

## **Chapter 12**

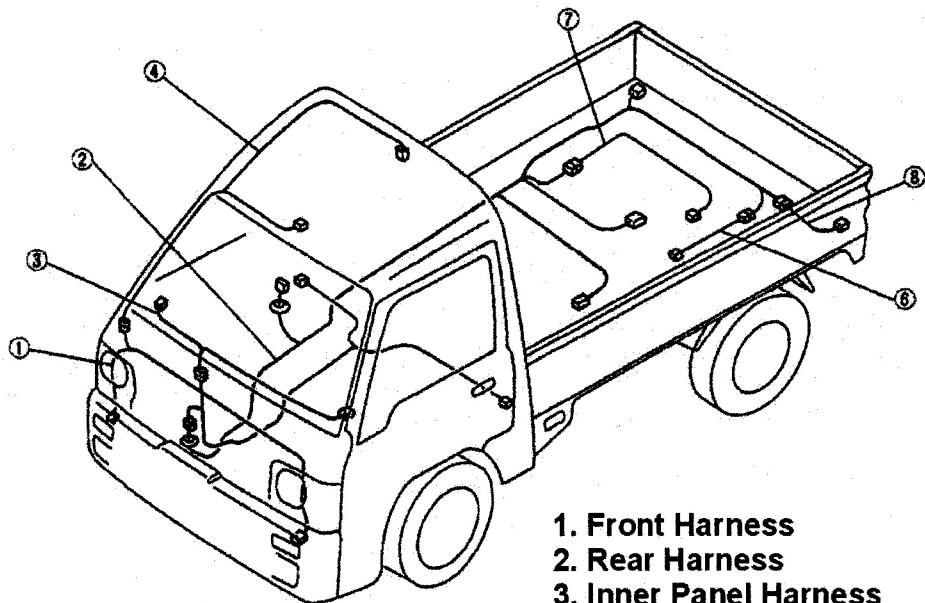
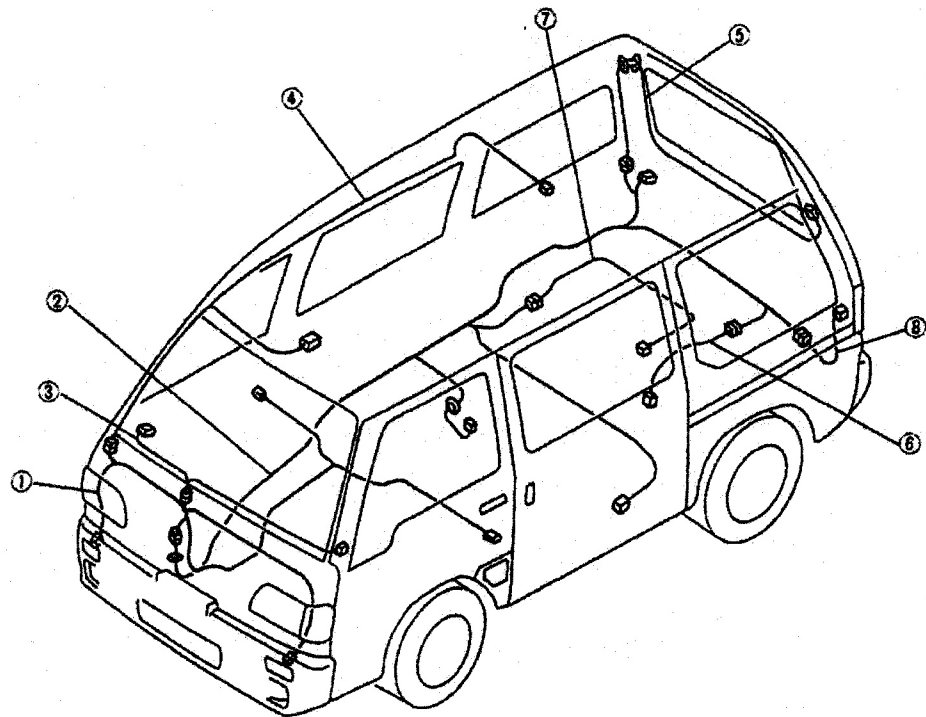
### **Harness Diagrams**

- 1. General Harness Locations**
- 2. Truck Full Main Harness and Connection Codes**
- 3. Connection Codes Explained (Truck-Van)**
- 4. Van Full Main Harness and Connection Codes**
- 5. Engine & Transmission Harness and Connections**
- 6. Engine & Transmission Harness Code Breakdown**
- 7. Front Component (Main) Harness Dash-Front Lighting**
- 8. Front Component (Main) Connector Breakdown**

### **Electrical Schematic Breakdowns**

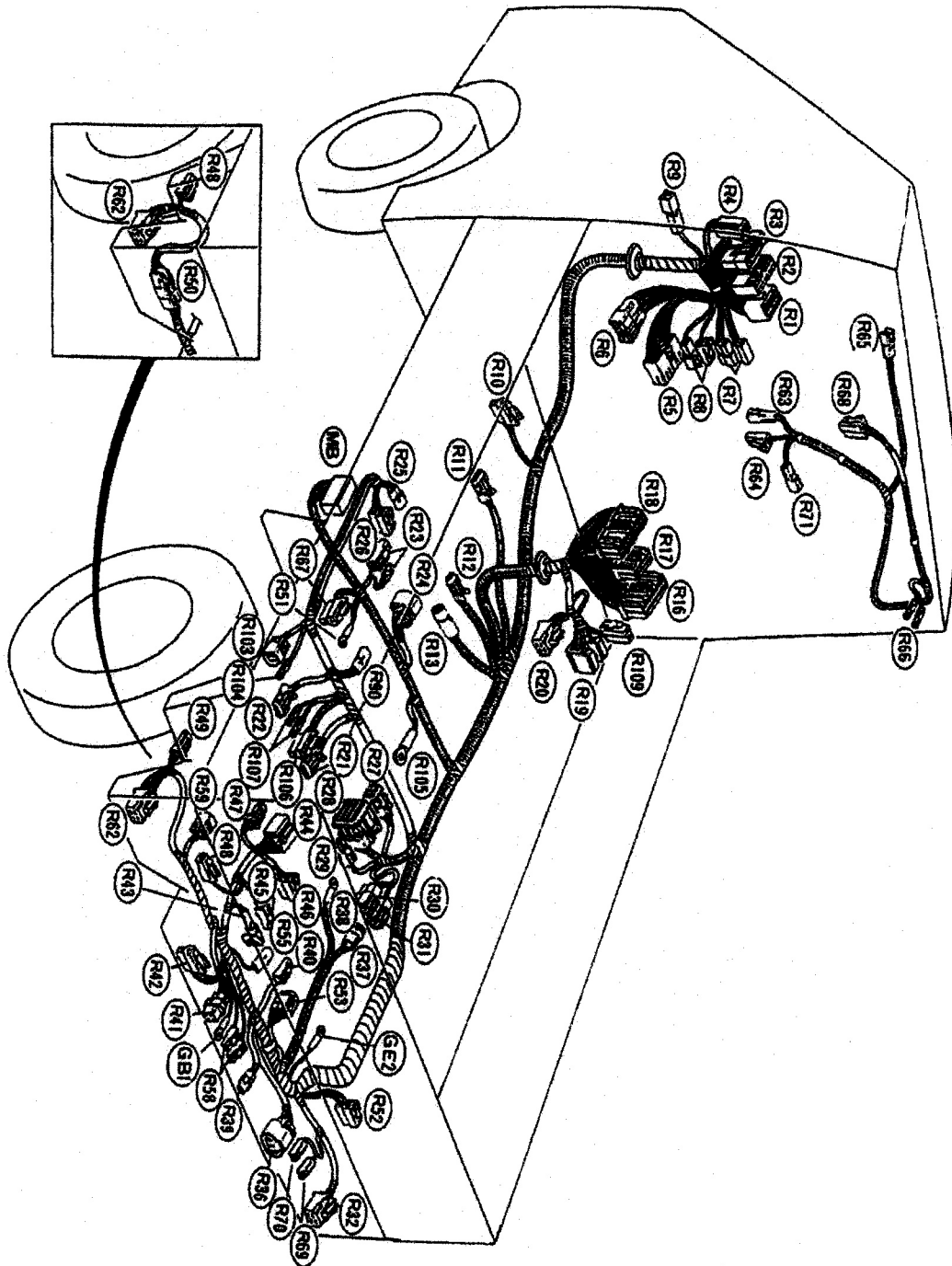
- 9. Turn Signal & Hazard**
- 10. Stop Lamp Circuit**
- 11. Lighting Circuit (Headlights-Running Lights)**
- 12. Lighting Circuit Tail Assemblies & Illumination Lamps**
- 13. Engine Control and Fuel Pump Circuits**
- 14. Charging System**
- 15. Engine Room and Radiator Fan (Van & Special Trucks)**
- 16. Engine Radiator Fan (Basic Vehicle)**
- 17. Radio (Audio) Circuits and Cigarette Lighter**
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- 19. Full Time 4WD Control Circuits**
- 20. Selective 4WD Control Circuits**
- 21. Diff-Lock Control Circuits**
- 22. EMPi Engine Control Management System Part 1 (Fuel Injection)**
- 23. EMPi Engine Control Management System Part 2 (Fuel Injection)**
- 24. Windshield Wiper System Front and Rear**
- 25. Rear Defogger Circuit**

## General Information



- 1. Front Harness
- 2. Rear Harness
- 3. Inner Panel Harness
- 4. Roof Hrness
- 5. Back door Harness
- 6. Transmission Line
- 7. Engine Harness
- 8. Rear Combination

## Pickup Truck



**Van**





**Main Harness Connector Code  
Breakdown  
Truck & Van**

| No. | Color  | Function                  |
|-----|--------|---------------------------|
| R1  | Black  | Front Wiring Harness      |
| R2  | Black  | Same                      |
| R3  |        | Front wiring harness (SC) |
| R4  |        | Front wiring harness      |
| R5  | Yellow | Select Monitor            |
| R6  | Blue   | Front AC Harness          |
| R7  | Green  | Test Mode Connector       |
| R8  | Black  | Read Memory Connector     |
| R9  | Black  | Diode (AC)                |
| R10 | Black  | Radiator Fan              |
| R11 | Gray   | Free Axel Solenoid        |
| R12 | Gray   | High Press Cut Switch     |
| R13 | Black  | Condenser Fan             |
| R16 | Yellow | EMPi Unit                 |
| R17 | Yellow | EMPi Unit                 |
| R18 | Yellow | EMPi Unit                 |
| R19 | Brown  | EMPi Main Relay           |
| R20 | Brown  | Fuel Pump Relay           |
| R21 | Gray   | 4WD Solenoid              |
| R22 | Gray   | Diff-Lock Solenoid        |
| R23 |        | Fuel Unit                 |
| R24 |        | Fuel Pump                 |
| R25 |        | Engine Room Fan           |
| R26 |        | VSV (Air-conditioning)    |
| R27 | Gray   | Engine Harness            |
| R28 | Gray   | Engine Harness            |
| R29 | Black  | Thermo-Switch             |
| R30 | Black  | Gas Temp Switch           |
| R31 | Black  | Magnetic Clutch           |
| R32 |        | Rear Combination          |

