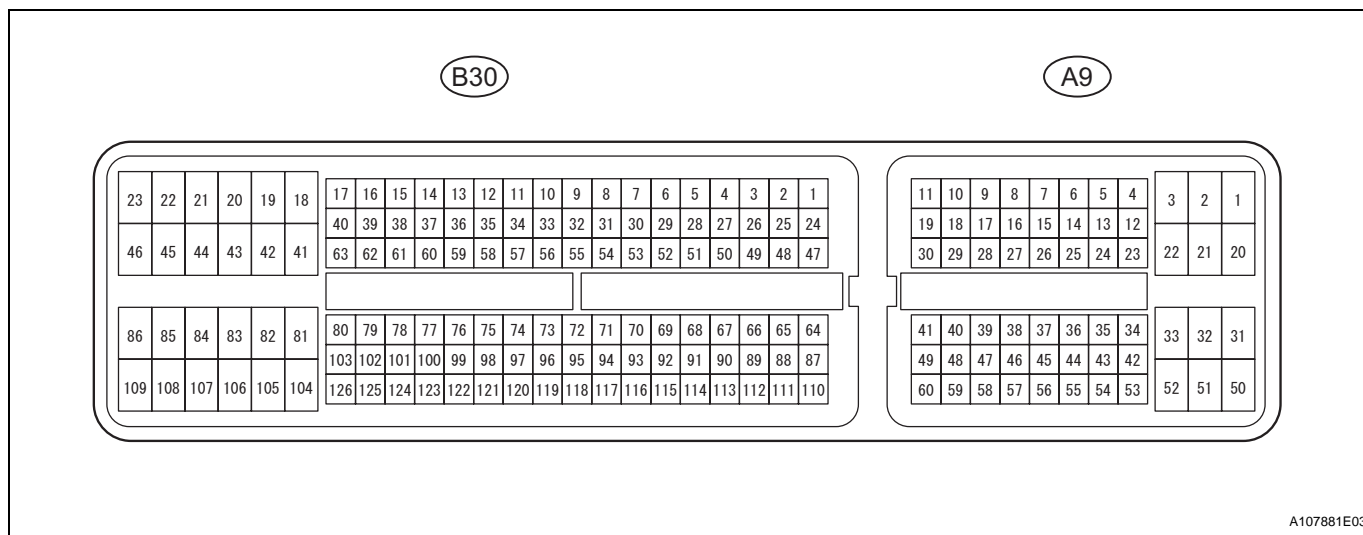


# TERMINALS OF ECM

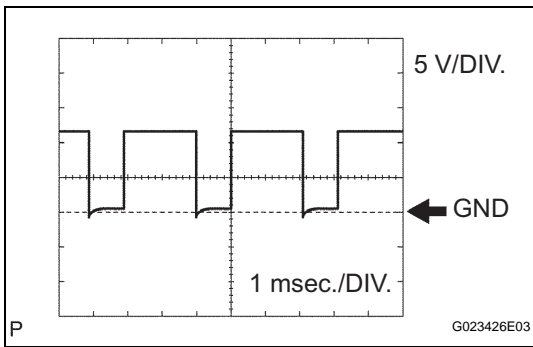
## 1. CHECK ECM



- (a) Measure the voltage of the ECM connector.  
**HINT:**  
 Each ECM terminal's standard voltage is shown in the table below.  
 In the table, first follow the information under "Condition". Look under "Symbols (Terminal No.)" for the terminals to be inspected. The standard voltage between the terminals is shown under "Specified Condition".  
 Use the illustration above as a reference for the ECM terminals.

