LEXUS

Technical Service Information Bulletin

April 3, 1998

Title:

R-12 AIR CONDITIONER SYSTEM RETROFIT

Models:

'90–'93 ES 250/300, SC 400/300, LS 400

TSIB

Introduction

The following information should be used for guidance when retrofitting vehicle air conditioning systems from R–12 to R134a refrigerant.

Affected Vehicles

- **1990–1992** model year **LS 400, 1990–1991** model year **ES 250, 1992–1993** model year **ES 300, 1992–1993** model year **SC 300, 1992–1993** model year **SC 400**

Parts Information

All parts required for retrofit are available through the normal parts system:

IDENTIFICATION		REQUIRED PARTS & MATERIALS			
MODEL	COMPRESSOR	RETROFIT SET	RECEIVER	ND OIL 8	CHARGE
LS 400	10PA20	88840–33020 (1) plus 90099–14044 (2) 90099–14045 (1)	88471–16050	170 cc	1000 g
ES 250	10PA17V		88471–12040	100 cc	650 g
ES 300	10PA17		88471–16050	150 cc	900 g
SC 300					
SC400					

NOTE:

Retrofit Set 88840–33020 includes:

88374–33010	Low pressure side service fitting adaptor (7/16–20 UNF)
88374–33020	High pressure side service fitting adaptor (3/8–20 UNF)
88723–20040	R134a "USE ONLY" label (ND Oil 8 for 10P, 10PA compressor)
88723–33050	Retrofit Caution Label
90099–14046	Piping O–rings for discharge hose (quantity 2)

Required for all models (not included in set):

90099–14044	Receiver O–rings (quantity 2)
08885–09107	ND–Oil 8

Also available as needed:

88374–33040	L–shaped low pressure side service fitting adaptor
88374–33050	L–shaped high pressure side service fitting adaptor

Warranty Information

OP CODE	NWC	DESCRIPTION	TIME	OPN	T1	T2
Not Applicable to Warranty						

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Required Tools & Materials

A. Required Equipment:
1. R–12 recovery/recycling/recharging equipment
2. R134a recovery/recycling/recharging equipment
3. Measuring cylinder (for compressor oil)
4. Valve core remover for service valves
5. Air conditioner service tool set
6. Torque Wrench Set, P/N 00002–50284–01, includes the following*:
   - 14 mm 00002–51410–01
   - 17 mm 00002–51710–01
   - 22 mm 00002–52216–01
   - 27 mm 00002–52724–01

B. Required Parts & Materials: **
1. R134a Refrigerant
2. Service Fitting Adaptors
3. Caution Labels
4. ND–OIL 8 compressor oil (PAG type oil)
5. Receiver
6. O–Rings for compressor, line & hose connections ***
7. Loctite 262 or equivalent

* required size dependent upon model.
** see parts information section of this bulletin on page 1.
*** it is **not** necessary to replace any O–rings on ES 300, SC 300 and SC 400 models.

Retrofitting Overview

A. Refrigerant and Oil Charges
- Oil and refrigerant charge amounts are different after the R–12 system has been retrofitted to R134a. Refrigerant charge amounts are less, while oil charge amounts are greater, compared to R–12 system requirements. Refer to the **ND OIL 8** and **CHARGE** columns in "Parts Information" table on page 1 for proper amounts.

B. System Performance
- A slight decrease in system performance may be noticed on some vehicles under certain operating conditions.

C. Refrigerant Pressures
- R134a high side pressures are greater than that of R–12 above ambient temperatures of 68˚F.

D. Flushing Requirements
- There is no need to remove or flush R–12 mineral oil from the system. Simply charge the system with the specified amount of ND–Oil 8 to provide proper lubrication.

E. Use of Sight Glass
- Mineral based R–12 oil remains and circulates in the A/C system and does not dissolve in R134a refrigerant. This results in a cloudy appearance at the sight glass making it impossible to judge the refrigerant charge amount by using the sight glass method. To prevent misdiagnosis on retrofit vehicles, apply black paint to the sight glass on block–joint (FF) type Receivers. Union–nut joint (BAG) type retrofit Receivers are manufactured without a sight glass.

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Service Precautions

A. Refrigerant handling
   1. Do not handle refrigerant in an enclosed area or near an open flame.
   2. Always wear eye protection.
   3. Avoid getting liquid refrigerant in your eyes or on your skin.
   4. Never heat a container with an open flame.
   5. Keep containers below 104˚F.
   6. When heating a refrigerant can with water, keep the valve above water.
   7. Never reuse empty service cans.

B. Replacing parts
   1. Plug off any open connections to prevent the entry of moisture and dust.
   2. Do not remove plugs from Receiver ports until it is ready for installation.

C. Tightening connecting parts
   1. Apply a few drops of ND–Oil 8 compressor oil to O–ring fittings before tightening.
   2. Avoid twisting refrigerant piping when installing R134a service fitting adapters.
   3. Tighten all fittings to specified torque.