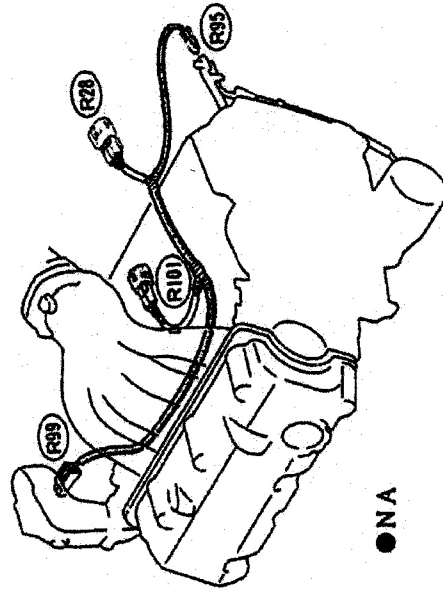
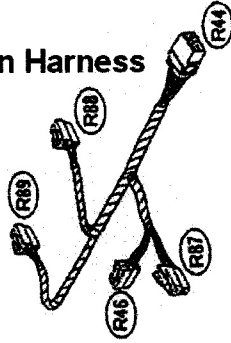
|     |       | Lamp(RH)                    |
|-----|-------|-----------------------------|
| R33 |       | Rear Gate Cord              |
| R34 |       | Rear Gate Cord              |
| R35 | Black | Rear Wiper Relay            |
| R36 | Green | Pressure Sensor             |
| R37 | Green | Alternator                  |
| R38 |       | Alternator B                |
| R39 | Blue  | ISC Valve                   |
| R40 | Green | Distributor                 |
| R41 | Gray  | Igniter                     |
| R42 | Black | Noise Condenser             |
| R43 |       | O2 Sensor                   |
| R44 |       | Transmission Connector      |
| R45 |       | Starter Mg                  |
| R46 |       | Back Switch                 |
| R47 | Black | Electric Clutch             |
| R48 | Blue  | Temp Sensor                 |
| R49 | Gray  | Thermostat                  |
| R50 | Black | Rear Combination Connection |
| R52 |       | Backup Warning Horn         |
| R53 | Black | Over speed cutoff           |
| R55 | Gray  | Contact Breaker             |
| R56 | Black | Thermo Switch               |
| R58 |       | Resistor                    |
| R59 | Black | Ignition Coil               |
| R60 |       | Ultra Heater Solenoid       |
| R61 |       | Rear Washer Motor           |
| R62 |       | Rear Combination Lamp (LH)  |
| R64 |       | Front Wiring Harness F6     |
| R65 |       | Room Lamp                   |
| R71 | Green | Front Wiring Harness F8     |
| R74 |       | Rear Defroster              |
| R75 |       | Rear Wiper Motor            |

|             |              |                                     |
|-------------|--------------|-------------------------------------|
| <b>R76</b>  |              | <b>License Lamp</b>                 |
| <b>R77</b>  |              | <b>Back Door Opener</b>             |
| <b>R78</b>  | <b>Black</b> | <b>Back Door Switch</b>             |
| <b>R79</b>  |              | <b>Rear Defroster</b>               |
| <b>R80</b>  | <b>Black</b> | <b>Main Motor</b>                   |
| <b>R81</b>  |              | <b>Sunroof Switch</b>               |
| <b>R82</b>  | <b>Gray</b>  | <b>Luggage Compartment<br/>Lamp</b> |
| <b>R83</b>  |              | <b>Sunroof Switch</b>               |
| <b>R84</b>  |              | <b>Sunroof Switch</b>               |
| <b>R85</b>  |              | <b>Limit Switch (Sunroof)</b>       |
| <b>R90</b>  |              | <b>Ds Range Solenoid</b>            |
| <b>R109</b> | <b>Red</b>   | <b>Jumper Wire (EMPi Unit)</b>      |

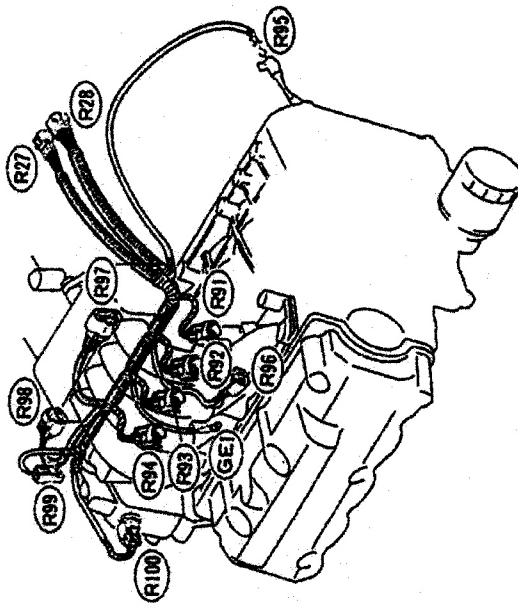
**Complete Main Codes**

## Engine Harness & Transmission Harness

Trnasmission Harness



● NA



● SC

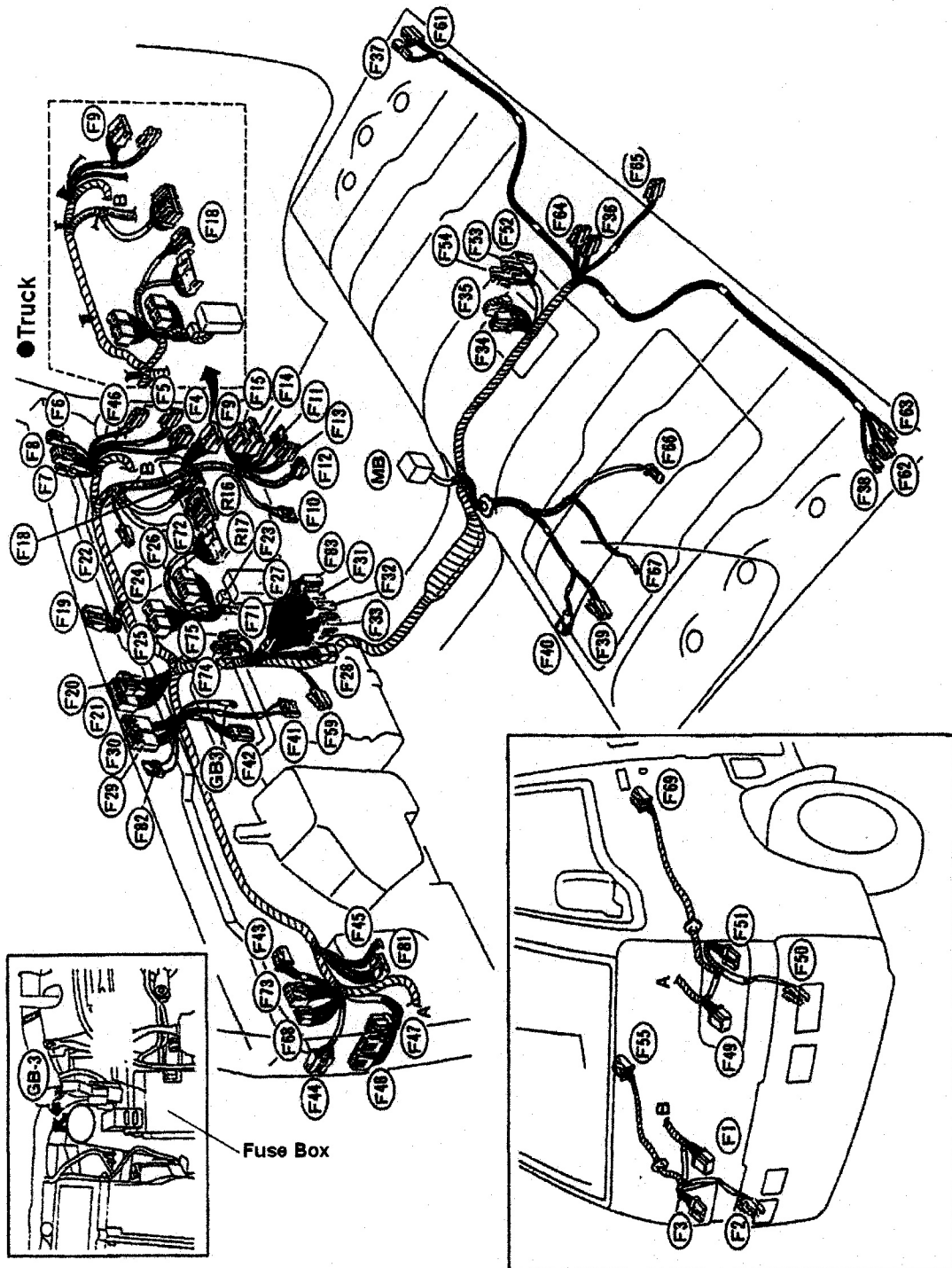


## Engine & Transmission Harness Connector Codes

| No.  | Color | Description                             |
|------|-------|-----------------------------------------|
| R27  | Gray  | Rear Harness                            |
| R28  | Gray  | Rear Harness                            |
| R44  |       | Rear Harness to Transmission Connection |
| R46  |       | Backup Lamp Switch                      |
| R87  | Brown | EL Switch (Selective 4WD)               |
| R88  | Brown | Diff-Lock Switch (Selective 4WD)        |
| R89  | Brown | 2WD-4WD Switch (4WD)                    |
| R91  | Gray  | Injector #1                             |
| R92  | Gray  | Injector #2                             |
| R93  | Gray  | Injector #3                             |
| R94  | Gray  | Injector #4                             |
| R95  |       | Oil Pressure Switch                     |
| R96  | Brown | Knock-Sensor                            |
| R97  | Gray  | Throttle Sensor                         |
| R98  | Black | Charge Sensor                           |
| R99  | Black | Thermo-meter                            |
| R100 | Green | Water Temp Sensor                       |
| R101 | Gray  | Carburetor IG Power                     |

## Complete Engine & Trans Connector Codes

# Front Component (Main)



## Front Component (Main) Harness

### Truck & Van

#### Connector Code Breakdown

| No. | Color Codes | Description (Function)      |
|-----|-------------|-----------------------------|
| F1  | Black       | Headlight (RH)              |
| F2  |             | Front Turn signal Lamp (RH) |
| F3  |             | Front Combination Lamp (RH) |
| F4  |             | Accelerator SW (ECVT)       |
| F5  | Black       | Brake Fluid                 |
| F6  | Black       | R64 Roof Wiring             |
| F7  | Blue        | R63 Roof Wiring             |
| F8  | Green       | R71 Roof Wiring             |
| F9  |             | Line End Check              |
| F10 | Black       | Stop Lamp Switch            |
| F11 | Black       | Key Lock Solenoid           |
| F12 | Pink        | Ignition Key Switch         |
| F13 | Black       | Key Switch                  |
| F14 | Black       | Combination Switch          |
| F15 | Black       | Combination Switch          |
| F16 |             | Combination Meter           |
| F17 |             | Combination Meter           |
| F18 |             | Combination Meter           |
| F19 |             | (OP)                        |
| F20 |             | Panel Harness               |
| F21 |             | Panel Harness               |
| F22 |             | Backup PWR (Clock)          |
| F23 |             | Fuse Box #2 (AC Fuse)       |
| F24 | Blue        | 4WD Relay                   |
| F25 | Green       | Diff-Lock Relay             |
| F26 | Black       | Free Axel Relay             |
| F27 |             | Fuse Box #1                 |
| F28 | Black       | R4 rear Wiring Harness      |

|     |        |                               |
|-----|--------|-------------------------------|
| F29 | Black  | 4WD Diode                     |
| F30 |        | Diff-Lock Diode               |
| F31 |        | Rear Wiring Harness           |
| F32 | Black  | Rear Wiring Harness           |
| F33 |        | Rear Wiring Harness(SC)       |
| F34 |        | Inhibitor Switch              |
| F35 |        | 4WD Switch                    |
| F36 |        | Parking Brake Switch          |
| F37 |        | Door Switch (RH)              |
| F38 |        | Door Switch (LH)              |
| F39 |        | Front Washer Motor            |
| F40 |        | Horn                          |
| F41 |        | Heater Blower                 |
| F42 | Brown  | Heater Resister               |
| F43 |        | Front Wiper Motor             |
| F44 |        | Engine Room Fan (SC)          |
| F45 | Blue   | AC Harness                    |
| F46 | Blue   | Accelerator Switch AC         |
| F47 | Black  | Shift Lock Unit               |
| F48 | Yellow | ECVT Unit                     |
| F49 | Black  | Headlamp (LH)                 |
| F50 |        | Front Turn Signal Lamp(LH)    |
| F51 |        | Front Combination Lamp (LH)   |
| F52 | Black  | Parking Switch                |
| F53 | Black  | Shift Lock Solenoid           |
| F54 | Blue   | Injector                      |
| F55 |        | Side Door Lock                |
| F59 |        | Switch                        |
| F61 |        | Side Door SW (RH)             |
| F62 |        | Side Door (LH)                |
| F63 |        | Side Door Switch (Room Light) |
| F64 | Brown  | Rear Heater Switch            |
| F65 | Black  | Plug Socket                   |
| F66 | Gray   | Rear Heater Blower            |
| F67 |        | Battery                       |



|            |              |                              |
|------------|--------------|------------------------------|
| <b>F68</b> |              | <b>Side Door Lock Unit</b>   |
| <b>F69</b> |              | <b>Side Door Lock (LH)</b>   |
| <b>F71</b> | <b>Black</b> | <b>AC Harness</b>            |
| <b>F72</b> |              | <b>Starter Relay</b>         |
| <b>F73</b> |              | <b>(OP)</b>                  |
| <b>F74</b> |              | <b>IG PWR</b>                |
| <b>F75</b> | <b>Black</b> | <b>ACC PWR</b>               |
| <b>F81</b> |              | <b>AC Harness Connection</b> |
| <b>F82</b> | <b>Black</b> | <b>Resister</b>              |
| <b>F83</b> | <b>Blue</b>  | <b>Rear Harness AC</b>       |

