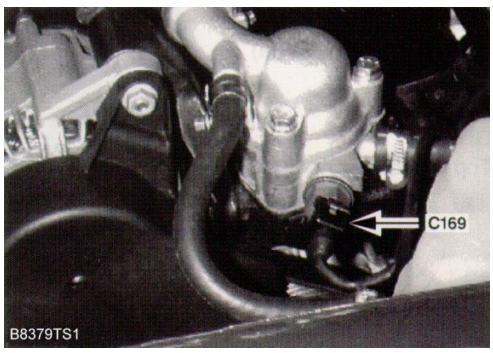
Poor engine idle quality may also be reported.

CAUSE:
Fretting corrosion of the coolant temperature sensor connector.
Normal engine vibrations occurring over a period of time cause slight connector to sensor movement, connector fretting corrosion can then occur which may result in an open circuit condition.

ACTION:
A service fly-lead with modified sensor connector is now available. This part can be fitted by following the instruction provided below.

1. **Ensure radio code is available and disconnect battery negative terminal.**
2. **Disconnect connector C169 from the coolant temperature sensor (see illustration 1).**
3. **Disconnect the sensor lead securing clip from the coolant expansion tank bracket.**
4. **Referring to illustration 2A, measure approximately 220mm back from the connector, then cut through and discard this section of lead.**

1

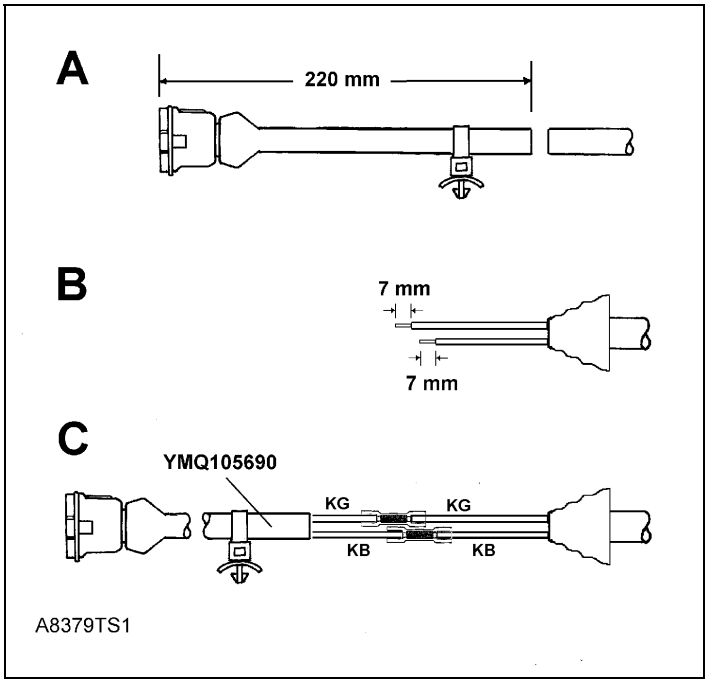


5. **From the cut end of the remaining lead section, peel back approximately 50mm of the outer protective sheathing and stagger cut the wires. Strip approximately 7mm of insulation from each wire (see illustration 2B).**
6. **Ensuring correct wire colour matching, connect new service link lead YMQ105690 to each harness wire using Duraseal type connectors (see illustration 2C).**

NOTE: **See also, Techical Bulletin; Electrical 007 - USE OF WIRING HARNESS CONNECTORS**

7. **Re-position protective sheathing to cover Duraseal connectors.**
8. **Secure new lead to expansion tank bracket with the attached plastic clip.**
9. **Fit the new lead to temperature sensor ensuring connector is correctly latched.**
10. **Re-connect battery and enter radio code.**
11. **Before returning vehicle to owner, turn ignition on and confirm that cooling fan is not running.**

2



PARTS INFORMATION:
YMQ105690 Service lead - coolant temperature sensor

WARRANTY CLAIMS:
Use Complaint Code: 7U3Z

Use S.R.O.: 26.25.88/27
Time allowance: 0.30 Hrs

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bulletin Nº:	**0009**
CDS. ref:	**X8499bu**
Issue:	**2**
Date:	**5.07.2000**

AFFECTED RANGE:
From VIN XN 185511 onwards

RE-ISSUE INFORMATION:
Introduction of Havoline XLC coolant and clarification of recommended coolant types for current and previous vehicles.

Please destroy your existing copy and replace with this Issue.

PROBLEM:
COOLANT - CHANGE TO SPECIFICATION

Recent advances in coolant technology have resulted in a number of changes to the specified coolants for Rover vehicles. This could result in confusion over the correct application and compatibility.

CAUSE:

- **From the above VIN, Havoline XLC coolant has been introduced on production.**
- **Clarification required for vehicles filled with previous coolant, Havoline AFC (Issue 1 of this bulletin referred).**
- **Clarification required for vehicles prior to the introduction of Havoline AFC.**

ACTION:
Havoline XLC is an Organic Acid Technology (OAT) product and is currently used in all Rover Group products to commonise coolant application. This product (orange / pink in colour) is an 'extended life' anti-freeze and summer coolant.

