

# TECHNICAL INFORMATION



## Intermittent Failure of Engine to Start

No: 86/02/00/NAS  
Ref: 86/26/97/NAS  
Issue: 1  
Date: 03/10/00

### AFFECTED VEHICLE RANGE:

Range Rover (LP)

Up to XA410503

### SITUATION:

#### INTERMITTENT NO-CRANK CONDITION

The customer may complain of an intermittent "no-crank" condition on GEMS equipped Range Rover vehicles. All possibilities such as electrical connections, low battery, bad starter or starter inhibitor switch have been investigated and eliminated as a cause.

### RESOLUTION:

#### MODIFY IMMOBILIZATION STRATEGY



**NOTE:** This TIB replaces TIB 86/26/97/NAS.

Using the "FOUT" tool provided by Land Rover, follow the procedures outlined in this bulletin to re-code the GEMS immobilization strategy. Insertion of the "FFFF" code will avoid the possibility of security system induced no-cranking symptoms.

### TOOL INFORMATION:

LRNAFOUT..... "FOUT" TOOL

Shipped by Land Rover to each retailer  
Not available for order

### WARRANTY CLAIMS:

86.77.89/36..... Time 1.00 hr.  
Modify Immobilization Strategy

**FAULT CODE: Y**

*Normal warranty policy and procedures apply*

### REPAIR PROCEDURE

#### INSPECTION OF ELECTRICAL CONNECTIONS

1. Remove the terminals from the connector housings to inspect the pin and socket terminals and the quality of the wiring crimps for each of the following:

CONNECTOR	CAVITY	COLOR	DESCRIPTION/LOCATION
C112	5	B	BeCM
C114	5	BY	BeCM
C505	22	BY	GEMS ECM
C507	26	B	GEMS ECM
C106B/C506B	1	B	RH rear of engine compartment beneath coolant expansion tank
C106B/C506B	4	BY	RH rear of engine compartment beneath coolant expansion tank

2. Cautiously deform each pin and socket to improve connection.

TIB	CIRCULATE:	Service Mgr	Warranty	Workshop	Body Shop	Parts
86/02/00/NAS	TO	X	X	X	X	X

