



Date:xx.09.2012 Model: Federal Elise & Exige '05 - '07 Model Year Number: 2012/01R USA

Copy files should be maintained by:

Service Manager		Service Reception		Supervisor		Parts Manager	
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TITLE:

Service level replacement of crossover oil cooler hose and fitment of a service level oil line hose kit.

REASON:

To reduce the potential for oil cooler hose leaks.

Background

It has been determined that oil cooler hose leaks have occurred in a small number of USA specification vehicles manufactured between 1 June 2004 and 30 November 2006. The leak can occur at either of the crimped joints in the assembly joining the rubber hose to its metal connector end fittings. The cause of this defect has been attributed to an inconsistent manufacturing crimping process.

Risk

A failure of the oil cooler line may result in oil being deposited on the wheel and/or tire and/or brakes. This could cause reduced or loss of control and reduced braking efficiency which could result in a crash. There is also an increased risk of fire because of the presence of flammable vapour.

In January 2012 a letter was sent to all affected vehicle owners notifying them that Lotus had acknowledged this concern. The letter also included items to monitor for indications of oil leaks and a recommended course of action in the event that any were detected. The letter also stated that Lotus would be in contact again as soon as a campaign remedy was available.

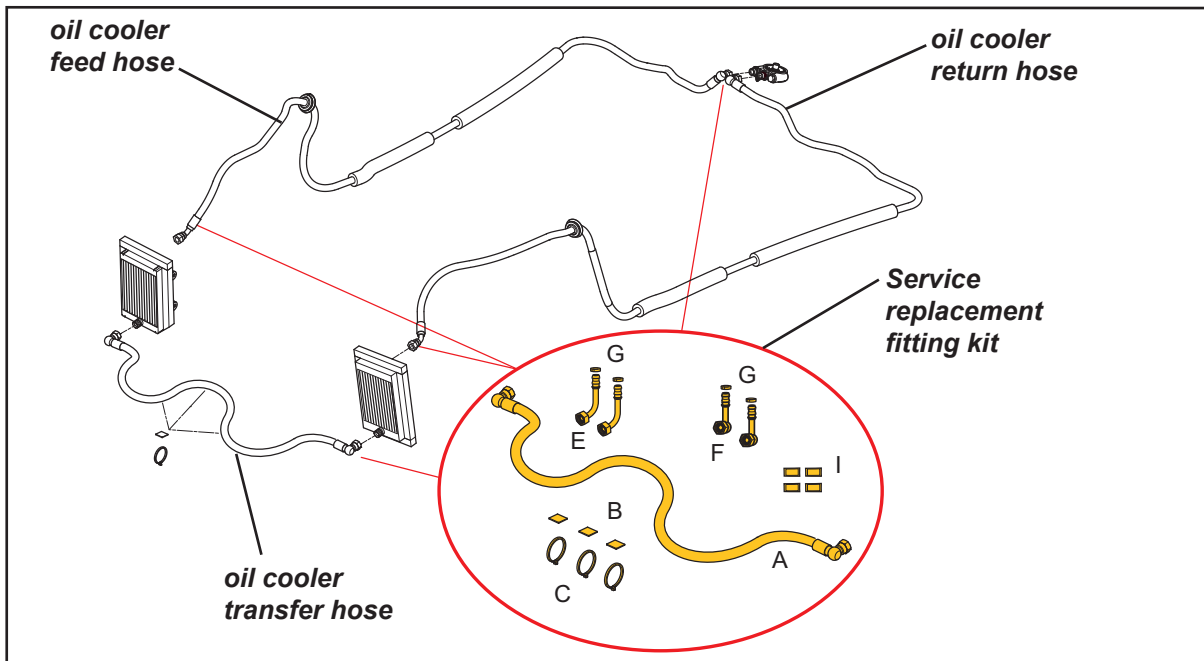
ACTION:

Lotus Cars can now offer an Aftersales oil cooler line rectification kit consisting of a service level replacement transfer hose and replacement connector fittings for both front to rear oil feed and return hoses.

- Affected vehicle owners have now been informed that a precautionary safety recall applies, and advising them to contact their dealer to have the necessary rectification work carried out. A specimen letter is attached for information.
- Please check and identify any affected VIN (Vehicle Identification Numbers) against your dealer inventory or dealer demonstrators VIN number records.
- There are in excess 5000 vehicles applicable to this recall action; any affected vehicle by campaign status will be displayed if its VIN is entered onto DC611 on the Lotus Dealer Connect warranty system.
- **IMPORTANT** Dealers should immediately check any cars in their sales stock or demonstrator fleet, or any affected customer cars currently on site. Federal law requires that any vehicles in dealer inventory are rectified before retail delivery.

