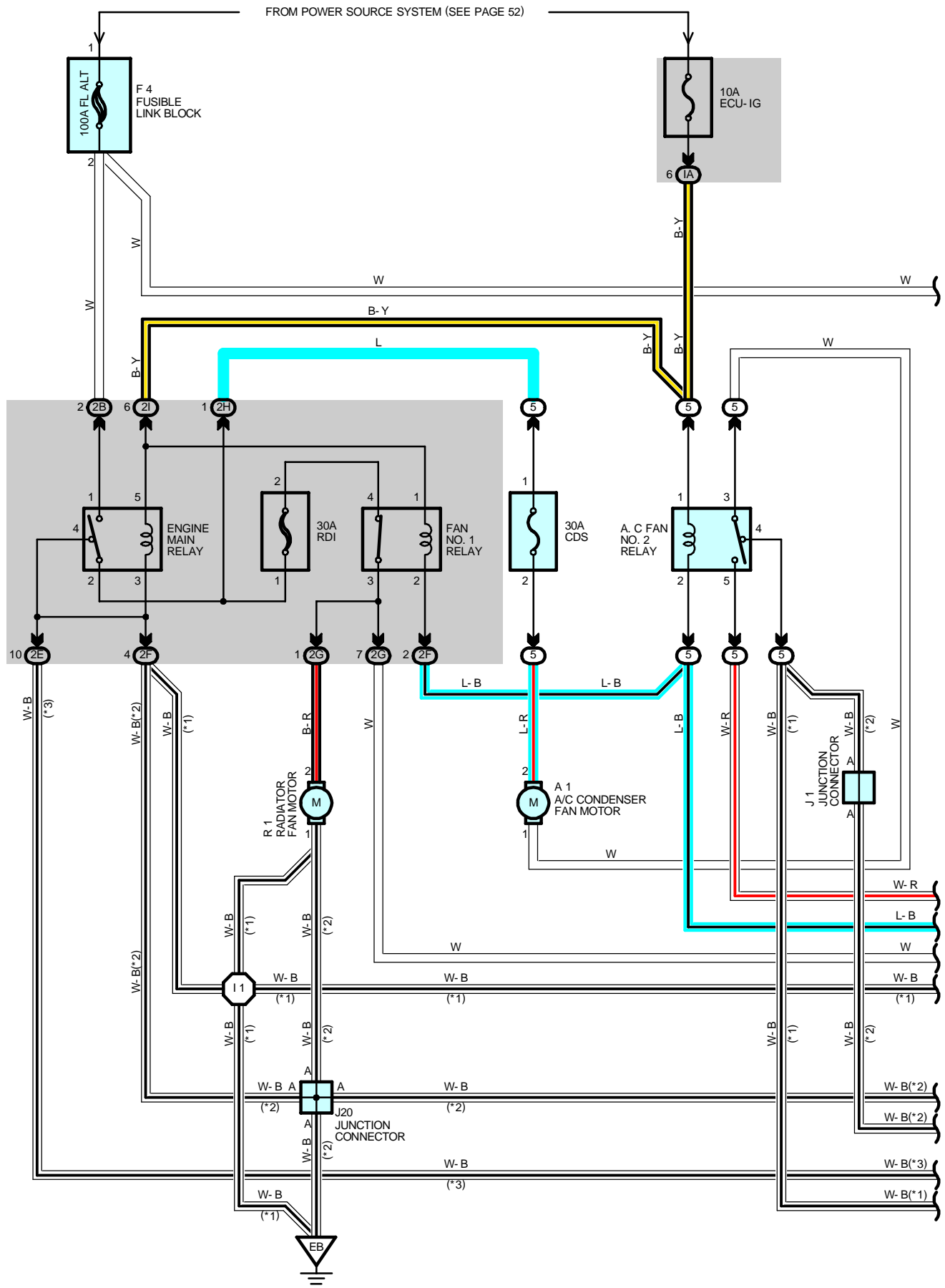
