

TO DUMP THE AIR SUSPENSION, ENGINE OFF, IGNITION SWITCH TO THE ON POSITION:

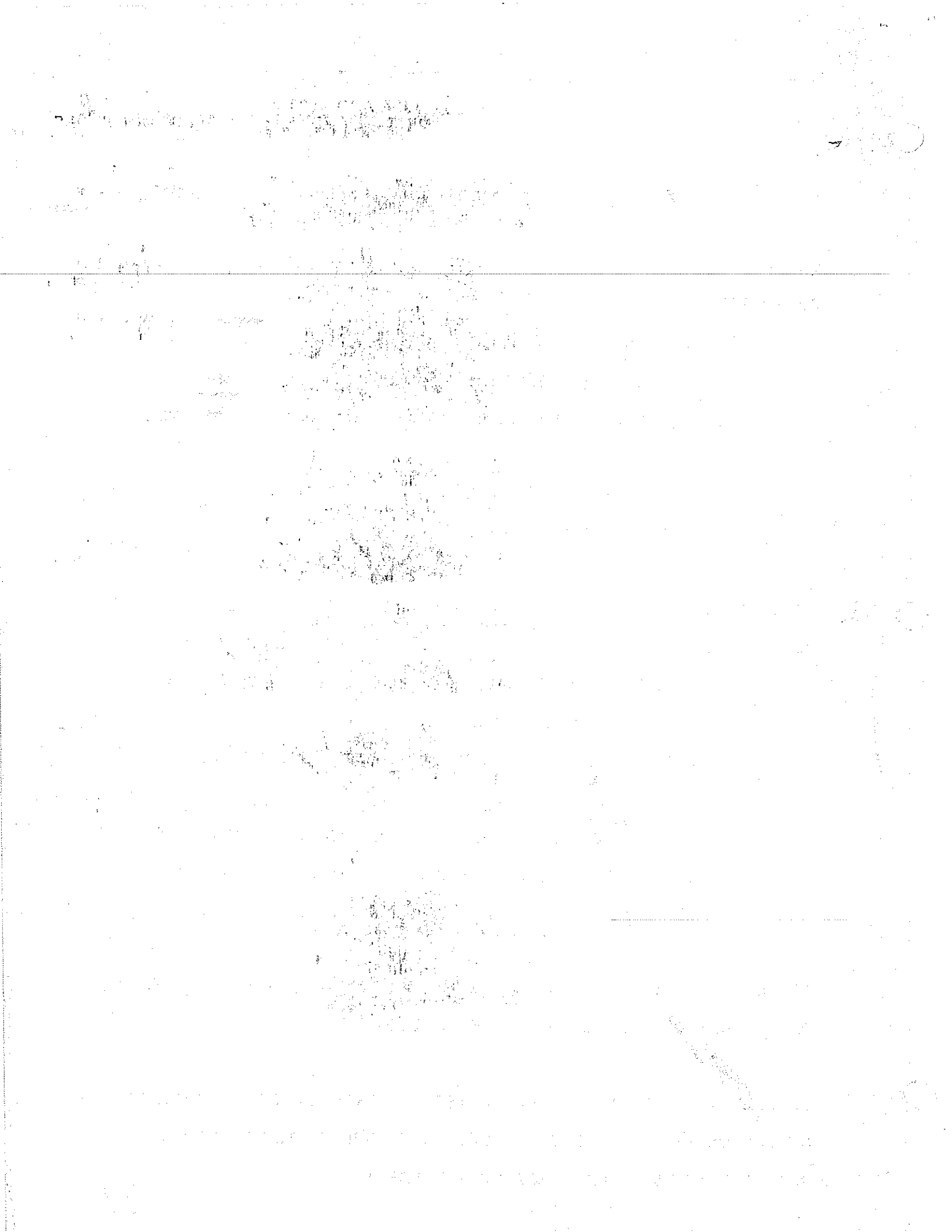
- 1) SUSPENSION DUMP SWITCH IN THE DOWN POSITION (SWITCH DEPRESSED TO THE RIGHT)
- 2) TAG AXLE DUMP SWITCH IN THE DOWN POSITION (SWITCH DEPRESSED TO THE RIGHT)
- 3) AIR LEVEL MASTER SWITCH IN THE RIDE POSITION (SWITCH DEPRESSED TO THE RIGHT)

TO LEVEL THE AIR SUSPENSION SYSTEM (AIR SUSPENSION FULLY BUILT UP) TURN THE ENGINE OFF, IGNITION SWITCH TO THE ON POSITION:

- 1) SUSPENSION DUMP SWITCH IN THE DOWN POSITION (SWITCH DEPRESSED TO THE RIGHT)
- 2) TAG AXLE DUMP SWITCH IN THE DOWN POSITION (SWITCH DEPRESSED TO THE RIGHT)
- 3) AIR LEVEL MASTER SWITCH IN THE LEVEL POSITION (SWITCH DEPRESSED TO THE LEFT) AND THE BLUE WARNING LIGHT WILL LIGHT UP

TO DUMP THE AIR SUSPENSION FOR THE TAG AXLE ONLY - TURN ENGINE OFF, IGNITION SWITCH TO THE ON POSITION.

TO FILL THE AIR SUSPENSION ON THE TAG AXLE TURN THE IGNITION SWITCH ON (ENGINE RUNNING), TAG AXLE DUMP SWITCH IN THE UP POSITION (SWITCH DEPRESSED TO THE LEFT).



COMPONENT LOCATION FOR 1987 AND 1988 FORWARD CONTROLS

X AIR SOLENOID VALVE, AIR VENT: located in the left hand access; there are two valves that operate the right and left fresh air vent.

X AIR SOLENOID VALVE, SUSPENSION DUMP: located in the left hand access; this valve dumps or raises the suspension.

X AIR SOLENOID VALVE, DRIVING LIGHTS: located in the left hand access; this operates the drop down driving lights.

X AIR SOLENOID VALVE, SEAT CONTROL: on 1987 models, these are located in the left hand access; on 1988 models, these are located on the seat bases; these valves control the side slides.

C.B. MODULE: located behind copilot kick panel.

CIRCUIT BREAKER, 105A: located in the left hand access.

E.L. INVERTERS, DASH: lower dash E.L.'s are located under lower dash; upper dash E.L.'s are located to the left of the overhead load center.

HORN MODULE: located behind copilot kick panel.

MIST CONTROL MODULE: on 1987 models, the module is located under the lower dash; on 1988 models, the module is located on the lower dash.

X PMMI SIGNAL SWITCH RELAY BOX: located in left hand access; the relay box completes the circuit for the headlights, turn signals, brakes and cornering lights.

X REARVIEW MONITOR DC TO DC CONVERTER: mounted to the left or left hand overhead access panel; this converter is used to supply correct voltage to the monitor chassis and to the camera even if coach voltage is low.

T.V. RF AMP/SPLITTER: located behind panel where antenna/cable switch and T.V. antenna rotation control are located.

TRANSMISSION MODULE: located behind panel under shift tower.

WASHER, LOW FLUID MODULE: located under lower dash panel.

November 2-5, 1987

1. The first part of the document discusses the importance of maintaining accurate records of all transactions.

2. It is essential to ensure that all entries are supported by proper documentation and receipts.

3. The second section covers the various methods used to collect and analyze financial data.

4. These methods include direct observation, interviews, and the use of specialized software tools.

5. The third part of the document details the process of identifying and classifying different types of expenses.

6. This involves a thorough review of all receipts and invoices to ensure they are properly categorized.

7. The fourth section discusses the importance of regular audits to verify the accuracy of the records.

8. Audits help to detect any discrepancies or errors and ensure that the data is reliable.

9. The fifth part of the document describes the various ways in which financial data can be used to make informed decisions.

10. This includes analyzing trends, comparing performance against targets, and identifying areas for improvement.

11. The sixth section covers the importance of maintaining confidentiality and security of financial information.

12. This involves implementing strict access controls and ensuring that all data is stored securely.

13. The seventh part of the document discusses the role of financial reporting in providing transparency to stakeholders.

14. This includes preparing financial statements and providing clear explanations of the results.

15. The eighth section covers the importance of staying up-to-date with changes in financial regulations and standards.

16. This involves ongoing education and training for all staff involved in financial management.

17. The final part of the document provides a summary of the key points discussed and offers some final thoughts on the importance of financial management.

18. It concludes by emphasizing the need for a strong financial foundation to support the long-term success of any organization.

COMPONENT LOCATION FOR 1987 PUSHER

AIR SOLENOID VALVE, AIR VENT: located in left hand access; there are two valves that operate the right and left fresh air vent.

AIR SOLENOID VALVE, DRIVING LIGHTS: located in the left hand access; this valve operates the drop-down driving lights.

AIR SOLENOID VALVES, SEAT CONTROLS: located in the left hand access; these valves control the side slide.

AIR SOLENOID VALVE, SUSPENSIONS DUMP/TAG DUMP: located in the left hand access; this valve dumps or raises the suspension.

C.B. MODULE: located behind drawers under dash mounted on floor/(early 1987) mounted at top.

CIRCUIT BREAKERS, 105A: mounted in front of steering column (early 87); in left hand access (late 87).

E.L. INVERTERS: E.L.'s for lower dashes are located under the lower dash; for the overhead dash, they are located in the right or left overhead access.

HORN MODULE: located behind the copilot kick panel.

MIST CONTROL MODULE: located behind drawers at the dash area on wall.

PMMI SIGNAL SWITCH RELAY BOX: mounted above top drawer at dash.

REARVIEW DC TO DC CONVERTER: mounted to the left of the left hand overhead access panel.

T.V. RF AMP/SPLITTER: located behind panel where antenna/cable switch and T.V. antenna rotation control are located.

TRANSMISSION MODULE: located behind drawers under dash on wall.

WASHER, LOW FLUID MODULE: mounted behind drawers under dash on wall.

November 2-5, 1987

THE UNIVERSITY OF CHICAGO

PH.D. THESIS

BY

DR. [Name]

IN THE DEPARTMENT OF [Department]

CHICAGO, ILLINOIS

19[Year]

THE UNIVERSITY OF CHICAGO PRESS

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COMPONENT LOCATION FOR 1988 PUSHER 102"

AIR VALVES, AIR VENTS: located in the front lower load center.

AIR VALVES, DRIVING LIGHTS: located in the front lower load center.

AIR VALVES, SEAT CONTROL: located on the seat base.

AIR VALVES, SUSPENSION DUMP/TAG DUMP: located in the front lower load center.

BALLAST, FLUORESCENT: located behind mirror panel at end of sofa, under front dinette seat; bedroom behind light valance.

C.B. MODULE: mounted to the right of the accelerator.

CIRCUIT BREAKERS: mounted in the front access on left hand side

DDEC MODULE: located in left hand rear load center, behind 110V load center.

E.L. INVERTERS: lower dashes - located lower front load center; overhead dashes - left hand overhead access.

HORN MODULE: located behind copilot kick panel.

MIST CONTROL MODULE: located on lower dash panel.

PMMI SIGNAL SWITCH RELAY BOX: located in generator blower compartment.

REARVIEW DC TO DC CONVERTER: located behind rearview monitor picture tube in compartment.

SUSPENSION DUMP LIGHT DELAY MODULE: located in front lower load center.

T.V. RF AMP/SPLITTER: located in front overhead load center.

TRANSMISSION MODULE: mounted in the generator blower compartment.

WASHER, LOW FLUID MODULE: located in the front lower load center.

November 2-5, 1987

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Main body of handwritten text, consisting of several paragraphs of notes.

STEREO PRIVACY RELAYS AND AMP LOCATIONS

**1987 FORWARD CONTROL
PREMIUM AND STANDARD**

PRIVACY RELAYS, LIVING ROOM (FRONT): located behind front left hand overhead cabinet wire cover or front end panel.

PRIVACY RELAYS, LIVING ROOM (REAR): located behind front right hand overhead cabinet end panel.

PRIVACY RELAYS, LIVING ROOM (SUB-WOOFER): located on top of power amps.

POWER AMPS: located behind left hand overhead access panel.

1988 FORWARD CONTROL PREMIUM

PRIVACY RELAYS: located on top of the power amp located in the left hand overhead access.

POWER AMP: located in the left hand overhead access.

1988 FORWARD CONTROL STANDARD

PRIVACY RELAYS: mounted in left hand access panel.

POWER AMP: mounted behind radio.

November 2-5, 1987

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STEREO PRIVACY RELAYS AND AMP LOCATIONS

1987 PUSHER
PREMIUM AND STANDARD

PRIVACY RELAY, LIVING ROOM (FRONT): located behind front left hand wire cover.

PRIVACY RELAY, LIVINGROOM (REAR): located behind front right hand overhead cabinet wire cover.

PRIVACY RELAY, LIVING ROOM (SUB-WOOFER): located on top of power amps.

POWER AMPS: located in left hand overhead cabinet behind front end panel.

1988 PUSHER 102"

PRIVACY RELAYS: located behind drawers at dash mounted on wall.

POWER AMPS: located behind drawers at dash mounted on wall.

November 2-5, 1987

STEREO RELAYS: location on all - the two (2) relays for front speakers are in the left hand front OHC behind wire cover; the two (2) relays for rear speakers are in the right hand front overhead cabinet behind the front end panel; the two (2) relays for sub woofers are in the left hand overhead cabinet behind the front end panel; breaks circuit to each speaker when privacy switch is activated.

TRANSMISSION RELAYS: these relays are activated by ATEC transmission module; location is the lower front load center in front of the driver's left foot; there are six (6) relays.

HIGH IDLE RELAY: breaks circuit to high idle solenoid valve when transmission not in neutral.

TRANSMISSION CHECK LIGHT RELAY: completes circuit for transmission check light.

TRANSMISSION CHECK GROUND RELAY: if transmission check light comes on, press test switch to activate relay and check light will flash trouble code.

REVERSE RELAY: completes circuit for back-up lights, rear parking lights and back-up alarm.

NEUTRAL SAFETY RELAY: breaks starting circuit unless transmission is in neutral.

TRANSMISSION ON RELAY: completes circuit for transmission module to get 12V directly from master switch. This relay is ignition activated.

WIPER RELAYS: location on pusher is behind the drawers under the dash mounted on the wall; location on forward control is mounted under dash panels; two (2) relays activate left hand and right hand wipers on low speed; two (2) relays activate left hand and right hand wipers on high speed; mist control relay activates mist control module; these five (5) relays are activated by control switch on turn signal arm.

November 2-5, 1987

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HEADLIGHT RELAYS: location on pusher is in generator blower compartment; completes circuit for headlights.

HEADLIGHT WARNING SECURITY LIGHT RELAY: location on all is front overhead load center; breaks circuit to headlight warning light and buzzer when security lights are turned on.

IGNITION BREAKER RELAYS: location on all is front overhead and lower front load centers; energize ignition circuit breakers when ignition switch is turned on.

INVERTER RELAY: location on all is front overhead load center; complete circuit to activate inverter.

LP HEAT SYSTEM

LIVING ROOM LP HEATER RELAY: location on pusher and forward control side bath is left hand front load center; location on forward control rear bath is right hand front load center.

DINETTE LP HEATER RELAY: location on pusher is right hand front load center; location on forward control side bath and rear bath is left hand front load center.

BATHROOM DUCT BOOSTER RELAY: location on pusher is right hand front load center; location on forward control side bath is left hand front load center; location on forward control rear bath is right hand rear load center.

BEDROOM LP HEATER RELAY: location on pusher and forward control side bath is left hand rear load center; location on forward control rear bath is right hand rear load center.

Completes circuit for thermostat to activate LP heater.

REAR LANDING LIGHT RELAY: location on all is left hand front load center; completes circuit for rear landing lights.

RETARDER BRAKE LIGHT RELAY: location on all is left hand front compartment by the body terminal block; completes circuit for brake lights when retarder hand control is used.

STEP RELAYS: location on pusher is lower front load center; location on forward control side bath and rear bath is right front load center; (1) & (2) control in/out function on step; (3) controls (1) & (2) relay when step switch is activated; (4) extends step when air pressure drops below 60 PSI.

**BOSCH RELAY LOCATION AND FUNCTION
FOR 1987 PUSHER AND FORWARD CONTROL**

ALTERNATOR EXCITER WIRE RELAY: location on 1987 pusher is battery charger compartment; not used on forward control; completes circuit for alternator to get a true voltage reading direct from batteries. Relay is not used on coaches that have a self excited alternator.

BACK-UP LIGHT RELAY: location on all is left rear load center; completes circuit for rear halogen back-up lights.

CHASSIS A/C SWITCH RELAYS: location on all is front overhead load center; completes circuit for condensor fan relay and compressor clutch relay (compressor clutch on FC).

CHASSIS A/C COMPRESSOR CLUTCH RELAY: on 87 pusher location is battery charger compartment; not used on FC; completes circuit for compressor clutch.

CHASSIS HEAT SYSTEM RELAYS

LIVING ROOM CHASSIS HEAT RELAY: location on all is left hand front load center.

DINETTE CHASSIS HEAT RELAY: location on all is right front load center.

BATHROOM CHASSIS HEAT RELAY: location on pusher is right hand front load center; location on forward control side bath is left hand front load center; location on forward control rear bath is right hand rear load center.

BEDROOM CHASSIS HEATER RELAY: location on pusher is left hand rear load center; location on forward control side bath is right hand rear load center.

Completes the circuit to chassis heater switches.

LIVING ROOM T-STAT RELAY: location on pusher is left hand front load center; location on forward control side bath and rear bath is right hand front load center.

DINETTE T-STAT RELAY: location on pusher and forward control rear bath is right hand front load center; location on forward control side bath is left hand front load center.

BATHROOM T-STAT RELAY: location on pusher is right hand front load center; location on forward control side bath is left hand front load center; location on forward control rear bath is right hand rear load center.

November 2-5, 1987

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for ensuring the integrity of the financial statements and for providing a clear audit trail. The text also mentions the need for regular reconciliations to identify any discrepancies early on.

2. The second part of the document focuses on the internal control system. It outlines the various components of internal control, including the control environment, risk assessment, information and communication, monitoring, and control activities. The text stresses that a strong internal control system is essential for preventing and detecting errors and fraud.

3. The third part of the document discusses the role of the auditor. It describes the auditor's responsibilities, including the need to plan the audit, gather evidence, and evaluate the results. The text also highlights the importance of maintaining independence and objectivity throughout the audit process.

4. The fourth part of the document addresses the issue of financial reporting. It discusses the requirements for preparing financial statements in accordance with the applicable accounting standards. The text also mentions the importance of providing clear and concise disclosures to the users of the financial statements.

5. The fifth part of the document discusses the role of the board of directors. It outlines the board's responsibilities for overseeing the financial reporting process and for ensuring that the financial statements are fair and accurate. The text also mentions the importance of the board's involvement in the internal control system.

6. The final part of the document provides a summary of the key points discussed. It emphasizes that a strong financial reporting system is essential for the success of any organization and for the confidence of its stakeholders.

CHASSIS HEAT SYSTEM RELAYS CONT.

BEDROOM T-STAT RELAY: location on pusher is left hand rear load center; location on forward control side bath is right hand rear load center.

Completes the circuit for the thermostats to activate the chassis heater relays.

SWITCHING RELAYS: location on all is right hand front load center; activates the thermostat relays and summer/winter relay when winter switch is turned on.

SUMMER/WINTER RELAY: location on pusher is left hand rear load center; location on forward control rear bath is left hand rear load center; location on forward control side bath is right hand rear load center; completes circuit for summer/winter solenoid valves.

CRUISE CONTROL RELAY: location on all is cruise control mounting plate; supplies CC module with 12V from a non-ignition source so there will be no low voltage problems.

DIRECTIONAL LIGHT RELAYS: location on all is front overhead load center; completes circuit for rear direction lights and trailer plug connections.

DRIVING LIGHT SUSPENSION DUMP RELAY: location on pusher is behind drawers under dash; location on forward control is under dash panels; prevents driving lights from coming down when the suspension is dumped.

FAN LIGHT RELAY: location on pusher is behind drawers under dash; location on forward control is under dash panels; activates fan light when either override switch is turned on or temperature switch activates fan. Some 1987's have this relay and some do not. Those that don't, the light only comes on when override switch is turned on.

FRONT LANDING LIGHT RELAY: location on all is left hand rear load center; completes circuit for front landing lights.

GENERATOR CHARGING CIRCUIT RELAY: location on pusher is generator blower compartment; location on forward control is under coach behind stepwell; completes circuit for generator battery charge.

HEADLIGHT WARNING RELAY: location on all is front overhead load center; completes circuit to headlight warning light and buzzer when ignition is turned off.

November 2-5, 1987

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The records should be kept up-to-date and should be easily accessible to all relevant parties.

2. The second part of the document outlines the various methods used to collect and analyze data. These methods include direct observation, interviews, and the use of statistical techniques. Each method has its own strengths and weaknesses, and it is important to choose the most appropriate one for the specific situation. The data collected should be carefully analyzed to identify any trends or patterns that may be significant.

3. The third part of the document describes the process of identifying and measuring the variables that are being studied. This involves defining the variables in clear and precise terms and then developing a scale or instrument to measure them. The reliability and validity of the measurement instrument are crucial for the accuracy of the results. It is also important to consider any potential confounding factors that may affect the results.

4. The fourth part of the document discusses the various statistical techniques used to analyze the data. These techniques include descriptive statistics, inferential statistics, and regression analysis. Each technique is used to answer different types of questions and to test different hypotheses. It is important to understand the assumptions underlying each technique and to use them appropriately.

5. The fifth part of the document describes the process of interpreting the results of the study. This involves comparing the results to the hypotheses and to the findings of other studies. It is important to consider the limitations of the study and to discuss any implications for practice or policy. The results should be presented in a clear and concise manner that is easy to understand.

6. The final part of the document provides a summary of the key findings and conclusions of the study. This is an important part of the document as it provides a clear and concise overview of the entire study. It should be written in a way that is accessible to a wide range of readers and should highlight the most important findings and conclusions.

**OUTLINE OF BOSCH RELAY LOCATION
AND FUNCTION FOR THE
1987 FORWARD CONTROL AND PUSHER
MECHANICS WORKSHOP
NOVEMBER 2-5, 1987**

***Here is Blue Bird's
Message to every
Wanderlodge® Owner***

Our manual has been prepared to acquaint you with the operation and maintenance of your Wanderlodge, and to provide you important safety information. Please read it carefully and follow the recommendations contained to help assure the most enjoyable and trouble-free operation of your coach.

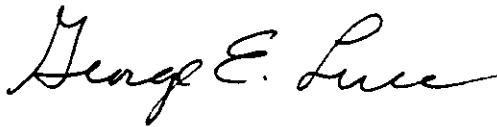
Blue Bird, a pioneer among school bus makers, is proud to build motorhomes of such excellence as your Wanderlodge. Dependability, Serviceability and Reliability are traditions started over five decades ago by our father, Mr. A. L. Luce, Sr. and are proudly preserved in today's Wanderlodge.

Serving the world from several plants, Blue Bird has a reputation for providing dependable products, unmatched customer service and personal owner assistance.

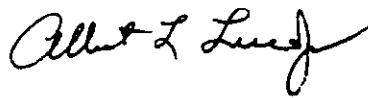
Congratulations on your purchase, we are confident you will find our convenient national network of reliable distributors willing to assist you in any way you require. They know your Wanderlodge best and are interested in your complete satisfaction too.

We thank you for choosing Wanderlodge...our best wishes for many years of safe, enjoyable wandering.

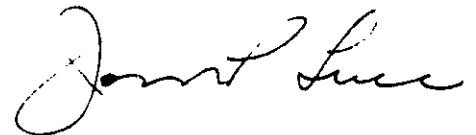
Sincerely,



George E. Luce



Albert L. Luce, Jr.



Joseph P. Luce

Here is Blue Bird's
Message to every
Wanderhodge® Owner

Our manual has been prepared to acquaint you with the operation and maintenance of your Wanderhodge, and to provide you important safety information. Please read it carefully and follow the recommendations contained to help assure the most enjoyable and trouble-free operation of your coach.


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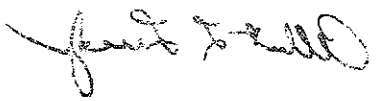
Congratulations on your purchase, we are confident you will find our convenient national network of reliable distributors willing to assist you in any way you require. They know your Wanderhodge best and are interested in your complete satisfaction too.

We thank you for choosing Wanderhodge... our best wishes for many years of safe, enjoyable wandering.

Sincerely,



Joseph P. Luce



Albert L. Luce, Jr.



George E. Luce

Dear Wanderlodge Owner:

Congratulations on being the new owner of the finest and safest production motor coach in the world – the Blue Bird Wanderlodge.

We have all worked hard to make your new Wanderlodge the best we have ever built. At the same time, we have also recognized your need for more and better information about your coach so you can enjoy it to the fullest. To that end, we have prepared this manual for your information. We hope you find it helpful as you acquaint yourself with the many luxurious features of your new coach.

I want to personally thank you for your business and invite you to take advantage of our Bird's Nest park and clubhouse whenever you can visit us in Ft. Valley.

Thank you again, and welcome to our Family of Friends!



Bill Milby
Vice-President/General Manager

Dear Wanderhodge Owners:

Congratulations on being the new owner of the finest and
safest production motor coach in the world - the Blue Bird
Wanderhodge.

We have all worked hard to make your new Wanderhodge the
best we have ever built. At the same time, we have also
recognized your need for more and better information about
your coach so you can enjoy it to the fullest. To that end, we
have prepared this manual for your information. We hope you
find it helpful as you acquaint yourself with the many luxurious
features of your new coach.

I want to personally thank you for your business and invite
you to take advantage of our Bird's Nest park and clubhouse
whenever you can visit us in Ft. Valley.

Thank you again, and welcome to our Family of Friends!



Bill Milby
Vice-President/General Manager

YOUR LIMITED WARRANTY ON YOUR NEW wanderlodge®

Who are the parties to this Warranty?

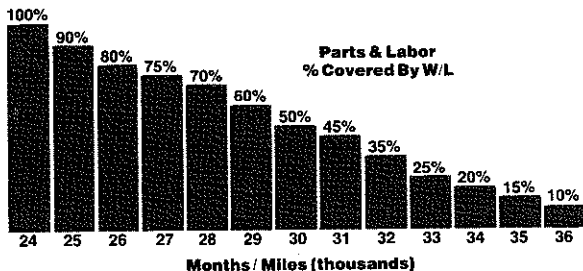
Blue Bird Wanderlodge, a division of Blue Bird Body Company, gives this Warranty. The terms "we," "us," and "our" in this Warranty refer to that division. The Warranty extends to the owner of the Wanderlodge®. The terms "you" and "your" in this Warranty refer to the owner.

What parts are covered?

This Warranty covers all parts of the Wanderlodge® that are made or bought by our factory and installed there, those major power train components that are warranted from other manufacturers are not covered by this Warranty, such as engine, transmission and batteries. Those separate warranties are contained in the owner's package furnished to you by your dealer at the time of delivery. Our Warranty also does not include parts or accessories which you or your dealer bought or installed.

How long does this Warranty last?

36 months and/or 36,000 miles, whichever event is first to occur, is the "Warranty Period." After the earlier of 24 months/24,000 miles warranty coverage will be prorated according to schedule below.



This warranty begins on the date the vehicle is delivered to the first retail purchaser or first placed in service as a demonstrator or company vehicle, whichever is earlier. Mileage accumulated while in possession of the dealer is included in the 36,000 mile total.

What repair expenses does the Warranty cover?

We will pay for *all parts and labor* needed to make necessary repairs due to defects in factory material or workmanship (our payments after the earlier of 24 months or 24,000 miles will be prorated under the schedule set forth above). You may have those repairs made by any authorized dealer or any capable and reputable repair facility.

This Warranty does *not* cover maintenance services. You, as the owner, must see that the Wanderlodge® is properly maintained at your own expense. You must also pay for maintenance items, such as wiper blades, oil, filters, bulbs, antifreeze, brake linings, etc.

This Warranty also does *not* cover damage from things we could have no control over like collision, misuse, negligence, modifications and lack of maintenance. We do warrant that when the Wanderlodge® left our factory it was free from defects in factory material or workmanship. Repair or replacement of defective parts is your exclusive remedy under this Warranty.

Who may make a claim under the Warranty?

Whoever owns the Wanderlodge® during the Warranty Period may make a claim. In other words, the Warranty is transferred automatically when the Wanderlodge® is transferred.

What must the owner do to have defects repaired under the Warranty?

You should promptly take your Wanderlodge® to the dealer who sold it to you or to the nearest Wanderlodge® dealer. (You may obtain the name and address of the nearest dealer by writing or calling us at the address and number set forth below.) In the event there is some geographic or mechanical reason you cannot get to a Wanderlodge® dealer, you may (with our approval) use any capable and reputable repair facility. The dealer will make any needed repairs (or arrange for them to be made) within a reasonable time after you deliver the vehicle to him. You must take the vehicle to the dealer promptly after discovering the defect and, in any event, within the Warranty Period.

You are responsible for properly operating, maintaining and caring for your Wanderlodge® in accordance with the instructions contained in your Owner's Manual.

You are responsible for keeping maintenance records, since in some instances, it may be necessary for you to show that proper maintenance has been performed.

Where does the Warranty apply?

This Warranty applies to those Wanderlodge® which are legally registered and normally operated in the United States or Canada.

What if a Warranty matter is not handled to the owner's satisfaction?

Let the dealer know if you are not happy with his treatment of your claim. If you believe he hasn't treated you right, let us know the details. Write directly to the top:

General Manager
Blue Bird Wanderlodge
One Wanderlodge Way
Fort Valley, Georgia 31030

What does this Warranty not cover?

The preceding paragraphs describe everything that is covered by this Warranty.

Anything else is *not* covered. Without limiting this general statement about what is not covered, we point out as examples that telephone calls, loss of time, commercial loss, inconvenience, and loss of use of the vehicle, hotel or motel accommodations, whether in the field or at the factory are not covered. Similarly, equipment we do not manufacture or supply is not covered, and material separately warranted by other manufacturers is not covered. Nor does this Warranty cover any part of the vehicle which fails or malfunctions as a result of work by anyone besides us. Normal deterioration of paint and trim from weather and exposure (and damage to paint and trim after you accept delivery of the Wanderlodge®) are not covered.

Is there anything else important in this Warranty?

YES. ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS, ARE LIMITED TO THE WARRANTY PERIOD OF THIS WRITTEN WARRANTY, AND WE WILL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. Some states do not allow limitations on how long an implied warranty will last, or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Any lawsuit for breach of this Warranty must be filed within one year of breach.

No one, including the dealer, is authorized to modify this Warranty or to make any other warranty on our behalf. There is no other express warranty on this vehicle. To the extent allowed by law, Georgia Law governs this Warranty and rights arising hereunder.

YOUR LIMITED WARRANTY ON YOUR NEW WANDERLOGE

What must the owner do to have defects repaired under the Warranty?

You should promptly take your Wanderloge® to the dealer who sold it to you or to the nearest Wanderloge® dealer. (You may obtain the name and address of the nearest dealer by writing or calling us at the address and number set forth below.) In the event there is some geographic or mechanical reason you cannot get to a Wanderloge® dealer, you may (with our approval) use any capable and reputable repair facility. The dealer will make any needed repairs (or arrange for them to be made) within a reasonable time after you deliver the vehicle to him. You must take the vehicle to the dealer promptly after discovering the defect and, in any event, within the Warranty Period.

You are responsible for properly operating, maintaining and caring for your Wanderloge®, in accordance with the instructions contained in our Owner's Manual.

You are responsible for keeping maintenance records, since in some instances, it may be necessary for you to show that proper maintenance has been performed.

Where does the Warranty apply?

The Warranty applies to those Wanderloges® which are legally registered and normally operated in the United States or Canada.

What if a Warranty matter is not handled to the owner's satisfaction?

Let the dealer know if you are not happy with his treatment of your claim. If you believe he hasn't treated you right, let us know the details. Write directly to the shop.

General Manager
Blue Bird Wanderloge
One Wanderloge Way
Fort Valley, Georgia 31030

What does this Warranty include?

The preceding paragraphs describe everything that is covered by this Warranty.

Anything else is not covered. Without limiting this general statement about what is not covered, we point out as examples that telephone calls, loss of time, commercial loss, inconvenience, and loss of use of the vehicle, hotel or motel accommodations, whether in the field or at the factory are not covered. Similarly, equipment we do not manufacture or supply is not covered, and material separately warranted by other manufacturers is not covered. Nor does this Warranty cover any part of the vehicle which fits or malfunctions as a result of work by anyone besides us. Normal deterioration of paint and trim from weather and exposure (and damage to paint and trim after you accept delivery of the Wanderloge®) are not covered.

Is there anything else important in this Warranty?

Yes. ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS, ARE LIMITED TO THE WARRANTY PERIOD OF THIS WRITTEN WARRANTY, AND WE WILL NOT DELIVER FOR CREDIT OR CONSUMER FINANCE DAMAGES RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. Some states do not allow limitations on how long an implied warranty will last, or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Any lawsuit for breach of this Warranty must be filed within one year of breach.

No one, including the dealer, is authorized to modify this Warranty or to make any other warranty on our behalf. There is no other express warranty on this vehicle. To the extent allowed by law, Georgia law governs this Warranty and rights relating hereunder.

BLUE BIRD WANDERLOGE & ONE WANDERLOGE WAY • FORT VALLEY, GEORGIA, 31030 • (913) 855-3031

Who are the parties to this Warranty?

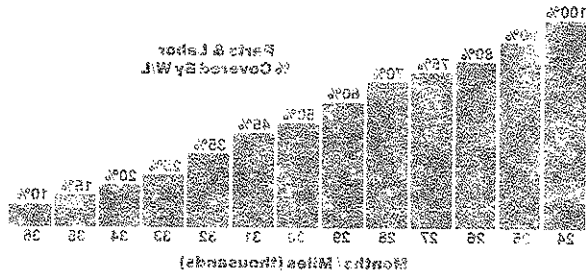
Blue Bird Wanderloge®, a division of Blue Bird Body Company, gives this Warranty. The terms "we," "us," and "our" in this Warranty refer to that division. The Warranty extends to the owner of the Wanderloge®. The terms "you" and "your" in this Warranty refer to the owner.

What parts are covered?

This Warranty covers all parts of the Wanderloge® that are made or bought by our factory and installed there, those major power train components that are warranted from other manufacturers are not covered by this Warranty, such as engine, transmission and batteries. Those separate warranties are contained in the owner's package furnished to you by your dealer at the time of delivery. Our Warranty also does not include parts or accessories which you or your dealer bought or installed.

How long does this Warranty last?

36 months and/or 36,000 miles, whichever event is first to occur, is the "Warranty Period." After the earlier of 24 months or 24,000 miles warranty coverage will be provided according to schedule below.



This warranty begins on the date the vehicle is delivered to the first retail purchaser or first placed in service as a demonstrator or company vehicle, whichever is earlier. Mileage accumulated while in possession of the dealer is included in the 24,000 mile total.

What repair expenses does the Warranty cover?

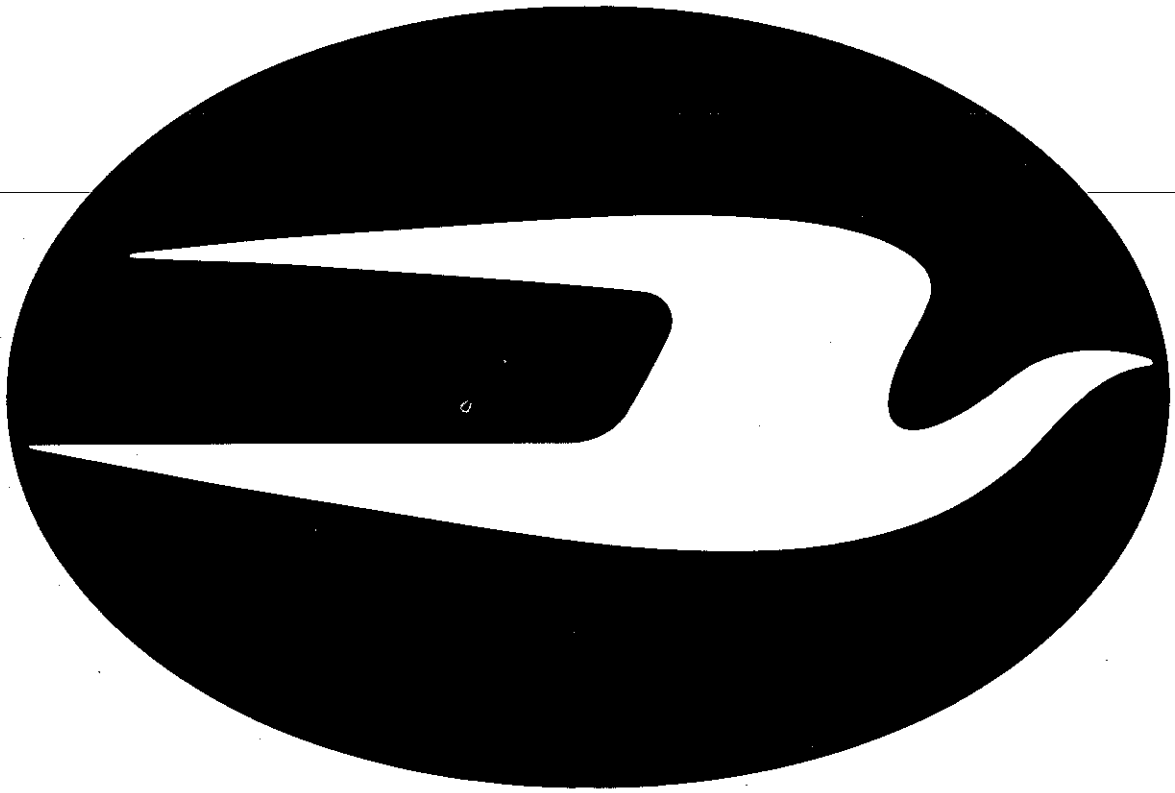
We will pay for all parts and labor needed to make necessary repairs due to defects in factory incidents or workmanship four payments after the earlier of 24 months or 24,000 miles will be provided under the schedule set forth above. You may have those repairs made by any authorized dealer or any capable and reputable repair facility.

This Warranty does not cover maintenance services. You, as the owner, must see that the Wanderloge® is properly maintained at your own expense. You must also pay for maintenance items, such as wiper blades, oil, filters, fluids, and tires, brake linings, etc.

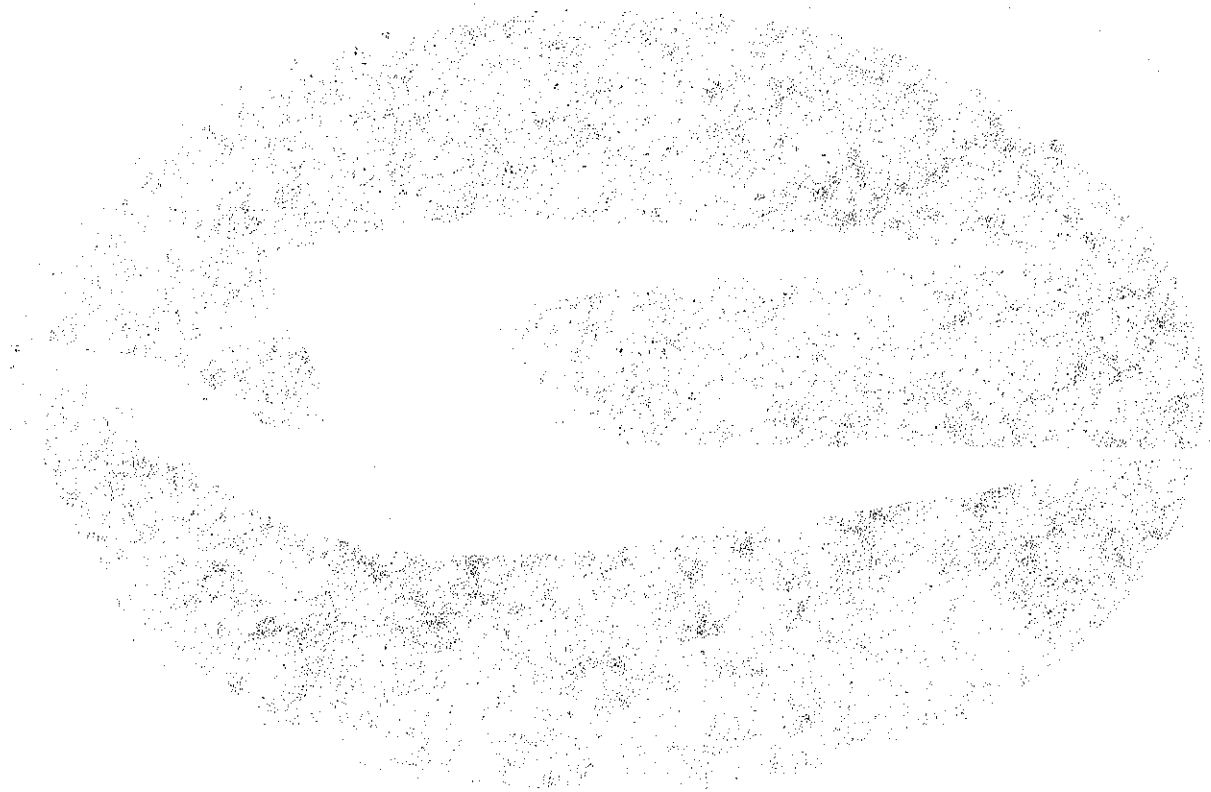
This Warranty also does not cover damage from things we could have no control over like collision, misuse, negligence, modifications and lack of maintenance. We do warrant that when the Wanderloge® left our factory it was free from defects in factory material or workmanship. Repair or replacement of defective parts is your exclusive remedy under this Warranty.

Who may make a claim under the Warranty?

Whoever owns the Wanderloge® during the Warranty Period may make a claim. In other words, the Warranty is transferred automatically when the Wanderloge® is transferred.



BLUE BIRD



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Table of Contents

Section I — Introduction

Contents	1-1
Checklists	1-1
Citizen's Band Transceiver	1-3
Hot Weather Operation	1-3
Cold Weather Operation	1-4
Campground Courtesy	1-4
Insurance	1-4
Safety Considerations	1-4
Vehicle Loading	1-6
Economical Driving	1-7
Engine Operating Hints	1-7
Fuel and Additives	1-7
Lubrication and Maintenance	1-7
Traveling in Your Motorhome	1-8
General Storage Notes	1-8
Emergency Assistance	1-8

Section II — Operation

Instrumentation	2-1
Upper Dash Panel	2-2
Lower Dash Panel	2-4
Air Suspension System	2-6
Shifter Panel	2-7
Upper Right Hand Dash Panel	2-8
Lower Right Hand Dash Panel	2-9
Closed Circuit TV	
Monitor Panel	2-9
Monitor Control Panel	2-9
C.B., Stereo and	
Inverter Panel	2-9
Overhead Control Center	2-10
UHF/VHF Television Receiver	2-10
Pilot's Area Overhead Dash	2-10
Co-Pilot's Area Overhead Dash	2-11
Steering Column Area	2-12
Floor Controls	2-13
Radar Detector	2-14
Seat Controls	2-14
CCTV and Line Up Operation	2-14
TV Antenna and Rotator System	2-14
CB Transceiver Unit	2-15
Diesel Engine/Transmission Operation	2-15
To Start Engine	2-15
Remote Engine Starting	2-15
To Stop Engine	2-16
Using the Allison Transmission	
Brake/Retarder	2-16
Trailer Hitch	2-16
Towing	2-16
Transmission Operation	2-17

Driving Tips	2-17
Accelerator Control	2-17
Downshift Control	2-17
Transmission Oil Temperature	2-17
General Information — Detroit Diesel	
Engines	2-17
Racor Fuel Filter	2-18
Fuel Line Heater	2-18
Leveling Jacks—Controls	2-18

Section III — Living Area Facilities

Sofa	3-1
Dinette Area	3-1
Galley Facilities	3-1
Refrigerator	3-1
Gas Cooktop	3-2
Microwave/Convection Oven	3-3
CORIAN Counter Tops	3-4
Food Center	3-4
Bathroom	3-4
Vent and Exhaust Fans	3-5
Heating Systems	3-5
Air Conditioners	3-7
Systems Monitoring and Control Panel	3-7
LP Gas Leakage Detector	3-9
Electronic Door Chime	3-9
Portable Fan	3-10
Security Timer	3-10
Burglar Alarm/Anti-Theft Features	3-10
Fire Extinguisher	3-10
Smoke Detector	3-10
Bedroom Overhead Panel	3-10
L.P.G. Grill	3-11
Stepwell Cover	3-12

Section IV — Electrical Systems

12-Volt DC Supply System	4-1
Battery Heaters	4-1
Battery Chargers	4-1
DC Supply Monitors	4-2
AC Supply System	4-2
Power Line Monitors	4-2
AC Circuit Breaker Panels	4-2
Generator Operation	4-2
Shoreline Operation (Commercial Power)	4-3
Troubleshooting	4-4
Safeline Alarm	4-4
Audio System Wiring	4-4
Electronic Master Switch	4-4
Battery Jumper Terminals	4-4
Battery Storage in Freezing	
Weather	4-4



Section V — Water Distribution and Drainage Systems

Water Supply and Distribution System	5-1
Commercial Water Hookup	5-1
Filling and Sanitizing	5-1
Potable Water Distribution System	5-2
Water Pump	5-2
Water Purifier	5-3
Water System Air Accumulator with Diaphragm	5-3
Water Heater	5-4
Outside Faucet	5-4
Drainage System	5-4
Draining the Holding Tanks	5-4
Tank Level Detectors	5-5
Winterizing	5-5
Draining and Winterizing the Fresh Water Supply System	5-5
Draining the Ice-Maker	5-6

Section VI — LPG System

LPG Tank and Controls	6-1
Fuel Requirements	6-1
Filling the LP Gas Tank	6-1
LP Gas and Vapor Detectors	6-2
Regulator Pressure	6-2
Operation	6-2
Checking for Leaks	6-2
LPG Consumption	6-2
LPG System Warnings	6-2

Section VII — Air Brake Systems

Operation	7-1
Brake Failures	7-1
Additional Air Operated Equipment	7-1
Compressed Air System Air Dryer	7-2

Section VIII — Owner Maintenance Data

Specifications and Data	8-1
Changing Wheels/Tires	8-4
Checking Torque on Dual Wheels	8-5
Battery Maintenance	8-5
Periodic Battery Checks and Maintenance	8-6
Exterior Care	8-6
Interior Care	8-6
Fluid Level Checks	8-6
Crankcase Oil Level	8-6

Power Steering and Hydraulic Cooling Fan Reservoir Fluid Level	8-7
Transmission Fluid Level	8-7
Importance of Proper Oil Level	8-7
Oil Check Procedure	8-7
Hot Check	8-7
Cold Check	8-7
Racor Fuel Filter and Water Separator System	8-8
Filter/Separator Operation	8-8
In-Filter Fuel Heater	8-8
Water-In-Filter Alarm	8-8
Maintenance	8-8
Hydraulic Cooling Fan	8-9
Leveling Jacks Reservoir	8-9
Engine Air Filter Replacement	8-9
Engine Cooling System Refill	8-9
Cooling System Additives	8-10
Windshield Washers	8-10
Battery Jumper Terminals and Jump-Starting	8-10
Generator	8-11
Maintenance Schedules	8-11
Generator Troubleshooting	8-13
Generator Overloads	8-13
Generator Battery Charging	8-13
Storage Procedures	8-13
Refrigerator	8-14
Toilet	8-14
Water Pump	8-14
Clock/Thermometer Calibration Procedures	8-15
Thermometer Calibration Procedures	8-15
Tub/Shower Mixing Valve	8-15
Air Step Speed Adjustment	8-15

Section IX — General Information Equipment Manufacturers

Section X — Diagrams

Section XI — Equipment Options

Awnings	11-1
Open Awning	11-1
Close Awning	11-2
Fabric Care	11-2
Washing	11-2
Water Leaks	11-2
Storm Precautions	11-2
Hardware and Mechanism Maintenance	11-3
At the End of Each Season	11-3



Ice-Maker	11-3
Ice-Maker Operation	11-3
Ice-Maker Maintenance	11-3
Winterizing	11-3
Kool-O-Matic Ventilation Fan	11-3
Operation	11-4
Automatic Leveling System	11-4
Manual Operation	11-4
Automatic Leveling Procedure	11-5
Automatic Retract Procedure	11-5
Auxiliary Air Compressor	11-5
Operation	11-5
Maintenance	11-6
Bulk Oil Fill	11-6
Operation	11-6
Skylight	11-6
Inverter	11-7
Microphor Toilet	11-7
Power Dump Valves	11-7
Quick Start Aid	11-7
Intercom System	11-7
Heated Holding Tanks	11-7



List of Illustrations

Fig. No.	Title	
1-1	Federal Certification Label	1-6
1-2	Identification Plates	1-7
2-1	Pilot/Co-Pilot Compartment	2-1
2-2	Dash	2-2
2-3	Upper Dash Panel	2-3
2-4	Lower Dash Panel	2-5
2-5	Shifter Panel	2-7
2-6	Upper Right Hand Dash Panel	2-9
2-7	Lower Right Hand Dash Panel	2-9
2-8	Closed Circuit TV Monitor Panel	2-9
2-9	Monitor Control Panel	2-9
2-10	C.B./Stereo and Inverter Panel	2-10
2-11	Overhead Control Center	2-10
2-12	Pilot's Area Overhead Dash	2-10
2-13	Co-pilot's Overhead Dash	2-12
2-14	Steering Column Area	2-13
2-15	Seat Controls	2-14
2-16	CCTV Camera Port	2-14
2-17	Extendable TV Antenna Radome	2-15
2-18	Antenna Control Panel	2-15
2-19	C.B. Transceiver Unit	2-15
2-20	Leveling Jack Controls	2-19
3-1	Dinette Area	3-1
3-2	Galley Facilities	3-1
3-3	Refrigerator Operating Controls	3-2
3-4	Gas Cooktop	3-2
3-5	Microwave/Convection Oven Control Panel	3-3
3-6	Food Center	3-4
3-7	Toilet	3-5
3-8	Vent/Exhaust Fan	3-5
3-9	Heater Thermostat	3-5
3-10	Roof Air Conditioners	3-7
3-11	Systems Monitoring and Control Panel	3-8
3-12	LP Gas Leakage Detector	3-9
3-13	Electronic Door Chime	3-9
3-14	Portable Oscillating Fan	3-10
3-15	Security Timer	3-10
3-16	Bedroom Overhead Panel	3-11
3-17	Intercom System	3-11
3-18	Co-pilot's Control Panel	3-12
4-1	Typical Load Center	4-1
4-2	Battery Compartment	4-1
4-3	AC Power Selector Switch	4-2
4-4	AC Circuit Breaker Panel	4-2
4-5	Shoreline/Utility Compartment	4-3
5-1	Location of Commercial Water Hookup	5-1
5-2	Water Purge Air Pressure, Water Heater Drain and Water Tank Drain Controls	5-2
5-3	Water Pump Location	5-3
5-4	Water Purifier Location	5-3
5-5	Accumulator with Diaphragm	5-3
5-6	Location of Holding Tanks Drain Valve	5-4
5-7	Lavatory Sink Plumbing	5-5
6-1	LPG Tank Compartment	6-1
8-1	Locating Jack	8-4
8-2	Lug Nut Tightening Pattern	8-5
8-3	Engine Compartment	8-7
8-4	Racor Fuel Filter/Separator	8-8
8-5	Location of Leveling Jacks Reservoir	8-9
8-6	Location of Air Filter Condition Indicator	8-9
8-7	Generator Unit, Tray Extended	8-12
8-8	Generator Air Cleaner	8-12
8-9	Tub/Shower Mixing Valve	8-15
10-1	Diagram, Chassis and Water Heater Circuits	
10-2	12 Volt Diagram, Component Identification Lower Front Load Center	
10-3	12 Volt Diagram, Overhead Front Load Center	
10-4	12 Volt Diagram, Left Front Load Center	
10-5	12 Volt Diagram, Right Front Load Center	
10-6	12 Volt Diagram, Rear Load Center	
10-7	12 Volt Diagram, Batteries and Charging Circuits	
10-8	Potable Water System	
10-9	Drainage System	
10-10	Liquid Petroleum Gas System	
10-11	Air System (Sheet 1)	
10-11	Air System (Sheet 2)	
10-12	Chassis Lubrication Guide	
11-1	Awning Opening Procedure	11-1
11-2	Awning Opening Procedure	11-1
11-3	Awning Opening Procedure	11-1
11-4	Awning Opening Procedure	11-1



11-5	Ice-Maker Details	11-3
11-6	Automatic Leveling System Control Panel	11-4
11-7	Bulk Oil Fill Tank	11-6
11-8	Skylight	11-6
11-9	Intercom System	11-7



List of Tables

Table No.	Title	
4-1	Electrical Ratings for Motorhome Appliances	4-3
8-1	Engine and Chassis Specifications ..	8-1
8-2	Engine/Chassis Capacities	8-1
8-3	Gradeability (Hill Climbing)	8-2
8-4	Generator Capacities and Specifications	8-2
8-5	Motorhome Capacities and Specifications	8-2
8-6	Maintenance Schedule Summary ...	8-2
8-7	12-Volt Light Equipment, and Fuses, Current Usage	8-3
8-8	Generator Maintenance Schedule ..	8-11
8-9	Anti-Freeze Protection Chart	8-13
8-10	Water Pump Troubleshooting Guide .	8-14



Section I

Introduction

This section of your Owner's Manual contains general hints and recommendations for using your motorhome. Checklists and suggestions are offered which cover just about every phase of motorhome travel.

