ELECTRICAL SYSTEMS

ELECTRICAL SYSTEMS — The REVCON motor home is equipped with several sources for electrical power, as follows:

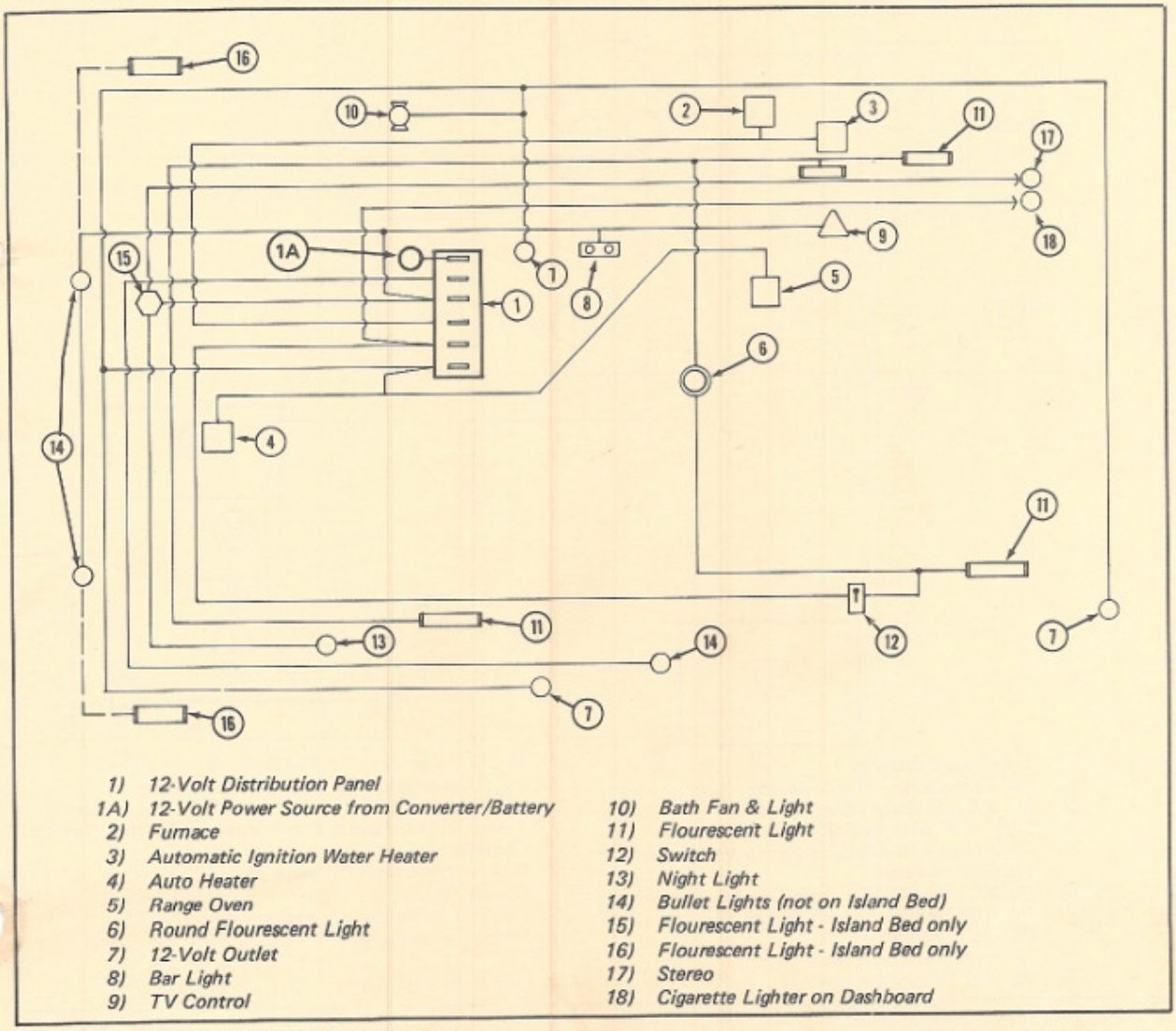
1. Two 6-volt batteries, connected in series.
2. A 12-volt alternator which is part of the motorhome chassis.
3. A 120-volt alternating current motor generator set.
4. A 120-volt alternating current external power supply.

Batteries — Your motorhome has two battery systems, one of which is primarily associated with the chassis; and the other, with the coach system. The chassis battery is a heavy-duty, permanently sealed long-life battery, with 500 cold cranking amperes. The coach batteries are heavy-duty 200-ampere hour batteries. Your motorhome electrical system is designed so these batteries may be charged by the motor generator set, or with an external power supply through the DC converter. The chassis battery is charged by the chassis engine-driven alternator.

12-Volt Alternator — One of its major functions is to keep the chassis and coach batteries charged. This alternator produces about 12 to 15 volts and is the heavy-duty type. This alternator powers all chassis electrical systems, simultaneously charges the coach and chassis batteries, and provides at least a portion of the power necessary to operate coach systems that may be used while traveling.

Dual-Battery System — The house battery system is connected to the 12-volt system of the coach, through a cut-off switch located in the battery box. The "OFF" position cuts all power to coach 12-volt systems, and should only be used for storage or emergency situations. This switch may be used in conjunction with starting the motor generator set. When the motor generator set is running, the house batteries receive a charge from the special battery-charging coils. The batteries are also wired to the DC converter so that they will receive a charge when the converter is operating.

While driving for battery charging purposes, the dual battery



1) 12-Volt Distribution Panel
1A) 12-Volt Power Source from Converter/Battery
2) Furnace
3) Automatic Ignition Water Heater
4) Auto Heater
5) Range Oven
6) Round Flourescent Light
7) 12-Volt Outlet
8) Bar Light
9) TV Control
10) Bath Fan & Light
11) Flourescent Light
12) Switch
13) Night Light
14) Bullet Lights (not on Island Bed)
15) Flourescent Light - Island Bed only
16) Flourescent Light - Island Bed only
17) Stereo
18) Cigarette Lighter on Dashboard

Figure 182 — 12-Volt Electrical System Schematic

ELECTRICAL SYSTEMS (Continued)

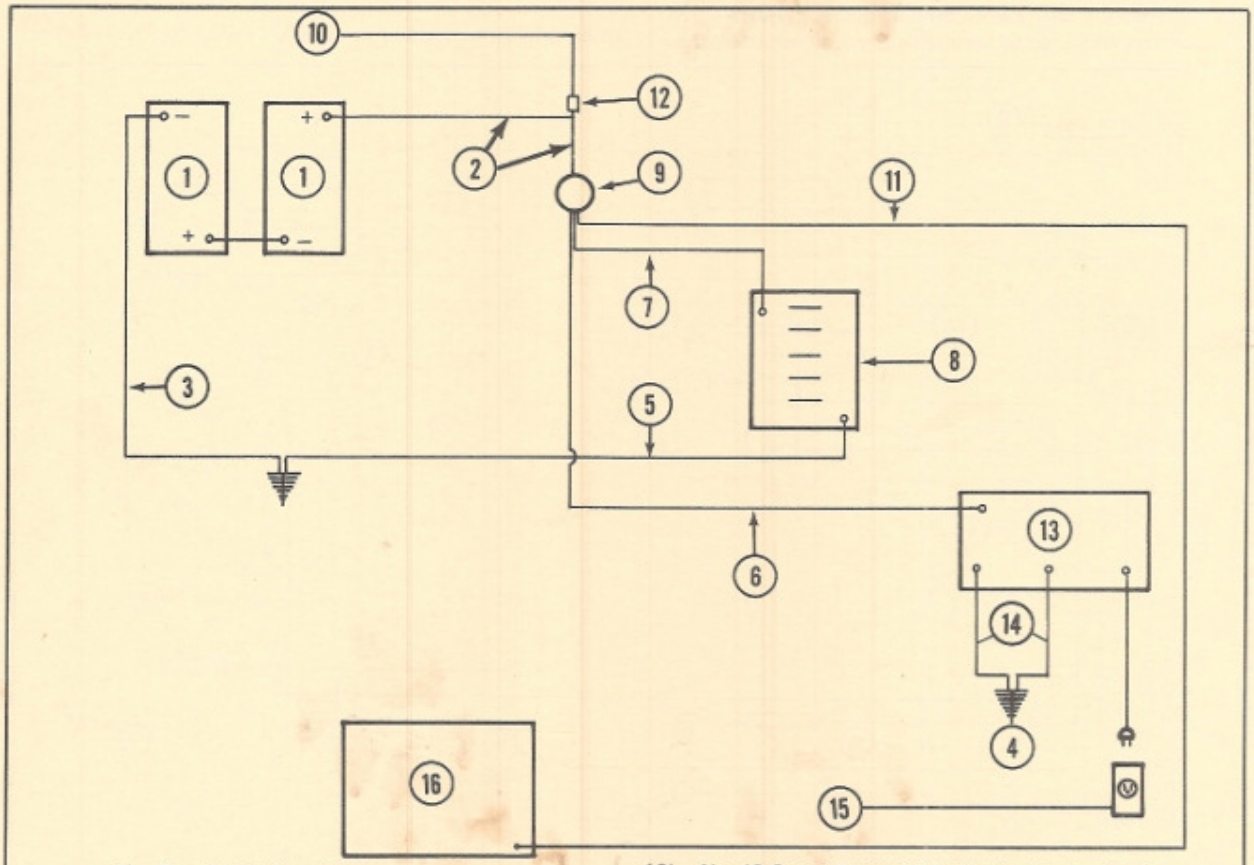
system has an isolator which connects the two battery systems together. When using this system, the isolator automatically charges both battery systems while driving. Immediately upon stopping, the isolator will switch so that the chassis battery will disconnect from the coach batteries and retain its full charge.