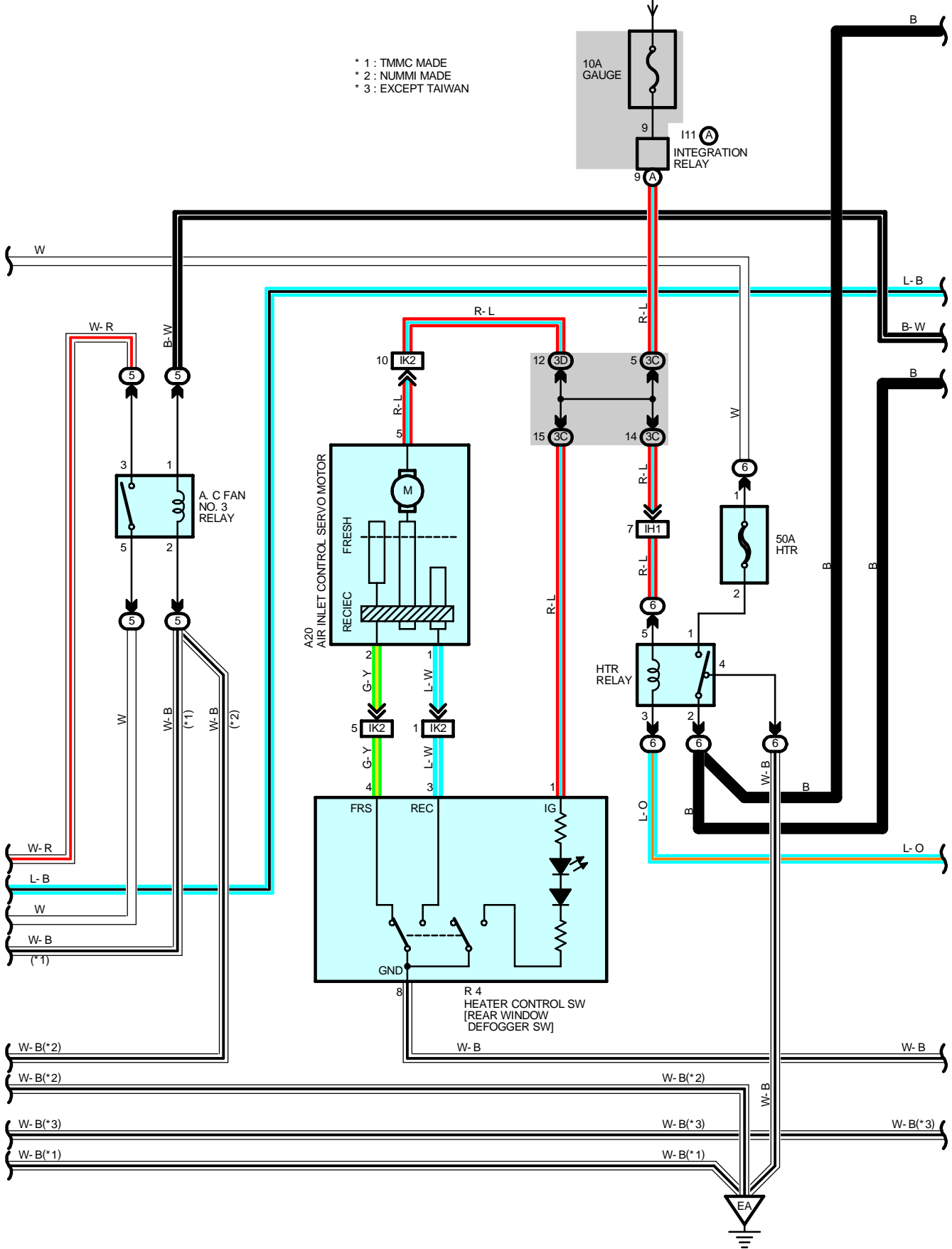