The remaining sections of this manual, Sections II through XI, describe in detail the operation and use of the individual items and systems which comprise your motorhome. The following paragraphs summarize the contents of these sections:

Section II Operation — Covers driver's instrumentation, operating controls, gauges and indicators.

General data on operation of coach vehicular systems are also covered in this section.

Section III Living Area Facilities — Covers operation of heating and air conditioning systems, use of accessories and appliances and related general coach facilities data.

Section IV Electrical Systems — This section describes operation of coach electrical systems; ac/dc operation and generator switching are also covered.

Section V Water Distribution and Drainage Systems — Covers internal supply and distribution, plumbing, city water hookups, tank fill and sanitizing, holding tank dumping and operation of hot water supply system.

Section VI LPG System — This section describes LPG internal supply and distribution, tank filling procedures, system component locations, and precautions to observe regarding LPG handling.

Section VII Air Brake Systems — This section covers operation of the service brakes and spring brake systems, fail/safe features and general brakes system operation.

Section VIII Owner Maintenance Data —

Includes information on maintenance procedures which may be within the scope of the owner. Coverage is provided for preventive maintenance schedules, specifications and system capacities, cold weather operation, storage and winterizing.

Interior/exterior appearance care and emergency maintenance procedures are also described.

Section IX General Information — A list of major components, including model numbers, name and address of manufacturer.

Section X Diagrams — Contains wiring, schematic, piping and general-purpose diagrams to assist in troubleshooting and understanding how these systems function.

Section XI Optional Equipment — This section provides you with information on optional equipment and features used in your motorhome.

We hope that this manual will help answer any questions that may arise about the use, operation and maintenance of your motorhome. Any suggestions or recommendations that you might have for including or expanding on material of interest will be carefully considered for incorporation in periodic supplements. We are always interested in providing our coach owners with the most current and comprehensive information about our product.

Your satisfaction is our assurance that we are fulfilling our responsibilities to our owners.

Checklists

A little preliminary planning will go a long way to help make your trips successful and enjoyable. As an aid to planning your travels, review the following checklists. If there are any additional items that you should be reminded of, add them where you see fit. These lists are only recommendations based on the experience and suggestions of sources well-versed in motor-coach expertise. You will eventually find that a short "walk-around" the coach, outside and inside, will be adequate and comprehensive enough to ensure that you're ready for travel.



Before You Leave:

- Store valuables and important papers in a safe place.
- Arrange care for your pets.
- Cover all food to keep out mice and insects.
- Store oil, gasoline, matches and other inflammables properly; get rid of newspapers, magazines and oily rags.
- Connect timers to several inside lamps and outside lights; keep some shades open for a lived-in look.
- Discontinue newspaper, milk and other deliveries; store trash cans and outside equipment.
- If weather permits, shut down hot water and heating systems; close main water supply.
- Ask the Post Office to hold your mail.
- Have your lawn, garden and house plants cared for.
- Arrange with the Telephone Company for discontinued or "Vacation Service".
- Lock all windows and doors securely.
- Leave your key with your neighbor; let him know your basic itinerary.
- Notify police.

Checkout Your Coach — Outside:

- Disconnect and stow:
 1. Electrical cord.
 2. Sewer hose (flush out)
 3. Water hose.
- Check all exterior lights for damage.
- Check wheel lug nuts for tightness. (450-500 ft.-lb.)
- Check tires for correct pressure. (See Table 8-1).
- Check that all external compartments and filler openings are properly closed and/or locked.
- Check that items stored on exterior of coach are secured. (Be sure that these items present no clearance problems.)

Note

If the trip you are planning will take the coach well past suggested maintenance intervals listed in Section VIII, it may be advisable to perform these procedures before leaving. This may avoid unscheduled stops or interruptions during your trip.

- Check that there are no obstacles to avoid above or under the coach. Be sure that there is sufficient clearance front and rear.

Checkout Your Coach — Inside:

- Turn off water pump switches.
- Close windows and vents.
- Check that cabinet doors and drawers are secured.
- Check that refrigerator door latch is in locked position.
- Check that no heavy item is stored in an overhead cabinet.
- Store large items in base cabinets.
- Check that counter tops, range top, table tops and shelves are clear of unsecured items.
- Turn off interior lights; check that entrance step is retracted.
- Secure and lock the entrance door.
- Adjust exterior and interior mirrors.

Warning

Mirrors provide needed additional driver visibility. To be effectively used mirrors must be properly adjusted for each driver and the driver must be aware of the limitations on viewing area that exist even when mirrors are properly used.

Check Your Automotive Systems:

- Check that fluid levels are normal (oil, power steering, engine coolant, battery electrolyte, windshield washers, transmission, etc.).
- Check generator oil level, coolant level, battery condition.
- Check operation of turn signals, emergency flasher, stoplights and backup lights.
- Check that headlight high- and low-beams operate.
- Check horn operation.
- Check fuel gauge, and add fuel if needed.
- Start engine and check gauges for signs of trouble.
- Check operation of foot brakes, emergency brake. (See that brake pressure builds up and steadies at about 100 to 120 psi.)



And, Before Driving Away:

- Check operation of appliances and special equipment.
- Check that fire extinguishers are fully charged.
- Check operation of interior and exterior lighting.
- Start generator and check 120v ac system and wall outlets.
- Adjust driver's seat so that all controls are within easy reach.
- Make sure that seat is locked in position. Do not adjust driver's seat swivel or foreaft mechanism while vehicle is moving or seat could move unexpectedly, causing a loss of control.
- Check that front passenger's seat is locked in position.
- Fasten seat belts. Belts should be placed as low as possible around the hips. This places the load of the body on the strong hip bone structure instead of around the soft abdominal area and prevents sliding out in case of an accident.

Caution

Child restraint systems are designed to be secured in vehicle seats by lap belts or the lap belt portion of a lap-shoulder belt. Children could be endangered in a crash if their child restraints are not properly secured in vehicle. According to accident statistics, children are safest when properly restrained in the center of vehicle and in a rear facing seating position, rather than a front facing position.

- Check that warning lights are lit when the ignition key is turned to **on** or **start** position.

Some Items You Might Want to Take Along On Your Trip

Note

You may find that many items taken were not needed and that some items that were needed were overlooked during planning of your last trip. Make notes of these items to prevent duplicating the same errors.

- Adequate supply of prescription medicines.
- Prescription sunglasses or reading glasses.
- Camera equipment and film supply.
- Heating pads, ice bags, etc.
- Stationery, envelopes, stamps.

- Telephone number list.
- Reading material.
- Special pet supplies.
- Extra toilet chemicals and toilet articles.
- Spare belts for engine – operated equipment.
- Spare parts for generator: suggested spares include oil filter, fuel pump, air filter, solenoid. Five quarts of approved motor oil.
- A professional-type double-action tire pressure gauge.
- Under the heading of **Emergency Equipment**, it is advisable to consider outfitting your coach with these items:
 1. First aid-kit
 2. Emergency highway flares
 3. Flashlight or lantern (with extra batteries)
 4. Tool kit
 5. Replacement lamp assortment
 6. Replacement fuse assortment
 7. A trouble light with a long cord

And Some Other Thoughts To Consider

- Automobile insurance to cover you and your family.
- Avoid cash. Use traveler's checks and credit cards wherever possible.
- Confirm reservations well in advance of arrival.
- Make a clothing check list for everyone.

Citizen's Band Transceiver

You might also bear in mind that your coach is equipped with a CB unit (Citizen's Band receiver-transmitter). In the event of an emergency situation which requires outside assistance, remember to call for help on Channel 9. This channel is restricted to emergency use only and it is monitored 24 hours per day! Don't hesitate to use your CB if you see someone else in need of assistance.

Hot Weather Operation

Wherever possible, choose a shaded parking site so that the coach will be cooler during the hottest part of the day. The full-length side awning will be especially useful in lowering inside temperature. Air conditioning units are indispensable in hot climates. Keep in mind that their proper operation depends on adequate line voltage. Low voltage causes motors to run hotter and reduces compressor motor life. Supply voltage in some campgrounds may not be as high as necessary, especially when there are heavy loads on the lines from other air conditioners. Check the wall-mounted monitors when in doubt.



Cold Weather Operation

LPG appliances, furnaces, and the gas refrigerator are designed with sealed combustion areas. This is for your protection to prevent danger from carbon monoxide or depletion of oxygen. Your motorhome is equipped with a highly accurate and sensitive gas/smoke alarm. Heed alarm indications!

If frost or condensation accumulates in closets or cabinets during long periods of cold weather operation, leave the doors to these areas slightly ajar to provide air circulation. Be sure that roof vents are open when using oven or burners.

Campground Courtesy

Don't forget the "Golden Rule". Being considerate of your neighbors will help make friends. A few of the "Do's" and "Don'ts" are:

- Good housekeeping — put all litter in the proper receptacles and leave your site neat and clean.
- Don't allow your water or sewer hook-ups to leak.
- Respect your neighbor's desire to retire at an early hour. Avoid loud noises and bright lights after dark.
- Drive slowly through camp areas at any hour for the safety of pedestrians.

Insurance

As with your automobile, it is important that you have adequate protection with insurance coverages for personal liability, theft, collision, overturn, property damage, etc.

Canadian and Mexican Insurance

Insurance for travel in Canada can usually be covered by your present U.S. policy for the recreational vehicle, often at no extra cost. Consult your individual company for procedures and be sure of your coverage before entry.

For travel in Mexico (at the present time) there are no U.S. insurance companies that can provide recognized Mexican coverage, with the exception of that required for travel through a narrow strip of Mexican territory in and around ports of entry and the U.S. Mexican border.

Mexican insurance is controlled, and rates are set, by the Mexican government. There are several reliable companies handling Mexican insurance, with similar rates for the necessary cover-

ages. The principal differences between them are the "fringe benefits", received in the form of informational travelogs and other helpful information, such as dining places considered acceptable for sanitary conditions, fuel stations, and so on.

Some insurance services include detailed route maps with "where to stay" recommendations and "things to see" mile-by-mile (or kilometer-by-kilometer post). While the rates set by Mexico may seem quite expensive at first glance, you usually end up not spending quite as much as expected because you can usually arrange to hold your state-side policy in abeyance during the same period you are in Mexico, thus not having to pay unnecessarily for double coverage. In addition, you may be able to obtain substantial refunds on the Mexican collision insurance after your return to the U.S. Be sure to obtain a certification from the park operator at each location in Mexico to certify the dates that your coach was parked there. If your coach is parked for most of the time, instead of constantly traveling, your refund may be a major portion of the original cost. This feature is referred to as the "in-storage" credit. (It is a good idea to always check with your insurance company before taking a trip to find out whether applicable insurance rules and regulations have changed. Keep up to date on your coverage.)

Carry insurance papers at all times!

Safety Considerations

Using LP Gas

Check for leaks at the connections on the LP gas system soon after purchase and initial filling of LP tank; continued periodic checks of the system are recommended. Even though the manufacturer and dealer have already made tests for leakage, this check is advisable because of the vibrations encountered during travel. Apply a soapy water solution to the outside of gas piping connections to find gas leakage (bubbles). Usually, tightening of connections will close leaks. (Be sure to first shut off the gas supply!) If not, ask your authorized dealer service to make the needed repairs.

Liquified Petroleum Gas (LPG) is heavier than air. Leaking gas tends to flow to low places, such as does water. It will sometimes pocket in a low area. LP gas can usually be detected by an identifiable odor characteristic to onions or garlic.



Caution

Never light a match or allow any open flame in the presence of leaking gas!

Be sure that the main LP gas supply valve is closed during refueling to prevent accidental ignition of gas fumes by appliance pilot lights.

Warning

When coach is to be stored in a confined area, turn off the LPG at the main tank shutoff valve (figure 6-1).

Your Wanderlodge[®] has been provided with an automatic 80% fill valve to protect you from the dangers of an overfilled LPG tank.

Electrical Systems

Your coach has been engineered and checked for your complete electrical system safety. Circuit breakers and fuses are installed to protect electrical circuits from overloading. Before making modifications or additions to the electrical system, consult your dealer for assistance in obtaining a safe and secure installation.

Do not "jump" circuit protectors!

Built-In Power Cord Adapter

Approved power supply cords supplied with the coach for hookup to external power sources are listed below:

- | | Identification |
|---|----------------|
| • 50A female to 50A male (1) | Red Tape |
| • 50A female to 30A male (1) | Red Tape |
| • 30A female to 30A male (2) | Yellow Tape |
| • 30A female to 30A male extension(2) | None |
| • 30A female to 20A male adapter (2) | None |

Note that each cord has a ground pin which provides proper electrical system grounding. The ground pin is your personal protection from electrical shock hazards. Do not use any adapter, cheater, or extension cord that will break the continuity of the grounding circuit. **Never** remove the grounding pin for convenience of being able to make a connection to a non-grounded receptacle!

The power cord adapter allows connection of two 30 ampere 120 volt lines (from separate external circuits) to the shoreline plug in the rear of your coach. This will permit use of all motorhome appliances without overloading the supply lines.

Never operate your coach with a "hot skin"! If you can feel even a slight "tingling" shock from touching the coach body while standing outside on the ground, immediately disconnect the electrical hookup until the trouble is located. This fault is usually caused by a break in the grounding circuit, which should be continuous from the coach skin or frame to the distribution panel board to the third (ground) pin on the power supply cord, and from there to the park receptacle and earth ground. Your motorhome is equipped with dual polarity-protector monitor panels, located on the dinette wall. These panels are for your protection in ensuring against improper grounding or reversed hookups. In 1985 & 1986 model coaches, a second dual powerline monitor is located in the shoreline/utility box.

Emergency Stops

Always carry road flares and/or reflective triangular highway warning markers for emergency warning display. Pull off the roadway as far as possible when changing flats or for other emergency situations. Turn on your hazard warning flashers when parked alongside a roadway, even if only for a short while. Have your coach occupants leave the vehicle and stand clear of the area when parked on the edge of a highway.

Engine Exhaust Gas

Avoid inhaling exhaust gases because they contain carbon monoxide, which by itself is colorless and odorless. Carbon monoxide is a dangerous gas that can cause unconsciousness and is potentially lethal. If at any time you suspect that any exhaust fumes are entering the passenger compartment, have the cause determined and corrected as soon as possible.

The best protection against carbon monoxide entry into the vehicle body is a properly maintained engine exhaust system, body and ventilation system. It is a good practice to have the exhaust system and body inspected by a competent mechanic each time the vehicle is raised for lubrication or oil change. It should also be inspected whenever a change is noticed in the sound of the exhaust system and if the exhaust system, underbody or rear of the vehicle has been damaged.



To allow proper operation of the vehicle's ventilation system, keep ventilation inlets clear of snow, leaves, or other obstructions.

Sitting in a parked vehicle with the engine on for extended periods, without proper ventilation, is not recommended!

More Safety Considerations

- Sanitize fresh water supply system periodically. See Section V.
- Prevent water connection fittings from contacting the ground or drain hose to reduce chances of contamination.
- Consider using a qualified technician for repairing gas or electrical appliances.
- Check fire extinguishers periodically for proper charge.
- Avoid overloading your vehicle.
- Be careful not to cause an improper load distribution which can adversely affect roadability.
- Insure that tires are in good condition and properly inflated at all times. Under-inflated tires overheat and are blowout-prone!
- Check and tighten wheel lug nuts every 1,000 miles (torque to 450-500 ft-lbs.)
- Check brake operation in a safe area — not while traveling on a busy highway!
- Use seat belts!

Emergency Exits

Sliding windows, which can be easily opened, may be used as an emergency exit. Squeeze the screen latch and slide it to the rear enough for access to the window latch. Squeeze the window latch and slide window open. Emergency exit windows are identified by an **EXIT** decal on the glass.

Vehicle Loading

Weight Distribution and Load Rating

The Federal Certification Label, located inside and above the drivers windshield between the sunvisor mounting brackets describes the maximum weight-carrying capacities of your motorhome and for each axle, respectively abbreviated by "GVWR" and "GAWR". A typical identification plate is shown in figure 1-1.

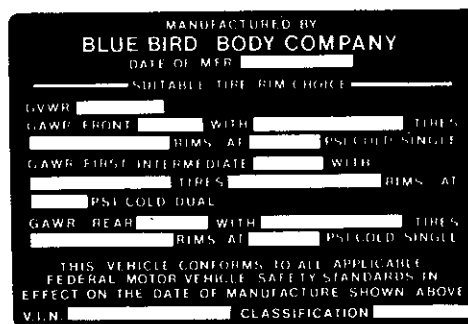


Figure 1-1. Federal Certification Label

The Gross Vehicle Weight Rating (GVWR) is the maximum motorhome weight allowable with all systems filled and with passengers and supplies aboard.

Each axle also has a maximum load-bearing capacity referred to as the Gross Axle Weight Rating (GAWR).

A typical motorhome rating might be as follows:

GVWR	42,000 lbs
GAWR front	13,200 lbs
GAWR rear (intermediate)	23,000 lbs
GAWR tag axle	10,000 lbs

Generally, a 35-foot unit will weigh about 37,000 pounds and a 40-foot unit will weigh about 40,000 pounds. If optional equipment is installed, add the weight of these items to determine the total weight.

The load capacity is the difference between the GVWR and the actual weight. This means the total weight of all food, clothing, other supplies and passengers, must not permit the load capacity to be exceeded.

To find the actual weight, with the motorhome fully loaded, drive to a scale and read the weight on the front, on the rear, and on the tag wheels, separately, to determine axle loading. The load on each axle should not exceed its GAWR. If weight ratings are exceeded, move or remove items to bring all weights below the ratings.

Additional data plates located in the engine compartment provide information useful for identifying your coach if you are planning on ordering parts. Identification plates, figure 1-2, provide information such as:



1. Body Serial Number
2. Chassis Serial Number
3. Model Year
4. Model Number of Axle (if axle parts are to be ordered)

FURNISH INFORMATION BELOW WHEN ORDERING AXLE PARTS	
CHASSIS SERIAL	ENGINE SERIAL
FRONT AXLE	BRAKE LINING FMSI NO. & FRICTION CODE
BRAKE DRUM	
REAR AXLE	BRAKE LINING FMSI NO. & FRICTION CODE
BRAKE DRUM	
REAR AXLE RATIO	
TAG AXLE	BRAKE LINING FMSI NO. & FRICTION CODE
BRAKE DRUM	
CHASSIS SERVICE NO.	

BLUE BIRD BODY CO.		
BODY NO.	CAP.	MODEL YR.
FORT VALLEY, GEORGIA, USA		
BODY SERVICE NO.		

Figure 1-2. Identification Plates

When loading your motorhome, store heavy gear first, keeping it on or as close to the floor as possible. Heavy items should be stored centrally so as to distribute the weight more or less evenly between the front and the rear axles. Store only light objects on high shelves. Distribute weight to obtain even side-to-side balance of the loaded unit. Secure loose items to prevent weight shifts that could adversely affect the balance and roadability of the vehicle.

Economical Driving

How you drive, where you drive and when you drive — these factors all have an effect on determining how many miles you can get from a gallon of fuel. The careful attention you give your vehicle, as far as maintenance and repairs are concerned, will also contribute to fuel economy.

Stop-And-Start Driving

Frequent stops and starts during a trip diminish miles per gallon. Plan even short shopping trips so you can take advantage of through-streets to avoid the traffic lights. Pace your driving like the professional drivers to avoid unnecessary stops.

Excessive Idling

An idling engine also consumes fuel. If you are faced with more than a few minutes wait, and you are not in traffic, it may be advisable to shut off the engine and re-start later on.

Fuel and Additives

The fuel recommended for your coach is # 2 diesel along with a suitable algae inhibitor additive. See section 8 for recommended additive and quantities.

Lubrication and Maintenance

A properly lubricated vehicle means less friction between moving parts. Consult the maintenance schedules in Section VIII for proper lubricants, lubrication intervals and general coach maintenance scheduling.

Air Cleaner

The mixture of fuel and air which powers the engine is taken into the system through the air cleaner. Replace the air cleaner at required intervals to maintain peak engine efficiency.

Excess Weight

Fuel economy is also related directly to the amount of work accomplished by the engine. Heavier loads require more power. Keep excess weight to a minimum.

Tire Inflation

Under-inflation causes needless tire wear and promotes excessive fuel consumption. Check tire pressures on a regular basis.

The Federal Certification Label, figure 1-1, shows the cold tire inflation pressures necessary to support the Gross Axle Weight Ratings.

These pressures can be reduced to greatly improve the ride qualities after the actual axle weights have been determined (see previous section on Vehicle Loading).

A Michelin Tire Data Book is included in your Owner's Kit. In the Specifications – Truck Tires (tubeless) section can be found the recommended tire inflation pressures for various axle weights and tire sizes. If any axle weight is on the borderline, always use the higher pressure.



In addition, a tire inflation information plate is located on the inside of the generator battery door, figure 4-8. These are **normal** pressures as long as the axle weights are not in excess of those shown.

Traveling in Your Motorhome

Overnight Stops

There are many modern recreational vehicle parks with good facilities, including State, County and Federal Parks, where electrical, water and sewer connections are readily available. Directories are published which describe these parks in detail and list available services and hookups.

On overnight or short weekend trips, your motorhome has more than adequate holding tanks and water supply capacity in the event that campgrounds or parking sites are not equipped with these facilities.

On longer trips, where sewer connections and utility hookups are unavailable, it will be necessary to stop from time to time to dispose of holding tank wastes and replenish the water supply. Many gas stations (chain and individually-owned) have installed sanitary dumping stations for just this purpose.

When stopping for the night, park the coach in a location that is relatively level and where the ground is firm. This will ensure your comfort as well as the leveling of your refrigerator (for most efficient operation).

Extended Stays

Making a long trip is not very different from making a weekend excursion since everything you need is right at hand and you are home wherever you travel. When packing for an extended trip, try to avoid taking non-essential items.

When planning to stay in the same location for several days, weeks, or even months, be sure to maintain the motorhome level. Use leveling jacks system controls for this purpose.

Hook up to the water supply by attaching the water hose to the commercial water supply inlet.

Plug the electrical cable into the shoreline receptacle. Be sure to observe all grounding and connection precautions!

Connect sewage hookup into the disposal facility.

Winter Traveling

Certain precautions should be taken when traveling in your motorhome during the cold winter months. Keep these suggestions in mind:

- Provide heat in the coach at all times.
- Have a plentiful supply of LPG.
- If your stay is longer than overnight, and you do not use the generator, try to have a shoreline hooked up to outside ac power.
- Minimize your use of electricity if 120v ac is unavailable.
- Leave cabinet doors and wardrobe doors slightly open at night to allow for proper air circulation.
- Freeze protection heaters and heat tapes greatly decrease the chances of frozen water lines **provided the coach is plugged into outside power (one 50A. or two 30A. power cords) or the generator is run continuously during cold weather periods.**

Remember that low temperatures in combination with high winds will cause an equivalent chill temperature much below that indicated by your thermometer. For instance, with an outside temperature of zero degrees, and a wind velocity of 10 miles per hour, the equivalent chill temperature would be -20 degrees F!

There is no substitute for common sense when traveling in cold weather.

General Storage Notes

Drawing draperies will reduce fading of rugs and upholstery. Leaving an air freshener agent will minimize odors from plastics and other materials. Slight opening of windows and vents will allow air circulation without worry of water entering. Covering wheels to eliminate direct rays of the sun on tires will reduce sidewall cracking.

Note

Remove all items from the coach which may freeze, including canned foods, miscellaneous liquids, etc. Remove all contents of the refrigerator/freezer, clean unit and leave doors ajar.

Emergency Assistance

In the event that emergency assistance is required, refer to the engine owner's manual for the local office of Detroit Diesel.



Section II Operation

This section provides information on the operation and function of the controls, indicators and gauges located in the pilot/co-pilot compartment that are used in connection with the coach automotive systems. Figure 2-1 illustrates the pilot/co-pilot compartment, high-lighting the instrumentation and panels covered in this section.

Instrumentation

All essential operating controls and gauges used to monitor and control associated engine, generator and coach systems are located conveniently on and adjacent to the electroluminescent dash panels, figure 2-2.

Associated instrumentation, accessible on the bulkhead above the pilot, includes generator ON-OFF switch, altimeter and diesel fuel filter monitors. Refer to figures 2-2 through 2-13 and the following paragraphs for locations and functions of associated operating controls and indicators.

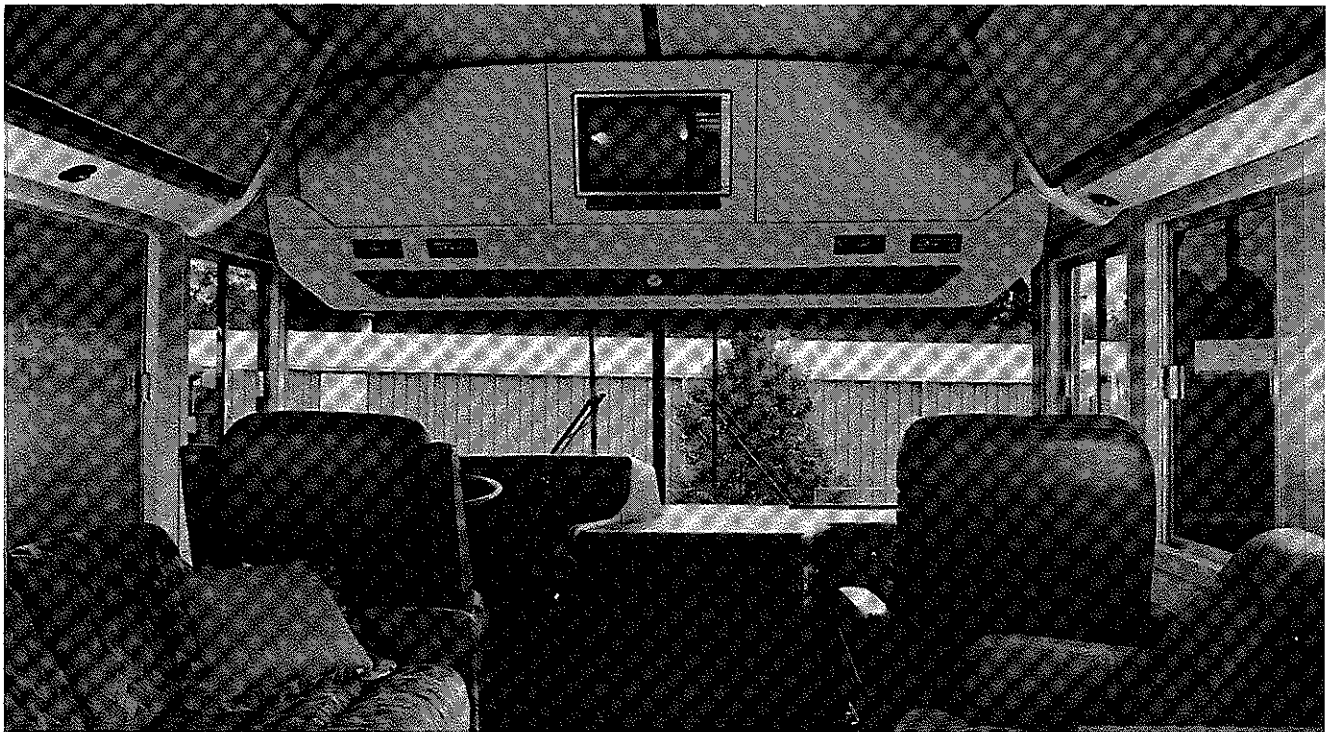


Figure 2-1. Pilot/Co-Pilot Compartment

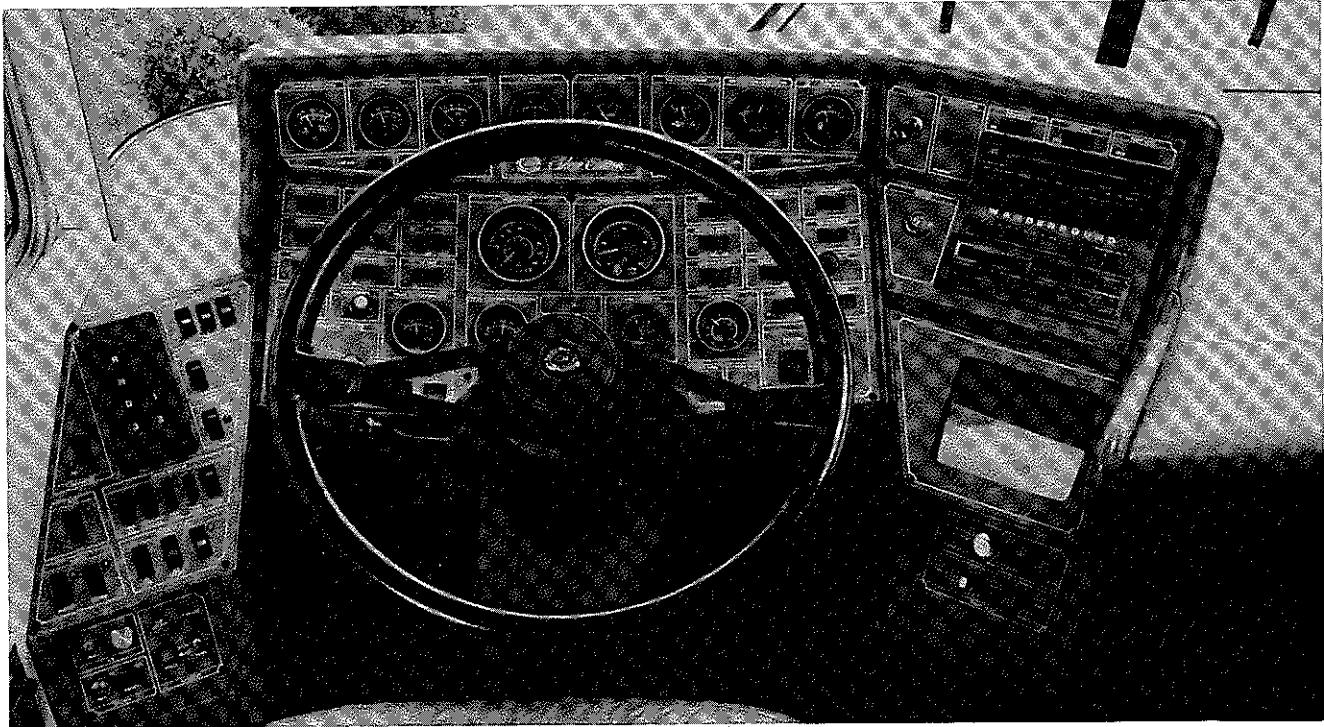


Figure 2-2. Dash

Pilots Control Center

You are now seated in the control center of your new coach. You have control of all engine functions, generator functions as well as all accessory functions at your fingertips.

Our new dash layouts for 1988 were designed for viewing continuity as well as function and beauty. You will notice as you drive that viewing angle changes only slightly from the road to any part of the dash.

The dash is divided into eight main panels, (fig. 2-2) which are the upper dash panel, lower dash panel, shifter panel, upper right hand dash panel, lower right hand dash panel, monitor panel, monitor control panel and inverter panel. The gauges, switches and warning lights installed in these panels will be explained as far as function and operation in the following text.

Note

Some items operate at all times, some require the 12 volt master to be on, while others need the 12 volt master and the ignition on. Gauges marked with an * require the engine to be at normal operating temperature for correct readings.

Upper Dash Panel

① * ENG. WATER TEMPERATURE Gauge — Normal water temperature should be between 180° and 210° for safe operation.

Caution

If the Engine Temperature gauge indicates excessively high temperatures, the engine may be over-heating and should be stopped to prevent damage. Allow the engine to cool before checking the radiator coolant level.

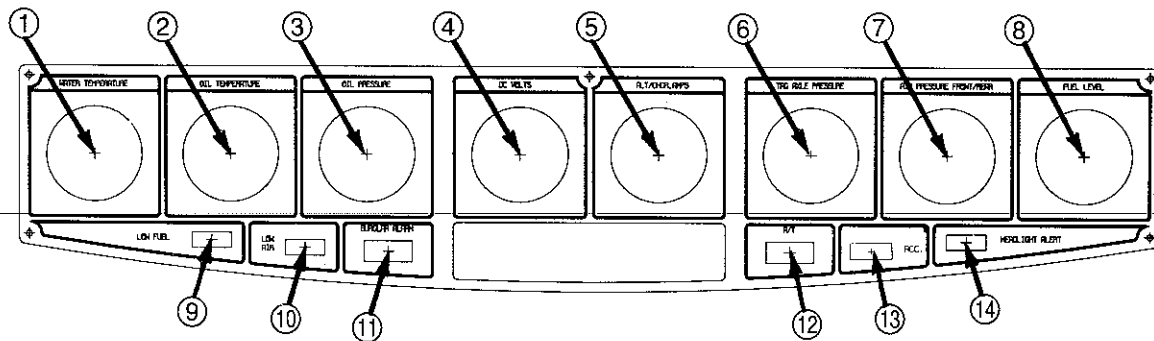


Figure 2-3. Upper Dash Panel

② * **ENG. OIL TEMPERATURE** Gauge — Gives a constant reading of the engine oil in the supply line from the pump. The normal operating temperature is from 200°F to 250°F. If the temperature goes over 250° the engine may be low on oil or there is overheating of the cooling system.

Caution

Your Wanderlodge® is designed to operate at ambient temperatures up to 100°F with no problems. If temperatures greater than 100°F are encountered, the operator must closely observe engine water and oil temperature and transmission oil temperature to avoid overheating conditions. If overheating conditions occur at ambient temperatures less than 100°F, the cooling system must be checked and problem corrected.

③ * **ENG. OIL PRESSURE** Gauge — Indicates the pressure of the oil, not the amount of oil in the engine reservoir. This gauge will normally read between 50 and 70 psi during cruising speeds; and drop to a minimum of 5 psi when the engine is idling.

Caution

No oil pressure, or low oil pressure readings (below 25 psi) when engine is operating at cruising speeds are trouble indications! **Do Not Operate the Engine Under These Conditions!**

④ **DC VOLTS** — Registers the actual voltage at the coach batteries. With the engine running, gauge should read 14 volts (+ or - 0.5).

⑤ **ALT. CHARGING AMPS** — Shows total charging current in amperes. With the engine running, total alternator output is shown. When parked, with a source of 120 volt ac, (outside power or generator), the gauge will show total output of the battery chargers.

⑥ **TAG AXLE PRESSURE** — The tag axle suspension pressure is factory set at 60 psi on WB-38 & 40 coaches.

Caution

Before driving check gauge to make sure there is pressure in the tag axle air bags. This is critical for proper coach axle weight distribution.

⑦ **AIR PRESSURE FRONT/REAR** Gauge — The Dual Air service Brake Pressure systems are engine operated and supply independent brake system air pressure for front and rear service brakes and the parking brake. During normal operation, each air pressure gauge reading will build up to 100 psi to 120 psi shortly after the engine is started. Note that, as a safety feature, the parking brake cannot be released until air pressure readings are at least 65 psi.

⑧ **FUEL LEVEL** Gauge — Indicates the amount of diesel fuel remaining in the 300 gallon fuel tank. Note that the 12.5 kw generator also gets its fuel supply from the 300 gallon tank. This gauge reads only when the ignition switch is in **ON** or **ACCESSORY** position. As a precaution against generator operation draining the fuel supply, the generator fuel pickup is shorter than the engine pickup. Separate fuel filters are provided for each fuel line.



⑨ **LOW FUEL** — When this light comes on it is an indication that the operator should be looking for the nearest refueling station.

⑩ **LOW AIR** Warning Indicator — This light is associated with a buzzer. These warn the driver that there is an insufficient supply of air (65 psi or less) to properly operate the coach. If the air pressure is low, when the ignition key is turned on, the light and buzzer will come on immediately. Both warnings will continue until the air pressure is built back up, or the ignition key is turned off.

⑪ **BURGLAR ALARM** Switch — There are two switches that turn the Burglar Alarm on and off. The switch on the dash is used when you are inside the coach. The weather proof key switch, outside the coach next to the entrance door, is used when you are going to be leaving your coach for awhile.

Note that both switches operate independently of one another. If the Burglar Alarm is turned on at the dash, then it must be turned off at the dash. The outside switch works on the same principle.

⑫ **A/T** Switch — (Anti-Theft) deactivates the starting system for protection against unauthorized cranking and theft.

⑬ **ACCESSORY** Position — These **BLANK** positions may be used for the installation of additional switches and indicator lights for customer add on equipment.

Caution

Use existing panel holes for installation of additional controls or indicators. Drilling new holes will destroy the electroluminescent features.

⑭ **HEADLIGHT ALERT** — When the ignition switch is turned off and the headlight switch is on, this red warning light, along with a buzzer, will come on. These will remain on until the headlight switch is turned off or the ignition switch is turned back on.

Lower Dash Panel

① **SPEEDOMETER** — Indicates speed and accumulated mileage (odometer). This is a solid-state electronic monitor, with an RPM sensor located at the right drive axle brake drum.

② **TACHOMETER/HOUR METER** — Indicates actual engine RPM (Revolutions Per Minute) when

scale (0-25) reading is multiplied by 100. Idle RPM should be 600 and full load (uphill) 2100 RPM. **HOURMETER** shows number of hours engine has been in operation.

③ **TRANS. RETARDER TEMP.** Gauge — Measures temperature of the transmission retarder oil. If the gauge registers a temperature over the 330°F maximum safety range, reduce use of transmission retarder. See information on use of transmission retarder later in this section.

④ **HIGH BEAM** Indicator — The Blue Bird logo is illuminated when high beams are selected using steering column switch.

ACCESSORY WARNING Lights — These three (3) warning indicators light to alert you of the following conditions:

⑤ **WATER IN FUEL** — This light comes on when there is an excess of water in the bottom of the fuel tank.

⑥ **SUSP. DUMP** — Light flashes to tell you that the suspension system has little or no air, and that the suspension needs to be pressurized before the coach is driven.

⑦ **LEVEL WARNING** — This light comes on when any of the four (4) leveling jacks is not fully retracted.

⑧ **TURBO PYROMETER** — Registers the temperature of the exhaust gas output of the Turbo. The correct temperature of the exhaust should be around 740°F at maximum power.

⑨ **REAR LANDING** Light Switch — At the **ON** position this switch turns **ON** the landing lights in the front right and left panels just behind the front tires. These lights shine toward the rear of the coach so are called Rear Landing Lights. Note that a small blue indicator lights when the switch is **ON**.

⑩ **FRONT LANDING** Light Switch — To turn on the front Landing lights, located in the rear side panels just in front of the rear wheels, push this switch to the **ON** position. The indicator next to the switch should be lit when the switch is on.

⑪ **REAR PARKING** Light Switch — This switch controls the on-off operation of the rear parking lights (rectangular halogen lights above the rear bumper) when transmission selector lever is in **R**.

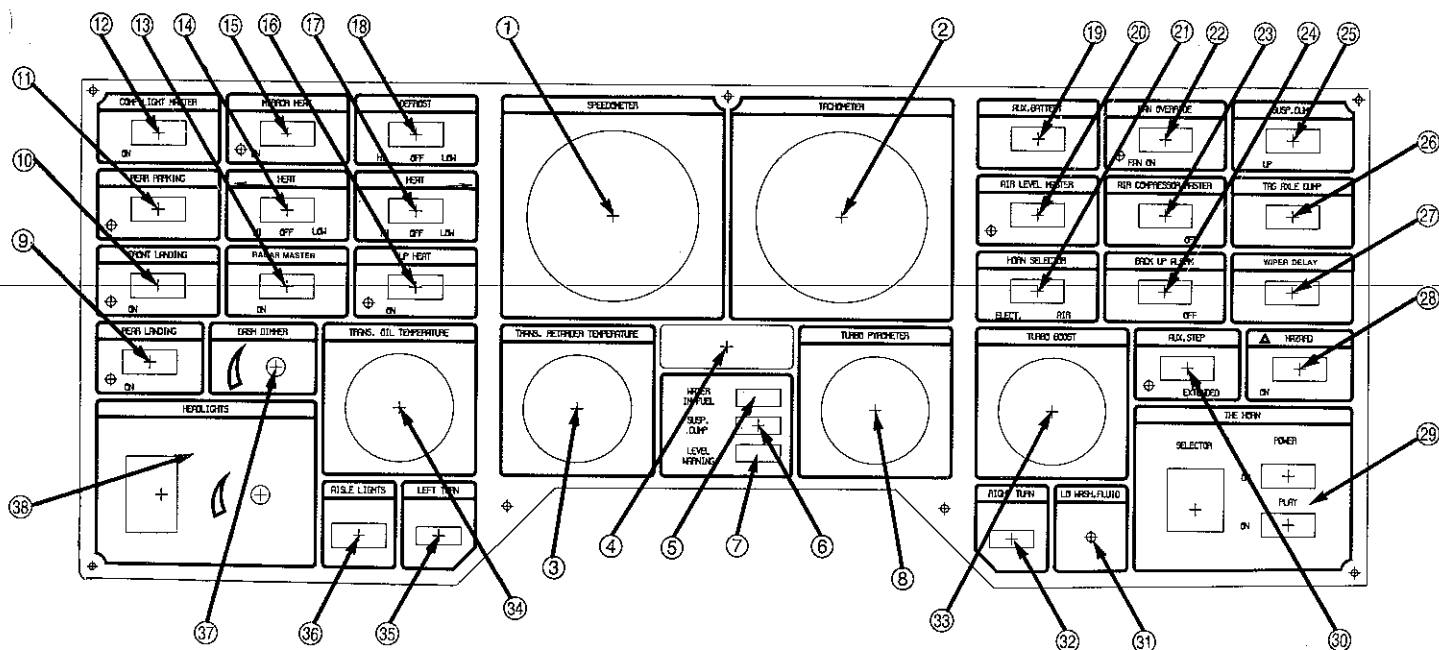


Figure 2-4. Lower Dash Panel

An indicator next to the switch lights when the rear parking lights are on.

12 COMP. LIGHT MASTER Switch — This switch in the **ON** position provides power to all of the exterior compartment light switches. As each compartment door is opened, the light automatically comes on; closing the door turns the light off.

13 RADAR MASTER Switch — Turns on power to radar detector receptacle.

14 HEAT Switch — To turn on the heater blower for the pilot's area press this switch to either the **HI—** or **LOW** position. Note that when the front heat control is in cool position the heat switches (14) and (17) can be used to provide cool air circulation by turning on the blowers.

15 MIRROR HEAT Switch — This switch turns on a thermostatically controlled heater in the right and left outside mirrors (convex mirrors excluded). With the switch **ON** the Mirror Heaters will automatically come on to defog the mirrors.

16 L.P. HEAT Switch — When in the **ON** position, 12v. power is supplied to the L.P.G. furnaces.

17 HEAT Switch — To turn on the heater blower for the co-pilot's area press this switch to either the **HI—** or **LOW** position. Note that when the front heat control is in cool position the heat switches (14) and (17) can be used to provide cool air circulation by turning on the blowers.

18 DEFROST Switch — Turns on the blower for defrosting or defogging the front windshield. Set to **HI—** or **LOW** speed as desired.

19 AUX. BATTERY Switch — When this switch is pressed, a jumper solenoid connects the generator and coach batteries together (in parallel) to provide extra power for cranking the generator or coach. Releasing the switch immediately isolates the two battery systems.

20 AIR LEVEL MASTER Switch — Allows you to level the coach to a certain extent using the air suspension. This is an optional system and should only be used for short periods of time.

21 HORN SELECTOR Switch — Allows selection of the air or electric horns when the steering wheel horn button is depressed.

22 FAN OVERRIDE — This switch operates the engine cooling fan in the engine compartment. Normally, this fan will operate at 125 to 400 RPM from an engine RPM of idle to 2100. If the coolant temperature reaches 195°F, the fan will be thermostatically controlled to run at 1800 RPM. To override the thermostat turn the Fan Override switch **ON**, and the engine cooling fan will turn 1800 RPM continuously at any temperature.

23 AIR COMPRESSOR MASTER Switch — This switch operates the auxiliary air compressor



(optional equipment) which is a 120 vac operated back up air compressor.

②④ **BACK UP ALARM** Switch — This switch turns the back-up alarm buzzer off.

Air Suspension System

Your motorhome is equipped with air suspension bags which **cushion** the front, rear and tag axles. Dumping these air bags when the vehicle is parked allows the rubber bumpers to come together and eliminate vehicle **springiness**. Two switches control dumping and filling of the respective air bags. The **SUSP. DUMP** switch controls the front and rear axle suspension; the **TAG DUMP** switch controls the tag axle only.

Note

The accessory air tank must contain at least 65 PSI pressure for the air switch to function. The accessory air tank pressure does not register on the dash air pressure gauges.

Moving the **SUSP. DUMP** switch to the **UP** position applies air pressure to three air pilot-operated valves on the suspension system. Two of these valves are located on the rear axle; and one is located on the front axle. The pilot air shifts the valves, cutting off the air supply to the air bags and allows the air in the bags to escape. After the suspension system has been dumped, and the ignition is turned on, a warning pilot light is illuminated on the dash to warn the driver that the system is dumped and not to drive the vehicle until the **SUSP. DUMP** switch is set to the up position.

Note

If the leveling jacks are to be used while the coach is parked, the jacks must be lowered to level the vehicle before the air bags are dumped. If the air bags are dumped before the jacks are down, the vehicle is too low for the jacks to unfold into lifting position properly. This could damage the jacks. When dumping, the tag axle is dumped first, then the front and rear axles. However, when repressurizing, the front and rear axles are pressurized first, then the tag axle.

Caution

To avoid placing excessive loading on the tag axle, dump tag axle before dumping suspension system (front and rear axles). Pressurize suspension before tag axle.

②⑤ **SUSP. DUMP** Switch — This switch controls the inflation of the air suspension systems for the front and rear axles. Move switch to the right to dump the bags. Note that **SUSP. DUMP ACCESSORY WARNING** light is lit: set switch to **UP** position to re-inflate the air bags before driving away. (System air pressure must be at least 65 psi.)

②⑥ **TAG AXLE DUMP** Switch — In **UP** position tag axle air suspension is pressurized as indicated on dash gauge **TAG AXLE PRESSURE**. When switch is moved right pressure in tag axle is dumped.

②⑦ **WIPER DELAY** — Knob adjusts wiper speed from 2 to 20 sweeps per minute when intermittent operation is selected at steering column switch lever.

②⑧ **HAZARD** Switch — This switch turns on the emergency flashers. When switch is used both turn signals will flash in unison.

②⑨ **THE HORN**, Figure 2-4 — This corner of the dash has 3 different switches for use with the musical horn.

The **SELECTOR** switch incorporates 2 thumb-wheels for selecting the tune to be played. Use **The Horn** manual to select a tune. Then set the thumb-wheels to the corresponding numbers or number and letter. Note, that if a tune is playing, making a new selection on the selector switch will not affect the tune playing.

The **POWER** switch provides power to the musical horn. When this switch is turned **ON** the horn will immediately start playing the tune that corresponds to the digits on the selector switch.

The **PLAY** switch (momentary) resets the horn to the beginning of tune chosen by the Selector switch. If the **PLAY** switch is pressed while a tune is playing, that tune will stop instantly and the horn will reset to the beginning of the tune that corresponds to the digits on the **SELECTOR**.

③⑩ **AUXILIARY STEP** Switch — An **On-Off** switch that, when set to the **EXTENDED** position,



activates a relay automatically locking the outside entry step in the out position. The indicator light comes on when the ignition switch is turned on to remind you that you need to retract the step before proceeding.

③① **LOW WASHER FLUID LIGHT** — Light indicates when there is approximately 1/4 contained in the fluid reservoir.

③② **RIGHT TURN Indicator** — When the turn signal lever, (steering column control section), is pushed up into the right turn position this indicator flashes in conjunction with the outside directional lights. The right cornering light will come on continuously if the headlights or the parking lights are turned on while the turn signal lever calls for a right turn.

The indicator, along with the left turn indicator and all outside directional lights, flash in unison when the HAZARD switch (item 28) is pressed to the on position.

③③ * **TURBO BOOST Gauge** — Registers the psi of the Turbo Compressor outlet. The gauge should read a maximum of 23.2 psi at maximum power.

③④ **TRANS. OIL TEMPERATURE Gauge** — Monitors and gives constant temperature readings of the transmission oil. Maximum allowable is 330 °F.

③⑤ **LEFT TURN Indicator** — When the turn signal lever is pulled down into the left turn position, this indicator flashes in conjunction with the outside directional lights.

The left cornering light will come on continuously if the headlights or the parking lights are turned on while the turn signal lever calls for a left turn.

③⑥ **AISLE LIGHTS** — This switch allows you to turn on or off the fluorescent aisle lights from the pilot's chair.

③⑦ **DASH DIMMER** — This control will only operate when the headlight switch is on. The background lighting (electroluminescent) for the dash can be brightened by turning counter-clockwise and dimmed by turning clockwise.

③⑧ **HEADLIGHTS** — The Headlight switch serves two functions. Press **P** for parking lights and gauge illumination. Press the bulb symbol for headlights, parking lights and gauge illumination. The dimmer controls brightness of all gauges in dash. Turn counter-clockwise to increase or clockwise to decrease the brightness.

Shifter Panel

① **TRANSMISSION SHIFT SELECTOR** — Figure 2-5 shows the selector for the 8V92 engine. This is the push button shift selector made available with the Allison Transmission Electronic Control (ATEC). With ATEC, shifts are more accurate and positive than those obtainable with conventional hydraulic controls. ATEC makes it possible to precisely match the optimum fuel economy/shift curve relationship. Only four speeds are required with this system. See Diesel Engine/Transmission Operation later in this section for detailed description.

② **RETARDER Switch** — Provides power to Transmission Retarder/Brake System. The adjacent indicator lights when the retarder is operational. Use of RETARDER HAND CONTROL will be covered later in this chapter.

③ **ACCESSORY Position** — These blank positions may be used for the installation of additional switches and indicator lights for customer add on equipment.