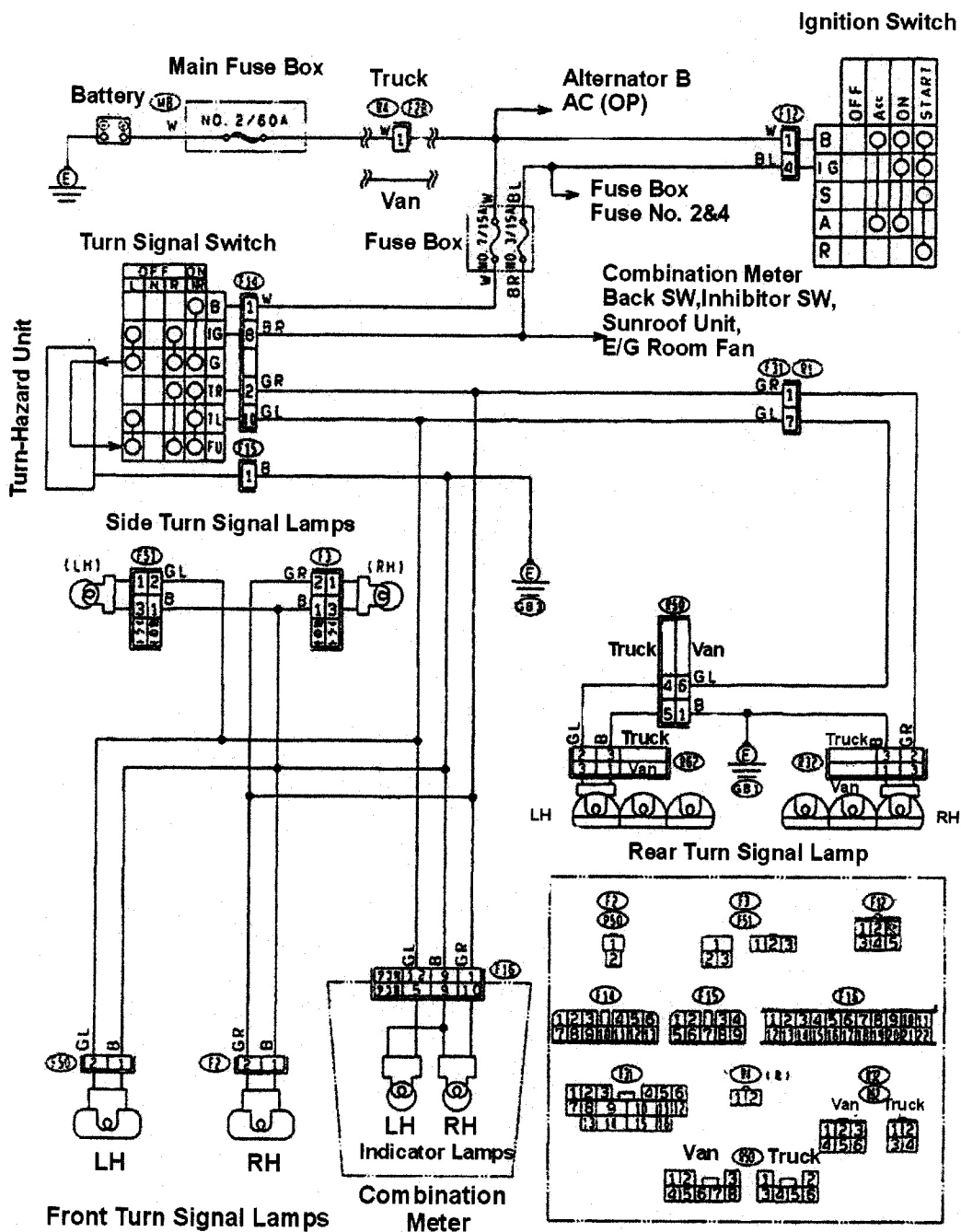
**Completed**

## Electrical Schematics

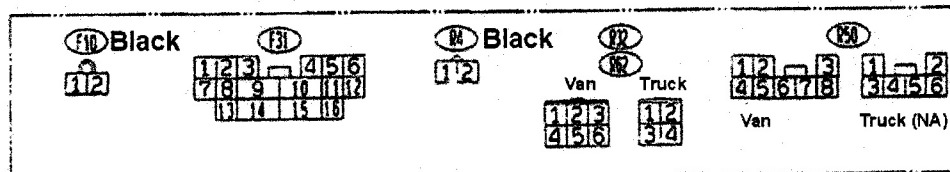
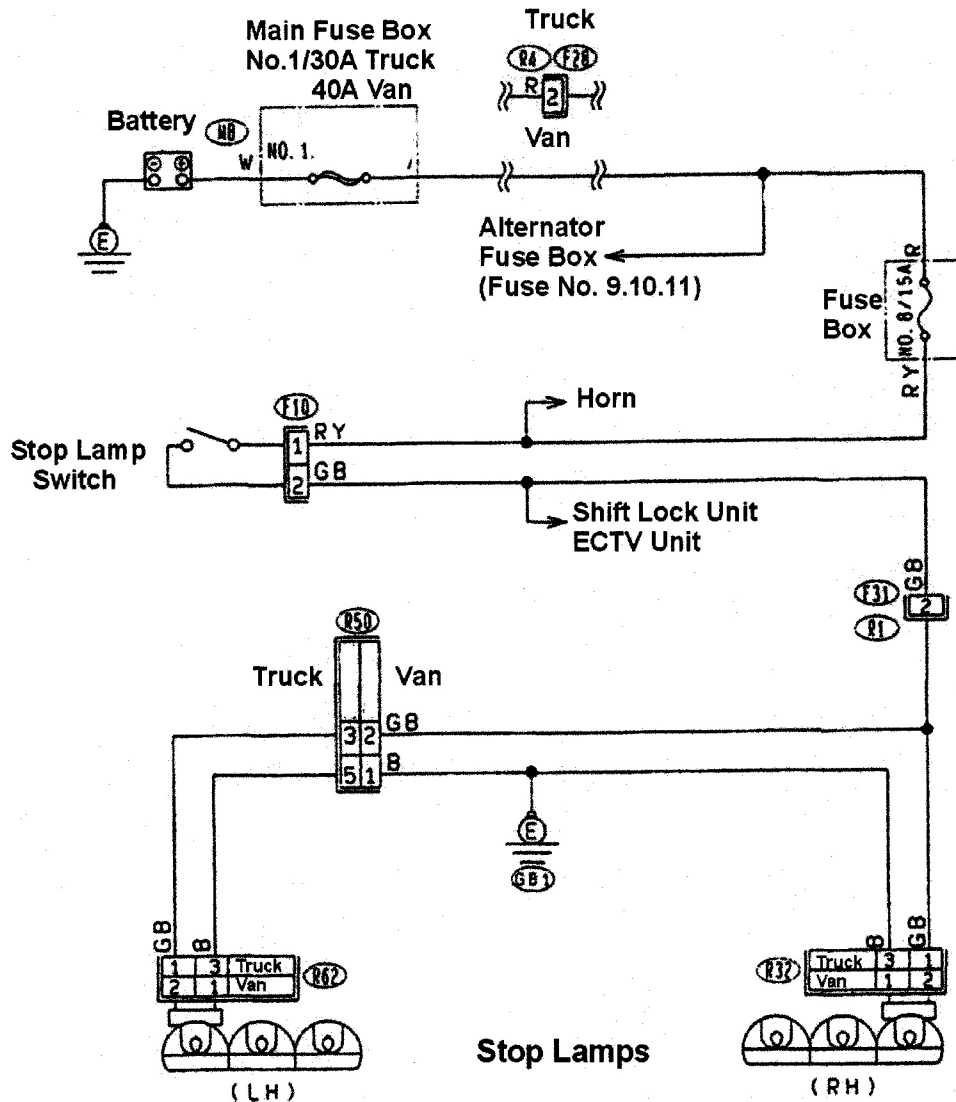
Use the following Color Codes that will be used thought this section.

| Color Symbol | Color Name            |
|--------------|-----------------------|
| L            | Blue                  |
| B            | Black                 |
| Y            | Yellow                |
| G            | Green                 |
| R            | Red                   |
| W            | White                 |
| Br           | Brown                 |
| Lg           | Light Green           |
| Gr           | Gray                  |
| P            | Pink                  |
| Or           | Orange                |
| Lb           | Light Blue            |
| SA           | Shielded Line (Inner) |
| SB           | Shielded Line (Outer) |