# RADIATOR FAN AND AIR CONDITIONING

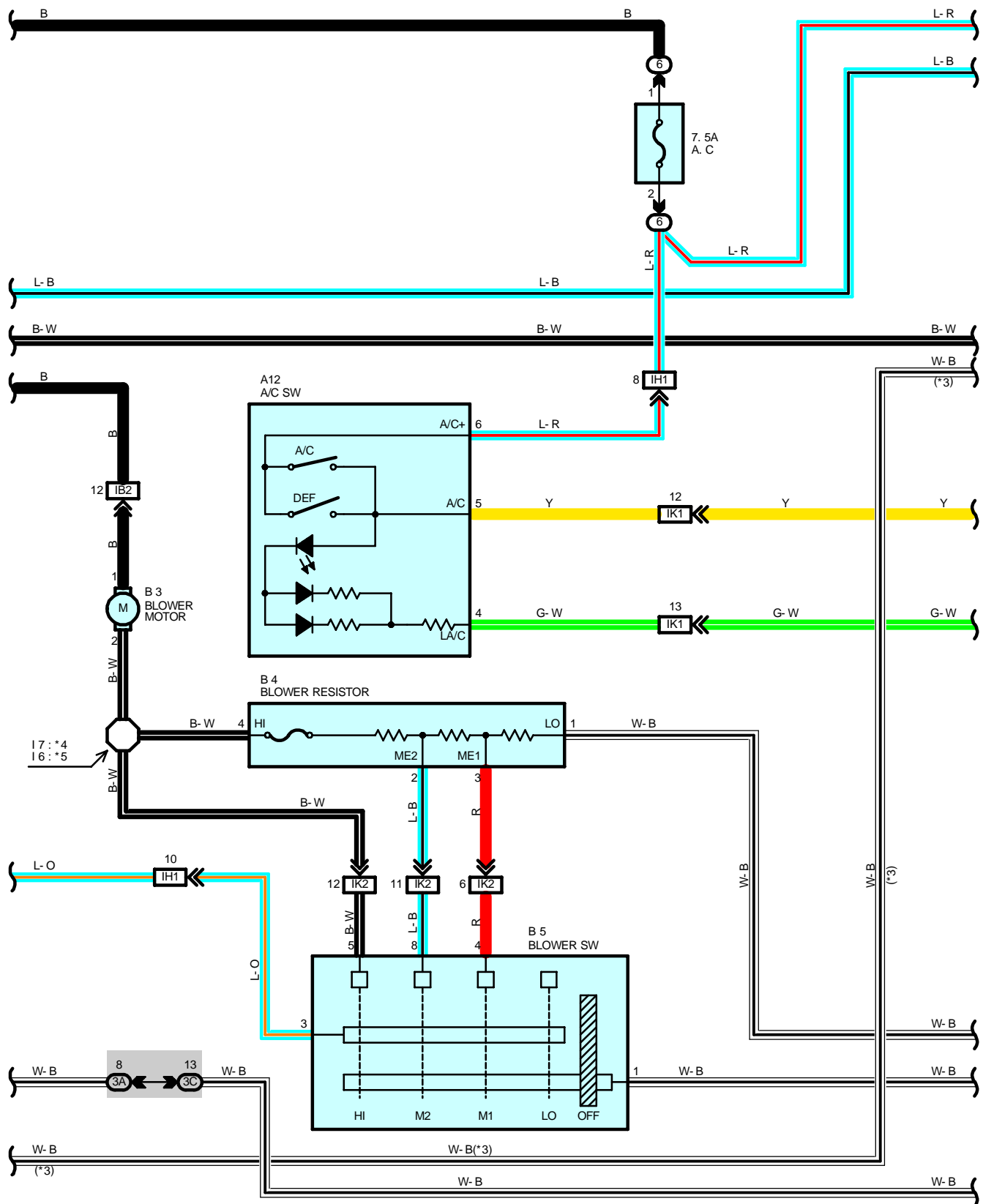


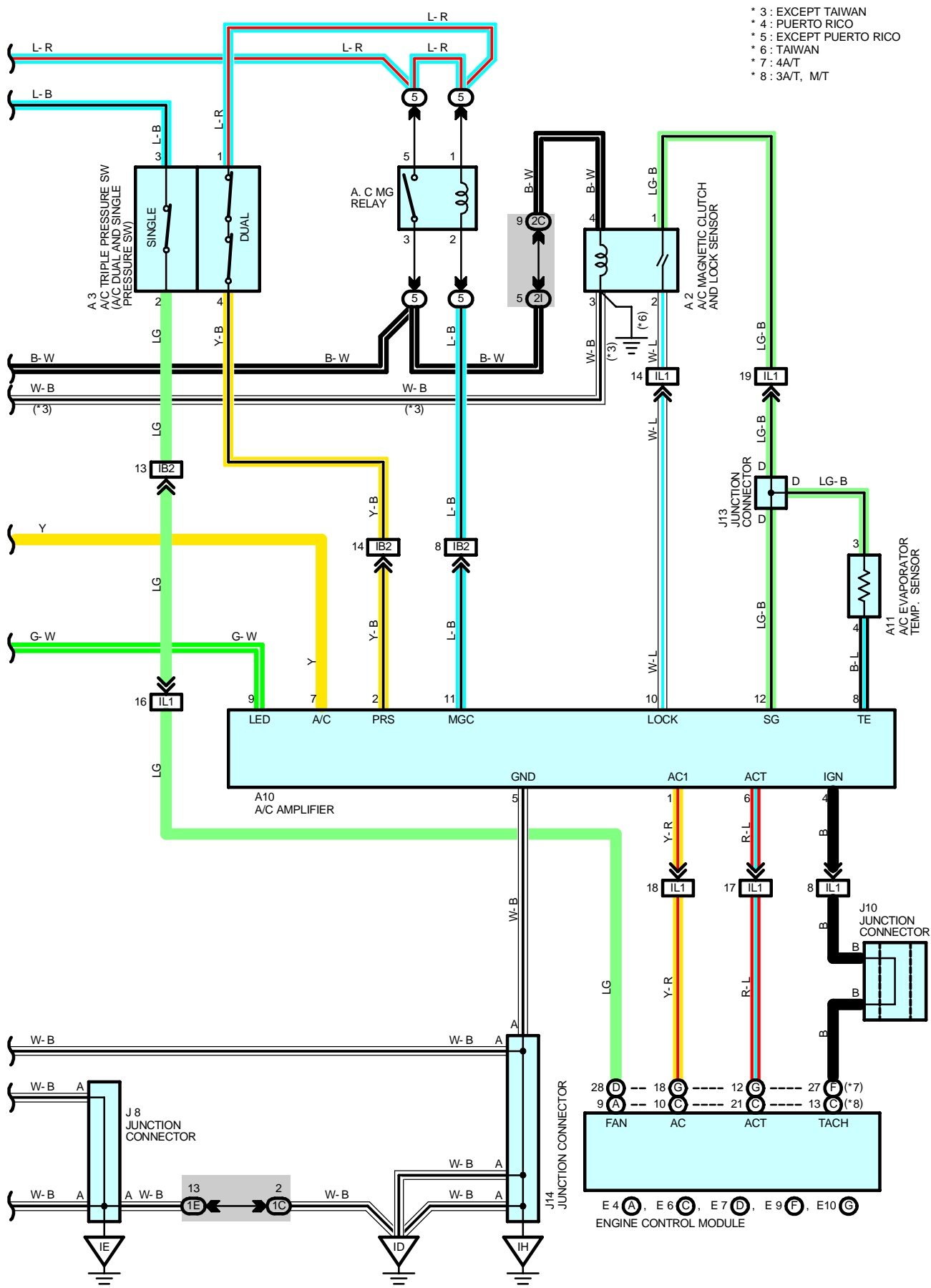
FROM POWER SOURCE SYSTEM (SEE PAGE 52)

- \* 1 : TMMC MADE
- \* 2 : NUMMI MADE
- \* 3 : EXCEPT TAIWAN



# RADIATOR FAN AND AIR CONDITIONING





# RADIATOR FAN AND AIR CONDITIONING

## SYSTEM OUTLINE

### 1. HEATER BLOWER MOTOR OPERATION

The current is applied at all times through the FL ALT fuse to the HTR fuse to TERMINAL 1 of the HTR relay.