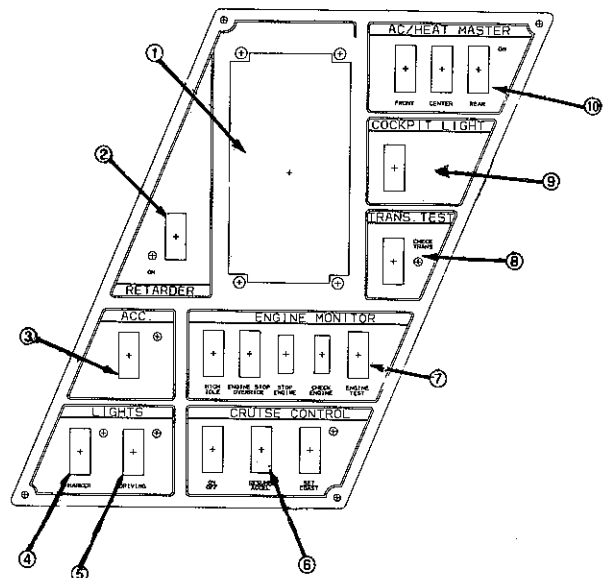


Figure 2-5. Shifter Panel

Caution

Use existing panel holes for installation of additional controls or indicators. Drilling new holes will destroy the electroluminescent features.



④ **MARKER LIGHTS** Switch — Press this switch to **ON** to turn on the clearance, side marker and identification lamps located on the top sides and ends of the coach. This switch may also be flipped on and off to flash the marker lights as a courtesy signal.

⑤ **DRIVING LIGHTS** Switch — The driving lights are mounted behind the front bumper in a retracted position. When the switch is energized the driving lights are lowered into position (if the suspension is at ride height). The driving lights do not come on unless the high beam light switch is energized and the driving lights are in the down position. The driving lights go out when the lights are switched to low beam or when the driving lights switch is turned off. When the driving lights switch is turned off the driving lights retract back to the stored position.

⑥ **CRUISE CONTROL** — These three switches operate in the following manner: The switch on the left turns the cruise control on or off. The switch on the right locks the cruise control in on the desired cruising speed and permits resetting at a lower speed following a previous setting. The switch in the middle permits returning to cruising speed following disengagement by stopping and obtaining a higher cruising speed.

Note

The coach must be traveling at least 35 MPH before the cruise control will operate properly.

When the desired speed is reached, press the On-Off switch to the On position, then press the Set-Coast switch to the Set position and hold for two seconds before releasing. The coach should automatically remain at that speed. If a lower cruise speed is desired, press the Set-Coast switch to the Coast position and hold until the desired cruising speed is obtained. Release the switch immediately. The coach should remain at the new speed.

Following disengagement of the cruise control by breaking the previously set cruising speed may be obtained by depressing the Resume-Accel switch to the Resume position for two seconds. Note that the coach should be at or above 35 MPH before attempting the Resume function. In addition, if the ignition switch has been turned off, the previous cruise speed will be erased from memory

and the new cruise speed will be that speed when the Resume switch was pressed.

If a higher cruising speed is desired and the cruise is enabled, press the Resume-Accel switch to the Accel position. The coach will begin to accelerate. When the higher desired cruising speed is obtained, immediately release the Accel switch. The coach should remain at the new speed.

⑦ ENGINE MONITOR SWITCHES

HIGH IDLE — This switch when turned to On, increases the engine idle speed to approximately 1100 RPM. This will provide a faster engine warm-up and also provide better cooling when stopped in traffic with chassis A/C on.

ENGINE STOP OVERRIDE Switch — This switch momentarily overrides DDEC engine shutoff system.

STOP ENGINE LIGHT — Indicates when a potential engine damaging condition has been detected.

CHECK ENGINE LIGHT — Indicates that a problem has occurred.

ENGINE TEST Switch — This switch is to check the system for problems.

⑧ TRANSMISSION CHECK LIGHT

and **TEST SWITCH** — ATEC has a built-in diagnostic system. If any problem should develop the **Check Trans.** light will come on.

A Detroit Diesel Allison service facility will immediately be able to determine the cause by pushing the momentary **Trans. Test** rocker switch. The **Check Trans.** light will then blink out the code for the problem.

⑨ **COCKPIT LIGHT** Switch — This switch controls On-Off operation of the fluorescent lights.

⑩ **AC/HEAT MASTER** Switches — These switches allow the driver to control roof air conditioners or the electric heaters.

Upper Right Hand Dash Panel

LIGHTER — Depress to heat the element; pops out when hot.

SECURITY LOCK Switch — Dual switches used to lock and unlock the deadbolt lock on the entrance door. A switch is also located on bedroom control panel.



COLD START — When switch is pressed to on it sends a timed pulse of ether into the air intake of engine to help starting in cold weather.

LEFT VENT and **RIGHT VENT** Switches — Operate the air cylinder controlled air vents to direct fresh air to the pilot and co-pilot areas.

COMPACT DISC PLAYER — Space available for optional disc player with premium sound system.

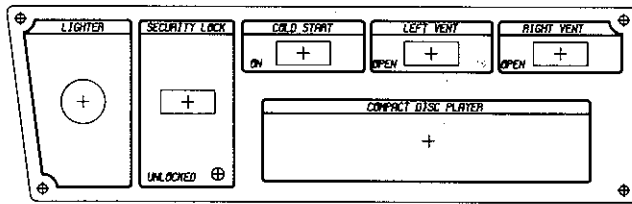


Figure 2-6. Upper Right Hand Dash Panel

Lower Right Hand Dash Panel

Ignition Switch — A four-position, standard-type key switch. In **OFF** position (center), ignition and accessory positions are disabled and the key can be inserted or removed. In **ON** position (right) the battery is connected to the engine-run ignition circuits and the key can be advanced to **START** to start the engine, providing that the transmission selector is in neutral **N** position and toggle switch in engine compartment is up (front). **ACCESSORY** position (left) allows operation of accessories without activating the engine-run circuits.

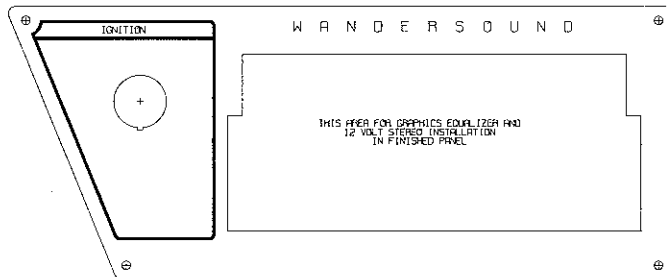


Figure 2-7. Lower Right Hand Dash Panel

Wandersound Stereo — is comprised of the BLAUPUNKT LEXINGTON Tuner/Cassette with four (4) 6 x 9 inch coaxial pyle driver speakers and two (2) 6½ inch coaxial pyle driver speakers. The BLAUPUNKT Tuner/Cassette has auto reverse,

electronic tuning sensor, Dolby noise reduction and metal tape capabilities.

The speakers are located four (4) in the living room and two (2) in the bedroom. A privacy switch is located on the overhead panel above the driver's head. The privacy switch turns the livingroom speakers off. Headphone jacks are located on the hood table and in the bedroom. There is a volume control in the bedroom controlling the volume of the bedroom speakers.

CLOSED CIRCUIT TV MONITOR PANEL — The monitor enables the operator to view behind the coach for purposes of backing, or passing other vehicles on the highway.

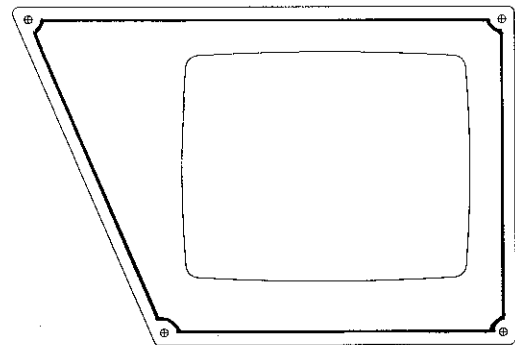


Figure 2-8. Closed Circuit TV Monitor Panel.

MONITOR CONTROL PANEL

MONITOR CONTROLS — Brightness contrast and On/Off controls adjust in the same manner as any black and white TV.

FRONT HEAT CONTROL — This slide control opens or closes the valve in the front heater hose line for heating or cooling.

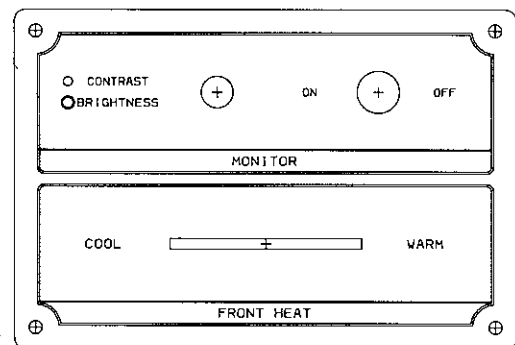


Figure 2-9. Monitor Control Panel.

C.B., STEREO AND INVERTER PANEL

C.B. — Jack for headphone listening with volume control.



STEREO — Stereo jack for headphone use with AM/FM Stereo Tuner/Cassette player and optional disk player. Privacy switch when turned on cuts power to all front speaker. Use switch when stereo headphones are used.

INVERTER — Space for optional inverter controls. See section XI for information.

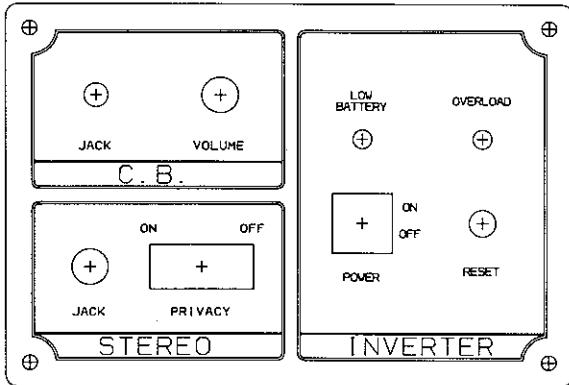


Figure 2-10. C.B./Stereo and Inverter Panel.

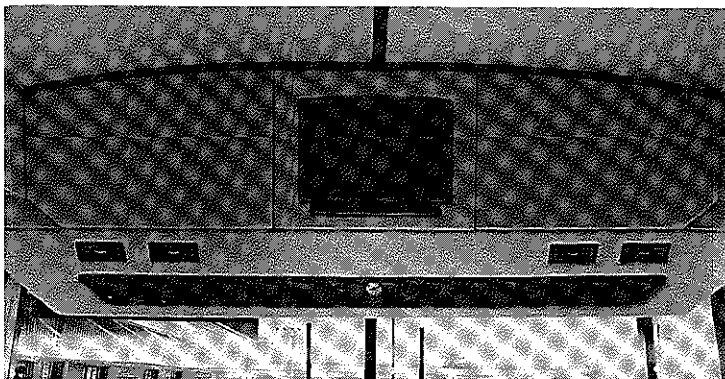


Figure 2-11. Overhead Control Center.

Overhead Control Center

UHF/VHF TELEVISION RECEIVER — Is a standard TV. Operation is covered in the owner's manual supplied with set.

Pilot's Area Overhead Dash

① **HEAT SELECTOR** Switch — Operates solenoid valves in engine coolant line to divert coolant flow through hot water heater and chassis heaters when this switch is in **WINTER** position. Setting the switch to **SUMMER** position causes the coolant to flow through the hot water supply heater coil only.

② **AUX. PUMP** Switch — Controls the auxiliary water pump (under floor at road side rear) that boosts the circulation of engine coolant through the water heater heat exchanger and chassis heaters in the bedroom, bathroom, dinette and living-room.

③ **DASH DIMMER** — This control will only operate when the headlight switch is on. The background lighting (electroluminescent) for the upper dash can be brightened by turning counter-clockwise and dimmed by turning clockwise.

Remote Spotlight Controls

The optional roof-mounted remote-control high intensity spotlight is operated by the **SPOTLIGHT** controls located in the overhead dash. The spotlight produces 100,000 BCP (beam candle-power) and can be turned on and off, positioned horizontally or vertically at an adjustable rate of speed, and can be used for spot- or flood-lighting. The following controls operate the spotlight.

④ **SPOTLIGHT SELECTOR** Switch — Depressing switch, left or right, selects LH or RH light operation.

⑤ **SPOTLIGHT BEAM SELECTOR** Switch — Depressing left side of switch activates **FLOOD** while right side pressure selects **SPOT**. Center position is **OFF**.

⑥ **SPOTLIGHT SPEED** Control — Adjusts speed of light head movement.

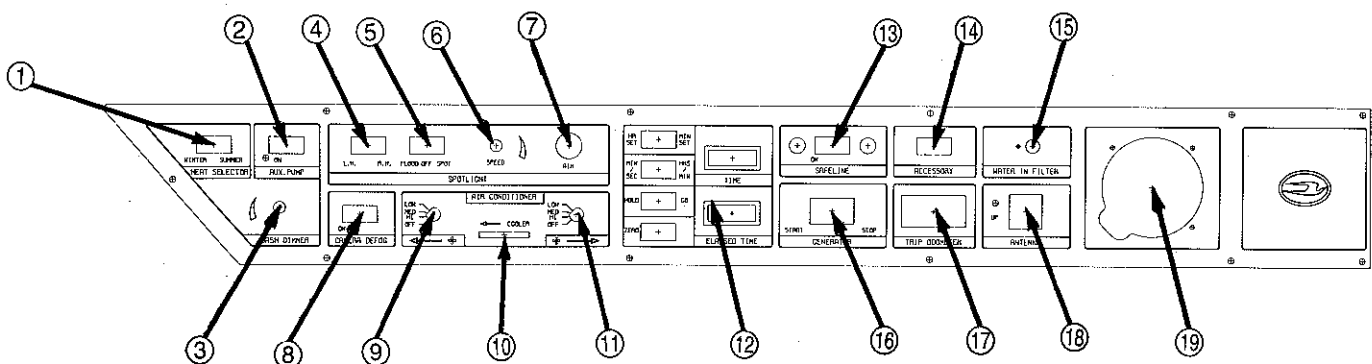


Figure 2-12. Pilot's Area Overhead Dash.



⑦ **SPOTLIGHT AIM** Control — Controls horizontal and vertical beam position.

⑧ **CAMERA DEFOG** Switch — Energizes fan in compartment for Closed Circuit TV (CCTV) camera.

⑨ **AIR CONDITIONER LEFT FAN** Switch — Three speed blower for left front area of coach. Left fan switch must be in either **HI**, **MED**, or **LOW** to energize compressor.

⑩ **AIR CONDITIONER** Temperature Selector — Thermostat setting controls temperature by cycling compressor.

⑪ **AIR CONDITIONER RIGHT FAN** Switch — Three speed blower for right front area of coach.

⑫ **CLOCK PANEL** — This panel includes a digital readout. Four switches to the left of the display set clock timing. To set **TIME** display set clock timing, to set **TIME** display, press **HR SET/MIN SET** switch to **HR SET** position and hold until correct hour is displayed; repeat with switch in **MIN SET** position until correct minutes are displayed.

The **ELAPSED TIME** display will show elapsed time in terms of hours and minutes, or in minutes and seconds, depending on the position of the **HRS/MIN - MIN/SEC** switch. Set this switch as desired, press **ZERO** to reset the display to a 00:00 readout, and the elapsed time will count. The **HOLD/GO** switch may be set to **HOLD** position to suspend operation of the elapsed time display; for elapsed time operation, leave switch in **GO** position.

⑬ **SAFELINE ALARM** — The Safeline alarm operates whenever the shoreline is connected to the coach and the ignition switch is in **ON** position as a reminder to disconnect the shoreline before driving away.

With the Safeline switch **ON**, the alarm is given by buzzer sound and red light. The buzzer can be deactivated in favor of a flashing amber light by turning off the switch.

⑭ **ACCESSORY** Position — These **Blank** positions may be used for the installation of additional switches and indicator lights for customer add on equipment.

Caution

Use existing panel holes for installation of additional controls or indicators.

Drilling new holes will destroy the electroluminescent features.

⑮ **WATER IN FILTER** — Light and buzzer alarm.

⑯ **GENERATOR START/STOP** Switch — Provides local control for generator operation. Press this center-off momentary switch to **START** position and hold until generator starts, as indicated by the switch indicator illuminating. If generator does not start within 2 to 5 seconds, release switch, wait 30 seconds, then try again. To shut down the generator, press to **OFF** position and hold until light extinguishes.

Caution

Do not start the generator when a heavy circuit load is on-line, such as the air conditioners. This can cause an excessive strain on the generator rotating components and may result in equipment damage.

Note

When starting the generator during cold weather, press the switch to **STOP** position for 15-20 seconds. This activates the glow plugs for easier starting.

⑰ **TRIP ODOMETER** — Depress bar to reset.

⑱ **ANTENNA** Switches — Both switches must be pushed simultaneously to cause raising or lowering of TV antenna. Indicator will light when TV antenna is up from its secured position when ignition switch is turned on.

⑲ **ALTIMETER** — Indicates coach height above sea level. (Zeroing adjustment can be used to calibrate unit at known elevations.)

⑳ **FUEL VACUUM GAUGE** — Racor fuel filter element should be changed when pointer goes into red.

Co-Pilot's Overhead Dash

GENERATOR OIL PRESSURE Gauge — Shows the oil pressure, not amount of oil in the generator engine reservoir. This gauge will normally read between 30 and 60 psi. Low oil pressure indications are often a symptom of possible generator failure. Oil level should be checked on a regular basis. Note that the generator has a low-oil pressure shut-off switch which operates if the generator oil pressure falls below 15 psi.

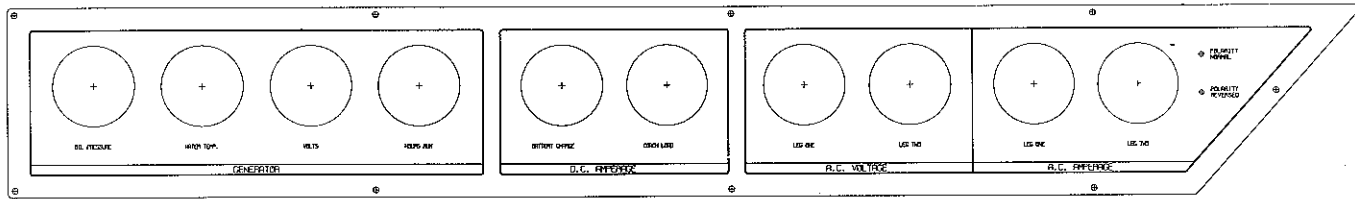


Figure 2-13. Co-Pilot's Overhead Dash

GENERATOR WATER TEMP. Gauge —

Displays generator engine coolant temperatures from 100 to 240 degrees. Normal operating temperatures vary from 175 to 190 degrees. If consistently high temperatures are indicated, shut down the generator, wait for the engine to cool, then check radiator coolant level. Note that the generator has a high-temperature shut-off switch which operates if the generator temperature reaches 225 degrees F.

GENERATOR VOLTS —

Expanded-scale voltmeter, with scale graduations from 10 to 16 volts, shows the condition of the generator battery. Normally, the battery voltage varies from 12 to 13 volts; under starting load it may drop to about 10.5 volts and then rise to about 14.0 when the generator starts and begins charging the battery through the external isolator unit and battery chargers. Battery voltage readings less than 10.5 or more than 15 are usually a symptom of an electrical system failure or impending battery breakdown.

GENERATOR HOURS RUN Meter —

Indicates total hours of generator operation.

D.C. AMPERAGE —

Ammeter on left (labeled **CHARGE**) shows net current flow to or from batteries. Needle movement from the center of the gauge indicates discharge to the left and charge to the right. When parked, following highway travel, it is normal to see a needle position to the left of center even when plugged into shore power (or running generator). This will gradually diminish and should eventually show some movement to the right with coach loads turned off.

Ammeter on right (labelled **DISCHARGE**) shows current demand of 12 volt load.

A.C. VOLTAGE —

Voltmeter on left monitors LEG ONE while that on right monitors LEG TWO of 120 volt alternating current circuits.

Caution

Appliances can be damaged by low voltage. Loads should be balanced so voltage does not drop below 110 volts for either leg. Low campground (shore-power) voltage can be detected quickly from gauge readings. If cause of low campground voltage can not be corrected, generator power will have to be used during periods of high appliance demands.

A.C. AMPERAGE — Ammeters show current flow in LEG ONE (left) and LEG TWO (right) of 120 volt alternating current circuits. **Polarity Normal** indicator (green), lit whenever the shoreline hookup is properly connected and grounded and line polarity is compatible with coach wiring and a **Polarity Reversed** indicator (red) which lights when hookup is reversed.

A faulty ground connection is indicated in none of the LEDs is lighted.

Steering Column Area

The steering column area, figure 2-14 includes controls located on the steering column, and under the dash.

HORN — Operate the horn by pressing in on the center section of the wheel. Select air or electric horn with the **HORN SELECTOR** switch on the dash.

COMBINATION TURN SIGNAL/High BEAM and WASHER/WIPER SELECTOR — Push lever toward dash for right turn signal, pull lever away from dash for left turn signal. Pull lever up toward steering wheel and hold for momentary high beam. When lever is released low beams are activated. Push lever down until switch is activated for high beam operation. Pull lever back toward steering wheel to go to low beam operation. The washer

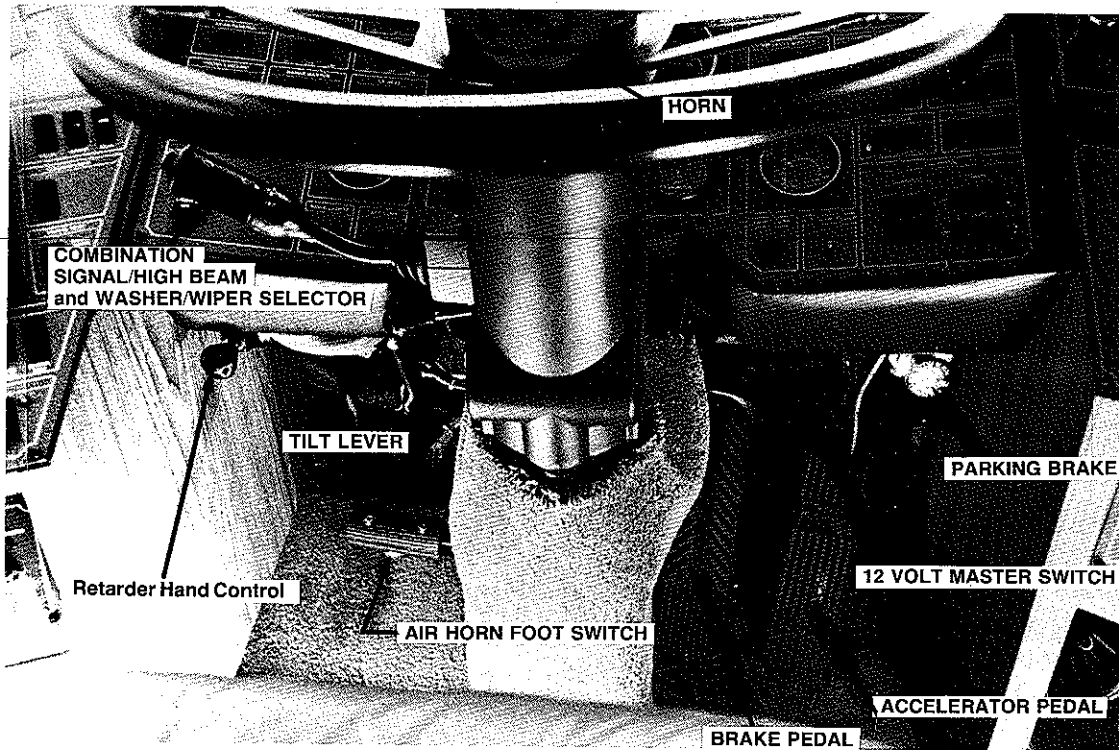


Figure 2-14. Steering Column Area

ring is located at the end of the lever and when pushed activates the windshield washer, but only when the wipers are activated. To activate the wiper twist lever from – O – position to I or II for continuous speeds or to INT for intermittent operation. When in INT position the delay of the wipers can be changed by the wiper delay knob on the lower dash panel. Twist lever back to – O – position to turn wipers off.

TILT LEVER — Pull lever up to release lock mechanism. While holding lever up, adjust the steering wheel to a comfortable position and release lever. Move the steering wheel slightly to make sure the column locks into position.

Caution

Always make sure that lever is in the fully locked position in whichever dependent setting is used. Do not change the wheel tilt setting while the coach is in motion.

TELESCOPING STEERING WHEEL — to unlock telescoping wheel twist center section of steering wheel counter-clockwise and adjust wheel to comfortable position. While holding steering wheel at desired position with one hand lock it into position by turning the center section of wheel clockwise.

PARKING BRAKE — The **Parking Brake** control is located under the lower dash, to the right of the steering column. Note that the parking brake cannot be released unless the system air pressure is at least 65 psi.

12 VOLT MASTER SWITCH — This switch is hidden under the lower dash just to the right of the steering column. Use this switch to shut off 12 volt battery power to all circuits except digital clocks, radio memory, monitoring panel functions, refrigerator control system, and burglar alarm.

ENGINE SHUTOFF CONTROL — (Only on California model) This control is located under the lower dash just to the left of the steering column. In the event that turning the ignition switch to **OFF** does not shut down the engine, pull this control (**PULL TO STOP**) fully outward. This operates a positive mechanical linkage to shut off fuel to the engine.

Floor Controls

AIR HORN FOOT Switch — Operates **highway** horns. Close to steering column.

ACCELERATOR PEDAL — Controls engine fuel flow to select power output. See Diesel Engine/Transmission Operation later in this section for detailed description.



BRAKE PEDAL — The coach is equipped with a dual air brake system which includes independent systems for the front and rear service brakes. A separate reservoir and panel-mounted pressure gauge is provided for each service brake system. (Air Pressure Front and Rear).

Radar Detector

A high-sensitivity superheterodyne microwave radar detector is installed as standard equipment on your coach. This unit, is designed to activate when transmissions are received from radar-type speed detection equipment. The radar master switch (on the lower dash panel) is used to supply power to the radar detector.

Note

Because some states have ruled radar detection equipment illegal, it is the responsibility of the driver or owner to obey the appropriate laws. (There are quick-disconnect features provided which allow for easy removal of the unit.)

CONTROLS AND INDICATORS — See Radar Detector Owner's Manual.

Seat Controls

Electrically and air-operated six-way seat adjustments are built into the pilot's and co-pilot's seats. A typical control panel is shown in figure 2-15.

Three electric **SEAT CONTROLS** are used to control seat bench tilt, up-down and front-back seat movement, and seat back tilt. The **SIDE SLIDE** switch operates an air cylinder which locks the position of the slide mechanism beneath the seat. Press switch to disengage the seat slide lock, adjust side-to-side position, then release switch to re-engage lock mechanism. This switch must be kept **LOCKED** to secure the seat during travel.

These seats may be rotated by releasing the lever underneath the seat base on the right side.

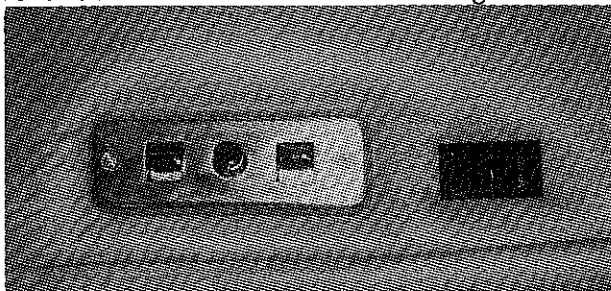


Figure 2-15. Seat Controls

Closed Circuit TV Monitor System

System Components

Besides the TV receiver on the lower dash, the CCTV Monitor receiver system also includes:

- CCTV camera, located in the rear of the coach, figure 2-16.
- Picture brightness, contrast and ON/OFF switch on lower dash.

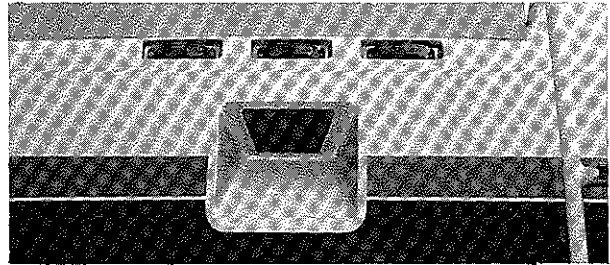


Figure 2-16. CCTV Camera Port

CCTV Operation

The rear-facing CCTV camera transmits images directly to the monitor via coach cabling.

Note that the system requires a brief warmup period before achieving full resolution. CCTV camera controls are preset and the standard lens supplied with the unit is designed to focus from about two feet to infinity.

TV Antenna and Rotator System

The control components of the antenna and rotator are a hand-held switch-operated rotator, radome-type TV roof antenna, switcher for the antenna or cable inputs and a switch for raising and lowering the antenna.

The **A-B** switch, switches antenna **A** or cable **B** input via connections in shoreline compartment at the rear of the coach to the TV receptacles via the VCR (if present).

The antenna rotator controls the position of the TV antenna within the radome. The three-position momentary switch (center **OFF**) provides right/left antenna rotation.

The radome includes an amplifier and rotator mechanism. The remote power supply operates from 12 volts dc. Low-loss coaxial cable and three-wire rotator control cable interconnect the antenna and power supply.

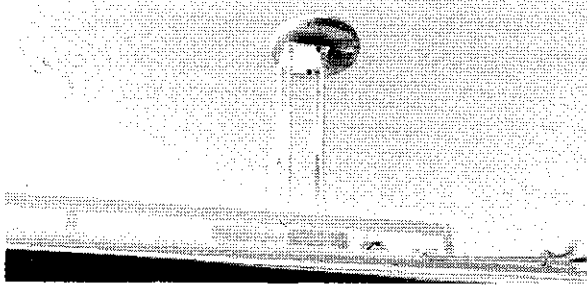


Figure 2-17. Extendable TV Antenna Radome

Note that the system is protected by a fuse in the overhead load center. In the event that the TV set exhibits problems relating to low antenna input (**ghosts, etc.**) check this fuse before servicing the TV set.



Figure 2-18. Antenna Control Location.

Antenna Operation

With the TV on and a station tuned in, rotate the antenna by pressing the rocker switch located on the control unit. Press the right side of the switch to turn the antenna clockwise; press the left side to turn the antenna counter-clockwise. Although the actual antenna movement is not visible, the indicator arrow on the control unit lights and shows the direction of movement. When the antenna has made one full turn (360 degrees), the End of Rotation light comes on. Observe the picture while rotating the antenna, first in one direction, then the other, to obtain best picture quality.

The switches for raising or lowering the antenna are located in the Pilot's Area Overhead Dash and Radio Panel, figure 2-12, item 18.

CB Transceiver Unit

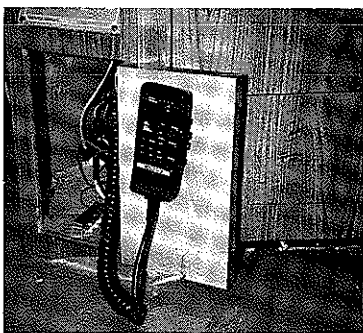


Figure 2-19. CB Transceiver Unit.

The CB transceiver has all the functions in the mike, while the electronic parts are in the **black box** module mounted in the dash area.

Controls and Indicators — See CB Owners Manual.

Diesel Engine/Transmission Operation

Proper operation and maintenance are key factors in determining the useful life and operating economy of a diesel engine. Follow these directions for trouble-free, economical operation.

To Start Engine

Detroit Diesel Engines will start at temperatures above 10 degrees F (– 12 degrees C) without using a starting aid. However, for colder temperatures it may be necessary to activate the engine block heater (120 volt ac-operated) to heat the crankcase oil. The **ENGINE BLOCK HEATER** is controlled by the battery heater breaker. Remember to set the breaker **OFF** when the heater is no longer needed.

1. Place transmission in **NEUTRAL**.
2. Turn ignition switch to **START**. Engine should start within 5 seconds. If engine fails to start within 30 seconds, release the starter switch and wait 60 seconds to allow the starter motor to cool before trying again.
3. As soon as the engine starts, reduce engine speed to low idle. After normal oil pressure is indicated, **HIGH IDLE** may be used to build up air pressure more rapidly.
4. Do not apply a load to the engine or increase engine speed until oil pressure gauge indicates normal.
5. Operate the engine at low load until all systems reach operating temperatures. Check all gauges during warmup period.

Remote Engine Starting

Because it may sometimes be necessary to start the diesel engine remotely, a separate key switch is located on the right side of the engine compartment. This ignition switch has no accessory position; only **OFF-ON** and **START** positions can be used. Be sure the hinged switch cover is snapped back in place after key withdrawal to prevent moisture damage. Toggle switch must be down (**REAR**) to start from engine compartment.



To Stop Engine

Caution

Before stopping the engine, operate at low idle for a minute or so. This will allow hot areas in the engine to cool gradually and extend engine life.

With the vehicle stopped, apply the parking brake and place the transmission shift lever in **NEUTRAL**. Turn the ignition switch to the **OFF** position. This shuts off the fuel supply to the engine.

Using the Allison Transmission Brake/Retarder

Your Wanderlodge® is equipped with a transmission brake/retarder for your safety and driving convenience.

The retarder system is energized by an **OFF/ON** switch on the shifter panel (see figure 2-5).

There are two methods of activating the system (putting it to work):

1. Depressing the brake treadle.
2. Downward movement of Retarder Hand control located at the gear selector console, (figure 2-12).

Either of the above actions will result in transmission retarder braking action and illuminate the blue indicator light at the dash **OFF/ON** switch.

Retarder braking effort is proportional to hand control or brake treadle movement.

The cruise control will automatically disengage when the retarder is activated. If after braking, you would like to pick up your original cruising speed, press the **RESUME-ACELL** switch to the **RESUME** position for two seconds.

When operating the retarder observe transmission retarder and engine temperature at all times. If transmission retarder temperature exceeds 330°F reduce vehicle speed and manually select a lower gear.

On extremely long down grades, water (coolant) temperature could exceed recommended limit (220°F.). Under these circumstances, reduce vehicle road speed with service brakes and downshift to increase engine RPM.

The function of the retarder is to provide auxiliary braking in all conditions by combining both hydraulic and clutch pack retardation capabilities. The retarder is installed on the rear of the transmission in place of the output housing. In most applications the output retarder is applied in conjunction with the service brakes. Selecting a lower hold range position when using this type retarder is recommended for maximum effect.

Cautions

Apply and operate the retarder with engine at closed throttle only.

Do Not use the retarder when road surfaces are slippery. Do not apply retarder control or de-energize the system at the master control switch.

Observe transmission and engine temperature limits at all times. Select the lowest possible transmission range to increase the cooling system capacity and total retardation available.

In the event of overheating, decrease vehicle speed to reduce retardation power requirements.

Observe the retarder "ALERT LIGHT" to ensure that the vehicle control system is functioning properly.

Trailer Hitch

Hitch capacity is 10,000 pounds tow and 1,000 pounds tongue weight.

Note

Trailer hitch ball capacity is 6,000 pounds. Nut must be torqued to 200 ft.-lb.

Towing

Two towing eyes are provided behind the upper part of the generator door. Remove the two door side covers (panels) for access.

Caution

Do not tow a vehicle equipped with Allison automatic transmission unless the drive shaft has been removed, or the rear wheels raised from the ground. Do not attempt to tow unit by front axle or cross-member. Damage to wiring and/or air lines can result because of pro-



ximity of these items to front cross-member/ Do not tow with generator tray extended. Do not tow by the bumpers. Air pressure is required to release brakes.

Transmission Operation

8V92 Engine

The Detroit Diesel Allison transmission (8V92 engine) provides four forward ranges and one in reverse. Speed selection is provided through the transmission shift panel.

The selector must be in **N** (neutral) position when the engine is started. If the engine can start in any other position, the neutral start switch deficiency should be corrected as soon as possible. Use **D** position for all normal driving conditions so that the coach begins moving in first gear and upshifts automatically into 2nd, 3rd, and 4th gears. As the coach slows, the transmission automatically downshifts to the correct gear. Use a low gear **2** or **3** when road, load or traffic conditions make it desirable to restrict automatic shifting to a lower range; or use the Allison transmission retarder, as previously described. Use **1** or **2** when pulling through mud and snow or driving up steep grades (See table 8-3 for gradeability). The vehicle should be completely stopped before shifting into reverse.

Driving Tips

Accelerator Control

Foot pressure on the accelerator pedal influences the automatic upshifting or downshifting within each driving range. When the pedal is fully depressed against the floor pedal stop, the transmission automatically upshifts near the recommended governed speed of the engine. A partially-depressed position of the pedal causes the upshifts to occur sooner at a lower engine speed. This throttle-modulation method provides the accurate shift spacing and control necessary for maximum performance.

Downshift Control

The transmission can be downshifted or upshifted, even at full throttle, and, although there is no speed limitation on upshifting, there is a limitation on downshifting and reverse. Good driving practices indicate that downshifting should be avoided when the vehicle is over the maximum speed attainable in the next lower gear. Allison transmissions incorporate downshift inhibitors to

prevent harmful shifts when the vehicle is traveling too fast for the next lower gear. If downshifts are attempted at excessive speeds, the inhibitors prevent the selected downshift until the vehicle reaches an acceptable speed.

Transmission Oil Temperature

Extended operation at low vehicle speeds, with the engine at full throttle, can cause excessively high temperature in the transmission. These temperatures may tend to overheat the engine cooling system as well as cause possible damage to the transmission. If excessive temperature is indicated by the engine coolant temperature gauge, stop the vehicle and determine the cause. If the cooling system appears to be functioning properly, the transmission is probably overheated. Shift to **N** and accelerate the engine to 1,200 to 1,500 RPM. This should reduce the oil sump temperature to operating level within a short time. If high temperatures persist, stop the engine and have the overheating condition investigated by service personnel.

Caution

Do not operate the engine for more than 30 seconds at full throttle with the transmission in gear and the unit stationary. Prolonged operation of this type will cause the transmission oil temperature to become excessively high and may result in severe overheat damage to transmission components.

Do not leave transmission in drive for more than 5 minutes while stationary because of heat damage.

If the transmission overheats during normal operation, check transmission oil level.

General Information — Detroit Diesel Engines

Caution

Cooling fan is driven by hydraulic pressure. Flow is controlled electrically by a thermostat which senses engine coolant temperature. Any time the engine is running the fan may engage and start without warning. Also, on hydraulically driven fans, the fan may start and run for several seconds when the engine is shut off or if electrical power is interrupted. Shut off engine and wait for fan to stop before servicing.



When inspecting or servicing engine or other components in engine compartment the engine control switch must be placed in OFF or REAR position to prevent starting of the engine from the driver's area.

Check crankcase oil level before starting and when refueling. Always check oil level with engine stopped. The dipstick has 2 markings, **FULL** and **LOW**, and the distance between them represents 4 quarts (3.8 litre) for the 6V92 and 6 quarts (5.75 litre) for the 8V92 engine. Refer to table 8-2 for recommended oil.

- Check (with engine stopped) drive belts for cracks, breaks and frayed edges. While checking belts, look for oil, water or fuel leaks.
- Check (with engine stopped) for water in the fuel. Drain a cupful of fuel from the bottom of the tank to remove water or sediment. Fill fuel tanks after completing a run. Partially-filled tanks will collect moisture if the coach is allowed to sit for an appreciable length of time. Use number 2-D diesel fuel (with a minimum Cetane number of 40). Keep fuel clean. Inspect Racor filter bowl periodically and observe **WATER-IN-FUEL** indications on the dash gauge. Remove and clean filter bowl as necessary.

Number 1-D diesel fuel may be used in cold temperatures or when operating in altitudes above 5,000 feet.

- Check coolant level (with engine cool and off). Fill to the proper level with water and permanent-type anti-freeze. Use clean water that is low in scale-forming minerals, not softened water. Leave space for expansion. (Note that Nalcool 2000 is compatible only with ethylene-glycol base coolants.)

Racor Fuel Filter

A Racor fuel filter is incorporated in the diesel fuel supply line and processes the fuel supply for maximum purity.

The fuel filter also includes a built-in preheater, which operates from the 12-volt battery supply and a water sensor, which lights a dash indicator when the water level in the filter bowl is high enough to require drainage.

Fuel Line Heater

A thermostatically controlled fuel line heater is located between the tank and the engine.

Leveling Jacks Controls

The motorhome is optionally equipped with four heavy-duty leveling jacks; one at each corner of the chassis. Because the rear leveling jacks must extend or retract a greater distance than the front jacks, their operating cycle takes appreciably longer.

Overall system operation is controlled and monitored at the leveling jack controls, while each jack is independently operated by one of four respective **EXTEND-RETRACT** levers located on the floor to the left of the driver, figure 2-20. A dash indicator and a buzzer (when ignition switch is on) provide visual and audible signals to show that the associated leveling jacks are not stowed to a safe travel position.

Note

The optional automatic leveling jack system is covered in Section XI.

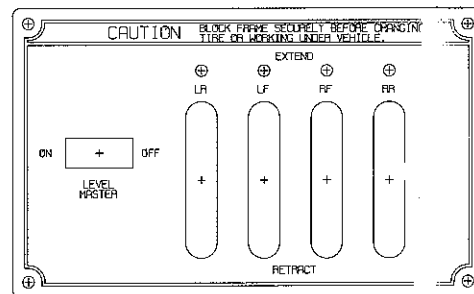


Figure 2-20. Leveling Jack Controls

Warning

Hydraulic leveling jacks are not to be used as service jacks. Under no circumstances should anyone work under or around the coach unless the coach is securely supported at the frame rails.

Use the following procedures to operate the leveling jacks:

Note

12 Volt master switch must be on to operate leveling jacks.

- ① Set **LEVEL MASTER** switch (see figure 2-20) to **ON** position. Note that the **LEVEL WARNING** indicator will light. **LEVEL SYSTEM** indicators **LF**, **RF**, **LR** and **RR** are lit only when the respective corner of the coach is low.



② De-pressurize the tag axle by setting **TAG DUMP** switch to **DUMP**; de-pressurize front and rear axle by setting associated **SUSP. DUMP** switch to **DUMP**.

Caution

Always dump tag axle air pressure before the front and rear suspension and pressurize it after the front and rear suspension to avoid damage to tag axle suspension.

③ Lower the front leveling jacks by setting the LF and RF floor controls to **EXTEND** position. As soon as the jacks contact the ground, as indicated by the characteristic landing gear **thump**, release the respective control lever to prevent further jack movement.

④ Operate the **EXTEND-RETRACT** levers for the rear leveling jacks (**LR** and **RR**) as necessary to level the rear end of the coach. The blue **LR** and **RR LEVEL SYSTEM** indicators will extinguish when the respective corners are leveled.

⑤ Operate the **EXTEND-RETRACT** levers for the front leveling jacks (**LF** and **RR**) as necessary to level the front of the coach.

⑥ To restow the leveling jacks prior to moving the coach, start engine to initiate air compressor operation, repressurize the air suspension system for the front, rear and tag axle by setting the as-

sociated **DUMP** switches to the **FILL** (up) position, in the following sequence.

First pressurize front and rear axle suspensions by setting the associated **DUMP** switch to **FILL** position; then pressurize tag axle by setting the **TAG DUMP** switch to **FILL** position. Check that **AIR PRESSURE REAR** and **AIR PRESSURE FRONT** gauges each read between 100 psi and 120 psi; check that **TAG AXLE PRESSURE** gauge reads 50 psi.

⑦ When the air suspension is once again stabilized, pull all four leveling jacks controls back to the **RETRACT** (locked) position. The red warning indicator will extinguish when the jacks are in the stowed position.

Note

If the jacks are not withdrawn before driving away, the buzzer will sound.

Caution

Do not drive the coach unless the tag axle is correctly pressurized to assure even weight distribution. There must be pressure in Tag Axle air bags to prevent flat spotting of Tag Axle tires during brake application.

⑧ Set **LEVEL MASTER** switch to **OFF** position. This completes one full operating cycle for the leveling jacks system.





Section III

Living Area Facilities

This section provides information on operation of the appliances and systems which contribute to the comfortable living conditions within your motorhome.

Sofa

Your **Wanderlodge®** sofa converts into a double bed sleeper. The sofa converts in much the same way as a sofa bed in your home. Pull up and out on the seat until the sofa is fully extended and the back of the sofa is lying in the flat position. To fold the sofa back up into the sitting position pull up on the sofa seat and at the same time push in on the sofa seat until the sofa is locked into the sitting position.

Dinette Area

The dinette area, figure 3-1 includes the area thermostat, Gas/Smoke Alarm, Systems Monitor Panel and four place bench type dinette which converts into a 3/4 size bed.

To convert dinette into bed you must first lift up and remove the back cushions from both sides of table, lay these cushions to the side. Next unsnap and slide the bottom cushions toward the back rests. While holding table up reach underneath the table to unlock and fold leg under table. Raise end of table up to remove table top from wall brackets and lay table top into place on dinette base. Place back cushions in open space on lowered table top and dinette base. To convert back to dinette just reverse order of steps above.

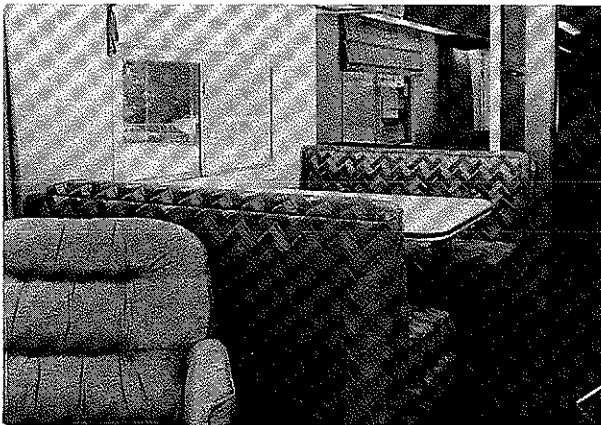


Figure 3-1. Dinette Area

Galley Facilities

The galley, figure 3-2, includes a double sink, food center, refrigerator/freezer, two burner gas cooktops and micro/convection oven. The refrigerator operates from the LP gas supply, from the 120 volts ac supply, or from 12 volt alternator output while in transit. The cooktop also operates from the LP gas supply. Operating procedures for these appliances, given in the following paragraphs assume that the main LPG valve is on. An LPG leak detector, located under the rear dinette seat continuously monitors the area for LPG leakage, shutting off the LPG supply and sounding an alarm if leaks are detected.

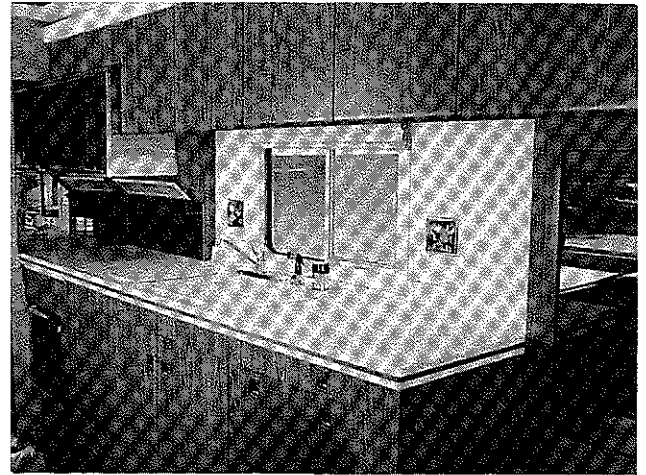


Figure 3-2. Galley Facilities

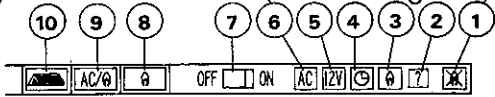
Refrigerator

Understanding just how the refrigeration process operates will help to explain one of the important reasons why it is necessary to level a parked motorhome. The gas-fired (or electrically-heated) boiler converts the ammonia-water solution to distilled ammonia vapor, which is carried to the finned condenser, where it liquifies. The liquid flows to the evaporator, where it creates a cooling effect by evaporating into a circulating flow of hydrogen gas. If the evaporator coil is not level, the liquid accumulates, forming pockets which do not readily evaporate and impair or block gas circulation, inhibiting the cooling process.

When the coach is parked, it must be leveled to assure comfortable living accommodations. The refrigerator will then also perform well. Place a bubble level (furnished with unit) on the freezer shelf. When the vehicle is moving, the continuous rolling and pitching movement will not affect the refrigerator as long as the movement passes either



side of level; but when the coach is parked, the refrigerator must be level (within 6 degrees).




- Fig. 4.
1. Orange, continuous light indicating gas ignition failure, = no gas.
 2. Push-button for indication of mode. Mode indication is only made while the button is pressed.
 3. Flame symbol, yellow, indicating gas mode.
 4. Clock symbol, yellow, indicating delay mode.
 5. Text 12V, yellow, indicating 12 V DC mode.
 6. Text AC, yellow, indicating main voltage mode.
 7. Main switch.
 8. Push-button, green, giving gas operation only.
 9. Push-button, green, giving energy selection between AC and gas. No 12 V power selection possible.
 10. Push-button, green, giving full AES operation.

Figure 3-3. Refrigerator Operating Controls

Operation:

Before starting the refrigerator, check the gas valve in the piping. Do not forget the valve on the rear of the refrigerator.

1. To start the refrigerator set the switch 7 to position **On**. Lamp  shall now be green.
2. Turn the thermostat knob inside the cabinet to suitable setting, e.g. start with normal position.
3. To shut off the refrigerator set the switch 7 to position **Off**.

General Information on the Operation of the Refrigerator


This refrigerator is equipped with an Automatic Energy Selector (AES) system. The control system selects the most suitable available energy source. The selection will be made with highest priority to 120 V AC, second priority is to 12 V DC from the alternator, and lowest priority has gas operation. No manual operation is necessary for change of energy source unless desired. The automatic energy control will, when switched on, start up in AES mode. The AES mode follows the above mentioned priority list and will select the best energy source available.

Note

The refrigerator also has a built in Battery Protection System.

With this feature, battery voltage will not be allowed to energize the 12V. heater coil until there is 13.6 volt at the + terminal of the refrigerator. This means that not only must the ignition switch be on but the alternator must be providing charging voltage to the batteries. This was designed to prevent burnout of a marginally rated alternator with

consequent battery discharge and premature travel termination (highway breakdown). If, after starting, there is so much of a coach load that the alternator can't put out 13.6V. then the refrigerator will not go into the 12V. mode but run on L.P.G. only.

If the coach was previously plugged into shore power and had the L.P.G. shut off (either at the refrigerator or main valve) then the unit would not operate while in transit. There must be LPG available for refrigeration assurance. Lamp  will come on if there is no gas light up. Whenever this light comes on there is no refrigeration as LPG is the lowest priority.

When the alternator provides voltage in excess of 13.6, the unit will operate satisfactorily with the 12V. heater. If, however, because of some additional load during travel, the voltage should drop below 11.6, then unit will switch to LPG. See Refrigerator Owner's Manual for complete operating and care instructions.

Gas Cooktop

The gas supply for the cooktop burners is provided from the LPG tank. Make sure that the main valve (on tank) is turned **On** before use. The cooktop is equipped with an electric igniter instead of pilot light.

Lighting Cooktop Burner

1. Depress knob and turn counter clockwise to HI position. **Note** — A faint popping noise will be heard during step 1.
2. After burner has lit, turn knob a few degrees clockwise until popping stops.
3. Turn knob to desired setting.

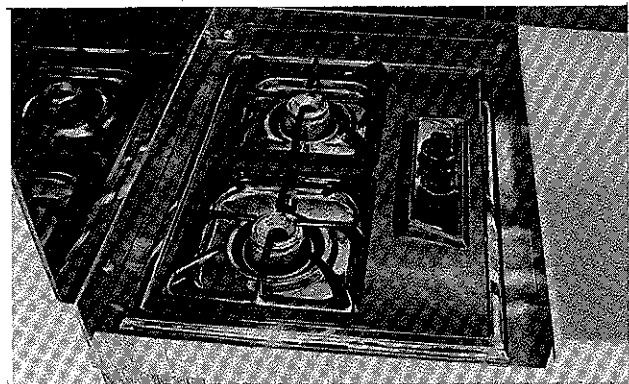


Figure 3-4. Gas Cooktop



Microwave/Convection Oven

The microwave/convection oven provides programmed microwave cooking, convection operation for crisp, even browning, or a combination of both.