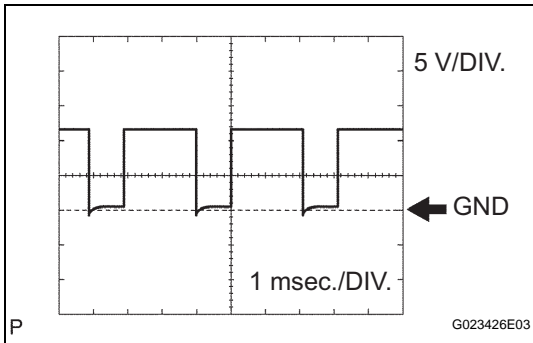
| Symbols (Terminal No.)       | Wiring Color | Terminal Description                | Condition   | Specified Condition |
|------------------------------|--------------|-------------------------------------|---|---------------------|
| STAR (B30-52) - E1 (B30-104) | W - BR       | Park/Neutral position switch signal | Ignition switch ON and shift lever on P or N              | Below 2 V           |
| STAR (B30-52) - E1 (B30-104) | W - BR       | Park/Neutral position switch signal | Ignition switch ON and shift lever not on P or N          | 10 to 14 V          |
| P (B30-73) - E1 (B30-104)    | L - BR       | P shift position switch signal      | Ignition switch ON and transfer shift lever on P          | 10 to 14 V          |
| P (B30-73) - E1 (B30-104)    | L - BR       | P shift position switch signal      | Ignition switch ON and transfer shift lever not on P      | Below 1 V           |
| R (B30-53) - E1 (B30-104)    | R - BR       | R shift position switch signal      | Ignition switch ON and transfer shift lever on R          | 10 to 14 V          |
| R (B30-53) - E1 (B30-104)    | R - BR       | R shift position switch signal      | Ignition switch ON and transfer shift lever not on R      | Below 1 V           |
| N (B30-54) - E1 (B30-104)    | Y - BR       | N shift position switch signal      | Ignition switch ON and transfer shift lever on N          | 10 to 14 V          |
| N (B30-54) - E1 (B30-104)    | Y - BR       | N shift position switch signal      | Ignition switch ON and transfer shift lever not on N      | Below 1 V           |
| D (B30-56) - E1 (B30-104)    | B - BR       | D shift position switch signal      | Ignition switch ON and transfer shift lever on D or 3     | 10 to 14 V          |
| D (B30-56) - E1 (B30-104)    | B - BR       | D shift position switch signal      | Ignition switch ON and transfer shift lever not on D or 3 | Below 1 V           |