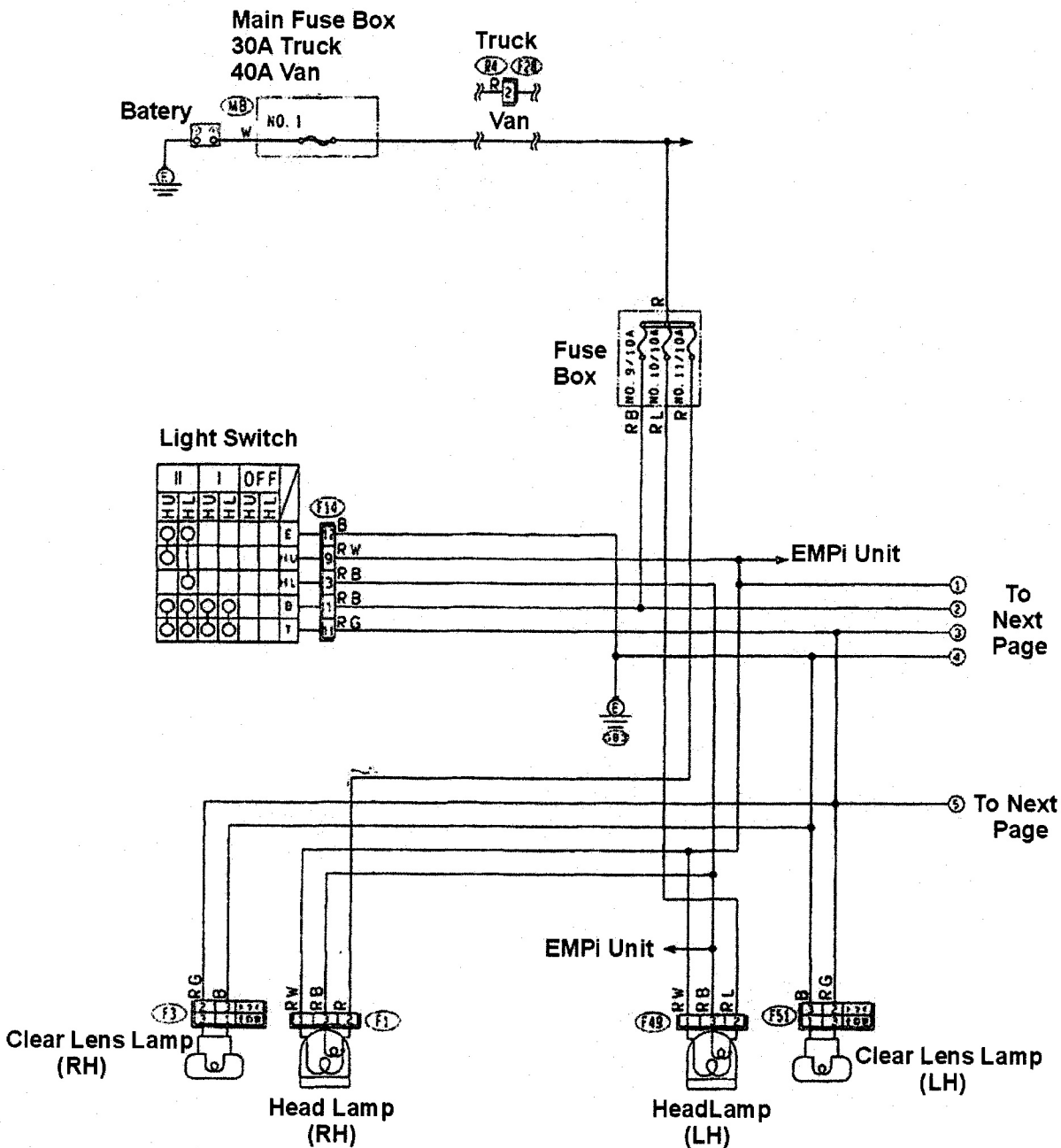
## Turn Signal & Hazard Diagram



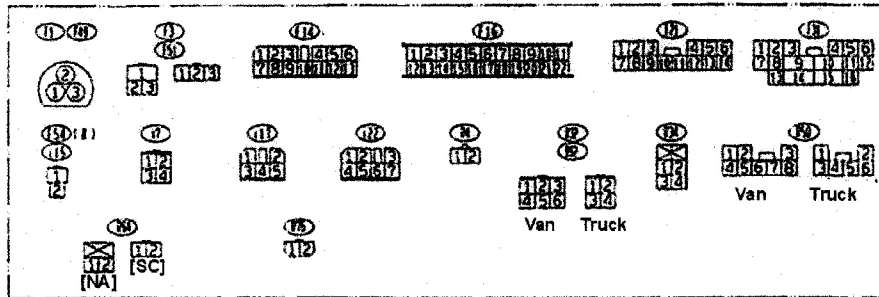
## Stop Lamp Circuit



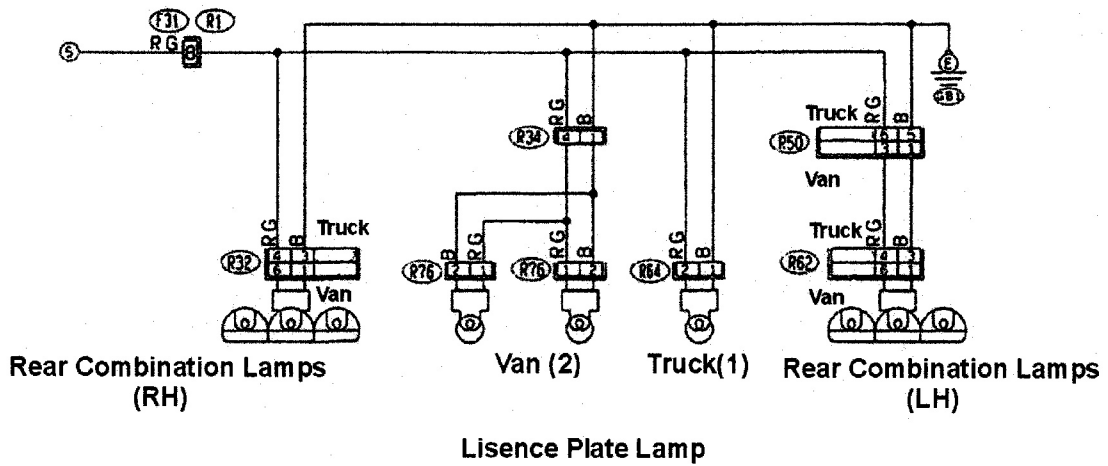
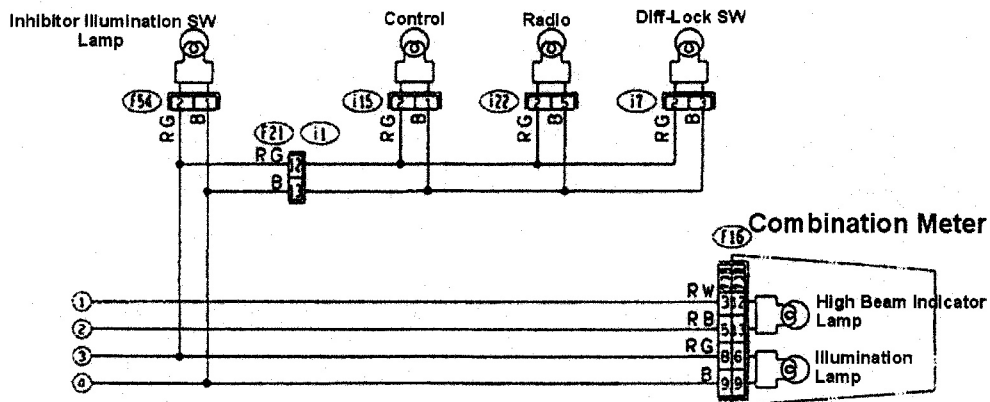
# Lighting Circuit Part 1



## Lighting Circuit Part 2

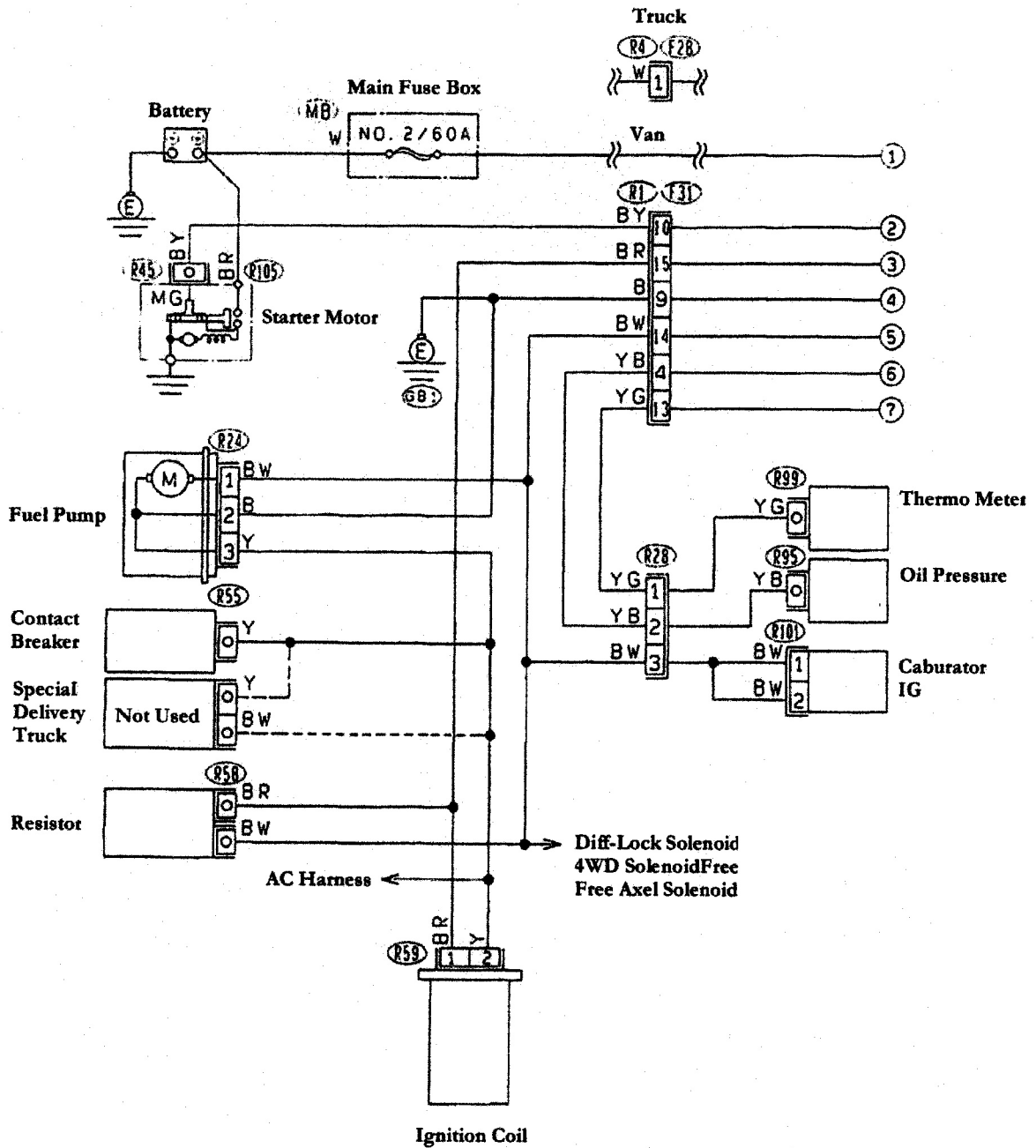


## Illumination Lamps

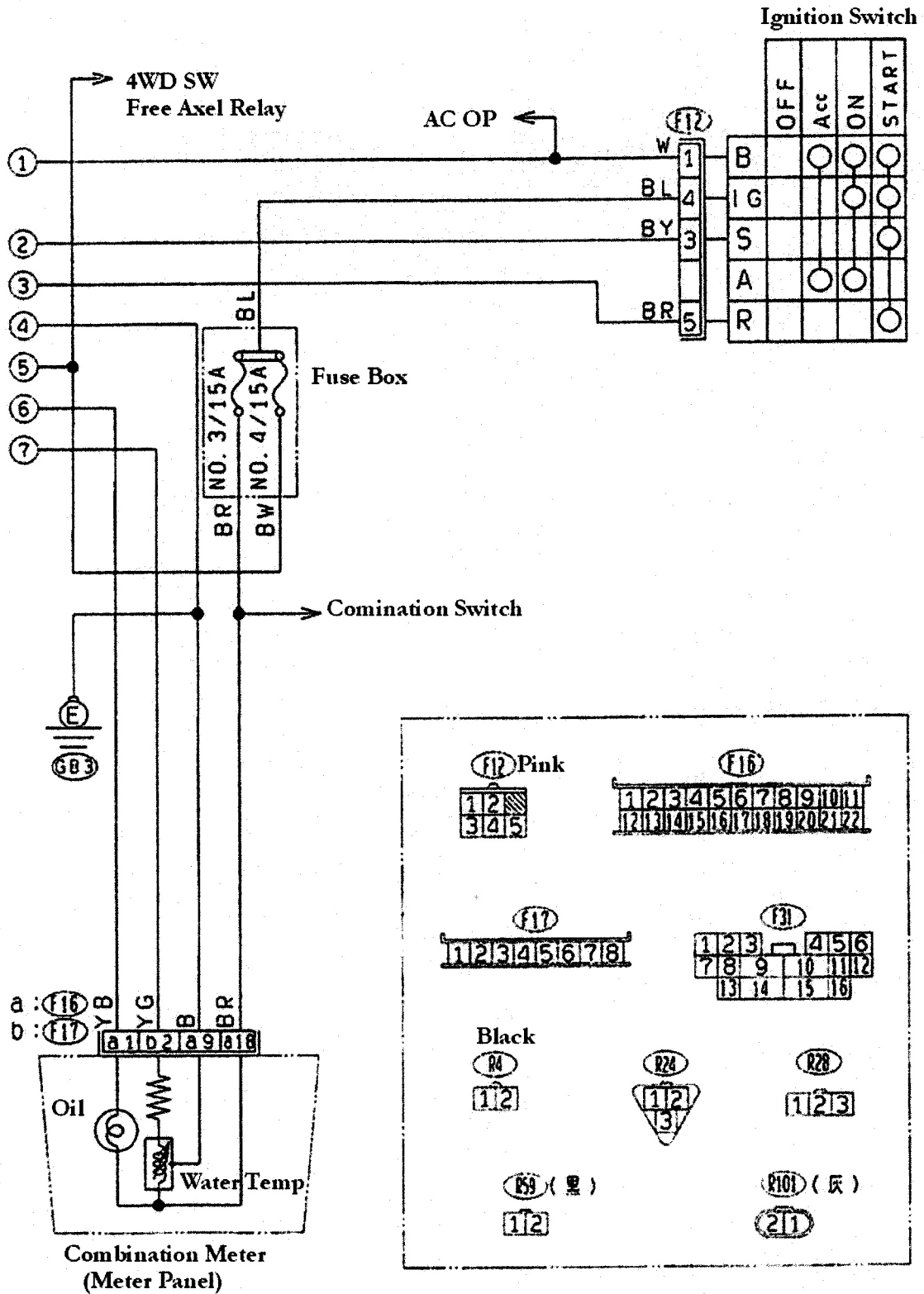


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# Engine Control & Fuel Pump System