Method of Repair

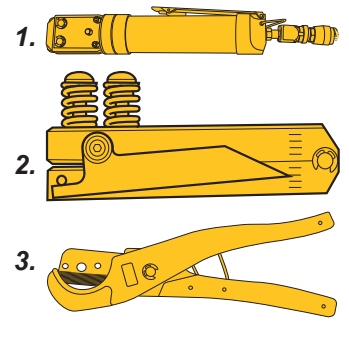
The repair does not require the LH or RH hoses to be withdrawn from the vehicles side sill panels, so reducing the number of ancillary components that have to be removed or disturbed to carry out this rectification work.

Aftersales oil cooler line rectification kit


Parts Required	Part Number	Qty
Oil cooler line rectification kit*	A120KXXXXXS	1/vehicle

Tools required

Item	Tool Description	Part Number	Qty
1.	Oetiker Pneumatic Pincer tool	T000TXXXXF	1/workshop
2.	Pincer jaw pressure testing tool	T000TXXXXF	1/workshop
3.	Hose cutter	T000TXXXXF	1/workshop



*Kit consists of

Item	Part Description	Qty/kit
A.	Oil cooler transfer hose	1
B.	Cable tie base	3
C.	Cable tie	3
D.	Oil seal	4 (not illustrated, already fitted within parts E&F)
E.	Hose connectors to coolers	2
F.	Hose connectors to sandwich plate	2
G.	Oetiker stepless ear clamps	4
H.	Scrivet, wheelarch liner	8 (not illustrated)
I.	Clamp fitting template	4

All Dealers have been mandatorily issued an Oetiker pneumatic clamp crimping tool, crimping tool pressure tester and hose cutter as well as a quantity of oil cooler line rectification kits. Additional kits are also available to order on Lotus Dealer Connect as required.

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IMPORTANT: Due to the high oil pulse pressure found within the cooler lines, you must **ONLY USE** the Oetiker crimping tool in conjunction with the clips supplied in the rectification kit to carry out this repair.

An Oetiker dealer helpline is available in the event that any issues arise with the crimping tool, and if necessary a new tool can be dispatched from Oetiker direct to the dealer for next day delivery.

Oetiker USA contact details

Address:
Telephone
Email:

Procedure

Vehicle preparation:

1. Remove the rear undertray - see Elise Service Notes introduction section AA.2 for information.
2. Remove the front clamshell - see Elise Service Notes section BR.6 for information.
3. Remove the front undershield - see Elise Service Notes introduction section AA.2 for information.
4. Galvanic corrosion may occur between the oil hoses steel union nuts at their connection to the aluminum threads of the front mounted coolers, it is essential to apply a liberal qty of a suitable release agent around the area of all four cooler unions before attempting to release them.

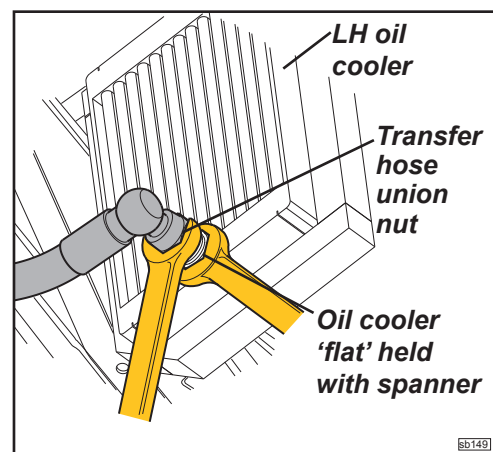
Transfer hose

Removal:

1. Disconnect the oil cooler transfer hose union connections from the LH and RH coolers. Lower the hose and allow the oil to drain from both the hose and cooler into a suitable container(s), plug cooler ports to minimize oil loss.

IMPORTANT: It is essential that the 'flats' on the base of the oil cooler union threaded connection are held using an open ended spanner whilst loosening the hose union nut. Failing to follow this procedure may result in damage to the oil cooler.

