3. Radiator Sub Fan (With A/C model only)

A: OPERATION

DETECTING CONDITION:

Condition (1):
- Engine coolant temperature is below 95°C (203°F).
- A/C switch is turned ON.
- Vehicle speed is below 19 km/h (12 MPH).

Condition (2):
- Engine coolant temperature is above 100°C (212°F).
- A/C switch is turned OFF.
- Vehicle speed is below 19 km/h (12 MPH).

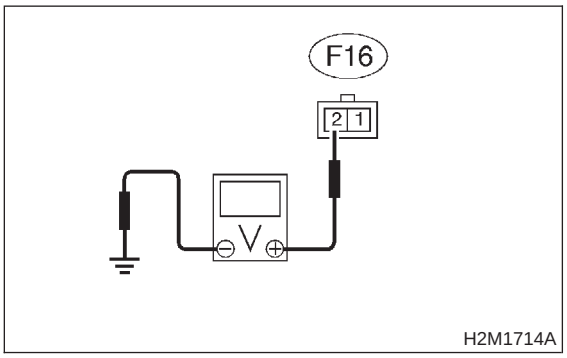
TROUBLE SYMPTOM:
- Radiator sub fan does not rotate under conditions (1) and (2) above.

3A1 : CHECK POWER SUPPLY TO SUB FAN MOTOR.

CAUTION:
Be careful not to overheat engine during repair.

1) Turn ignition switch to OFF.
2) Disconnect connector from sub fan motor and main fan motor.
3) Start the engine, and warm it up until engine coolant temperature increases over 100°C (212°F).
4) Stop the engine and turn ignition switch to ON.
5) Measure voltage between sub fan motor connector and chassis ground.

Connector & terminal
(F16) No. 2 (+) — Chassis ground (−):

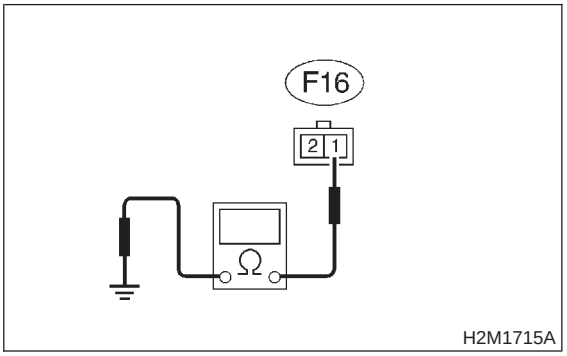


CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **3A2**.
NO : Go to step **3A5**.

3A2 : CHECK GROUND CIRCUIT OF SUB FAN MOTOR.

1) Turn ignition switch to OFF.
2) Measure resistance between sub fan motor connector and chassis ground.

Connector & terminal
(F16) No. 1 — Chassis ground:



CHECK : ***Is the resistance less than 5 Ω?***
YES : Go to step **3A3**.
NO : Repair open circuit in harness between sub fan motor connector and chassis ground.

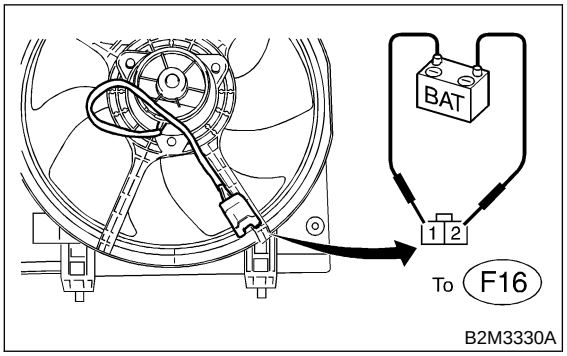
3A3 : CHECK POOR CONTACT.

Check poor contact in sub fan motor connector. <Ref. to FOREWORD [W3C1].>

CHECK : ***Is there poor contact in sub fan motor connector?***
YES : Repair poor contact in sub fan motor connector.
NO : Go to step **3A4**.

3A4 : CHECK SUB FAN MOTOR.

Connect battery positive (+) terminal to terminal No. 2, and negative (−) terminal to terminal No. 1 of sub fan motor connector.

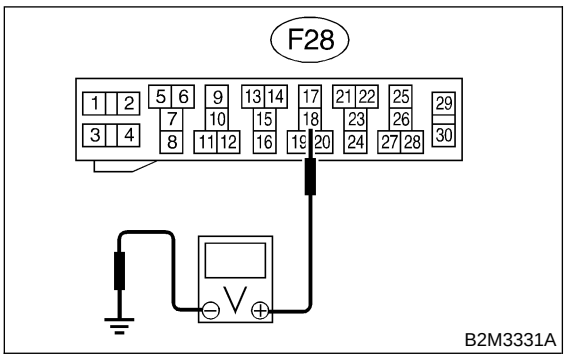


CHECK : ***Does the sub fan rotate?***
YES : Repair poor contact in sub fan motor connector.
NO : Replace sub fan motor with a new one.