For your convenience, a battery boost switch has been installed in your motorhome. This switch enables the operator to parallel the house batteries with the chassis battery, in an emergency situation. If, for example, the chassis battery is drained, having no power to start the engine. Use the battery boost switch to connect the two electrical systems. The house batteries may now be used to give electrical power needed to start the automotive engine. With the motor generator set running, the set coils will charge the house batteries only. The battery boost switch may also be used for difficult starting of the motor generator set. Be sure to run the automotive engine when starting the generator set under difficult starting conditions.

NOTE: To operate the motor generator set and draw power through the 120-volt circuits, the power cord must be plugged into the 30 amp receptacle located near the power cord.

120-Volt Utility Service – The commercial 120-volt AC utility service outlet provided by the campground should supply enough electricity to meet the needs of the entire motorhome. It is capable of powering the air conditioner, convenience outlets from which 120-volt electrical appliances can be operated, and also through the power-converter, it is capable of supplying current for all of the appliances which otherwise would be powered by the 12-volt battery.

In connecting to the external source, it is extremely important to be sure that the three-wire system is connected so the



1) *Two 6-Volt Batteries*
2) *No. 2 Gauge Red Wire to Switch*
3) *No. 2 Gauge Black Wire to Ground*
4) *5/16" x 2" Ground Bolt to Chassis Frame*
5) *No. 8 Gauge Bare Ground Wire from 12-Volt Distribution Panel*
6) *No. 2 Gauge Red Wire from Converter to Switch*
7) *No. 6 Gauge Wire from Switch to 12-Volt Distribution Panel*
8) *12-Volt Distribution Panel*
9) *On - Off Battery Switch*
10) *No. 12 Gauge Brown White Stripe Wire to Clock*
11) *No. 2 Gauge Red Wire from On - Off Switch to Generator*
12) *1 Amp In-Line Fuse to Clock (Fuse located near Item 8)*
13) *Converter*
14) *Ground Wires from Converter to Chassis Ground*
15) *115-Volt Power Supply to Converter*
16) *Motor Generator Set*

ALL COACHES THE SAME

Figure 183 – Coach Battery System

ELECTRICAL SYSTEMS (Continued)

motorhome will be properly grounded; and especially for operating the roof air conditioner, it is essential that the size of the wire in the power cord be large so that a minimal voltage drop is caused by the power line itself. Roof air conditioners and other appliances will not operate properly if a long power cord of small wire-size is used. Damage to these appliances may result, and the wire itself overheat or burn up.

Power Distribution System — From whatever source the electrical power is derived, it must be converted, controlled, and conveyed to the power-using appliances by a distribution system. This system consists of converters, wires, switches, fuses, circuit breakers, etc.

The Power Converter — Your REVCON operates on what is known as the uni-volt system. Under this system almost all of the appliances operate on 12 volts. A power converter transforms 120 volts down to 12 volts between the motor-generator set or the external power source, and the 12-volt circuits of the vehicle. The only major appliances which cannot be made to operate on 12 volts are the roof air-conditioner, and a few high-wattage electrical appliances such as toasters, electric frying pans, irons, etc.

The DC converter is located to the left side of the coach to the rear. The shore power access door may be unlocked with the aluminum Hudson key. Within the shore power cord compartment, you will find the converter, slightly to the rear. The power converter should be kept clear of obstructions which could reduce air flow through and around this unit. Since these units generate considerable heat, keeping them clean eliminates a potential fire hazard.

Main Switches — *It is important for the owner to understand* the use of various switches, fuses, and circuit breakers which control the distribution of power. The main breaker panel location may be found on the 120-volt electrical distribution schematics. The breaker panel is marked to indicate which breaker controls a particular circuit and the particular appliances and outlets on such circuit.

NOTE: A selector switch located on the galley wall near the refrigerator is used to select your choice of microwave oven or the front overhead air conditioner operation. **Both units cannot be operated simultaneously.**

Fuses and Circuit Breakers — There are six (6) sets of fuses and circuit breakers, as follows:

1. A set that protects the automatic 12-volt system. This fuse panel is located under the dash instrument panel, by the foot controls.
2. A set that protects the 12-volt house electrical system. These are found in the 12-volt distribution panel.
3. A set that protects the house 120-volt system. These are found in the 120-volt distribution panel.
4. A set that protects the main breaker box and rear air conditioner. This breaker box is located in the area with the shore cord.
5. A set to protect the generator. These pushbutton breakers are on the motor generator set.
6. There are fusible links found in the automotive wiring at the 12-volt isolator. These protect the headlight and ignition circuitry.

Ground Fault Interrupt — This device protects you against hazardous electrical shock caused if your body becomes a

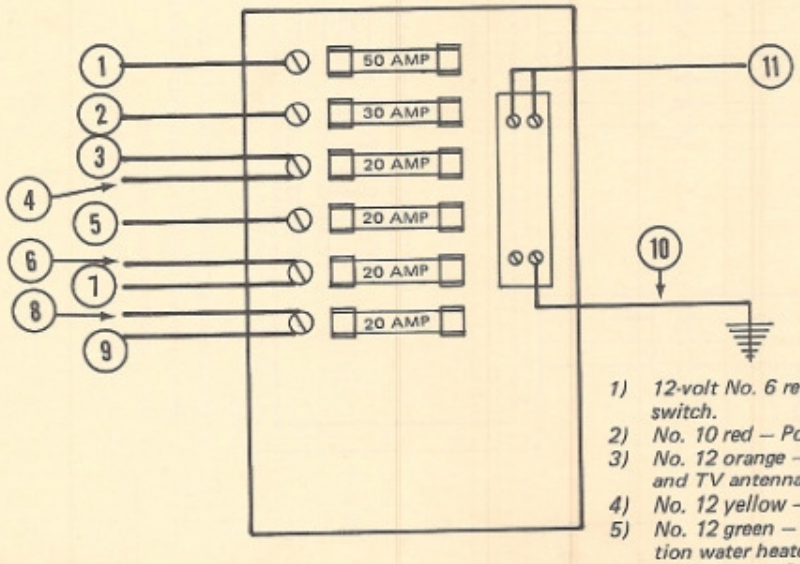


Figure 184 — 12-Volt DC Distribution Panel - All Coaches

1) *12-volt No. 6 red — Power from battery ON position switch.*
2) *No. 10 red — Power to refrigerator.*
3) *No. 12 orange — Power to locker bullet lights, bar light and TV antenna control.*
4) *No. 12 yellow — Power to stereo switch and night light.*
5) *No. 12 green — Power to furnace and automatic ignition water heater.*
6) *No. 12 red — Power to all fluorescent lights.*
7) *No. 12 blue — Power to cigarette lighter on dashboard.*
8) *No. 12 brown — Power to all 12-volt outlets.*
9) *No. 12 brown — Power to rear auto heater and range oven.*
10) *No. 8 bare copper wire — Ground.*
11) *No. 12 black — Ground to all lights and appliances.*