2. Cut the cable ties securing hose to the underside of crash structure and remove the hose from the vehicle.

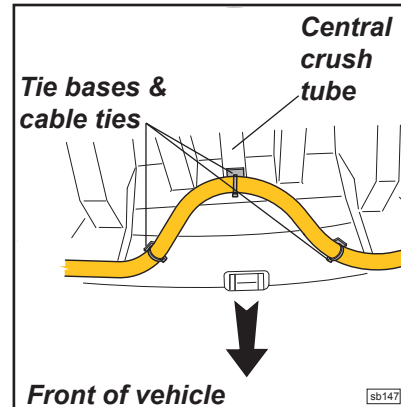


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Renewal:

1. Renew any of the cable tie bases that have been pulled away from the underside of the crash structure during the hose removal.
2. Clean and inspect the oil cooler union threads as necessary in preparation to receive the new transfer hose.
3. Remove any plugs temporarily fitted to the oil cooler ports.
4. Fit the new hose to the oil cooler union connections, securing finger tight only (this will allow the cooler ends to turn within the connections whilst the hose is being routed into its correct position).
5. Route the hose along the L/H and R/H front edges of the crash structure, shaping it so that a bend is formed to match the position of the 3 cable tie bases.
6. Ensure the hose route is unhindered, cannot rub on any other components and is free of any kinks allowing the oil to flow freely.
7. Tighten the oil cooler hose connections, to avoid placing unnecessary strain and movement on the oil coolers, hold the 'flats' on the base of the oil cooler unions threaded connection with an open ended spanner whilst using another spanner or crows foot adaptor on the hose connector unions, tightening connections to 40Nm.
8. Re-check alignment of the hose ensuring that it is not kinked or twisted.



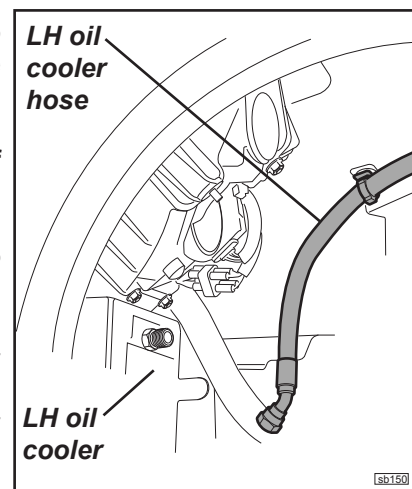
LH hose to oil cooler

Preparation:

1. Disconnect LH hose from oil cooler and lower the hose to allow the oil to drain from the hose and cooler into suitable container(s) and plug the cooler port to minimize oil loss.

IMPORTANT: It is essential that the 'flats' on the base of the oil cooler union threaded connection are held using an open ended spanner whilst loosening the hose union nut. Failing to follow this procedure may result in damage to the oil cooler.

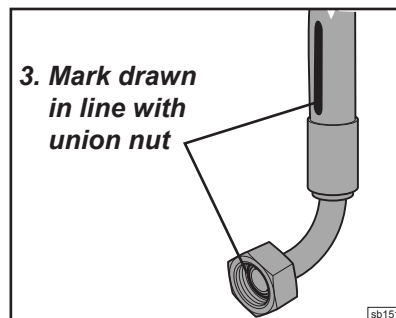
2. Clean and inspect the condition of rubber hose at its connection check for any cuts, nicks or signs of degradation near its connection to the union fitting ensuring it is in a suitable condition for cutting and modification.



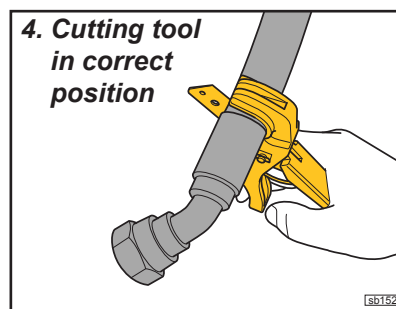
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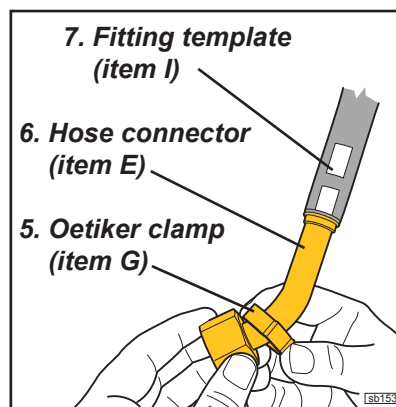
- Using a suitable pen, mark the end of the rubber hose section where it meets the metal union (see illustration), making sure the mark is in line with the union nut. This will be used as an alignment mark when fitting the service level replacement hose connector.



