INTRODUCTION

IMPORTANT NOTICE

This manual has been designed for technicians who are qualified and educated in the proper procedures of vehicle safety, handling and maintenance; experienced in installation of car air conditioning or who are able to carry out installation procedures when given instructions by an experienced technician in a supervisory capacity; and are certified to handling refrigerant.

1. Take special care to ensure that clearance between air conditioning components and other components such as brake parts, fuel system and electric wires as specified in this manual.
2. If a problem is found with the air conditioning system due to installation, refer back to the manual to correct the problem(s).
3. Vehicle and air conditioning kit components as well as installation procedures are subject to change without prior notice. Refer to the latest installation manual and service information. Any changes affecting the above items will be given in the form of a “Installation instructions for air conditioning (Supplement)” (issued by DENSO) or a service bulletin (issued by the manufacturer).

DEFINITION OF TERMS

⚠ WARNING : Describes precautions that should be observed in order to prevent injury or death to the user during installation.
⚠ CAUTION : Describes precautions that should be observed in order to prevent damage to the vehicle or its components, which may occur during installation if insufficient care is taken.
NOTE : Provides additional information that facilitates installation work.
FRONT,REAR LEFT,RIGHT : Shows the direction when viewed from the driver’s seat.

FOREWORD

This manual has been published to explain how to install the air conditioning for TOYOTA COROLLA. When installing the air conditioning, installation should be performed as described in this manual.

[APPLICATION VEHICLE]

<table>
<thead>
<tr>
<th>VEHICLE NAME</th>
<th>MODEL CODE</th>
<th>PRODUCTION PERIOD</th>
<th>ENGINE TYPE</th>
<th>STEERING POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>COROLLA</td>
<td>NZE12#R</td>
<td>2000.8~</td>
<td>1NZ/2NZ-FE</td>
<td>RHD</td>
</tr>
<tr>
<td></td>
<td>ZZE12#R</td>
<td></td>
<td>1ZZ/3ZZ/4ZZ-FE,2ZZ-GE</td>
<td></td>
</tr>
</tbody>
</table>

⚠ CAUTION

1. Carefully read the separate manual ”GENERAL INFORMATION/AFTER INSTALLATION” before and after installation.
2. Refer to the separate manual ”INSTALLATION MANUAL (INSIDE PASSENGER COMPARTMENT)” for details on installation for the passenger compartment side.

[DOCUMENT CODE AND DOCUMENT PART NUMBER]

<table>
<thead>
<tr>
<th>MANUAL NAME</th>
<th>DOCUMENT CODE</th>
<th>DOCUMENT PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL INFORMATION / AFTER INSTALLATION</td>
<td>AOAMC-01*</td>
<td>988963-475*</td>
</tr>
<tr>
<td>INSTALLATION MANUAL (INSIDE PASSENGER COMPARTMENT)</td>
<td>AAAMB-24*</td>
<td>988963-455*</td>
</tr>
</tbody>
</table>
1. INSTALLATION INSIDE PASSENGER COMPARTMENT

⚠️ CAUTION ⚠️

1. Before starting installation, remove the negative cable from the battery.
2. Before making any hoses and tubes connections, apply a few drops of compressor oil to the seat of O-ring and coupling nuts.
3. When tightening and loosening the fittings, use two wrenches for support.
4. Ensure fender covers are in position.
5. Start the work from the inside passenger compartment side.

First remove the negative terminal on the battery and the vehicle harness connection before installing the equipment.

(1) REMOVAL OF ORIGINAL PARTS

- 1ZZ-FE E/G MODEL ONLY [(a)]
  (a) Engine cover
(b) Battery and battery tray

(c) Disconnect the vehicle harness from the air cleaner box upper cover.

(d) Disconnect the air cleaner hose from the air cleaner box upper cover.

(e) Temporarily remove the air cleaner box upper cover from the air cleaner lower cover.

(f) Temporarily remove the VSV from the air cleaner box upper cover.