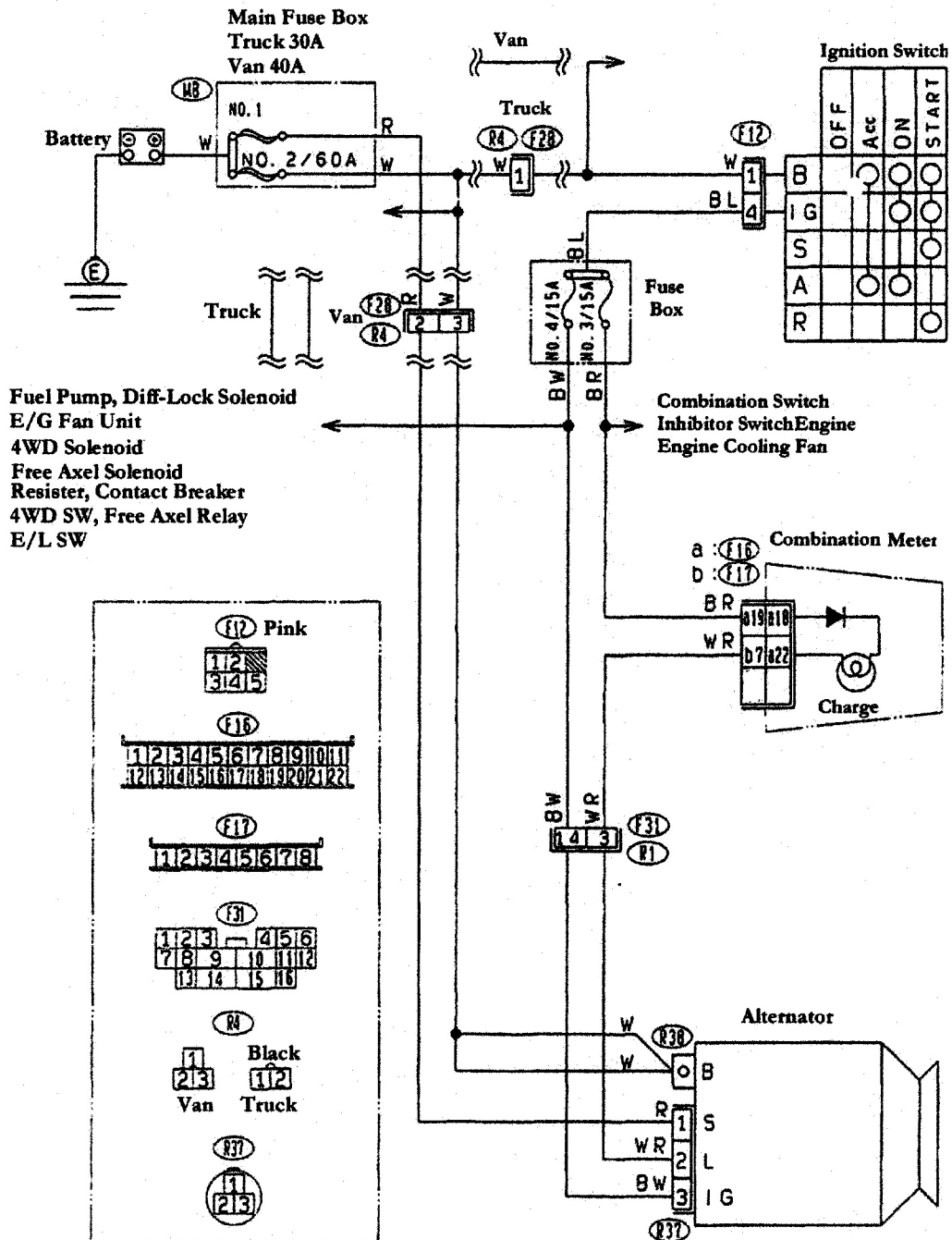


# Engine Control Sensor Circuits Continued

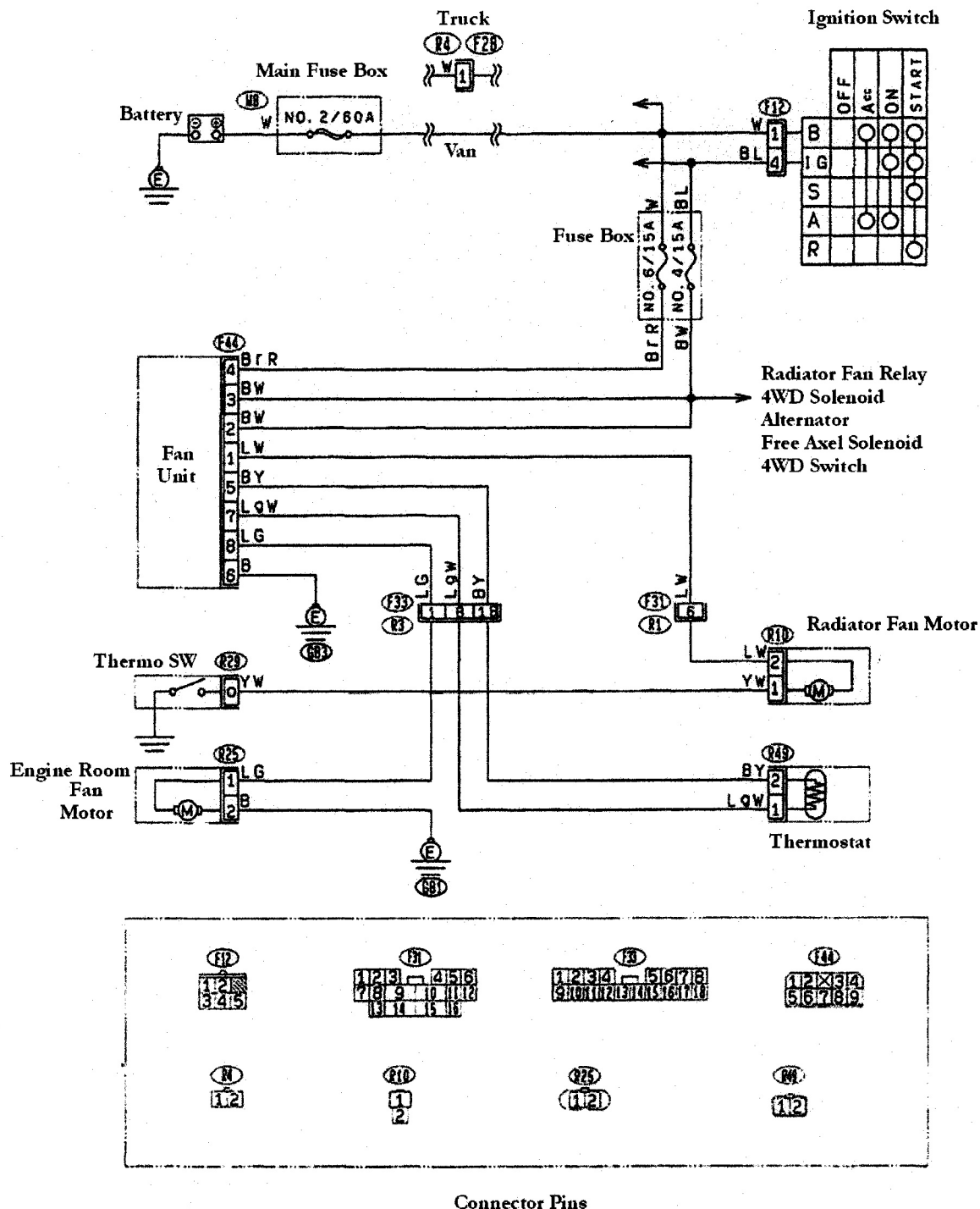




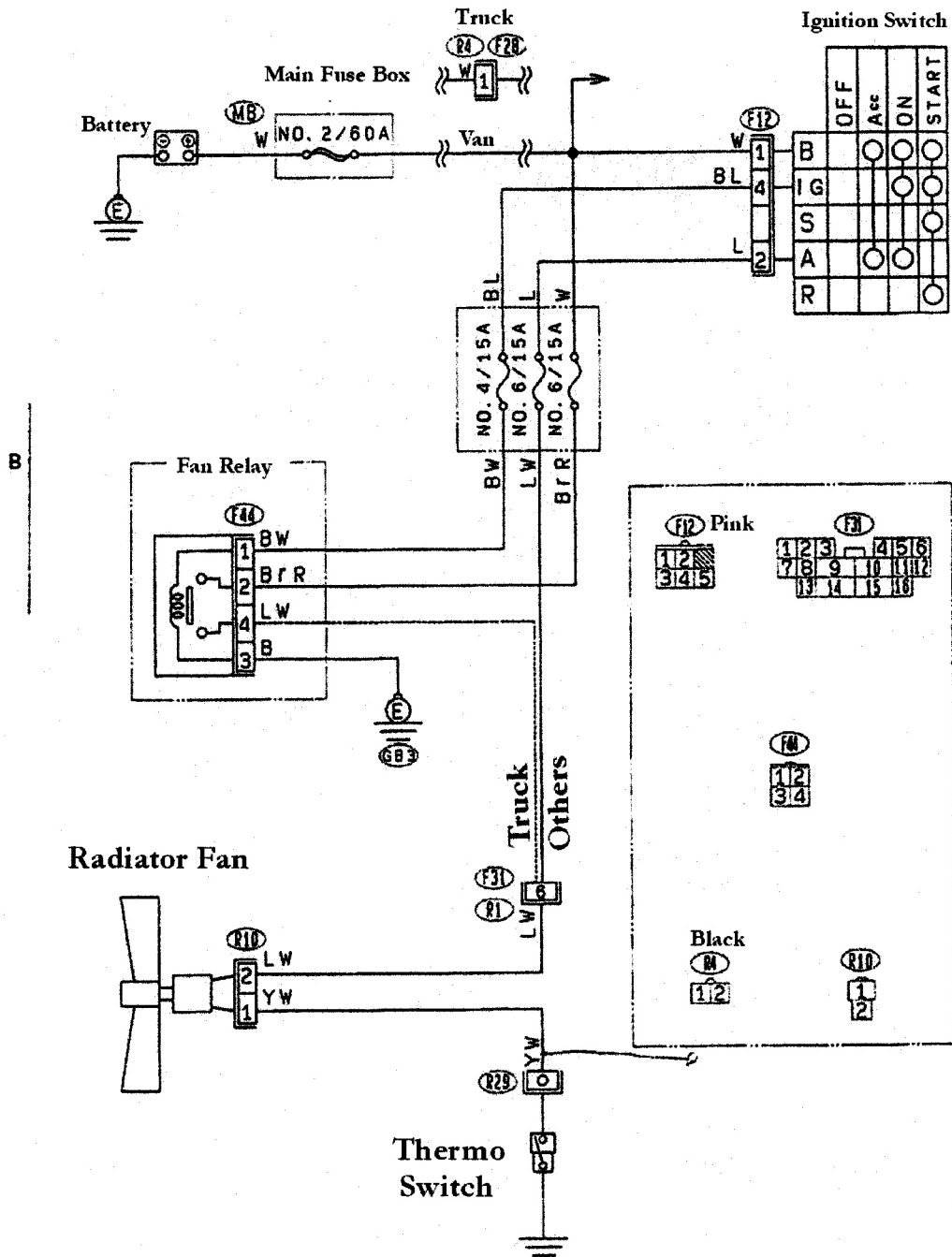