Caution Notes

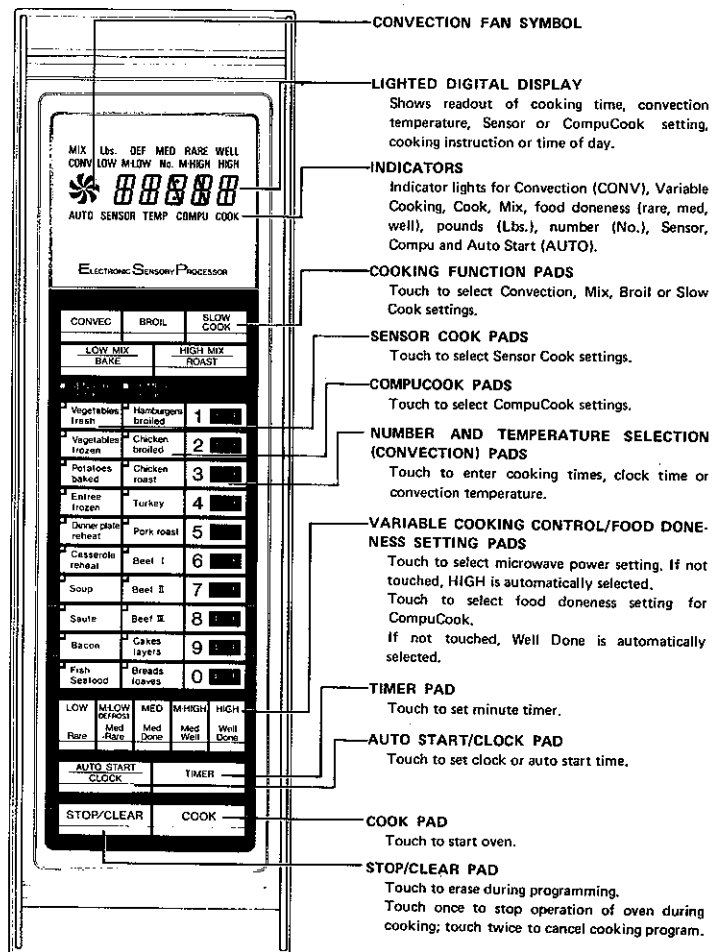
1. Unlike microwave-only ovens, all microwave/convection ovens have a tendency to become hot on the cabinet and oven door, as do conventional range ovens and convection-only ovens. Be careful when touching parts other than the handle or control panel during or immediately following cooking that uses convection heat.
2. Do not cook eggs in the shell. Steam builds up inside the shell and it may explode from pressure. Shelled hard-cooked eggs should be sliced or cut up before reheating in the microwave oven. You may hard-poach eggs for salads and casseroles.
3. Pop popcorn only in special microwave poppers, following manufacturer's directions. Do not use oil unless specified by the manufac-

turer, or heat longer than recommended. Never pop popcorn in paper bags or glass utensils.

4. Do not heat oil or fat for deep-frying. the temperature of the oil cannot be controlled and it may overheat.
5. Do not attempt to can in the microwave oven as it requires prolonged high temperatures.
6. Do not operate the oven empty.
7. Remove wire twist-ties from bags before placing in oven.

This oven uses a microprocessor, the electronic brain that provides a wide variety of cooking programs which could not be achieved by conventional control methods. The operation of the oven is controlled by touching the appropriate pads arranged on the surface of the control panel, figure 3-5. The lighted digital readout will display the cooking time, convection temperature, sensor or compu-cook setting, or time of day, and indicators show the variable cooking setting or cooking function you have programmed. See owners manual for operating instructions.

Figure 3-5. Microwave/Convection Oven Control Panel





CORIAN Counter Tops

Even stubborn stains — such as grape or beet juices — wipe off with a damp cloth and household cleanser. Because CORIAN is solid all the way through, it cannot be harmed by abrasive cleansers and normal household cleaners.

CORIAN is strong and tough, but slicing on it with knives can cause scratches. Use a cutting board.

While CORIAN does provide an extra measure of protection (better than ordinary countertops), it is **not** recommended as a hot pad. Do not place hot pots and pans directly on your CORIAN countertop.

Since it's a solid material with color and pattern all the way through, unusual damage such as cigarette burns, scratches, or other surface abuse can usually be removed using ordinary household cleansers or fine sandpaper. If the stain persists, or if the scratch is particularly deep, first use a medium sandpaper (120 or 240 grit) then fine sandpaper (320 or 400 grit) followed by circular motion buffing with a scotch Brite pad to match the gloss of adjacent surfaces. Household cleanser, steel wool or Du Pont No. 7 polishing compound can also be used if higher gloss levels are needed.

Caution

Certain chemicals found in the home — such as paint removers, paint brush cleaners, acid drain cleaners and certain brands of nail polish and polish removers — can harm CORIAN if left in contact even for short periods of time. These materials should be wiped away promptly and flushed with water. Depending on time of exposure, surface damage caused by these materials can sometimes extend too deeply for practical repairs.

Food Center

A built-in variable-speed motor-driven unit, figure 3-6, may be used with blending attachments for a large variety of food preparation tasks. The food center is designed for ac operation and is operable only when the generator is on; or when coach systems are connected to an external shoreline hookup.

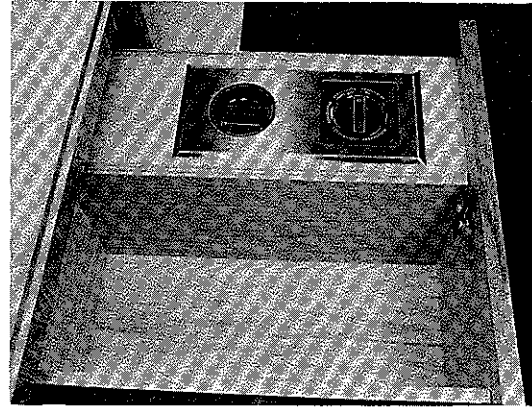


Figure 3-6. Food Center

Bathroom

Water Pump Switch

Two **Water Pump On-Off** switch/indicators are provided for separate control of water pump operation. One switch is located on the control panel in the galley area; the second is located in the bathroom. The pump may be operated **On** or **Off** from either location. The associated indicator is lit whenever power is being supplied to the pump. Setting either switch **On** pressurizes the water system, with the pump operating on demand to maintain constant pressure. Continuous or erratic pump operation can indicate an empty water tank, system leakage, or air lock in hot or cold water lines. (Air locks are normally caused by movement of water in the tanks during pump operation.) Since tank water level and water pressure can vary with road movement, leave water pump switch **Off** while the coach is moving. The water pump and air accumulator are located in the bed base cabinet.

Tub Unit

The tub unit includes a pressure-balancing single mixing valve, tub water spout with shower wand diverter button, shower head and drain lever.

Toilet

The toilet, figure 3-7, operates from the fresh water supply, flushing wastes directly into the sewage holding tank. The double-flush foot pedal located at the bottom of the bowl controls the amount of water delivered into the bowl and opens the sliding valve to the tank. After use, depress bowl drain pedal until water swirls, draining wastes into tank, then release pedal. A water-saver feature, consisting of a manually-operated spray hose, is located



inside cabinet at side of bowl. To raise the level of water in the bowl, press on the small foot pedal. A water shut off valve is located in supply line to toilet and used to stop water flow to toilet.

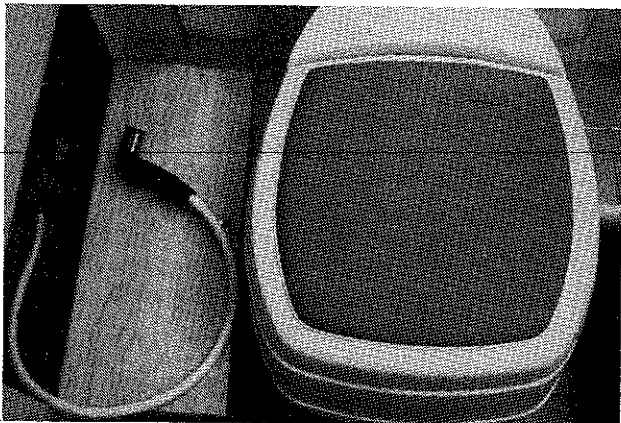


Figure 3-7. Toilet

Vent and Exhaust Fans

Fans are located in the galley and bathroom. These fans have controls built into the housing. The lid must be raised to desired position before fan is turned on. The fans can be used as exhaust fans by pressing the **OUT** side of rocker switch or as a vent fan by pressing the **IN** side of rocker switch.

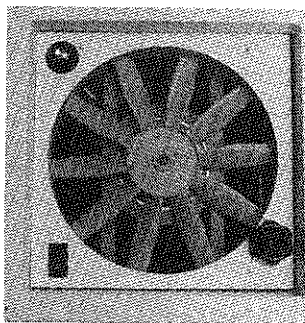


Figure 3-8. Vent and Exhaust Fan

Heating Systems

Three types of comfort heating systems are used in your motorhome: gas/hot air heat; electric heat; and engine hot water circulating heaters.

Two gas/hot air furnaces are used in the coach. Each unit has a separate zone thermostat, figure 3-9.

One furnace is located in the living room, another is in the bathroom area. The bathroom furnace is also used to supply hot air to the bedroom via a separate duct.

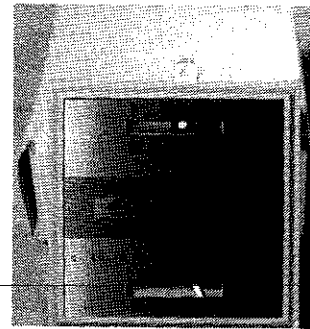


Figure 3-9. Heater Thermostat

Separate heating can also be provided by circulating hot-water heaters (chassis heaters) when the engine is operating and the **Winter-Summer Heat Selector** switch (located on the pilot's area overhead dash) is in **Winter** position. These heaters share the area thermostat with the LPG furnace.

Four electric convection heaters (120 volt) are located in the bedroom, bathroom, galley area, and living area. **On-Off** thermostat switches are located on each heater. Three freeze-protection heaters (120 volt) are used to protect plumbing and water supply tanks.

Gas/Hot Air Furnace

To operate the furnace, proceed as follows:

1. Turn manual gas valve (at furnace front) to **Off** position.
2. Set thermostat above room temperature. A 10 seconds delay will occur before the blower starts.
3. Allow blower to run for five (5) minutes for combustion chamber purge cycle.
4. After five (5) minutes, set thermostat to the **OFF** position.
5. Turn manual gas valve to **ON**.
6. Set thermostat on desired temperature.
7. Allow 24 seconds for ignition to occur.
8. If burner does not light, set thermostat on **OFF** and repeat steps 1 through 7.
9. If after three (3) attempts with no ignition, go to shutdown and contact a qualified service agency. Do not continue to cycle furnace through thermostat in an attempt to get ignition.

When coach temperature drops below the thermostat setting, the internal relay contacts close to operate the blower. The air flow created by the



blower closes an air-actuated switch that, in turn, energizes the main burner gas line solenoid valve which then lights from the electronic ignition.

Caution

Do not store items in or near the burner compartment.

When the coach temperature exceeds the thermostat setting, the relay contacts open. This shuts off the burner gas supply but the blower continues to operate until residual heat within the furnace is dissipated, when a thermostatically-controlled relay turns off the blower. Air for the sealed combustion chamber is pulled in from outside the coach, routed around the heat exchanger, then exhausted through the outside vent. Recirculated fan-forced air blowing across the heat exchanger is used to heat the coach interior.

Switch at bottom of thermostat must be **Off** (to left) if operation of furnace at lower temperatures is not desired.

Hot-Water Heating Systems

Five sources of hot water heating are provided which depend on heat generated from engine operation. One heater (90,000 BTU), which serves the pilot's and co-pilot's area, is controlled by the **Front Heat** switch on the dash; and three chassis heaters, (50,000 BTU) under the dinette seat, livingroom sofa and in the bedroom rear storage area, are controlled by the thermostat in that area. The bathroom chassis heater (15,000 BTU) is controlled by the bathroom thermostat.

The engine coolant is normally routed through the engine cooling system and the water heater, which also can be heated electrically, to provide the hot water supply for the coach. However, by operating the **Winter-Summer Heat Selector** switch, the engine coolant can also be diverted through the previously-mentioned area heaters, via a solenoid valve. The coolant level in the engine radiator should be checked after these valves are opened. Note that two pumps are used to circulate hot water through the coolant lines. One pump is controlled by the **Aux. Pump** switch (located on the pilot's overhead dash), the second pump is turned on automatically whenever the **Front Heat** switch is on.

Chassis heater blower motors (dinette seat, front sofa and bedroom rear storage area), are controlled by **On-Off Heat** switches adjacent to the

heater louvers as well as the area thermostats. **HI-LO** blower speed switches are also provided. The front heater is equipped with three squirrel-cage dual-speed blowers, operated from separate dash controls. One blower provides defroster air; one provides air to the pilot's side; the third provides air to the co-pilot's side. Use **Defrost Hi-Off-Low** switch for setting the defroster blower speed; use the left and right **Hi-Off-Low Heat** switches to control air flow to the pilot's and co-pilot's sides, respectively. To supply heat, the dash **Front Heat** switch must be **On**.

Note

If additional defrosting action is needed, turn auto air conditioning temperature control to the warmest position and turn auto air conditioning fans to highspeed. This will circulate additional hot air about the windshield area.

Engine heat is picked up by the engine coolant which is pumped through the heaters inside the coach and back into the engine. A typical heater consists of a heat exchanger, or core, and a fan which moves the air across the core, transferring heat from the engine coolant into the room.

Heating System Operation

Satisfactory performance of the hot-water circulating type of heating system depends on the following conditions:

1. Engine Coolant Temperature — Coolant temperatures vary between 180 and 195 degrees F, during normal engine operation.
2. Coolant Flow — Coolant flow varies with the engine speed. Setting the **Aux. Pump** switch (located on the pilot's overhead dash) to **On** turns on the auxiliary pump (located in the engine compartment) to increase the coolant flow through the system. This feature may also be used to reduce engine overheating during normal driving conditions.
3. Proper Fan Operation — All fan motors are two-speed and can easily be checked for proper operation by listening to the motor speed change as the switch is operated.

More heat will be generated by the engine when it is also used to move the coach. Be sure that the engine radiator is full and that all coolant flow valves are open. Warm engine to operating tem-



perature and set heating system switches as follows:

- 1) **Winter-Summer Heat Selector** to **Winter** position;
- 2) **Aux. Pump** to **On**;
- 3) **Front Heat** switch to **On**;
- 4) Left and right **Heat** blower switches to **Hi** or **Low**;
- 5) Thermostats to desired temperature.

Electric Heaters

Electric forced-air heaters (120 volts) are located in the bedroom, bath, galley and living room areas. Each heater is controlled by a combination **On-Off** switch/thermostat. Heater operating voltage is provided from the same switches which control the air conditioners. Air conditioner **On-Off** toggle switches, on the TV control panel above the pilot, must be in **On** position and individual **A/C** switches **Off**.

Freeze Protection Heaters and Heat Tape

Freeze protection heaters (120 volts) are thermostatically-operated to turn on and protect the water supply tanks and associated plumbing in the event that temperatures drop below 40°. Two heaters are used; under the kitchen sink; and within the bed base cabinet.

Thermostatically controlled heat tape (120 volts) are run on the copper water tubing and then wrapped with insulation. Heat tapes start to heat at 36°F and stop at 43°F.

Note

This freeze protection will greatly decrease the chances of frozen water lines provided the coach is plugged into outside power (one 50A. or two 30A. power cords) or the generator is run continuously during cold weather periods.

Hot Water Supply Heater

See Section V.

Air Conditioners

Three 13,500 BTU roof air conditioners located in the livingroom and bedroom. The 12 volt master **ON/OFF** switches are located on the pilot's left overhead control panel. Fan and thermostat controls are located on the roof air conditioners. Each air conditioner is equipped with a 1,000 watt heat strip.

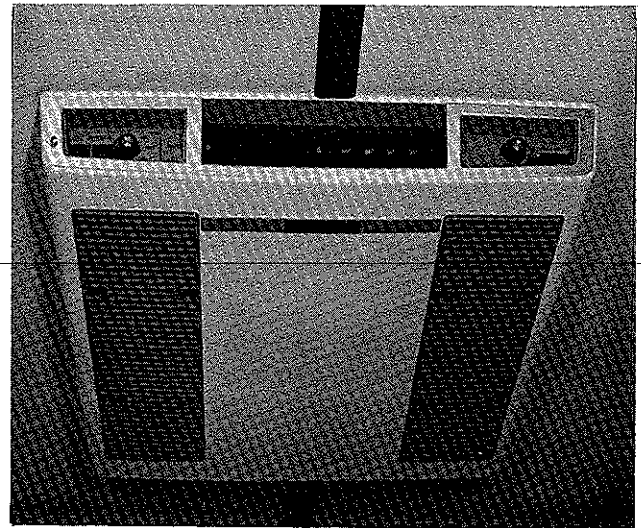


Figure 3-10. Roof Air Conditioner

Systems Monitoring and Control Panel

The systems monitoring and control panel, figure 3-11, is located on the rear dinette wall. This one panel provides a convenient means of displaying inside and outside temperature, time, level of potable water supply, holding tanks, and LPG supply, as well as other monitoring and alarm functions discussed in the following paragraphs.

Water Pump — The water pump switch is one of two switches that can be used to turn the water pump on or off. The **ON** indicator will be lit when power is being supplied to the pump.

Refrigerator Alarm — When the switch is on the refrigerator temperature is being monitored. Normally, the **ON** indicator is lit; if the refrigerator temperature increases to an unsafe level, the **WARM** indicator lights with an accompanying audible alarm.

Gas/Smoke Alarm — The gas/smoke alarm is a gas leak detector designed to sense dangerous concentrations of LP gas or carbon monoxide within the coach. There are four (4) sensors mounted at floor level (LP gas is heavier than air) for the three furnaces and the refrigerator. One sensor is located above the 120 volt ac distribution panel (Load center) to monitor carbon monoxide. Carbon monoxide, of course, is the most deadly of the products of combustion. It will provide an alert in the event of a short circuit at the load center.

The alarm has been factory-calibrated to an alarm point of 2,000 PPM propane for standard conditions (temperature, 20 degrees C +/- 2 de-

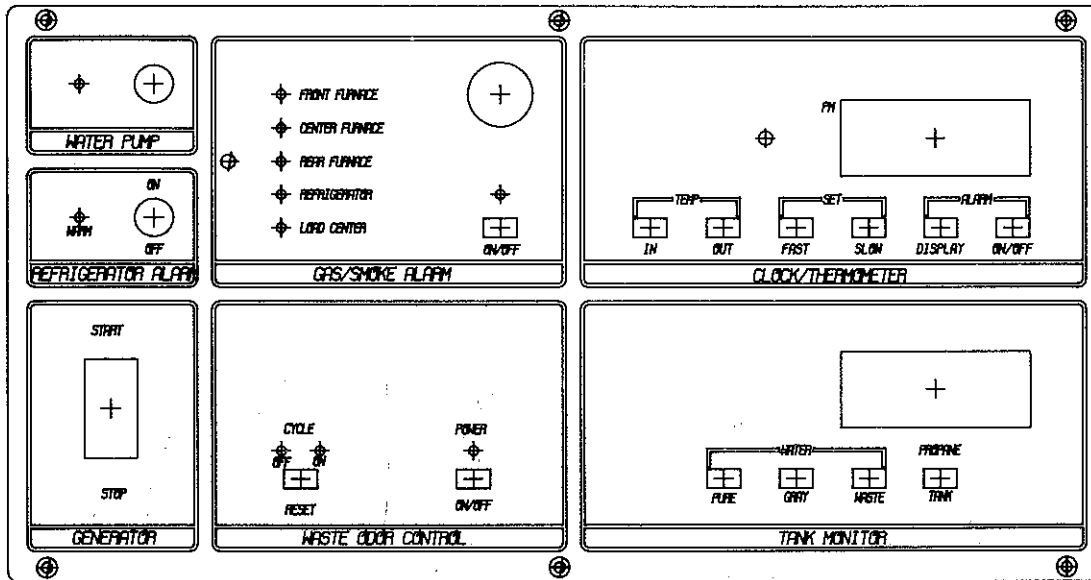


Figure 3-11. Systems Monitoring and Control Panel

degrees; relative humidity 65% +/- 5%. This provides for a minimum of false alarms consistent with providing reasonable safety.

To turn on the unit, set **On-Off** switch to **On** and observe that **Power On** indicator is lit. Excessive propane PPM conditions are indicated by the sounding of the audible alarm and lighting of an indicator associated with the danger area. The alarm, if left turned off for a period of time, has a warmup period of about one minute. During this time, the alarm may sound. This is a normal response and should stop once the unit is warm.

Clock/Thermometer — The clock/thermometer provides, on demand, a digital display of inside and outside temperature, digital time display, and an alarm function. Operate the panel controls as follows:

1. Monitor inside or outside temperature (°F) by pressing the **Temp In** or **Temp Out** buttons. There is an internal adjustment, at the rear of the unit, which may be used to calibrate the temperature readings. (Calibration of this unit is described in Section VIII.)
2. Set the clock by depressing the **Fast** or **Slow Set** button until the correct time is shown. **PM** is indicated by lighted dot in the upper left corner. The dot in the center of the display marks the seconds.
3. Set alarm as follows: depress **Alarm Display** button then depress the **Fast** or **Slow** button to set the alarm time. Dot in upper left corner will

light when alarm is set for **PM**. After setting the alarm, release **Alarm Display** button to return to the normal time mode. To activate the alarm feature, depress **Alarm On/Off** button to **On**; to shut off the alarm, depress **Alarm On/Off** button and release so it pops out to **Off**.

Note

When 12 V. power has been interrupted (batteries disconnected or Electronic Master switch turned off) clock display will flash "12:00". Reset clock to eliminate flashing. Alarm will also have to be reset.

Tank Monitor — The Tank Monitor panel provides an illuminated readout of the content level of the pure water, gray and waste water tanks, and the LPG tank level. When full, each of these tanks has the following capacity: pure water supply, 116 gallons (See Table 8-4); gray water holding tank, 100 gallons ; body waste tank, 100 gallons; and LPG tank, 43.5 gallons (148 lb.). Use the features of this panel as follows:

1. Monitor **Pure, Gray** or **Waste Tank** levels by depressing the respective button. The content level remaining in the tank is indicated by five sets of lit readings. The E lamp, at the left of the display, is lit all the time; if the next indicator is lit, the level is approximately 1/4 tank; if the center indicator is lit, tank level is between 1/2 and 3/4 full; if the 3/4 indicator is lit, tank level is between 3/4 and full; and if the F indicator is lit,



tank level is full. If only the E indicator is lit, the tank level is between empty and 1/4.

2. LPG tank level can be monitored in the same manner as the water tank level by depressing the **Propane Tank** button. Note that this display is pre-calibrated. However, if it is necessary to recalibrate the display, this can be done when the tank is full by setting a rear-panel adjustment. Note that the display will read **Full** when the LPG tank float reads 80% because the remaining 20% volume is needed for expansion.

Waste Odor Control Panel — This panel controls the cycling and electrolysis action of two pairs of stainless steel electrodes contained within the body waste holding tank. A 12-volt current is passed between each pair of electrodes for a 16-minute **On** period (green LED); and switched off for a 48-minute **Off** period (red LED). For each cycle, the current is reversed so that the electrolytic action does not excessively erode the steel electrodes.

As current flows through the waste liquid, it oxidizes the organics and eliminates associated odor. To increase odor control effectiveness, a tablespoonful or two of salt may be added through the toilet if desired.

The electrodes (probes) are replaceable.

Generator Switch — The generator **Start-Stop** switch provides the same features as the generator switch located above the driver. Press switch to **Start** position and hold until generator starts as shown by the switch indicator light. Press switch to **Stop** to shut-down the generator (light extinguished). Press switch to **Stop** (and hold for pre heat).

LP Gas Leakage Detector

The gas leakage detector, figure 3-12, is located beneath the rear dinette seat. In the event of an LP leak, the unit sounds an alarm and closes down the main LPG supply by activating the leak detector solenoid shutoff valve located in the gas line just after the low pressure regulator. If it is necessary to reset the solenoid (red band is visible inside clear plastic valve housing), open the outside refrigerator vent compartment door, remove plastic housing by gripping locking levers and lifting upward, push valve plunger down until it remains down, then replace the cover. To test alarm opera-

tion, press the test switch located on top of the detector unit. Alarm must sound for at least 15 seconds before the shutoff valve will be activated.

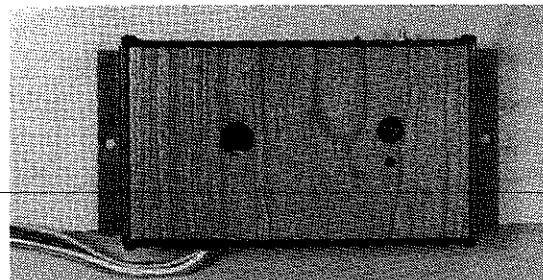


Figure 3-12. LP Gas Leakage Detector

Electronic Door Chime

The door chime is located in a removable compartment in the right hand overhead storage compartment, figure 3-13.

The door chime can be preset to play any one of 60 different tunes when the doorbell button is pressed. As shown, all controls for tune selection, volume, tone and tempo are easily accessible. Tunes may be selected as follows:

1. Refer to tune index, at bottom of chime, and note the code number for the desired tune. For example, "William Tell Overture" is identified by D8.
2. Press in the left-hand tune selector button and move it to position D.
3. Press in right-hand button and move it to position 8.
4. Press test button to play selected tune and adjust volume, tone and tempo as desired. Note that tunes identified with an asterisk (*) will play longer if the button remains depressed.

Caution

Do not use a lighted door button with this chime or chime may be inadvertently activated.

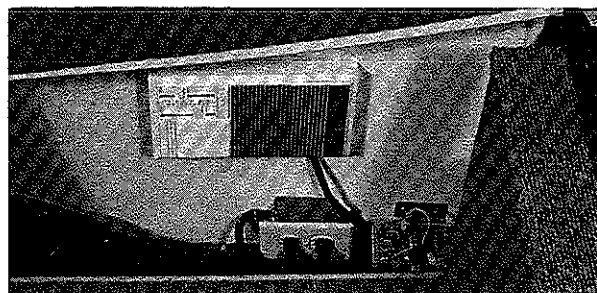


Figure 3-13. Electronic Door Chime



Portable Fan

The portable oscillating fan is shown in figure 3-14. The 12-volt hookup cable is coiled within the base section when the fan is not in use. This will supply air circulation within the coach when it is too cool for air conditioning.

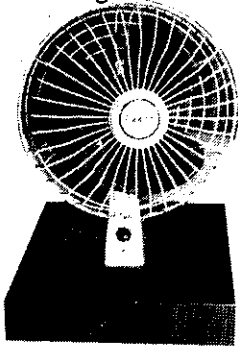


Figure 3-14. Portable Oscillating Fan

Security Timer

The **Watchdog** security timer, figure 3-15, is a randomly-switched electrical timer which can be used to control the on-off operation of an appliance, light, etc., to give your coach that 'lived-in' look when it is unoccupied. The three-position switch may be set to **Off**, to shut off the controlled appliance; to **On**, for manual control; or to **Security**, for random operation.

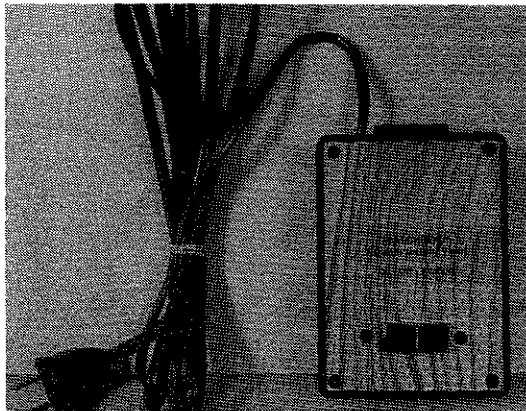


Figure 3-15. Security Timer

Burglar Alarm/Anti-Theft Features

The security of your motorhome and contents are assured by an intruder alarm system which protects windows and entry door. Each window is protected by a magnetic proximity switch which triggers an alarm if the window is opened. The entry door uses a door jamb switch which operates when the door is opened. When the system is **secured** it may be activated from outside the coach by

a key-switch adjacent to the entry door. From inside the coach, a master burglar alarm switch may be operated at the front instrument panel.

In addition to the alarm system, an anti-theft switch for the ignition circuits (A/T switch on dash) can be operated so that the unit cannot be started. Lastly, the 12 volt **Master** switch (hidden behind the right side of the dash) can be operated to turn off all but essential 12 volt circuits.

Fire Extinguisher

A portable, multi-purpose dry chemical fire extinguisher is located under the aisle end of the dinette seat. A second fire extinguisher is located in an outside coach compartment. To use, release the clamp and remove the fire extinguisher from the bracket, pull safety pin from handle, squeeze handle and apply chemical under flame.

Smoke Detector

A smoke detector (now code mandated) is installed in a ceiling location just outside the entrance to the bedroom area. Operator instructions are attached inside the overhead cabinet where the warning label is displayed on the exterior door trim.

It is possible for the smoke detector to be activated by the cold air coming from a roof air conditioner outlet. Slight downward rotation of the outlet louvre is all that is necessary to discontinue activation.

Bedroom Overhead Panel

(See Figure 3-16)

The bedroom panel is directly above the head of the bed, which contains the following:

Generator switch — is used to start or stop generator.

Lights switches — **Night** switch controls the aisle lights and **Flour** controls the fluorescent lights in bedroom only.

Alarm Clock — see Systems Monitoring and Control Panel.

Security switches — **Lock** switch controls the deadbolt entrance door lock. **Light** switch illuminates front and rear landing lights, driving lights and rear Halogen parking lights.

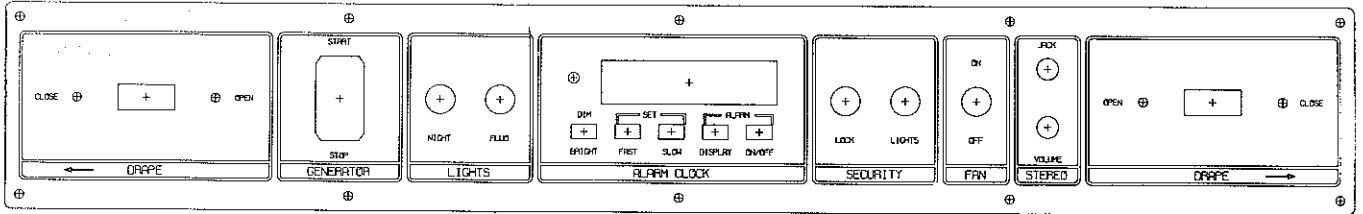


Figure 3-16. Bedroom Overhead Panel.

Fan switch — master switch for vent fan in bedroom.

Stereo — the **Jack** is used for privacy headphone use and **Volume** controls the sound level.

Drape switch — opens or closes the drapes on the side of bedroom pointed to, when optional electric drapes are used.

L.P.G. Grill

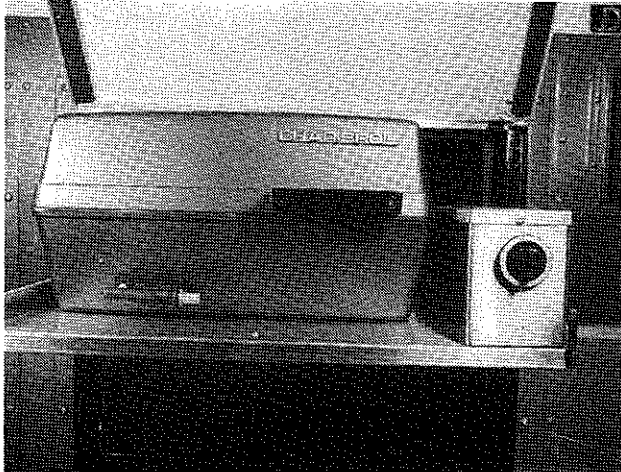


Figure 3-17. L.P. Gas Grill

The L.P.G. grill is stored in compartment above the L.P.G. tank.

1. Remove the three foot length of L.P. gas hose, with quick disconnect fittings, from within the grill and attach the end of the hose with the male fitting to the female quick disconnect fitting coming from the L.P. gas tank.
2. Pull the grill on its carrier as far out from its storage compartment as the slides will allow.
3. Connect the female fitting on the three foot L.P. gas hose to the male fitting at the rear of the plumbing enclosure box on the right side of the grill carrier.
4. Open the main valve from the L.P. tank and the valve between the pressure regulator and the quick disconnect.

5. The grill is equipped with a Piezo Electric Spark Generator that may be used to ignite the grill. The grill may be ignited by opening the top cover and pushing in on the gas valve and turning it counter-clockwise 90° to the full on position. Then, depress the red button on the electric spark generator to discharge a spark that should ignite the burner. If ignition does not occur the first time the red button is depressed, repeat depressing the red button until ignition does occur.

Caution

Do not grasp the black body of the electric spark generator when depressing the red button because a mild electric shock may be experienced.

6. After complete ignition has been established, it may be desirable to close the lid on the grill and allow it to pre-heat for a period of up to 10 minutes prior to the start of grilling or broiling.
7. At the end of use, the gas valve should be turned clockwise to full OFF and the L.P. gas hose should be disconnected from the rear of the plumbing enclosure box.
8. The grill should be allowed to cool so the castings are cool enough to touch before sliding the grill back into its storage compartment.
9. The three foot L.P. gas hose should then be disconnected from the supply fitting and the valve should be turned off between the fitting and regulator before closing the compartment doors.

Cleaning

The grill may be removed from the carrier for cleaning as follows:

1. Remove the grill cover by raising it and disengaging it from the hinge halves on the lower grill body.
2. Lift out the cooking grate and then lift out the fire grate that holds the ceramic rocks.



3. There are four quarter turn wing head studs in the bottom of the lower grill body that may be rotated counter-clockwise to disengage the grill body from its carrier. The grill body may be removed from the carrier by lifting the left side up and then moving the body to the left to disengage the burner venturi from the gas orifice hood.

Stepwell Cover

The air powered stepwell cover is raised or lowered into position by operating the **Stepwell Cover Up** or **Down** toggle switch located on the **Co-Pilot's Control Panel** (figure 3-18) on the right side of the hood table. Also located on this panel is the **Step Master** switch, **Step Light** switch, a **Stereo Jack** and **CB Jack** with **Volume** control. Adjustments for the cover travel speed can be made by removing the top drawer in the hood table and adjusting the regulator and/or needle valve.

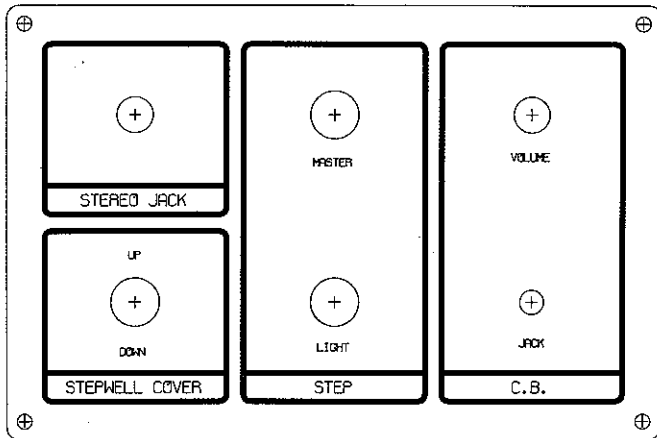


Figure 3-18. Co-Pilot's Control Panel

The **Step Light** switch makes it possible to turn off the step lights if the step is to remain in the extended position for a time.

If it is desirable for the step to be left in the extended position, for repeated trips into the coach, the **Step Master** may be switched.

Note

When air pressure drops below 65 psi the entrance step will extend and lock into place. The step will not retract until sufficient air pressure has built up.



Section IV Electrical Systems

There are actually two interrelated electrical systems used in your motorhome: the 12 volt dc supply system; and the 120 volt ac supply system. The 12-volt dc supply system is divided into several branches, or zones, each functioning from the common 12 volt battery source. One branch provides the 12 volts required for the automotive starting, ignition and lighting systems; remaining branches supply those motorhome circuits and appliances which require 12 volts dc for operation.

The 120 volt ac system includes those motorhome appliances which require 120 volts for their operation, supplied from either the internal generator, or from the external 120 volt ac (or a split 240 volt ac) supply, via the shoreline hookup. An optional inverter unit will supply 120 volt power from the coach batteries to selected circuits.

12 Volt DC Supply System

Wiring diagrams of the 12 volt supply and distribution system are included in Section X.

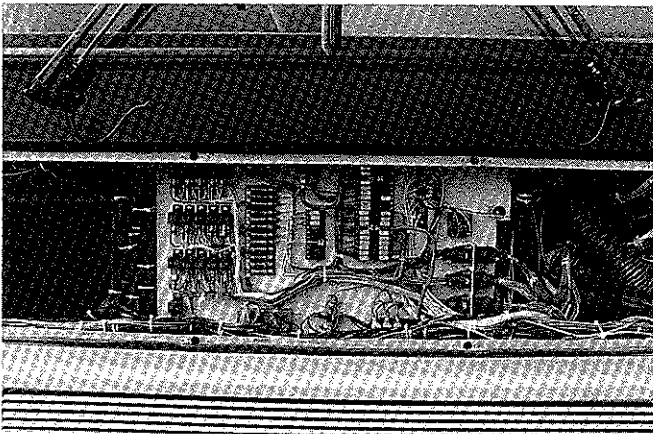


Figure 4-1. Typical Load Center

The 12 volts supplied to all motorhome appliances, outlets and accessories is routed from the batteries through a main 12 volt master switch and routed through busses to the individual branches, or zones, that are serviced from this supply. Circuit breakers are located behind the access panel at the top front left side of the coach, lower front load center (behind removable panel outside front of

coach) and at each of the zones. The circuits supplied and fuse or circuit breaker protection at each zone are shown on diagrams included in Section X. A typical load center is shown in figure 4-1.

Battery Heaters

120 volt ac battery heater pads provide faster engine starts during cold weather conditions by increasing the available cold cranking power. Heaters operate only from the ac supply line via the **Battery Heater** switched by 120 volt breaker only.

Note

To avoid premature deterioration of the batteries, heaters should be used only when the temperature is below 32°F.

Battery Charger

The 12 volt coach battery supply, figure 4-2, and the generator battery are maintained fully-charged by either the engine alternator (when engine operates); or by battery charger.

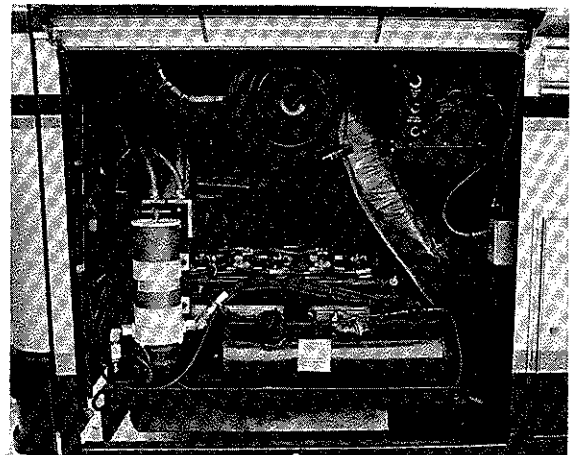


Figure 4-2. Battery Compartment

Batteries can become discharged because of coach 12 volt loads, while parked, without a 120 volt ac source. For overnight stops this presents no problem, with judicious use of 12v. service, because the engine alternator will recharge the batteries rapidly during the next day's travel. When operating from shoreline or generator power, the batteries obtain the major portion of the charge during "sleeping" time, while coach loads are low, so that the battery charger can "top off" the batteries.

If it is planned to leave the coach parked without



exterior power for two days or longer turn off the **Electronic Master** switch in overhead cabinet adjacent to left front load center. This will ensure that there is no drain from the circuits which remain on when the **Master** (under dash) switch is **Off** (clock, memory and LPG leak detector).

DC Supply Monitors

The **ALT/CHGR METER**, located on the lower dash, indicates the total current flow from the charging source (engine alternator or battery chargers).

The **BATTERY CHARGE** ammeter, located on the co-pilot's overhead dash, shows the current flow to or from the coach batteries.

The **COACH LOAD** ammeter, also located on the co-pilot's overhead dash, shows the load drawn by coach circuits.

ENG. VOLT METER, located on lower dash, shows voltage at the batteries.

While in transit, this should reflect an alternator regulated setting of 14v. When parked, with 120v. source supplied, this should read between 12.5 and 14.0v. depending upon load. When parked, without 120v. source, do not permit voltage to drop below 11.5.

After a trip, **CHARGE** ammeter may show some discharge reading, even when 120v. source is supplied, if there is a load on the 12v. coach circuits. The **Float** type battery charger allows a voltage of 12.5-13 when there is a load.

AC Supply System

Motorhome ac-operated appliances are supplied from either an external shoreline hookup or from the on-board generator. Selection of shoreline or generator power source is determined by a four-position ac power selector switch located in a floor compartment between the co-pilot's seat and right sidewall as shown in figure 4-4. Set this switch to either **Gen**, **Shore 50A**, **Shore 30A** or **Off**, depending on the power source availability. Leave this switch in **Off** position to completely disconnect the motorhome 120 volt ac circuits normally supplied by these inputs.

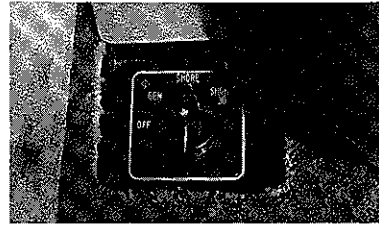


Figure 4-3. AC Power Selector Switch

Power Line Monitors

A dual power line monitor is located on the co-pilot's overhead dash to monitor the voltage in both legs of the ac shoreline supply (or generator supply). The monitors have a polarity and ground detector circuit to indicate possible electrical hazards due to incorrect hookups.

A power line polarity monitor is located in the shoreline/utility box (figure 4-5).

AC Circuit Breaker Panel and Distribution Panel

The main ac circuit breaker panel is located in the bedroom. See figure 4-4.

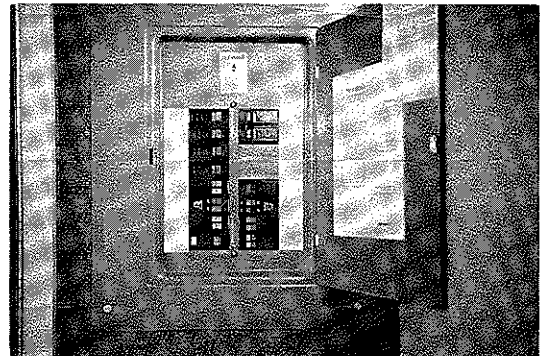


Figure 4-4. AC Circuit Breaker Panel

Generator Operation

The generator plant has its own 12 volt starting battery so that it can be started independently of the coach 12 volt batteries.

The generator can be started and stopped from any of three locations within the coach: at the driver's instrument panel, at the systems Monitor Panel, or at the bedroom panel. In addition, the generator can also be operated from the controller box in the generator compartment.

To start the generator, push the **Generator** switch to the **Start** position and hold until the generator starts, as indicated by the generator **On**



indicator light. **Do not hold switch on for longer than 5 seconds at a time!** If the generator does not start the first time, wait a minute and try again. Release the switch when the indicator light in the switch glows. The generator may be stopped at any time, by holding the switch to the **Stop** position until the generator stops (light in switch extinguishes).

In cold weather, it is necessary to activate the cylinder glow plugs before starting. Push **Start-Stop** switch to **Stop** position and hold for 15 to 20 seconds.

It is not advisable to start the generator under a heavy load, especially with the high current demands made by the air conditioners. This may cause hard starting and possible damage to the generator electrical system. It is a good practice to remember to set the **Power Selector** switch to **Off** (figure 4-3) before turning on the generator so there will be no electrical load on the line. Also, remember to set the selector switch to **Gen** position when the generator is being used; and to reset the switch to either **Off** or **Shore** position, as appropriate.

The generator is housed within an electrically operated extendable tray. To open, operate the **Out-In Gen. Tray** switch in the front outer pilot's side compartment.

Caution

The generator tray is heavy and moves in and out with a great deal of force. Keep Hands Off Tray When Operating Switch!

Shoreline Operation (Commercial Power)

Set the power selector switch, figure 4-3, to **Off** position **before** the motorhome electrical system and external supply are joined.

Caution

Your motorhome has been wired in accordance with the National Electrical Code. All 120 volt ac wiring is two-wire service with ground; all 240 volt wiring is three-wire service with ground. If the motorhome is connected to an external hookup which has only a two-wire circuit, ground the third wire on the adapter to the external supply metal junction box or conduit. For personal safety,

check the polarity detector indicators on the power line monitors to be sure that lines are properly connected and grounded.

For purposes of safety, observe all precautions when making these connections. First, connect the shoreline to the coach (**rotate plug clockwise to assure firm connections**). The coach receptacles are located in the left side utility compartment shown in figure 4-5. Connect the other end of the shoreline to the power source. Set the power selector switch to the appropriate **Shore** position. Poor grounding or incorrectly-wired receptacles can cause personal harm as well as equipment damage or fire hazards. Check reverse polarity indicator in shoreline/utility compartment to verify correct polarity and grounding of hookup.

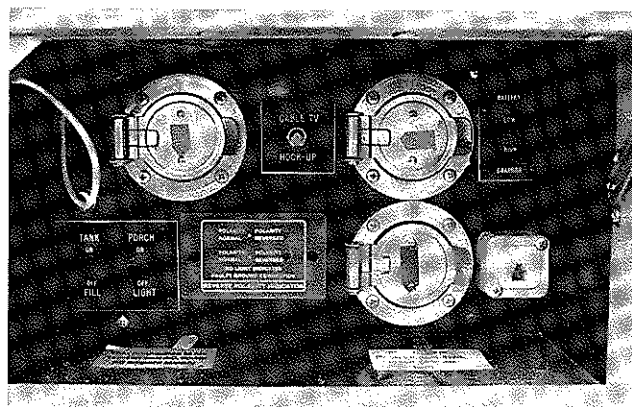


Figure 4-5 Shoreline/Utility Compartment

In many instances, the shoreline hookups will not be rated to operate all electrical appliances in your coach. Check with facility personnel to determine the maximum current capability of the hookup. Sometimes, only one air conditioner may be operated. The current ratings for appliances designated for standard or optional (identified by *) usage in your coach are listed in table 4-1.

Table 4-1. Electrical Ratings for Motorhome Appliances

Item	Current Rating (Amperes)
Air Conditioners	
14,500 BTU	(Start) 19.0
Water Heater	10.0
Television Receivers	
Black-and-white	.5
Color	1.0



Battery Charger (depends on battery condition/load)	0 to 14.0
Engine Block Heater	10.0
Electric Heaters	
Interior Heater	12.5
Battery Heaters	1.2
Heat Tapes	3 watts/ft
Microwave Oven	15.0
Food Center	4.0
Refrigerator	2.7
*Ice-Maker	Start 15, Run 2.5
*Washing Machine/Dryer	14.0
Instant Hot Water	6.5

*Optional item

Shoreline Operation — Troubleshooting

Your coach is designed and tested to make sure the 120v. ac **Neutral** (white) wire and the **Ground** (bare copper or green) are not tied together (no continuity). This will prevent any danger of a "hot skin" if the source of power has reversed polarity (red LED lit).

Problem

— Probable Cause

— Corrective Action

Green LEDs lit - Normal (desired)

Red LEDs lit

- Reversed Polarity at power source.
 - Convince park management to correct or change lot assignment.

Neither red or green LED lights

- No ground connection with park service
 - Use jumper lead from ground pin on shore cord to service box.

Power source (park) circuit breaker trips.

- Reversed polarity in park and coach neutral and ground tied together.
 - Use on-board generator until qualified electrician can correct coach problem. (Generator polarity is correct).

Green LED's lit plus Red LED's glow when additional load is turned on (Air Conditioner or Water Heater).

- Poor ground connection at park (floating ground).
 - Make sure shoreline plug is fully engaged twist locked (clockwise) at coach.

Safeline Alarm

Your coach is equipped with a shoreline disconnect alarm, which is located on the upper left auxiliary dash. This device will provide an audible or visual alarm whenever the shoreline is left connected to the coach at the same time that the ignition switch is turned **On**. This assures that the coach is not inadvertently driven away while still connected to the shoreline hookup.

Audio System Wiring

Low-voltage audio system wiring is run throughout the coach between the stereo radio, speakers, headphone jacks, volume controls and amplifiers. These interconnections are shown on wiring diagrams provided in Section X.

Electronic Master Switch

Most of the electronic circuits are de-energized when the main **Master** switch (behind dash) is turned **Off** (relay action). Circuits that still receive power when the **Master** switch is off serve the monitor panel, clocks, radio memory, and LPG leakage detector. If coach is to be stored for two days or more without external power, the **Electronic Master** switch in the front overhead kitchen cabinet on driver's side should be turned off.

Battery Jumper Terminals

For your convenience and safety when jump starting (usually someone else's vehicle), terminal posts are provided in the upper curb side of the engine compartment.

Utilization of these terminal posts is described in Section VIII.

Battery Storage in Freezing Weather

Batteries that are not kept full-charged must be given protection against freezing. Partially-charged batteries will freeze at low temperatures, so batteries must either be left charged or removed from the vehicle and stored in a warm location.

The motorhome can be left connected to the shoreline ac supply and the coach battery chargers will keep all batteries charged. Note that even in a warm location it is advisable to keep the batteries charged to prevent deterioration. The six main coach batteries should be checked for proper electrolyte level: add water, as required. The battery used for the generator is sealed.



Section V

Water Distribution and Drainage Systems

Your motorhome is equipped with a completely self-contained water system which includes piping, heating and drainage facilities similar to those used in home installations. The water supply and distribution system includes three networks: (1) a potable water supply system, which includes the water tanks, pump, air accumulator, pressure switch, water purifier and input supply lines; (2) water heater and interior hot water heating systems; and (3) waste, winterizing, quick drain and sewage drainage systems. Refer to Section X for potable water system and plumbing drainage system piping diagrams.

Water Supply and Distribution System

As shown in figure 5-1, the dual purpose **Tank Water Fill/Commercial Water** inlet connection is located in a small compartment at the curb side rear above the shoreline/utility compartment. The **Tank Fill On-Off** switch, located in the shoreline/utility compartment, controls a solenoid-actuated water valve to divert the commercial water input to fill the pure water storage tank(s). Located beneath the rear bed(s), the tank(s) are non-pressurized types so that system water pressure is developed by pumping action directly into the supply lines, rather than by tank pressurization. A bacteriostatic water purifier system purifies all the water supplied to the coach.

Commercial Water Hookup

When facilities are available, the **Commercial Water** hookup can be used to supply all coach water system requirements. In this manner, the coach water tank and pump system are automatically bypassed by the supply line check valve and water pressure is developed by the external connection. Water inlet pressure is regulated to 40-psi by a valve which is part of the combination city (commercial) water fill, check valve, and regulator shown in figure 5-1.

Note

The **Tank Fill** switch should be **On** only when the water tank is being filled. This switch must be in **Off** position at all other times.