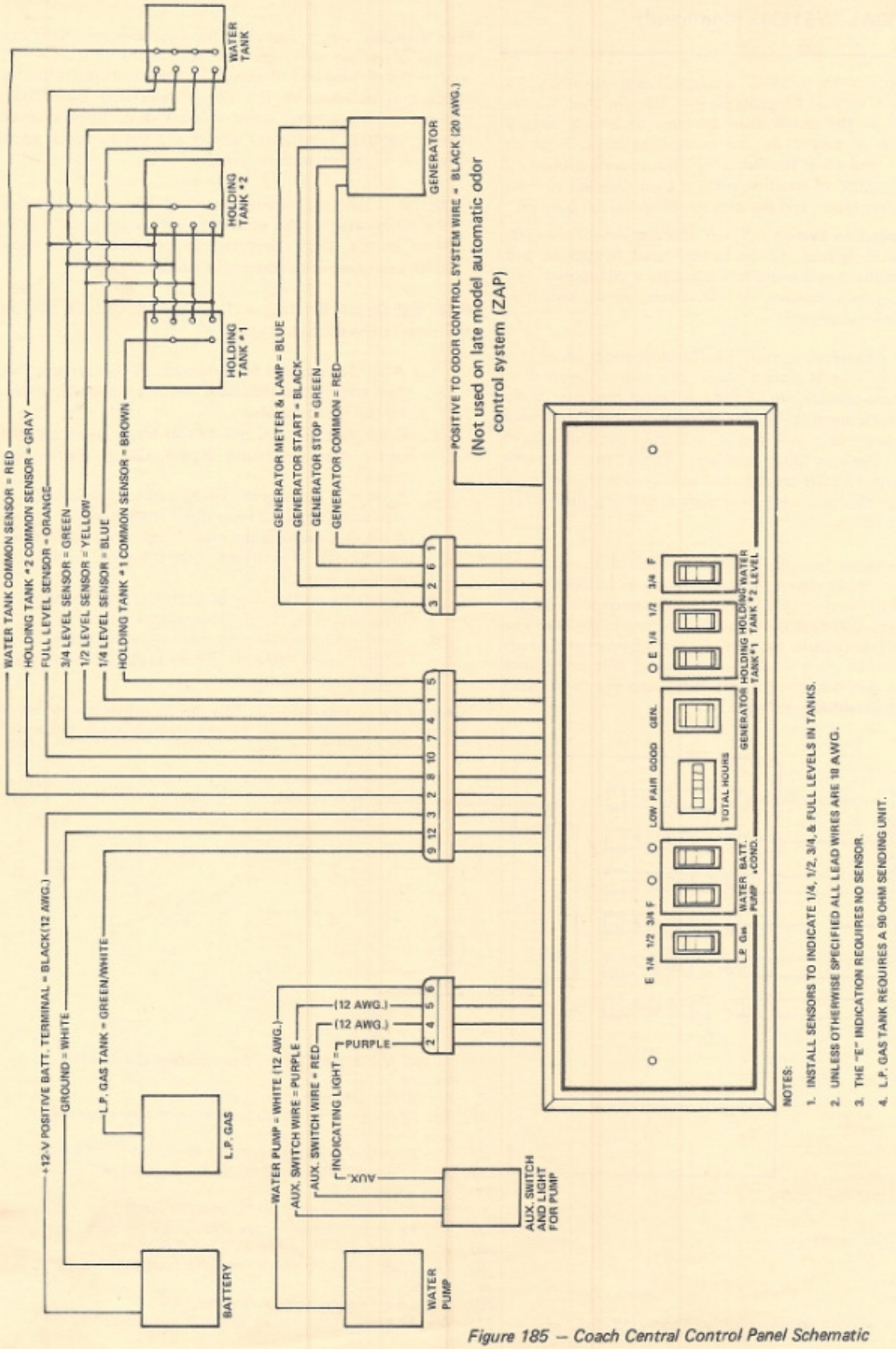


Figure 185 — Coach Central Control Panel Schematic

ELECTRICAL SYSTEMS (Continued)

path for electricity to travel through to reach ground. This can happen when you touch an appliance or cord that has become "live" through faulty mechanism, damp or worn insulation, etc. You don't even have to be standing on the ground itself to be shocked; you could be touching plumbing or other structural material that leads to ground.

When protected by Ground Fault Interrupt (GFI), you may still feel a shock, but the GFI will cut it off quickly enough to avoid electrical injury to a person in normal health. (Infants and very small children may still be affected.)

WARNING: The GFI will not protect against line-to-line shocks (like the kind gotten by touching metal objects inserted in both straight slots of an outlet); or current overloads or line-to-line short circuits. The fuse or circuit breaker at the distribution box or panel must provide such protection.

GFI Test Procedure — Like a fire extinguisher or other safety device, your GFI receptacle should be checked every month to make sure it is operating properly to protect you. Follow these simple instructions and then enter the date of the test on the reverse side of your test card:

1. Push the rectangular yellow/orange "TEST" button. The round red "RESET" button should pop out, exposing its white band. This indicates the device is working properly. Power will now be off at all outlets protected by the GFI. Verify by plugging a test lamp into such outlet. (If this receptacle has a red indicator light to right of the "RESET" button, you may observe it instead of a test lamp.) Lamp and/or indicator light should be unlit.

CAUTION: If "RESET" button does no pop out or if test lamp or indicator light remains lit when "RESET" button does pop out, do not use any outlets on the circuit. Call a qualified electrician.

2. If the GFI tests out okay, restore power by pushing the round "RESET" button back in. Test lamp and/or indicator light should light.

Some REVCON motorhomes have a GFI circuit breaker located in the main breaker box. This device should be checked every month to verify operation. You may test the device monthly by the following procedure:

1. Check to verify that panel is energized.
2. Check to verify that breaker is in "ON" position.
3. Press the "TEST" button. The handle must trip to center position. If it does not, have an electrician check for connection.
4. Reset the breaker by moving the handle to "OFF" and then "ON."
5. Record test date on the test card provided.

Maintenance of Electrical Systems — Before starting out on a trip, all electrical appliances should be checked to be certain they are in working condition.

Batteries should always be kept near full charge condition. At extremely cold temperatures, a discharged battery may freeze and be ruined. Also, battery fluid level should be checked regularly, particularly in hot weather. Low battery fluid will damage battery plates and shorten battery life.

The charge of a battery can be measured either with a voltmeter or with a hydrometer. A fully charged battery should have an open-circuit voltage, after standing idle for about five (5) minutes, of from 12.4 to 12.7 volts, at 80°F. The specific gravity of a fully charged battery should be about 1.260 per cell at 80°F. Figures below these levels will indicate a partial discharge.

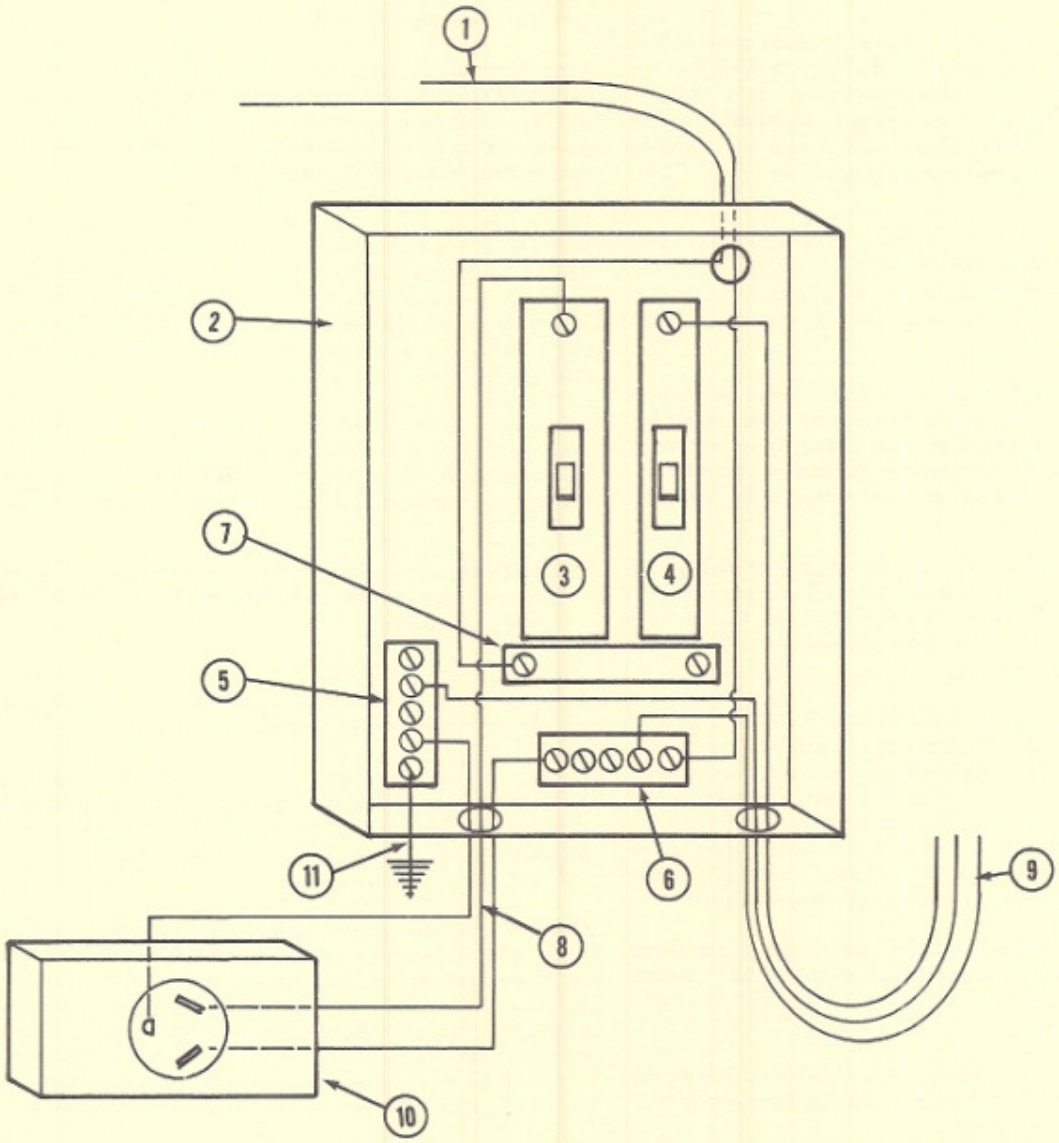
Distilled water should be added to batteries as necessary to bring electrolyte to the proper level. Chemical accumulations around terminals should be removed with hot water containing baking soda, followed by a thorough flushing with clear water.