3A5 : CHECK POWER SUPPLY TO SUB FAN RELAY.

1) Turn ignition switch to OFF.
2) Remove sub fan relay from A/C relay holder.
3) Measure voltage between sub fan relay terminal and chassis ground.

Connector & terminal
(F28) No. 18 (+) — Chassis ground (−):

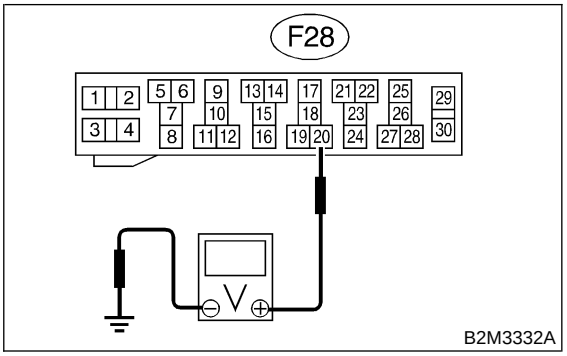


CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **3A6**.
NO : Go to step **3A7**.

3A6 : CHECK POWER SUPPLY TO SUB FAN RELAY.

1) Turn ignition switch to ON.
2) Measure voltage between sub fan relay terminal and chassis ground.

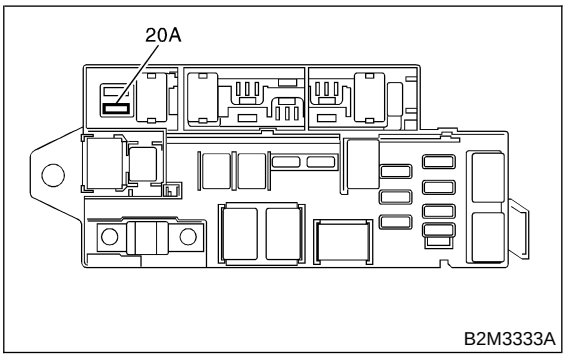
Connector & terminal
(F28) No. 20 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **3A10**.
NO : Go to step **3A9**.

3A7 : CHECK 20 A FUSE.

1) Remove 20 A fuse from A/C relay holder.
2) Check condition of fuse.

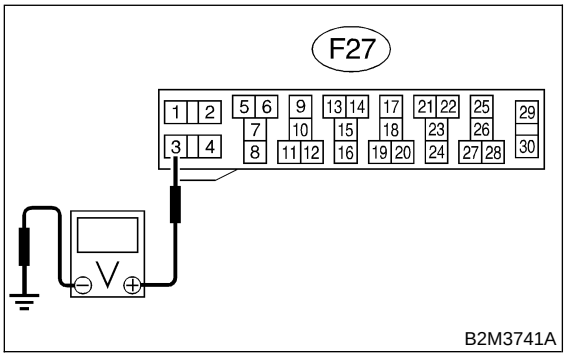


CHECK : ***Is the fuse blown-out?***
YES : Replace fuse.
NO : Go to step **3A8**.

3A8 : CHECK POWER SUPPLY TO A/C RELAY HOLDER 20 A FUSE TERMINAL.

Measure voltage of harness between A/C relay holder 20 A fuse terminal and chassis ground.

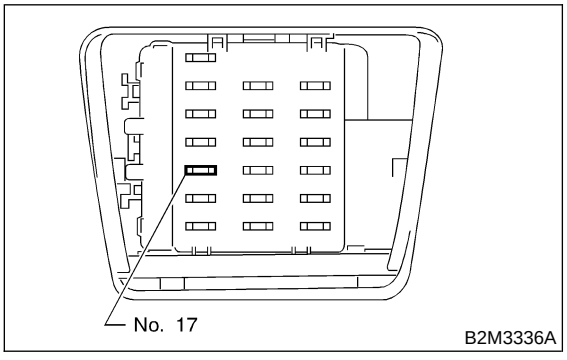
Connector & terminal
(F27) No. 3 (+) — Chassis ground (−):



CHECK : ***Is the voltage more than 10 V?***
YES : Repair open circuit in harness between 20 A fuse and sub fan relay terminal.
NO : Repair open circuit in harness between main fuse box connector and 20 A fuse terminal.

3A9 : CHECK FUSE.

1) Turn ignition switch to OFF.
2) Remove fuse No. 17 from joint box.
3) Check condition of fuse.