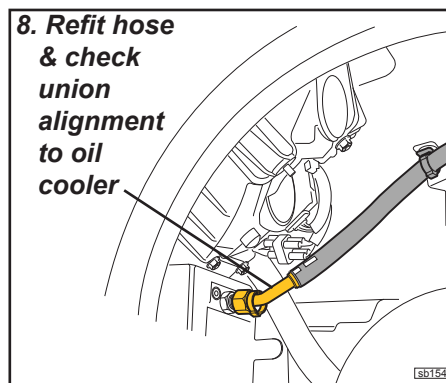
- Using the T000TXXXXF cutting tool, make a single clean cut around the rubber hose where it joins the metal union fitting. Discard the cut section.



- Fit one Oetiker clamp (item G) from the fitting kit onto the end of the remaining oil cooler hose.
- Push fit an oil cooler hose connector (item E from the fitting kit) into the cut end of the cooler hose making sure that its integral shoulder fitting abuts evenly all away around the circumference of the hose and that the union nut is in line with the marked line previously made.
- Place the self adhesive template (item I from the fitting kit) onto the hose, ensuring the end of the templates white section is lined up against the end of the rubber hose.



- Fit the modified hose back onto the oil cooler and the retaining clips located on the underside of the clamshell and ensure the hose route is unhindered, cannot rub on any other components and is free of any kinks allowing the oil to flow freely. If necessary adjust the orientation of the hose fitting connection.

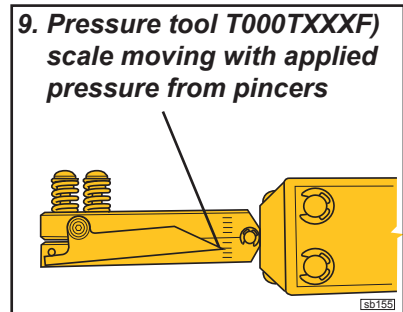


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9. Using T000TXXXF pincer jaw pressure testing tool, check that the T000TXXXF Oetiker pneumatic pincers can provide enough pressure to adequately crimp the clamp to the hose connector. Refer to LSL 6XX for additional information

IMPORTANT: Due to the high oil pulse pressure found within the cooler lines, you must ensure that the crimping tool is working properly. If the tool fails the pressure test then the cause of this failure must be rectified before attempting to crimp the hose clip.

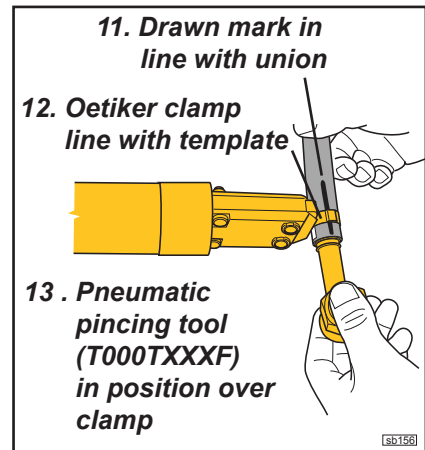


10. Unscrew the modified hose from the oil cooler and if necessary, lower the vehicle so that pneumatic pincers can be operated at approximate chest height. This will ensure that pincer jaws are positioned perpendicular to the hose and clamp ensuring the best possible pincing action.