## Charging System



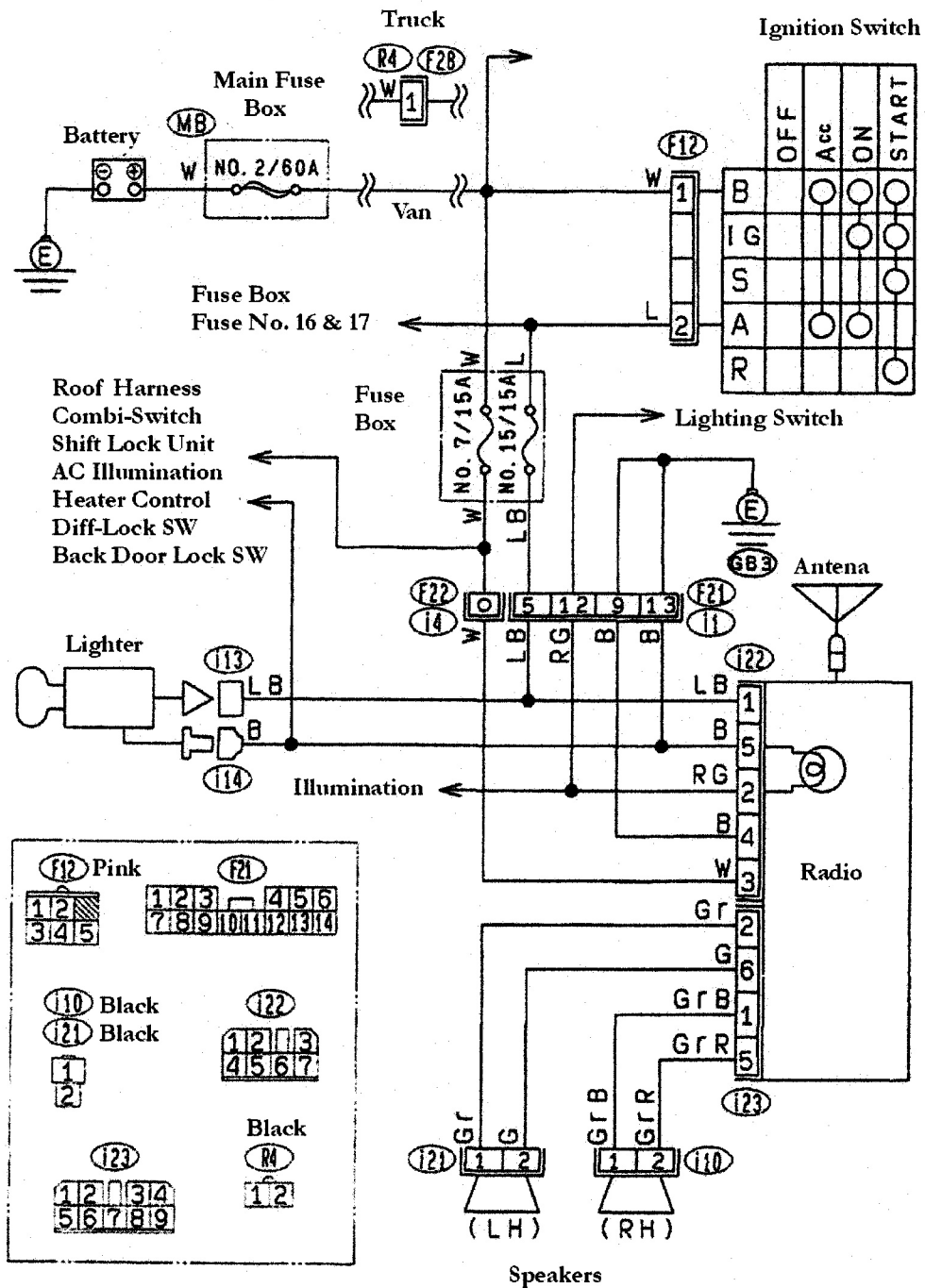
# Engine Compartment Cooling Engine Room Fan Radiator Fan



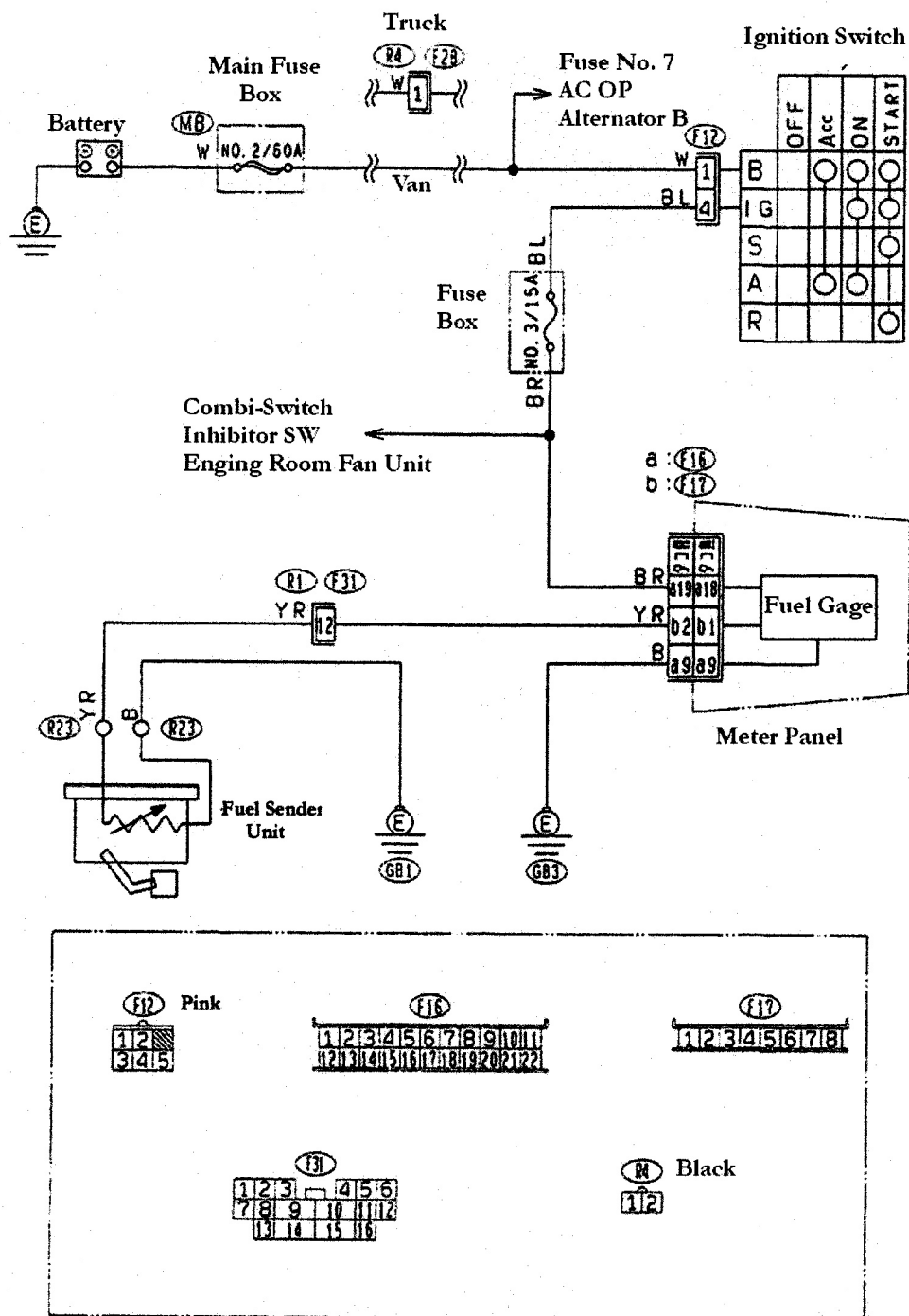
## Radiator Fan Motor Circuit Basic Model