CAUTION: Don't get any baking soda solution in the battery itself because the electrolyte will be naturalized and battery will go dead.

Battery cable terminals should be moved from time to time, cleaned and retightened on the terminal posts.

Battery connections to ground and to major terminal junctions should be checked for tightness. If the engine ground wire has been found to be missing, a separate ground wire should be connected to the engine and to the chassis.

Main switches should be normally kept in the off position when the appliances they control are not being used so there is no heavy load on the motor generator set when it is being started or stopped. In general, heavy-power-using appliances should be turned off whenever the motor-generator-set is being started or stopped. In fact, many owners consider it good practice to let the motor-generator set warm-up for a few moments before calling on it to carry the load of a major appliance.



1) *Flexible Conduit & No. 8 black and white wires from Generator to Power Breaker Panel.*
2) *Generator Power Breaker Panel.*
3) *30-Amp Circuit Breaker.*
4) *20-Amp Circuit Breaker.*
5) *Grounding Bar.*
6) *Neutral Bar.*
7) *Hot Bar.*
8) *110-Volt Power to 110-Volt Receptacle.*
9) *110-Volt Power to Rear Air Conditioner*
10) *110-Volt 30-Amp Receptacle*
11) *No. 8 Bare Ground Wire.*

Figure 186 — Generator Power Breaker Panel

ELECTRICAL SYSTEMS (Continued)

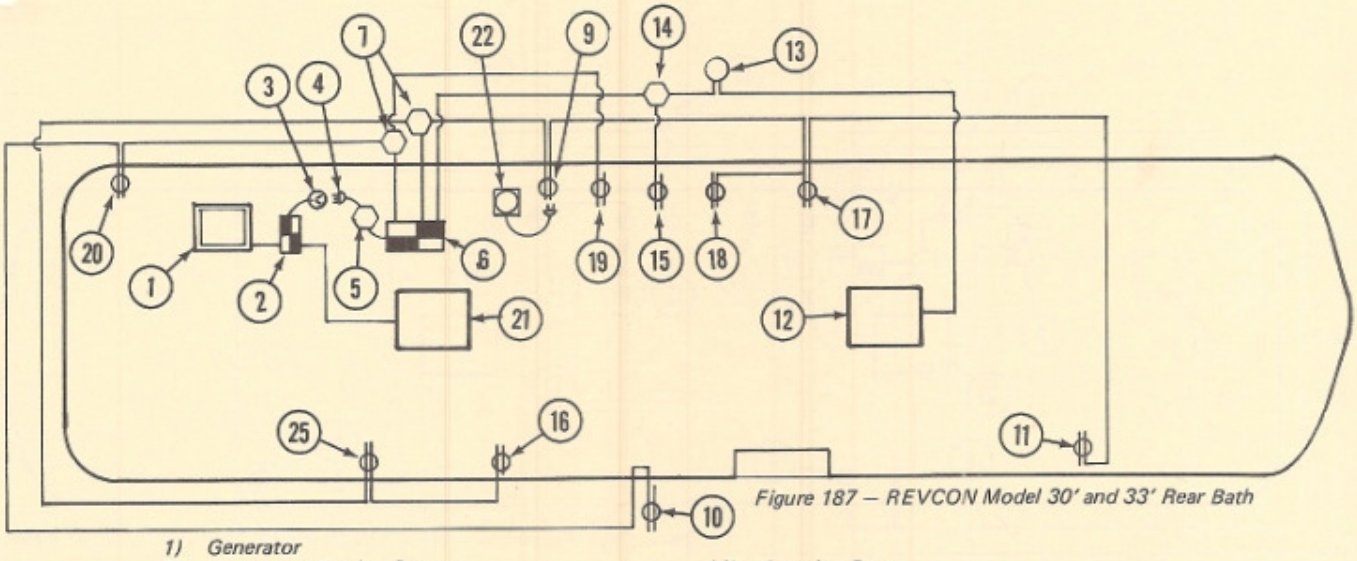


Figure 187 – REVCON Model 30' and 33' Rear Bath

1) *Generator*
2) *Generator Breaker Box*
3) *30 Amp Receptacle*
4) *30 Amp Shore Cord*
5) *Junction Box*
6) *Main Breaker Box*
7) *Junction Boxes*
8) *Bedroom Receptacle*
9) *Vacuum Cleaner Receptacle*
10) *Outside Weatherproof Receptacle (G.F.I.)*
11) *Front Side of Swivel Chair Receptacle*
12) *Front A.C.*
13) *Front A.C. & Microwave Oven Switch*
14) *Junction Box*
15) *Microwave Oven Receptacle*
16) *TV Antenna Receptacle*
17) *Blender & Ice Maker Receptacle*
18) *Galley Receptacle*
19) *Refrigerator Receptacle – (G.F.I.)*
20) *Bathroom Receptacle (G.F.I.)*
21) *Rear A.C.*
22) *Converter Receptacle & Converter*
23) *A.C. Unit – 27-Foot Coach Only*
24) *Roof Locker Receptacle (above dinettes)*
25) *Wardrobe Receptacle*