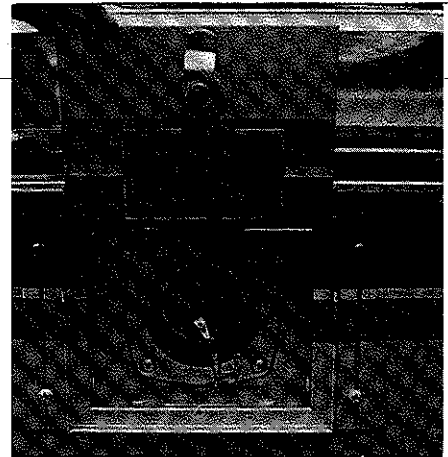


Figure 5-1. Location of Commercial Water Hookup

Filling and Sanitizing

Filling the Tanks — To fill the water supply tanks, connect the water hose to the commercial water inlet, set **Tank Fill** switch to **On**, then turn on the water supply. When tank(s) is full, as indicated by water overflow beneath the coach, set the **Tank Fill** switch to **Off** position, shut off the water supply and disconnect the hose. At this time, check that the Monitor panel readout on the dinette wall indicates a full water tank. To check, press the **Pure** tank switch and observe that the **E** through **F** indicator segments are lit.

Sanitizing the Water System — Water system sanitizing procedures should be followed before the system is used for the first time, after long idle periods, where water may become stagnant; or after any suspected contamination of the water supply. Whenever possible, use a commercially-approved tank sanitizer and follow the procedures on the product package. If it is not possible to use a commercial product, prepare your own mixture and sanitize the tank in accordance with the following procedures:

1. Empty the Water Tank(s) — To drain tank(s), set the **Water Tank Drain** control (on the control panel in the bed base cabinet) to **Open**, figure 5-2.



After tank(s) is completely drained turn **Water Tank Drain** control to **Closed**.

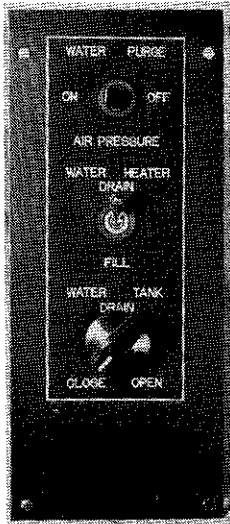


Figure 5-2. Water Purge Air Pressure, Water Heater Drain and Water Tank Drain Controls

2. Prepare the sanitizing solution using $\frac{1}{4}$ cup of household bleach (sodium hypochlorite solution) for each gallon of water. Use one gallon of the solution for each 15 gallons of tank capacity. This procedure will result in a residual chlorine concentration of 50 ppm in the water system. If a 100 ppm concentration is required use $\frac{1}{2}$ cup of household bleach with one gallon of water to prepare the chlorine solution. Nine gallons of solution will be most adequate for the largest tank(s) (128 gallons).

3. Add sanitizing solution to water tank(s) — Disconnect overflow hose from tank(s) and pour solution into vent fitting. A curved piece of $1 \frac{1}{4}$ I.D. hose, clamped to the vent fitting, will facilitate this process. Reconnect overflow hose.

4. Fill tank(s) to Capacity — Connect the hose to the commercial water inlet, set the **Tank Fill** switch to **On** and fill water tank(s) completely. Shut off hose, and set **Tank Fill** switch to **Off**. Turn on water pump. Open each faucet (hot and cold) and run the water until a distinct odor of chlorine can be detected. Shut off water pump.

5. Allow the system to stand for at least 4 hours when disinfecting with 50 ppm residual chlorine. If a shorter time period is desired, then a 100 ppm chlorine concentration should be permitted to stand in the system for at least 1 hour.

6. Drain Tank(s) — Open the **Water Tank Drain** control and allow the tank(s) to drain completely.

7. Refill Tank(s) — Close the **Water Tank Drain** control, and turn on the water supply to the commercial water inlet, set **Tank Fill** switch to **On** and fill tank(s) completely. When the tanks are full, set **Tank Fill** switch to **Off**, shut off water supply and disconnect hose, replace fill cap and turn on water pump. When water flows from opened faucets, close them and open other faucets until water flows. This flushes the system, removing trapped air from the piping and ensures that the fresh water supply is ready for use.

Note

Residual tastes or odors can be removed by again draining and rinsing the system with a vinegar solution mixed to the ratio of one quart of vinegar to five gallons of water.

Potable Water Distribution System

The major components of the potable water distribution system are the bacteriostatic water purifier, water tank(s), water pump, air accumulator, water heater, piping and fixtures.

The air accumulator and water pump are shown in figure 5-3; the water purifier and water tank drain valve are shown in figure 5-4.

Water Pump

The water pump, figure 5-3, is equipped with a factory-calibrated pressure control switch which is preset to turn the pump on when the system pressure falls below 20 psi; and turn the pump off when the pressure reaches 35 psi. If the pump has been out of service for a period of time, it is advisable to open a faucet before turning the pump on. When water flows steadily from the opened faucet, close faucet and observe that pump shuts off when system becomes pressurized. (it may also be necessary to bleed the air from the other faucets as well.) When the potable water supply tank(s) level is low, or empty, shut the pump off to prevent possible damage to the pump motor. In addition to integral motor overload protection, the pump mechanism is also protected from jamming by the presence of an inline filter (pump guard) between the pump and the supply tank.

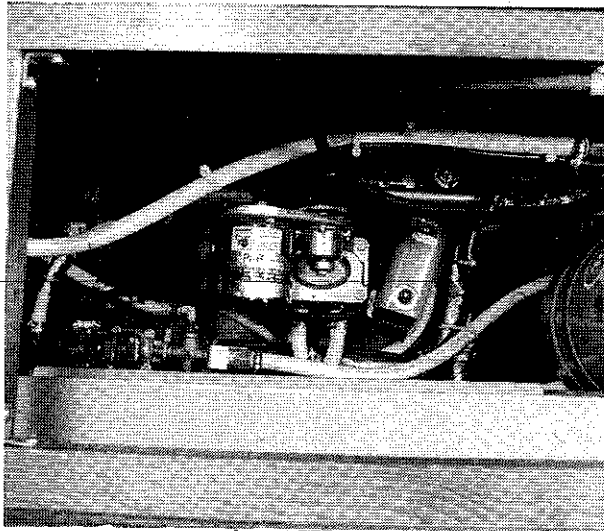


Figure 5-3. Water Pump Location

Water Purifier

The bacteriostatic water purifier, figure 5-4, filters and purifies the potable water supply to eliminate tastes, odors and coloration produced by chlorine, rust, insecticides, detergents, sediment and other foreign objects. Satisfactory elimination of water-borne disease-carrying bacteria is accomplished by a hygienic filter bed which consists of silver ions absorbed on sponge silver metal which is deposited in a finely divided form on granular activated carbon of high surface area.

An added benefit is that even though the coach is not used for some time, bacteria will not grow in the water distribution system.

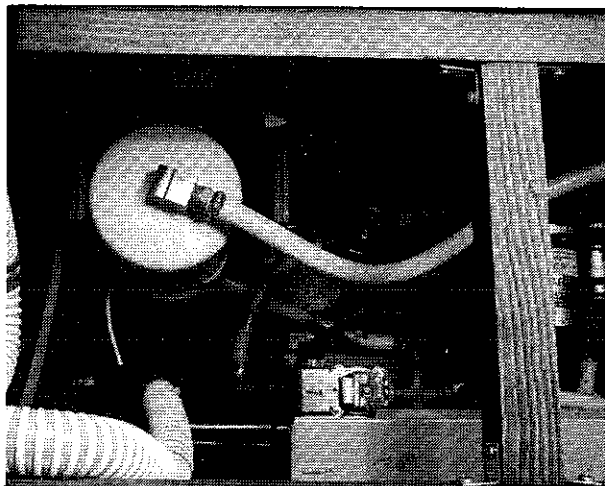


Figure 5-4. Water Purifier Location

The water purifier is a self-contained unit, requiring no routine or periodic maintenance.

Each time the filtered water supply is used for drinking or cooking purposes, run the tap for a few seconds to clean out the line prior to using the water. This is particularly important if the water tap is not used on a daily basis. If the water supply has not been in use for extended periods, allow the water to flow for a minute or two before use.

Purifier Replacement — Depending upon the condition of the municipal water used, the filter media will normally process 75,000 gallons of water before the purifier will need to be replaced. For the majority of "Wanderers" this means there will be at least five years of useful life.

The only practical way to determine when replacement is required is to go by the sense of taste. If a faint taste of chlorine is detected, it is time for a change. Even when there is a noticeable taste, the bacteria stopping properties have not been compromised.

Water System Air Accumulator With Diaphragm

An accumulator in the water system smooths out the water flow, eliminates water hammer and pulsations from the water pump.

Having no diaphragm, the present accumulator can become water-logged, lose its effectiveness and require frequent re-pressurizing.

The WX101 incorporates a butyl diaphragm with the air side (top) being pre-charged to 20 psi. If this is accidentally lost, the accumulator may be re-charged to 20-25 psi through the Schrader valve on top.

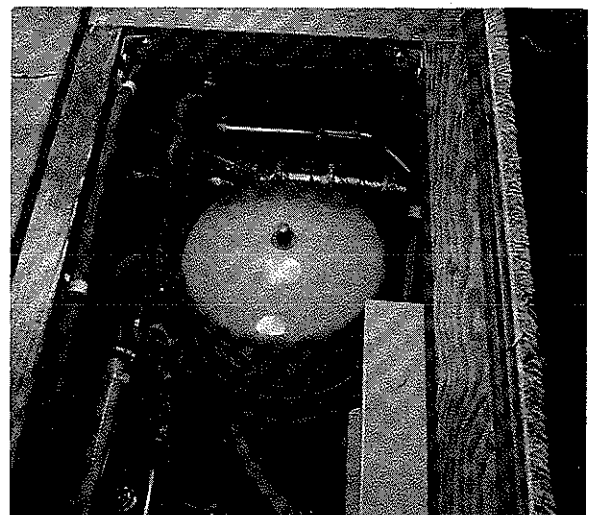


Figure 5-5. Accumulator with Diaphragm.



Water Heater

The 10 gallon Marine Electric Water Heater has a "motor aid" heat exchanger to ensure a supply of hot water while in transit and upon arrival at your destination. Engine coolant circulates through this heat exchanger as shown in the chassis heater piping diagram in Section X. The electrical heater can be used whenever 120 volts ac is available. The heater switch, located in the bedroom closet, should be switched **Off** when heated water is not needed.

Dry Tank Switch – Water Heater

In order to preclude the possibility of water heater element burn-out, a dry tank sensor circuit is provided.

This circuit consists of a sensor in the outlet of the hot water tank which sends a signal through a printed circuit board to energize a relay whenever the tank is not full.

When the 12 volt coil of the relay is energized, it breaks the 120 volt ac circuit to the heater element.

Outside Faucet

An outside faucet is provided in the L.P.G. tank compartment so it is not necessary to enter coach to wash hands, etc.

The low point drain valve behind the bathroom toilet must be open to supply water to this faucet. To gain access open bottom hinged door and lift hinged floor.

While traveling in freezing weather, this faucet should be left open and the low point drain valve closed.

Drainage System

A diagram of the drainage system is provided in Section X. Separate holding tanks for gray water and body waste are located beneath the coach mid-section. The gray water holding tank is the receiver for the water from the kitchen sink and the shower; the waste holding tank stores toilet wastes and waste water from the bathroom lavatory. Each holding tank has a separate drain valve, dumping gray water and wastes through a common single discharge connection. Separate vents from each holding tank extend through the roof of the coach.

The right (curb) side holding tank serves as the body waste tank and the one on the left (road) side functions as the gray water tank.

Draining the Holding Tanks

The waste holding tank is drained first, then the gray water tank. Drain the holding tanks as follows:

Note

It is advisable to drive your unit for a short distance to agitate the contents of the holding tank before dumping.

1. Check that both drain valves are in a closed position before removing drain cap. Note that the valve handles are turned clockwise to lock the valve.

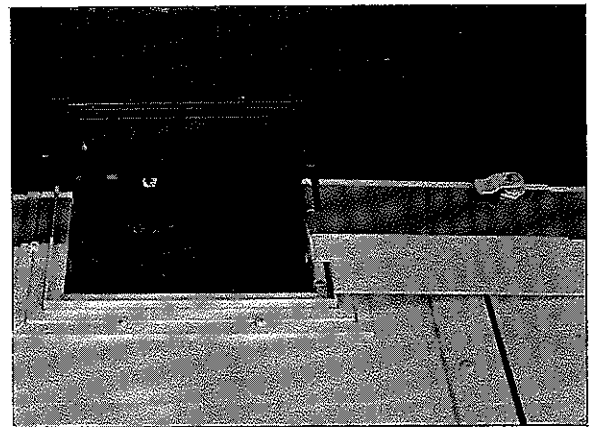


Figure 5-6. Location of Holding Tanks Drain Valve

2. Remove the safety cap from the single discharge connection by turning the locking ring in a counter-clockwise direction and connect the 3-inch sewer hose coupling to the end of the valve. Tighten locking ring securely, in a clockwise direction. The sewer hose is stored within a tube accessible through a compartment door located above the drain cap, figure 5-6. Place the discharge end of the hose into the sewer connection and check that all connections are secure to prevent accidental spillage.

3. Open the drain valves, by turning the handle to the left (counterclockwise) to unlock, then pull the handle straight outward.

4. After contents are emptied, flush out holding tank to dislodge remaining solids.

Note

To clean the holding tank, add a detergent solution into the tank after it is emptied. The agitating action from vehicle movement will clean the tank.



5. Close drain valves by pushing handle inward and turning to the right (clockwise) into the locked position.

6. Disconnect and wash out drain hose, replace hose and replace safety cap securely.

Tank Level Detectors

Each of the holding tanks and the potable water supply tank has a level detector which provides an electrical input to the Systems Monitor panel on the dinette side wall. Activate the display to read the level of liquid remaining in each tank by pressing the appropriate pushbutton switch.

Winterizing

To prevent freezing of water supply lines, they are wrapped with heat tapes that operate automatically when the temperature drops below 38 degrees F. The heat tapes are connected to the ac outlets in the rear of the refrigerator compartment and behind the kitchen sink base.

If you are planning on storing your motorhome in an unheated area during cold weather, it will be necessary to winterize the water system to prevent damage from freezing conditions. Winterizing procedures are covered in the following paragraphs.

Draining and Winterizing the Fresh Water Supply System

The following procedures show the use of the various drain valves, controls and pressurized air system to remove the water from the plumbing and appliances in the fresh water supply system. Refer to figures 5-2 through 5-7 for the location of controls and valves.

1. Open the main circuit breaker box and set the **Water Heater** and **Instant Hot** circuit breakers **Off**.

2. Turn on **Water Pump** switch and open all faucets (galley sink, lavatory, shower, outside hose connection and toilet water valve — after depressing pedal insert block to maintain position). Note that the outside water hose connection should always be left open when freezing temperatures are expected. Also, remove thumbscrew from bottom of toilet valve, and drain plug at bottom of **Instant Hot**. If equipped with Ice-Maker refer to **Draining the Ice-Maker** below.

3. Open the low-point drain valves located beneath the lavatory sink, figure 5-7, and the lavatory.

4. Turn the **Water Tank Drain** control to **Open**, and the **WATER HEATER** switch to **Drain**. Both controls are located on a panel in the bed base cabinet or vanity, figure 5-2.

5. Allow water to drain completely before proceeding to the next step.

6. Move the **Water Heater** switch to **Fill**.

7. Set **Water Purge Air Pressure** switch, figure 5-2, to **On** to activate the solenoid which applies air pressure to the input water line to purge the water system. Note that it may be necessary to start the engine to build up air pressure.

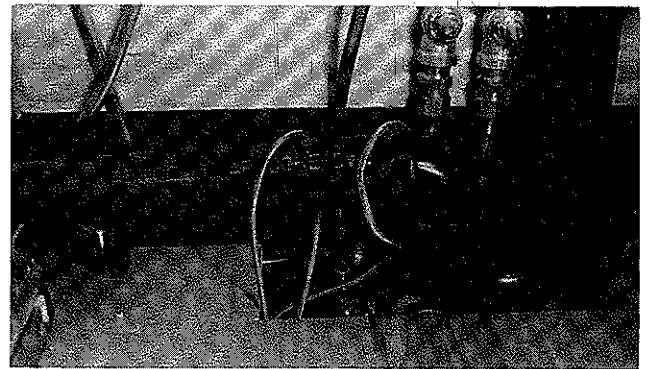


Figure 5-7. Lavatory Sink Plumbing

8. When only air remains in the lines, close both low-point drain valves and all faucets. Replace drain screw/plug in toilet valve and Instant Hot. Operate the Instant Hot water heater valve to clear the heat exchanger of remaining water.

Note *add antifreeze to the traps and drain tanks*
When reactivating system make sure **Instant Hot** is full of water before switching on.

9. Turn **Water Purge Air Pressure** control to **Off**, set **Water Pump** switch off, and shut down engine.

10. Disconnect both hoses from the water pump to prevent residual water from backing up into the pump.

11. Open all faucets and both lowpoint drain valves (toilet valve to remain open).

12. Drain the holding tanks and add RV anti-freeze (several quarts) to each tank through the toilet (into the sewage tank), and through the galley sink (gray water tank).



13. At this point, the only water remaining in the system is contained in the U-traps (P traps) beneath the lavatory and shower drain. To prevent this water from freezing and damaging the traps, pour one pint of RV system anti-freeze into each trap.

Draining the Ice-Maker — If your motorhome is equipped with an ice-maker it will also have to be drained so that no water remains in the line or ice-making mechanism.

1. Remove the cover from the bottom compartment and turn the switch **Off**.
2. Disconnect the water line from the solenoid valve fitting.

3. This line must be blown free of water, and can best be done during step 7 above. Do not reconnect the water line at this time.

4. Turn **On** the ice-maker and allow it to operate until all remaining water is drained (approximately one hour). Remove any water remaining in the ice-maker mold, drip tray, or cube compartment.

5. Turn ice-maker **Off**, reconnect water line, and leave door slightly ajar to prevent interior humidity build-up from corroding the ice-making mechanism micro-switches.



Section VI LPG System

The coach is equipped with a permanently mounted 43.5 gallon (148 pounds of fuel-net) LP gas tank which is the energy source for the range, three gas furnaces and alternate source for the refrigerator. A piping diagram of the LPG system is shown in Section X.

LPG Tank and Controls

The LPG supply tank is located in a curbside compartment as shown in figure 6-1. LPG system controls include a main gas service valve, two stage pressure regulator, filler connection with Auto Stop (80%) fill valve, 20% vapor (stop filling when liquid appears) valve, and the pressure relief valve. Down stream of the pressure regulator is a solenoid operated shut off valve.

Warning

When coach is to be stored in a confined area, turn off the LPG at the main tank shutoff valve (figure 6-1).

A flexible hose from the two stage pressure regulator connects to tubing which carries the LP gas to the electrical solenoid shutoff valve, and manifold to individual appliances.

The solenoid valve is actuated by either a high-pressure condition (caused by a defective regulator), or by the remote LP leak detector, located below the refrigerator door. Tank level can be monitored at the Systems Monitor panel. To read the digital display, press the **Propane Tank** button.

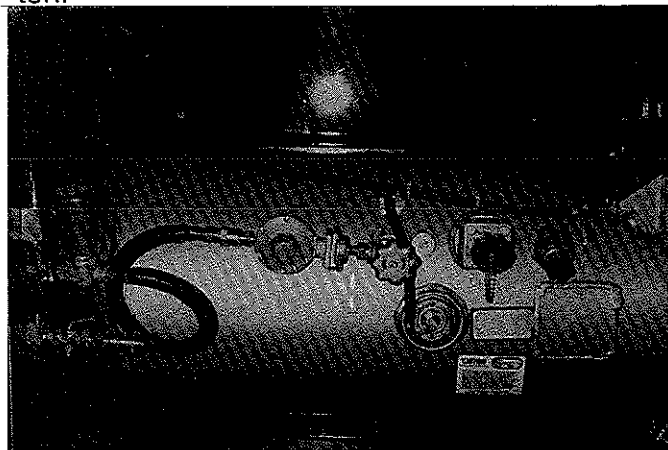


Figure 6-1. LPG Tank Compartment

Caution

Be sure to shut off all gas appliances before filling the LPG tank. Check gas lines and fittings periodically for tightness and leakage.

Fuel Requirements

Liquefied petroleum gas is a material composed of various hydrocarbons such as propane, butane, or a mixture thereof. In its gaseous form (vaporized) it is colorless and has a garlic-scented additive to ensure detection. In addition to being highly inflammable, it is also dangerous to inhale. For ease of transportation and storage, LPG is compressed into a liquid state and stored, in this form, within the LPG tank. As fuel is used, vapor passes from the top of the tank into the two stage pressure regulator and to the various gas appliances.

Appliances will not function if the LP gas does not vaporize. Butane will not vaporize below 32 degrees F. (the freezing point of water), but propane will continue to vaporize down to 44 degrees below zero. Propane has become the main type of LP gas used in RV's in recent years. Your LP supplier will have the correct type or blend for your locale. If your travels will take you into an area where climate differs, ask your LP dealer for his recommendations. The names of LP suppliers can be found in the yellow pages of your telephone directory under "Gas-Liquefied Petroleum - Bottled & Bulk". Many campgrounds now have LP gas fill facilities, as do some service stations.

Prevent condensation and possible regulator or line freeze-ups, when filling the tank, by requesting the dealer to add a small amount of Methyl Alcohol to the fill-up. A common mixture is one ounce of Methyl Alcohol to each 20 pounds of LPG.

Filling the LP Gas Tank

When the tank is being filled, the Service valve must be **Closed** and the 80% liquid level valve (20% vapor valve) must be **Open**. The 80% **Auto** stop fill valve may close before liquid appears at the 80% liquid level valve, but if liquid does appear, stop filling immediately; the tank is filled to its LP capacity. Close the liquid level valve. Do not use a wrench to tighten this or the **Service** valve; they are designed to be closed leak-tight by hand. If you cannot hand-tighten properly, the valve probably needs repair or replacement.



LP Gas and Vapor Detectors

The Gas/Smoke alarm, on the monitor panel, has sensors at various locations through the coach and sounds an alarm if the safe amount of LP gas or carbon monoxide in air is exceeded. The LP gas leakage detector below the refrigerator door monitors the area near the refrigerator and the range, sounding an alarm and actuating the LP gas solenoid shut-off valve if a leak is sensed.

Regulator Pressure

The two stage pressure regulator regulates the pressure of the LPG supplied to the appliances. The regulator functions automatically and is factory-preset to provide the correct line pressure. **Do Not** attempt to tamper with or reset the regulator! Even a small variation above the normal gas line pressure can be sufficient to create a dangerous situation and cause possible damage to individual appliance components. If there is any doubt about the regulator setting it can be checked by your Wanderlodge® dealer or LPG supplier. The correct setting is 11-14 inch water column.

Operation

To operate any LPG appliance, the main gas (Service) valve, figure 6-1, must be **Open**. At each furnace there is a shut-off valve that must be opened prior to use. When first used, or after a refill, there may be some air in the gas lines which will escape when you open a range burner or similar LP gas valve. The air may extinguish your match or igniter the first time or two, before you get ignition. Remember, too, that when you close the tank's Service Valve some of the gas will remain in the lines. To completely bleed the lines of gas, **Close** the tank's **Service** valve and light a range burner to use up the excess. When the flame burns out, turn the range burner **Off**.

Checking For Leaks

Periodically check the LPG system for possible leakage. Do not wait for an alarm condition to occur before correcting a leak! Although the entire system and associated appliances undergo extensive factory testing for leakage, road shocks and heavy vibrations may loosen or damage piping or fittings. Leaks will usually become noticeable by the characteristic odor of the garlic-scented gas additive. To check, turn off all burners and pilot lights. Open all doors and windows. Open LPG tank service valve and use an ammonia & chlorine

free soap-bubble solution on all connections. Any bubbles are evidence of leakage.

Note

The gas leakage detectors may momentarily sound an alarm when the engine is initially started or when a heavy electrical load is placed on the system. Further, the ultrasensitive response of these units may also cause an alarm to be given in the presence of certain pressurized-can sprays or cleaning agents. Do Not Assume! Always Determine the Reason For This Vital Alarm Being Given!

LPG Consumption

Most gas appliances are intermittently operated. However, operation during cold weather conditions does cause a heavy use of the gas furnaces. Extensive oven usage also consumes a great deal of fuel. The amount of LPG consumption depends on the total use and manner of use of these appliances.

Note that each gallon (4¼ lbs) of LPG fuel produces approximately 91,500 BTU's of heat energy. The LPG tank used in your coach will furnish over 3 million BTU's.

For your guidance in estimating your anticipated fuel consumption, the following is a listing of typical appliance consumption ratings when the appliance is operated for one hour:

Refrigerator	1,500 BTU's
Cooktop Burners	5,200 BTU's Each
Furnaces (3)	16,000 BTU's Each

LPG System Warnings

Warning

LP gas containers shall not be placed or stored inside the vehicle. LP gas containers are equipped with safety devices which relieve excessive pressure by discharging gas to the atmosphere.

Warning

It is not safe to use cooking appliances for comfort heating.



Cooking appliances need fresh air for safe operation. Before operation:

1. Open overhead vent or turn on exhaust fan.
2. Open Window.

This warning label has been located in the cooking area to remind you to provide an adequate supply of fresh air for combustion. Unlike homes, the amount of oxygen supply is limited due to the size of the recreational vehicle, and proper ventilation when using the cooking appliance(s) will avoid dangers of asphyxiation. It is especially important that cooking appliances not be used for comfort heating as the danger of asphyxiation is greater when the appliance is used for long periods of time.

A warning label has been located near the LP gas container. This label reads.

Do not fill container(s) to more than 80 percent of capacity.

Overfilling the LP gas container can result in uncontrolled gas flow which can cause fire or explosion. A properly filled container will contain approximately 80 percent of its volume as liquid LP gas.

Warning

Portable fuel-burning equipment, including wood and charcoal grills and stoves, shall not be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle may cause fires or asphyxiation.

Warning

Do not bring or store LP gas containers, gasoline or other flammable liquids inside the vehicle because a fire or explosion may result.

The following label has been placed in the vehicle near the range area:

If You Smell Gas:

1. Extinguish any open flames, pilot lights and all smoking materials.
2. Do not touch electrical switches.
3. Shut off the gas supply at the tank valve(s) or gas supply connection.
4. Open doors and other ventilating openings.
5. Leave the area until odor clears.
6. Have the gas system checked and leakage source corrected before using again.

LP gas regulators must always be installed with the diaphragm vent facing downward. This will minimize any chances of vent blockage which could result in excessive gas pressure causing fire or explosion.

Warning

Never check for leaks with an open flame. Do not check copper plumbing lines for leaks using ammoniated or chlorinated household-type detergents. These can cause cracks to form on the line and brass fittings. If the leak cannot be located, take the unit to your Wanderlodge® dealer or LPG supplier.



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Section VII

Air Brake System

Introduction

Your motorhome is equipped with dual service air brake systems for front, rear and tag axle brakes, with integral fail/safe operation; and manual/automatic rear spring (parking) brakes. As shown in the air brakes system diagram in Section X, the service brakes are completely independent systems, each including a reservoir and separate distribution lines and valves. A separate reservoir is also supplied for the rear spring brakes, which function independently of the service brakes. All three reservoirs are pressurized from a single compressor. Both service brake systems are brought into operation each time the brake treadle is depressed to slow or stop the coach. Reservoir pressure for each service brake system is monitored by a respective pressure gauge on the front panel; system failure(s) are indicated by low pressure readings, illumination of the **Low Air** failure lamp and sounding of buzzer (item 10, figure 2-3).

Operation

When the coach is parked, and the engine off, the rear spring brakes will normally be set by operating the parking brake. The spring brakes cannot be fully released until the air pressure is above 65 psi. These brakes are in the released position when the control is pushed in. In the event that there is a loss of air pressure, the spring brakes will set automatically, at the brake-applied position, and will not release until the air reserve has again built up to required value. Consequently, there will be a normal delay, after the coach is first started, before the compressor builds up sufficient pressure in the three reservoir tanks, before the brakes can be released and the coach driven. When the brake treadle is depressed, to slow or stop the coach, reservoir air is applied simultaneously to both front and rear service brakes to effect the braking action. The spring brakes are held in a released position by the air pressure supplied from the associated reservoir tank.

Caution

Do not attempt to drive the coach until system pressure is above 90 psi.

Brake Failures

To compensate for normal lining wear, each brake system is individually self-adjusting.

Brake system failures are protected against by a combination of fail/safe features. Each service braking system, front and rear, has a backup capability in the form of the rear spring brakes in the event of partial or total system failures. If the front brakes fail, operating the brake treadle activates both the rear service brakes and the rear spring brakes, providing sufficient braking action to effectively stop the coach. Under these conditions, the spring brakes do not lock in, as in a normal released position, but instead their application is "modulated" in the same manner as the service brakes, thereby providing a normal braking "feel". If a failure occurs in the rear, the front service brakes and rear spring brakes provide braking action.

In the unlikely event of a failure where both service braking systems are disabled, the rear spring brakes will apply automatically and bring the vehicle to a stop. As a safety factor, the coach should not be moved until any type of brake failures are corrected.

Note

With the front brake system service reservoir fully charged, enough air pressure is available to provide for four full releases of the rear spring brakes. This will allow the coach to be brought to a safe position until repairs can be accomplished.

Additional Air-Operated Equipment

Besides providing the compressed air supply for the coach braking systems, the compressor also provides the air supply for the entry step, side-slide mechanism on driver's and co-pilot's seats, front air vents, stepwell cover plate, tag axle and air suspension system (air bags) — all via separately-controlled solenoid switches operated from the dash, or at other locations throughout the coach. (This compressed air source is furnished from the front right side reservoir.) A compressed air outlet fitting and air gun is contained in the center storage compartment on the left side of the coach, convenient for blowing out the water system, inflating tires, and so on. A Schrader valve (air connection)



is available in the engine compartment to allow the air system to be pressurized from a "shop" source without the necessity of starting the engine.

Compressed Air System Air Dryer

The air dryer unit collects and removes moisture and contaminants from the compressor air output before the air reaches the reservoirs. This unit is different from a reservoir drain or an aftercooler in that it provides dry air for the brake system by eliminating the possible accumulation of condensate in the system reservoirs. Note that each reservoir also has a drain cock on the bottom for draining accumulated moisture. This assures a long maintenance-free life for air brake system components due to the removal of system contaminants.

The air dryer is located between the compressor discharge (output) line and the compressed air re-

servoirs. A safety valve mounted in the air dryer housing assembly protects against excessive pressure buildup. The desiccant cartridge and pleated paper oil filters are easily removable and replaceable as a complete serviceable unit. The desiccant "beads" which provide the drying action have a large capacity for absorption due to their combined surface area. In addition, an internal thermostatically-controlled heating element prevents freezeups on the purge drain valve when the unit is used during sub-freezing temperatures.

Purging of the dryer is automatic, exhausting combined oil and water residue to the atmosphere. At the same time that the contaminants are purged the reverse air flow across the desiccant material removes the accumulated moisture and reactivates the desiccant. Cartridge replacement should be accomplished at 3 years or 300,000 miles; sooner, if the cartridge has become contaminated.



Section VIII

Owner Maintenance Data

This section provides general information for use in performing scheduled services as well as preventive and routine maintenance on your Wanderlodge®.

Caution

Cooling fan is driven by hydraulic pressure. Flow is controlled electrically by a thermostat which senses engine coolant temperature. Any time the engine is running the fan may engage and start without warning. Also on hydraulically driven fans, the fan may start and run for several seconds when the engine is shut off or if electrical power is interrupted. Shut off engine and wait for fan to stop before servicing.

When inspecting or servicing engine or other components in engine compartment the engine control switch must be placed in **OFF** or **REAR** position to prevent starting of the engine from the driver's area.

Specifications and Data

Table 8-1

Engine and Chassis Specifications

Engine/Transmission	
Detroit Diesel 8V92TAC	
.....	475 HP, 450 HP (Calif.)
	Allison HTB741/4 speed
Chassis GVWR . PT38 & PT40	45,200 lb. max.
Front Axle	14,600 lb.
Rear Axle	23,000 lb.
Tag Axle	PT38 & PT40 10,000 lb.
Wheelbase	PT38-233 in.; PT40 247-in.
Air Brake System	
Front Axle	Self adjusting 16.5 in. × 5 in. brakes
Rear and Tag Axles	Self-adjusting 16.5 in. × 7 in. brakes
Air Reservoirs	Four Air Tanks 6,520 cu. in.
Retarder	Allison Transmission Brake/Retarder

Wheels & Tires (8)	Aluminum rim, 11R22.5, 16 PR tubeless steel-belted radial
Tire Inflation	See information plate inside generator battery door
Axle Ratio	3.42:1
Belts	
Alternator	WL P/N 3740115- Dayco 42-1017 (2)
A/C Compressor (Set)	WL P/N 0921908 (1)
Leveling Jacks (Hydraulic)	
Front (each)	32,000 lb. rating
Rear (each)	48,000 lb. rating
Trailer Hitch Ball Nut	
Torque	200 ft.-lb.

Table 8-2

Engine/Chassis Capacities

Diesel Fuel Tank Capacity	300 gallons
Fuel Additive Recommended for Use	
with #2 Diesel Fuel	US Borax Biobor JF
Fuel Additive to use per	
100 gallons	2.8 fl. oz.
Lubrication System	
Crankcase Capacity	
Dry	6V92-23 qts.; 8V92 25-qts.
Refill	6V92-21 qts.; 8V92 23-qts.
Cooling System	
Capacity	approx. 117 qts.-8V92 with cockpit and living area heaters
Specification	Low Silicate Ethylene Glycol Base Antifreeze (Formulation standard GM 6038-M)
Oil Specifications for Engine	
API	CC/SE, CC/SF, CD/SC, CD/SE, or CD/SF
30 degrees to 100 degrees F	SAE 40, SAE 30
Below 30 degrees F	SAE 40, SAE 30, or 15W-40
Frequency of Oil Change	Every year or 20,000 miles
Oil Filter	WL P/N 3734209 (AC PF911 or FLEETGUARD LF 3333)
Frequency of Filter Change	Every oil change
Power Steering and Hydraulic Engine Cooling Fan	
Specification	10W-30 Motor Oil
Capacity	20 quarts
Filter Element	WL P/N 2122026 (Parker 925835)
Reservoir Element	WL P/N 2137065 (3 req'd)
Frequency of Filter Change	Every oil change
Leveling Jacks	
Specification	Dexron II
Capacity	20 quarts



Transmission
 Specification Dexron, Dexron II
 Capacity 16 quarts MTB 654 and
 16 quarts HTB 741 including
 filter and cooler

**Table 8-3
 Gradeability (Hill Climbing)**

Listed below are the gradeability limits for each transmission range. These are based on engine operation at full throttle at GVWR and with maximum allowed towing weight.

GM 8V92T (475 HP) w/ Allison
 HTB 741 Transmission

	45,200 (GVWR) Percent	55,200 (GVWR + Max. Towing Wt.) Percent	Speed MPH
1st	17.7	14.4	15.3
2nd	7.5	6.1	35.8
3rd	4.4	3.5	52.4
4th	1.9	1.4	73.1

**Table 8-4
 Generator Capacities and Specifications**

Electrical Rating 12.5KW at 120 Vac
 Fuel Supply Diesel, separate pickup
 in main tank
 Fuel Filter Element
 Racor element WL P/N 3737673
 Cooling System Water-cooled 16 quarts
 Crankcase Capacity 6.1 quarts
 Oil Filter WL P/N 3831328
 Oil Specifications for Generator
 API Classification CD
 Below 50°F. SAE 10W-20W
 50°-68°F. 20W or 20
 68°-95°F. 30 or 40
 Over 95°F. 50
 Battery 12 volts, 90AH
 Air Filter Element WL P/N 3779055
 (Donaldson P10-2745 or P12-3065)

**Table 8-5
 Motorhome Capacities
 and Specifications**

Potable Water Tanks* 116 gal.
 Holding Tank, Gray Water 100 gallons
 Holding Tank, Waste 100 gallons
 LPG Tank 148 lbs.-net (43.5 gallons)
 Water Pump 3.5 GPM
 Water Heater 10 gallons
 Batteries .. Six 6-volt batteries, series-parallel
 connected to supply 12v at 660 AH

Battery Chargers .. 30-80 amperes output each
 Air Conditioners**
 Automotive 18,000 BTU
 Roof Air (3) 13,500 BTU ea.
 Hot Water Circulating Heaters***
 Living Area (3) 50,000 BTU ea.
 Bathroom 15,000 BTU
 Driver's Area 90,000 BTU
 Gas/Hot Air Heaters**
 Livingroom 32,000 BTU
 Bathroom 15,000 BTU
 Electric Heaters, 120 volt (4) . 1500 watts ea.
 * 83 gallons with cross-bed option (96 w/Queen);
 102 gallons with cross-bed option & 109 gallons
 with twin-bed option.
 ** NEMA Rating
 *** SBBMA Rating

**Table 8-6
 Maintenance Schedule Summary**

Item
 — Frequency
 — Type of Service
 and Specification

Transmission
 — At 5,000 miles, thereafter at normal oil
 change intervals
 — Replace transmission filter
 WL P/N 0998542, (AC PF-897)
 MTB654
 WL P/N 3831302, (AC HD-223)
 HTB 741
 — in cooler return line.
 — At 25,000 miles, or 12 months, whichever
 occurs first
 — Replace transmission fluid (De-
 xron or Dexron II)
 — Replace transmission internal filter
 WL P/N 3827540
 (Kit DDA P/N 23019201)
 with MTB654 only

**See Section X Diagram, Lubrication Guide for
 service of other Engine/Chassis components**

Batteries
 — Every 500 miles to 1,000 miles
 — Replenish cells with distilled water
 to 3/8-inch above plates.
 — Coat Battery terminals with lubri-
 cant



Air Cleaner

- 10,000 to 15,000 miles
 - Replace when air cleaner indicator shows red after run at 2,000 R.P.M. Sometimes will show red after high power run (normal): Reset WL P/N 3734191, (Donaldson P12-9396)

Fuel Filters

- 10,000 to 15,000 miles
 - Replace as required
 - Secondary Filter WL P/N 3734175 (Fleetrite FFR8206)
 - Racor Filter and Water Separator
 - Change when vacuum (RACOR) gauge goes into red.
 - Element WL P/N 3831310 (Racor 2020SM)
 - Gasket (large) WL P/N 3747359 (Racor 11007)
 - Gasket (T-handle) WL P/N 3747342 (Racor 11350)

Note

Experience may indicate interval revisions.

Air Brakes System

Reservoir Tanks

- Daily or depending on usage (not necessary with air dryer)
 - Drain each reservoir tank of moisture by opening petcock at bottom of tank.

Air Compressor Air Dryer

- 23,000 miles, or every 3 months, or every 900 hours. Refer to Bendix Air Dryer Manual.
 - Check/replace air dryer cartridge WL P/N 2107753 (Bendix 287313)

Air Suspension System

- 1,000 miles to 3,000 miles, or every month
 - Check air springs for even inflation
 - Check for tightness of nuts, bolts, air connections
 - Check shock absorbers for oil leakage, worn bushings
 - No lubrication is required

**Table 8-7
12-Volt Lighting Equipment,
and Fuses, Current Usage**

Item	Specification (Qty)/Amperes
Automotive Lighting Marker/Clearance/ Identification, bulb # 1895	(16)/4.5
Stoplights, bulb upper & lower # 1157	(4)/8.4
Parking Lights bulb # 1157 & # 194 (front inside)	w/tag (9)/4.5
Turn Signal Lights bulb# 1157	(2)/4.2
Cornering Lights, bulb # 1156	
Side Turn Lights, 2/side, 2 # 1895 bulbs/light	
Indicator Light WL P/N 2271955	
Relay – rear lights, WL P/N 1077718, located at upper front load center	.14A. ea.
Hazard Warning	(6)/12.6
Tag Light, bulb # 168	(1)/.35
Headlights and Taillights (with park & tag)	
G.E. Halogen Sealed Beam Units 1C1 & 2C1	
Hi-Beam Operation	(9)/13.7
Low-Beam Operation	(7)/8.0
Driving Lights, bulb WL P/N 2143477	(2)/15.6
Instrument Panel—Electroluminescent (inverters)	(3)/1.0
Instrument Panel—Gauges, bulb # 53	(14)/1.7
Spot Lights, bulb W/L P/N 2103760	(2)/13.6
Stepwell outside, bulb # 53	(1)/.12
Stepwell inside, bulb # 67	(1)/.55
Landing Lights, bulb assy. W/L P/N 2261626	(4)/27.2
Backup Lights, bulb # 1156	(2)/3.8
Rear Parking Halogen	(2)/13.4
Engine Compartment Lights bulb # 67	(3)/1.7
Luggage Compartment Lights bulb # 1416	.8A. ea.
Porch light, bulb # F8T5/CW	(2)/2.2
Interior Lighting	
Reading Spots, bulb # 1383	(15)/1.54 ea.
Front Living, Flush, bulb# F15T8/CW	(8)/14.0
Aisle, (night) bulb #53	(3)/.36
Bathroom Mirror bulb # F8T5/CW	(2)/2.2
Bathroom, Flush, bulb# F15T8/CW	(2)/3.5
Shower, bulb # 1141	(1)/1.5



Dinette, Flush, bulb # F15T8/CW	(2)/3.5
Kitchen, Flush, bulb# F15T8/CW	(2)/3.5
Bedroom Island bed, bulbs F72T12/CW & F96T12/CW	(2)/6.3
Ceiling, Flush, bulb # F15T8/CW	(3)/5.3
Vent Fans, bulb # 912 @1.0A.	(4)/4/Vent
Refrigerator W/LP/N3783917 Dometic 200-7290-00/6	(1)/8
Windshield Wipers	(2)/8.0(max.)
Water Pump	(1)/6.2
Blower Motors	
Front Heater (Hi/Lo) Right	(1)9.0/4.5
Defroster (Hi/Lo)	(1)9.0/4.5
Foot Warmer (Hi/Lo) Left	(1)9.0/4.5
Chassis Heater (Hi/Lo)	(3)9.0/4.5 ea.
LPG Furnace	(3)9.0
Portable Fan	(1)/1.0
Duct Booster	(1)/1.0
Ceiling Vent (round)	(1)/4.0
Vent Fan (square)	(4)/8.8
Stereo System	(1)/15
Motor Generator	(1)14.6

Changing Wheels/Tires

The wheel/tire assemblies used on your motorhome are heavy-duty truck-type. They are **heavy** and may be difficult to handle. If at all possible, changes should be accomplished by a service station equipped to handle truck equipment. However, if a situation arises where no service facilities are available, the following procedures may be used.

Front Axle Wheels

1. Drive motorhome out of traffic lane onto a level surface capable of supporting jack.
2. Turn on hazard flasher and apply parking brakes before leaving coach.
3. Turn off ignition and set transmission selector to **Neutral (N)** position.
4. Remove white plastic wheel saver, jack, lug wrench and handles from road side storage compartment.
5. Place wheel chocks against front & rear of tires on opposite side.
6. Place jack under axle and raise slightly until securely in place. See figure 8-1 for location of typical jacking point.

Caution

Bumpers are not designed for lifting and/or towing of the vehicle.

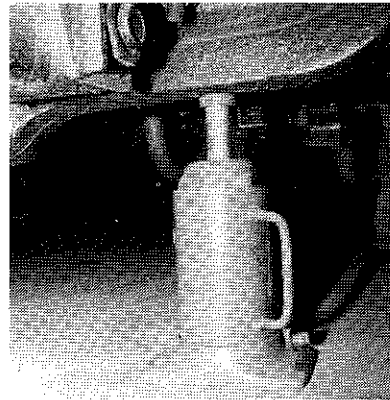


Figure 8-1. Locating Jack

7. Remove spare wheel assembly from mounting and place on ground near work area.
8. Pull off lug nut covers.
9. Install wheel saver.

Note

It is recommended that the wheel saver be used when loosening or torquing lug nuts.

10. Loosen lug nuts slightly, then jack up coach until tire is clear of ground.

Warning

Hydraulic Leveling Jacks are not to be used as service jacks. Under no circumstances should anyone work under or around the coach unless the coach is securely supported at the frame rails.

Note

Lug nuts on right side of coach are righthand threaded (turn counter-clockwise to loosen, clockwise to tighten); lug nuts on driver's side of coach are lefthand threaded (turn clockwise to loosen, counterclockwise to tighten).

11. Remove lug nuts and wheel assembly.
12. Install spare and replace lug nuts. Tighten progressively in the sequence shown in figure 8-2 starting with # 1 and proceeding to # 10. Final torque will be 450 to 500 foot-pounds.



13. Snap front hub cover into front wheel opening after front lug nuts have been properly torqued.
14. Place lug nut covers on all lug nuts. Make certain that these nut covers fit snugly. This is accomplished by squeezing the dimpled sides together before installing.

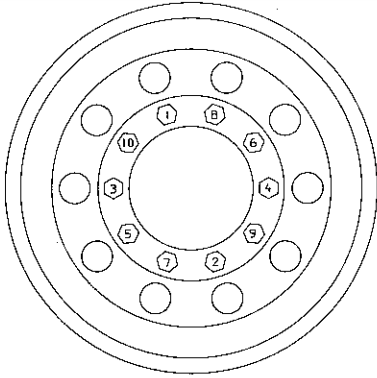


Figure 8-2. Lug Nut Tightening Pattern

15. Lower coach to ground and remove jack and handle.
16. Replace wheel saver, lug wrench, jack and handles in storage compartment and tie down to prevent road noise. Return damaged wheel/tire assembly to holder and have it repaired as soon as possible.
17. Remove and stow wheel chocks.
18. Turn off hazard flasher before returning to traffic.

Drive Axle Dual Wheels

1. Repeat steps 1 through 10, front axle wheels.
2. Loosen inner lug nuts (studs with square heads), if inner wheel is to be replaced.
3. Remove outer lug nuts from the (5) studs which have lock rings and slide hub cover over remaining lug nuts.
4. Remove the (5) remaining lug nuts and wheel.
5. Remove inner lug nuts and inner wheel, if inner wheel is to be replaced.
6. Install replacement wheel and inner lug nuts. Tighten progressively in the sequence shown in figure 8-2 starting with # 1 and proceeding to # 10. Final torque should be between 450 and 500 foot pounds.
7. Install outer wheel (or replacement wheel) and lug nuts over inner lug nuts marked 1, 3, 7, 9

and 6. Torque nuts in the following sequence 1, 7, 6, 3 and 9 to between 45 and 500 foot pounds.

8. Install hub cover over the (5) lug nuts holding wheel to hub. Place lock rings and lug nuts on remaining inner lug nuts 10, 5, 2, 4 and 8.
9. Replace wheel saver.
10. Torque nuts in the following sequence 10, 2, 8, 5 and 4 to between 450 and 500 foot pounds.
11. Return to step 14 of **Front Axle Wheels** and continue.

Note

When checking torque on dual wheels loosen all outside lug nuts. Check torque on inner lug nuts (studs with square heads) for torque value shown above then torque outer lug nuts to value shown above.

Tag Axle Wheels

1. Repeat steps 1 through 10, front axle wheels.
2. Remove lug nuts from the (5) studs which have lock rings and slide hub cover over remaining lug nuts.
3. Remove the (5) remaining lug nuts and wheel.
4. Install replacement wheel and lug nuts on studs marked 1, 3, 7, 9 and 6. Torque nuts in the following sequence 1, 7, 6, 3 and 9 to between 450 and 500 foot pound.
5. Install hub cover over the (5) lug nuts holding wheel to hub. Place lock rings and lug nuts on remaining studs 10, 5, 2, 4 and 8.
6. Replace wheel saver.
7. Torque nuts in the following sequence 10, 2, 8, 5 and 4 to between 450 and 500 pounds.
8. Return to step 14 of **Front Axle Wheels** and continue.

Caution

Check lug nuts for tightness every 1,000 miles. Lug nuts should be torqued to 450 to 500 foot-pounds.

Battery Maintenance

Your motorhome is equipped with six 6-volt batteries, connected in a series-parallel arrangement to provide 12 volts for engine and motorhome use.



This arrangement makes available 660 AH (20 hour rate). Batteries are located in the rear engine compartment on the curb side, as shown in figure 4-2. A separate 12-volt battery is contained in the road side front compartment and is used only to start the generator. All batteries are charged from either the engine alternator or battery chargers (when 120 volts ac is available). Note that the 12.5kw generator will supply 120 volt ac to the battery chargers.

Periodic Battery Checks and Maintenance

Periodically check electrolyte level in the six six-volt batteries. Odorless drinking water may be used to raise the level of the electrolyte. Before charging batteries must be filled only sufficiently to cover the plates. After batteries are fully charged, the maximum should be no higher than it takes for the electrolyte to form a "fisheye" at the bottom of the fill well. The generator battery is sealed so it is not necessary to check the level of the electrolyte. Battery condition depends on battery usage and proper utilization of the battery chargers.

Caution

Avoid sparking of any form in the vicinity of the batteries, especially while caps are off.

Caution

Do not wear metal rings, watches or jewelry when working on or near the batteries, cables, solenoids, or chassis wiring. These can short out electrical wiring and cause injury

To make sure that the batteries are always ready for use, periodically check and charge as necessary. Check batteries at least every two weeks in freezing weather; at least every four weeks in warmer weather. A fully-charged battery will not freeze under normal circumstances, so it is imperative that the batteries remain charged during winter. A safe level of charge is a specific gravity reading of 1.225 to 1.280. Always use a battery hydrometer which has a temperature correction scale. It is advisable to have the coach shoreline connected to the 120 volt ac supply so that the batteries remain fully charged.

A dirty battery may eventually dissipate its charge through conductive surface contamination. Clean battery top surface with a damp cloth and dry thoroughly. Check that battery terminals and

associated battery jumper terminals are tight and free of corrosion. To clean terminals, neutralize corrosive deposits with a solution of baking soda, rinse with clear water, and dry. Note that commercial type spray-on battery cleaners are available at automotive supply stores. Use as directed to keep the batteries clean. Spray-on cable and terminal protective coatings are also available, easy to use, and effective.

Exterior Care

Exterior paint finish life can be extended by periodic cleaning and waxing. This will preserve the paint and allow easier removal of dirt and road tars. Use touch-up paint for small areas to keep the coach finish in like-new condition.

Caution

Avoid the use of strong detergents, such as those used in commercial truck washes. These detergents can discolor the aluminum trim on your coach.

Frequent washing of the coach is necessary to prevent corrosion in areas where heavy salt sprays are evident. A clear acrylic spray may be used, with care, to control corrosive effects of salt spray on metal surfaces.

Caution

Avoid spraying water through the refrigerator vent door.

Interior Care

The interior can be kept in good condition with the use of approved cleaning agents for vinyl walls and ceilings, plastic fixtures, stainless steel, formica and so on. Never use abrasive cleaning agents on interior of refrigerators, or on the lavatory, tub/shower, or toilet, as they can cause permanent scratches. Be sure that the cleaning agent will not damage the material. Note that some plastics are incompatible with certain cleaners. Read the directions on the container before using. For the most part, the cleaners and polishes that would normally be used in your home are equally well-suited for use in your motorhome.

Fluid Level Checks

Crankcase Oil Level

The crankcase oil dipstick is shown in figure 8-3.

The oil level must be checked only with the engine off. Maintain oil level at the proper fill line. If



checking oil level immediately after engine has been operating, allow a few minutes for the oil to drain back into the crankcase before checking the oil level reading.

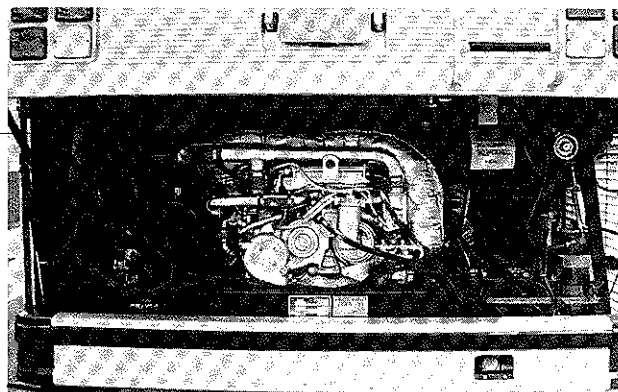


Figure 8-3. Engine Compartment

The best time to check the oil is before getting underway because the engine is cool and the reading will be most accurate.