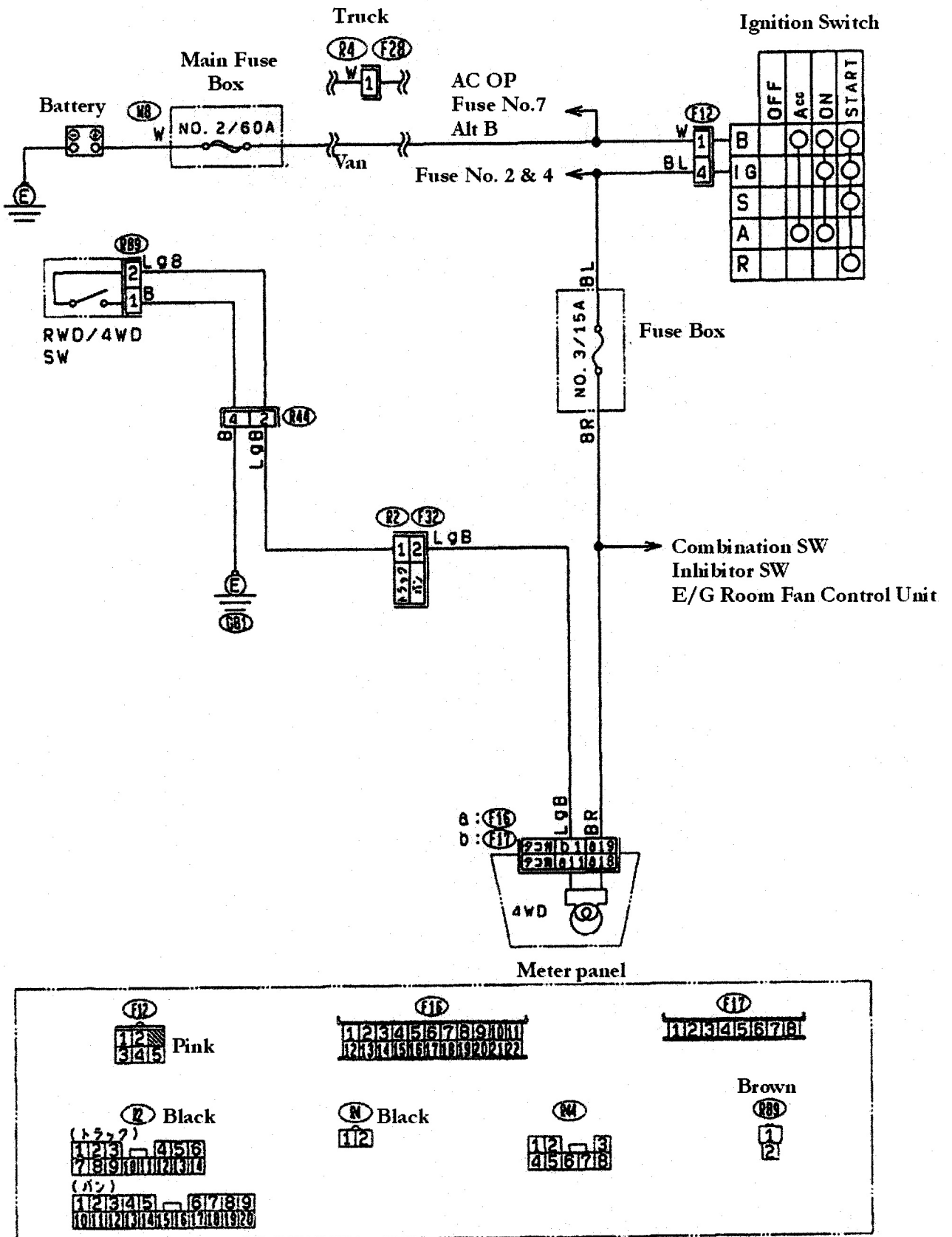
## Radio (Audio) and Lighter Circuits



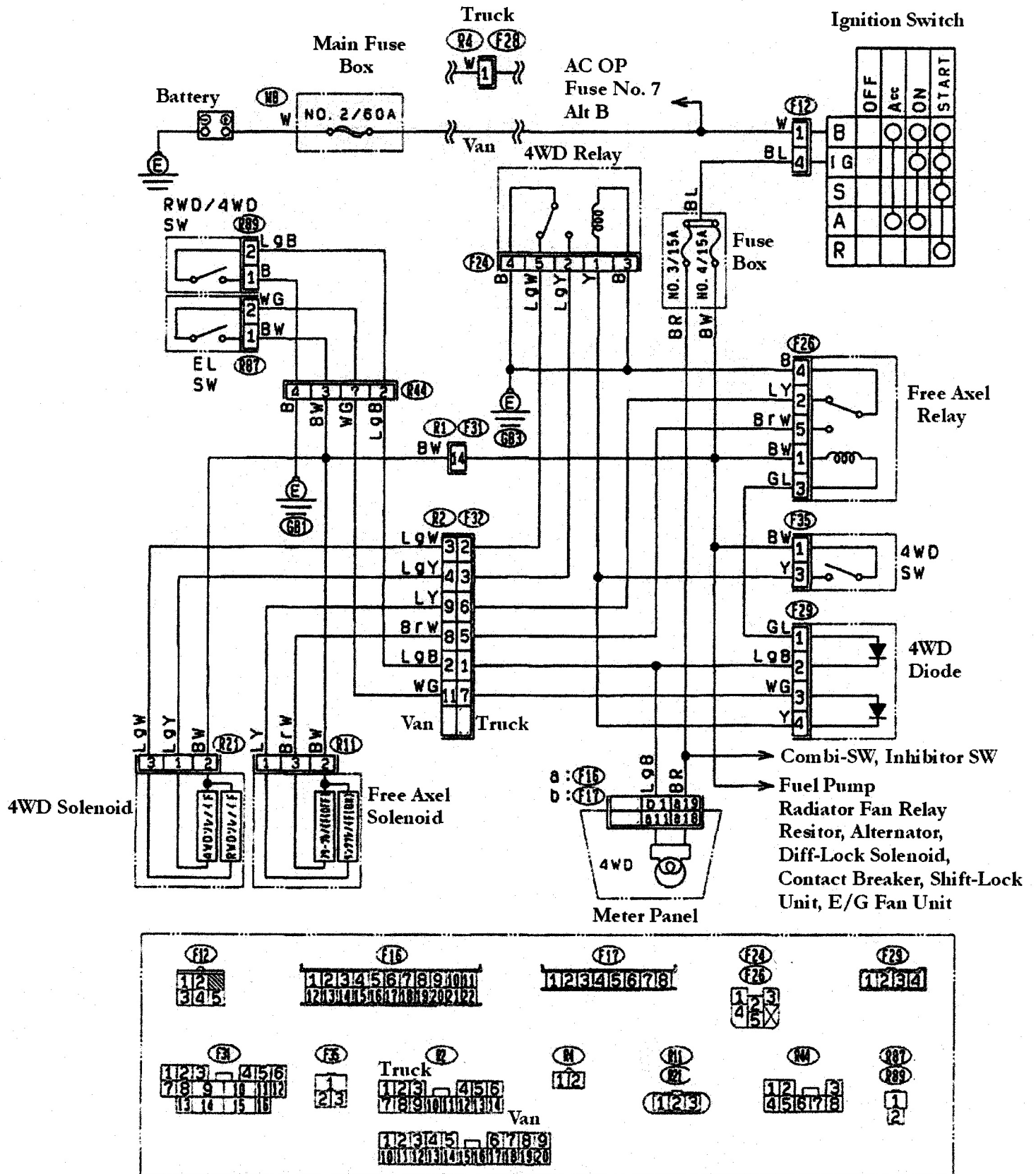
## Fuel Gage & Sender Unit



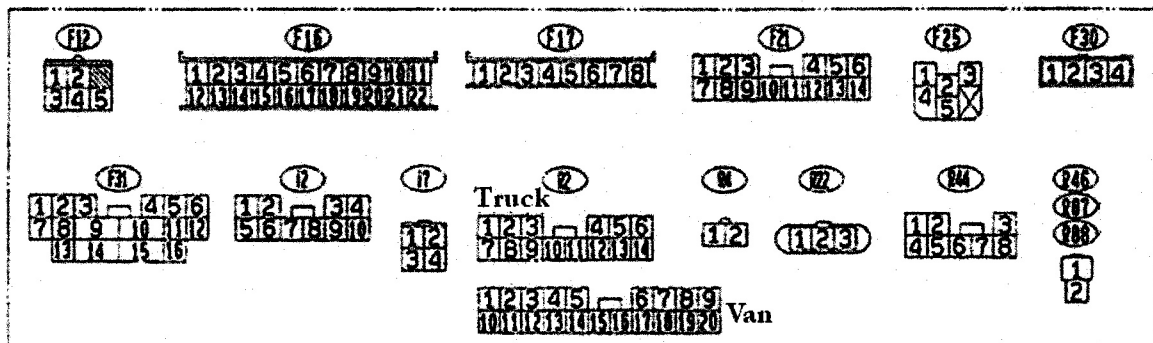
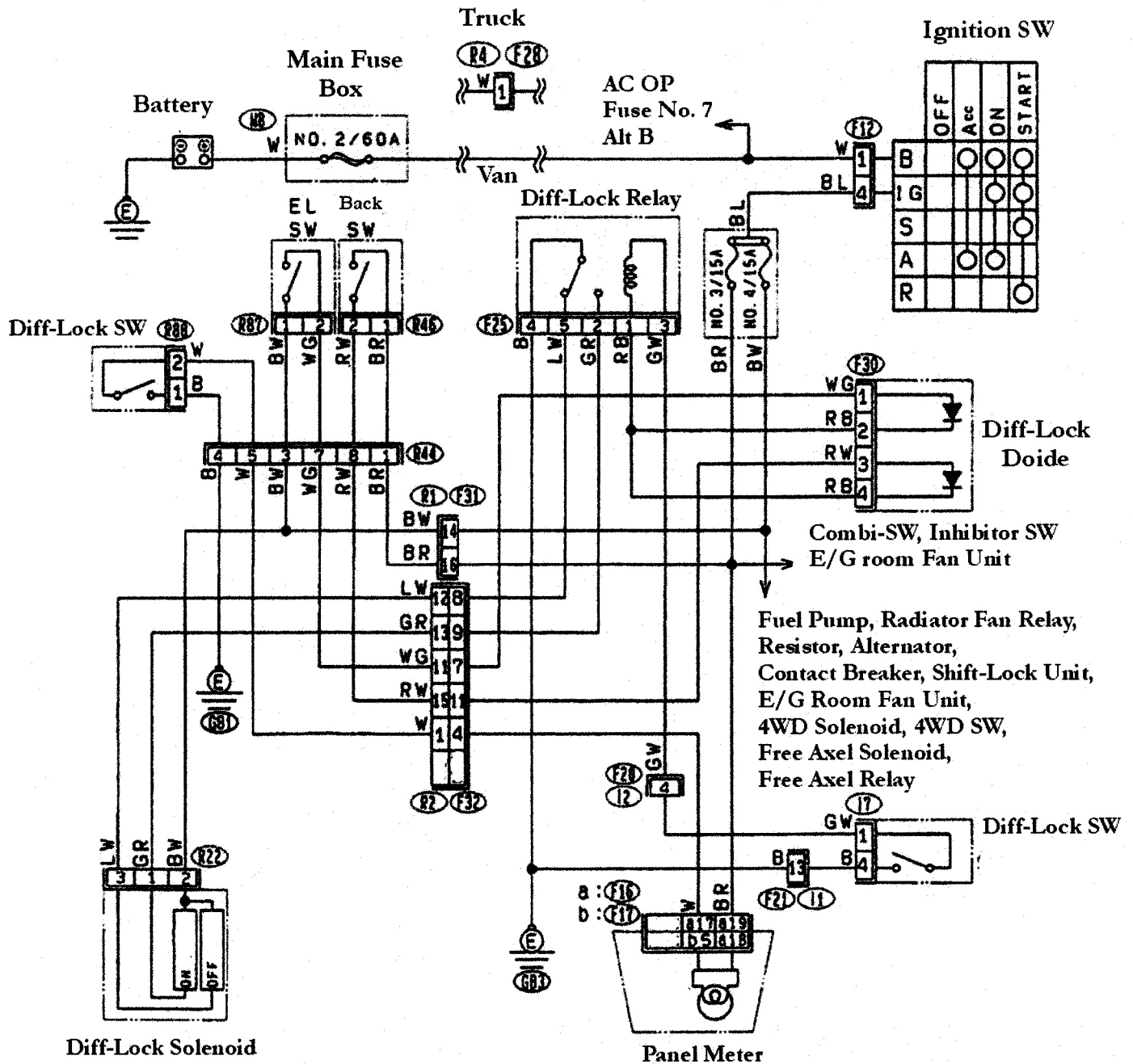
# Full Time 4WD Control Circuit



