

KM: Air Conditioning Clutch (A/CC) Relay Circuit

← [KM: Introduction](#)

KM1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

Are DTCS P0534, P0645, P1460, P1464 or P1469 present?

Yes	No
For KOEO and KOER DTCS P0645 or P1460, GO to KM2 . For continuous memory DTCS P0645 or P1460, GO to KM10 . For KOEO and KOER DTC P1464, GO to KM8 . For continuous memory DTCS P0534 or P1469, GO to KM12 .	For all others, GO to Section 4, Diagnostic Trouble Code (DTC) Charts and Descriptions .

KM2 KOEO AND KOER DTCS P1460 OR P0645: VERIFY THAT THE ACCS PID IS OFF

Note: Verify the A/C and the defrost are off during KOEO/KOER self-tests. If the vehicle is not equipped with A/C, the A/CCR circuit is not used and DTC P1460/P0645 can be ignored.

- Ignition ON, engine running.
- A/C and defroster OFF.
- For Focus, E-Series, Escape, Expedition, Mariner, Navigator and F-150,
- Access the PCM and monitor the AC_REQ (NUM) PID.
- For all others,
- Access the PCM and monitor the ACCS (NUM) PID.

Is the PID state OFF?

Yes	No
GO to KM3 .	REFER to the Workshop Manual Section 412-00, Climate Control System, and DIAGNOSE the A/C is inoperative/does not operate correctly symptom.

KM3 CHECK THE VPWR VOLTAGE TO THE A/CC RELAY

- Ignition OFF.
- A/CC Relay connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) A/CC Relay Connector, Harness Side	(-)
VPWR	Ground

Is the voltage greater than 10 V?

Yes	No
GO to KM4 .	REPAIR the open circuit. START the engine. TURN on the A/C switch. WAIT for 15 seconds. TURN off the A/C switch. REPEAT the self-test.

KM4 CHECK THE A/CC RELAY

- Ignition OFF.
- Carry out the A/CC relay component test. Refer to the Wiring Diagrams Cell 149 Component Testing.

Does the A/CC relay pass the component test?

Yes	No
GO to KM5 .	INSTALL a new A/CC relay. START the engine. TURN on the A/C switch. WAIT for 15 seconds. TURN off the A/C switch. CLEAR the DTCs. REPEAT the self-test.

KM5 CHECK THE A/CCR (WAC) CIRCUIT FOR A SHORT TO VOLTAGE IN THE HARNESS

- PCM connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) A/CC Relay Connector, Harness Side	(-)
A/CCR	Ground

Is the voltage less than 1 V?

Yes	No
GO to KM6 .	REPAIR the short circuit. START the engine. TURN on the A/C switch. WAIT for 15 seconds. TURN off the A/C switch. REPEAT the self-test.

KM6 CHECK THE A/CCR (WAC) CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS

- Ignition OFF.
- Measure the resistance between:

(+) A/CC Relay Connector, Harness Side	(-)
A/CCR	Ground

Is the resistance greater than 10K ohms?

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Yes	No
GO to KM7 .	REPAIR the short circuit. START the engine. TURN on the A/C switch. WAIT for 15 seconds. TURN off the A/C switch. REPEAT the self-test.

KM7 CHECK THE A/CCR (WAC) CIRCUIT FOR AN OPEN IN THE HARNESS

- Measure the resistance between:

(+) A/CC Relay Connector, Harness Side	(-) PCM Connector, Harness Side
A/CCR	A/CCR

Is the resistance less than 5 ohms?

Yes	No
GO to KM14 .	REPAIR the open circuit. START the engine. TURN on the A/C switch. WAIT for 15 seconds. TURN off the A/C switch. REPEAT the self-test.

KM8 KOEO AND KOER DTC P1464: VERIFY THE A/C AND DEFROST ARE OFF DURING THE SELF-TEST

- Verify the A/C and defrost are off during the self-test.

Are the A/C and defrost off during the self-test?