11. Confirm that the marks previously made on the hose and connector are still in line, adjust as required.

12. Position the Oetiker clamp into the correct position (over the black mark) on the previously applied template.

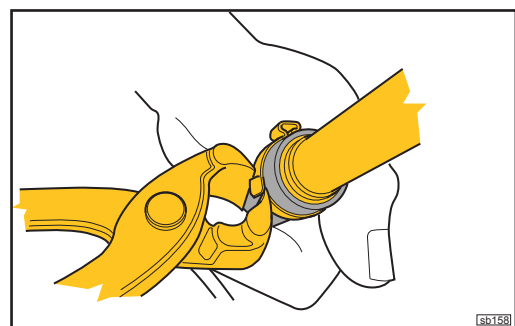
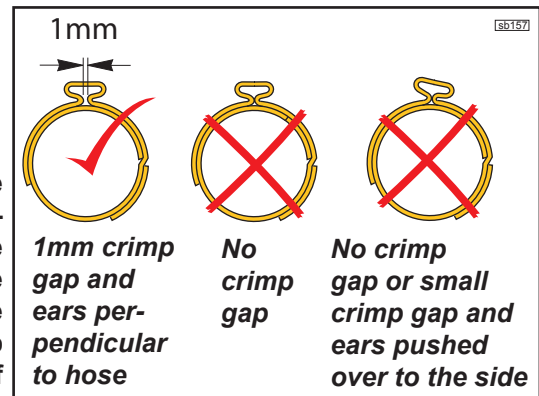
13. Using the T000TXXXF tool secure the jaws around the ears of the clamp, activate the tool to compress the clamp, securing the hose to the connector.



14. Check that the clamp has compressed properly by ensuring that there is still a small gap visible (approximately 1mm) at it's compressed 'ear' area.

IMPORTANT: Do not attempt to re-crimp the clamp if the crimping procedure has been unsuccessful for any reason. The failed clamp must be renewed and a new clamp fitted. Only remove the clamp using a pair of suitable pincers. Place the jaws of the pincers where the ends of the clamp overlap, with one pincer jaws under the end of the crimp and the other jaw behind its retaining lug (see illustration below right). Apply pressure to the pincers and use a slight pulling/twisting action to 'peel' the clamp off of the hose.

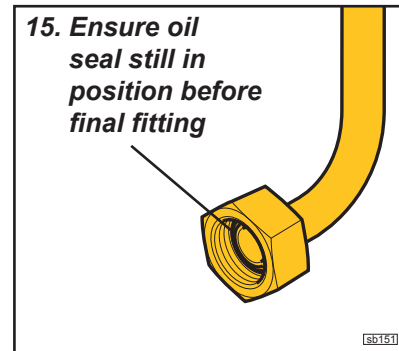
DO NOT use any cutting tools or attempt to break the clip by any other method as this may cause damage to the hose material rendering it unsuitable to accept a new clamp.



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- Fit a new clip and carry out steps 9 - 14 again but only once the cause of the previous unsuccessful crimping has been rectified.

- Before fitting the hose, ensure that the connections oil seal is still in place. Refit the modified hose to the oil cooler and retaining clips located on the underside of the clamshell and again re-check the hose alignment ensuring that it is not kinked, twisted or fouling on any ancillary components.



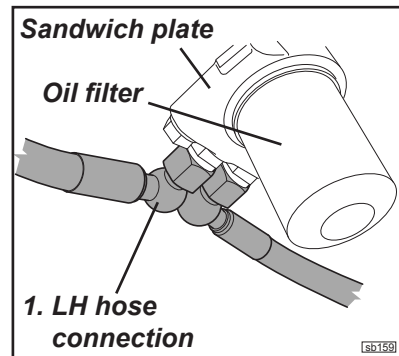
- To avoid placing unnecessary strain and movement on the oil cooler hold its 'flats' on the base of the oil cooler unions threaded connection with an open ended spanner whilst using another spanner or crows foot adaptor on the hose connector union and tighten the connections to 40Nm.

- Repeat this procedure for RHF oil cooler hose.

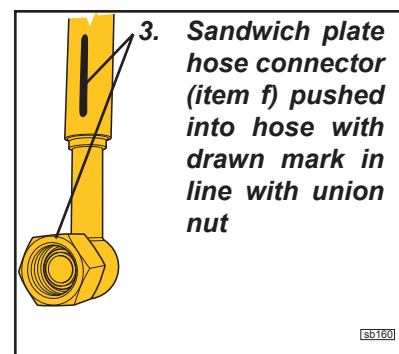
LH hose to sandwich plate

Preparation;

- Disconnect the LH hose from the oil cooler sandwich plate union, pull the hose away from its chassis and LH heater hose retaining clips and allow any oil to drain from the hose and plate into a suitable container, also plug the sandwich port to minimize oil loss and spillage.
- Carry out the same oil hose clean and inspection procedure; steps 2 – 5 as shown on the previous operation for the LH hose to cooler procedure.
- Push fit a rear sandwich plate hose connector (item F from the fitting kit) into the cut end of the cooler hose making sure that its integral shoulder fitting abuts evenly all away around the circumference of the hose and that the union nut is in line with the marked line previously made on the hose.