## Selective 4WD Circuits

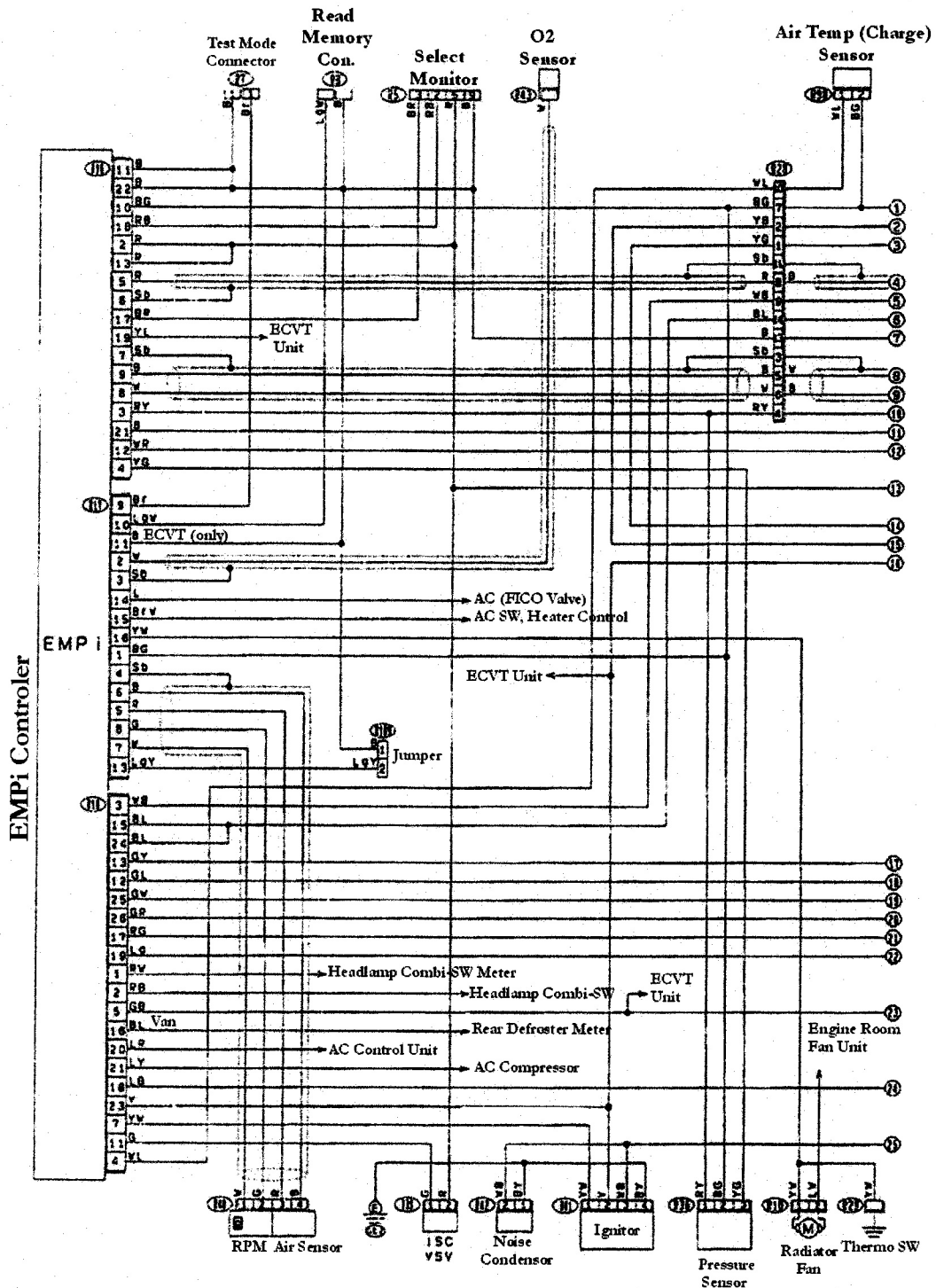


# Diff-Lock Circuit



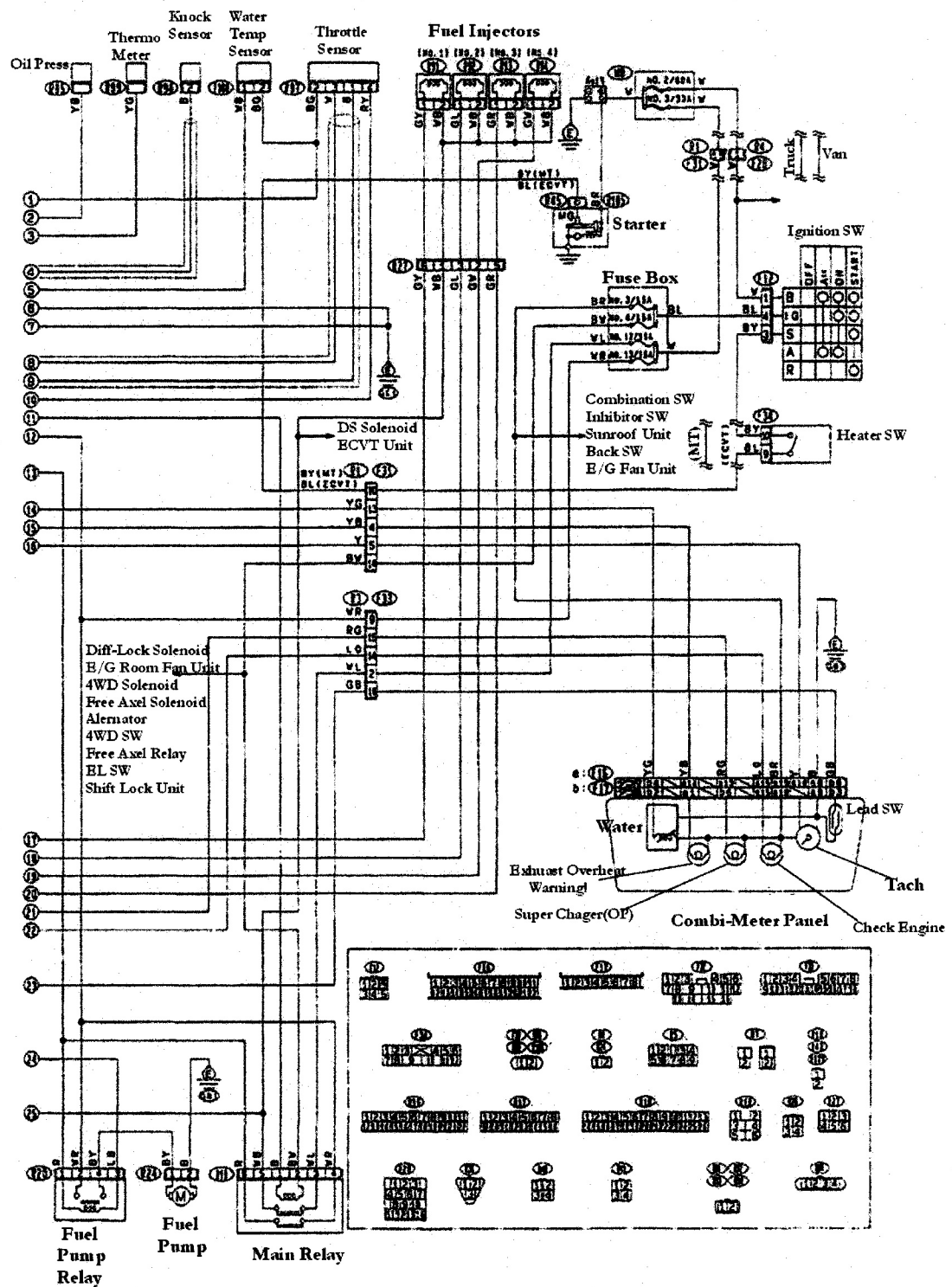


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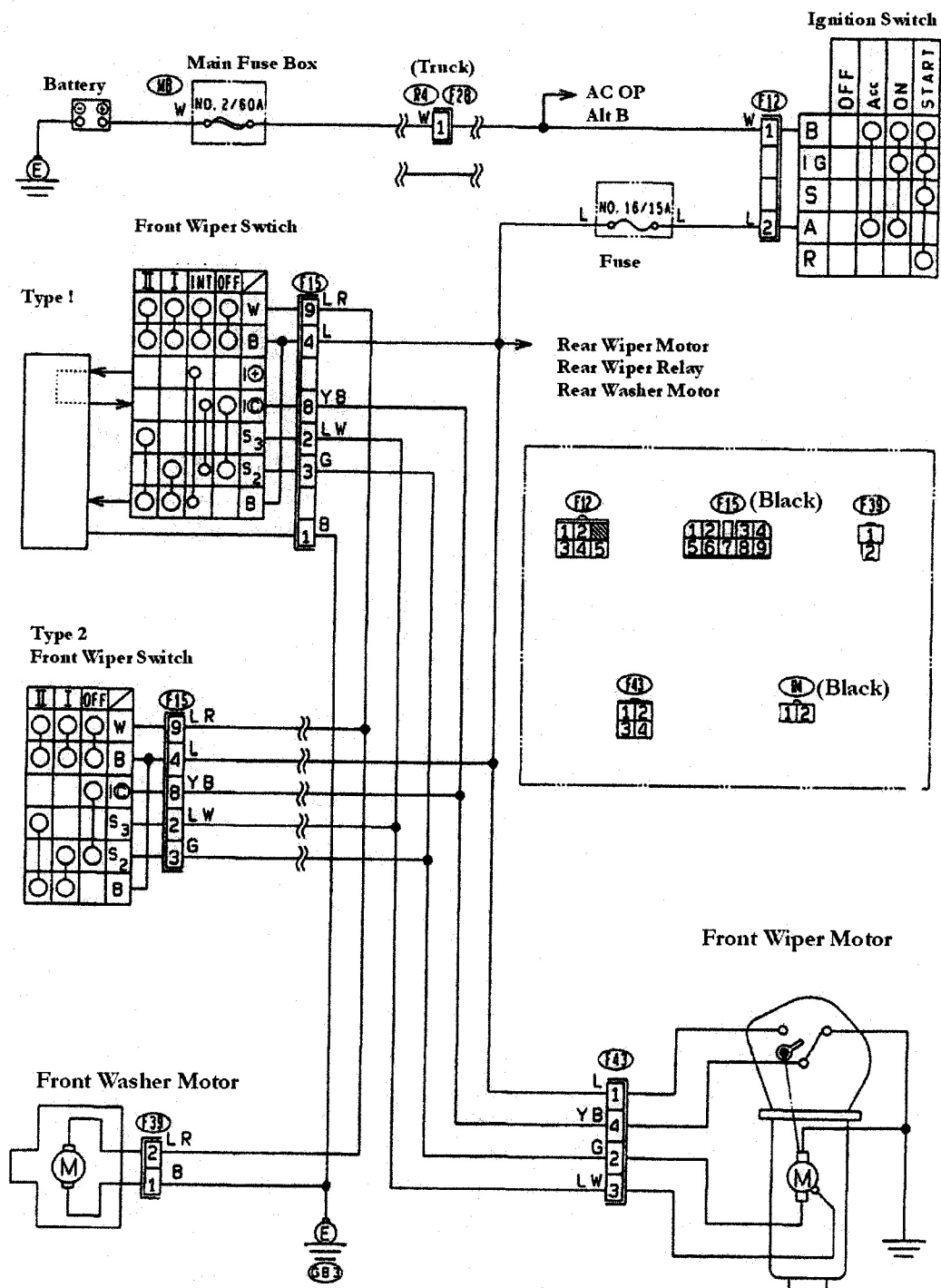


## EMPi Engine Control Management System

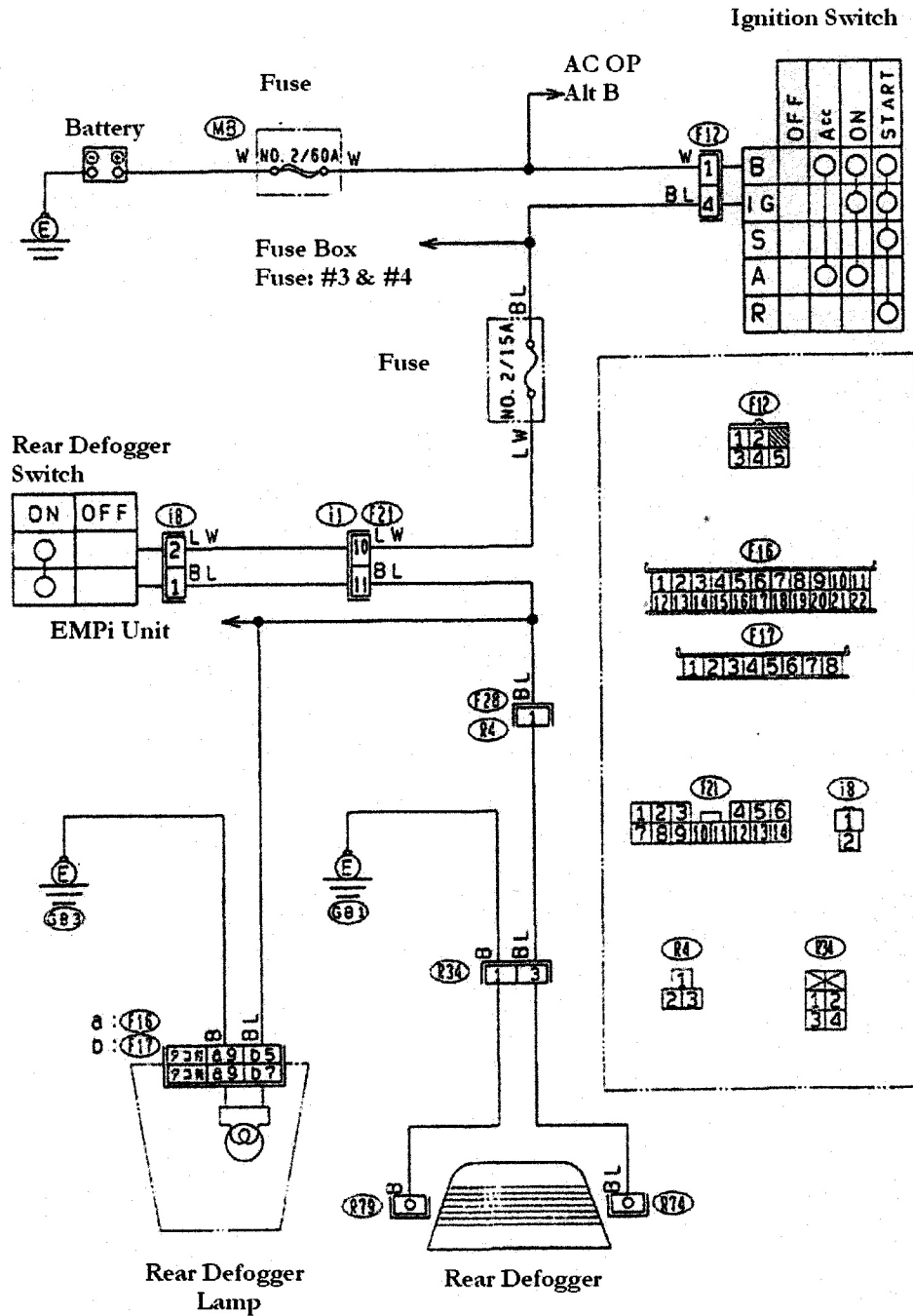
### Part 2



## Front Washer & Wiper Motor



# Rear Defogger System



## Rear Wiper & Washer