When the ignition SW is turned on, the current flows through the GAUGE fuse to TERMINAL 5 of the HTR relay to coil to TERMINAL 3 to TERMINAL 3 of the blower SW.

#### \* Low speed operation

When the blower SW is moved to LO position, the current flows to TERMINAL 3 of the blower SW to TERMINAL 1 to GROUND, turning the HTR relay on. This causes the current to flow from the HTR fuse to TERMINAL 1 of the HTR relay to TERMINAL 2 to TERMINAL 1 of the blower motor to TERMINAL 2 to TERMINAL 4 of the blower resistor to TERMINAL 3 to TERMINAL 4 of the blower SW to TERMINAL 1 to GROUND. At this time, the blower resistance of the blower resistor is less than at low speed, so the blower motor rotates at medium low speed.

#### \* Medium speed operation (Operation at M1, M2)

When the blower SW is moved to M1 position, the current flows to TERMINAL 3 of the blower SW to TERMINAL 1 to GROUND, turning the HTR relay on. This causes the current to flow from the HTR fuse to TERMINAL 1 of the HTR relay to TERMINAL 2 to TERMINAL 1 of the blower motor to TERMINAL 2 to TERMINAL 4 of the blower resistor to TERMINAL 3 to TERMINAL 4 of the blower SW to TERMINAL 1 to GROUND. At this time, the blower resistance of the blower resistor is less than at low speed, so the blower motor rotates at medium low speed.

When the blower SW is moved to M2 position, the current through the motor flows from TERMINAL 4 of the blower resistor to TERMINAL 2 to TERMINAL 8 of the blower SW to TERMINAL 1 to GROUND. At this time, resistance of the blower resistor is less than at M1 position, so the blower motor rotates at medium high speed.

#### \* High speed operation

When the blower SW is moved to HI position, the current flows to TERMINAL 3 of the blower SW to TERMINAL 1 to GROUND, turning the HTR relay on.

This causes the current to flow from the HTR fuse to TERMINAL 1 of the HTR relay to TERMINAL 2 to TERMINAL 1 of the blower motor to TERMINAL 2 to TERMINAL 5 of the blower SW to TERMINAL 1 to GROUND, rotating the blower motor at high speed.

### 2. FAN MOTOR OPERATION

When the ignition SW is turned on, the current from the ECU-IG fuse flows to the FAN NO.1 relay (Coil side) and the A.C FAN NO.2 relay (Coil side) to TERMINAL 3 of the A/C single pressure SW to TERMINAL 2 to engine control module. Electric current passed to engine control module receives the signal from engine coolant temp. sensor and is sent from engine control module to GROUND, and the FAN NO.1 relay is turned off and the A.C FAN NO.2 relay is turned on.

At the same time as this current flow, the current from the ECU-IG fuse flows to the ENGINE MAIN relay (Coil side) to GROUND, turning the ENGINE MAIN relay on. As a result, current from the FL ALT fuse flows to the CDS fuse and RDI fuse.

#### \* Low speed operation

When the ignition SW is turned on and the A/C is activated, the current flows from the FL ALT fuse to the HTR fuse to the HTR relay (Point side) to the A.C fuse to the A.C MG relay (Point side) to the A.C FAN NO.3 relay (Coil side) to GROUND, turning the A.C FAN NO.3 relay on. As a result, the current from the CDS fuse flows to TERMINAL 2 of the A/C condenser fan motor to TERMINAL 1 to the A.C FAN NO.2 relay (Point side) to the A.C FAN NO.3 relay (Point side) to TERMINAL 2 of the radiator fan motor to TERMINAL 1 to GROUND. As a result, the fans are activated at low speed.

If the engine coolant temperature is approx. 90°C (194°F) or less, and the refrigerant pressure is approx. 15.5 kgf/cm<sup>2</sup> (220 psi, 1520 kpa) or less, both the water temp. SW (Radiator fan) and the A/C single pressure SW are closed, so the FAN NO.1 relay is turned off and the A.C FAN NO.2 relay is turned on. As a result, each fan motor operates at low speed.