D. Recharging with A/C “on”
   1. Never open the high side valve with the engine running.
   2. Never run the A/C system when low on refrigerant as compressor damage may occur.
   3. Never charge the system with liquid refrigerant with the engine running.
   4. Be careful not to overcharge the system.

NOTE:
Oil removed during R–12 evacuation should not be used with an R134a System.

Repair Procedure

A. Vehicle Inspection:
   - Ensure the integrity of the A/C system before proceeding with retrofit.

B. Recover R–12 using R–12 recovery/recycling/recharging equipment:
   - Follow Lexus recommended procedure.

C. Install R134a service fitting adapters:
   1. Remove valve cores from R–12 service fittings and discard.
   2. Clean external threads of the R–12 service fittings.
   3. Apply adhesive to threads (Loctite 262 or equivalent), screw on R134a adapter fittings, and tighten to **13** ft–lb.

NOTE:
Vehicles with more than 2 service fittings will require the installation of additional adaptors. All service fittings must have R134a adaptors installed.

D. Replace piping and hose O–rings:
   1. Disconnect discharge hose from compressor.
   2. Remove and discard old O–rings.
   3. Lubricate with ND–Oil 8 and install **new** O–rings.
   4. Disconnect discharge hose from condenser.
   5. Lubricate and install retrofit O–rings with ND–Oil 8.
   6. Reconnect hoses and torque to specification. (Specifications can be found in applicable manuals/guides.)

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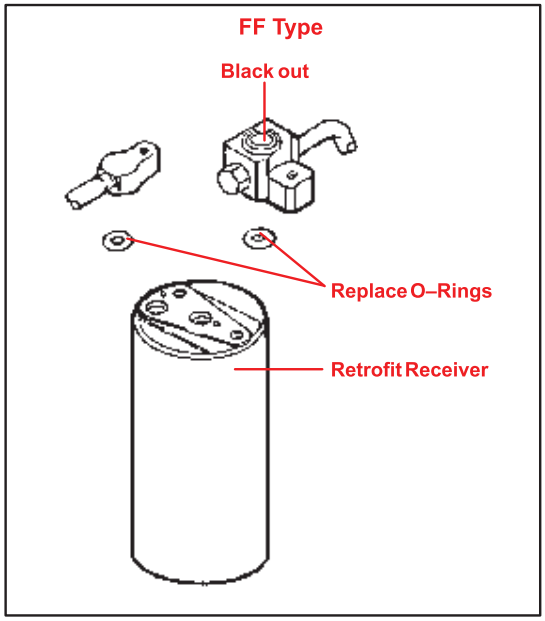
Repair Procedure (continued)

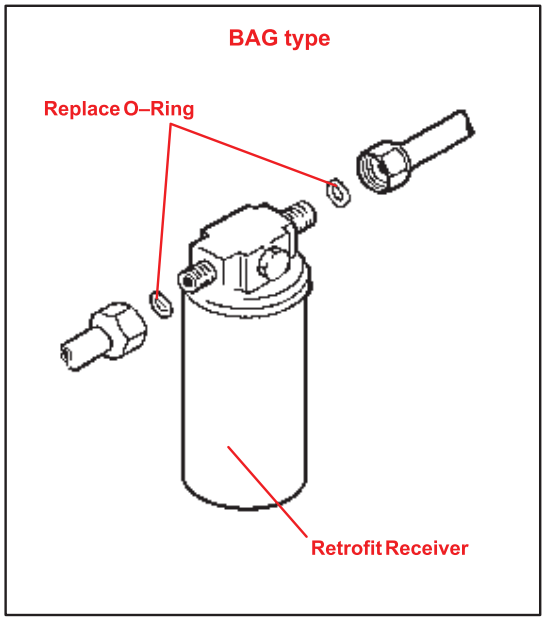
E. Replace Receiver
   1. Remove original R–12 Receiver and discard.
   2. Measure oil and pour 1/2 of specified amount of oil into the **"OUT"** side of new Receiver (see table on page 1 for amount).
   3. Black out the sight glass on block – joint – type Receiver with black paint.
   4. Lubricate and install the O–rings on the Receiver connections.
   5. Install Receiver.

F. Using **R134a** Recovery equipment, evacuate, charge, and leak test the system (Use equipment manufacturer's recommended procedure).
   1. Evacuate for 45 minutes.
   2. Vacuum check.
   3. If vacuum check is OK, add remaining 1/2 compressor oil using the recovery equipment.
      - Using recovery / recycling / recharging equipment charge the system with the remaining ½ of the specified amount of oil from step **E2**.
   4. Charge system with specified amount of **R134a**. (reference table on page 1).
   5. Perform a gas leak check.

G. Confirm cooling performance of Air Conditioning system.

H. Install retrofit labels:
   1. Choose **R134a "USE ONLY"** label for proper oil type (**ND–OIL 8**).
   2. Using a ball point pen, enter the proper retrofit refrigerant and oil charges on the caution label.
   3. Cross out unused type of compressor oil on caution label.
   4. Affix labels in a prominent location such as radiator support, underside of hood, or suspension tower area.
   5. Remove any R–12 labels.





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