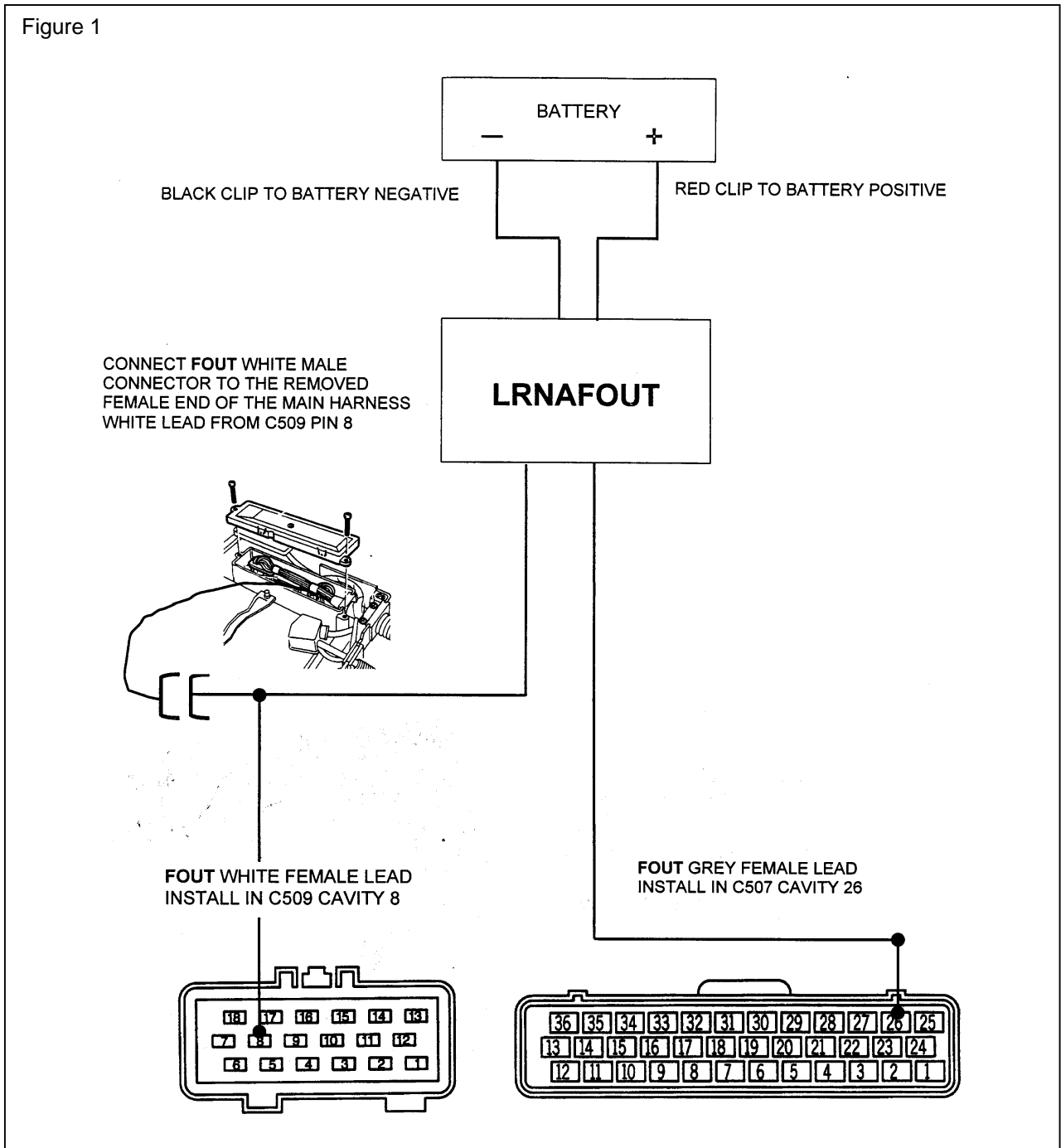
# TECHNICAL INFORMATION



No: 86/02/00/NAS

3. Assemble connectors.
4. Use an ohmmeter to verify continuity between the following:
  - C112 cavity 5 to C507 cavity 26
  - C114 cavity 5 to C505 cavity 22.
5. Verify that neither circuit is short-circuited to vehicle ground.

Figure 1





## REPAIR PROCEDURE

### “FOUT” BOX CONNECTIONS

1. Refer to Figure 1 and connect the FOUT box as follows:
  - Access the GEMS connectors.
  - Locate connector C509 (black 18-Pin connector) and disconnect from the ECM.
  - Identify Pin 8 (white lead) and **carefully** remove the white Pin 8 lead from the connector cavity.
  - Insert the white **female** connector from the FOUT box into the Pin 8 location.
  - Connect C509 to the GEMS ECM.
  - Connect the white **male** connector from the FOUT box to the white female main wiring harness connector that was originally in connector C509 Pin 8 cavity.
  - Locate GEMS connector C507 (red 36-pin) and disconnect from the GEMS ECM.
  - Identify Pin 26 (black lead) and **carefully** remove the black Pin 26 lead from the connector cavity.
  - Connect the grey lead from the FOUT box into the Pin 26 cavity.
  - Connect C507 to the GEMS unit.
2. Connect the FOUT box black alligator clip to battery negative terminal.
3. Connect the FOUT box red alligator clip to battery positive terminal.

### RUN GEMS ECM SECURITY SEQUENCE USING TESTBOOK

1. Hook up Test Book using the blue cable.
2. Select DIAGNOSTIC SYSTEM.
3. Select GEMS NAS.
4. Select SUBSYSTEMS TESTS.
5. Select ECM options.
6. Select ECM security reprogram.
7. When prompted “Do you want to proceed with GEMS ECM security learn” answer “YES.”
8. Proceed through the GEMS ECM SECURITY LEARN MODE until the screen says “GEMS ECM security sequence has been successfully completed.”
9. Select CONTINUE to exit diagnostic.

### VERIFICATION OF CORRECT GEMS LEARNING

1. Wait 25 seconds for the GEMS ECM to power down.
2. Disconnect connectors C507 and C509 from the GEMS ECM.
3. Disconnect all FOUT box leads from the battery, the vehicle harness and from connectors C507 and C509.
4. Connect the white vehicle harness lead to connector C509 Pin 8.



**NOTE: Leave the black lead for C507 Pin 26 disconnected temporarily.**

5. Install connectors C507 and C509 onto the GEMS ECM.
6. Attempt to start the vehicle. If the vehicle starts, the “FFFF” code was properly programmed into the GEMS ECM.
7. Shut off the engine and wait 25 seconds for the GEMS ECM to power down.
8. Remove connector C507 from the GEMS ECM and connect the black vehicle harness lead to C507 cavity 26.
9. Install connector C507 onto the ECM and assemble the car.