#### \* High speed operation

During A/C operation, if the refrigerant pressure becomes higher than ordinary level (Approx. 15.5 kgf/cm<sup>2</sup> (220 psi, 1520 kpa)), the A/C single pressure SW is turned off. As a result, the FAN NO.1 relay is turned on and the A.C FAN NO.2 relay is turned off, and the current flows from the RDI fuse to FAN NO.1 relay (Point side) to TERMINAL 2 of the radiator fan motor to TERMINAL 1 to GROUND, and the current from the CDS fuse flows to TERMINAL 2 of the A/C condenser fan motor to TERMINAL 1 to A.C FAN NO.2 relay (Point side) to GROUND, reaching each fan motor in parallel, thus causing the fan motors to operate at high speed.

Note that, because the current flows in the same manner even if the engine coolant temperature is approx. 90°C (194°F) or higher, the fan motors still operate at high speed.

### 3. AIR INLET CONTROL SERVO MOTOR OPERATION

- \* Switching from FRESH to RECIRC

With the ignition SW turned on, current flows from the GAUGE fuse to TERMINAL 5 of the air inlet control servo motor. When the RECIRC/FRESH SW is switched to the RECIRC side, current flows from TERMINAL 5 of the air inlet control servo motor to TERMINAL 1 to TERMINAL 3 of the heater control SW to TERMINAL 8 to GROUND. The motor rotates and the damper moves to the RECIRC side. When it is in the RECIRC position, current is cut inside the servo motor and the damper stops at that position.

- \* Switching from RECIRC to FRESH

With the ignition SW turned on, when the RECIRC/FRESH SW is switched to the FRESH side, current flows from TERMINAL 5 of the air inlet control servo motor to TERMINAL 2 to TERMINAL 4 of the heater control SW to TERMINAL 8 to GROUND, the motor rotates and the damper moves to the FRESH side. When it is in the FRESH position, current is cut inside the servo motor and the damper stops at that position.

### 4. AIR CONDITIONING OPERATION

When the blower SW is set on, the current from the FL ALT fuse flows to the HTR fuse to the HTR relay (Point side) to the A.C fuse to TERMINAL 1 of the A/C dual pressure SW to TERMINAL 4 to TERMINAL 2 of the A/C amplifier. The engine RPM signal from the engine control module, the evaporator temp. signal from the A/C evaporator temp. sensor and the lock signal from the lock sensor are all supplied to the A/C amplifier.

When the A/C SW is turned on, the A/C SW on signal is sent to the TERMINAL 7 of the A/C amplifier. At the same time, the current flows from the A.C fuse to TERMINAL 1 of the A.C MG relay to coil to TERMINAL 2 to TERMINAL 11 of the A/C amplifier to TERMINAL 5 to GROUND, turning the A.C MG relay on.

This causes the current from the A.C fuse to flow to the A/C magnetic clutch, turning the A/C magnetic clutch on.

When any of the following signals are input to the A/C amplifier, the amplifier operates to turn off the air conditioning.

- \* Engine low RPM signal.
- \* A signal that the temperature at evaporator is low.
- \* A signal that the refrigerant pressure is abnormally high or low.
- \* A signal that the A/C compressor is locked.

### 5. DEF SYNCHRONIZED CONTROL FUNCTION

When the air vent mode control lever is turned to DEF mode, the A/C SW is automatically turned on.