Power Steering and Hydraulic Cooling Fan Reservoir Fluid Level

Regularly check fluid level in the power steering and hydraulic cooling fan reservoir, figure 8-3, at each fuel stop. Add only 10W-30 motor oil as necessary to maintain the correct dipstick reading, depending on fluid/engine temperature. (Note that dipstick is attached to the bolt on top of the reservoir). If the fluid is at normal operating temperature — about 150 degrees, and hot to touch — the dipstick should indicate 1/2 to 3/4 full. If engine is cool, fluid level should read about 1/2 full.

Caution

The hydraulic fluid used in this unit is 10W-30 Motor Oil. Do not use conventional power steering fluid or the pump may be damaged.

Transmission Fluid Level

The transmission dipstick is shown in figure 8-3.

Importance of Proper Oil Level

Since the transmission oil cools, lubricates, and transmits power, it is important that the proper oil level be maintained at all times. If it is too low, the converter and clutches will not receive an adequate supply of oil. This can result in poor performance or transmission failure. If the level is too high, the oil will aerate, causing the transmission to overheat. Check the oil level at intervals

specified in your vehicle service instructions, or more frequently, if operating conditions indicate.

Oil Check Procedure

Always clean around the end of the fill tube before removing the dipstick. Dirt or foreign matter must not be permitted to enter the oil system. It can cause valves to stick, cause undue wear of transmission parts, or clog passages. Check the oil level by one of the following procedures and report any abnormal oil level to your maintenance personnel. Check for abnormal oil level, milky appearance or any trace of coolant in the oil.

Hot Check

1. Operate the transmission in a drive range until operating temperature (160-200°F; 71-93°C) is reached.

Note

The oil must be hot to ensure an accurate check. The oil level rises as temperature increases.

2. Shift through all drive ranges to fill the clutches and oil passages.
3. Park the vehicle on a level spot, shift to neutral **N** and apply the parking brake. Let the engine run at idle speed.
4. Wipe the dipstick clean and check the oil level. The safe operating level is any level within the **Hot Run** band on the dipstick.
5. If not within this range, add or drain oil as necessary to bring the level to the middle of the **Hot Run** band.

Cold Check

1. A cold check may be made when the sump temperature is 60-120°F (15-40°C).
2. Run the engine for at least one minute to clear the oil system of air.
3. With the engine running at idle, wipe the dipstick clean and check the oil level. Any level within the **Cold Run** band is safe for operating the vehicle. If the level is at or below the bottom of the **Cold Run** band, add oil until it reaches the middle of the **Cold Run** band.
4. Operate the vehicle and make a hot oil check when operating temperature is reached (160-200°F; 71-93°C).



Racor Fuel Filter and Water Separator System

Filter/Separator Operation

The three stages of the Racor filter/separator, figure 8-4, work in series to progressively clean the diesel fuel. Because virtually all water and larger particles of solid contamination are removed in the primary and secondary stages, the effective life of the fine micron replaceable element is 2-3 times longer than standard filters.

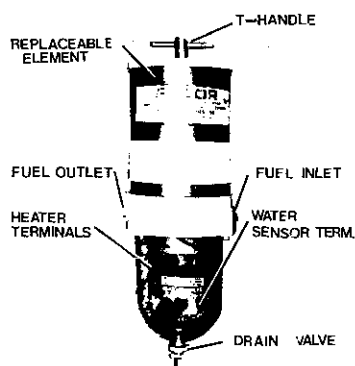


Figure 8-4. Racor Fuel Filter/Separator

Primary Stage (Separation) — In the primary stage, liquid and solid contamination down to 30 microns are separated out by centrifugal action created by the turbine centrifuge. There are no moving parts in this highly efficient design. Because the contamination is heavier than the fuel it falls to the bottom of the clear bowl.

Secondary Stage (Coalescing) — This stage functions when minute particles of liquid contaminants (lighter than the fuel) remain in suspension and flow up with the fuel into the lower part of the filter/separator shell. Here the minute particles tend to bead on the inner wall of the shell and the bottom of the replaceable cartridge. As the beads accumulate, they become larger and heavier and will eventually fall to the bottom of the filter/separator bowl.

Final Stage (Filtration) — In this stage the fuel enters the replaceable cartridge where the minute solids are removed.

In-Filter Fuel Heater

Internal automatic thermostats turn on the Racor in-filter fuel heater as the fuel temperature drops below 35°F. (1.7°C.)

The in-filter fuel heater operates from the 12-volt battery source, supplying heat to the fuel filter just

below the replaceable element. This critical placement provides increased fuel temperature as the fuel passes through the fine micron filtering element.

When the engine is not running and the temperature is below 35°F., the heater is operated by turning on the ignition switch for a maximum of 10 minutes prior to starting the engine. With the diesel fuel temperature above 35°F, there is no waxing or icing of the filter element. The in-filter heater is primarily a cold starting aid. Note that the top two terminals imbedded in the glass filter bowl connect to the internal heater.

Water-In-Filter Alarm

The electronic water sensor alerts the operator when liquid contaminants filtered out of the system should be drained from the collector bowl, thereby maintaining maximum filter/separator efficiency.

When water reaches a pre-determined level in the collector bowl, sensing probes activate the **Water-In-Filter** alarm circuit. The light illuminates, warning the operator to drain excessive water contamination collected in the bowl. Shut down engine before draining the bowl to avoid sucking air into the system. Note that the bottom two terminals imbedded in the bowl connect to the water sensors.

Maintenance

Filter Element — Routine maintenance of the Racor unit consists of periodic filter replacement and drainage of the moisture collected at the bottom of the bowl. (Engine is off during maintenance.)

Filter Element Replacement — Replace the element as follows:

1. Loosen handle and remove lid.
2. Inspect lid gaskets and replace, if necessary.
3. Remove filter element by grasping bale and lifting upward while rotating.
4. Replace Racor element by positioning over center return tube and twisting downward into place.
5. Top off by pouring clean diesel fuel into filter cylinder until full.
6. Replace lid and hand-tighten handle.

Draining — Drain bowl of accumulated moisture by opening petcock on bottom of bowl. Allow to flow until clean fuel appears.



Hydraulic Cooling Fan

The hydraulic cooling fan is thermostatically-controlled to maintain engine temperature at approximately 195 degrees F. The oil reservoir for the fan, figure 8-3, is the large cannister located between the fan assembly and the engine. Add oil as indicated by dipstick markings. Note that this reservoir also supplies the power steering system as well.

Note

Use only engine oil, SAE 10W-30

Oil and filters should be changed every 6 months or 25,000 miles, whichever comes first. Check condition of oil frequently when engine is hot. Run engine to 2100 R.P.M.; if red light (located on rear switch panel) comes on change oil and filters.

One filter is in Parker unit at left rear axle. The three stacked elements must be replaced in the reservoir.

Leveling Jacks Reservoir

The leveling jacks oil fill is located beneath the center entry step, as shown in figure 8-5. Lift up the hinged portion of the step and remove the screws attaching the square metal cover plate to gain access to the oil fill to check oil level.

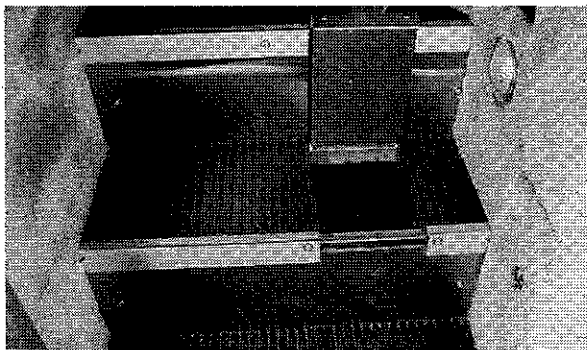


Figure 8-5. Location of Leveling Jacks Reservoir

Engine Air Filter Replacement

Check the air filter condition indicator, figure 8-6, on a regular basis. Sometimes the red band will show after a high power run. This is a normal condition. Reset to green band and run engine at a maximum of 2000 rpm. Filter should be replaced if red band is shown.

Caution

Do not operate the engine without the air filter in place or sensitive air metering systems may be damaged.

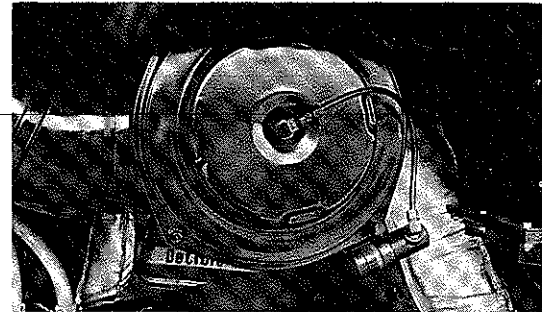


Figure 8-6. Location of Air Filter Condition Indicator.

Engine Cooling System Refill

Use of low silicate ethylene glycol base anti-freeze (formulation standard GM 6038-M) is recommended for summer or winter operation because of its corrosion inhibition and lubrication properties. A 50-50 solution of antifreeze and water is preferred and it gives freeze protection to about 30°F below zero. Ultimate protection is attained at 68% antifreeze (about 92°F below zero): a higher concentration of antifreeze should never be used. The approximate (dry) cooling system capacities for 6V92 engine are:

Engine, Radiator, & Engine Hoses	18.5 gallons
Right front heater system	5 gallons
Rear coach heater system	4 gallons
Total	27.5 gallons (110 quarts)

...so the system would require 14 gallons of anti-freeze for a 50% solution or 19 gallons for a 68% mixture. The 8V92 engine has approximately a 117 quart capacity so similar calculations would show anti-freeze required. Final solution should always be tested with a thermo-hydrometer or equivalently reliable testing device to determine actual protection.

If it becomes necessary to completely re-fill the chassis coolant system, the following procedure must be followed (see figure 10-1). Pure antifreeze can be used initially until prescribed amount has been installed, and then water for final filling.

- 1. Fill the engine, radiator, and engine hoses.**
Locate and close the manual gate valves separating the engine from the heater systems.



Pressure and return gate valves (four) are located at the engine. In addition, a pressure valve for the front heater is electric solenoid operated. Close the front heater electric solenoid valve by placing the **FRONT HEAT** switch in the pilot's control area to the **OFF** position. Remove the radiator surge tank cap and fill to the top. Replace cap and run engine @1500 to 1800 RPM for one minute to purge air from the engine water jacket. Shut off engine; carefully remove the radiator surge tank cap; re-fill and replace the cap.

Note

Use extreme care at all times when removing the radiator surge tank cap as hot coolant under pressure can cause injury.

2. **Fill the front heater and rear heater systems.** An air bleeder valve for the front heater is located behind the right side front bumper. Leave the return line gate valves closed and open the pressure line valves for front and coach (chassis) heaters. Place the **FRONT HEAT** selector to the **HEAT** position and the **HEAT SELECTOR** switch to the **WINTER** position. Press the **AUX. PUMP** switch to **WINTER**.

Using suitable containers to catch coolant, open the bleeder valve at front heater and remove right side hose from return TEE (above the chassis serial number end of the identification plate) and run the engine at 1,800 RPM until a steady flow of coolant passes through the front bleeder valve and open hose at rear.

The radiator must be refilled often during this time as coolant from the engine will be filling the heater lines. When steady flow is attained from the bleeder valve, close it and open return line gate valve (bottom valve at left rear of engine) allowing coolant to flow back into the engine. When a steady flow comes from the open hose, shut off engine, reconnect hose, and open return gate valve (just below TEE). Refill radiator using coolant caught from bleeding operation and add water as necessary. Restart engine and run at 1800 RPM for at least two minutes to complete system purge. Test heater blowers to make sure heaters are filled with hot coolant.

Allow engine and radiator to cool. Remove cap and fill radiator surge tank to the top of sight glass. Replace cap — refill procedure is completed.

Cooling System Additives

Automotive cooling systems are subject to various types of corrosion, rust, pitting and cavitation-erosion. These are common factors which prevent efficient cooling and contribute to engine overheating and higher maintenance costs resulting from replacement of hoses, fittings, filters and cracked heads. The manufacturer of the engine used in your motorhome recommends the use of Nalcool 2000 — a chemically buffered liquid additive which effectively neutralizes the formation of acids caused by dissolved exhaust gases, and inhibits the cooling system against corrosion and scale formation. This additive is compatible with most commercial automotive anti-freeze solutions containing ethylene glycol; however, its use is not recommended in cooling systems using Dow Therm 209. When refilling the coolant system, add seven pints of Nalcool before topping-off with anti-freeze solution. To ensure constant system protection, replenish Nalcool 2000 additive, periodically, in accordance with manufacturer's instructions.

Windshield Washers

Check reservoir fluid level periodically and use a prepared washer solution if possible. (Note that low reservoir levels are indicated by a dash monitor light.) During freezing weather, use a solution additive, or a solution specifically designed for cold weather usage. The washer reservoir is accessible through the front road side storage compartment.

Battery Jumper Terminals and Jump-Starting

For your convenience and safety when jump-starting, terminal **posts** are provided in the curb side of the engine compartment (open rear door). Proper procedure for jump-starting is as follows:

1. Turn off all main battery-operated accessories in both vehicles — lights, radio, etc.
2. Connect one end of the positive-coded jumper cable to the positive (red) battery jumper terminal, and the opposite end of the cable to the positive (+) terminal on the other battery.
3. Connect one end of the negative-coded jumper cable to the negative (-) terminal on the other battery and the opposite end of the cable to the negative (black) battery jumper terminal.



4. Once the engine of the disabled vehicle is started and brought up to idle, reverse the above procedure to remove the jumper cables. Always remove the jumper cable connected to the Wanderlodge® negative (black) battery jumper terminal first to prevent sparks at the other battery.

Caution

Avoid sparks in the vicinity of a charging battery: the gas produced is explosive.

Generator

Keep the generator operating at peak efficiency by following a regular schedule for inspections and servicing, based on operating hours. Keep an accurate logbook record of maintenance, service and hours of operation, following regular schedules for normal operating conditions, and a more frequent service schedule for operation under dusty or dirty conditions. Check condition of crankcase oil and change air filter frequently until the proper service/time periods can be determined based on your usage.

After the first 15 to 30 hours of operation, arrange to have the following performed at an authorized service center.

- Drain and refill engine oil.
- Replace engine oil filter.
- Check external nuts and bolts for tightness.
- Torque cylinder head nuts.
- Check and adjust valve tappets.
- Check for fuel or lubricating oil leaks.
- Check radiator coolant level and inspect cooling system for leaks.
- Check and adjust water pump belt tension.
- Check mounting tray bolts and vibro mounts for tightness.
- Operate generator set a full or rated load, checking for proper output and governor operation.

Maintenance Schedules

Use the generator maintenance schedule in table 8-7 as a guide for routine and periodic maintenance. Neglecting generator maintenance can result in failures or permanent generator damage. Refer to the generator service manual for detailed repair and maintenance.

**Table 8-8
Generator Maintenance Schedule**

Frequency

— Service

Daily, or before each startup

- Check oil level
- Check coolant level
- Clean radiator intake screen

Every 50 hours, or 3 months, whichever occurs first

- Change lubrication oil
- Change oil filter
- Service air cleaner
- Check engine for oil, water, or fuel leakage
- Check belt tension

Every 200 hours, or 12 months, whichever occurs first

- Check hoses and clamps
- Check and tighten electrical connections
- Check exhaust system for leakage
- Check and tighten mounting bolts
- Replace fuel filter element
- Check electrical system for frayed wires, corroded connections

Every 400 hours or 12 months

- Contact authorized service center for tuneup to include:
 - Injector inspection
 - Check and adjust valve tappets
 - Clean sliprings and inspect brushes
 - Check governor operation and adjust as necessary.

Periodically, perform a complete visual inspection of the generator when operating at full load.

Caution

The generator tray is electrically operated and extends outward with considerable force. To extend the tray, move around to the road side and operate the tray switch in the front compartment to out position. Be sure that there is sufficient clearance in front of the tray and that nobody is in the way! Use extreme caution when observing and operating generator with tray extended.

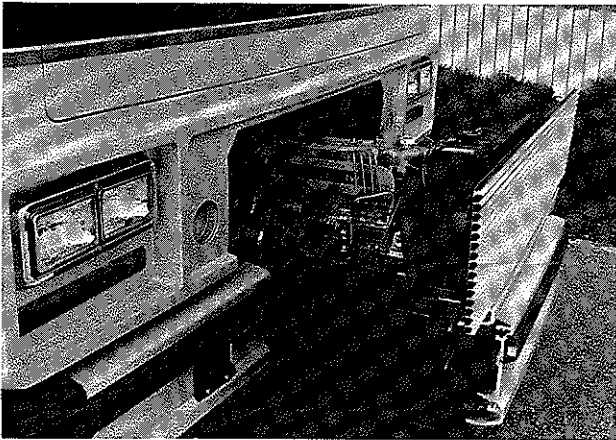


Figure 8-7. Generator Unit, Tray Extended Battery

Check the condition of the generator battery periodically. See that battery connections are clean and secure. A light coating of nonconductive grease will prevent corrosion at terminals. Refer to Battery Maintenance procedures provided earlier in this section.

Air Cleaner

Proper maintenance of the air cleaner, figure 8-8, is extremely important. Allowing this vital element to become clogged with dirt restricts the flow of intake air into the engine. Operating with an over-rich fuel mixture caused by a poorly serviced or clogged air cleaner leads to formation of harmful carbon/sludge deposits.

This air cleaner should be serviced every 100 hours or six months as follows:

1. Loosen thumbscrew in Marman clamp while holding bowl.
2. Remove bowl.
3. Remove element thumbscrew and element.
4. Wash bowl in non-flammable cleaner. Allow to air dry.
5. Install new element & replace thumbscrew.
6. Replace bowl and tighten Marman clamp thumbscrew. Be sure letters **TOP** are up.

If operating under extremely dusty conditions, use dry compressed air to blow out generator at frequent intervals. Do this with the generator set operating and direct the stream of compressed air in through the cooling louvres at the end of the generator.

Oil Pressure

Always ensure that with the engine running, oil pressure is registering on the upper dash generator oil pressure gauge.

Pressures do vary according to climatic conditions and even between individual engines, but the oil pressure range at normal working speed and temperature will usually vary between 30 to 60 psi. The pressure will drop while the engine is idling and also a slight drop will be experienced when the oil is hot.

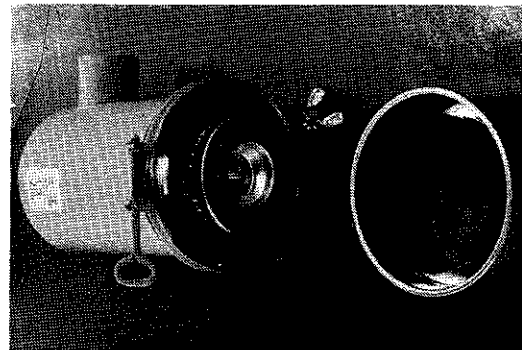


Figure 8-8. Generator Air Cleaner

Oil Filters

To ensure cleanliness of the lubricating oil, a sump strainer and a main full flow type of oil filter are used. The sump strainer consists of a gauze wire container which is fitted over the end of the lubricating oil pump suction pipe. All oil must pass through this strainer before it reaches the oil pump.

The main full flow type oil filter is mounted externally on the side of the cylinder block. All the oil passes through this filter after it leaves the pump, but before it reaches the bearings.

The full flow filter is a spinon cartridge in which the element is an integral part. Filter should be replaced at each oil change.

Replacing Oil Filter Cartridge

1. Unscrew the cartridge from the adapter.
2. Discard the old cartridge. Clean the filter adapter surface.
3. Using clean engine lubricating oil, lightly oil the top seal of the new cartridge. Prime filter by partially filling with new oil.



4. Screw the new cartridge until the seal just touches and then tighten by hand a further half of a turn. If the cartridge is overtightened, it may be difficult to remove later on.
5. Since the filter cartridge will normally be changed at the same time as the engine lubricating oil, refill the sump with oil, run the engine and check for oil leaks. Recheck the oil level after running the engine and add oil as necessary.

By-Pass Valve

If the lubricating oil filter element becomes contaminated to the extent where the lubricating oil has difficulty in passing through the element, a pressure difference will build up between the inlet and outlet sides of the filter assembly. When this pressure exceeds 50 psi (approximately), a ball valve opens in the filter headcasting and allows unfiltered oil to by-pass the filter element to protect the engine from oil starvation.

Oil Check

To be on the safe side, check oil in engine crankcase daily, or before each start, to ensure that the level is in the safe range between the upper and lower marks on the dipstick. Do not operate generator if level exceeds the upper mark, or is below the lower mark.

Caution

Do not check oil level while engine is operating. Engine must be stopped to obtain a true reading, as well as for safety reasons!

Oil Change

Whenever possible, drain the oil while the engine is still warm. To drain, place a container below the unit, open the oil drain and allow sufficient time for the old oil to drain completely. After draining, close drain plug and tighten securely.

Cooling System

To avoid having the inconvenience of the generator shutting down due to overheating, or becoming damaged as a result of an overheat condition, be sure to keep the cooling air inlets to the compartment clean and unobstructed at all times.

Cooling system capacity is about 16 quarts of liquid. When operating in climates subject to freezing temperatures, make sure that enough anti-

freeze solution is added to the coolant to prevent system freeze-up. (A drain petcock is provided on the underside of the radiator.) When draining the coolant, remove the radiator cap and open the block drain valve near the oil filler cap to prevent air pockets from forming and blocking water in passages in the block.

Check coolant level frequently and add anti-freeze mixture as needed to maintain surge tank 1/2 full.

Table 8-9

Anti-Freeze Protection Chart

Anti-Freeze Protects to:	Mixture Proportions (ethylene glycol)
+ 16 degrees F (− 9 degrees C)	20%
+ 3 degrees F (− 16 degrees C)	30%
− 11 degrees F (− 24 degrees C)	40%
− 31 degrees F (− 35 degrees C)	50%

Generator Troubleshooting

Refer to the generator service manual for repair and maintenance data. Generator repairs should be accomplished by a qualified repair agency.

Generator Overloads

If the rated capacity of the generator is exceeded, the safeguard circuit breaker, located on the front of the controller box, will trip to protect the generator against damage. This condition could be caused by a short in the coach ac supply circuits, or by operating too many appliances simultaneously, resulting in an overload condition. If the safeguard circuit breaker trips, the generator will continue running but no ac output will be supplied. Before resetting the circuit breakers, turn off some of the coach appliances and lighting to reduce the load to within the operating limits of the generator. If this is done, and the generator breakers still trip, a short circuit is indicated. Turn off the generator, locate and correct the cause of the short circuit.

Generator Battery Charging

Generator battery charging current is supplied from either the engine alternator or the battery chargers (when ac power is available).

Storage Procedures

If the generator is to be out of service for a long period of time, perform the following procedures before placing the unit in storage:



1. Drain oil from crankcase (while hot) then flush with clean lightweight oil. Refill crankcase with regular-weight oil after flushing.
2. Clean exterior surfaces of generator set then spread a light film of oil over any unpainted metallic surfaces which could corrode.

Refrigerator

To ensure that your refrigerator will provide trouble-free operation, the following routine maintenance procedures should be performed at least once each year.

1. Inspect all gas connections for leakage, using a solution of soapy water. Tighten, as necessary.
2. See owners installation and operating instruction manual for periodic maintenance requirements.

Toilet

No routine maintenance is required. If the bowl sealing blade fails to operate freely or does not close completely, clean foreign material out of sealing groove with stiff bristle brush.

To clean the toilet, use a high-grade, non-abrasive cleaner. Do not use highly concentrated or high-acid household cleaners. They may damage seals and finish.

Water Pump

Under normal usage, the water pump should require no periodic maintenance other than ensuring that the input water supply is properly filtered of particles that could damage the pump mechanism. Pump failures can generally be tied in to the plumbing system, or to electrical wiring. If the pump fails to operate properly, refer to the general trouble-shooting guide given in table 8-9. Note that detail pump repairs and overhaul should be performed by a qualified repair facility.

A **pumpgard** filter is provided on the suction side of the water pump. This should be cleaned periodically.

Table 8-10
Water Pump
Troubleshooting Guide

Symptom

— Possible Cause

— Corrective Action

Pump operates but no water flows through faucet.

- Low water level in tank.
 - Add water.
- Suction lines or filter clogged.
 - Clear water lines and clean filter.
- Kink in water suction hose.
 - Check water hose connections to tank and straighten or replace, as necessary.
- Air leak in suction line.
 - Replace suction line.

Pump cycles on and off when faucets are closed.

- Water leak in plumbing.
 - Check for signs of leakage and tighten or replace fittings, pipe, etc.
- Defective toilet flush valve.
 - Repair flush valve.

Pump operates roughly and has excessive noise and vibration.

- Intake line is restricted, kink in suction hose or fittings too small.
 - Check input hoses and straighten or replace, as necessary.
- Loosened screws at pulleys and connecting rod.
 - Tighten screws.
- Deformed or collapsed pulsation dampener in pump.
 - Replace dampener.

Pump fails to start when faucet is opened.

- Clogged pressure piping.
 - Blow out water lines with compressed air.
- No voltage to pump.
 - Check input wiring, circuit breaker and switches.

Pump fails to stop when faucets are closed.

- Empty water tank.
 - Add water.
- Insufficient voltage to pump motor.
 - Check battery voltage. If voltage is OK, pump is defective.

Holding Tank Drain Valves

Periodically the drain valve may become hard to open. It is recommended that the (2) two screws in top of mechanism be removed and pull paddle out. After cleaning paddle a coat of vaseline should be added to both surfaces and valve reassembled.



Clock/Thermometer Calibration Procedures

The thermometer section of the Clock/Thermometer indicates either the inside temperature or outside temperature, depending on the position of the panel pushbutton. It may be necessary to recalibrate the unit if there are differences between the actual inside or outside temperatures and the corresponding displays.

Thermometer Calibration Procedures

1. Place an accurately calibrated thermometer unit next to the outdoor temperature probe (located under metal shield on outside of lower roof rail near refrigerator vent) while the coach is in a protected environment away from direct sunlight, rain, winds, etc. Note the thermometer reading.
2. Press in the outdoor panel switch and compare the digital display reading with the actual outside temperature noted previously. If the reading disagrees sufficiently to require calibration, open the monitor panel so that the rear of the thermometer unit is accessible. (If the readings agree, proceed to step 3.) Adjust the outdoor calibration control, located in the extreme left center of the rear panel, as necessary, to make the display agree with the thermometer reading.
3. Place the calibrated thermometer unit next to the indoor temperature probe and note the thermometer reading.
4. Press the **Indoor** panel switch and compare the digital display reading with the actual inside temperature noted previously. If the readings disagree sufficiently to require calibration, open the monitor panel so that the rear of the thermometer unit is accessible. Adjust the indoor calibration control, located on the lower left-hand side of the rear panel, as necessary, to make the display agree with the thermometer reading. Replace the monitor panel.

Tub/Shower Mixing Valve

The water mixing valve used in the tub/shower contains a pressure balancing spool valve, figure 8-9, to make sure there are no sudden temperature changes. Water mineral deposits which can accumulate in the valve body and spool valve will affect the normal operation of the mixing unit. To

gain access to the valve body, remove the screws which hold the faceplate to the shower wall. (Water supply must be turned off.) Remove the control knob, then lift off the faceplate.

To remove the spool, unscrew the large center screw and carefully withdraw the spool from the valve body. Inspect O-rings for damage and replace, if necessary. Flush out spool of any foreign material, then replace in valve. Replace faceplate and secure with screws. Replace knob.

Note

In some units this pressure balancing valve is in a remote location under the bathroom lavatory vanity.

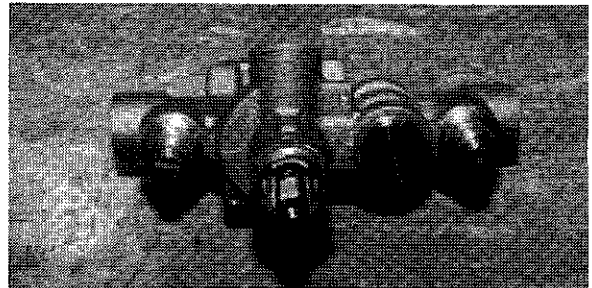


Figure 8-9. Tub/Shower Mixing Valve

Air Step Speed Adjustment

The adjustments for the entrance step are located under the center portion of the step and are combined with sintered bronze exhaust filters. The extend adjustment is close to the center of step and the retract adjustment is to the rear.

To adjust the extend or retract function, loosen the lock nut ($\frac{7}{16}$ " wrench) and turn adjustment with blade type screw driver as follows. To increase speed turn counter-clockwise. To decrease speed turn clockwise. When adjustment is complete tighten lock nut.





Section IX

General Information

Equipment Manufacturers

Equipment

Manufacturer	Model or Type Number
Air Conditioner (Automotive) Motive Manufacturing Division 3657 10th Avenue, North Birmingham, AL 35234 Motivair	
Awning Zip-Dee Incorporated 96 Crossen Avenue Elk Grove, IL 60007 Model BB (specify length)	
Bath Vent Hammond Manufacturing Corp. P.O. Box 5393 2220 Raymond Drive Lansing, MI 48905 Model CB-350-B Compact Blower	
Burglar Alarm Kolin Industries, Inc. Box 357 Bronxville, NY 10708 Cat. No. 120	
CB Radio Audiovox Southeast 3770 Green Ind. Blvd. Chamblee, GA 30341 AUDIOVOX Model 6000A	
Central Air Conditioner Marine Development Corporation P.O. Box 8570 Richmond, VA 23226 Cruisair Model ACA 14U	
Chime Ron Levy Company P.O. Box 2456 Smyrna, GA 30081 Model GE-861	

Closed Circuit TV Camera
Mashnick Associates
1977 Scenic Highway, Suite 1D
Snellville, GA 30278
SANYO Model VDC-3800

Closed Circuit TV Receiver
Dotronix
7947 Teak Way
Rancho Cucamonga, CA 91730
Model 7D-0959-CV-4-P-O-
E-15, 7, 12M-50/60

Duct Booster
Acar Industries
4563 Hamann Parkway
Willoughby, OH 44094
Model 951553

Electric Heaters
FASCO Industries, Inc.
810 Gillespie Street
Fayetteville, NC 28306
Model 2450
Living room, galley & bedroom

TPI Corporation
P.O. Box T-CRS
Johnson City, TN 37601
Model BCIA05
Freeze Protection

Electric Heat Tapes
Easy Heat, Inc.
31977 U.S. 20 East
New Carlisle, IN 46552
MT Cables

Fan, Exhaust
Fantastic Vent Co.
4349 South Dort Hwy
Burton, MI 48529
Model 1000R

Fan, Portable
Guest Corporation
17 Culbro Drive
West Hartford, CT 06110
12-volt Oscillating

Fan, Roof
Kool-O-Matic
1831 Terrace Road
Niles MI 49120
RU-12



Faucets

Bathroom

Grohe America Inc.
900 Lively Blvd
Wood Dale, IL 60191
Model 33.031

Kitchen

Stanadyne Moen Division
377 Woodland Avenue
Elyria, OH 44036
Model 7310A

Flourescent Lights

Thin-Light
530 Constitution Avenue
Camarilo, CA 93010
Model 2-411-723

Food Center

Scovill Industries
NuTone Division
Madison and Red Bank Roads
Cincinnati, OH 45277
Power Unit, Model 251
Food Processor Model 256

Fuel Filter – Water Separator

Racor Industries, Inc.
1137 Barium Road
Modesto, CA 95351
Model 1000FG
Detroit Diesel Engine
Model 500 FG
Kohler Power Generator

Furnace

Suburban Manufacturing Co.
P.O. Box 399
Dayton, OH 37321
Dyna-Trail Model NT-16SW

Gas/Smoke Alarm

P.M.M.I., Inc.
Drawer 10
Old Ocean, TX 77463

Ice Maker

U-Line Corporation
8900 North 55th Street
Milwaukee, WI 53223
Model BI-45A

Instant Hot Water

Kitchenaid Division
Whirlpool Corporation
World Street
Troy, OH 45374
Konstant Hot
KIH-160

LPG Alarm/Control

P.M.M.I., Inc.
Drawer 10
Old Ocean, TX 77463

LP Gas Grill

W.C. Bradley Enterprises, Inc.
P.O. Box 12040
Columbus, GA 31993
Charbroil
Model TG110

LPG Tank

Manchester Tank & Equipment Co.
2738 Lithonia Industrial Blvd.
Lithonia, GA 30058
No. 6042

Leveling Jacks

HWH Corporation
R.R. 1
Moscow, IA 52760
AP 3179

Microwave/Convection Oven

Sharp Electronics Corp.
725 Old Norcross Road
Lawrence, GA 30245
Model R8580

Power Generator

ONAN
1400 734-D Ave. NE
Minneapolis, MN 55432

Radio (AM/FM Stereo Cassette)

Robert Bosch Sales
2800 South 25th Ave.
Broadview, IL 60153
Equalizer-Model BEQ08E
Compact Disc Player-
Model CDP05
Radio Cassette
Model ASQR06



Range and Oven

Modern Maid
6075 Corners Parkway
Norcross, GA 30092
Model KGT-341

Reading Lights

Wemac/Puritan Bennett Div.
18475 Pacific St.
Fountain Valley, CA 92708
Model 2510

Refrigerator

Dometic
P.O. Box 490
Elkhart, IN 46515
RM 3801

Safeline Warning Device

Omnifac Corporation
1700 East Whipp Road
Dayton, OH 45440
Model 2

Shower Hose Kit

Alsons Corporation
42 Union Street
Hillsdale, MI 49242
500 PB59

Shower Valve

Stanadyne Moen Division
377 Woodland Avenue
Elyria, OH 44036

Tank, Water

Inca Plastics, Inc.
11555 Packard Drive
Middlebury, IN 46540

TV Antenna

Tandy Distributor Products
Swannanoa, NC 28788
Model 5MS550

Toilet

CL Barr & Assoc.
P.O. Box 284
Tucker, GA 30316
Model N/A

Washer/Dryer

Sears Roebuck and Co.
675 Ponce De Leon Ave., N.E.
Atlanta, GA 30308
Washer: 26K4090
Dryer: 26K8090

Water Heater

Atwood Vacuum Machine
P.O. Box 95780
Chicago, IL 60694
Model EHM-11

Water Pump

ITT JABSCO
1485 Daleway
Costa Mesa, CA 92626
Model 36950-1180

Water Purifier

Pure Water Enterprises, Inc.
343 Broad Street
Lake Charles, LA 70607
Model 7550



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Section XI Equipment Options

Awnings

The awnings are standard equipment on your coach and designed for simplicity of operation and long-term use. To open the awning, refer to the figures below and proceed as follows:

Open Awning

1. Pull down on Z lock lever, as shown in **figure 11-1**, to permit awning to be unrolled.

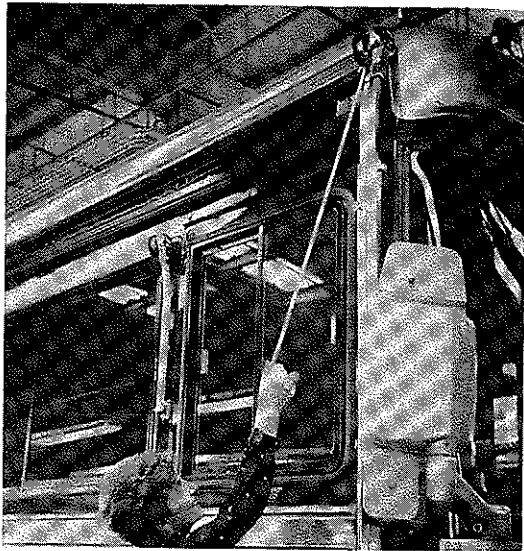


Figure 11-1.

2. Completely unroll awning by first pulling the tab toward you with the hook and then grasping strap with hands as shown in **figure 11-2**. Fold or roll the strap so the Velcro strips meet and hold tab in place next to the roller. Now move beneath the awning and proceed with step 3.
3. Release the ratchet stud on the rafter arm. Swing the arm toward the case and engage the hook section of the claw in the rafter lock, **figure 11-3**. Lock the rafter arm by pressing down on main arm bar, making the fabric taut, until the ratchet stud engages.
4. Referring to **figure 11-4**, raise awning to desired height by releasing snap stud on main arm and pushing up and out on roller assembly. Lean, so that body weight — rather than arm strength — carries out this step.
5. Repeat steps 3 and 4 at other end of awning.

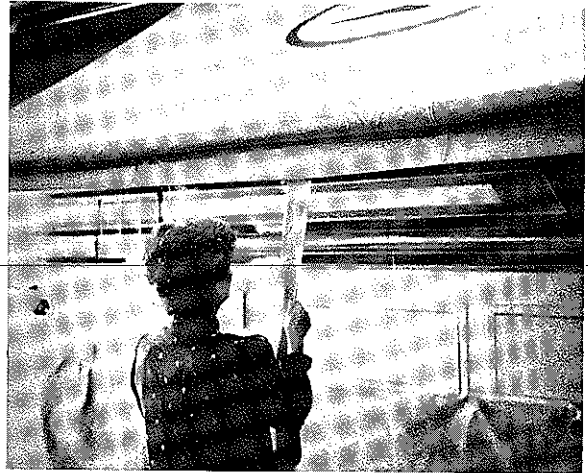


Figure 11-2.

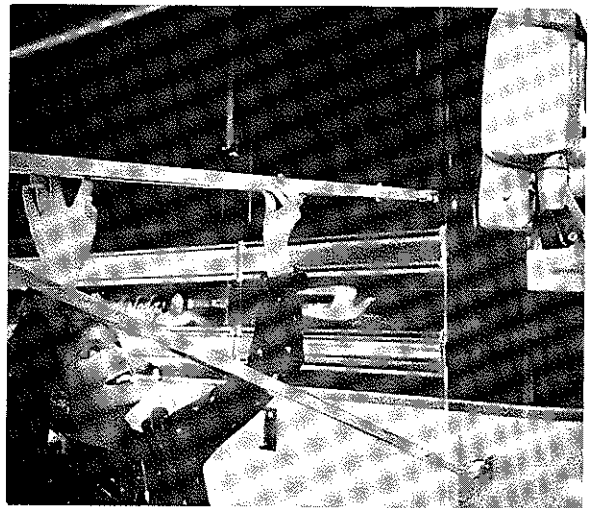


Figure 11-3.



Figure 11-4.

Caution

Be sure to raise high enough to allow for clearance with the top of the door.



Close Awning

1. Lower awning to bottom position by releasing snap studs and dropping roller assembly.
2. Release ratchet stud on rafter arms and lift the claws out of the rafter locks.
3. Place arm claw casting end against protruding screw. To lock assembly, push rafter tube toward coach body until ratchet stud engages. Repeat at other end of awning.
4. Roll awning against coach using the pull tab to guide.
5. Lock the awning in place for travel by pushing up the Z lock lever.

Note

The tab must be spiraled around the roller to prevent a loose roll and the bunching-up of fabric.

6. Observe if the roll-up is even and in-line with clamps. If not, then unroll and give roller a slight push toward the direction required to line up the roller. If you wish to have the awning roll up more in either direction spiral the pull tab in that direction.

Fabric Care

The fabric of your awning is made of acrylic fibers which cannot rot or mildew. Your awning can be rolled up wet if necessary, but be sure to open it to dry as soon as possible.

The acrylic fabric of your awning is a synthetic and cannot support mildew or other plant growth. However, mildew can find a home on any pollen, grain dust, plant spores, or other airborne plant material that can accumulate on the awning. If mildew forms on any of these elements, it can leave a stain which can be unsightly and difficult to remove, even though it will not weaken the fabric itself. To minimize the chance of a stain, keep your awnings as clean and dry as possible by hosing it down frequently between seasonal washings.

Washing

On a monthly basis, loosen hardened dirt and dust with a dry, medium bristle brush, then thoroughly rinse both top and bottom with a hose. For more stubborn stains, use a mild solution of 1/2 cup bleach and 1/2 cup soap flakes diluted in one gallon of lukewarm water.

Wash both sides of the awning with the solution while scrubbing with a soft brush. Saturate the fabric and leave the solution on for 15-20 minutes. (Keep the fabric saturated by reapplying solution as needed.) Rinse **thoroughly**. Repeat if necessary until most of the stains disappear.

Caution

Never use a strong detergent (super spray) or stain remover on your awning. These can destroy the water repellency of the fabric.

Water Leaks

If leaking occurs after washing, it is usually the result of insufficient rinsing. If water drips through the needle holes in the stitching, you can use a commercial seam sealer available in canvas and trailer supply stores. You may also apply a paraffin wax to the top of the seams. However, as the awning **weathers**, these holes will normally seal themselves.

It is normal for slight leakage to occur through the fabric where water is allowed to accumulate or **pocket** on the fabric. See **Storm Precautions** for information on awning settings for proper water drainage. Sometimes soap or chemical residue, such as from active agents in insect fogs or sprays, can wet the fabric so that it appears unable to repel water. Rinse the fabric thoroughly and test for water repellency after it dries. If leakage continues, wash the fabric or contact the manufacturer for information on treating the fabric.

Storm Precautions

Because there is no warranty for damage caused by acts of God, steps should be taken to prevent damage from occurring due to wind, rain or storm.

If you are leaving or retiring for the night, close the awning. This takes only a few seconds (less time than closing your windows) and gives you the best protection. If for some reason you can't close the awning, lower both ends of it as far as you can without removing the spring arms. This will create a sufficient slope for water run-off. If you are remaining with the awning, you may lower one end only sufficiently to divert water.



Hardware and Mechanism Maintenance

Although your awning requires less maintenance than any other awning, a little care (about the same amount that you give to your coach) will keep the metal parts in top shape. The rafter arm assemblies, main arm tubes, and the awning case are bright-anodized aluminum; the castings are polished, high-strength aluminum alloys. To keep these parts new looking they should be cleaned once a year with a good quality chrome or aluminum polish.

The main arm bar and all fasteners and stress bearing shafts are stainless steel. These need only be cleaned occasionally to remove accumulated grime that might hinder their operation.

At the end of each season:

- Tighten any loose bolts or screws. (Replace missing parts only with factory authorized replacements.)
- Polish accessible hardware.
- Use a silicone lubricant only on the 1/2" round shafts that protrude from each end of the roller.
- Extend all telescoping arms as far as possible to wipe off accumulated sand and dirt that can clog and scratch the protective aluminum finish.

Ice-Maker

The ice-maker, figure 11-5, is designed to provide a continuous automatic supply of ice cubes. It will operate unattended providing that the water supply line is open and the ac power is applied to the unit. This may be supplied from shorepower, the power generator, or from the optional motor generator (Redi-Line).

Ice-Maker Operation

The power on-off switch is located on the front grillework. When the ice cube supply is full, the ice-making mechanism shuts off automatically. However, the refrigeration system continues to operate to prevent the prepared ice cubes from melting. When removing cubes, do not use a sharp instrument to separate the cubes that are frozen together or the interior may be damaged.

Note that the ice-maker may supply small cubes the first time that it is used. This is due to accumulated air in the water line and subsequent batches will be normal-sized.

If the machine is used only intermittently, empty the ice periodically (every week to 10 days) to ensure a fresh supply of cubes.

Do not clean the cabinet interior with solvent-type cleaners, abrasives, or other cleaners that might cause ice cubes to acquire a bad taste. The exterior should be cleaned with a furniture-type cleaner/polish. Clean condenser (behind grille) with a blower/vacuum at least 3 to 4 times each year, depending on usage.

Caution

The ice-maker grille must be free from all obstructions. Any interference with free air flow to the grille will cause faulty operation.

To shut down the ice-maker, set power switch to off, and remove all cubes. Leave the door slightly ajar for ventilation to avoid mold or odors.

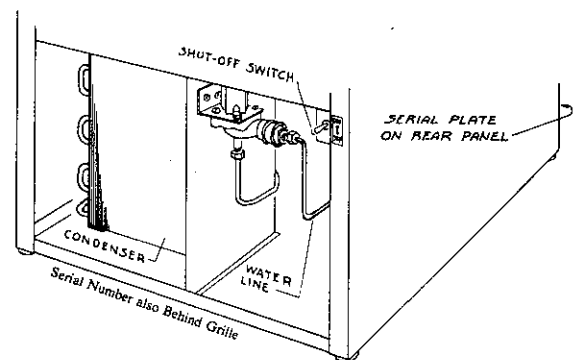


Figure 11-5 Ice-Maker Details.

Ice-Maker Maintenance

Other than periodic cleaning of grillework, condenser and interior, no other maintenance procedures are required. Remove the grille as follows: take out screw at top, put fingers in slots and lift up and out.

Winterizing

Follow procedure in Section V. To facilitate draining of water line, remove garden hose type fitting shown in figure 11-5

Kool-O-Matic Ventilation Fan

This 12 volt dc power ventilator has the capacity to move a large volume of air.

In many low humidity regions it will eliminate the need for operating air conditioning units.



Operation

Remove the magnetically attached fabric cover and open inlet dampers.

Be sure windows are open to provide proper air flow cooling and ventilation.

A heat-cool thermostat is located near the Kool-O-Matic fan. It also serves the area LPG furnace and chassis heater. In order to activate the fan, the selector switch (at the bottom) must be moved to **COOL** and the temperature lever set so the fan will operate. The fan will then start automatically whenever the temperature rises above the desired level.

Automatic Leveling System

1. **LEVEL MASTER** switch — Supplies power for leveling system operation. Only the warning lights will operate with this switch off.
2. **LEVEL WARNING SYSTEM Red Light** (Dash Mounted) — Anytime the ignition switch is **ON** and a front or a rear jack are not fully retracted, the warning light should be lit. The **LEVEL MASTER** will not turn off the warning light. The vehicle should not be moved if the warning light is on.
3. **LEVEL SYSTEM Blue Lights** — The blue level indicator lights are inoperative with the **AUTOMATIC LEVELING System**. Refer to **MANUAL OPERATION Switches** below for level indication.
4. **MASTER ON-EMERGENCY OFF Switch** (on leveling system control panel, figure 11-6) — Supplies power for the leveling system (in series with **LEVEL MASTER** switch). Turning this switch **OFF** stops the system from operating and automatically resets the microprocessor to the start position. When the **LEVEL MASTER** switch and this switch are **ON**, the red top of the switch will glow.
5. **AUTOMATIC LEVELING AND AUTOMATIC RETRACT** Switch — This is a momentary switch that activates the microprocessor. If the switch is pressed toward the **AUTOMATIC LEVELING** side the top red light will blink until the processor has completed the leveling and stabilizing functions. Upon completion the light will turn off automatically. When momentarily pressed toward the **AUTOMATIC RETRACT**

side, the bottom red panel of the switch will blink indicating the microprocessor is functioning. When the microprocessor has completed its cycle the light will automatically turn off.

Caution

Block frame securely before changing tires or working under vehicle.

Manual Operation

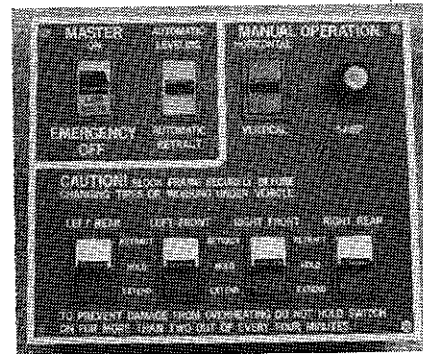


Figure 11-6. Automatic Leveling System Control Panel

6. **RETRACT-EXTEND** Switches — These switches extend or retract the individual jacks. Any number of the switches may be activated at the same time, however they must be pushed in the same direction. The switches must be held in the desired position for the jacks to move. It takes approximately 10 seconds to fully extend a jack. Do not hold switch in the extend position for more than 10 seconds after the jack has fully extended or the pump may be damaged by overheating. Each switch has a yellow panel at the top that if lighted will indicate which jack(s) should be operated to level vehicle.

Turn **LEVEL MASTER** switch or the On-Off switch off to stop the operation of the leveling systems. Every time either of these switches is turned off the microprocessor returns to the start position.

The automatic leveling mode will become erratic if the battery voltage is low. If this occurs turn off **LEVEL MASTER** switch and charge battery. If the **LEVEL MASTER** switch is turned off during automatic leveling, run through automatic retract before attempting to operate in the automatic leveling mode.



Note

LEVEL MASTER switch or the On-Off switch must be turned OFF and then ON before using either automatic leveling or automatic retract.

Hydraulic pressure is used to extend the leveling units and spring tension is used to retract them. Therefore the pump does not run during retraction.

The red warning lights are connected to the warning system. The respective red lights will glow when the front jacks are in the vertical position or when the rear jacks are not retracted and the ignition switch is ON. These lights are not affected by the **LEVEL MASTER** switch. Do not attempt to move the vehicle if any of the warning lights are on.

Automatic Leveling Procedure

1. Apply parking brake.
2. Turn vehicle engine off. If desired, return the ignition switch to the ON position. This will make the jack warning lights operational.
3. Turn on **LEVEL MASTER** switch and the leveling system control panel **ON-OFF** switch. (If the **ON-OFF** was ON turn OFF and then ON. This resets the microprocessor to the start position.) The red light on the On-Off switch should be on.
4. If the vehicle is parked on soft ground, blocks may be placed under the jacks for added support.
5. Dump the air from the suspension systems. Wait for coach to completely settle before proceeding. Dump tag axle (**TAG DUMP**) first and then main suspension (**SUSP. DUMP**).
6. Press switch to **AUTOMATIC LEVELING**. The red light will start blinking and continue to blink until the coach is leveled and stabilized. When this light goes off turn **LEVEL MASTER** switch and ignition switch OFF.

Note

During this phase of operation there is a 5 second pause between the operation of each jack. If the vehicle is so far out of level that the leveling jacks can not level the vehicle even when fully extended one or more of the yellow LEVEL INDICATOR lights will remain lit.

Automatic Retract Procedure

1. Start coach and build up suspension air pressure.
2. Repressurize the air suspension system in the following sequence: pressurize the main system by moving the **SUSP. DUMP** switch up to the fill position; then pressurize the tag axle by moving the **TAG DUMP** switch up to the fill position. Wait for the **SUSP. DUMP** light to go out.
3. Turn on **LEVEL MASTER** switch and **ON-OFF** Switch. (If the **ON-OFF** switch was ON turn OFF and then ON. This resets the microprocessor to the start position.) Red Light on switch should now be on.
4. Press the switch toward the **AUTOMATIC RETRACT** position. The red light on the retract side now begins to blink. The jacks will begin to retract. When a jack is fully retracted its red warning light will go out. It is important not to turn off the **LEVEL MASTER** switch until the red light on the **AUTOMATIC RETRACT** switch is out. When this light is out turn off **LEVEL MASTER** switch.

The red warning lights are connected to the warning switches on the jacks. The respective warning lights will glow when the jacks are not fully retracted and the ignition switch is ON. These lights are not affected by the **LEVEL MASTER** switch. Do not attempt to move the vehicle if any of the red warning lights are on.

Auxiliary Air Compressor

This unit provides a quick source of air so there is no need to wait for pressure to build up after starting engine; you just drive right off! It can be used to operate air tools and accessories without starting the coach engine. It also serves as a standby unit in the rare case of a malfunction in the engine driven air compressor system.

The compressor and starting relay are located in an outside compartment while the 12 volt switch to operate the relay is in an **ACCESSORY** position on the dash.

Operation

The compressor operates from 120 volt ac power so the coach must be plugged into shore power or the generator must be running. Press dash switch (in **ACCESSORY** position) ON.



For intermittent use, enough air will be supplied by the luggage compartment. If, however, it is to be used for an extended period, such as to power air tools, it is suggested that the luggage compartment door be opened.

Maintenance

No lubrication is required for the life of the unit.

The air inlet filters should be inspected once or twice a year. The black plastic air inlet covers can be removed by turning counter-clockwise. This will reveal the felt filters. If there is evidence of dirt on filters and covers they may be washed in a solvent and air dried.

Bulk Oil Fill

The bulk oil fill system provides a convenient means of replenishing the oil supply during an oil change and for adding oil between changes. There is no need to use valuable storage space for cans of oil, opener and funnel. Also space restrictions in the engine compartment make it very difficult to pour oil from a can into the funnel.

An oil storage tank (with approximate 20 quart capacity) is located outboard of the batteries on the right side of the engine compartment. When this is pressurized from the air supply, oil can flow through the nozzle into the engine oil fill. A meter is provided to measure quantity by means of quart and gallon pointers for each individual fill and a totalizer to show all oil added to date. This is a handy way to keep track of oil consumption, etc.

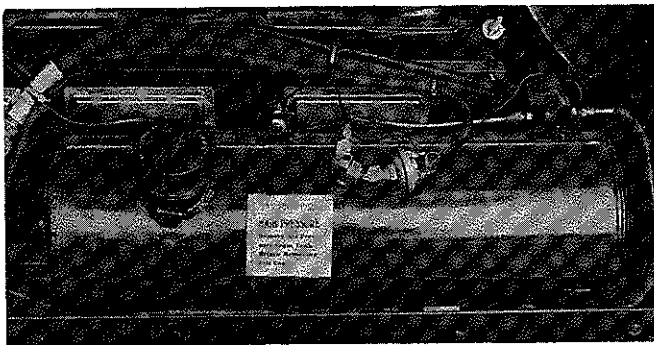


Figure 11-7. Bulk Oil Fill Tank.

Operation

1. Run engine, if necessary, to build up on board air supply.
2. Shut down engine.

Caution

Do not run engine while bulk oil fill is in use. Place engine compartment switch in OFF or REAR to prevent starting from the driver's area.

3. Zero meter pointers.
6. Observe that bulk oil tank red light is on.
7. Push nozzle tab lock out of the way and depress lever enough to eject a few drops of oil onto wiping rag.
8. Remove oil fill cover.
9. Place nozzle in engine oil fill opening and depress nozzle lever until desired amount of oil is shown by meter pointers.
10. Replace nozzle in holder.
11. Turn off bulk oil switch.
12. Replace oil fill cap.
13. Check oil level.

Skylight

A skylight, roof mounted, is offered in place of the roof vent. Occasional glass adjustment may be required to maintain weather proof integrity.

To adjust glass:

1. Place sheet of typing paper between glass and seal on both sides of latch.
2. Close skylight.
3. Pull on paper, if there is a slight drag no adjustment is needed. If there is no drag, fully open skylight.

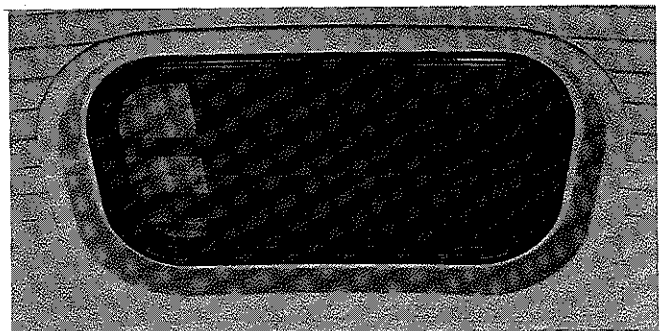


Figure 11-8. Skylight.

4. While working from roof, partially remove the two glass clamp screw pins with a 1/8" diameter (max.) x 1 to 2" long dowel. Tap on dowel from inside out.



5. Turn screw clockwise to tighten.
6. Retest with paper after reinstalling pins and closing skylight.

Inverter

A 1500 watt inverter is offered to provide auxiliary power to operate ice maker, front overhead television, one kitchen receptacle, and electric drapes while in transit from 12 volt source. The inverter is located in the left hand rear outside compartment on 38 foot and 40 foot models or left hand outside luggage compartment on 36 foot models. See owner's manual for operating instructions.

Microphor Toilet

Toilet includes a vitreous china toilet, ultra-low flow water use, and air assisted flush. Available on 38 foot and 40 foot models. See microphor owner's manual for operation.

Power Dump Valves

Air operated cylinders with a control panel located on left side of coach behind holding tank access door. Panel includes toggle switch for each tank and an air pressure gauge for the system. Manual operating tool is attached to control panel in case of low air pressure.

Quick Start Aid

An ether injection system is used to aid starting the engine in cold weather. The switch for the system is located in the accessory position on upper right hand dash panel (figure 2-6). To activate valve depress switch for three seconds to fill valve then release switch to inject charge into engine. Allow three seconds before starting engine.

Caution

Use only for starting engine and inject prior to cranking.

Intercom System

The intercom system used in your motorhome, figure 11-9, is a master-to-master system so that any station can originate calls to any other station. Just lift the handset, push in the button corresponding to the called station, and carry on your conversation. Intercom stations are located on the floor to the left of the driver; in the bathroom (except walk through bath); and on the rear bedroom wall.

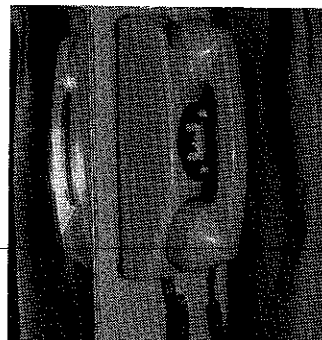
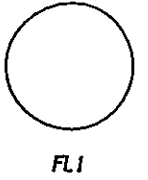
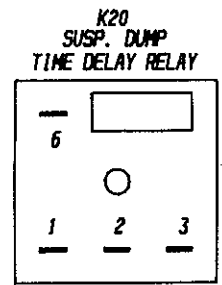
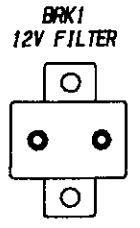
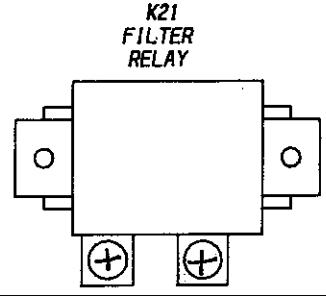
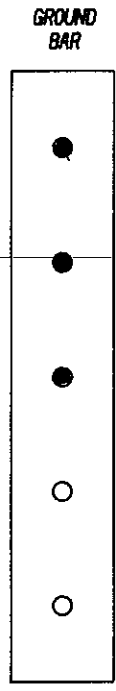
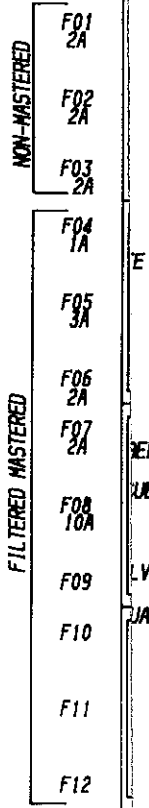
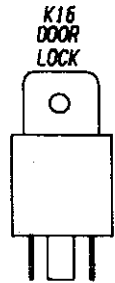
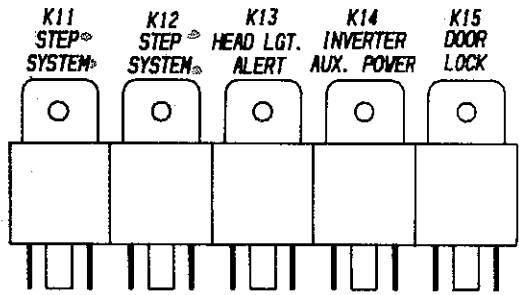
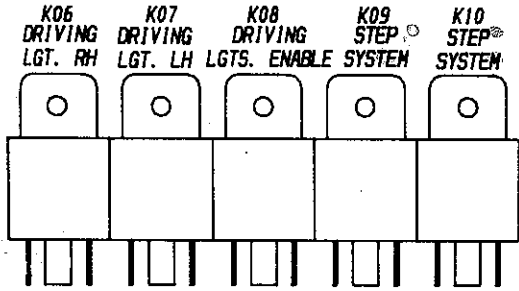
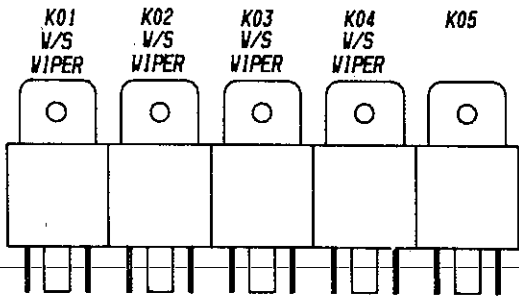


Figure 11-9. Intercom System

Heated Holding Tanks

Provides UL listed heaters and thermostats for both holding tanks to prevent freezing of liquids down to 0°F.





BEDROOM
 SUB-WOOFERS
 LIVES
 JATOR



10GA. CONSTANT 12V FROM LWR. FRT. COMPT. PANEL

- #25 - YEL - CEILING LGTS. (OPT.)
- #28 - YEL - FLUO. LGTS., KITCHEN OHC
- #23 - BLU - READING LGTS., LIVINGRM.
SPARE
- #23 - ORN/BRN - LIVINGRM. VENT FAN
- #26 - ORN/BRN - KIT. VENT FAN
- #12 - RED - LIVINGRM./KIT. LP HEATER
- #21 - BLU/BLK - KIT. STOVE LGT.
- #35 - YEL - KIT./DINETTE UPPER FLUO. LGTS.
SPARE
- #10 - PUR - BEDRM. STEREO MEMORY (OPT.)
- #15 - GRY - TO AUX BATT. CIRCUIT 120V
ACTIVATED RELAY
- #44 - YEL LWR. FRT. COMPT. PANEL FUSE BLK.
- #6 - BLK - DASH CLOCK
- #31 - PUR - MARSHALL BRASS
- #30 - BLU/BLK - SYSTEMS MONITOR PANEL
- #38 - RED - BEDRM. ALARM CLOCK
- #23 - GRY - REAR LANDING LGT. SW.
- #24 - GRN/WHT - REAR LANDING LGT., RH
- #24 - GRN/WHT - REAR LANDING LGT., LH

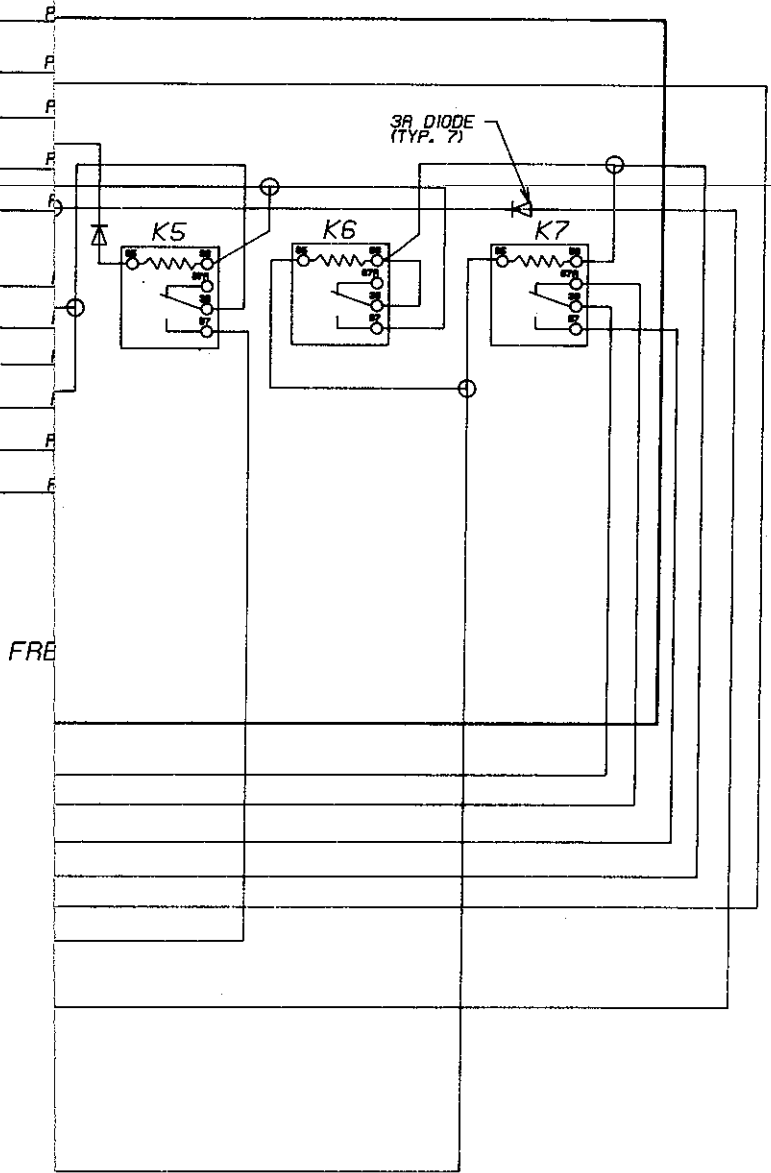
1

.....

2

3

- #34 - YEL - COPILOT FLUO. LGT. — F
- #9 - GRY - PORCH LGT. — F
- #20 - BLU - READING LGTS., LIVINGRM. RH — F
- #26 - YEL - DINETTE FLUO. LGTS. — F
- #31 - YEL - LIVINGRM. FLUO. LGTS., UPPER — F
- #12 - RED - REAR COMP. SEAT — F
- #12 - BLU/BLK - 12V RECEPT., LIVINGRM. — F
- #10 - RED - CO-PILOT SEAT CONTROLS — F
- #28 - YEL - BATHRM. FLUO. LGTS. RH — F
- SPARE — F
- #32 - YEL - LIVINGRM. FLUO. LGTS., LOWER — F



10-5 12 Volt Diagram, Right Front Load Center

- 1299652 -
- 3887510 m/s Comp.

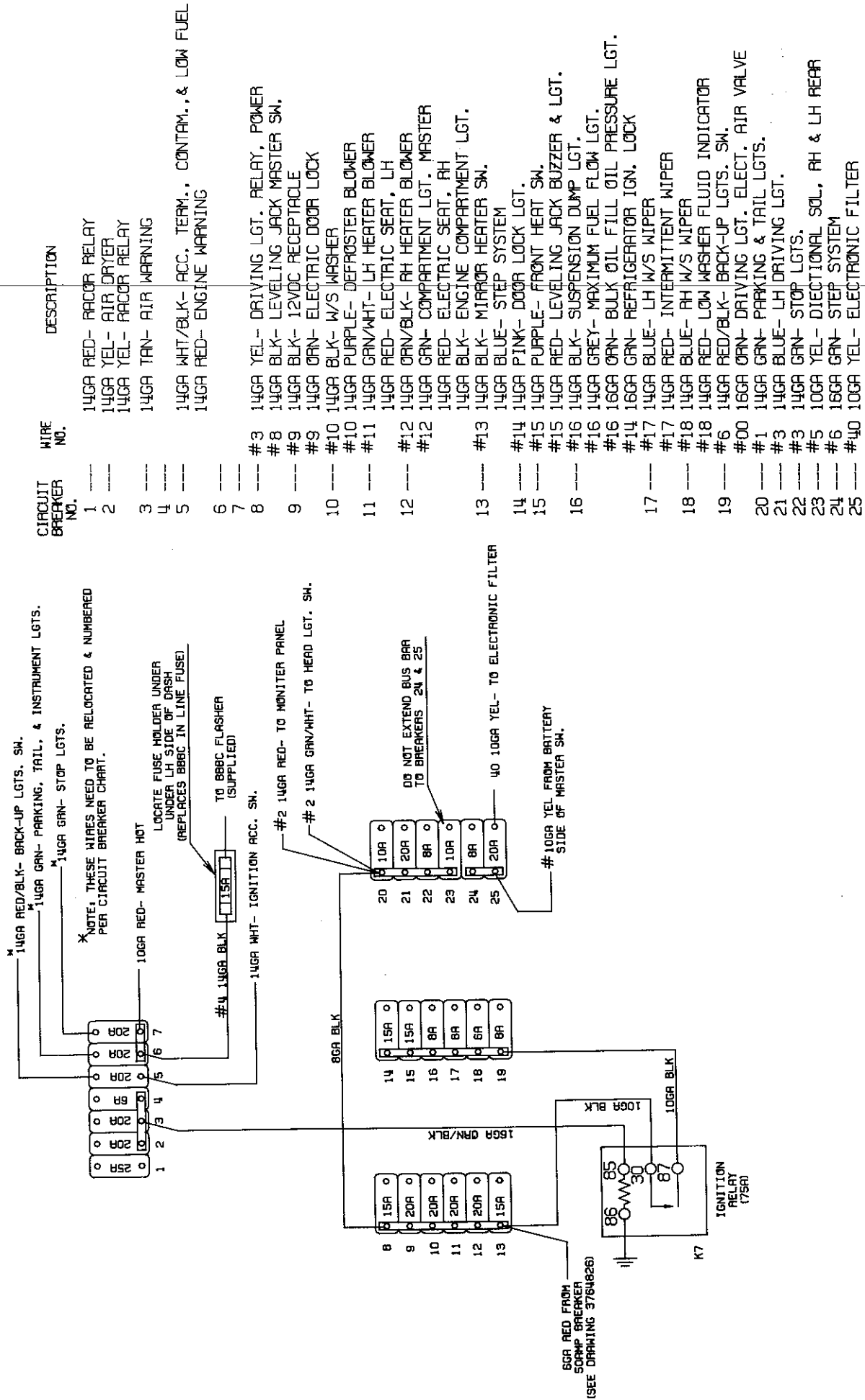


Figure 10-2. 12 Volt Diagram, Lower Front Load Center



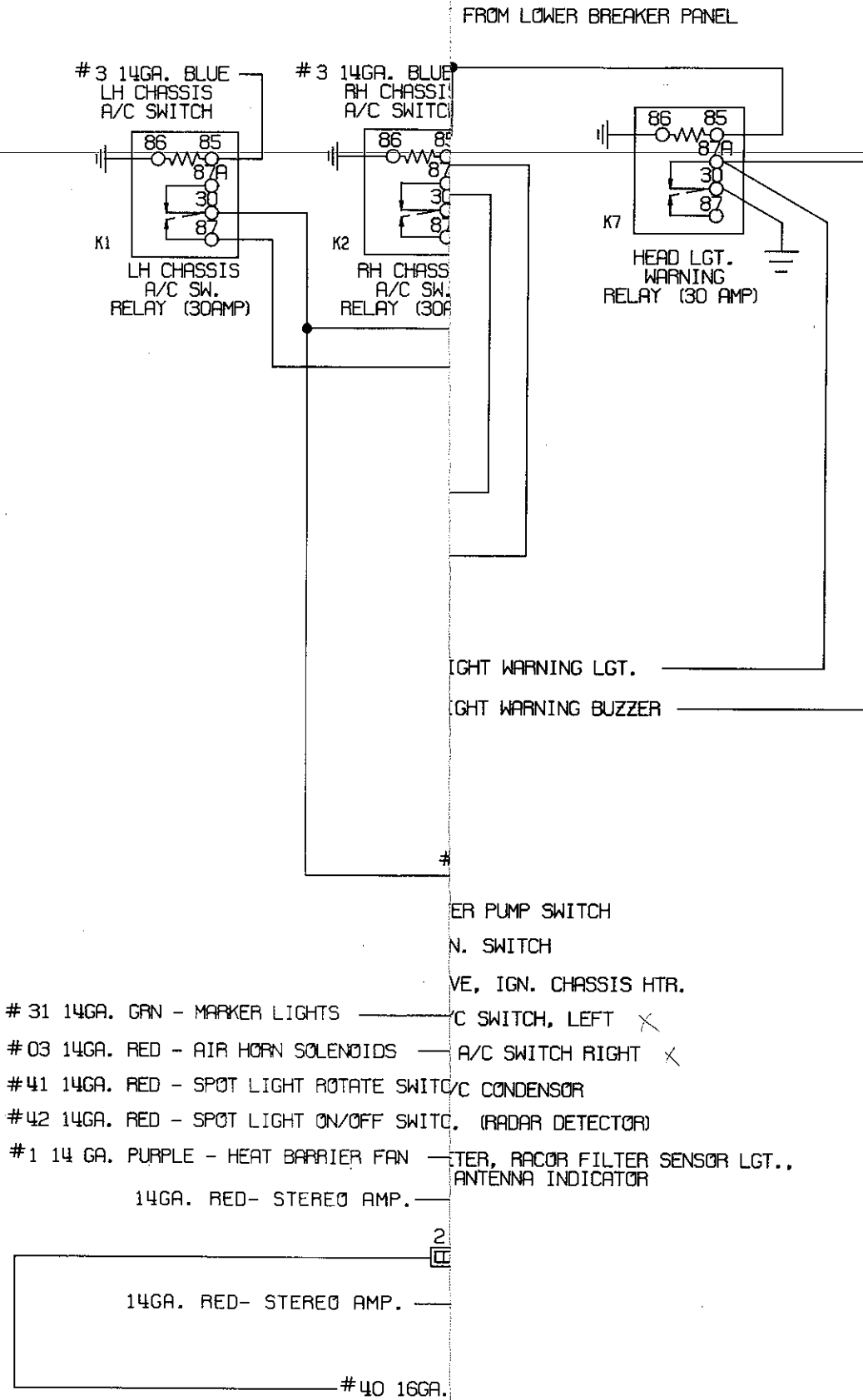


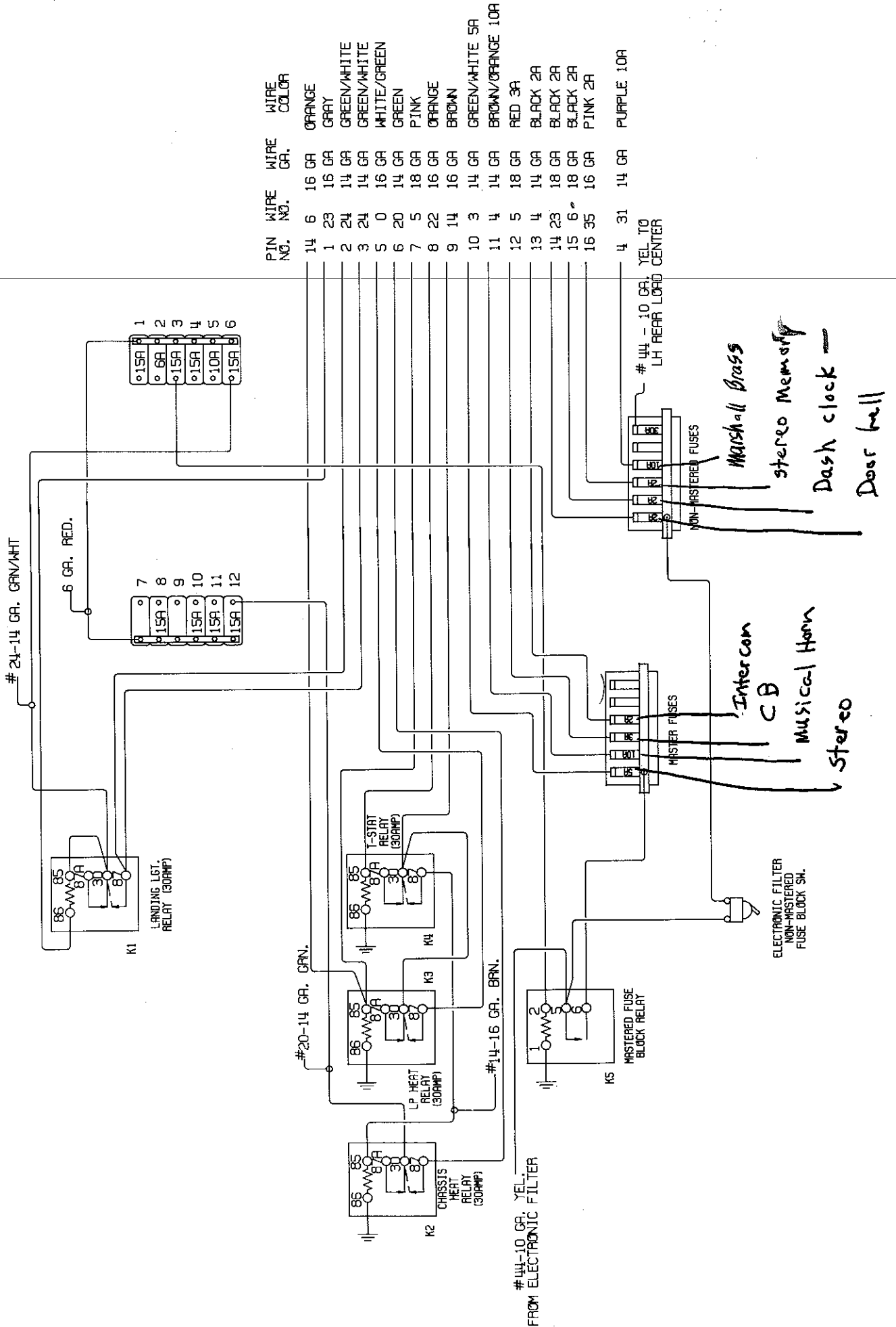
Figure 10-3. 12 Volt Diagram, Overhead Front Load Center

10

10



10



PIN NO.	WIRE NO.	WIRE GA.	WIRE COLOR
14	6	16 GA	ORANGE
1	23	16 GA	GRAY
2	24	14 GA	GREEN/WHITE
3	24	14 GA	GREEN/WHITE
5	0	16 GA	WHITE/GREEN
6	20	14 GA	GREEN
7	5	18 GA	PINK
8	22	16 GA	ORANGE
9	14	16 GA	BROWN
10	3	14 GA	GREEN/WHITE 5A
11	4	14 GA	BROWN/ORANGE 10A
12	5	18 GA	RED 3A
13	4	14 GA	BLACK 2A
14	23	18 GA	BLACK 2A
15	6	18 GA	BLACK 2A
16	35	16 GA	PINK 2A
4	31	14 GA	PURPLE 10A

#14-10 GA. YEL. FROM ELECTRONIC FILTER

#44 - 10 GA. YEL. TO LH REAR LOAD CENTER

MASTER FUSES
 Marshall Brass
 stereo Memory
 Dash clock
 Door bell

NON-MASTERED FUSES
 Intercom
 C B
 Musical Horn
 Stereo

ELECTRONIC FILTER NON-MASTERED FUSE BLOCK SH.

Figure 10-4. 12 Volt Diagram, Left Front Load Center (Sheet 1)



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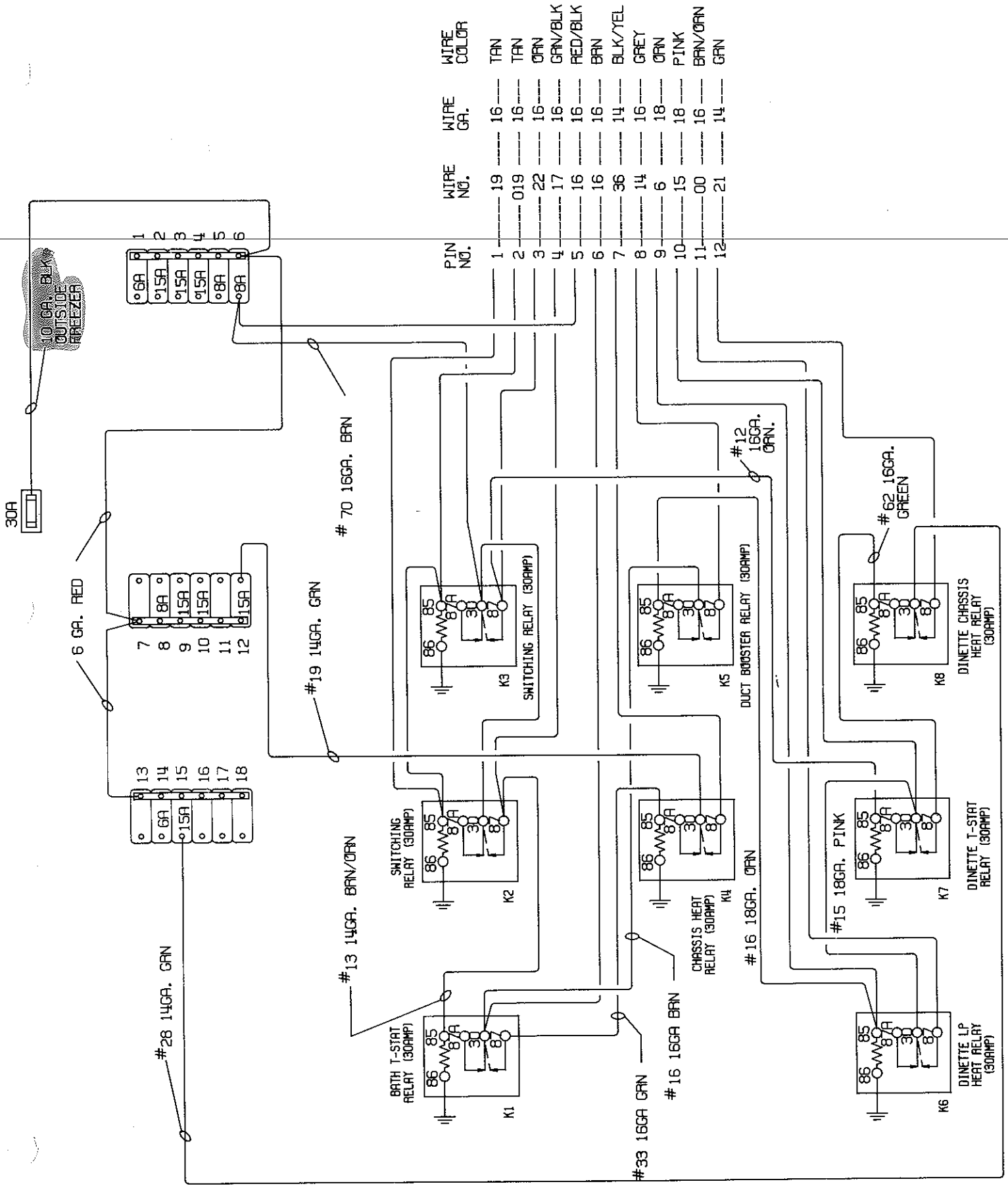
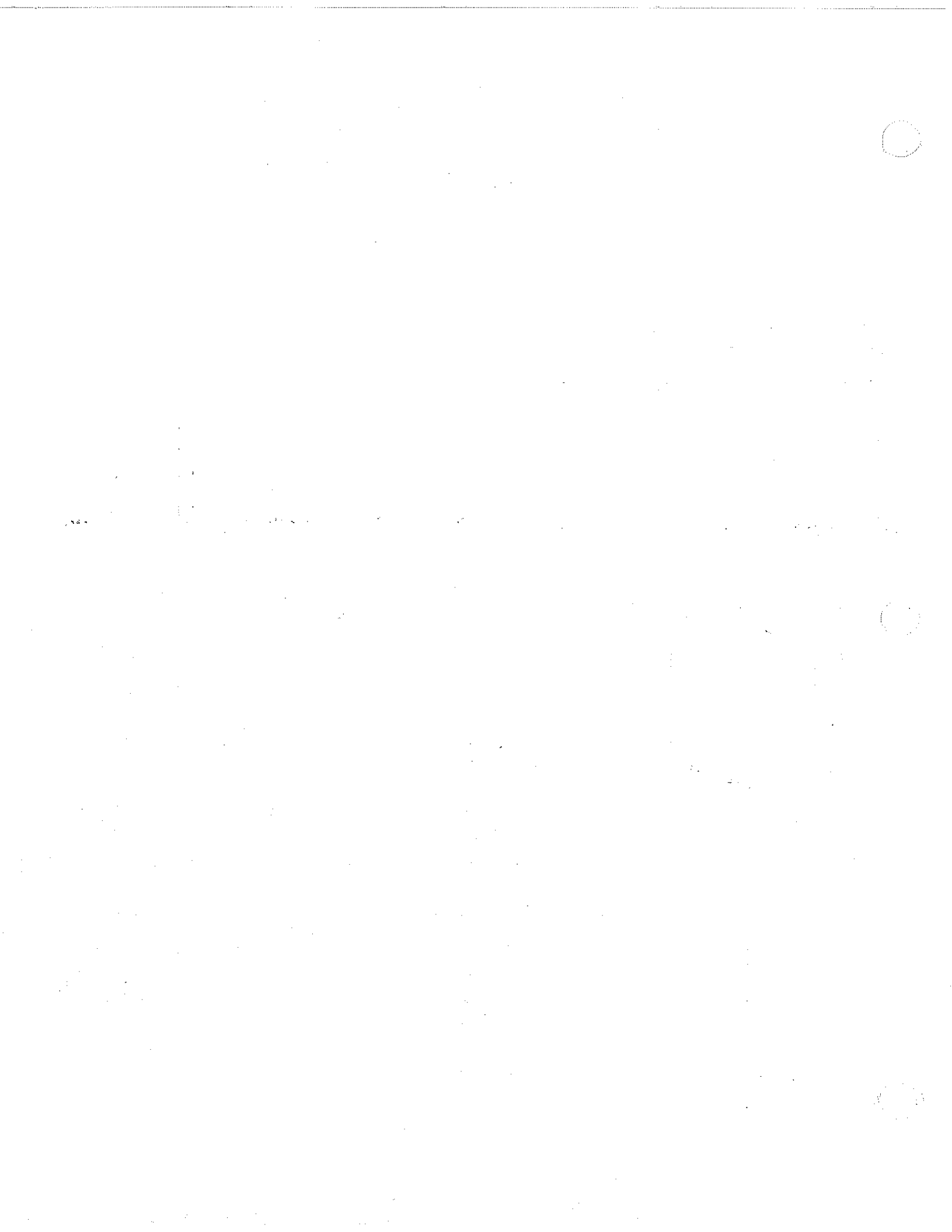


Figure 10-5. 12 Volt Diagram, Right Front Load Center (Sheet 1)

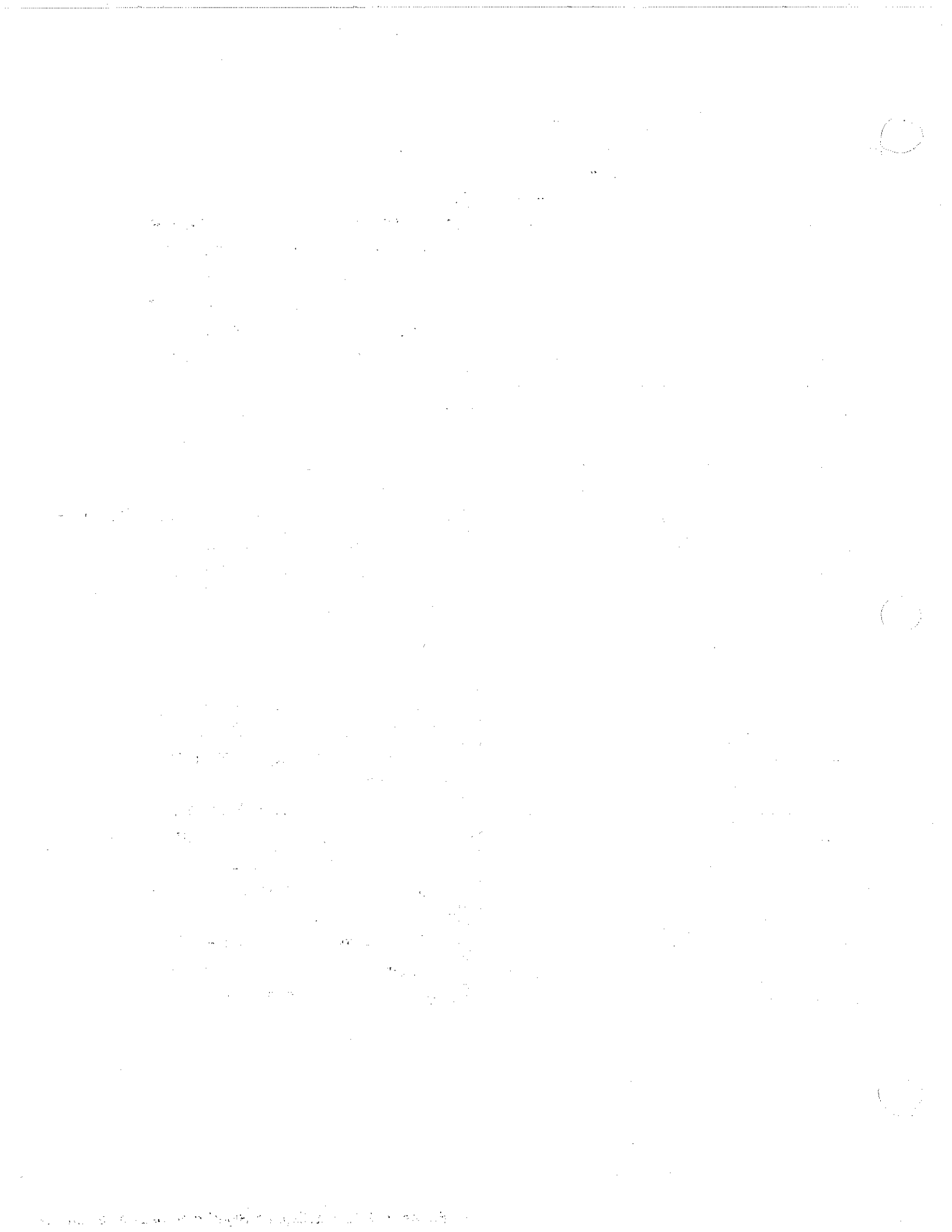


18 PIN AMP MALE PLUG WITH FEMALE PINS

PIN NO.	CIRCUIT BREAKER		DESCRIPTION
	NO.	SIZE	
1 -----	6 ----	8A ----	16GA #9 GREY- PORCH LIGHT
2 -----	1 ----	6A ----	16GA #70 GREY- REMOTE CONTROL, TV ANTENNA
3 -----	5 ----	8A ----	16GA #20 BLUE- LIVINGROOM READING LIGHTS
4 -----	4 ----	15A ----	14GA #28 YEL- DINETTE FLUO. LIGHTS
5 -----	3 ----	15A ----	14GA #30 YEL- LIVINGROOM FLUO. LGT. SWITCH
6 -----	2 ----	15A ----	14GA #10 YEL/BLK-DINETTE LP HEATER
7 -----	1 ----	6A ----	14GA #9 RED- TV ROTOR & ANTENNA BOOSTER
8 -----			
9 -----	8 ----	8A ----	16GA #12 RED/BLK- 12VDC OUTLET
10 -----	9 ----	15A ----	14GA #10 RED- COPILOT ELECT. SEAT CONTROLS
11 -----	10 ---	15A ----	14GA #1 RED- ANTENNA LIFT MOTOR
12 -----			
13 -----	14 ---	6A ----	16GA #4 RED/BLK- WATER PUMP LIGHT, GALLEY PANEL, POWER
14 -----	14 ---	6A ----	18GA #15 ORN- TO DINETTE THERMOSTAT
15 -----	15 ---	15A ----	14GA #16 PURPLE- HOT TO DUCT CONTROLLER

18 PIN AMP FEMALE RECEPTACLE WITH MALE PINS

1 -----	16GA #19 TAN- FROM SUMMER/WINTER SWITCH
2 -----	16GA #019 TAN- TO SUMMER/WINTER RELAY
3 -----	16GA #22 ORN- TO LIVINGROOM T-STAT RELAY
4 -----	18GA #17 BLK- TO BEDROOM T-STAT RELAY
5 -----	16GA #16 RED/BLK- TO BATHROOM THERMOSTAT
6 -----	16GA #16 BRN- FROM BATHROOM THERMOSTAT
7 -----	14GA #36 BLK/YEL- CHASSIS HEATER SWITCH
8 -----	16GA #14 GREY- TO DUCT BOOSTER CONTROLLER
9 -----	18GA #6 ORN- LP SELECTOR SWITCH
10 -----	18GA #15 PINK- FROM DINETTE SWITCH T-STAT
11 -----	16GA #00 BRN/ORN- TO T-STAT DIN LP HEAT
12 -----	14GA #21 GRN- TO DINETTE CHASSIS HEAT SW.



18 PIN AMP MALE PLUG WITH FEMALE PINS

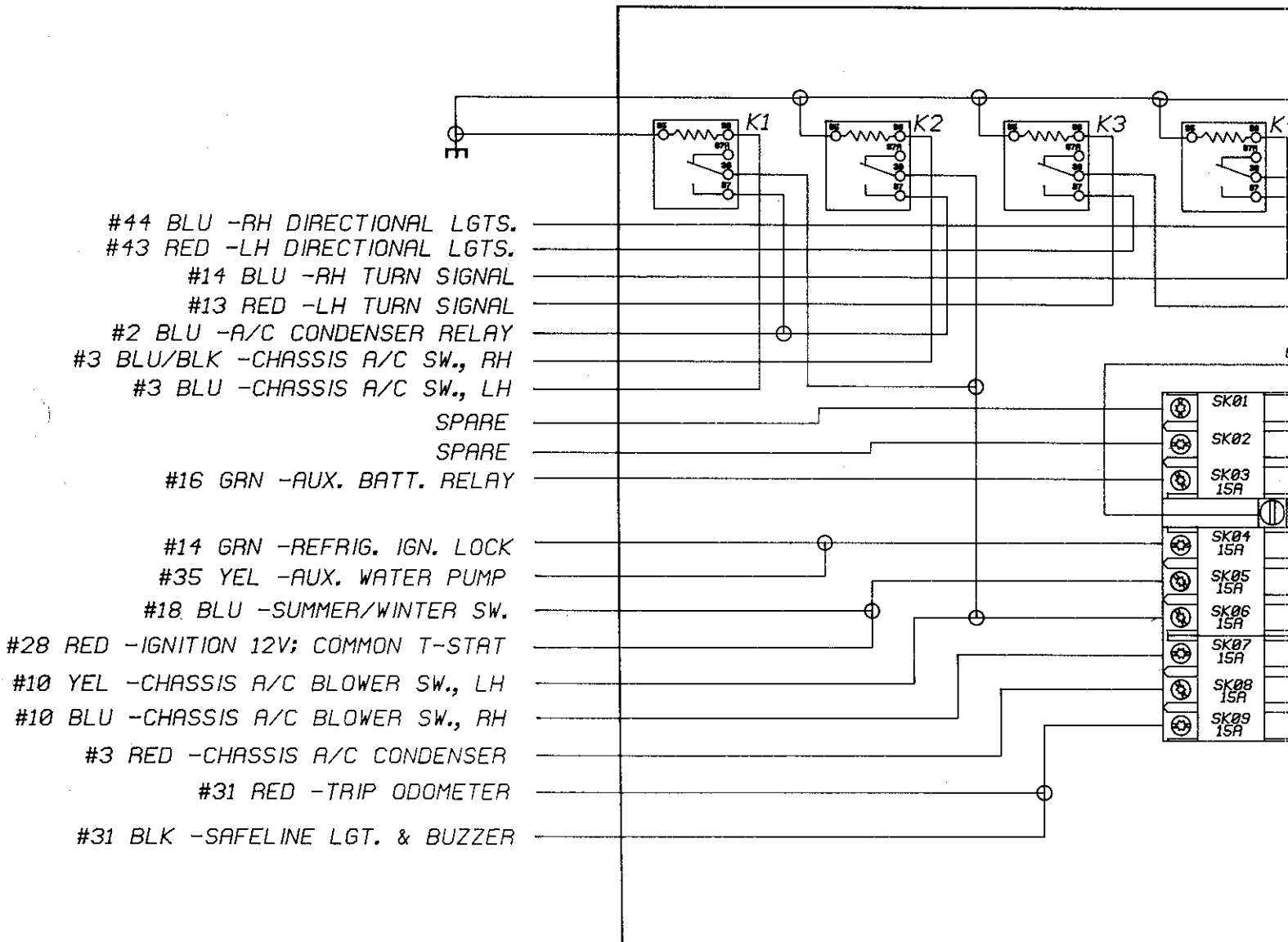
PIN NO.	CIRCUIT BREAKER		DESCRIPTION
	NO.	SIZE	
1 _____	1 _____	15A _____	14GA 25 YEL- CEILING LIGHT
2 _____			
3 _____	3 _____	15A _____	14GA 10 RED - PILOT ELEC. SEAT CONTROLS
4 _____	4 _____	15A _____	14GA 28 YEL- FLUO. LIGHT KITCHEN O/H CAB.
5 _____	5 _____	10A _____	16GA 23 BLUE - READING LIGHTS LIVINGROOM
6 _____	2 _____	6A _____	18GA 4 RED - WATER PUMP LIGHT, BATHROOM
7 _____			
8 _____	5 _____	10A _____	16GA 21 RED/BLK- STOVE LIGHT
9 _____	5 _____	10A _____	14GA 71 ORN/BLK - 12VDC PRIVACY SWITCH
10 _____	8 _____	15A _____	14GA 23 ORN/BRN - VENT FAN LIVINGROOM
11 _____	11 _____	15A _____	14GA 26 ORN/BRN - KITCHEN EXHAUST FAN
12 _____	2 _____	6A _____	16GA 14 RED/BRN - LIVING ROOM T-STAT POWER
13 _____	10 _____	15A _____	14 GA 12 RED- LP HEATER LIVINGROOM
14 _____			16GA 6 ORN- LP HEATER SWITCH

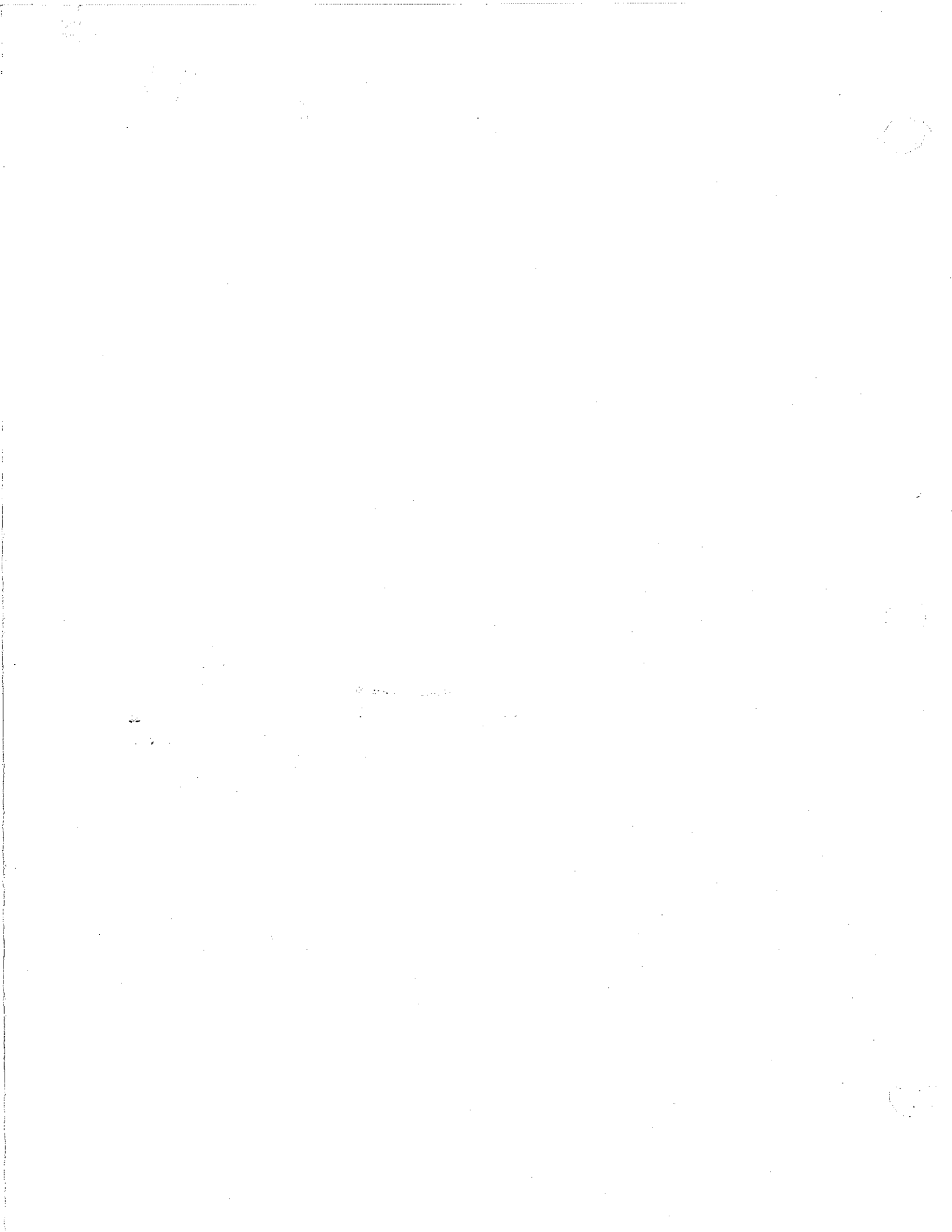
18 PIN AMP FEMALE RECEPTACLE WITH MALE PINS

1 _____	16GA 23 GRAY-REAR LANDING LIGHT RELAY
2 _____	14GA 24 GRN/WHT -REAR LANDING LIGHT
3 _____	14GA 24 GRN/WHT - REAR LANDING LIGHT
4 _____	14GA 31 PURPLE- MARSHALL BRASS
5 _____	16GA 0 WHT/GRN - T-STAT WIRE AT LP HEATER
6 _____	14GA 20 GRN- TO LIVING ROOM CHASSIS HEAT SWITCH
7 _____	18GA 5 PINK - TO LIVING ROOM LP HEAT SWITCH
8 _____	16GA 22 ORN - CHASSIS SUM/WIN RELAY
9 _____	16GA 14 BRN - LIVING ROOM T-STAT
10 _____	14GA 3 GRN/WHT - 12V STEREO RADIO
11 _____	14GA 4 BRN/ORN- MUSICAL HORN
12 _____	18GA 5 RED - CB RADIO
13 _____	14GA 4 BLK- INTERCOM
14 _____	18GA 23 BLK - DOOR BELL CHIME
15 _____	18GA 6 BLK - POWER FOR DASH CLOCK
16 _____	16GA 35 PINK - 12V STEREO MEMORY



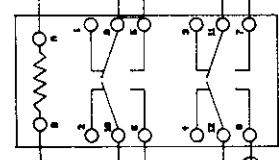
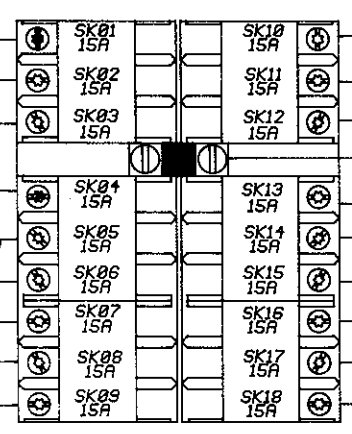
TO BRN WIRE FROM
 TO BRN WIRE FROM SPOTLIGHT DI
 TO BRN WIRE FR
 TO GRN WIRE FROM
 TO GRN WIRE FROM SPOTLIGHT DI
 TO GRN WIRE FR
 TO BLU WIRE FROM
 TO BLU WIRE FROM SPOTLIGHT DI
 TO BLU WIRE FR





- #17 BLK -WATER BLOWOUT SW. P1-1
- #16 BRN/ORN -WATER FILL SW. P1-2
- #18 BLK -WATER HEATER PROTECTION P1-3
- #3 BLU -UPPER BEDRM. FLUO. LGTS. P1-5
- #18 ORN/BLK -AIR COND. RELAYS P1-6
- #8 RED -BEDRM/BATH LP HEAT P1-7
- #10 BLU -BEDROOM STEREO (OPT.) P1-8
- #23 YEL/BLK -VENT FAN, BEDRM. P1-9
- #10 BRN/ORN -AISLE LGTS. P1-10
- #1 PUR -HEAT BARRIER FAN P1-11
- #70 GRAY -BEDRM. ANT. CONTROL P1-12
- #10 RED -CLOSET MOTOR P1-13
- #29 YEL -BATHRM. CLOSET LGTS. P1-14
- #13 GRAY -BEDRM. TV ANT. MOTOR P1-15