Yes	No
GO to KM9 .	TURN OFF the A/C and defrost. REPEAT the self-test where DTC P1464 was retrieved.

KM9 CHECK THE ACCS PID

- Ignition ON, engine OFF.
- A/C and defroster OFF.
- For Focus, E-Series, Escape, Expedition, Mariner, Navigator and F-150,
- Access the PCM and monitor the AC_REQ (NUM) PID.
- For all others,
- Access the PCM and monitor the ACCS (NUM) PID.

Is the PID state ON?

Yes	No
The ACCS PID indicates the PCM is being requested to turn the A/C on. REFER to the Workshop Manual Section 412-00, Climate Control System, and DIAGNOSE the A/C is inoperative/does not operate correctly symptom.	The ACCS PID indicates that the ACCS input to the PCM is low. VERIFY the test step results. TURN OFF the A/C and defrost. REPEAT the self-test.

KM10 CONTINUOUS MEMORY DTCS P1460 OR P0645: CHECK THE A/CCR (WAC) CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS

Note: If the vehicle is not equipped with A/C, the A/CCR circuit is not used and the P1460/P0645 can be ignored.

Note: The A/C clutch clicks on when a concern is present.

- Ignition ON, engine OFF.
- Check the A/CCR (WAC) circuit for short to ground while carrying out the following:
 - Wiggle, shake, and bend small sections of the wiring harness while working from the component to the module
 - Lightly tap on the A/CC relay to simulate road shock

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. START the engine. TURN on the A/C switch. WAIT for 15 seconds. TURN off the A/C switch. REPEAT the self-test.	GO to KM11 .

KM11 CHECK THE A/CCR (WAC) FOR AN OPEN OR SHORT CIRCUIT TO VOLTAGE

Note: The A/C clutch clicks off if a concern is present.

- Ignition ON, engine OFF.
- Enter output test mode. Refer to Section 2, [Output Test Mode \(OTM\)](#).
- Command the outputs ON.
- Check the A/CCR (WAC) circuit for an open or short to voltage while carrying out the following:
 - Wiggle, shake, and bend small sections of the wiring harness while working from the component to the module
 - Lightly tap on the A/CC relay to simulate road shock
- Command the outputs OFF.
- Exit output test mode.

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. START the engine. TURN on the A/C switch. WAIT for 15 seconds. TURN off the A/C switch. REPEAT the self-test.	Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .

KM12 CONTINUOUS MEMORY DTCS P0534 OR P1469: CHECK FOR CAUSES OF FAST A/CCS CYCLING

- Check the following:
 - A/C system pressure
 - A/CCS cycle times
- REFER to the Workshop Manual Section 412-00, Climate Control System and diagnose the air conditioning (A/C) is inoperative/does not operate correctly symptom.

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary.	GO to KM13 .

KM13 CHECK FOR INTERMITTENT OPEN IN THE A/CCS CIRCUIT

Note: The ACCS or AC_REQ PID turns off and on quickly when a concern is present, indicating an intermittent open.

- Ignition ON, engine OFF.
- For Focus, E-Series, Escape, Expedition, Mariner, Navigator and F-150,
- Access the PCM and monitor the AC_REQ (NUM) PID.
- For all others,
- Access the PCM and monitor the ACCS (NUM) PID.
- Turn on the A/C switch.
- Check the A/CCR (WAC) circuit for an open or short to voltage while carrying out the following:
 - Wiggle, shake, and bend small sections of the wiring harness while working from the component to the module.
 - Lightly tap on the pressure switch (PS) (to simulate road shock).
- Inspect the A/CCS connector.

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. START the engine. TURN on the A/C switch. WAIT for 15 seconds. TURN off the A/C switch. REPEAT the self-test.	Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .

KM14 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Visually inspect for:
 - pushed out pins
 - corrosion
- Connect all the PCM connectors and make sure they seat correctly.
- Carry out the PCM self-test and verify the concern is still present.

Is the concern still present?

Yes	No
INSTALL a new PCM. REFER to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM) , Programming the VID Block for a Replacement PCM.	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.