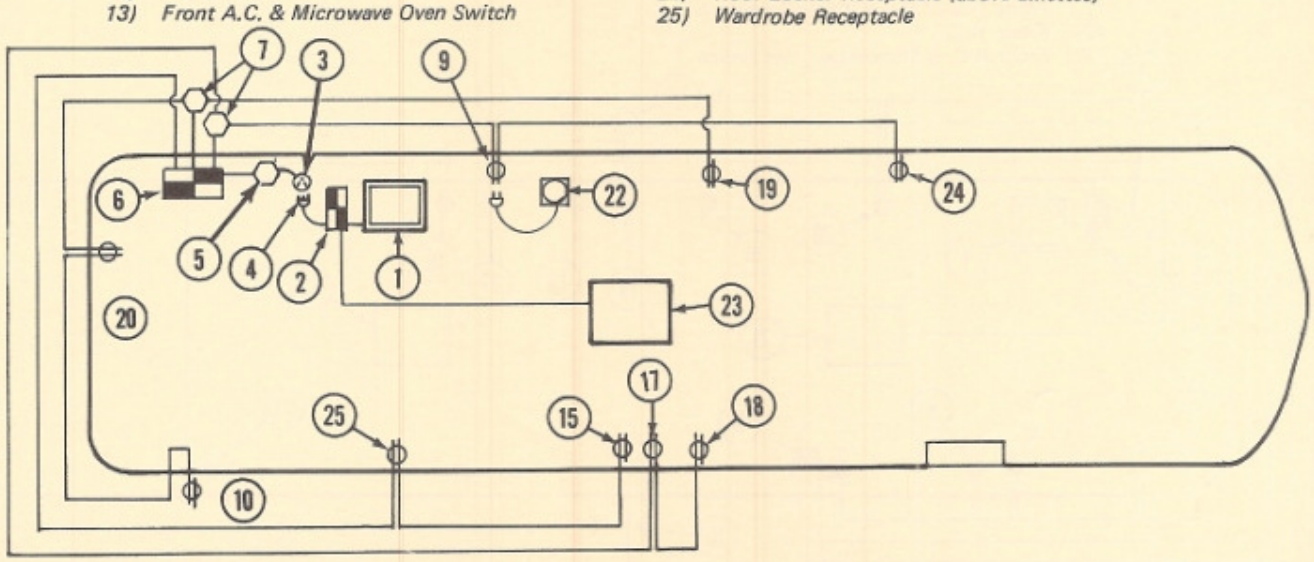


Figure 188 – REVCON Model 27' Rear Bath

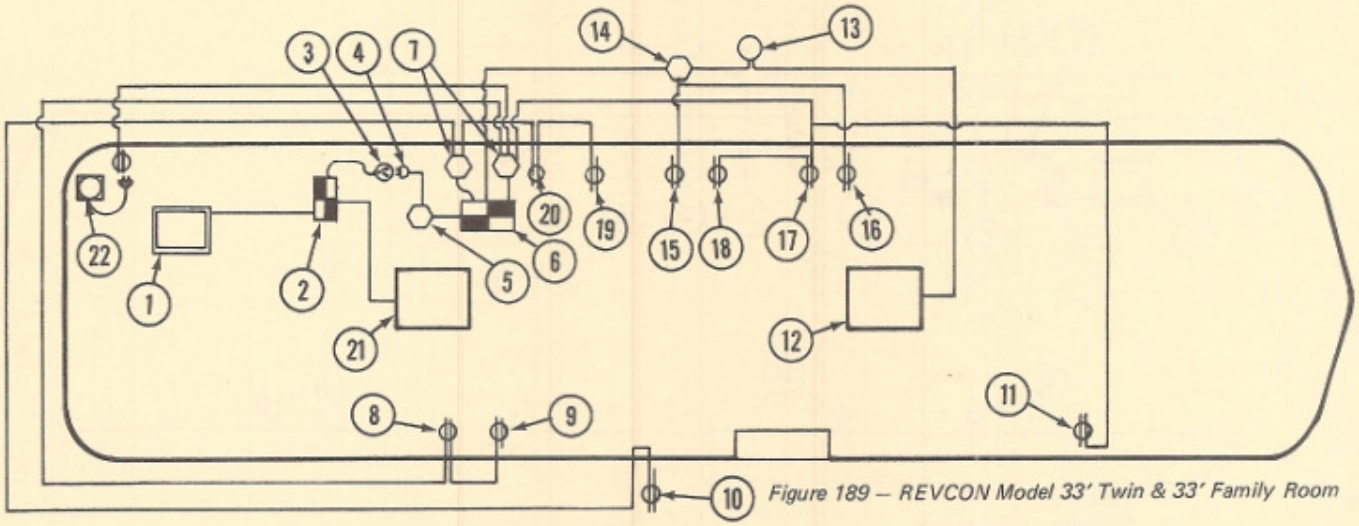


Figure 189 – REVCON Model 33' Twin & 33' Family Room

1) *Generator*
2) *Generator Breaker Box*
3) *30 Amp Receptacle*
4) *30 Amp Shore Cord*
5) *Junction Box*
6) *Main Breaker Box*
7) *Junction Boxes*
8) *Bedroom Receptacle*
9) *Vacuum Cleaner Receptacle*
10) *Outside Weatherproof Receptacle (G.F.I.)*
11) *Front Side of Swivel Chair Receptacle*
12) *Front A.C.*
13) *Front A.C. & Microwave Oven Switch*
14) *Junction Box*
15) *Microwave Oven Receptacle*
16) *TV Antenna Receptacle*
17) *Blender & Ice Maker Receptacle*
18) *Galley Receptacle*
19) *Refrigerator Receptacle (G.F.I.)*
20) *Bathroom Receptacle (G.F.I.)*
21) *Rear A.C.*
22) *Converter Receptacle & Converter*

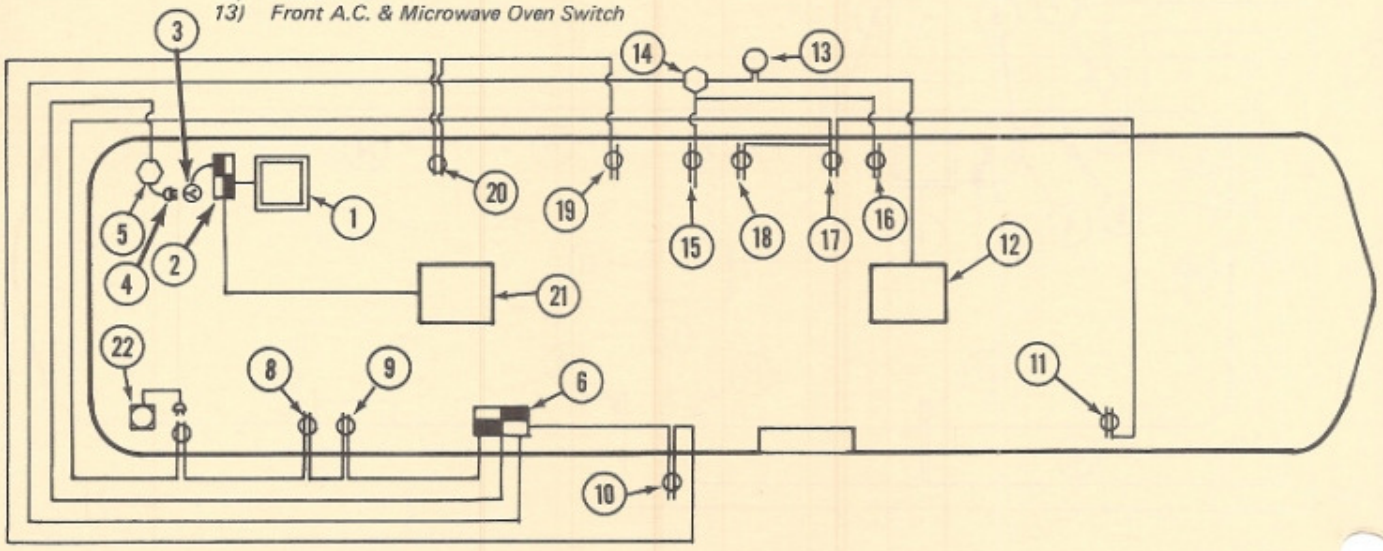


Figure 190 – REVCON Model 33' Double Bed Only

ELECTRICAL SYSTEMS (Continued)

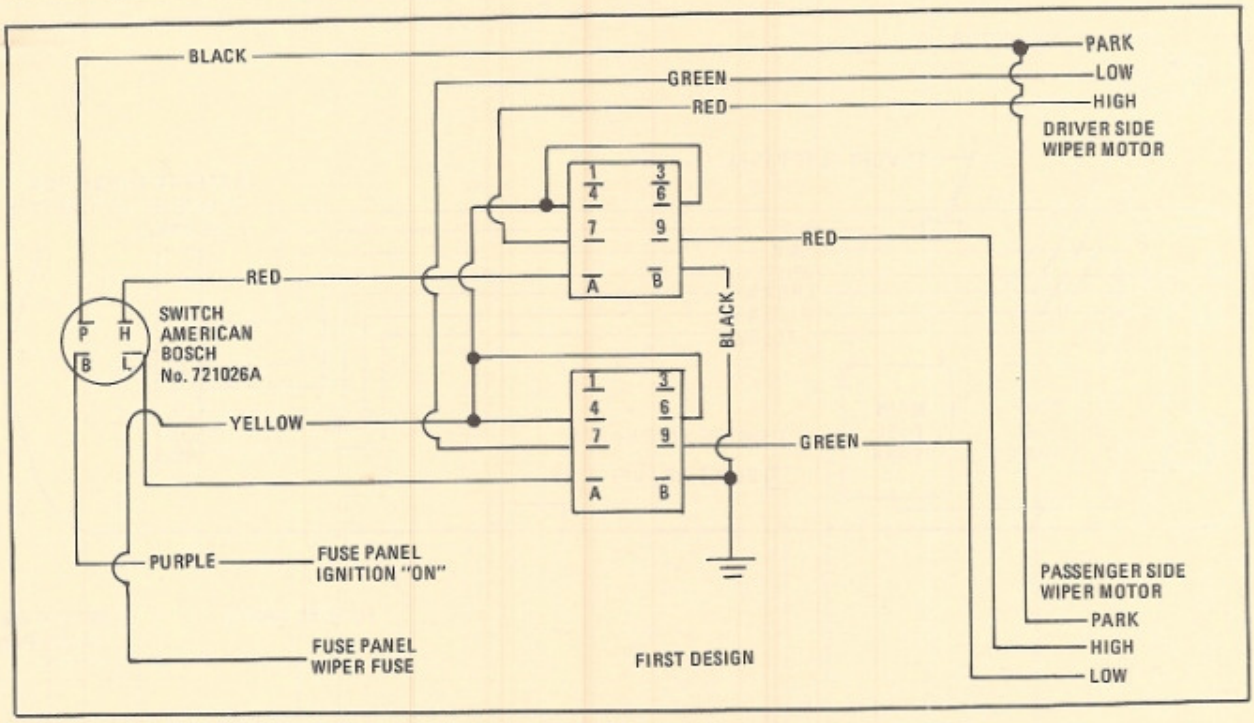


Figure 191 – Windshield Wiper Electrical Schematic - First Design

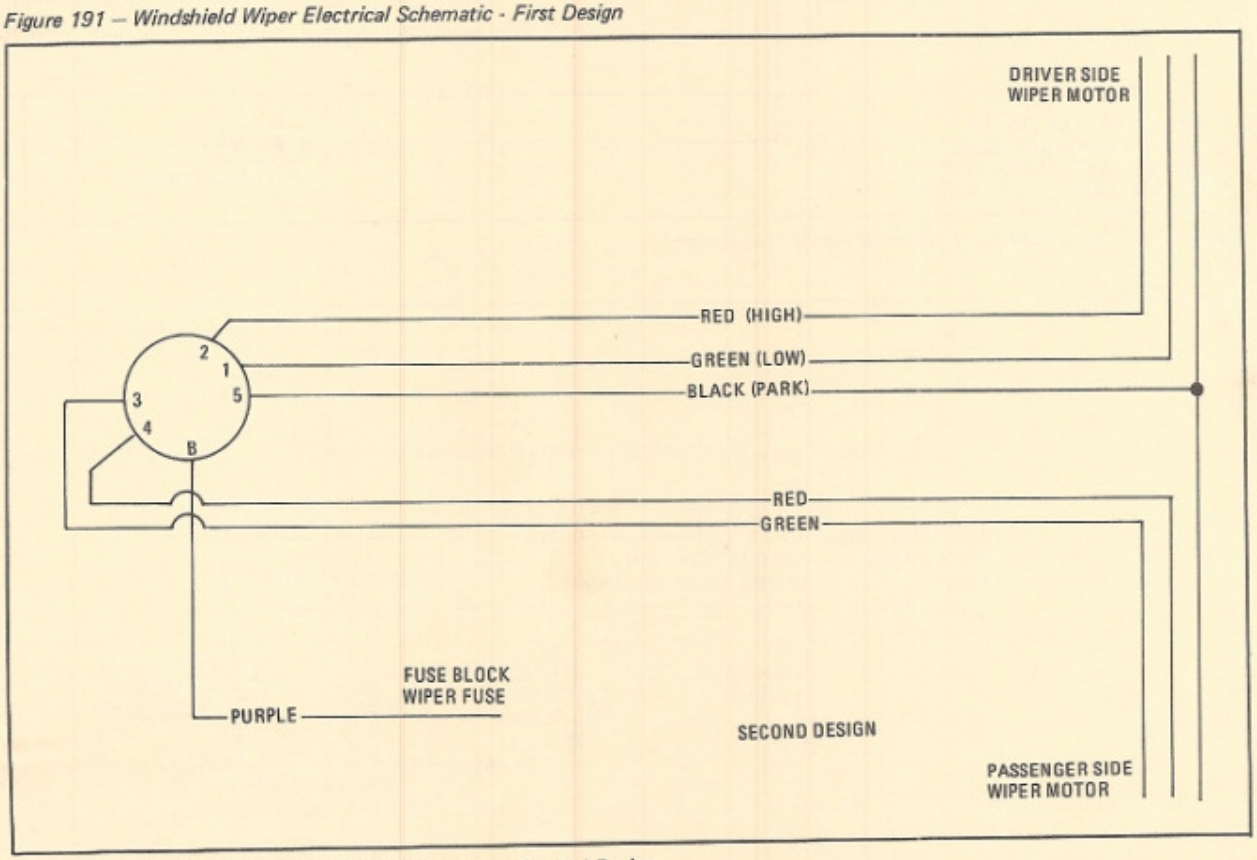


Figure 192 – Windshield Wiper Electrical Schematic - Second Design

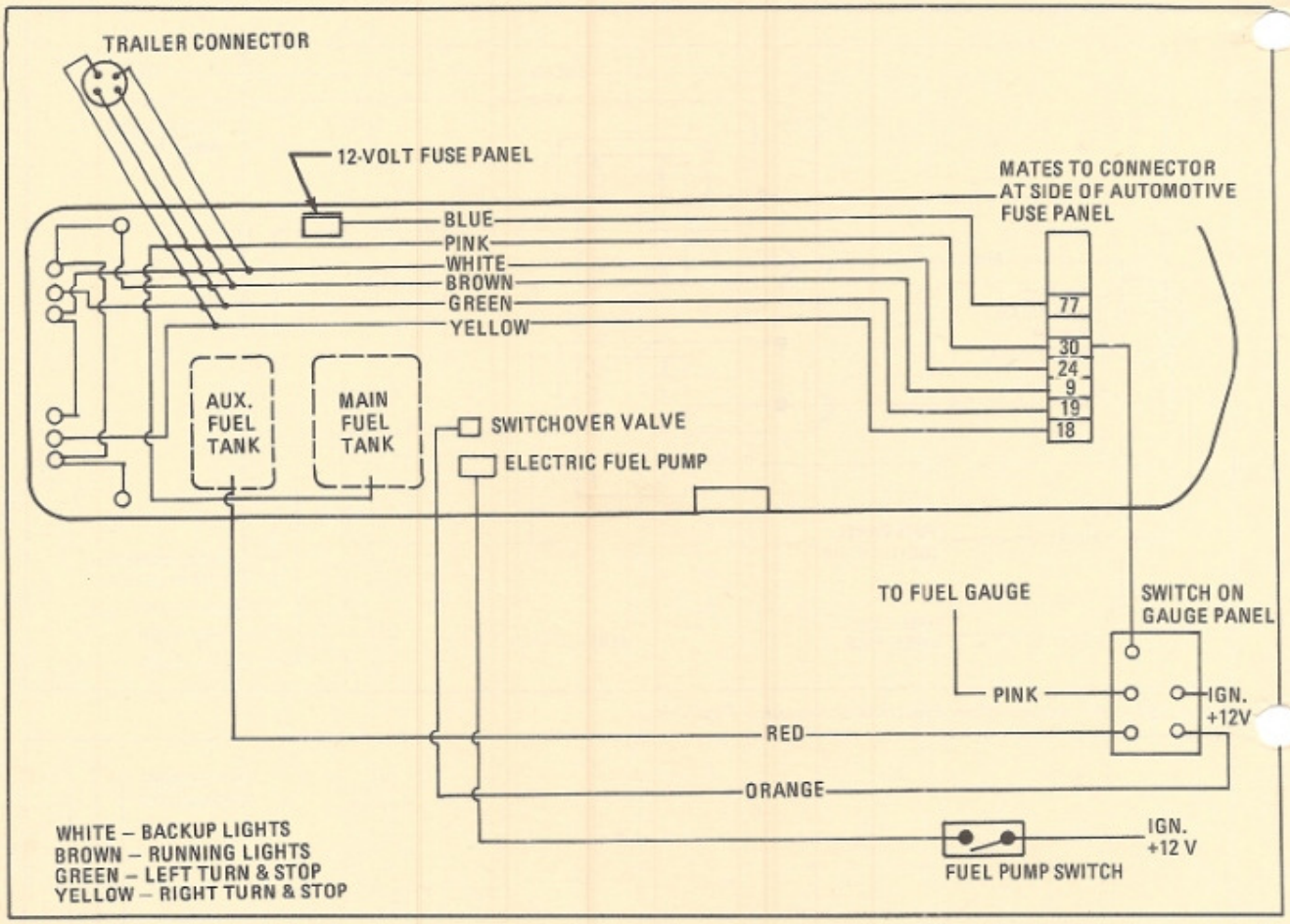


Figure 193 – Instrument Panel Electrical Wiring Schematic

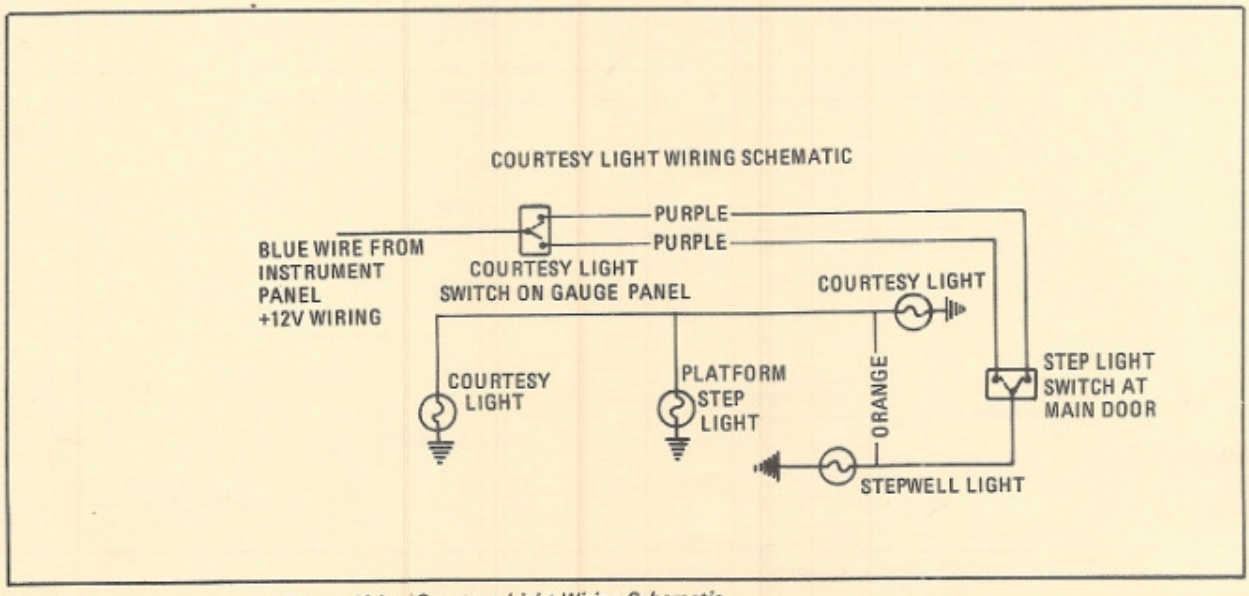


Figure 194 – Courtesy Light Wiring Schematic

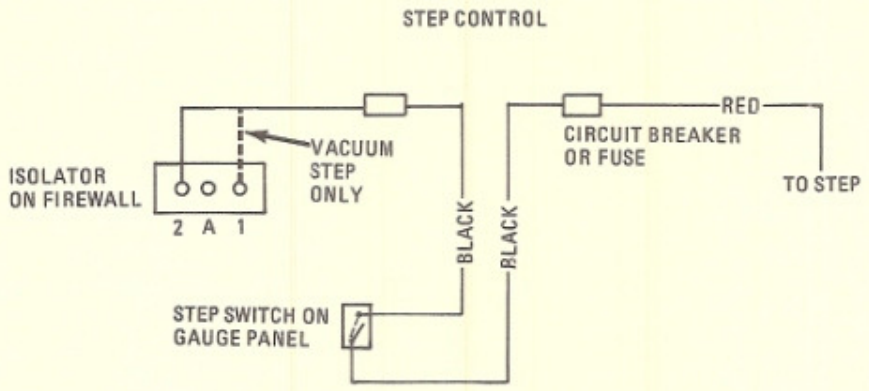


Figure 195 – Step Control Electrical Wiring Schematic

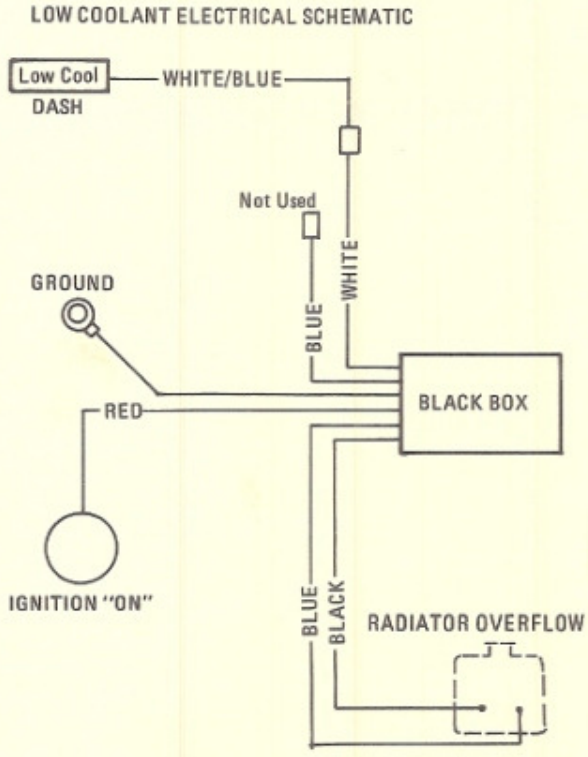
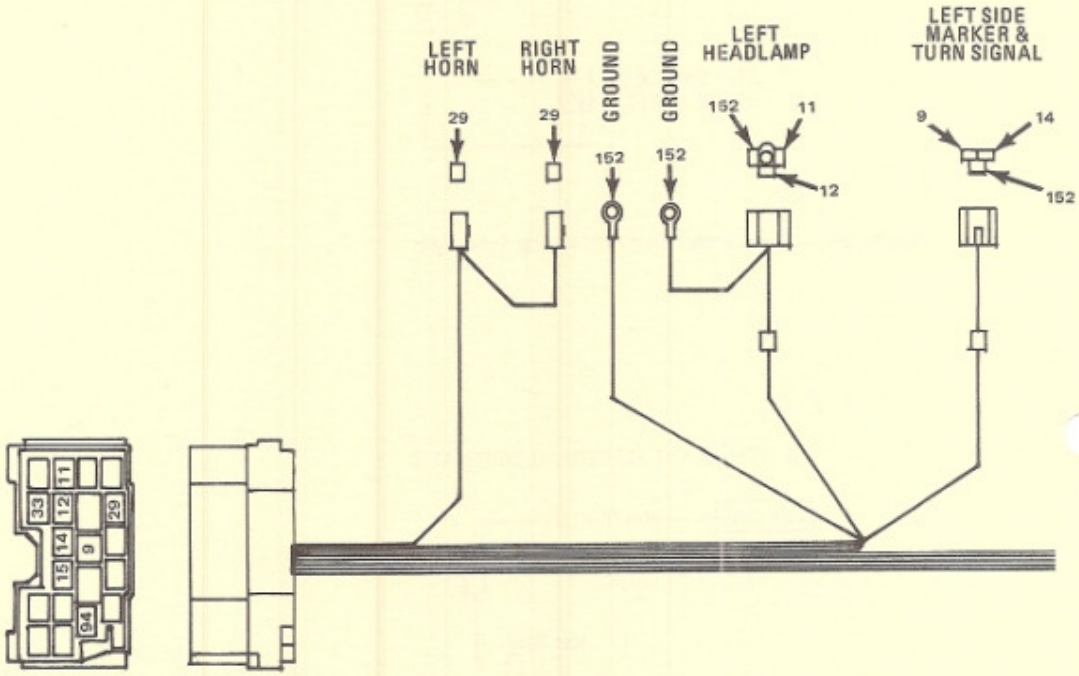


Figure 196 – Low Coolant Electrical Schematic

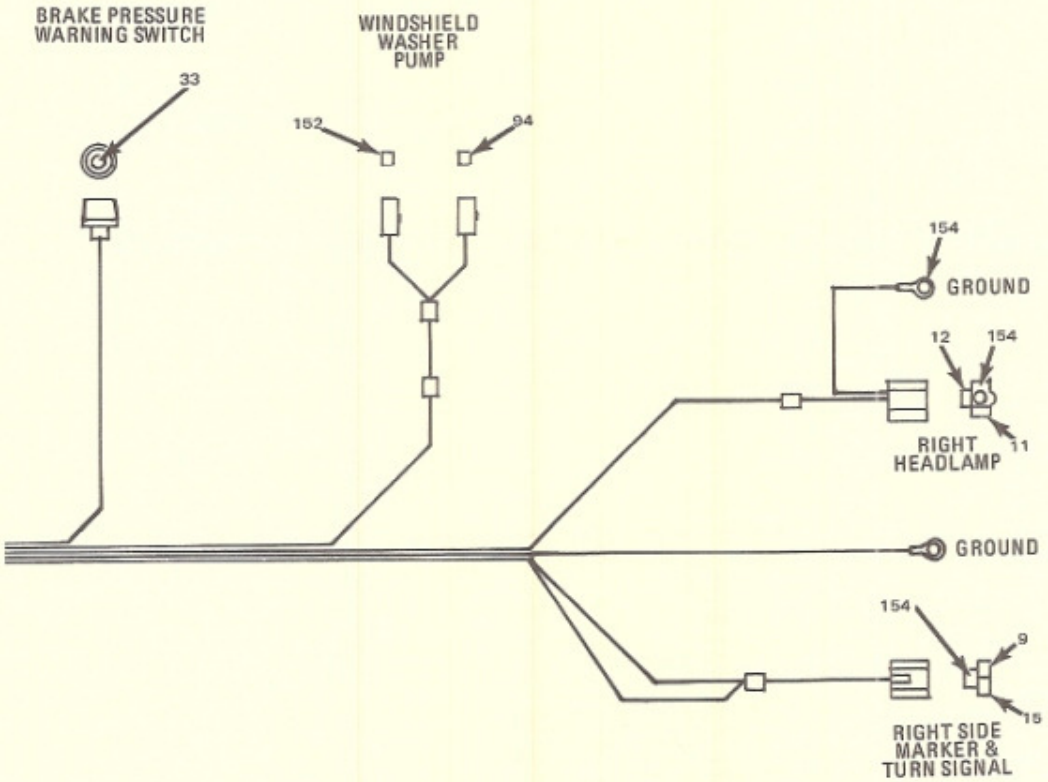


WIRING COLOR CODE:

9 BROWN
11 LIGHT GREEN
12 TAN
14 LIGHT BLUE
15 DARK BLUE
29 DARK GREEN
33 TAN
94 PINK
152 BLACK
154 BLACK

Figure 197 – Forward Lamp Wiring Schematic

ELECTRICAL SYSTEMS (Continued)



ELECTRICAL SYSTEMS (Continued)

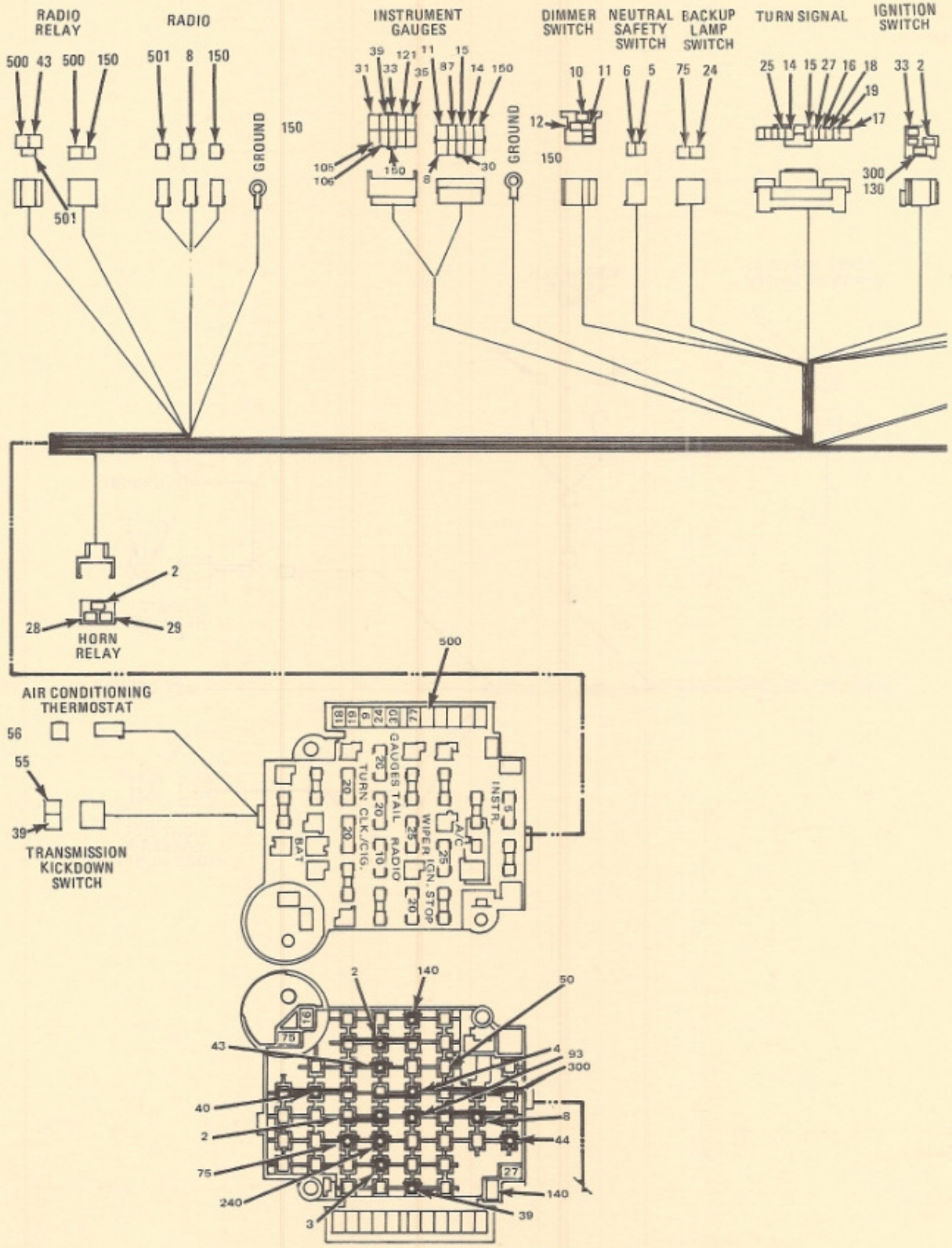
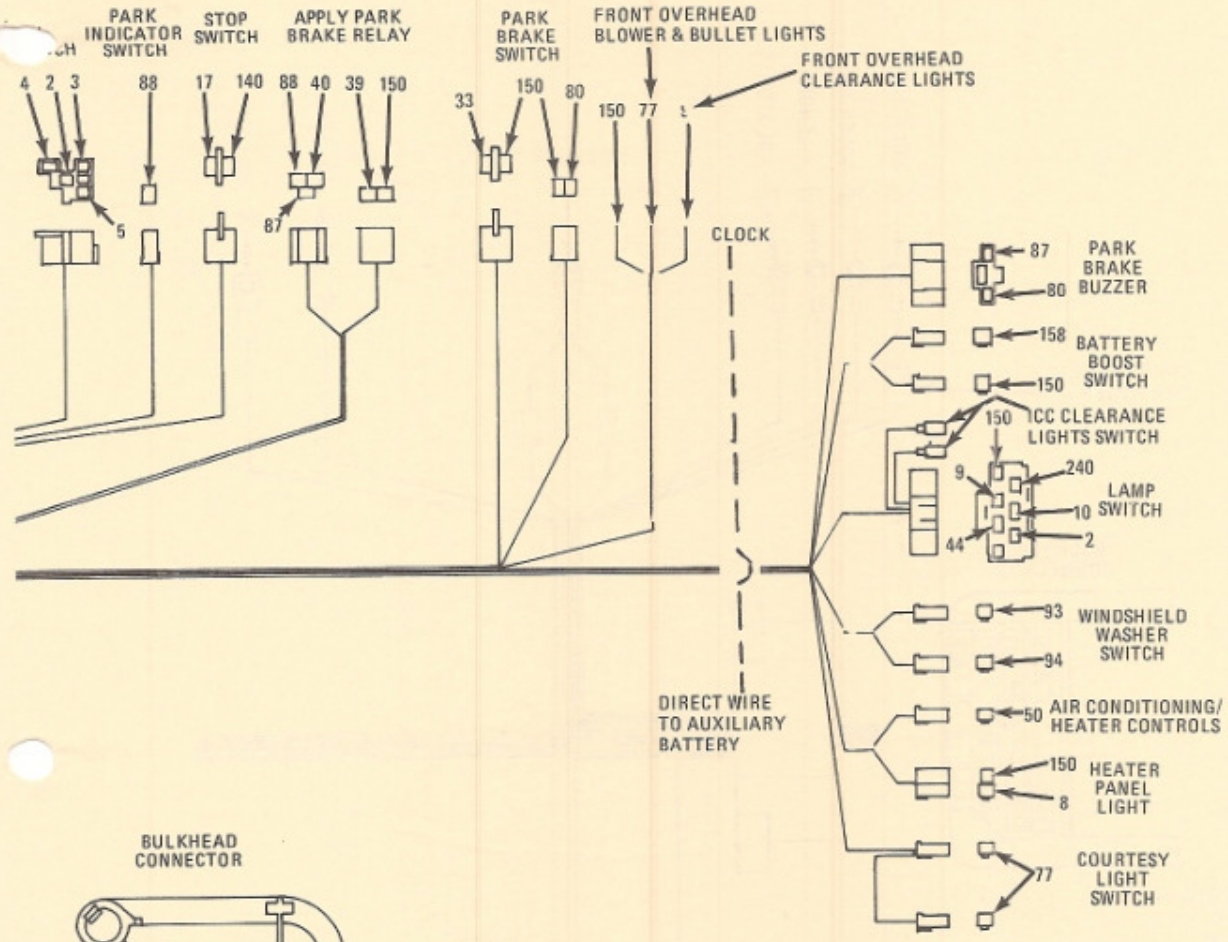
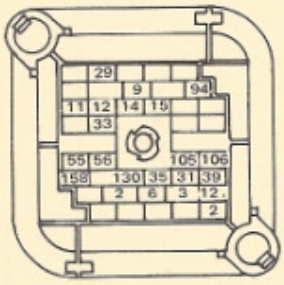


Figure 198 — Instrument Panel Wiring Schematic

ELECTRICAL SYSTEMS (Continued)



BULKHEAD CONNECTOR



WIRE COLOR CODE:

2 RED
3 PINK
4 BROWN
5 YELLOW
8 GRAY
9 BROWN
10 YELLOW
11 LIGHT GREEN
12 TAN
14 LIGHT BLUE
15 DARK BLUE
16 PURPLE
17 NATURAL WHITE
18 YELLOW
19 DARK GREEN
24 LIGHT GREEN
27 BROWN
28 BLACK
30 PINK
31 TAN
33 TAN w/Double White Stripe
35 DARK GREEN
39 PINK w/ Double Black Stripe
40 ORANGE
43 YELLOW
44 DARK GREEN
50 BROWN
55 ORANGE
56 DARK GREEN
75 DARK BLUE
77 DARK BLUE
80 LIGHT GREEN
87 YELLOW
88 TAN
93 NATURAL WHITE
94 PINK
105 BLACK
106 BLACK w/Double White Stripe
121 NATURAL WHITE
130 BROWN w/Single White Stripe
140 ORANGE
150 BLACK
158 GREEN w/Double White Stripe
240 ORANGE
300 ORANGE
500 RED
501 YELLOW w/Double Black Stripe