**CAUTION**

*Do not disconnect the intake hoses from the VSV.*

(g) Filter
(h) Vehicle harness clamp

(i) Air cleaner box lower cover

(j) Air duct

(k) Radiator upper supports. (RH,LH)
(l) Front grille
(m) Front fender liner (LH)

NOTE
Take care not to remove the front fender liner (LH) completely.

(n) Fully turn the steering wheel counterclockwise, before removing the front fender liner (LH).

- VEHICLE WITH SURGE TANK ONLY [o)-(p)]

(o) Screw

(p) Surge tank
(q) Under cover (RH)

(2) RESISTOR

(a) Install the resistor to the body using two bolts.

(b) Pull the vehicle harness (2-P) down.

(c) Route the vehicle harness (2-P) to the resistor.

(d) Connect the vehicle harness (2-P) to the resistor.
(3) LIQUID TUBE
(a) Disconnect the vehicle harness from the radiator fan motor.
(b) Temporarily remove the vehicle harness clip from the fan shroud.

(c) Insert the liquid tube No.1 as shown in the left figure.

(d) Route the liquid tube No.1 under the vehicle harness, when inserting the liquid tube No.1.

(e) Set the liquid tube No.1 as shown in the left figure.
(4) CONDENSER

(a) Assemble two collars and two bushings to the condenser.

(b) Lean the radiator backward then insert the condenser in front of radiator.

**CAUTION**

*Insert a corrugated board and others before inserting the condenser to prevent the radiator from being damaged.*

(c) Make sure that the bushings of condenser positively inserted into the vehicle holes.
(d) Install the condenser using two bolts.

(e) Reinstall the vehicle harness clip to the fan shroud.

(f) Reconnect the vehicle harness to the radiator fan motor.

(5) **COMPRESSOR AND COMPRESSOR DRIVE BELT**

- **1NZ/2NZ-FE E/G MODEL ONLY [(a)~(g)]**
  (a) Loosen the lock bolt and the adjusting bolt.
  (b) Remove and discard the alternator belt.
(c) Install the compressor to the engine block using four bolts.

**Tightening Torque**

24.5 N•m (250 kgf•cm, 18.1 lbf•ft)

**CAUTION**

(d) Install the compressor drive belt to the pulleys as shown in the left figure.

**CAUTION**

1. The threads on the compressor belt must fit into grooves on the pulley.
2. The belt tension must be measured between the specified pulleys.
3. The tension may be measured between any pulleys when using the DENSO belt tension gauge.
4. Adjust the belt to the center of the range.
5. Adjust the belt by tightening the adjusting bolt.

(e) Adjust the belt tension as shown in the left figure.

<table>
<thead>
<tr>
<th></th>
<th>Belt deflection at 98 N (10 kgf, 22 lbf) force</th>
<th>Belt tension using the belt tension gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Belt</strong></td>
<td>7.0-8.5 mm (0.28-0.33 inch)</td>
<td>539-637 N (55-65 kgf, 121-143 lbf)</td>
</tr>
<tr>
<td><strong>Used Belt</strong></td>
<td>11.0-13.0 mm (0.44-0.51 inch)</td>
<td>245-392 N (25-40 kgf, 55-88 lbf)</td>
</tr>
</tbody>
</table>

**CAUTION**

*Insert the rod between the alternator adjusting bar and the engine mount bracket, and adjust the belt tension.*

*Do not insert the rod between the alternator adjusting bar and OCV since the OCV might get damaged.*

(f) Tighten the adjusting bolt.

<table>
<thead>
<tr>
<th></th>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18.5 N•m (189 kgf•cm, 13.6 lbf•ft)</td>
</tr>
</tbody>
</table>

(g) Tighten the lock bolt.

<table>
<thead>
<tr>
<th></th>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>54 N•m (550 kgf•cm, 40 lbf•ft)</td>
</tr>
</tbody>
</table>


1ZZ/3ZZ/4ZZ-FE, 2ZZ-GE E/G MODEL ONLY

[(h)−(l)]

(h) Use the following procedure to remove the alternator belt.

(i) Remove and discard the alternator belt.

NOTE

Set the box-end combination wrench (19mm) as shown in the left figure, and remove the alternator belt to the pulleys while pulling the box-end combination wrench to the front of the vehicle.

- 11 -

00500107
(j) Install the compressor to engine block using three bolts.

<table>
<thead>
<tr>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.5 N·m (250 kgf·cm, 18.1 lbf·ft)</td>
</tr>
</tbody>
</table>

**CAUTION**

(k) Use the following procedure to install the compressor drive belt.

**NOTE**

Set the box-end combination wrench (19mm) as shown in the left figure, and install the compressor drive belt to the pulleys while pulling the box-end combination wrench to the front of the vehicle.

(f) Install the compressor drive belt to the pulleys as shown in the left figure.

(m) Pull the vehicle harness (4-P) down.
(n) Connect the vehicle harness (4-P) to the Mg/C connector.

(6) PIPING
(a) Install the plastic clamp No.2 to the body.
(b) Assemble the plastic clamp No.1 to the condenser.
(c) Connect the liquid tube No.1 to the condenser using a bolt.

<table>
<thead>
<tr>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4 N·m (55 kgf·cm, 4.0 lb·ft)</td>
</tr>
</tbody>
</table>

(d) Fasten the liquid tube No.1 to the plastic clamp No.1.

(e) Install the bracket No.1 to the body using a bolt.

(f) Connect the liquid tube No.2 to the liquid tube No.1.
(g) Fasten the liquid tube No.1 to the plastic clamp No.2.
(h) Attach the packing around connecting portion of the liquid tube No.1 and liquid tube No.2.

(i) Route and connect the liquid tube No.2 to the liquid and suction tube.
(j) Fasten the liquid tube No.2 to the bracket No.1.
(k) Fasten the liquid tube No.2 using a quick joint (small).
(l) Install the bracket No.2 to the body using a bolt.

⚠️ CAUTION

*Catch the turning stopper to the vehicle hole surely.*

(m) Install the plastic clamp No.3 to the body.

(n) Connect the suction hose to the compressor using a bolt.

<table>
<thead>
<tr>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.8 N•m (100 kgf•cm, 7.2 lbf•ft)</td>
</tr>
</tbody>
</table>

(o) Fasten the suction hose to the bracket No.2 using a nut.
(p) Connect the suction hose to the liquid and suction tube.
(q) Fasten the suction hose to the plastic clamp No.3.
(r) Fasten the suction hose using a quick joint (big).

(s) Insert the discharge hose as shown in the left figure.

(t) Connect the discharge hose to the condenser using a bolt.

<table>
<thead>
<tr>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4 N•m (55 kgf•cm, 4.0 lbf•ft)</td>
</tr>
</tbody>
</table>
(u) Connect the discharge hose to the compressor using a bolt.

<table>
<thead>
<tr>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.8N•m (100 kgf•cm, 7.2 lbf•ft)</td>
</tr>
</tbody>
</table>

(v) Pull the vehicle harness (4-P) down.

(w) Connect the vehicle harness (4-P) to the pressure switch.

(7) RELAYS
(a) Temporarily remove the relay box cover.
(b) Install the Mg/C relay into the relay box.

**NOTE**

Be sure to install the relay box by supporting the relay box by hand from the bottom side to prevent a contact defect.

(c) Reinstall the relay box cover.

(8) **CAUTION PLATE**

(a) Attach the caution plate to the frame.

**NOTE**

Affix after completely wiping off dust and oil stains from the frame.

(9) **REINSTALLATION OF ORIGINAL PARTS**

(a) Under cover (RH)
VEHICLE WITH SURGE TANK ONLY \([(b)-(c)]\)

\[(b)\] Surge tank

\[(c)\] Screw

\[(d)\] Front fender liner (LH)

\[(e)\] Radiator upper supports (RH,LH)

\[(f)\] Front grille
(g) Air duct

(h) Air cleaner box lower cover

⚠️ CAUTION

Make sure to insert the air duct into the air cleaner box lower cover.

(i) Vehicle harness clamp

(j) Filter
(k) Reinstall the VSV to the air cleaner box upper cover.

(l) Air cleaner box upper cover

(m) Reconnect the vehicle harness to the air cleaner box upper cover.

(n) Reconnect the air cleaner hose to the air cleaner box upper cover.

(o) Battery and battery tray

- 1ZZ-FE E/G MODEL ONLY [(p)] -

(p) Engine cover

<table>
<thead>
<tr>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0 N•m (71 kgf•cm, 5.1 lbf•ft)</td>
</tr>
</tbody>
</table>
2. AFTER INSTALLATION

### 2-1. CHARGING REFRIGERANT (HFC-134a)

For additional information on charging refrigerant using the charging cylinder, refer to "GENERAL INFORMATION/AFTER INSTALLATION: CHARGING REFRIGERANT (134a)."

| STANDARD AMOUNT OF REFRIGERANT | 490 ± 30 g (1.08 ± 0.7 lbs) |

Ensure to fill the refrigerant to the specified amount.

### 2-2. RE-ADJUSTMENT OF COMPRESSOR BELT (1NZ/2NZ E/G MODEL ONLY)

To correct belt deflection caused by initial elongation, the air conditioning must be operated for at least 5 minutes before the final adjustment of the belt.

<table>
<thead>
<tr>
<th>Vehicle equipped with 1NZ/2NZ E/G</th>
<th>Belt deflection [at 98N(10kgf, 22lbf)force]</th>
<th>Belt tension [N (kgf, lbf)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0 - 13.0 mm (0.44 - 0.51 inch)</td>
<td>245 - 392 N (25 - 40 kgf, 55 - 88 lbf)</td>
<td></td>
</tr>
</tbody>
</table>

1. Excessive tension of belt may have an adverse effect on bearings, while excessive slackness can cause the belt to slip, make abnormal noise or shorten the belt life.
2. The belt deflection must be measured between the specified pulleys as indicated in this manual.
3. The belt tension must be measured between the specified pulleys as indicated in this manual.
4. The belt tension must be adjusted to the center of the specified belt tension range.

### 2-3. ADJUSTMENT OF ENGINE IDLING SPEED

The engine revolution is controlled by a computer, therefore adjustment is not required. (when the air conditioning system is started, check whether idling revolution increases.)
3. AMPLIFIER

- ALL EUROPEAN SPEC. AND 1NZ/2NZ-FE E/G MODEL (VEHICLE WITH HEATER)
1ZZ/3ZZ/4ZZ-FE, 2ZZ-GE E/G MODEL (VEHICLE WITHOUT HEATER AND GENERALLY SPEC.)
4. WIRING DIAGRAM

- 1NZ/2NZ-FE E/G MODEL (VEHICLE WITH HEATER)
1NZ/2NZ-FE E/G MODEL (VEHICLE WITHOUT HEATER)

- IG RELAY
- Mg/C RELAY
- COMPRESSOR
- IG SW
- 12V
- HEATER MAIN RELAY
- BLOWER MOTOR
- RH BLOWER RESISTOR
- LH BLOWER RESISTOR
- VOLUME SW
- TO TAIL RELAY
- TO GND
- BLOWER SW
- AC3786
1ZZ/3ZZ/4ZZ-FE, 2ZZ-GE E/G MODEL (VEHICLE WITH HEATER)
ALL EUROPEAN SPEC.

IG RELAY

Mg/C RELAY

COMPRESSOR

IG SW

12V

HEATER

MAIN RELAY

BLOWER

MOTOR

BLOWER

RESISTOR

BLOWER

RESISTOR

LH

RH

BLOWER SW

A/C SW

TO TAIL RELAY

TO GND

AC4498
BOLT LENGTH RULER (mm)

BOLT DIAM. & HEX. HEAD (mm)

M5  M6  M8  M10  M12  M14

TOYOTA MOTOR CORPORATION
DENSO CORPORATION