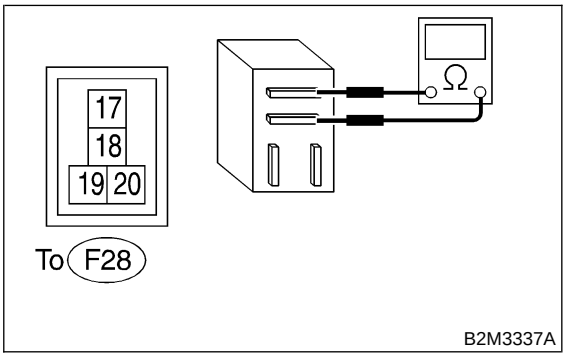


CHECK : ***Is the fuse blown-out?***
YES : Replace fuse.
NO : Repair open circuit in harness between sub fan relay and ignition switch.

3A10 : CHECK SUB FAN RELAY.

1) Turn ignition switch to OFF.
2) Measure resistance of sub fan relay.

Terminal
No. 17 — No. 18:

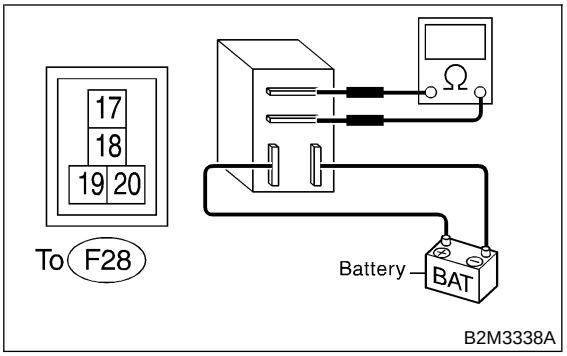


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **3A11**.
NO : Replace sub fan relay.

3A11 : CHECK SUB FAN RELAY.

1) Connect battery to terminals No. 20 and No. 19 of sub fan relay.
2) Measure resistance of sub fan relay.

Terminal
No. 17 — No. 18:

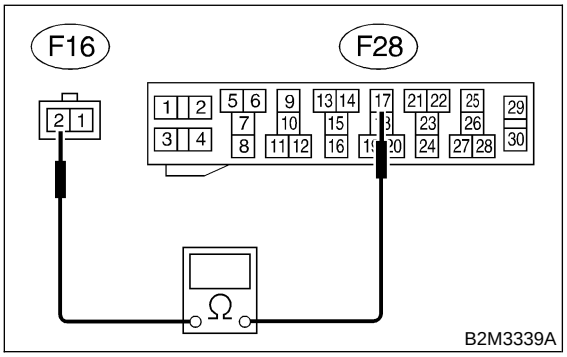


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **3A12**.
NO : Replace sub fan relay.

3A12 : CHECK HARNESS BETWEEN SUB FAN RELAY TERMINAL AND SUB FAN MOTOR CONNECTOR.

Measure resistance of harness between sub fan motor connector and sub fan relay terminal.

Connector & terminal
(F16) No. 2 — (F28) No. 17:

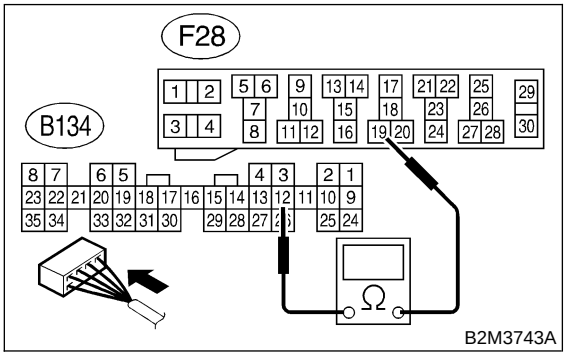


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **3A13**.
NO : Repair open circuit in harness between sub fan motor and sub fan relay connector.

3A13 : CHECK HARNESS BETWEEN SUB FAN RELAY AND ECM.

1) Turn ignition switch to OFF.
2) Disconnect connector from ECM.
3) Measure resistance of harness between sub fan relay connector and ECM connector.

Connector & terminal
(F28) No. 19 — (B134) No. 12:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **3A14**.
NO : Repair open circuit in harness between sub fan relay and ECM.

3A14 : CHECK POOR CONTACT.

Check poor contact in connnector between sub fan and ECM. <Ref. to FOREWORD [W3C1].>

CHECK : ***Is there poor contact in connector between sub fan motor and ECM?***
YES : Repair poor contact connector.
NO : Contact with your Subaru distributor.

NOTE:
Inspection by your Subaru distributor is required, because probable cause is deterioration of multiple parts.

MEMO: