SECTION 23: ACCESSORIES

CONTENTS

LIST OF ILLUSTRATIONS

1. AUDIO AND VIDEO EQUIPMENT DESCRIPTIONS

The BACK-UP PA AMPLIFIER and its power amplifier are mounted on a sound system junction plate (Fig. 1). They are located over the front wheelhousing. To access, open the first baggage compartment. In addition to the public address (PA) systems, options for AM/FM stereo radio and cassette player, CD changer, karaoke, wire less microphone, video system with monitors and digital processor controller may be featured.

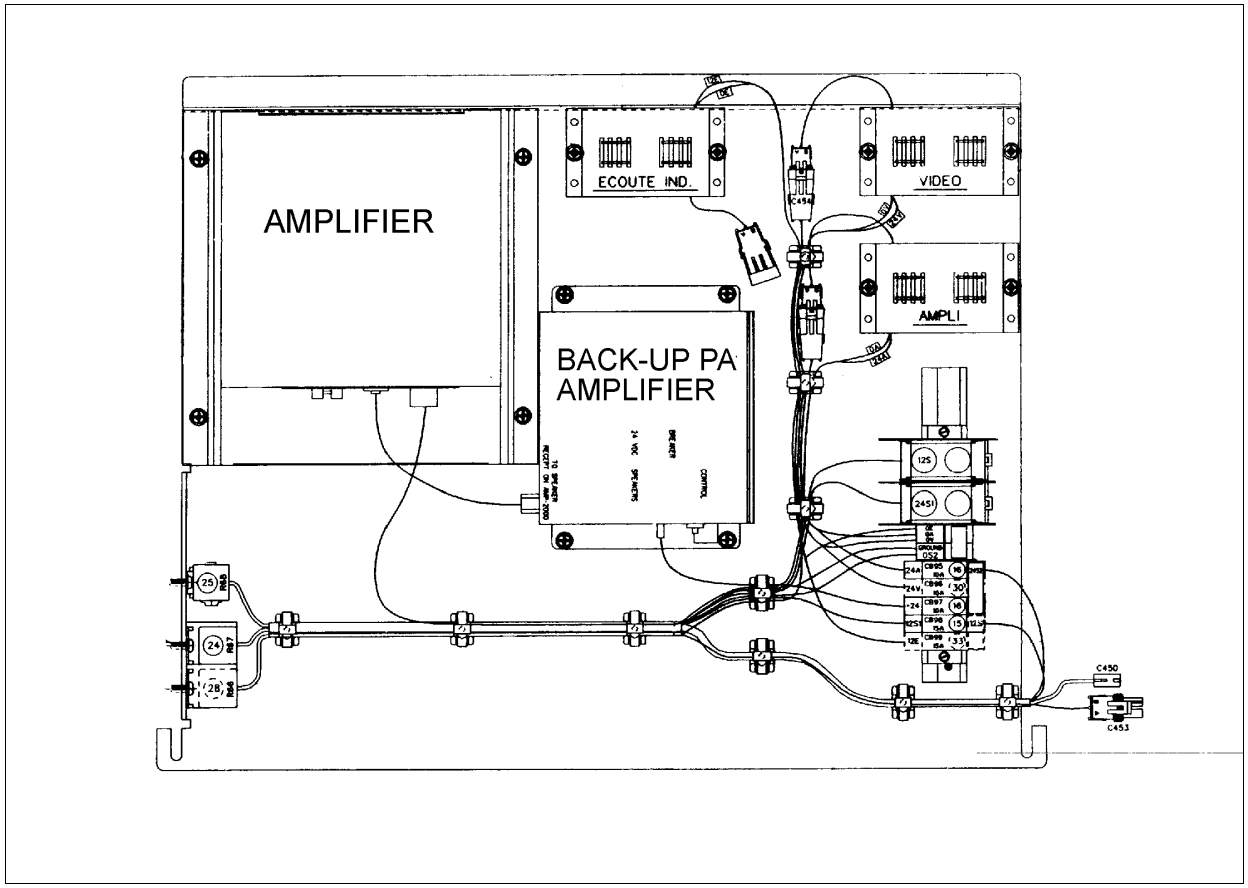


FIGURE 1: SOUND SYSTEM JUNCTION PLATE 23059

Each service module mounted to the underside of the parcel racks contains a 40-watt speaker. The speakers in passenger section (Twelve H3-41 or sixteen H3-45) are wired in stereo and are powered by the amplifier. A BACK-UP PA MODULE with volume control and one microphone outlet mounted in driver's area are provided as standard equipment.

1.1 Back-Up PA Module

The BACK-UP PA MODULE system is composed of a volume/tone preamp/power control unit (Fig. 2), power amplifier, microphone with mount bracket and microphone jack. The BACK-UP PA MODULE is located on L.H. side of driver seat. The microphone may be hand-held or boom-type (Fig.12). The microphone(s) may be installed at various locations on the coach.

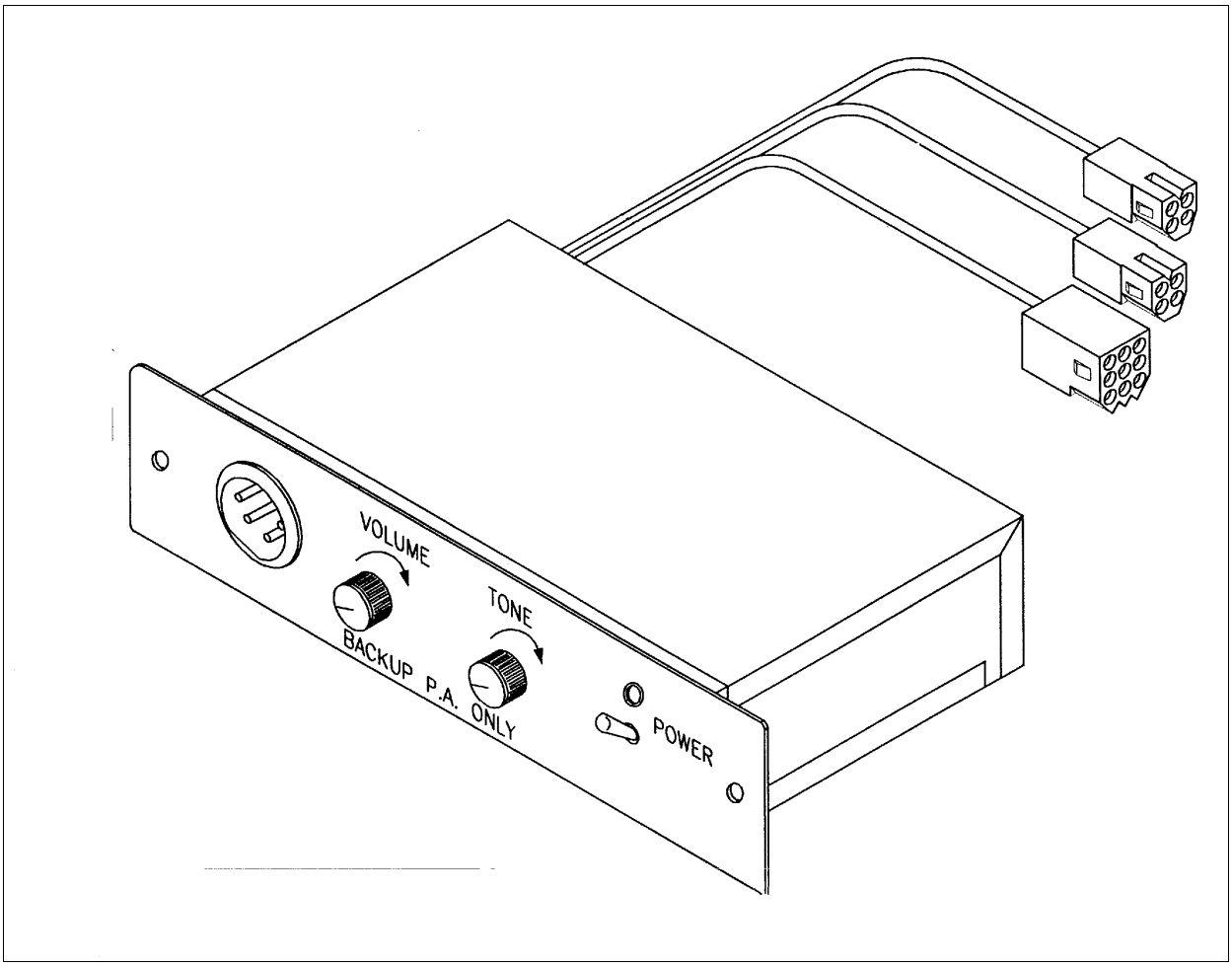


FIGURE 2: BACK-UP PA MODULE 23080

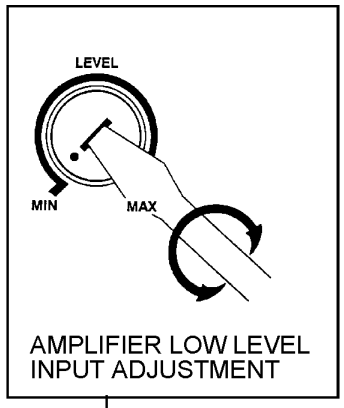
1.1.1 Removal

1. Place the battery disconnecting switches in the "OFF" position.
2. Remove the two Phillips-head screws.
3. Remove the BACK-UP PA MODULE.
4. Disconnect the power and micro wiring.

1.1.2 Installation

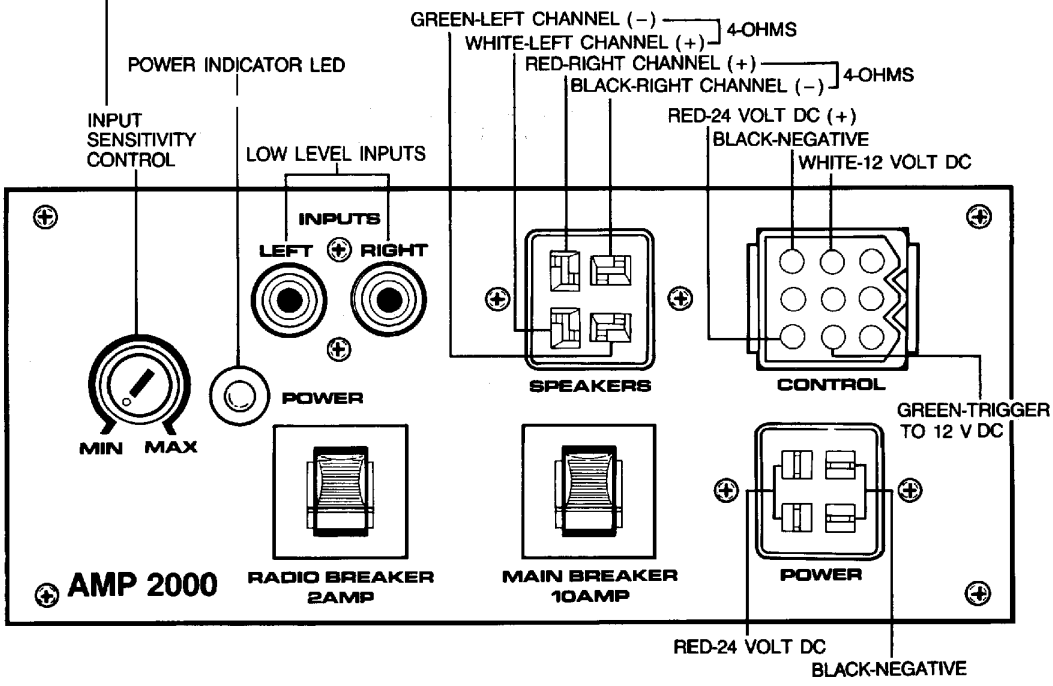
1. Connect BACK-UP PA MODULE wiring.
2. Replace the BACK-UP PA MODULE.
3. Replace the two Phillips-head screws.
4. Turn battery disconnecting switches in the "ON".

1.2 Amp-2000 (High Power Amplifier)



SPECIFICATIONS :

POWER : 24 V DC, NEGATIVE GROUND.
FREQUENCY RESPONSE : 10 - 100,000 Hz.
OUTPUT : 40 - 50 WATTS / CHANNEL RMS INTO 4 OHM AT 0.5% THD.
40 - 50 WATTS RMS SUBWOOFER OUTPUT INTO 4 OHM AT 0.5% THD.
PROTECTION : THERMAL OVERCURRENT SHUTDOWN REVERSE VOLTAGE PROTECTION, VOLTAGE SPIKE PROTECTION.



Caution:
1. Never connect speaker wires to ground.
2. Minimum impedance of 4 ohms per channel.

FIGURE 3: AMP-2000 23081

The AMP-2000 brings an added dimension to your stereo equipment and increases the total output of the system. The amplifier will perform with any unit operating in a 24-volt with negative ground electric system. The AMP-2000 is located over front wheelhousing. To access, open the first baggage compartment door.

The input sensitivity is adjustable from 100mV to 1V to match the output of the radio or tape deck. Set the volume control on the radio, then adjust the input control on the amplifier for an average listening level. This gives the best balance between radio output and system signal-to-noise ratio (Fig. 3).

Caution : *The low level input adjustment for this amplifier has been preset according to system specifications.*

1.2.1 Removal

Remove the amplifier(s) as follows:

1. Set the battery main disconnecting switch in the *"OFF"* position. Refer to Section 6: "Electrical System" for switch location.
2. Remove the sound system junction plate from its location. To perform this step, disconnect wiring connectors, remove cable ties and remove the bolts retaining the sound system junction plate.
3. Remove the four screws retaining amplifier(s) to its sound system junction plate.
4. Reverse the removal procedure to install the amplifier(s).

1.3 Back-Up PA Amplifier

The PA Backup Amplifier (Fig. 4) is located beside the Amplifier. To remove it, refer to the amplifier removal procedure.

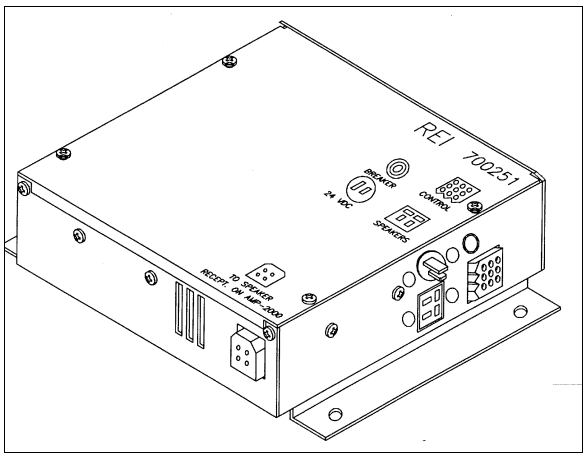


FIGURE 4: BACK-UP PA AMPLIFIER 23074

1.4 Am/Fm Radio Cassette And Disc CD Changer

The audio system is composed of an AM/FM radio cassette player *"Panasonic, model* CQ-R45EUC" (Fig. 5). Also, the vehicle may be equipped with a 6 or 12 disc CD changer, two additional hi-fi speakers in driver's area. A roof antenna as well as different microphone outlets, can be installed as optional equipment.

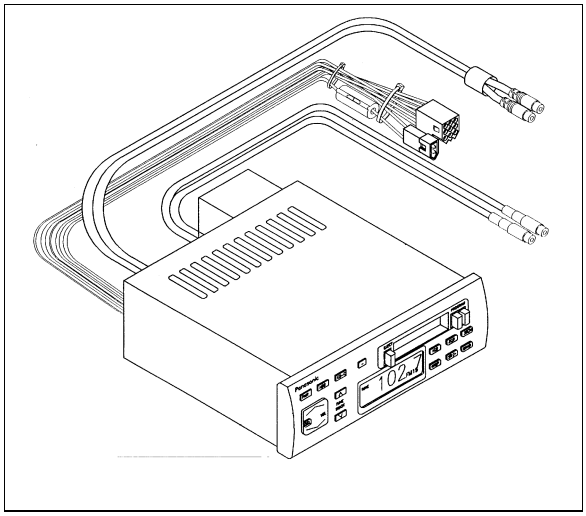


FIGURE 5: PANASONIC CQ-R45EUC 23082

Note: *Before attempting to solve an electrical problem on the sound system, refer to master wiring diagrams.*

Instructions for proper use of the radio are included in the *"Panasonic Owner's Manual"* which is provided in the technical publications box delivered with the vehicle. The radio is a serviceable component and should only be serviced by a qualified electronics technician. Refer to *"Panasonic Service Centers"* guide included in the technical publications box.

1.4.1 Removal

To remove the radio from its location, proceed as follows:

1. Place the battery disconnecting switches in the "OFF" position.
2. Remove the four Phillips-head screws retaining the R.H. lower control panel to the dashboard.
3. Carefully pull out panel from dashboard.
4. Disconnect metal strap and all wires from radio.
5. To unfasten the radio from its support, push in the dismounting pin included with the Owner's Manual.
6. If you need to remove face, remove screw securing detachable face.

1.4.2 Installation

To reinstall, reverse removal procedure and follow instructions on Figure 6 and 7.

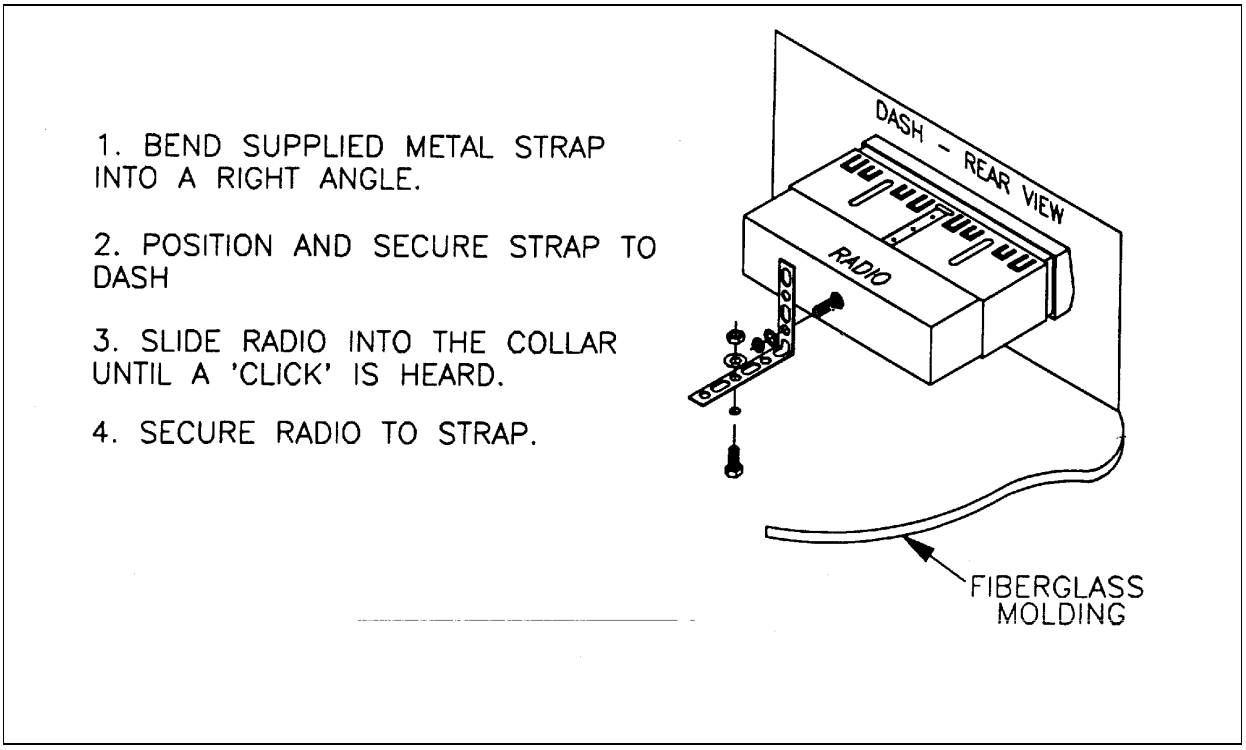
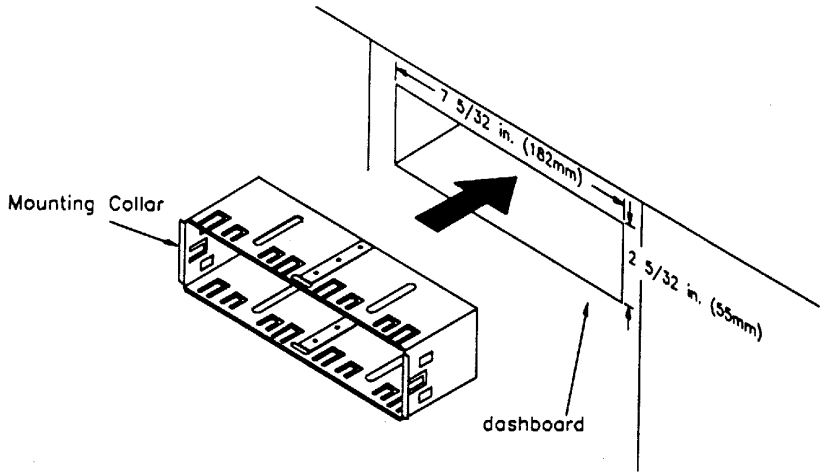
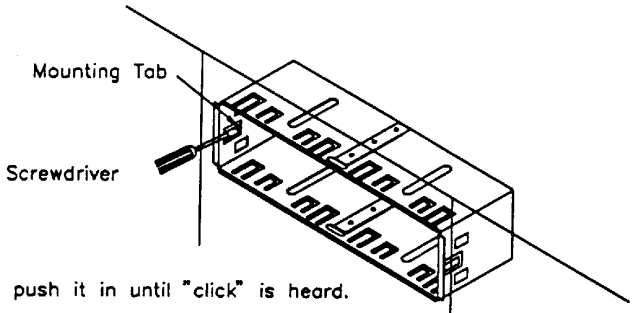


FIGURE 6: RADIO MOUNTING INSTRUCTIONS 23072

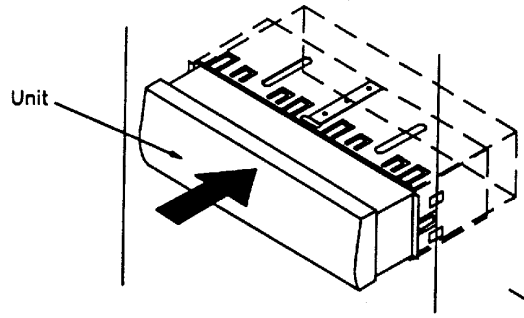
1. Cut opening in dash to indicated dimensions.

2. Secure the Mounting Collar.
Insert Mounting Collar into Bus's dashboard, and bend mounting tabs out with a screwdriver.

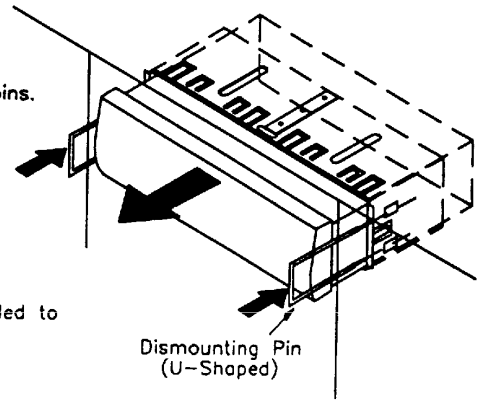




3. Insert the unit into Mounting Collar and push it in until "click" is heard.



4. To remove unit insert Dismounting Pins and pull both pins.



NOTE: Do not lose Dismounting Pins. They will be needed to remove the unit from the Bus's dashboard.

FIGURE 7: CONTROL HEAD AND RADIO MOUNTING INSTRUCTIONS 23073

1.5 Control Head

The system 2000 (Fig. 8) is designed exclusively for tour coach operations. A complete system will control the following equipment :

- A specially designed 70 watt per channel RMS amplifier, capable of driving up to twenty-six, four ohm speakers.
- Six, custom designed ten inch color monitors which incorporate a unique anti-theft locking slide mount. This makes installation and removal very easy.
- A specially modified VHS video cassette player that allows the operator convenient control over its functions.
- A digital Audio processor that incorporates a centralized system control. The System 2000's Microprocessor allows the operator to control up to three audio selections, permitting custom tailoring of each channel's sound quality. There are three microphone inputs for the PUBLIC ADDRESS SYSTEM, which are switchable between internal and external speakers. The unit contains a separate Video Section for the VCP which allows the driver to control his own separate audio selections.

Instructions for proper use of the control head are included in the *"R.E.I. Operator's Manual"* which is provided in the technical publications box delivered with the vehicle. See figure 7 and 9, for mounting instructions.

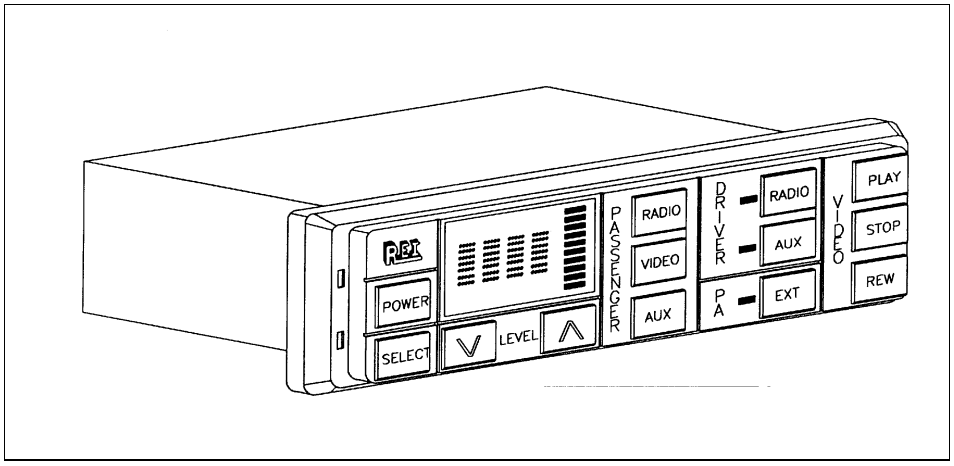


FIGURE 8: CONTROL HEAD 23070

1.5.1 Removal

To remove the control head from its location, proceed as follows:

1. Place the battery disconnecting switches in the "OFF" position.
2. Remove the dahboard protective cover.
3. Disconnect grounding strap and all wires from control head.
4. To unfasten the control head from its support, push in the dismounting pin (U-shape), included with "R.E.I Opetator's Manual".

1.5.2 Installation

To reinstall, reverse removal procedure and follow instructions on Figure 7 and 9.

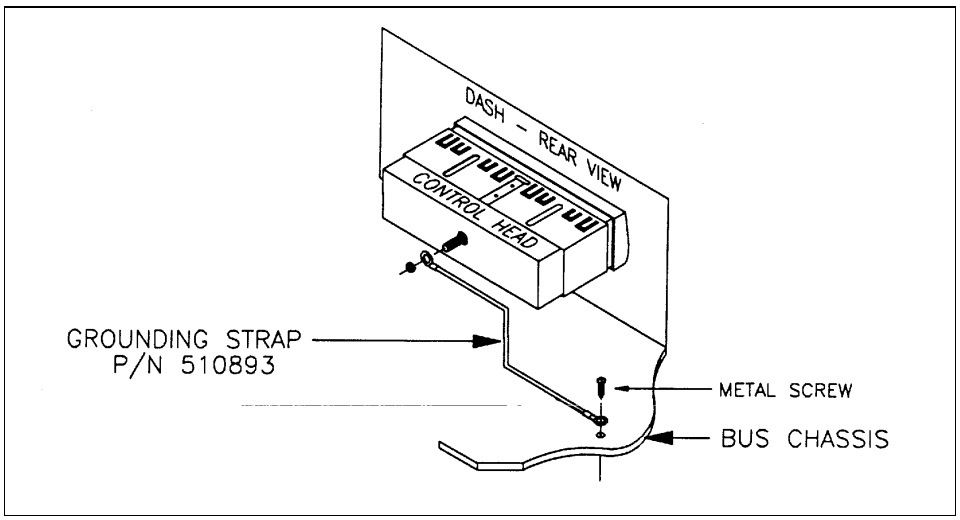


FIGURE 9: CONTROL HEAD GROUNDING INSTRUCTIONS 23071

1.6 Video

The video is located in the first parcel on driver's side (Fig. 10 and 11). Instructions for proper use of the video are included in the *"Operator's Manual"* which is provided in the technical publications box delivered with the vehicle.

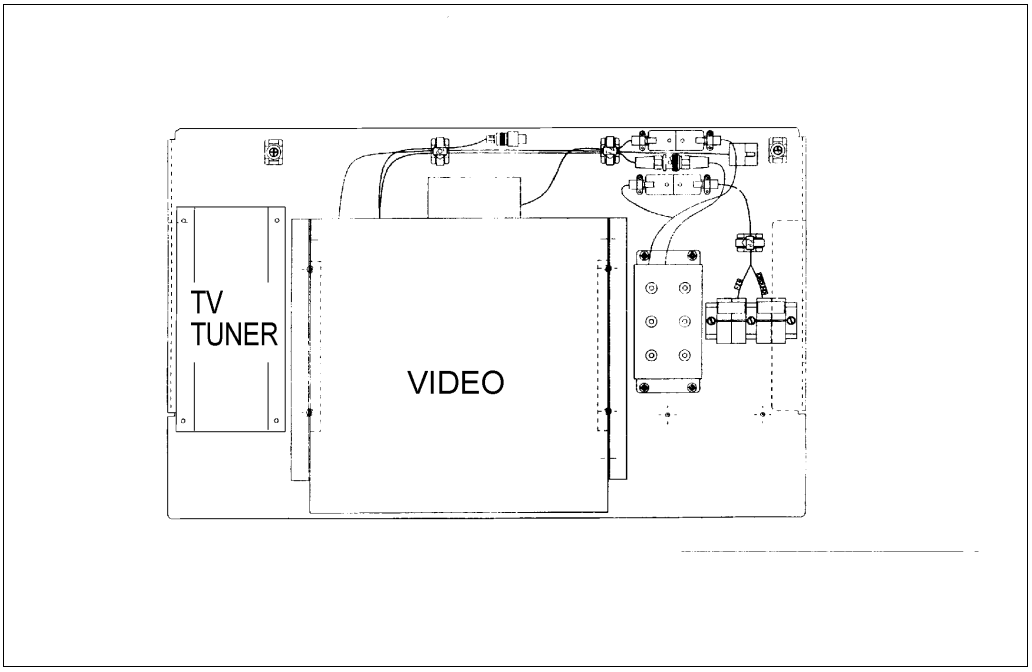


FIGURE 10: PARCEL RACK 23060

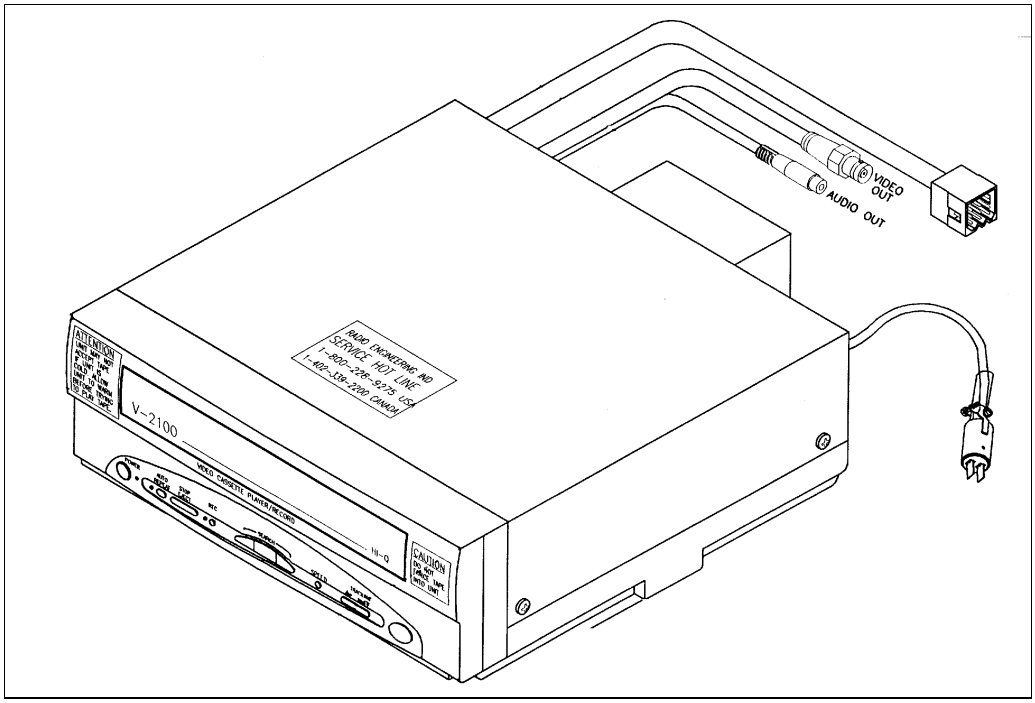


FIGURE 11: VIDEO 23075

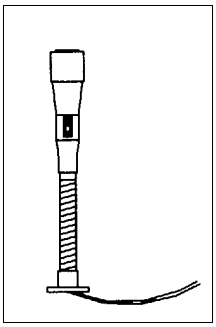
1.6.1 Removal

1. Place the battery disconnecting switches in the "OFF" position.
2. Remove VCP/VCR mounting locknuts from rubber mounts.
3. Disconnect wiring.
4. Remove VCP/VCR unit from parcel rack.

1.6.2 Installation

1. Insert VCP/VCR into parcel rack and align rubber mount studs to mounting holes. Insert mount studs through mounting holes.
2. Install locknuts on mount studs.
3. Connect wiring.
4. Turn battery disconnecting switches in the "ON" position.

1.7 Boom-Type Microphone



23083

FIGURE 12: BOOM TYPE MICROPHONE

1.7.1 Removal

1. Place the battery disconnecting switches in the "OFF" position.
2. Remove mounting screws at mounting flange.
3. Disconnect wiring.

1.7.2 Installation

1. Connect wiring.
2. Align mounting flange with holes and install screws.
3. Remove spacer block mounting screws.

4. Insert spacer block and install mounting screws.
5. Turn battery disconnecting switches in the "ON" position.

1.8 Monitor

For monitor adjustment, see figure 13.

1.8.1 Removal

The six, ten-inch color monitors are slide mounted and retained by key locks. A LED light on the back indicates if the monitor is "ON". The "RED" button is the monitor on/off switch and the pin style button is the circuit breaker reset button.

1. Place the battery disconnecting switches in the "OFF" position.
2. Unlock the monitor slide and pull toward front of monitor.
3. After removal, cover mount location with the monitor cover assembly and lock.

1.8.2 Installation

1. Remove cover over mounting bracket if needed.
2. Align monitor mount with slide and slide monitor or mount cover into place.
3. Lock monitor or cover to prevent removal.

Note: *Be sure connections are not bent or damaged . If monitor is not being replaced, immediately install the mounting cover.*

1.9 Driver's Speakers

The driver's speaker's are mounted one on each side. This arrangement provides the driver with clear stereo sound. Controls for the driver's audio allow selection between the radio or the auxiliary audio (independent of the passenger's speakers) or muting the speakers.

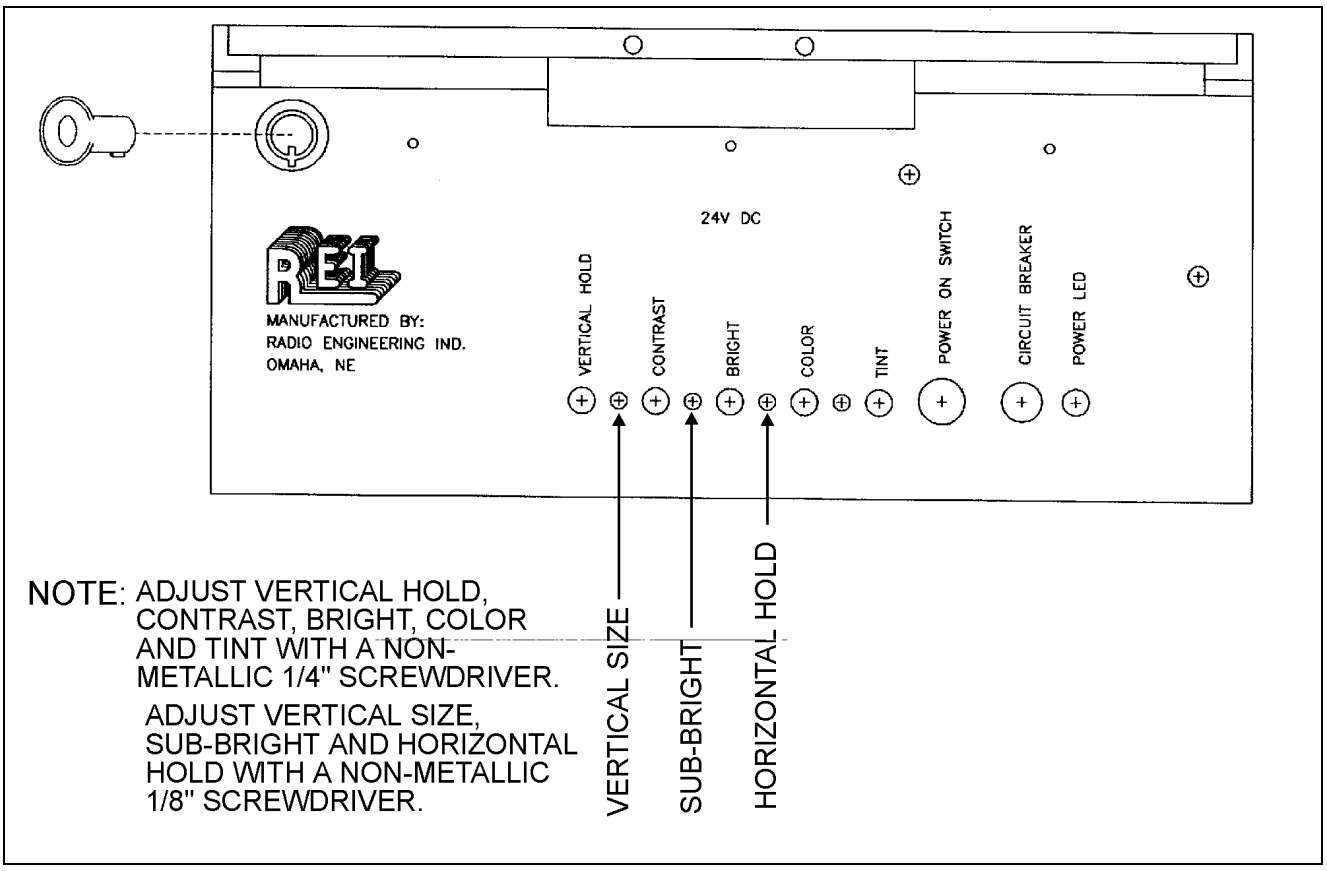


FIGURE 13: REAR PANEL OF HOUSING (MONITOR) . 23076

1.10 Wire Less Microphone

R-505 is a VHF high-band system with quartz controlled fixed frequency and tone squelch design (Fig. 14). The R-505 must be combined with Q series of wireless microphones, and can be used as an individual or a multi-channel system with 2 or more sets together. Instructions for proper use of the R-505 are included in the *"R.E.I. Operating Manual"* which is provided in the technical publications box delivered with the vehicle.

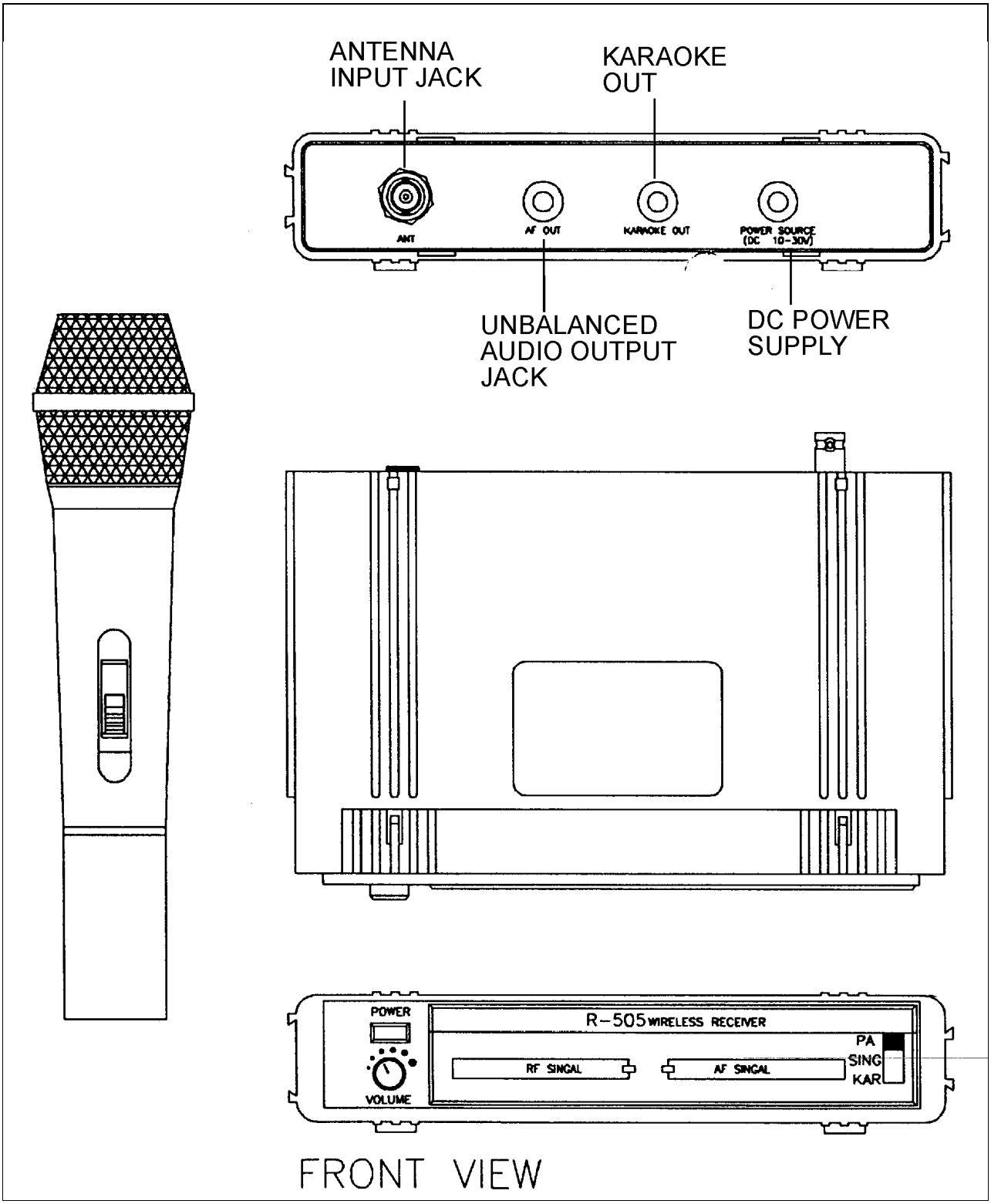


FIGURE 14: WIRE LESS MICROPHONE 23077

1.11 TV Tuner

For TV tuner control descriptions, see figure 15.

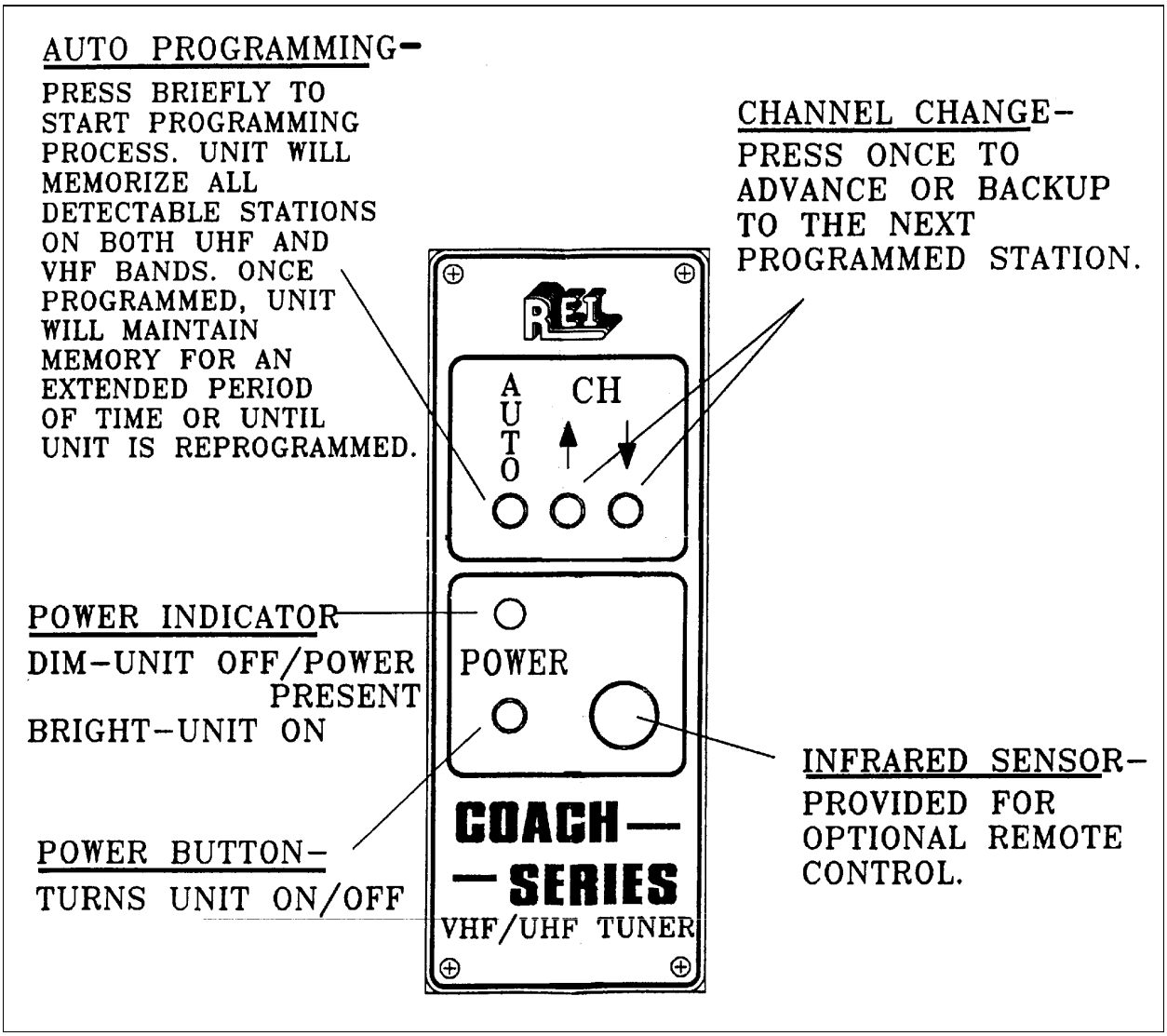


FIGURE 15: TUNER CONTROL DESCRIPTIONS 23061

1.12 Karaoke

Instructions for proper use of the Karaoke are included in the *"Operating Manual"* which is provided in the technical publications box delivered with the vehicle.

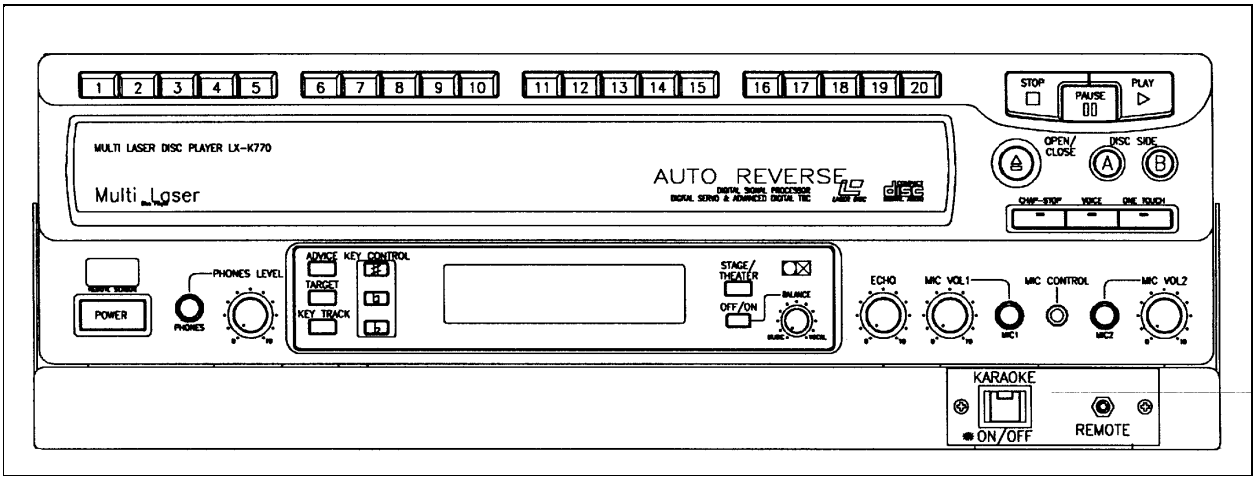


FIGURE 16: KARAOKE (FRONT VIEW) 23078

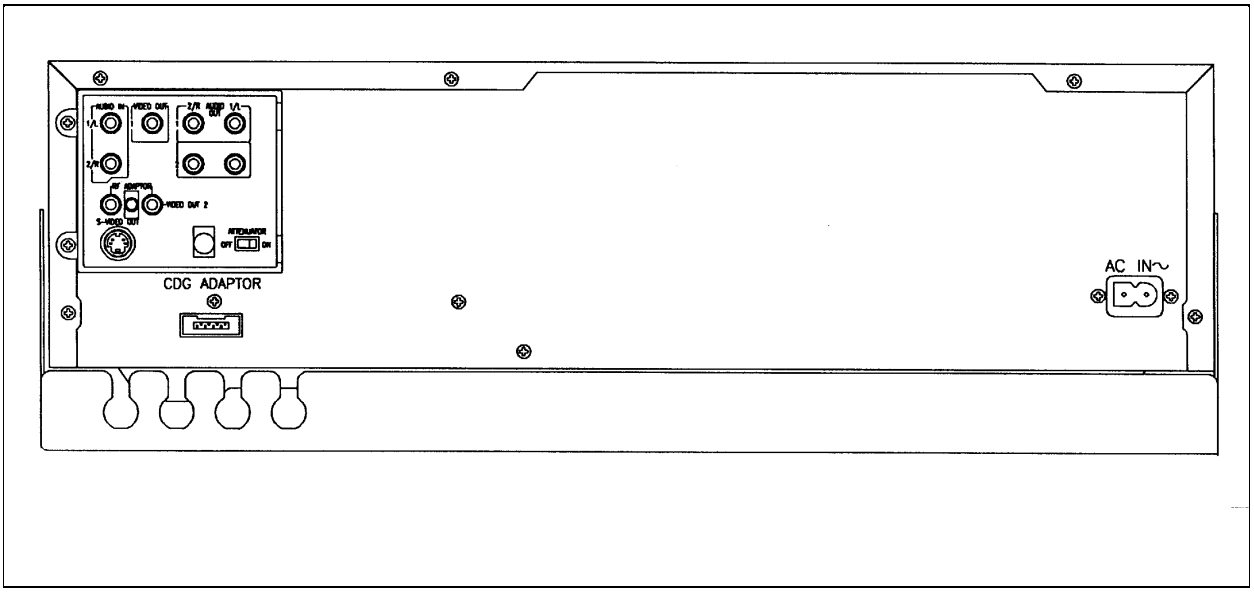


FIGURE 17: KARAOKE (REAR VIEW) 23079

2. HUBODOMETER

2.1 Description

An optional wheel hubodometer (Fig. 18) may have been installed on the R.H. side of the drive axle. It indicates the total distance in miles or kilometers covered by the coach since it has left the factory, including road testing.

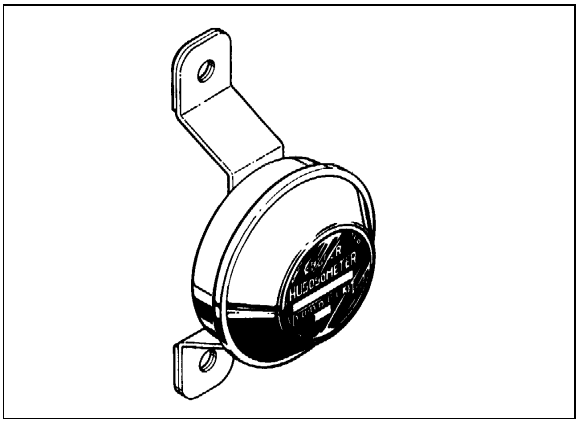


FIGURE 18: HUBODOMETER 23027

2.2 Operation

The hubodometer is calibrated for a specific wheel size (diameter). Wheel rotation causes a mechanism inside the hubodometer to record distance after a predetermined number of rotations. The unit should be serviced at a competent speedometer repair facility.

Note: *Do not use paint, solvent or thinner on hubodometer face or on plastic hubcaps. Do not weld on hubodometer.*

2.3 Removal

To remove the unit, remove the two lock nuts and washers securing it to the wheel hub, and pull the unit off the studs.

2.4 Installation

Place the hubodometer unit over the wheel hub studs. Replace the lock washers and nuts. Torque stud nuts to 110-165 lbf•ft (150-225 N•m).

3. KEYLESS DOOR ENTRY SYSTEM (V.I.P. Model Only)

The keyless door entry system has two main components:

1. A five-button keypad on the outside panel of the entrance door.
2. An electronic microprocessor/relay module mounted on top of the defroster unit.

The factory-programmed code is permanently recorded on a plastic card (credit card size) which is supplied to the owner, and on a decal which is affixed on the electronic microprocessor/relay module mounted on defroster unit. Owner can also select and program its own personal code (e.g. a birthday or part of a social security number) by pressing a specified sequence of keypad buttons. Refer to *"Owner's Manual"* for instructions on how to program a new code and for any operation information relating to the keyless door entry system.

Caution: *Never press on the keypad buttons with a key, a pencil or any sharp object. Such objects could damage the buttons. Although each button is provided with two digits separated by a vertical line, there is only one contact per button. Press in center of button, i.e. between the two digits where there is the vertical line.*

Before attempting to solve an electrical problem on the keyless door entry system, refer to wiring diagrams (V.I.P. model).

Caution: *Do not tamper the electronic microprocessor/relay module seal during the vehicle warranty period as it will void its warranty.*

4. BACK-UP CAMERA AND MONITOR

For information on these system, refer to wiring diagram and to Clarion manuals, located in the publication box.

5. COLD STARTING AID (ETHER)

The vehicle can be equipped with an electrically-operated type ether cold starting aid designed to ease engine starting when temperature is below 35 °F (2 °C).

On vehicles equipped with cold starting aid, the system consists of the main following parts:

- Ether starting aid switch
- Ether cylinder
- Solenoid valve (24 V)
- Thermal cutout valve
- Atomizer

The control rocker switch is located near the ignition switch on the L.H. lower switch panel. This switch is provided with a locking mechanism to avoid accidental use when engine is running. To activate the ether starting aid, proceed as follows:

Caution: *Do not use additional ether dischargeshots during engine starting. Do not discharge several shots during ether starting aid procedure. The valve is gauged in function of engine cylinders. Too much ether may be detrimental to engine cylinders, moreover it may render void thewarranty.*

1. To fill solenoid valve, prior to cranking engine, slide down lock tab while pressing rocker switch for three seconds.
2. Release switch to discharge shot.
3. Allow three seconds for shot to discharge.
4. Start engine. If engine fails to start, repeat procedure.

Caution: *This practice should be performed only when absolutely necessary. Excessive use of fluid could result in serious engine damage.*

The ether cylinder and solenoid valve assembly are mounted on the engine compartment wall and are accessible from the engine compartment R.H. side door.

The thermal cutout valve is mounted on the engine (radiator side). Its function is to prevent discharge of ether when engine is warm (over 90 °F (32 °C)). An atomizer is installed on top of air intake duct (refer to fig. 19).

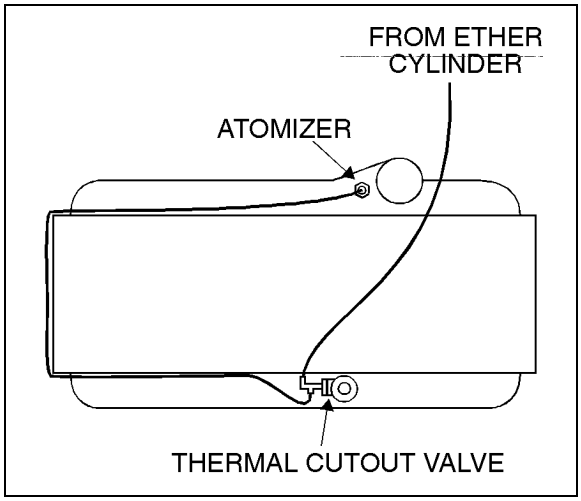


FIGURE 19: ENGINE 23032

5.1 Preventive Maintenance

During the summer months, remove cylinder to avoid high temperature actuation of the cylinder safety relief device. Always screw valve cap into solenoid valve opening to prevent entrance of road dirt. When removing cylinder, be careful to prevent dirt from entering the valve.

5.2 Troubleshooting (If System Is Non-functioning)

Warning: *During the following test, direct free end of tube away from personnel and all sources of ignition as this fuel is extremely flammable. Avoid breathing vapors and contacting fuel with skin. Never smoke during test.*

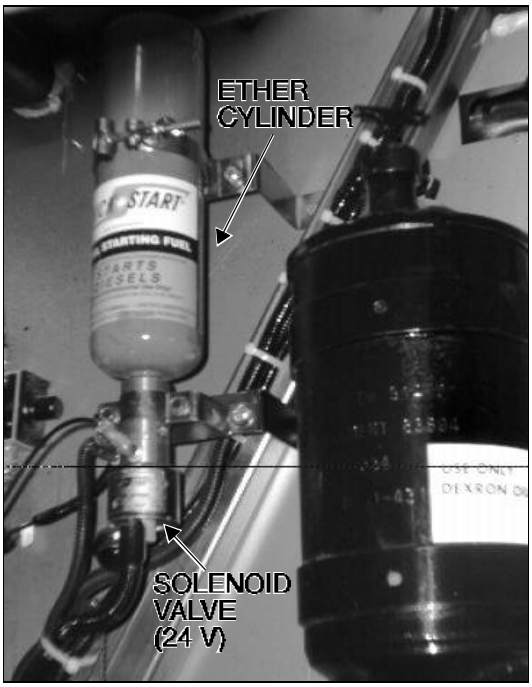


FIGURE 20: COLD STARTING AID 23033

1. Check cylinder for hand tightness and fuel supply. Empty cylinder weight is approximately 17 oz (480 g); full cylinder weight is approximately 35 oz (990 g). If cylinder is empty, replace it. Before replacing cylinder, install new valve gasket in solenoid valve.
2. If still not functioning, disconnect tubing at solenoid valve fitting. Actuate solenoid valve. (Ask an assistant to actuate solenoid valve by means of the rocker switch on the dashboard.)
   - If solenoid valve is non-functioning, check electric circuit, (refer to wiring diagrams). If sound, remove and replace the solenoid valve. If not, repair electric circuit.
   - If valve is functioning, reassemble valve fitting and connect tube. Disconnect tube at thermal cutout valve from port "Tube from valve".
3. Actuate the solenoid valve.
   - If fuel is not discharged from tube, remove tube and blow out or replace.
   - If fuel is discharged, connect tube to thermal cutout valve, and disconnect other tube.
4. Actuate the solenoid valve.
   - If fuel is not discharged, replace the cutout valve.

Note: *If engine coolant temperature is 90 F (32 C) or over, it is normal that fuel is not discharged as the valve is in closed position.*

   - If fuel is discharged, connect tube to thermal cutout valve, and disconnect tube from atomizer.
5. Actuate the solenoid valve.
   - If fuel is not discharged from tube, fuel line is clogged. Remove tube and blow out or replace.
   - If fuel is discharged, replace the atomizer.

5.3 Thermal Cutout Valve Quick Test

1. Engine coolant temperature must be below 90 °F (32 °C).
2. Temporarily disconnect tube at thermal cutout valve from port *"Tube to atomizer"*.
3. Actuate solenoid valve. (Ask an assistant to actuate solenoid valve by means of the rocker switch on the dashboard.) Fuel should be discharged through the thermal cutout valve.

Warning: *Avoid breathing vapors and contacting fuel with skin. Never smoke during test.*

4. Reconnect tube to thermal cutout valve.
5. Start engine, using cold starting aid if necessary. Stop engine when it reaches operating temperature.
6. Disconnect tube at thermal cutout valve as in step 2, and repeat step 3. No fuel should be discharged.

6. DESTINATION SIGN

6.1 Description

The destination sign is located at upper front of the vehicle. The lighting is provided with a fluorescent tube which is activated by means of a rocker switch located on the L.H. side control panel. The destination sign is electrically operated. Its motor is controlled by two rocker switches mounted side by side on the destination sign. The small one determines the

rolling speed without actuating it. The larger switch (momentary type) controls and actuates the rolling direction (forward or backward).

6.2 Maintenance

Inspect the following items regularly:

1. Check for free and easy mechanism movement.
2. Check for loose items on the sign mechanism, such as wire, loose clips, hanging tape, etc.
3. Check tension and condition of the two drive belts and replace as required.
4. Periodic lubrication is **NOT** recommended.

6.3 Fluorescent Replacement

1. Remove the six Phillips-head screws and washers retaining the destination sign cover, then carefully remove the cover from its location.
2. Remove both Phillips-head screws, one on each fluorescent assembly hinged bracket (see fig. 21), then lower assembly.

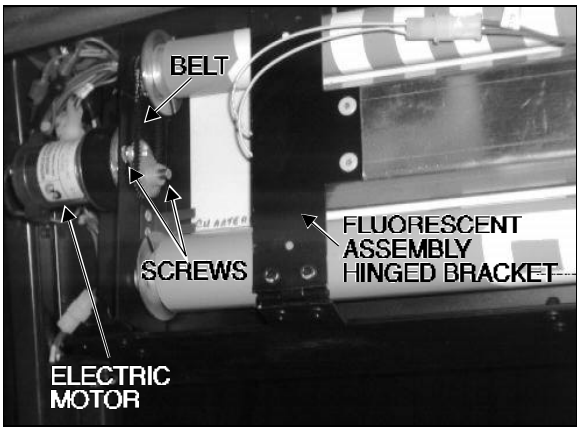


FIGURE 21: DESTINATION SIGN 23034

3. Push on tab located on each fluorescent pin receptacle while removing fluorescent.
4. Install new fluorescent, then reinstall the assembly by reversing the above procedure.

6.4 Electric Motor Removal and Installation

To remove the electric motor, repeat previous step 1, plus the following:

1. Disconnect wires from electrical motor.
2. Remove both screws retaining motor to destination sign frame (see fig. 21).
3. Slide motor upwards, then remove the drive belt.
4. Remove motor through the opening intended for this purpose.
5. Install the motor by reversing the above procedure.

6.5 Sign Curtain Repair

In the event a destination sign curtain is torn, it can be repaired with 3M polyester tape or any equivalent cellophane tape. When repairing a tear, the tape should be used on both sides of the curtain.

7. LAVATORY

7.1 Description

The lavatory is located in the rear R.H. corner of coach and is equipped with the following standard items: chemical flush toilet, towel and toilet tissue dispensers, waste container, washbasin, fresh water reservoir, low temperature water safety valve, mirror, fluorescent lighting, cleaning cabinet. It may also be equipped with liquid soap and wet-type towel dispensers, an ashtray and a heating element for the fresh water reservoir, as optional equipment.

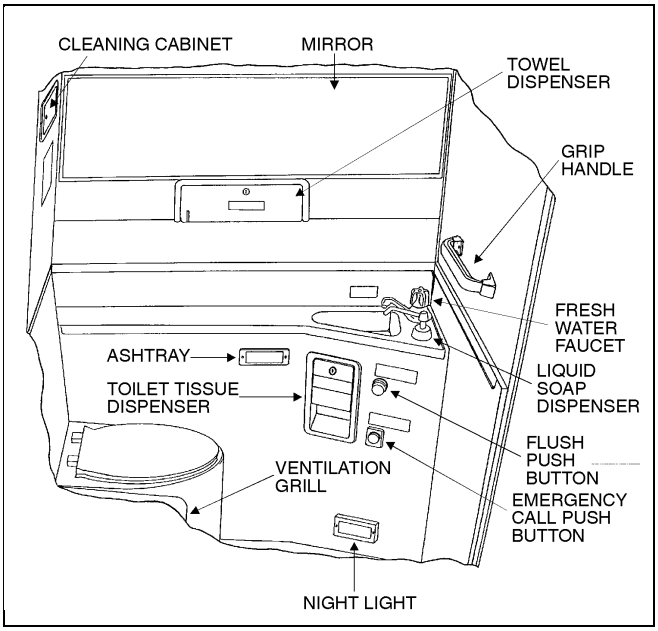


FIGURE 22: LAVATORY 23035

Locking the door from inside will illuminate the ceiling fluorescent light plus outside signs which are mounted on the outer wall of lavatory, over the windshield and an indicator light on the L.H. dashboard. A night-light is always illuminated when ignition switch is in the *"ON"* position.

7.2 Maintenance

The servicing procedure for the lavatory is described in the *"Operator's Manual"* included in the technical publications box delivered with the vehicle.

7.3 Ventilation Fan

7.3.1 Description

The lavatory ventilation fan, mounted in engine compartment over the oil reserve tank, serves two purposes. It exhausts objectionable odors and provides a constant air circulation in the lavatory compartment by heating or cooling the lavatory with the vehicle ambient air. Air flows in the lavatory compartment through a vent grill located in the upper section of the lavatory door and exhausts through grills located on both sides of toilet.

Note: *This fan runs constantly whenever the ignition switch on the L.H. lower control panel is in the "ON" position.*

7.3.2 Maintenance

The frequency of preventive maintenance should be determined according to vehicle mileage and operating conditions. However, it is recommended to check this item approximately every 50,000 miles (80 000 km).

Remove fan and motor assembly. Check for fan housing wheel and motor free operation. When defective motor occurs, new motor must be installed.

Note: *This motor is similar to those used on the driver's defroster and upper windshield defroster units.*

7.3.3 Removal and Installation

1. With the engine compartment rear door opened, remove hose clamp securing duct to ventilator inlet, and disconnect duct.
2. Disconnect the ventilator motor wiring connector.
3. Remove the two nuts retaining the ventilator fan housing support to the square tube. Remove the ventilator assembly from its location.
4. The unit can now be disassembled and motor replaced.

FIGURE 23: VENTILATION FAN MOTOR 23036

5. Reverse previous steps to reinstall ventilator assembly on vehicle.

7.4 Door Lock

Lavatory door lock has inside and outside handles, as well as an inside latch to lock door from inside the compartment. If the lock fails to release, the door can be opened from the outside using a special key which is supplied to the driver. Lock assembly can be removed from the door, then readily disassembled and parts replaced, if necessary (see fig. 24). A thin coat of lubricant on all moving parts will ensure trouble-free operation.

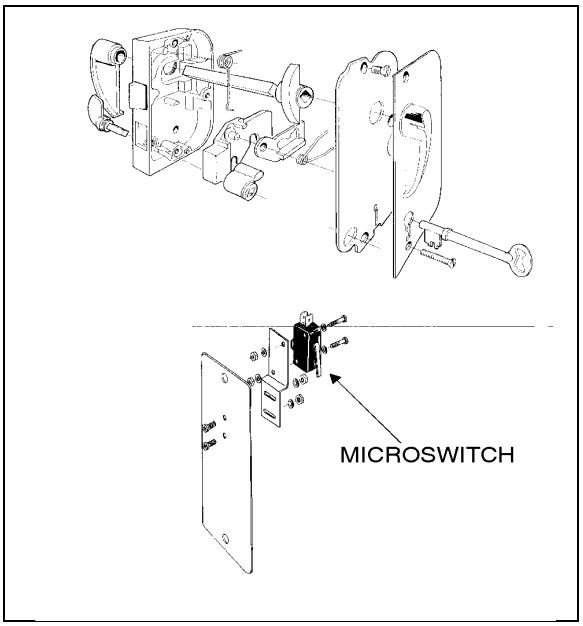


FIGURE 24: DOOR LOCK 23037

7.5 Emergency Buzzer

The lavatory emergency buzzer is mounted on the alarm junction box in front service compartment, and sounds when the emergency call pushbutton switch in the lavatory compartment is activated. For specific wiring information, refer to wiring diagrams. To remove the emergency call pushbutton switch, proceed as follows:

1. Remove both Phillips-head screws retaining pushbutton switch plate to wall.
2. Using the appropriate key, unlock and open the toilet tissue dispenser flap. (If equipped with paper dispenser (rolls), remove the steel plate and proceed to step 5).
3. Remove all toilet tissues.
4. Unscrew the Phillips-head screw retaining the toilet tissue dispenser assembly, and remove from its location.
5. Remove switch through this opening, taking care to disconnect electric wires.

7.6 Fresh Water Tank

The fresh water tank located at rear of lavatory wall (over cleaning cabinet), supplies water to the washbasin by gravity. Two tubes are connected in the upper section of tank (see fig. 25). One serves as overflow as well as a vent tube and runs along the wall to the underside of the lavatory close to the engine air filter housing, while the other tube is connected to the fresh water fill valve which is mounted over the engine oil reserve tank. A third tube connected in the lower section of fresh water tank is provided with a TEE-connector and allows fresh water to flow to the washbasin faucet and to the low temperature water safety valve for automatic or manual drainage. An access panel, located at rear of last R.H. side row of seats and secured in place with 6 Phillips-head screws, allows access to the cleaning cabinet and fresh water tank tubing's, fresh water tank heater and different wiring connectors.

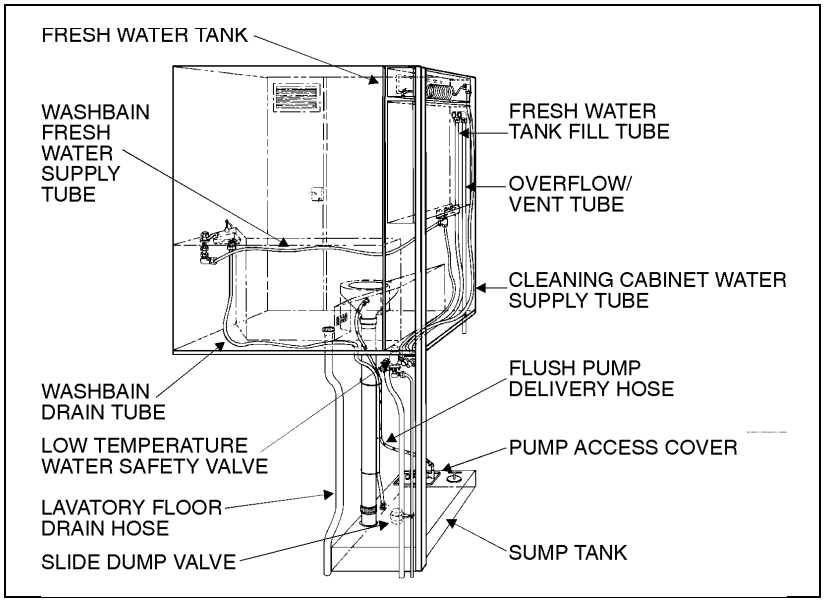


FIGURE 25: FUNCTIONING OF LAVATORY 23038

7.6.1 Fresh Water Tank Heater

A 75 watt, 110 volt AC immersion-type water heater is installed in the bottom of the fresh water tank. The heated portion of element must be immersed at all times to ensure proper heater life. Its power source is provided by the 110 volt in-station connector also mounted on the alarm junction box.

7.7 Liquid Soap Dispenser

A liquid soap dispenser may have been installed as optional equipment. To refill dispenser, proceed as follows:

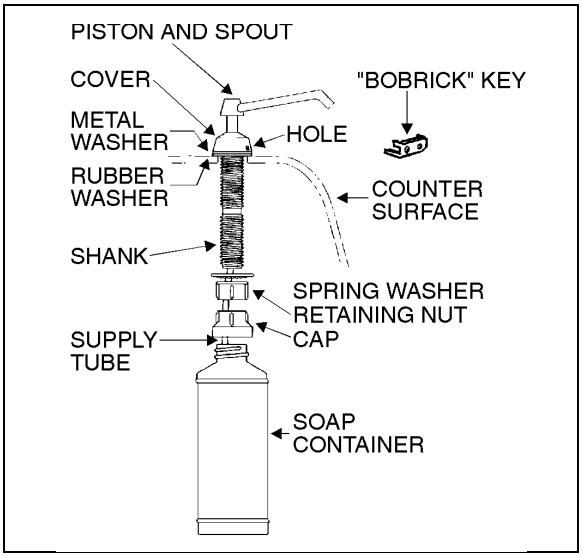


FIGURE 26: LIQUID SOAP DISPENSER 23039

1. Turn cover slightly clockwise until it stops.
2. Insert projection at end of *"BOBRICK"* key into rectangular hole in cover (see fig. 26). Push straight in. While holding *"BOBRICK"* key in, turn cover counterclockwise about 1/8 turn.

Caution: *Do not use "BOBRICK" key to turn cover.*

3. Lift out piston and spout, cover and supply tube.

4. Fill dispenser with soap. This model can dispense vegetable oil soaps, synthetic detergents, and lotion soaps.

Caution: *Never use abrasive cleaners.*

5. Replace supply tube, piston, and spout mechanism reversing the steps above.
6. Secure the cover by turning clockwise until lock snaps into position.

Note: *The dispenser requires priming when extremely viscous lotion soaps are used. Remove piston and spout, cover and supply tube assembly. Pump water into assembly, then replace into dispenser.*

7.8 Flush Pushbutton

The green flush pushbutton is located near the toilet tissue dispenser. Press on pushbutton to actuate a pneumatic timer located on the other side of wall. This timer allows an electric current flow during a preset time to a pump into the sump tank.

7.8.1 Pneumatic Timer Removal and Installation

1. Unscrew and remove the flush push button lock nut.
2. Using the appropriate key, unlock and open the toilet tissue dispenser flap.
3. Remove all toilet tissues.
4. Unscrew the Phillips-head screw retaining the toilet tissue dispenser assembly, and remove from its location.
5. Remove pneumatic timer through this opening, taking care to disconnect electric wires.

Note: *Care must be taken to avoid losing the spacers installed on the mounting sleeve.*

6. Reverse the above procedure to reinstall timer. The recommended torque for the lock nut is 15 lbf•ft (21 N•m).

7.8.2 Timer Adjustment

Timer can be adjusted from 0.2 second to 3 minutes by turning the time adjustment screw clockwise to increase time, and counterclockwise to decrease time. To gain access to the time adjustment screw, repeat steps 2, 3, and 4.

7.9 Flush Pump

The submersible-type flush pump is mounted inside an enclosure in the sump tank. The enclosure is provided with a screened side which serves as a strainer to prevent solid matters from entering the pump. The pump requires no periodic maintenance other than cleaning of the strainer side using a water jet introduced through the circular cap opening, once the sump tank is completely drained. The pump can run dry periodically without damage. However, for maximum seal life, the run dry periods should be kept to a minimum.

Caution: *If vehicle is stored for an extended period of time, make sure to clean the strainer as solid matter will tend to pack, and will necessitate replacement of strainer.*

7.9.1 Flush Pump Pressure Adjustment

The flush pump is provided with a manually-adjustable control valve mounted on the flush pump cover and serves to limit flush pump output pressure. To adjust, ask an assistant who will activate the flush pushbutton and check the liquid projection while you manually adjust the control valve.

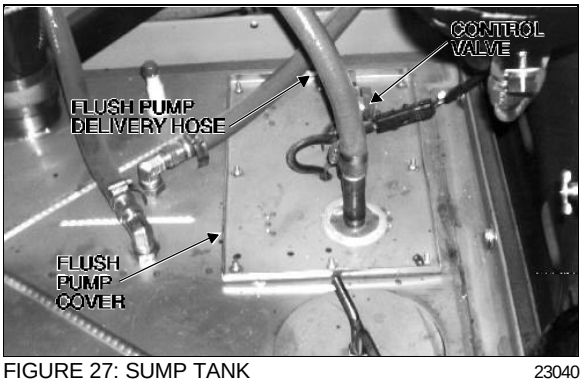


FIGURE 27: SUMP TANK 23040

8. WINDSHIELD WIPERS AND WASHERS

8.1 General Description

Note: *When installing a wiper motor, arm or blade, follow recommended procedures to prevent misalignment, binding or malfunction. Check the windshield washer solvent hoses, fittings and connectors to be sure they are properly connected and seal with no restriction to the flow of washer solvent. Check that the wiper arms have the proper sweep position and the washer nozzles are aimed so that spray is within the proper wiper pattern.*

The windshield wipers are controlled by to electric wiper motors that are accessible for maintenance after raising the appropriate access panel at the front of the coach (for location of the two motors, see figure 28).

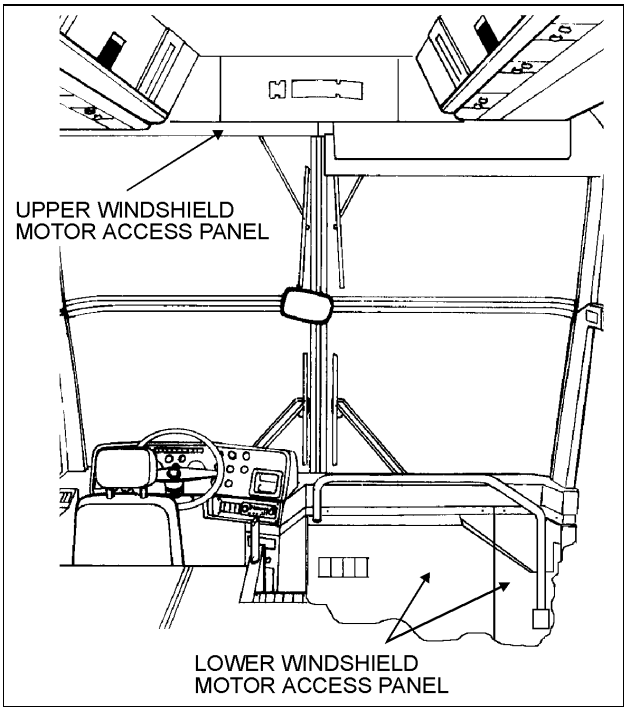


FIGURE 28: MOTOR LOCATION 23084

Each wiper motor is independently operated :

Depress the upper windshield wiper switch located on L.H. dashboard to the first position for intermittent wiping, and to the second position for continuous wiping (1, Fig. 29).

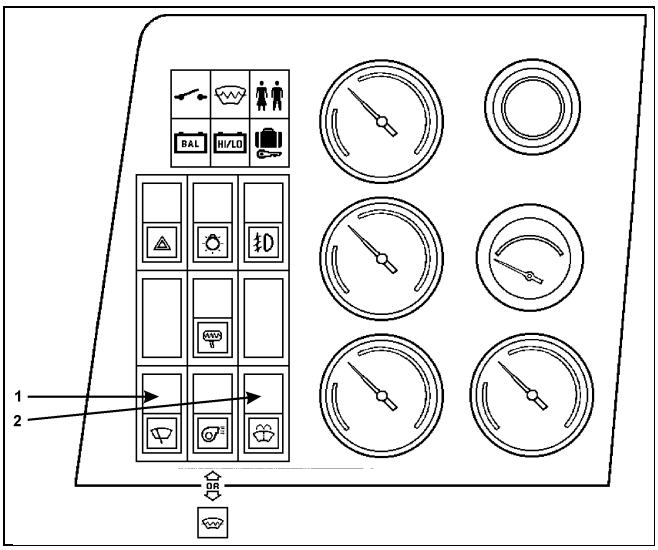


FIGURE 29: L.H. DASHBOARD OEH3B222

Turn the multifunction lever forward to activate lower windshield wipers (2, Fig. 30). The first position operates the wipers at low speed and the second position operates the wipers at high speed. Turning the lever backwards will operate the wipers in the intermittent mode.

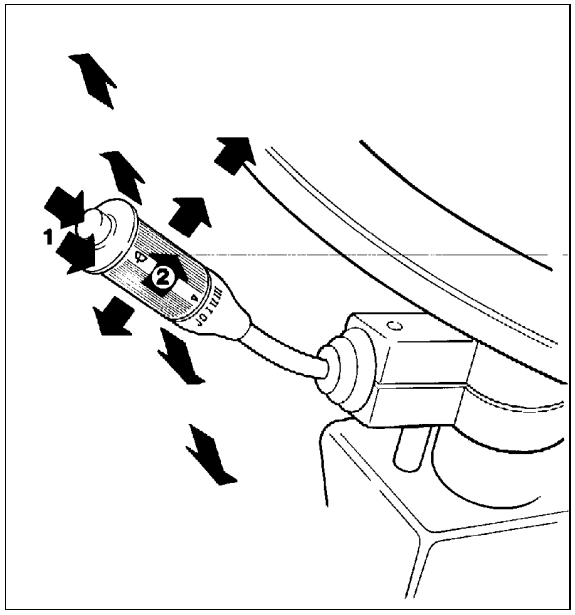


FIGURE 30: MULTIFUNCTION LEVER OEH3B346

Each windshield washer pump is independently operated :

To activate the upper windshield washer pump, depress and hold the rocker switch on L.H. dashboard (2, Fig. 29). The upper wipers will

come on automatically and will shut off a few seconds after releasing the rocker switch.

The lower windshield washer pump is electrically operated and is controlled by a washer control ring on the multifunction lever (1, Fig. 30).

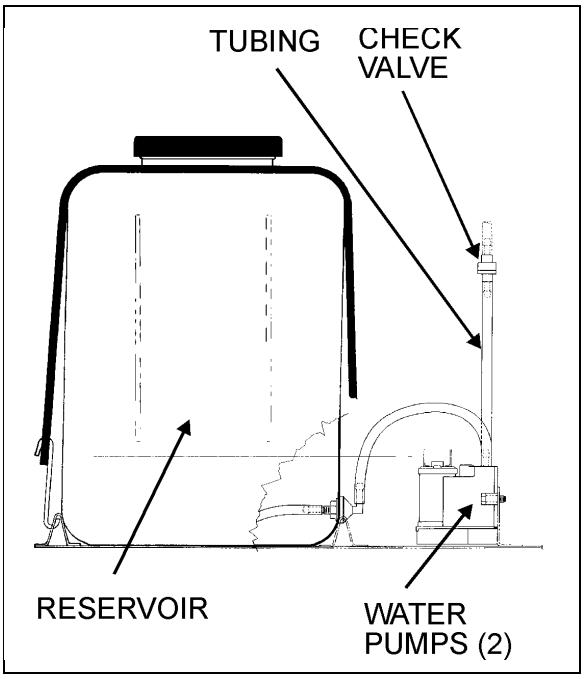


FIGURE 31: WINDSHIELD WASHER 23085

The windshield washer reservoir is located in the front service compartment (Fig. 31). This unit pumps the washer solvent to the spray nozzles where it is dispersed across the windshield. Adjust nozzles with a flat screwdriver as needed to get proper spray coverage.

8.2 Wiper Arm

Check operation of the wipers for proper blade sweep and angle.

Caution: *Do not attempt to manually move the wiper arms to make wiper blade sweep adjustments as damage to the wiper linkage or motor may occur. If it is necessary to adjust the sweep of blades, remove the arms and make adjustment by positioning the arms using serrations on the wiper arm pivot shafts.*

8.2.1 Sweep Adjustment

On a dry windshield, to avoid possible damage to the arm assemblies or wiper motors, hold the wiper arms away from the windshield by inserting a small nail, or other such objet, through the holes at the base of each wiper arm specially drilled for this purpose.

Sweep adjustment is a rough adjustment. It must be followed by Lower or Upper linkage adjustment. See paragraph "8.3 and 8.4".

In order to obtain the **sweep adjustment**, it may be necessary to remove and reposition the wiper arms :

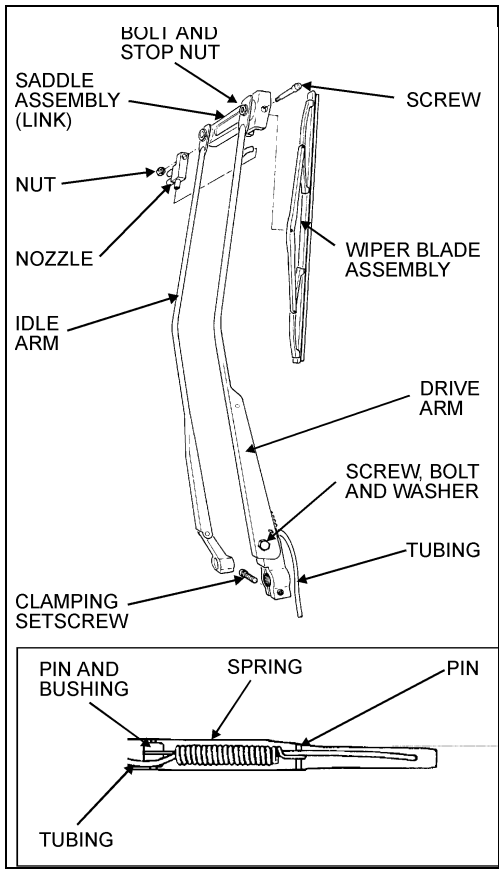


FIGURE 32: LOWER WINDSHIELD WIPER 23086

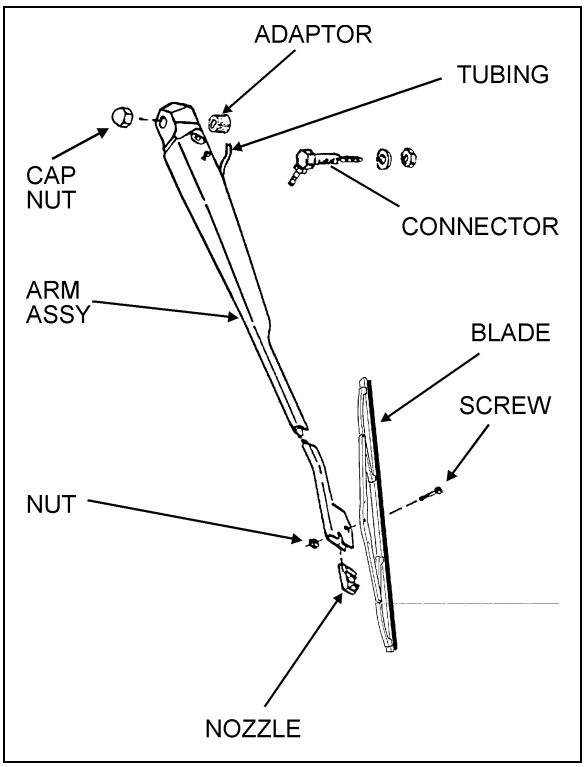


FIGURE 33: UPPER WINDSHIELD WIPER 23087

1. Remove the cap nuts from the wiper arm pivot shafts (Fig. 32 or 33).

2. Disconnect the windshield washer tubing at the base of the wiper arm (Fig. 32 or 33).

3. Lower windshield wiper (Fig. 32) : Loosen the clamping setscrew securing the drive arm to the knurled arm pivot shaft.

4. Remove the drive and idler arms (Fig. 32) or arm assy (Fig. 33).

5. Relocate the drive arm (Fig. 32) or arm assy (Fig. 33) on its knurled pivot shaft to obtain the desired position.

6. Lower windshield wiper (Fig. 32) : Tighten the clamping setscrew to secure the drive arm to the knurled shaft. Fit the idler arm onto the idler arm pivot shaft.

7. Install the cap nut pivot shafts.

8. Connect the windshield washer tubing at the base of the wiper arm (Fig. 32 or 33).

9. Check the adjustment on a wet windshield (Fig. 32 or 33).

8.2.2 Removal

1. Remove the cap nuts from arms (Fig. 32 or 33).

2. Disconnect the windshield washer tubing at the base of the wiper arm (Fig. 32 or 33).

3. Mark the relationship of the arm head to the end of the knurled drive shaft to ensure the original position if the arm is to be reinstalled.

4. Lower windshield wiper (Fig. 32): Loosen the clamping setscrew on the base of the drive arm.

5. Remove the wiper arm assembly (Fig. 32 or 33).

8.2.3 Installation

1. Make sure the wiper motor is in the park position. Lower windshield wiper (Fig. 32): position the wiper arm on the knurled drive shaft and idler arm on the pivot shaft. Upper windshield wiper (Fig. 33): position the wiper arm assy on the knurled drive shaft.

2. If the original arm is reinstalled, align the marks made during removal.

3. Operate the wipers on a wet windshield to check the wiper blade sweep and angle. Readjust as necessary.

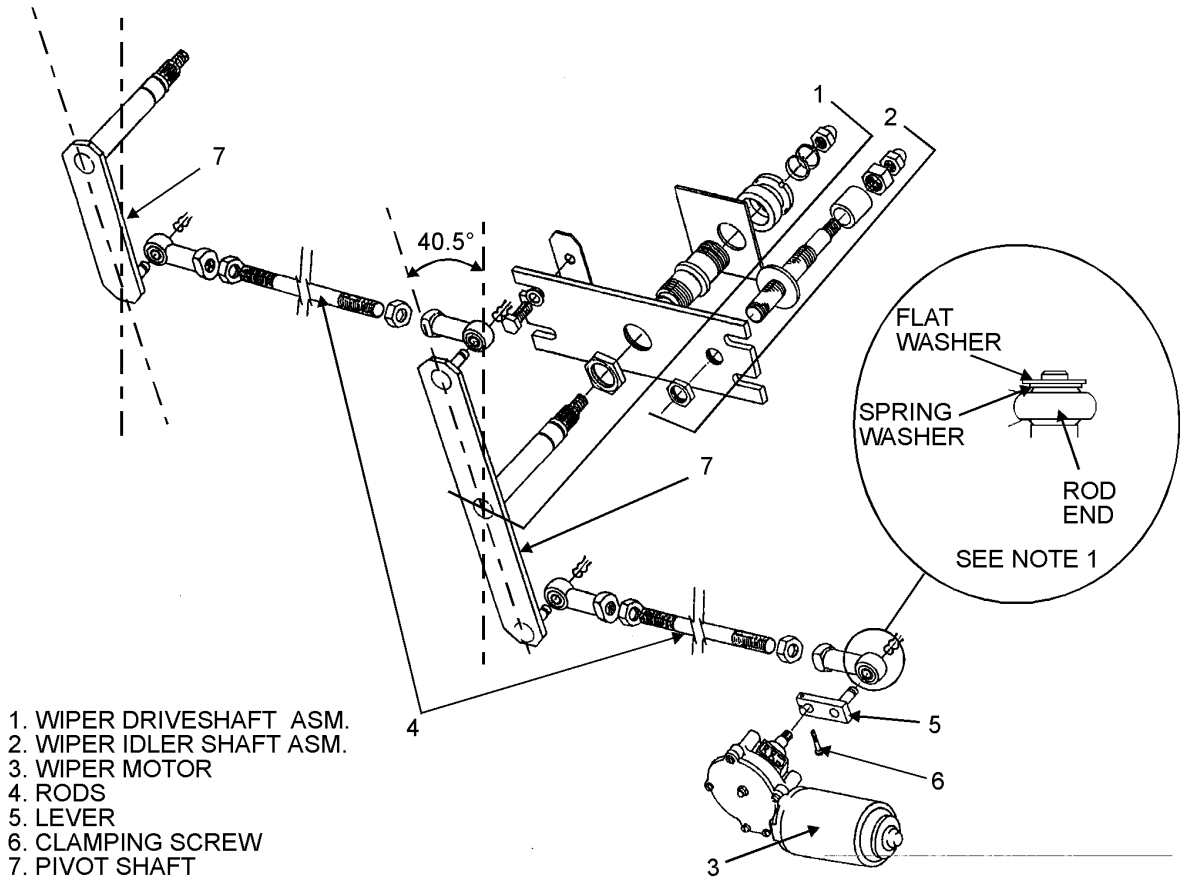
4. Lower windshield wiper (Fig. 32): Tighten clamping nut on the drive arm. Install cap nuts to arm shafts (Fig. 32 or 33).

5. Connect the windshield washer tubing at the base of the wiper arm (Fig. 32 or 33).

6. Check the adjustment on a wet windshield (Fig. 32 or 33).

8.3 Lower Linkage Adjustment

1. Make sure the wiper motor is in the park position, prior to working on the linkage.
2. Adjust the two pivot shafts vertically.
3. Adjust rod length of the connecting pivot shafts. During rod length adjustment, maintain the pivot shafts in vertical position.
4. Adjust the rod located between right pivot shaft and motor to a 40.5º angle (Fig. 34). The motor lever must be on the same axle as the rod.
5. Install the right wiper arm in it's normal position (In the middle of the windshield (Fig. 28)). Refer to paragraph "8.2.1 Sweep Adjustment".
6. The right wiper arm final adjustment is made by adjusting the smallest rod length.
7. Install the left wiper arm in it's normal position (In the middle of the windshield (Fig. 28)). Refer to paragraph "8.2.1 Sweep Adjustment".
8. The left wiper arm final adjustment is made by adjusting the longest rod length.
9. Check the adjustment on a wet windshield.



NOTE 1: IF NEEDED, ADD SPRING WASHER (PREVOST #500905) BETWEEN FLAT WASHER AND ROD END TO ELIMINATE GAP.

NOTE 2: IF NEEDED, APPLY GREASE ON EACH JOINT (PREVOST #680735).

FIGURE 34: LOWER WINDSHIELD WIPER INSTALLATION 23088

8.4 Upper Linkage Adjustment

1. Make sure the wiper motor is in the park position, prior to working on the linkage.
2. Adjust rods length (Fig. 35).
3. Install the left wiper arm in it's normal position (In the middle of the windshield (Fig. 28)). Refer to paragraph "8.2.1 Sweep Adjustment".
4. The left wiper arm final adjustment is made by modifying rod length from 8.46 inches (215 mm). Install the right wiper arm in it's normal position (In the middle of the windshield (Fig. 28)). Refer to paragraph "8.2.1 Sweep Adjustment".
5. Install the right wiper arm in it's normal position (In the middle of the windshield (Fig. 28)). Refer to paragraph "8.2.1 Sweep Adjustment".
6. The right wiper arm final adjustment is made by modifying rod length from 23.54 inches (598 mm).
7. Check the adjustment on a wet windshield.

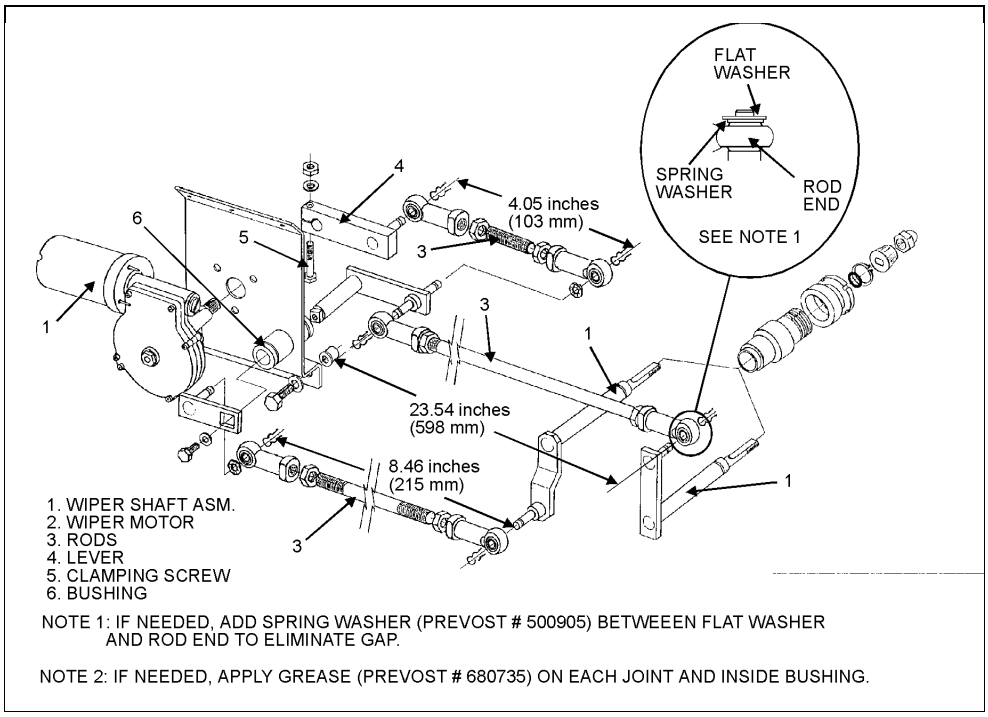


FIGURE 35: UPPER WINDSHIELD WIPER INSTALLATION 23089

8.5 WINDSHIELD WIPER MOTORS

8.5.1 Lower Windshield Wiper Motor Replacement

The lower windshield wiper motor is located at lower front of the vehicle, behind the defroster panel. For motor location, see figure 28.

Warning: *Park vehicle safely, apply parking brake, stop engine and set battery master switch to the "OFF" position prior to working on the vehicle.*

1. Remove the two Phillips-head screws retaining the defroster panel, and remove it.
2. Disconnect wiring connector from the windshield wiper motor.
3. Loosen the clamping screw retaining the lever at the end of the motor driving shaft (Fig. 34).
4. Remove the three bolts that hold the motor to the steel plate.
5. ...Remove the windshield wiper motor (Prévost#800304) and reverse removal procedureto reinstall.

8.5.2 Upper Windshield Wiper Motor Replacement

The upper windshield wiper motor is located above L.H. upper windshield panel (Fig. 28). To remove the motor, it is necessary to remove left sun visor and upper windshield.

Warning: *Park vehicle safely, apply parking brake, stop engine and set battery master switch to the "OFF" position prior to working on the vehicle.*

1. Pull out the wiring connector (black and red wires) located on left side of sun visor, and disconnect it.
2. Remove the two Phillips-head screws at the bottom end of the sun visor's arms.
3. Remove the two Phillips-head screws on each side of the roller, and pull out away the sun visor.
4. Remove the Phillips-head screws retaining the upper windshield panel.
5. If equipped with blower defroster, loosen hose clamp to remove air duct from hose.
6. Disconnect wiring connector from the windshield wiper motor.
7. Loosen the bolt retaining the lever at the end of the motor driving shaft (Fig. 35).
8. Remove the three bolts that hold the motor to the steel plate.
9. Remove the windshield wiper motor (Prévost #800304) and reverse removal procedure to reinstall.

9. TROUBLESHOOTING

SYMPTOM	PROBABLE	CAUSE REMEDY
FAILS TO EMIT WASHER	A. Reservoir empty.	A. Add proper fluid.
	B. If below 32ºF (0ºC) improper washer fluid-frozen.	B. Store coach or parts in heated area. Then purge system with low-temperature solution.
	C. Contamination in tubing or nozzles.	C. Remove with compressed air. If severely clogged, replace items.
	D. Tubing damage.	D. Replace section.
	E. Tubing bent (kinked) or off one or more connections.	E. Realign tubing and/or refit. Trim end to ensure proper fit or replace.
INADEQUATE EXPULSION	A. Tubing failure.	A. Replace tubing.
SLOW OPERATION	A. Improper solution.	A. Replace with proper type solution.
	B. Jet stream improperly directed.	B. Reposition nozzles.
	C. Check valve is stuck in the open position.	C. Remove, clean or replace.

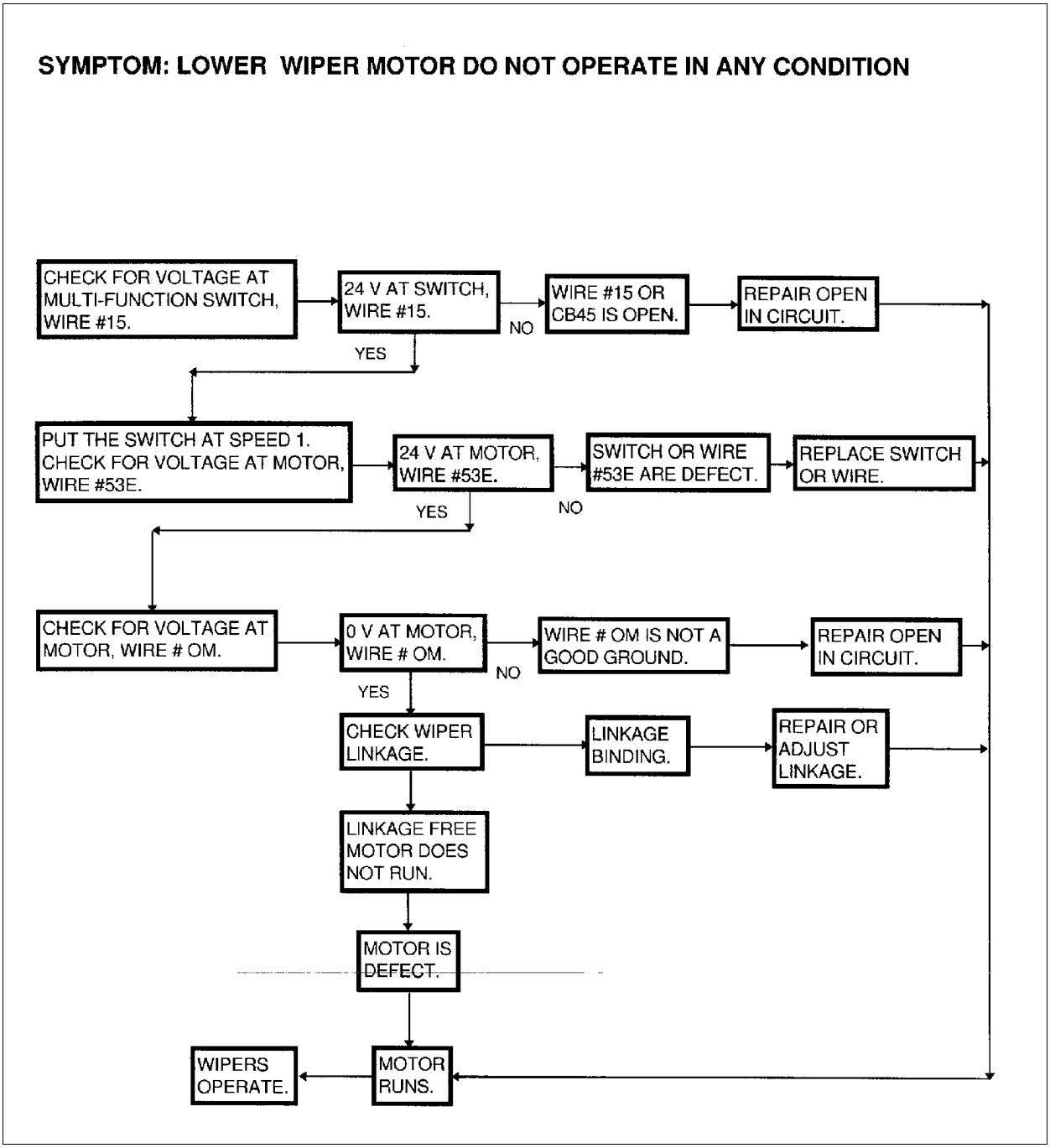


FIGURE 36: TROUBLESHOOTING 23062

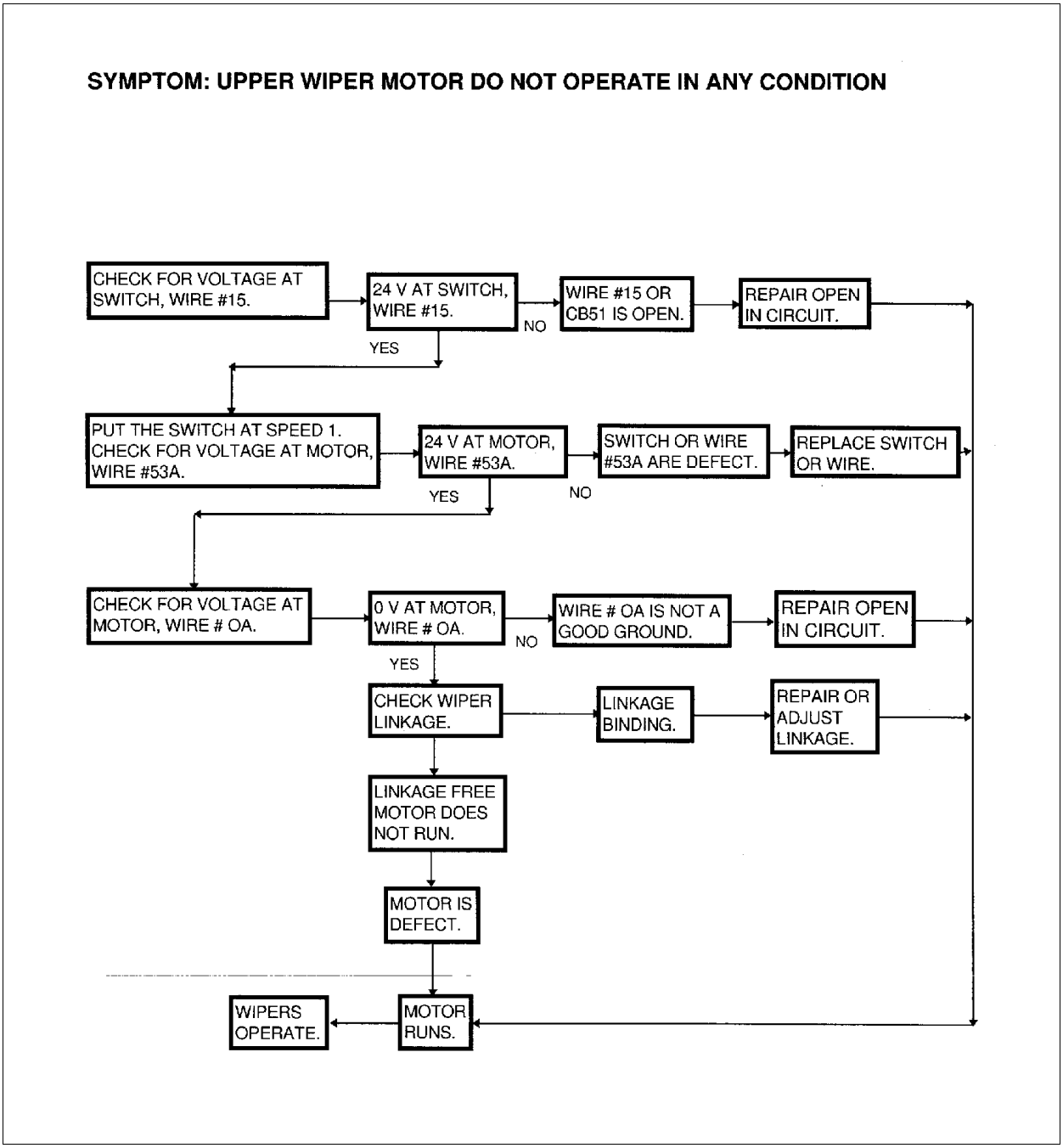


FIGURE 37: TROUBLESHOOTING 23063

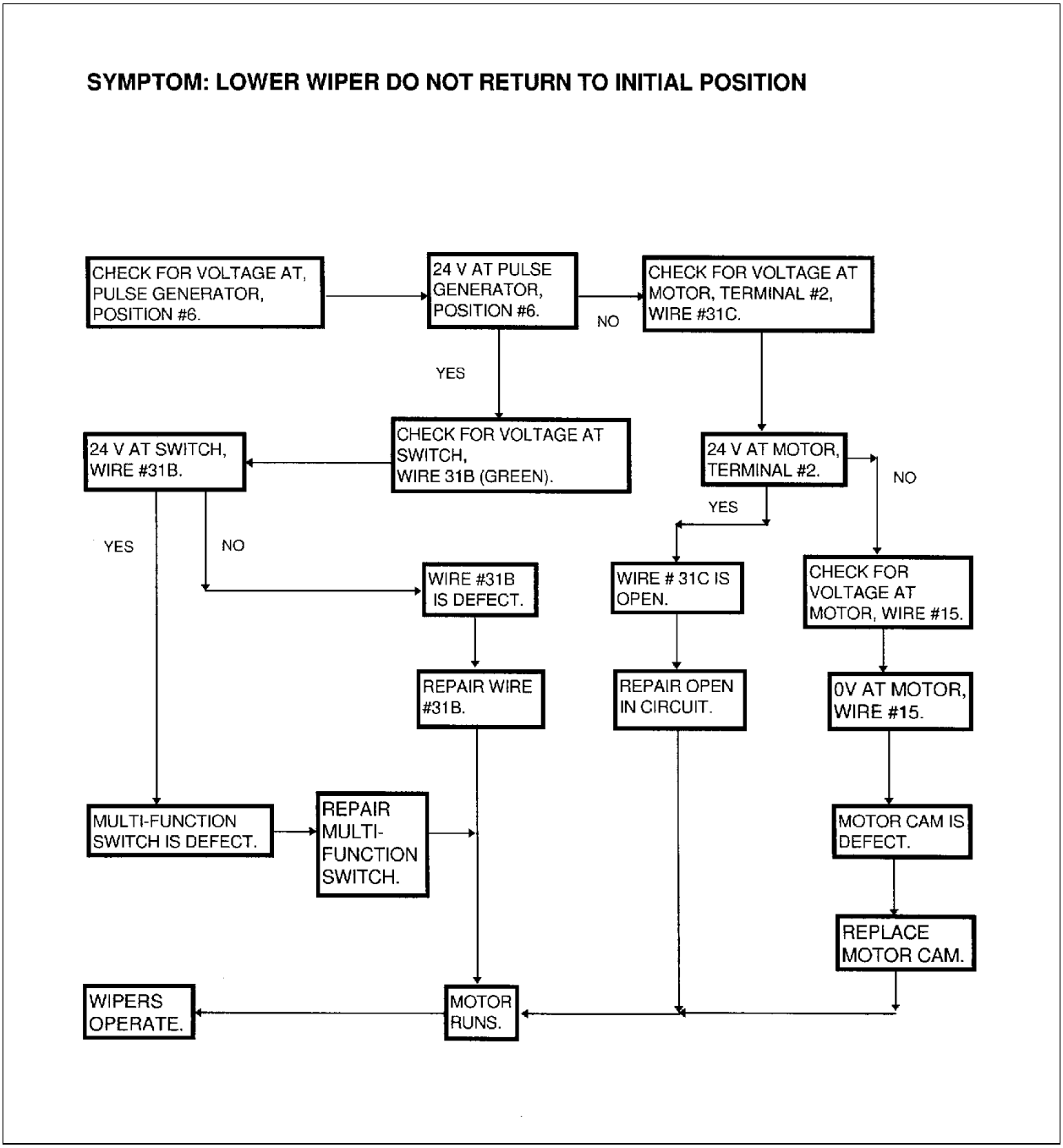


FIGURE 38: TROUBLESHOOTING 23064

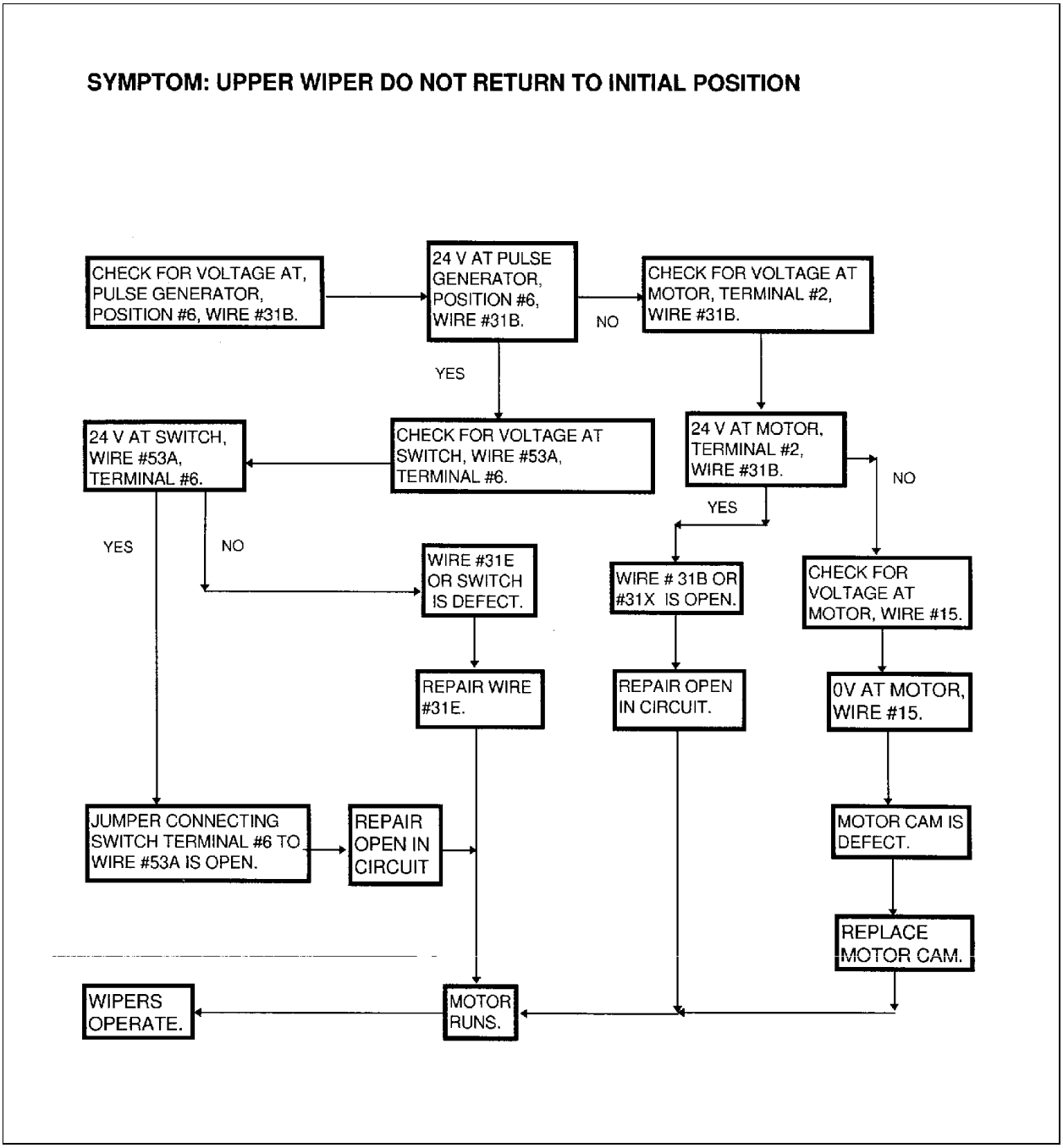


FIGURE 39: TROUBLESHOOTING 23065

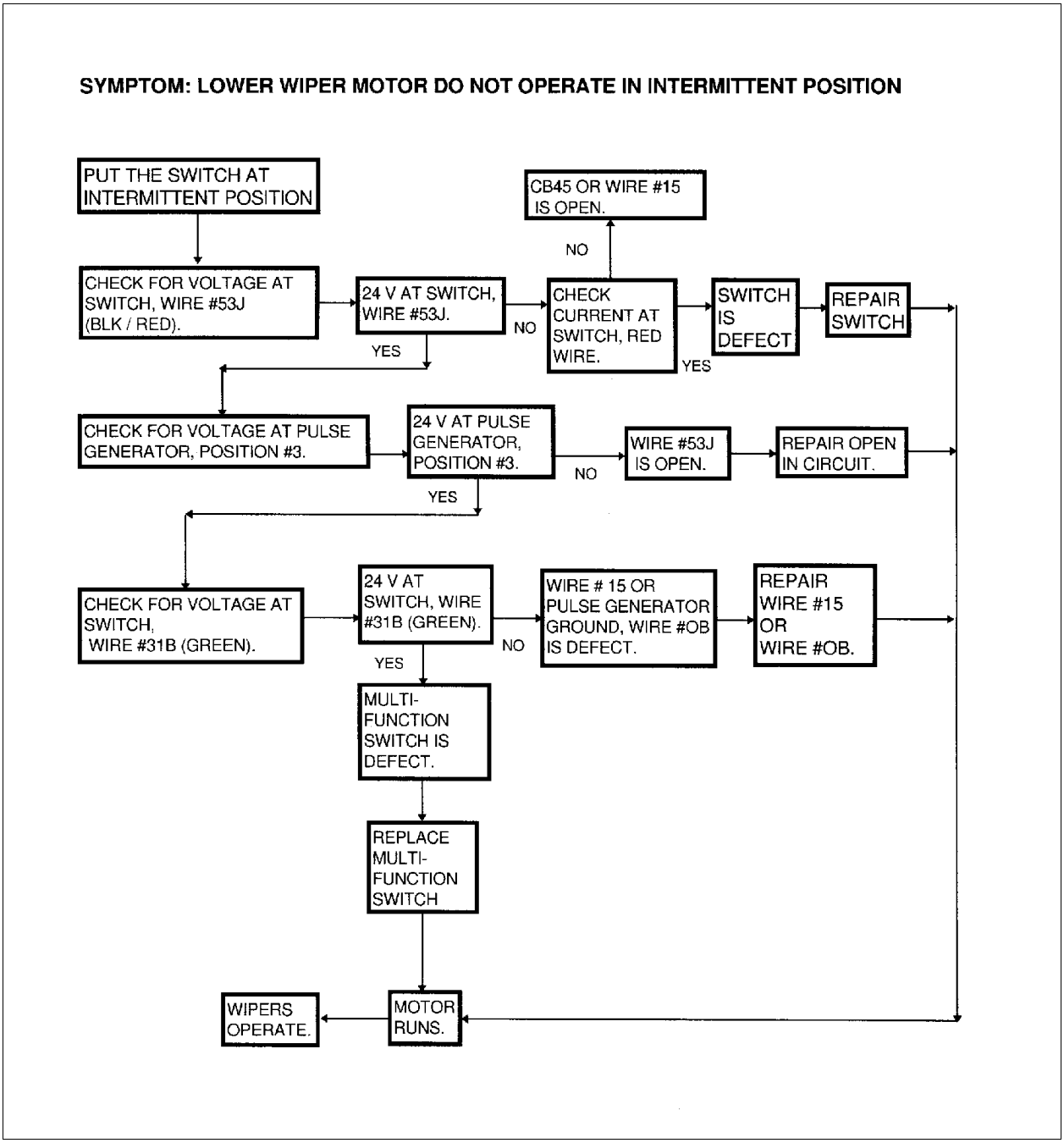


FIGURE 40: TROUBLESHOOTING 23066

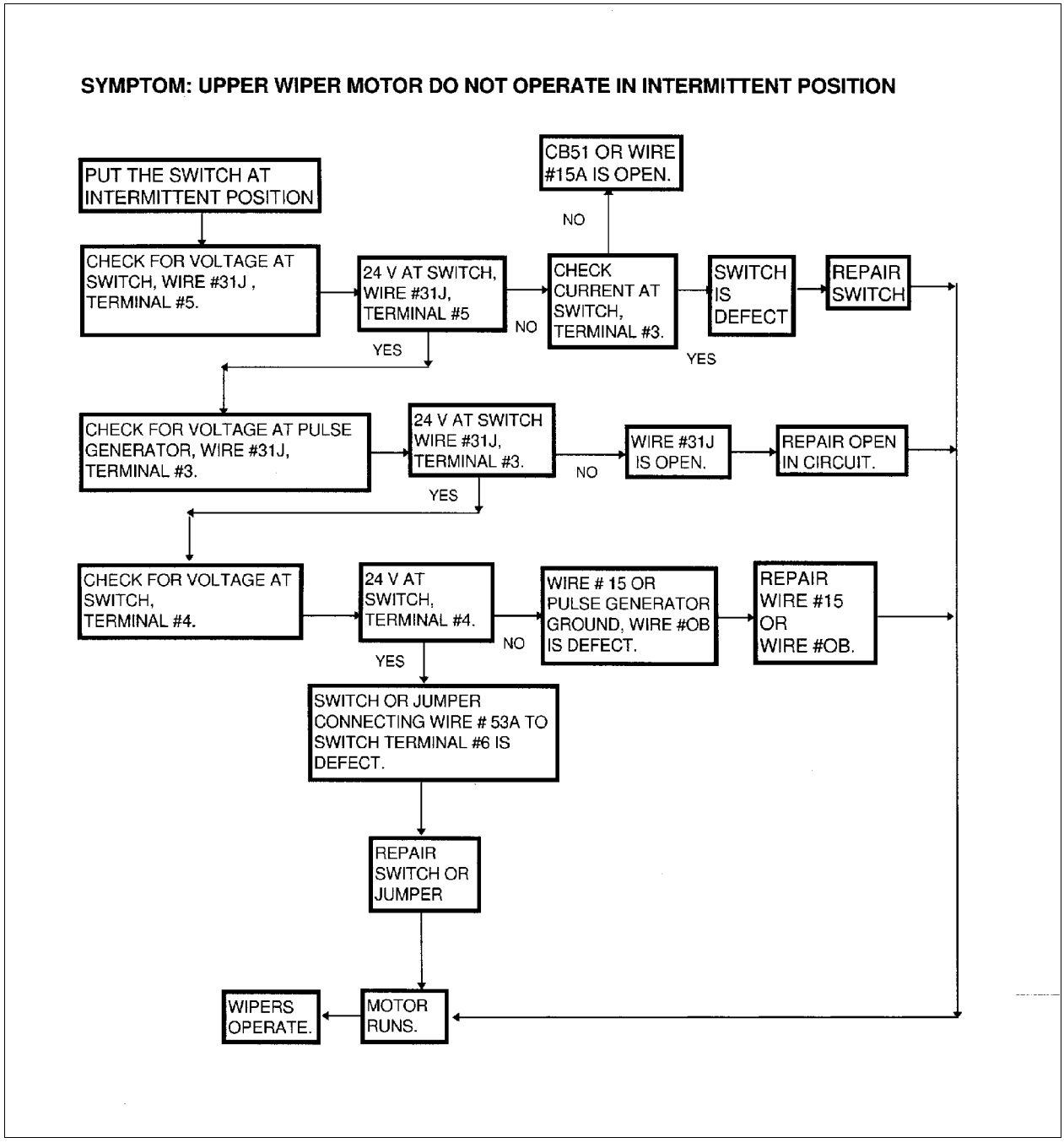


FIGURE 41: TROUBLESHOOTING …23067

SYMPTOM: LOWER WIPER MOTOR DO NOT OPERATE WHEN WINDSHIELD WASHER MOTOR IS ACTIVATED.

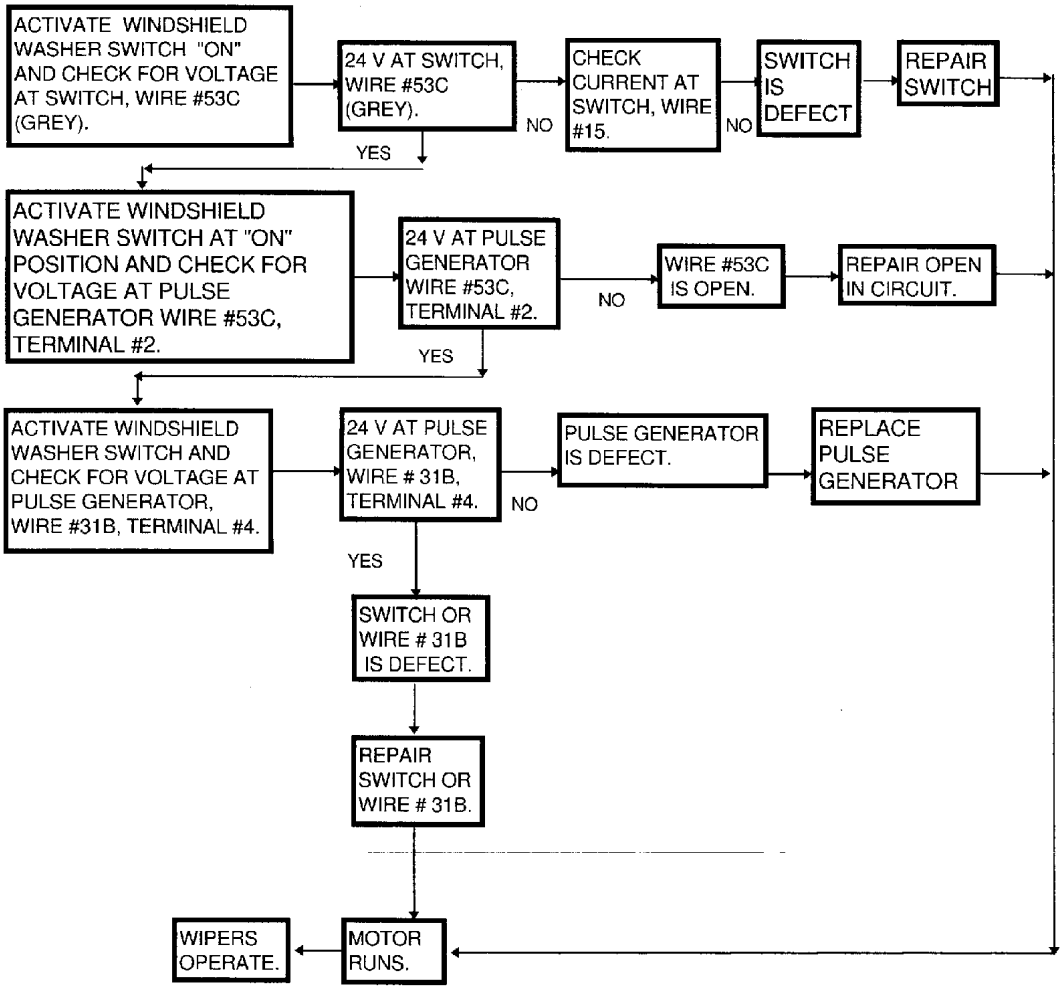


FIGURE 42: TROUBLESHOOTING 23068

SYMPTOM: UPPER WIPER MOTOR DO NOT OPERATE WHEN WINDSHIELD WASHER MOTOR IS ACTIVATED.

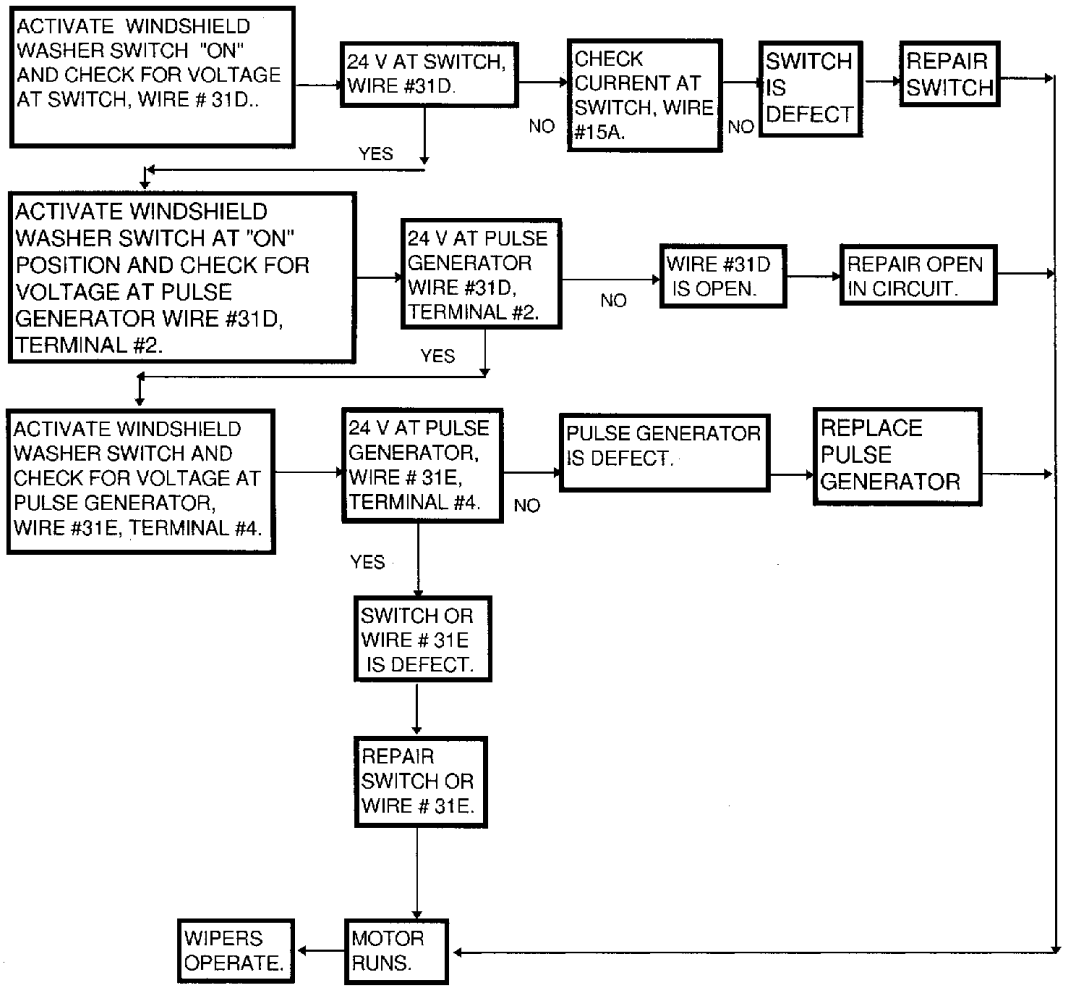


FIGURE 43: TROUBLESHOOTING 23069

10. SPECIFICATIONS

Am/Fm Radio Cassette Player

Make .....Panasonic
Model CQ-45EUC
Power source ..... 12 V
Supplier number (REI) 700484
Prévost number..... 900811

Amplifier
Make .....R.E.I.
Model AMP-2000
Power source ..... 24 V D.C. negative ground
Current .....8 amps maximum
Frequency Response.....10-30,000 Hz
Output ..... 90 watts/channel maximum power
65 watts/channel RMS at 4 ohm @ 0.5 T.H.D.
Signal to noise ratio 86dB
Supplier number..... 700189
Prévost number..... 900802

Backup PA Module
Make .....R.E.I.
Supplier number..... 700246
Prévost number..... 900804

Backup PA Amplifier
Make .....R.E.I.
Supplier number..... 700251
Prévost number..... 900805

Control Unit
Make .....R.E.I.
Model C-2000
Supplier number..... 700227
Prévost number..... 900803

Speaker
Make ..... Bosh
Max. power ..... 90 watts
RMS power ..... 40 watts
Freq. .....45-2400 Hz
Impedance .....4 ohms
Magnet weight.....15 ozs
Mounting depth .....2.2 inches
Supplier number..... RPSPKR54
Prévost number..... 900765

6 Disc CD Changer
Make..... R.E.I.
Supplier number 700467
Prévost number 900822

12 Disc CD Changer
Make..... R.E.I.
Supplier number 700473

Video Tape Recorder
Make..... R.E.I.
Supplier number 700454
Prévost number 900806

Karaoke
Make..... R.E.I.
Supplier number 700470
Prévost number 900815

Karaoke Inverter
Make..... R.E.I.
Input Voltage .....24 V
Output Voltage .....110 V
Max. Load.....150 watts
Supplier number 700463
Prévost number 900816

TV Monitor
Make..... R.E.I.
Power Source 24V
Supplier number 700182
Prévost number 900809

TV Tuner
Make..... R.E.I.
Power Source .....24 V
Supplier number 700471
Prévost number 900814

Refrigerator
Make.....Norcold
Capacity ..... 4 ft^3
Supplier number DE-390
Prévost number 900738

Refrigerator
Make.....Norcold
Capacity ..... 2.5 ft^3
Supplier number DE-351
Prévost number 900741

Receiver, Wire Less Microphone
Make .....R.E.I.
Supplier number..... 480067
Prévost number..... 900813

Transmitter, Wire Less Microphone
Make .....R.E.I.
Supplier number..... 480066
Prévost number..... 900812

Hubodometer (US model: miles)
Make ..... Stemco
Supplier number..... 650-0593
Prévost number..... 650002

Hubodometer (Canada model: km)
Make ..... Stemco
Supplier number..... 650-0025
Prévost number..... 650117

Destination Sign Fluorescent Tube
Make .....General Electric
Length..... 30" (76 cm)
Outside diameter..... 1" (25 mm)
Wattage 20
Color .....Cool white
Quantity 1
Supplier number..... F30T8 CW4
Prévost number..... 830120

Lavatory Ventilation Fan Motor
Make .....Aurora
Type.....RG500EF
Voltage.....24 V DC
Rotation .....Right hand
Supplier number..... 131.40.50
Prévost number..... 870844

Lavatory Fluorescent Tubes
Model ..... F15T8 CW
Length..... 18" (45 cm)
Wattage 15
Quantity 2
Prévost number..... 830102

Emergency Buzzer
Make ..... Cole Hersee Co.
Voltage.....24 V
Supplier number..... 40224
Prévost number..... 562117

Fresh Water Tank
Make.....Prévost
Capacity ..... 18 US gal (68 liters)
Prévost number 403030

Fresh Water Tank Heater
Make..... Hot Watt
Wattage .....75 W
Voltage .....115 V AC
Supplier number .....EM 37-5
Prévost number 562018

Flush Push Button Pneumatic Timer
Make.....Furnas
Type .....Resettable
Time ..... 0,2 to 180 seconds
Supplier number 55-AA
Prévost number 900348

Flush Pump
Make..... Jabsco
Model number.....30240-0024
Power source .....24 V
Capacity ..... 1750 GPH
Prévost number 900496