## SERVICE HINTS

#### FAN NO. 1 RELAY

4-3 : Open with the ignition SW on, the A/C single pressure SW on and the coolant temp. SW operate

#### A.C FAN NO. 3 RELAY

3-5 : Closed with the ignition SW on and the A.C MG relay on

#### HTR RELAY

1-2 : Closed with the ignition SW on and the blower SW on

#### A3 A/C TRIPLE PRESSURE SW (A/C DUAL AND SIGNAL PRESSURE SW)

1-4 : Open with the refrigerant pressure at less than approx. **196.1 kpa (2.0 kgf/cm<sup>2</sup>, 28.4 psi)** or more than approx. **3138.1 kpa (32.0 kgf/cm<sup>2</sup>, 458 psi)**

2-3 : Open with the refrigerant pressure more than **1520 kpa (15.5 kgf/cm<sup>2</sup>, 220 psi)**

#### A10 A/C AMPLIFIER

2-GROUND : Approx. **12** volts with the ignition SW at **ON** position, the blower SW at **LO, M1, M2** or **HI** position and the A/C dual pressure SW on

5-GROUND : Always continuity

7-GROUND : Approx. **12** volts with the ignition SW at **ON** position, the blower SW at **LO, M1, M2** or **HI** position and the A/C SW at **ON** position or the air vent mode control lever at **DEF** mode

9-GROUND : Below **4** volts with the ignition SW at **ON** position, the blower SW at **LO, M1, M2** or **HI** position and the A/C SW at **ON** position or the air vent mode control lever at **DEF** mode

# RADIATOR FAN AND AIR CONDITIONING

## : PARTS LOCATION

Code	See Page	Code	See Page	Code	See Page
A1	<a href="#">36</a>	B5	<a href="#">38</a>	J8	<a href="#">39</a>
A2	<a href="#">36</a>	E4	<a href="#">38</a>	J10	<a href="#">39</a>
A3	<a href="#">36</a>	E6	<a href="#">38</a>	J13	<a href="#">39</a>
A10	<a href="#">38</a>	E7	<a href="#">38</a>	J14	<a href="#">39</a>
A11	<a href="#">38</a>	E9	<a href="#">38</a>	J20	<a href="#">39</a>
A12	<a href="#">38</a>	E10	<a href="#">38</a>	R1	<a href="#">37</a>
A20	<a href="#">38</a>	F4	<a href="#">36</a>	R4	<a href="#">39</a>
B3	<a href="#">38</a>	I11	<a href="#">39</a>		
B4	<a href="#">38</a>	J1	<a href="#">39</a>		

## : RELAY BLOCKS

Code	See Page	Relay Blocks (Relay Block Location)
5	<a href="#">30</a>	Engine Room R/B No.5 (Engine Compartment Left)
6	<a href="#">31</a>	Engine Room R/B No.6 (Radiator Support RH)

## : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)
IA	<a href="#">22</a>	Engine Room Main Wire and Instrument Panel J/B (Lower Finish Panel)
1C	<a href="#">25</a>	Cowl Wire and Driver Side J/B (Left Kick Panel)
1E	<a href="#">24</a>	Instrument Panel Wire and Driver Side J/B (Left Kick Panel)
2B	<a href="#">27</a>	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
2C	<a href="#">27</a>	Engine Wire and Engine Room J/B (Engine Compartment Left)
2E		
2F		
2G		
2H	<a href="#">27</a>	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
2I		
3A		
3C		
3D	<a href="#">28</a>	Instrument Panel Wire and Center J/B (Behind the Combination Meter)

## : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
IB2	<a href="#">44</a>	Engine Room Main Wire and Cowl Wire (Near the Driver Side R/B)
IH1	<a href="#">44</a>	Engine Room Main Wire and Instrument Panel Wire (Lower Finish Panel)
IK1	<a href="#">46</a>	Instrument Panel Wire and Cowl Wire (Instrument Panel Brace RH)
IK2		
IL1	<a href="#">46</a>	Engine Wire and Cowl Wire (Instrument Panel Brace RH)

## : GROUND POINTS

Code	See Page	Ground Points Location
EA	<a href="#">42</a>	Front Side of the Right Fender
EB	<a href="#">42</a>	Front Side of the Left Fender
ID	<a href="#">44</a>	Left Kick Panel
IE	<a href="#">44</a>	Instrument Panel Brace LH
IH	<a href="#">44</a>	Right Kick Panel

## : SPLICE POINTS

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
I1	<a href="#">46</a>	Engine Room Main Wire	I7	<a href="#">46</a>	Cowl Wire
I6	<a href="#">46</a>	Cowl Wire			