| Symbols (Terminal No.)        | Wiring Color | Terminal Description           | Condition  | Specified Condition               |
|-------------------------------|--------------|--------------------------------|--|-----------------------------------|
| 3 (A9-26) - E1 (B30-104)      | P - BR       | 3 shift position switch signal | Ignition switch ON and transfer shift lever on 3                     | 10 to 14 V                        |
| 3 (A9-26) - E1 (B30-104)      | P - BR       | 3 shift position switch signal | Ignition switch ON and transfer shift lever not on 3                 | Below 1 V                         |
| 2 (B30-55) - E1 (B30-104)     | P - BR       | 2 shift position switch signal | Ignition switch ON and transfer shift lever on 2 and L               | 10 to 14 V                        |
| 2 (B30-55) - E1 (B30-104)     | P - BR       | 2 shift position switch signal | Ignition switch ON and transfer shift lever not on 2 and L           | Below 1 V                         |
| L (B30-74) - E1 (B30-104)     | LG - BR      | L shift position switch signal | Ignition switch ON and transfer shift lever on L                     | 10 to 14 V                        |
| L (B30-74) - E1 (B30-104)     | LG - BR      | L shift position switch signal | Ignition switch ON and transfer shift lever not on L                 | Below 1 V                         |
| STP (A9-36) - E1 (B30-104)    | L - BR       | Stop light switch signal       | Brake pedal is depressed   | Between 10 V and 14 V             |
| STP (A9-36) - E1 (B30-104)    | L - BR       | Stop light switch signal       | Brake pedal is released  | Below 1 V                         |
| SL1+ (B30-57) - SL1- (B30-77) | V - P        | SL1 solenoid signal            | Engine idle speed  | Pulse generation (see waveform 1) |
| SL1+ (B30-57) - SL1- (B30-77) | V - P        | SL1 solenoid signal            | Ignition switch ON   | Pulse generation (see waveform 1) |
| SL1+ (B30-57) - SL1- (B30-77) | V - P        | SL1 solenoid signal            | 1st gear   | Pulse generation (see waveform 1) |
| SL1+ (B30-57) - SL1- (B30-77) | V - P        | SL1 solenoid signal            | Not on 1st gear  | Below 1 V                         |
| SL2+ (B30-58) - SL2- (B30-59) | Y - L        | SL2 solenoid signal            | Engine idle speed  | Pulse generation (see waveform 2) |
| SL2+ (B30-58) - SL2- (B30-59) | Y - L        | SL2 solenoid signal            | Ignition switch ON   | Pulse generation (see waveform 2) |
| SL2+ (B30-58) - SL2- (B30-59) | Y - L        | SL2 solenoid signal            | 1st or 2nd gear  | Pulse generation (see waveform 2) |
| SL2+ (B30-58) - SL2- (B30-59) | Y - L        | SL2 solenoid signal            | 3rd or O/D gear  | Below 1 V                         |
| DSL (B30-79) - E01 (B30-45)   | G - BR       | DSL solenoid signal            | Vehicle speed 65 km/h (40 mph), lock-up (ON to OFF)                  | Below 1 V                         |
| DSL (B30-79) - E01 (B30-45)   | G - BR       | DSL solenoid signal            | Vehicle driving under lock-up position                               | Pulse generation (see waveform 3) |
| SLT+ (B30-76) - SLT- (B30-75) | R - GR       | SLT solenoid signal            | Engine idle speed  | Pulse generation (see waveform 4) |
| S4 (B30-78) - E01 (B30-45)    | W - BR       | S4 solenoid signal             | Ignition switch ON   | Below 1 V                         |
| S4 (B30-78) - E01 (B30-45)    | W - BR       | S4 solenoid signal             | O/D gear   | 10 to 14 V                        |
| S4 (B30-78) - E01 (B30-45)    | W - BR       | S4 solenoid signal             | Not on O/D gear  | Below 1 V                         |
| THO1 (B30-72) - ETHO (B30-95) | LG - BR      | ATF temperature sensor signal  | ATF temperature: 115°C (239°F) or more                               | Below 1.5 V                       |
| NT+ (B30-125) - NT- (B30-124) | W - R        | Speed sensor (NT) signal       | Vehicle speed 20 km/h (12 mph)                                       | Pulse generation (see waveform 5) |
| NC+ (B30-101) - NC- (B30-102) | R - W        | Speed sensor (NC) signal       | Vehicle speed 30 km/h (19 mph): (3rd gear)<br>Engine speed 1,400 rpm | Pulse generation (see waveform 6) |



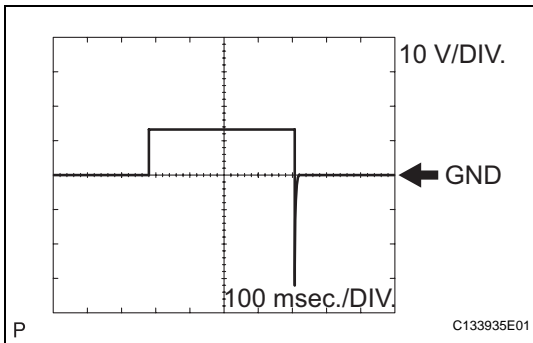
(b) Using an oscilloscope, check the waveform 1.  
**Waveform 1 (Reference)**

| Item                   | Content                       |
|------------------------|-------------------------------|
| Symbols (Terminal No.) | SL1+ (B30-57) - SL1- (B30-77) |
| Tool Setting           | 5 V/DIV., 1 msec./DIV.        |
| Condition              | Engine idle speed             |