<u>Service instructions</u>
For all vehicles from the introduction point quoted in *AFFECTED RANGE***, use only Havoline XLC (Unipart OAT) for top-up or refill, (see** *PARTS INFORMATION* **for part number details).**

<u>OAT coolant identification</u>
All vehicles production filled with Havoline XLC coolant have a yellow OAT expansion tank identification / warning label.

For coolant types applicable to current and previous vehicles, refer to the table below for change / introduction points, description and part number information.

MGF - recommended coolant products

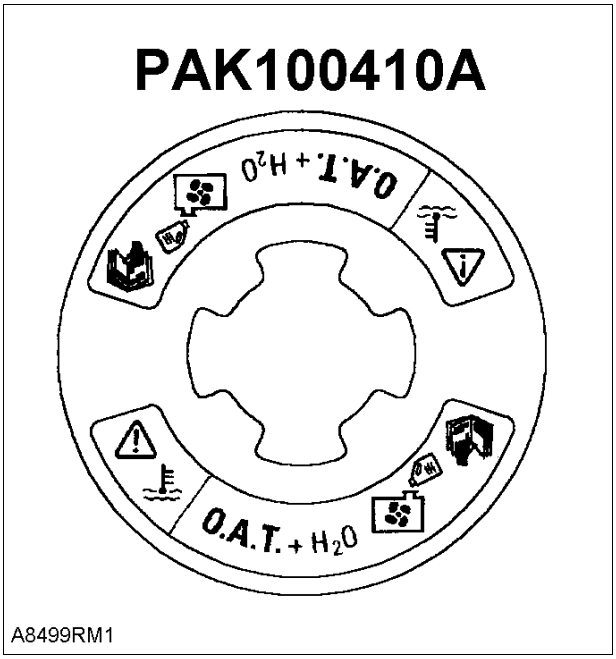
Model:	*Vin range:*	*Coolant colour:*	*Under bonnet coolant label:*	*Coolant type:*	*Part number:*
Mini (XN)	Up to XN 178038	Yellow / Green	Black filler neck ring label	Unipart Superplus 3	GEC1001 - 1 litre GEC1002 - 2 litre GEC1020 - 20 litre GEC1205 - 205 litre
Mini (XN)	XN 178039 to 185510	Blue	Black filler neck ring label	Unipart AFC	GEC6025 (25 litre)
Mini (XN)	XN 185511 onwards	Orange / Pink	Yellow filler neck ring label	Unipart OAT	GEC5025 (25 litre) *

*** 1 litre and 5 litre containers of this coolant will be available in due course.**

THE PRODUCTS QUOTED IN THE TABLE ABOVE ARE THE ONLY ROVER APPROVED COOLANT TYPES AND MUST *NOT* BE MIXED WITH ANY OTHER SPECIFICATION COOLANT OR MIXED TOGETHER.

Please ensure that all technicians and routine service staff are aware that use of non-approved coolant can have an adverse effect on cooling system performance and durability and that Warranty may be compromised.

For coolant renewal periods, refer to the appropriate Maintenance Check Sheet.



For future servicing convenience, it may be desirable to update the specified coolant in an earlier vehicle by replacing it with Unipart OAT (XLC), e.g. at the next change interval. This is permissible providing that the cooling system is first drained and flushed at low pressure as described in the Workshop Manual, repair number 26.10.01.
When Unipart OAT (XLC) coolant has been added to such a vehicle it will be necessary to replace the existing black filler neck label with the OAT warning label coloured yellow, part number PAK100410A (see illustration). This will indicate that coolant specification has been changed.

PARTS INFORMATION:

GEC5025 - Unipart OAT (XLC) coolant - 25 litre

NOTE: 1 litre and 5 litre containers of the above product will be available in due course.

PAK100410A - Filler ring neck label (OAT)

GEC 6025 - Unipart AFC coolant - 25 litre

GEC1001 - Unipart Superplus 3 coolant - 1 litre

GEC1002 - Unipart Superplus 3 coolant - 2 litre

GEC1020 - Unipart Superplus 3 coolant - 20 litre

GEC1205 - Unipart Superplus 3 coolant - 205 litre

WARRANTY CLAIMS:

Not applicable

TECHNICAL BULLETIN

MODEL/DERIVATIVE:
Mini

Bulletin Nº: **0051**
CDS. ref: **X8507bu**
Issue: **1**
Date: **5.07.2000**

AFFECTED RANGE:
All vehicles

PROBLEM:
BATTERY LEADS LOOSE - LOW MILEAGE VEHICLES

- **Owner reports vehicle will not start or vehicle suffers electrical failure.**
- **Recent feedback from Rover Assistance have shown a significant increase in this type of failure occurring soon after vehicle purchase.**

CAUSE:
Battery leads not checked for tightness at PDI. Vehicle may have had battery disconnected prior to sale and temporarily re-connected to allow transfer.

ACTION:
While carrying out routine under bonnet PDI checks, it is important that both battery leads are checked for tightness.
Failure to ensure this can result in customer dissatisfaction early in the vehicle life.

Please ensure that all technicians and routine service staff are aware of this important requirement.

Related information:
See also 'DEALER COMMUNICATION' letter SL/005/2000 (sent to UK dealers only) dated 3 March 2000.

PARTS INFORMATION:
Not applicable

WARRANTY CLAIMS:
Not applicable