- Fit the modified hose to the oil cooler sandwich plate union; securing finger tight only. Ensure the hose route is unhindered, cannot rub on any other components and is free of any kinks allowing the oil to flow freely and adjust as necessary.
- Unscrew the modified hose from the sandwich plate and if necessary, lower the vehicle so that pneumatic pincers can be operated at approximate chest height. This will ensure that pincer jaws are positioned perpendicular to the hose and clamp ensuring the best possible pinching action.



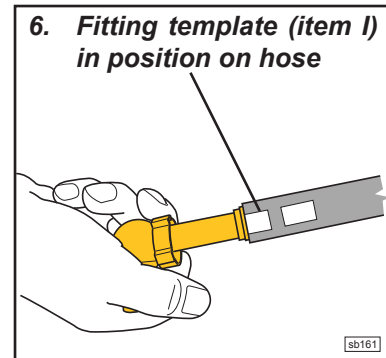
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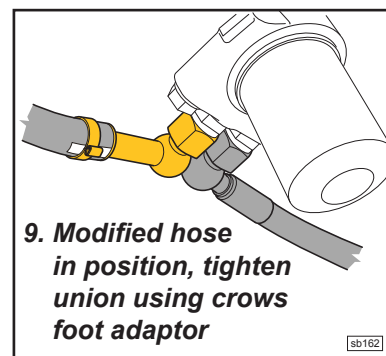
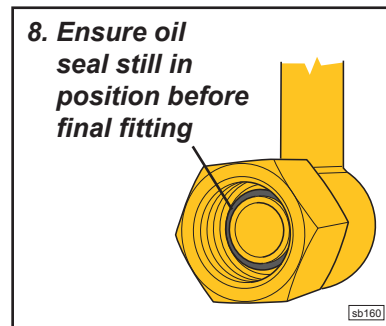
6. Place the self adhesive template onto the hose, ensuring the end of the templates white section is lined up against the end of the rubber hose.
7. Carry out the same hose clamp positioning and crimping procedure as shown in steps 12 – 14 on the previous operation for the LH hose to cooler procedure.

Inspect the positioning and quality of the crimped clamp as described in the previous section and replace the clamp if required.

8. Before fitting the hose, ensure that the connections oil seal is still in place.



9. Refit the modified hose assembly to the sandwich plate union and retaining clips ensuring the hose route is unhindered, cannot rub on any other components and is free of any kinks allowing the oil to flow freely, Tighten the union with crows foot adaptor (torque 40Nm).
10. Repeat this procedure for RHR oil cooler hose.



Engine starting and checking procedure

- Before starting the engine, check and top up the engine oil level as necessary ensuring that it registers on the 'high' mark of the dipstick – see Service Notes section EH.3 for further information.
- Start the engine and allow the engine oil temperature to rise above 72°C, this will ensure that the sandwich plate opens fully allowing the engine oil to circulate freely around the hoses and oil coolers.
- Top up the engine oil as necessary.
- Check and rectify any leaks as necessary.
- Refit ancillary components in reverse order as listed in vehicle preparation section as shown on page 1 of this bulletin.

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Timely Repair

The National Traffic and Motor Vehicle Safety Act, as amended, provides that each vehicle which is subject to a recall campaign of this type must be adequately repaired within a reasonable time after the owner has tendered it for repair. Failure to repair within sixty (60) days after tender of a vehicle is prima facie evidence of failure to repair within a reasonable time.

If the condition is not adequately repaired within a reasonable time, the owner may be entitled to an identical or reasonable equivalent vehicle at no charge or to a refund of the purchase price less a reasonable allowance for depreciation.

To avoid having to provide these burdensome solutions, every effort must be made to promptly schedule an appointment with each owner and to repair their vehicle as soon as possible. As you will see in reading the attached copy of the letter that is being sent to owners, the owners are being instructed to contact the Lotus Customer Service if their dealer does not remedy the condition within three (3) days of the mutually agreed upon service date. If the condition is not remedied within a reasonable time, they are instructed on how to contact the National Highway Traffic Safety Administration.

CHARGES:

Warranty Claims for 4hr/car plus 1 Oil cooler line rectification kit and a reasonable sublet charge for up to 1 litre (1 US quart) of oil should be submitted on Lotus Connect option DC603

Parts and labor may be recovered by submitting a warranty claim on Lotus Connect, option DC603 Bulk Entry Campaign, campaign number 2012/01R.

Ends.

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