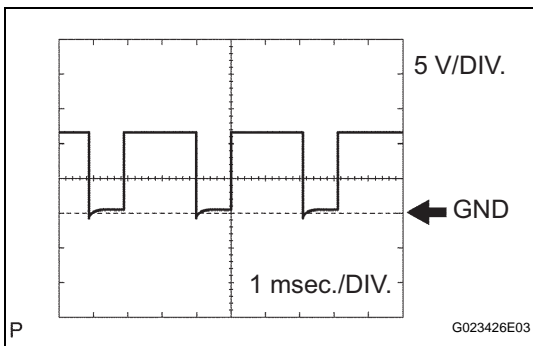
(c) Using an oscilloscope, check the waveform 2.  
**Waveform 2 (Reference)**

| Item                   | Content                       |
|------------------------|-------------------------------|
| Symbols (Terminal No.) | SL2+ (B30-58) - SL2- (B30-59) |
| Tool Setting           | 5 V/DIV., 1 msec./DIV.        |
| Condition              | Engine idle speed             |



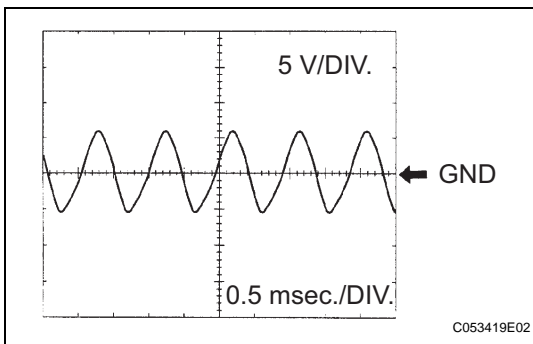
(d) Using an oscilloscope, check the waveform 3.  
**Waveform 3 (Reference)**

| Item                   | Content   |
|------------------------|---|
| Symbols (Terminal No.) | DSL (B30-79) - E01 (B30-45)                         |
| Tool Setting           | 10 V/DIV., 100 msec./DIV.                           |
| Condition              | Vehicle speed 65 km/h (40 mph), lock-up (ON to OFF) |



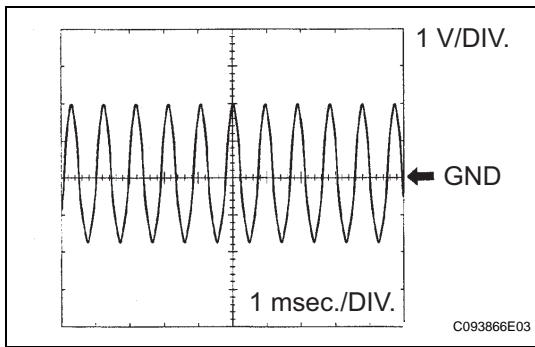
(e) Using an oscilloscope, check the waveform 4.  
**Waveform 4 (Reference)**

| Item                   | Content                       |
|------------------------|-------------------------------|
| Symbols (Terminal No.) | SLT+ (B30-76) - SLT- (B30-75) |
| Tool Setting           | 5 V/DIV., 1 msec./DIV.        |
| Condition              | Engine idle speed             |



(f) Using an oscilloscope, check the waveform 5.  
**Waveform 5 (Reference)**

| Item                   | Content                        |
|------------------------|--------------------------------|
| Symbols (Terminal No.) | NT+ (B30-125) - NT- (B30-124)  |
| Tool Setting           | 5 V/DIV., 0.5 msec./DIV.       |
| Condition              | Vehicle speed 20 km/h (12 mph) |



(g) Using an oscilloscope, check the waveform 6.  
**Waveform 6 (Reference)**

| Item                   | Content  |
|------------------------|--|
| Symbols (Terminal No.) | NC+ (B30-101) - NC- (B30-102)  |
| Tool Setting           | 1 V/DIV., 1 msec./DIV.   |
| Condition              | Vehicle speed 30 km/h (19 mph): (3rd gear)<br>Engine speed 1,400 rpm |