- #1 RED
- #2 RED
- #3 RED
- #5 RED
- #6 RED
- #7 RED
- #8 RED
- #9 RED
- #10 RED
- #11 RED
- #12 RED
- #13 RED
- #14 RED
- #15 RED



K5

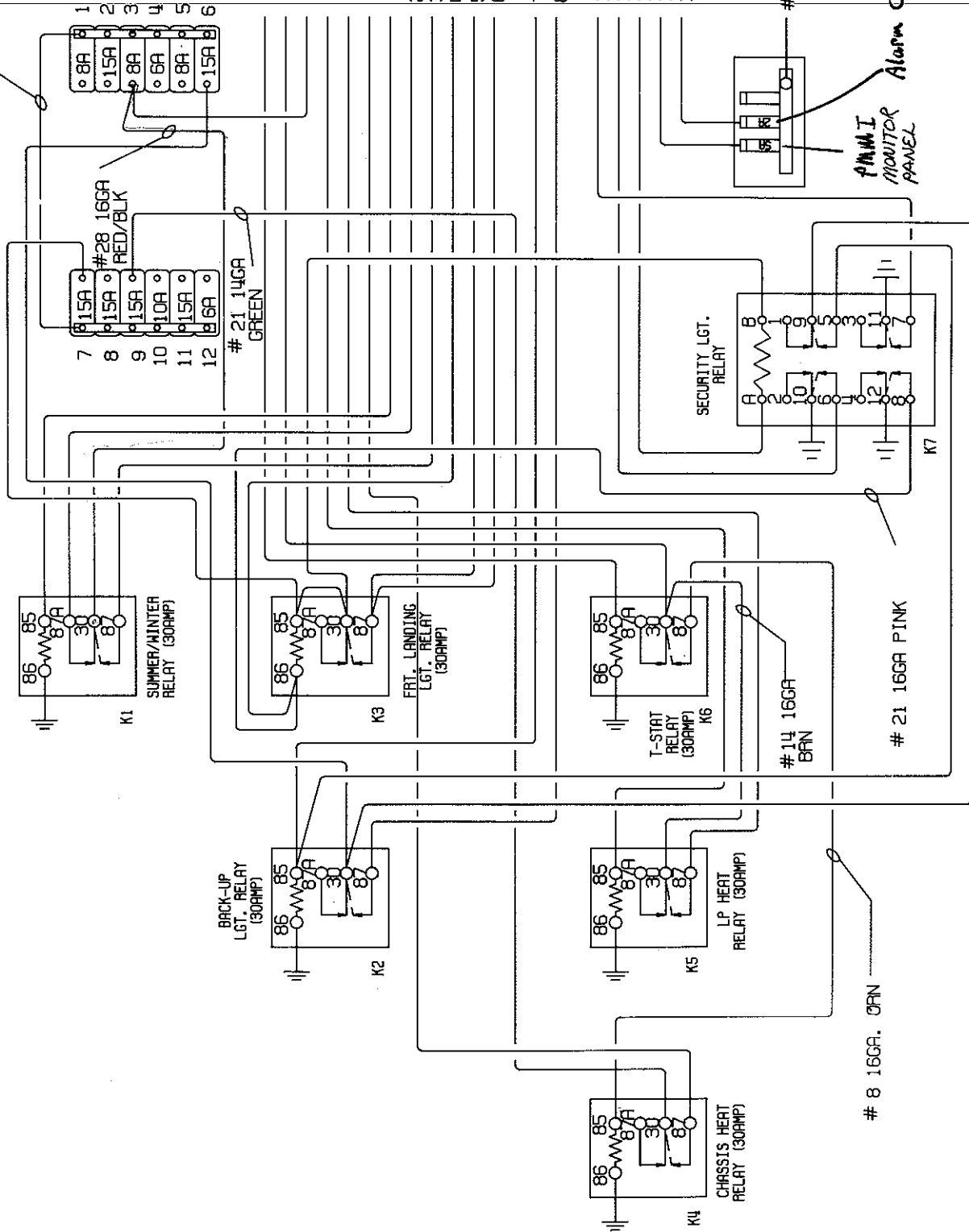


(1)

(2)

(3)

6 GA. RED



PIN NO.	WIRE NO.	WIRE GAUGE	WIRE COLOR
10	17	16	GRN/BLK
11	14	16	BRN
12	14	16	RED/BLK
13	7	18	BLK
14	15	16	BLK
15	22	14	GREEN
1	19	16	TAN
2	24	18	BLK
3	23	16	RED/BLK
4	21	16	PINK
5	25	14	BLUE/BLK
6	25	14	BLUE/BLK
7	20	16	GRN/BLK
8	26	14	WHT/BLK
10	22	16	RED/BLK
11	23	16	GREY
12	4	16	GRN
13	30	16	RED/BLK
14	38	18	RED

#44 10GA. YEL. FROM LH FRONT

PMM I
MONITOR
PANEL
Alarm Clock

SECURITY LGT.
RELAY

#14 16GA
BRN

#21 16GA PINK

#8 16GA. GRN

PIN NO

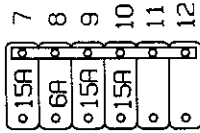
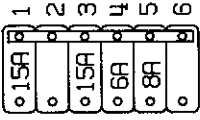
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Figure 10-6. 12 Volt Diagram, Left Rear Load Center (Sheet 1)

11 3

11 3

11 3



18 PIN AMP MALE PLUG WITH FEMALE PINS

PIN NO.	CIRCUIT BREAKER		DESCRIPTION
	NO.	SIZE	
1			
2	5	8A	16GA. # 21 RED/BLK- 12VDC OUTLET, BEDROOM & BATH
3	4	6A	16GA. # 43 GRN- DOOR LOCK SWITCH, BEDROOM
4	3	15A	14GA. # 1 BLUE- READING LIGHTS BEDROOM & OH CABINET
5			
6	1	15A	14GA. # 23 BRN/GRN- BATHROOM EXHAUST FAN
7	7	15A	14GA. # 1 YEL- CLOSET LIGHTS RH & LH REAR
8			
9	8	6A	16GA. # 2 GREY- CAMERA DEFOG
10	9	15A	14GA. # 28 YEL- BATHROOM FLUO. LIGHTS & SHOWER LIGHT
11	10	15A	14GA. # 24 PUR- ENGINE COMP. LIGHTS

Figure 10-7. 12 Volt Diagram, Right Rear Load Center

8

9

10

CIRCUIT BREAKER NO.	PIN NO.	WIRE NO.	DESCRIPTION
	18 PIN FEMALE RECEPT. WITH MALE PINS		
2	1	21	16GA RED/BLK. - 12VDC OUTLET, BEDROOM
5	2	26	14GA BLUE- READING LGTS., BEDROOM
	3	019	16GA TAN- TO SWITCHING RELAY
1	4	6	16GA GRN- TV AMPLIFIER
1	5	1	16GA GRN/BLK. - CLOSET LGT. SW., RH SIDE
	6		
6	7	2	16GA GRAY- CAMERA DEFOGGER
	8	24	18GA BLK. - SUMMER SOLENOID VALVE
	9	14	16GA BRN- TO BEDROOM T-STAT
	10	014	16GA BRN- TO BEDROOM LP HEAT RELAY
	11	17	16GA GRN/BLK. - TO SWITCHING RELAY
	12	22	14GA GRN- BEDROOM CHASSIS HEATER SW.
4	13	14	16GA RED/BLK. - POWER TO BEDROOM T-STAT
	14		
	15		
	16		
	17		
	18		

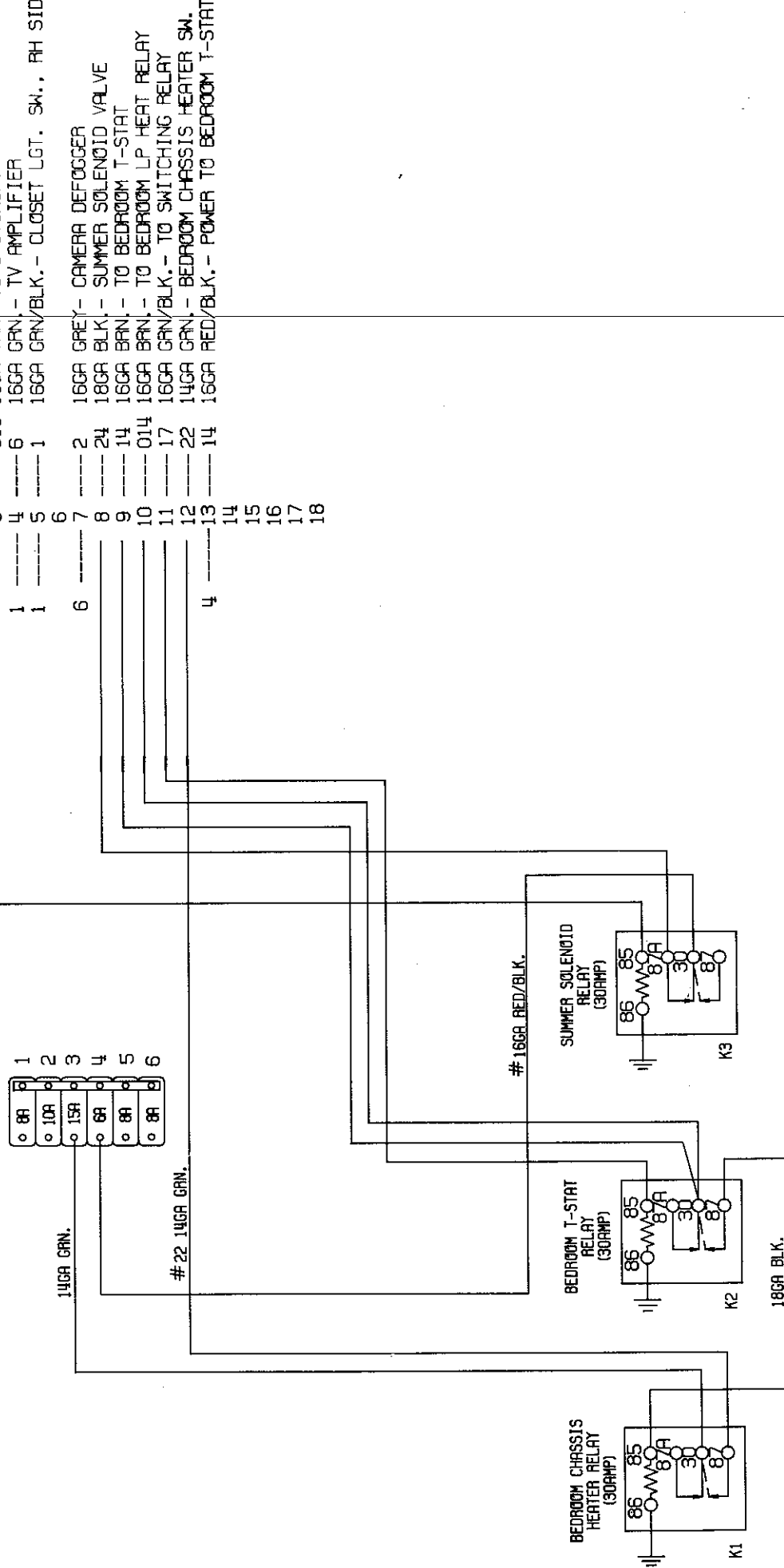
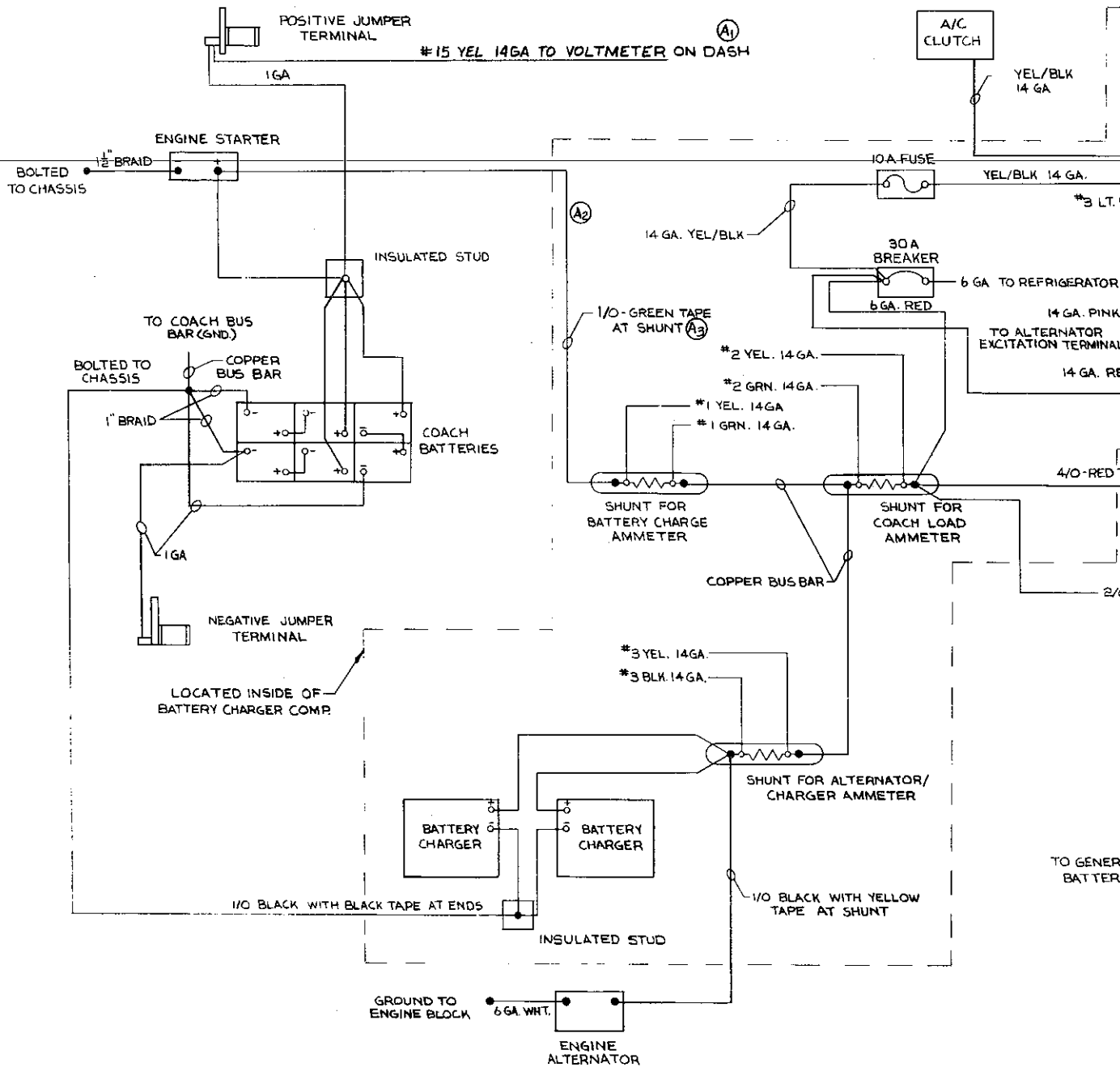
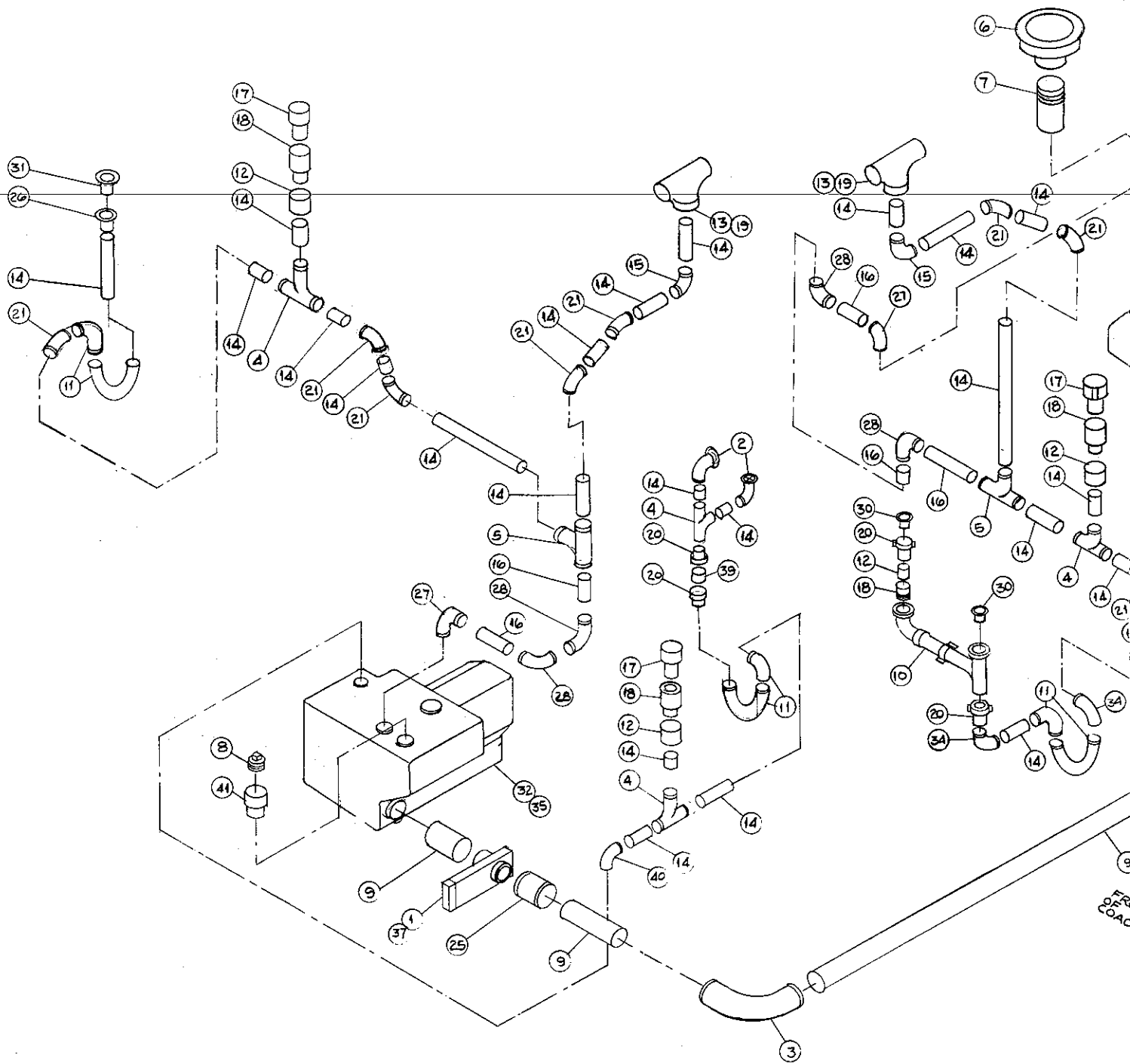


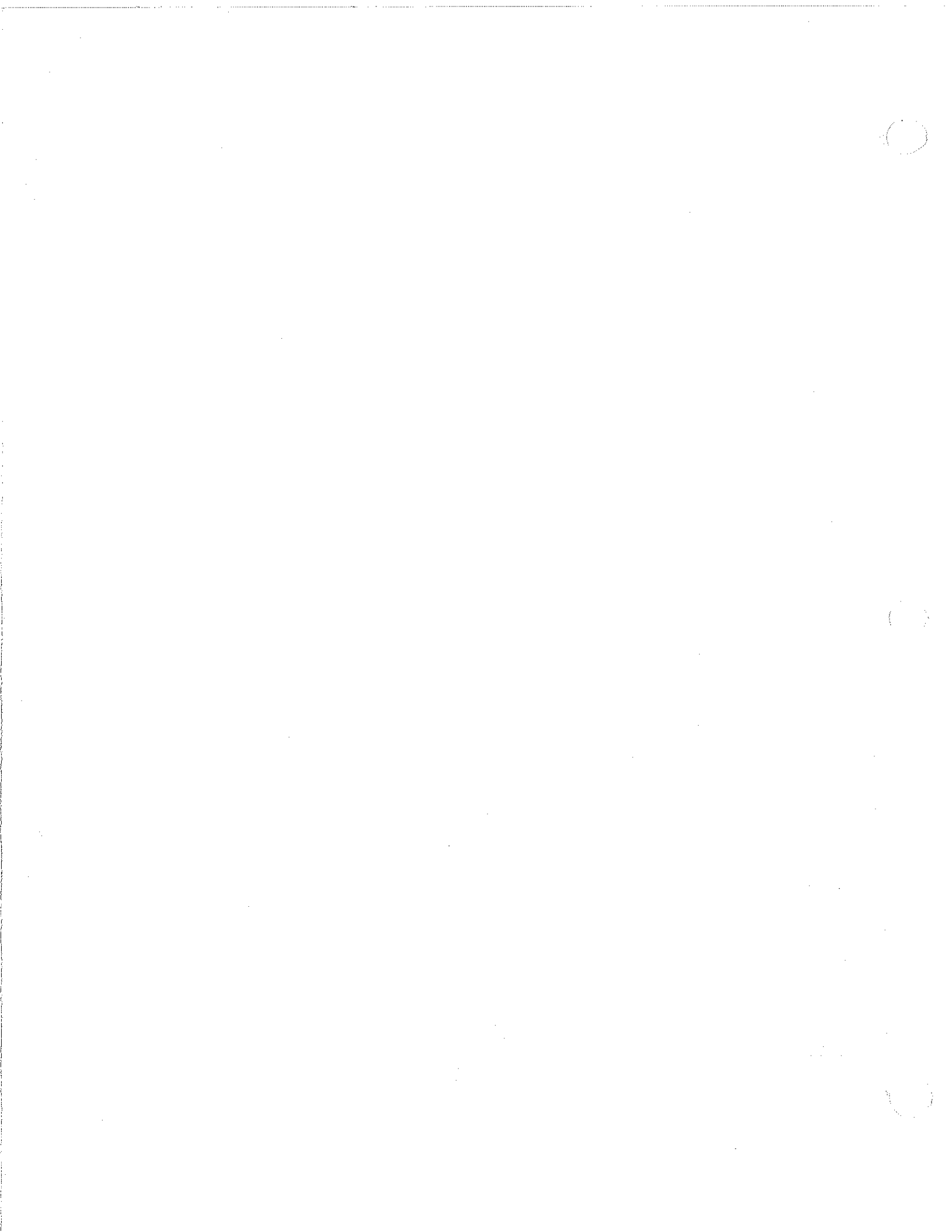
Figure 10-7. 12 Volt Diagram, Right Rear Load Center

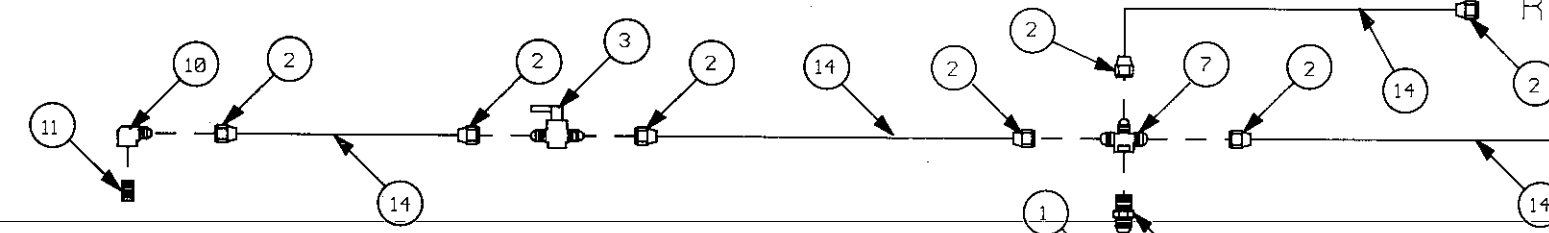




12V. Battery cables
 + 4406963 (2 REQUIRED)
 - 4406955 (2 REQUIRED)

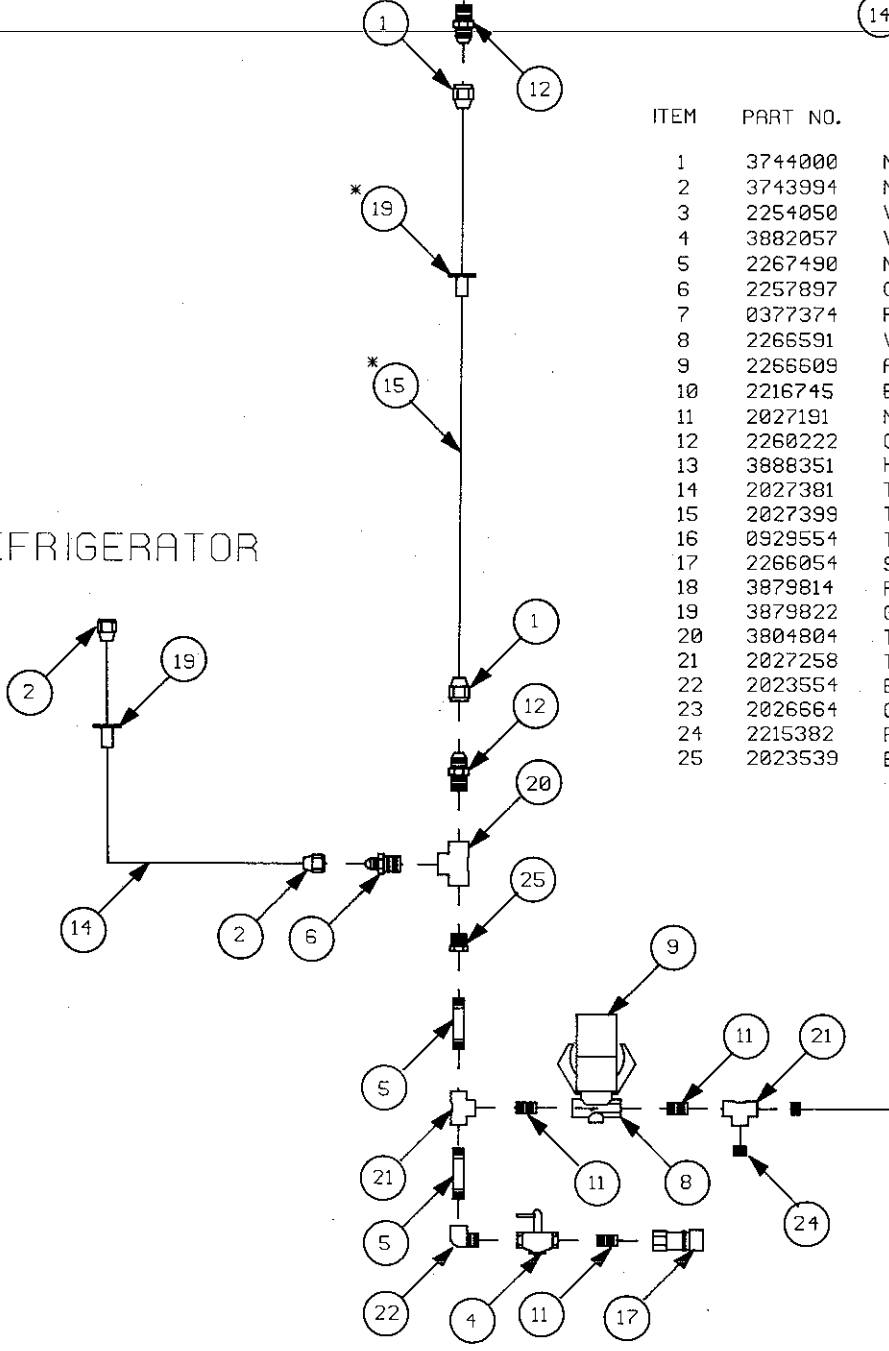




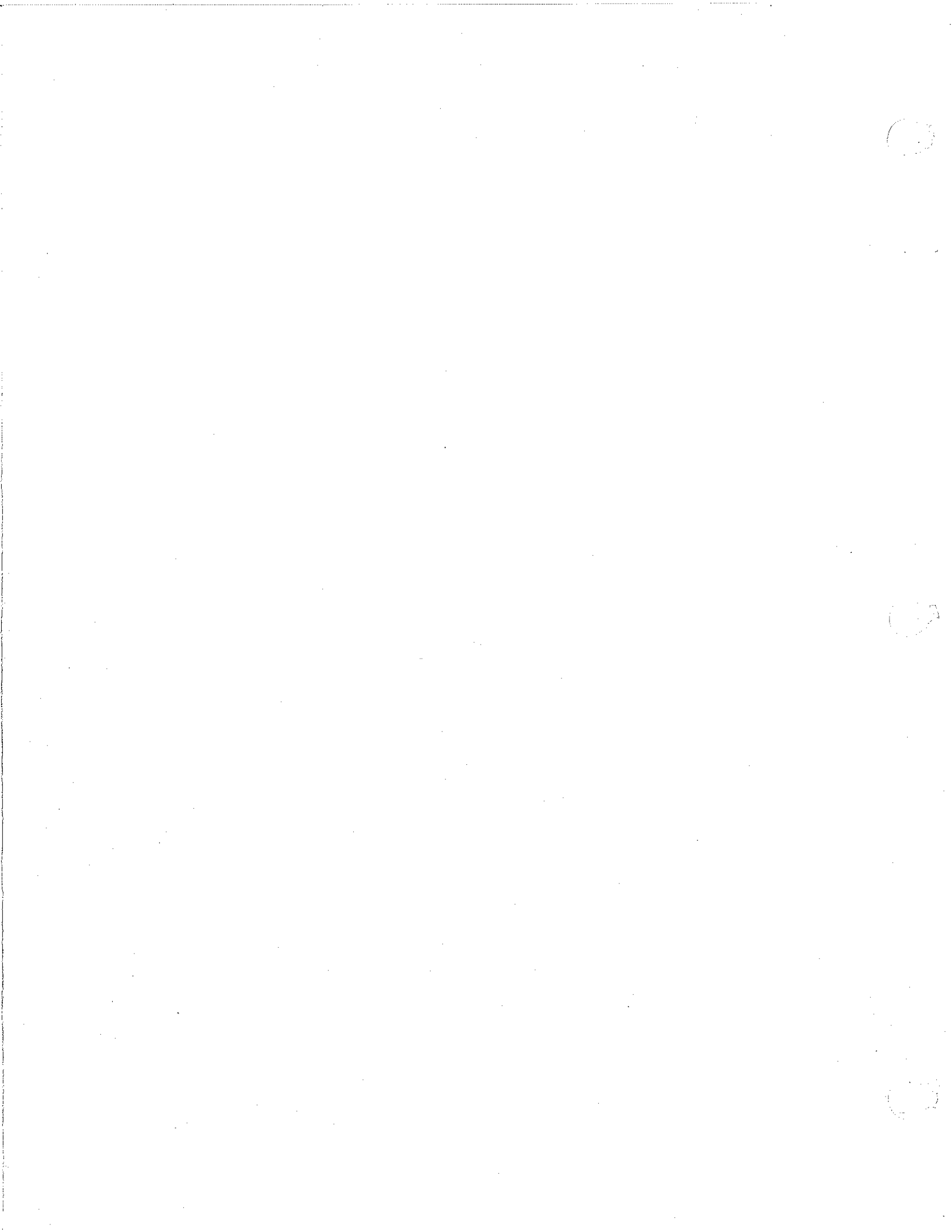


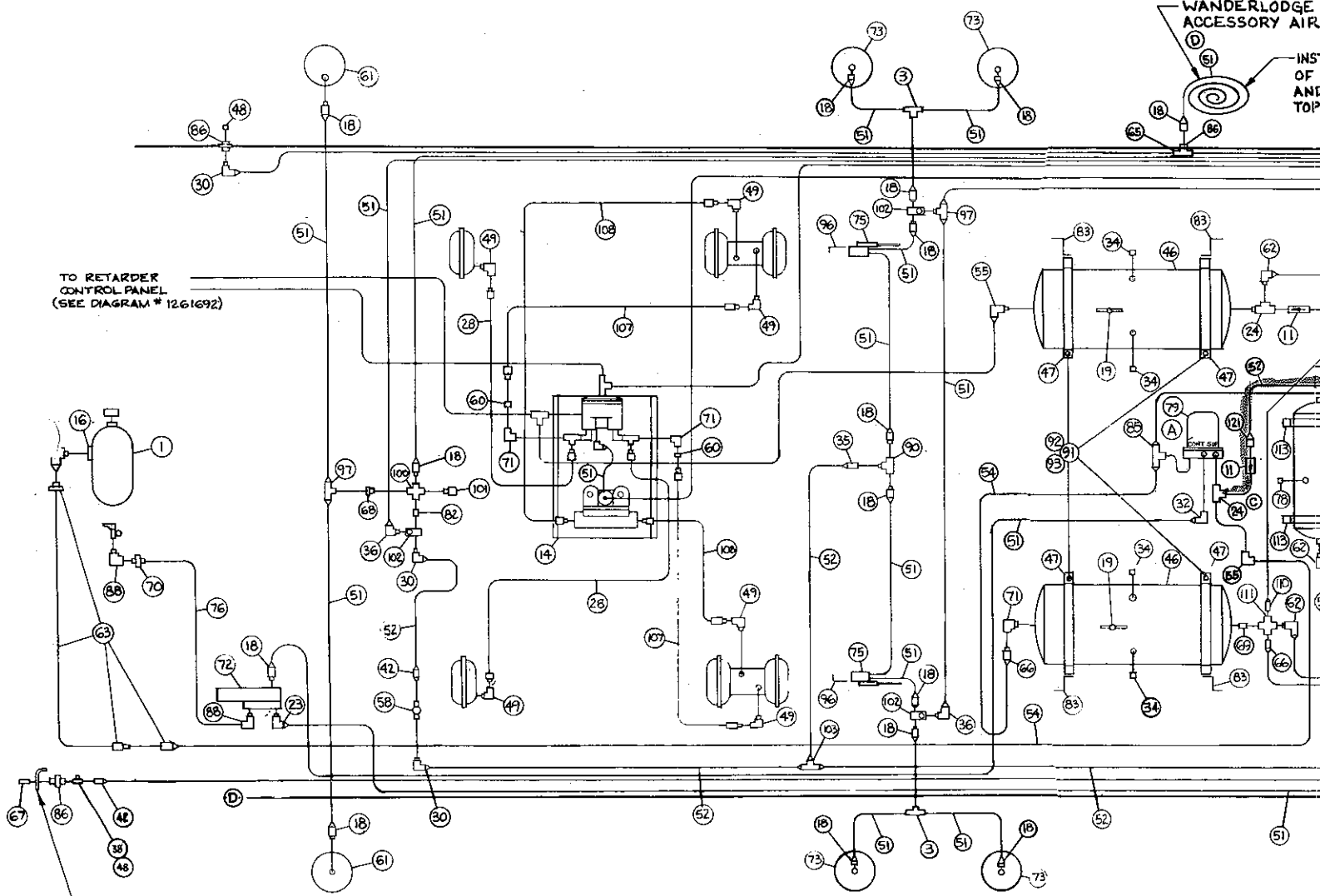
BATHRM LPG
FURNACE

REFRIGERATOR



ITEM	PART NO.	
1	3744000	N
2	3743994	N
3	2254050	V
4	3882057	V
5	2267490	N
6	2257897	C
7	0377374	F
8	2266591	V
9	2266609	A
10	2216745	E
11	2027191	N
12	2260222	C
13	3888351	H
14	2027381	T
15	2027399	T
16	0929554	T
17	2266054	S
18	3879814	R
19	3879822	G
20	3804804	T
21	2027258	T
22	2023554	E
23	2026664	C
24	2215382	P
25	2023539	B





TO RETARDER
CONTROL PANEL
(SEE DIAGRAM # 1261692)

WANDERLIDGE
ACCESSORY AIR
INS
OF
AND
TOP

1168863- BRACKET SCHRADER VALVE
TO BE INSTALLED AFTER BODY MOUNTING.

NOTE:
FOR DIAGRAM, DUAL AIR BRAKE



68	5	2008050	SAE 203140	Bushing, Brass, 1/8 FPT x 1/4 MPT	68	2	2008050	Dushing, Brass, 1/8 DR, Air, 3/24 x 2 1/8 x 1/4
69	1	2023992	B-M 203121	Nipple, 203321, 1/2 Close	69	2	1120195	Nipple, 1/8 x Close Type 316, Stainless
70	1	1119700	P-H 0107-4-4	Adapter, Swivel, Male Pipe, Pilot 0107-4-4 Parker	56	2	1164870	Valve, Check, 1/4 Pipe, Humphrey C-125
71	5	2008274	SAE 130239	Elbow, 90 Deg. Street, 3400 x 8	26	1	0654301	Elbow, 1/8 Male Pipe x 3/8 Tube
72	1	0908160	B-M 275491	Governor, Air Compressor, 100 - 120 PSI	36	1	2023786	Elbow, Male, 1/4 Tube x 1/8 P.T.
73	4	Ref.		Air Spring, Ridwell Rear Suspension	4	2	2023083	Connector, 205053, 1/4 MPT, x 3/8 Tube
74	4	Ref.		Air Spring, Ridwell Front Suspension	42	1	2023182	Connector, 212322, Manifold
75	3	0871376	Ridwell S-2736 B	Air Valve, Height Control	48	6	2023515	Plug, 230576, Pipe, 1/4 In.
76	1	0870303	Imp. East. TI-GS04X04MB-20	Hose Assy., Imp. East. TI-GS04X04MB-20	25	1	2027134	Plug, 230576, Pipe, 1/4 In.
77	2	2023505	B-M 228751	Tee, 228751, 1/4 FPT x 1/2 Tube x 1/2 Tube	12	1	2022935	Elbow, 3400 x 1/4 Street
78	1	0417550	B-M 103388	Plug, Pipe, 1/2	82	2	2027118	Valve, Pressure Protection, 65 PSI MR N 15759 C
79	4	2023240	SAE 120102BA	Air Dryer, RD-4, Bendix 103388	37	2	2027118	Nipple, 3326 x 4, 1/4 Close
80	2	2227338	Cross TV 3S	Connector, 205824, 3/8 MPT x 3/8 Tube	18	1	2023224	Plug, 1/8 In. Pipe, 3.51 x 2
81	3	2027183	W-H 3326 x 4	Valve, Air, TV 3S	15	1	1145853	Connector, 205183, 1/4 MPT x 1/4 Tube
82	3	2027183	W-H 3326 x 4	Nipple, 3326 x 4, 1/4 Close	50	1	0839019	Indicator, Low Pressure, 66 PSI, BW 104246
83	6	0598080	SAE 120202BA	Spacer, Air Reservoir, Bracket	95	1	0962189	Valve, Safety, 1/4 Male Pipe, BW 284142
84	1	2023307	B-M 223403	Elbow, 215709, 3/8 MPT x 1/2 Tube	95	1	0962189	Filter, Air, Ridwell Suspension
85	1	2023927	B-M 205465	Tee, 223403, 1/2 MPT x 3/8 Tube x 5/8 Tube	34	1	2009595	Tee, 1/4 Male Pipe, x 3/8 Tube x 3/8 Tube
86	7	2023232	B-M 205465	Coupling, 205465, Anchor				Plug, Pipe, 3/8
87	2	2008209	SAE 130138	Coupling, Pipe, 3300 x 2				
88	3	0605188	SAE 130239	Elbow, Reducing Street, 1/4 x 1/8 Pipe				
89	5	0949388	Gould 298-PD-04 x 02	Coupling, Kwik Connect, 1/4 Tube x 1/8 Pipe				
90	1	0589047	SAE 130425	Tee, Male Branch, 1/4 Pipe, 3600 x 4				
91	8	0968973	SAE 130425	Bolt, Hex, 3/8-16 x 6 Long, NC, Cad Plated				
92	8	0882795	SAE 130425	Washer, Lock, 3/8, Cad Plated				
93	8	2001451	Stratoflex 4221-4	Nut, Hex, NC, Cad Coated, 3/8-16				
94	8	0654962	Ridwell S 6888	Tubing, Stratoflex, Black, 1/4 O.D., 4221-4				
95	1	0962183		Filter, Air, Ridwell Suspension				
96	3	0961649	B-M 205182	Bracket, Mounting, Level Valves, WL w/Ridwell				
97	2	0982370	Gould 127-8	Tee, 1/8 MPT x 1/4 Tube x 1/4 Tube, B-M 205182				
98	6	0949372	Cross 11752-1	Adapter, Bulkhead, 1/8 Pipe x 1 1/2 Long				
99	4	2227346	W-H 3950 x 4	Fitting, Barb, No. 11752-1				
100	1	0589054	B-M 276599	Cross, 1/4 Female Pipe, 3950 x 4				
101	3	0982918	WM 147-P	Indicator, Low Pressure, LP-3, 30 PSI				
102	4	0982280	SAE 120401BA	Valve, Relay Pilot Control, WM 147-P				
103	1	0854541	B-M 104000	Tee, 3/8 Tube x 3/8 Tube x 3/8 Tube, B-M 205106				
104	1	1160464	BB Manuf'd	Valve, Quick Release, BM 104000				
Not Shown	1	1137272	BB Manuf'd	Bracket, Mounting, Air Dryer, 212 MB, WLPD				
Not Shown	1	1149178	BB Manuf'd	Bracket, Mty, R-12 & R-14, Relay Valve, 10 1/8, WLPD				
*105	1	Ref.		Gauge, Air Pressure, Front Brake, Dual Scale (Supplied w/Inst. Panel)				
*106	1	Ref.		Gauge, Air Pressure, Rear Brake, Dual Scale (Supplied w/Inst. Panel)				
107	2	0991646	B-M 288143	Hose Assy., Brake, Rear Service, B-M 288143, WLPD				
108	2	0991653	B-M 288142	Hose Assy., 7/16 I.D. x 36 In. Long				
109	A	1220011	SAE-J844, Type A	Tubing, Plastic, 1/4 O.D. Brown SAE J-844, Type A				
110	1	2023380		Connector, 1/2 MPT x 1/2 Tube				
111	1	0871756		Cross, 1/2 Pipe				
112	1	0754929	Manuf.	Reservoir 8x26, 1240 Cu. In.				
113	2	0850578		Bracket, Mounting, Air Reservoir, 8 In.				
114	6	3827201	Parker 68PL-2-2	Connector, Male, 1/8 NPTF x 1/8 Tube				
115	10	1004621		Tubing, Nylon, 1/8 O.D.				
116	2	3827268	Parker 66PL-2-2	Connector, Female, 1/8 NPTF x 1/8				
117	2	3827318	Parker 169PL-2-10x32	Elbow, Male, Swivel, 90, 10-32 UNF x 1/8 Tube				
118	2	3827243	Parker 68PL-2-10x32	Fittings, T-Brass, 1/8 FPT, Parker 2203 P-2				
119	1	1047133	Parker 2203 P-2	Nipple, Pipe, 1/8 Close				
120	1	2009298		Connector, 1/2 Male Pipe x 3/8, BM222063				
121	1	0654558	BM222063					

NOTE: For Diagram, Dual Air Brake Assy., 3706 and 3903 WLPD, see drawing no. 1299973.
 NOTE: Position Low Air Indicator so moisture will not drain into switch.
 3739e-6

*NOTE: The parts identified by * are to be used in a temporary panel and are to be returned from Wanderlodge to the Blue Bird make room for reuse.

(1)

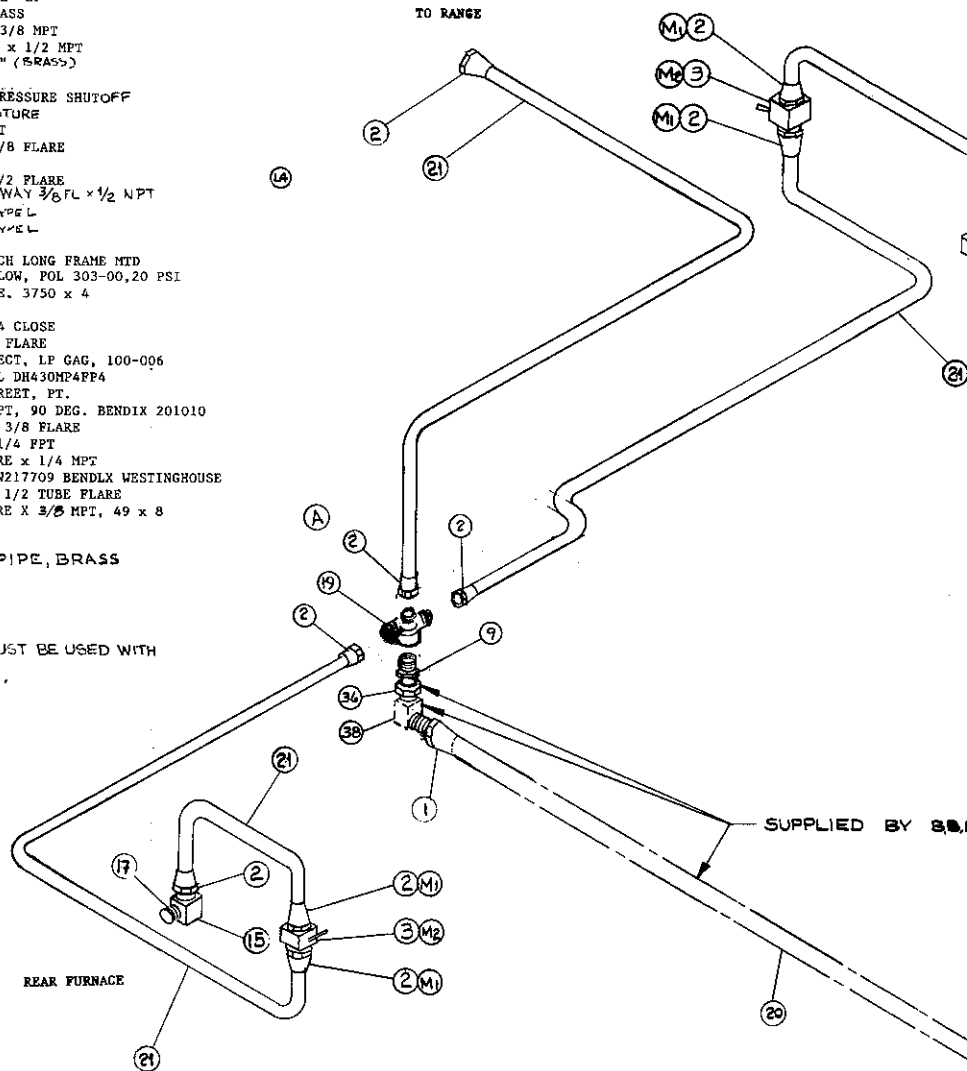
(2)

(3)

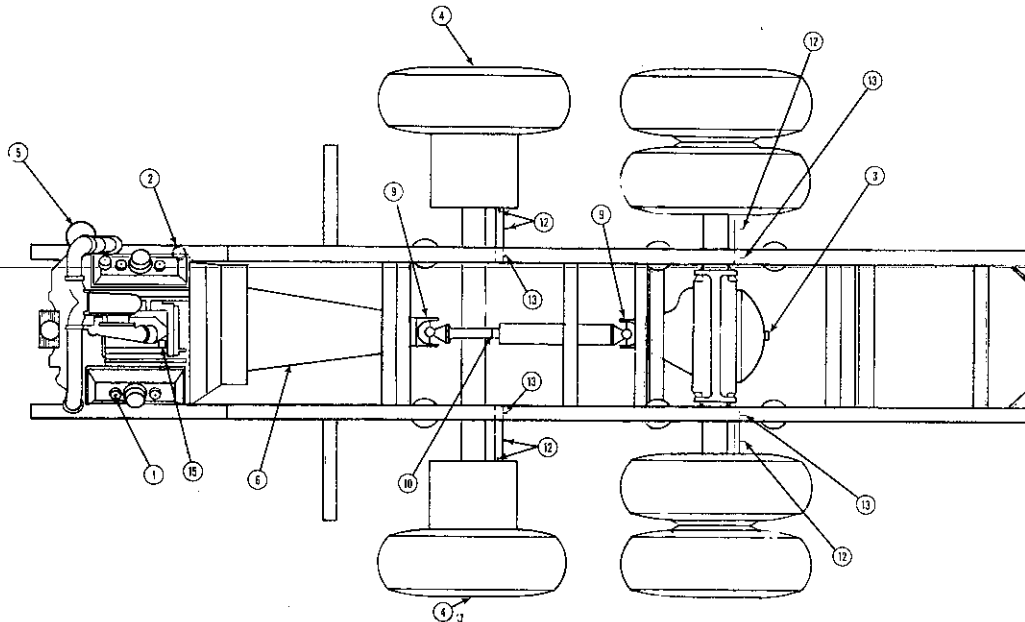
PART NUMBER QUANTITY DESCRIPTION

PART NUMBER	QUANTITY	DESCRIPTION
1	4	NUT 1/2" FLARE
2	22	NUT 3/8" FLARE
3	3	VALVE, SHUTOFF, 3/8 x 3/8 FL.
4		
5	2	VALVE SHUTOFF LPG
6	2	REGULATOR LOW PRESSURE LP
7	1	ELL STREET 1/2 MPT BRASS
8	1	NIPPLE HEX 1/2 MPT x 3/8 MPT
9	2	CONNECTOR 1/4 3/8 FL x 1/2 MPT
10	1	CROSS FEMALE PIPE 1/2" (BRASS)
11		
12		
13	1	VALVE LPG AUTO HIGH PRESSURE SHUTOFF
14	1	SOLENOID ADAPTOR ARMATURE
15	3	ELBOW 3/8 FL x 3/8 FPT
16	2	CONNECTOR 1/4 MPT x 3/8 FLARE
17	3	NIPPLE 3/8 CLOSE
18	1	CONNECTOR 1/2 MPT x 1/2 FLARE
19	1	FITTING, TAKE OFF 3 WAY 3/8 FL x 1/2 NPT
20		TUBING, 1/2" COPPER TYPE L
21		TUBING, 3/8" COPPER TYPE L
22		
23	1	TANK, ASSY LPG 44 INCH LONG FRAME MTD
24	1	REGULATOR W/EXCESS FLOW, POL 303-00, 20 PSI
25	1	TEE, STREET, 1/4 PIPE, 3750 x 4
26		
27	1	NIPPLE, 3326 x 4, 1/4 CLOSE
28	2	ELBOW, 1/4 MPT x 3/8 FLARE
29	1	SOCKET, QWIK DISCONNECT, LP GAG, 100-006
30		ROSE ASSY, DUAL LABEL DH430MP4PP4
31	1	ELBOW, 116-B, 1/4 STREET, PT.
32	1	ELBOW, ANCHOR, 1/4 FPT, 90 DEG. BENDIX 201010
33	1	CONNECTOR, 1/4 MPT x 3/8 FLARE
34	1	COUPLING, BULKHEAD, 1/4 FPT
35	1	ELBOW, MALE, 3/8 FLARE x 1/4 MPT
36	2	COUPLING, ANCHOR, B-W217709 BENDIX WESTINGHOUSE
37	1	CONNECTOR, 3/8 MPT x 1/2 TUBE FLARE
38	2	ELBOW, MALE, 1/2 FLARE x 3/8 MPT, 49 x 8
39		
40		
41	1	ELL STREET, 3/8 PIPE, BRASS

NOTE: P/N 2254050 VALVE, SHUT-OFF, 3/8 x 3/8 FL, MUST BE USED WITH OPTION 5761 (FOUR BURNER GAS COOK TOP).







KEY	SERVICE PERIOD	CHECK	DESCRIPTION	GENERAL INSTRUCTION	RECOMMENDED LUBRICANT
1.	SEE OWNERS MANUAL	DAILY	ENGINE OIL	CHECK LEVEL	FOLLOW ENGINE MANUFACTURER'S RECOMMENDATIONS FOR S.A.E. GRADE
2.	SEE OWNERS MANUAL	—	ENGINE OIL FILTER	FOLLOW ENGINE MANUFACTURER'S RECOMMENDATION	—
3.	*25,000 MILES OR 6 MONTHS	1,000 MILES	REAR AXLE	KEEP OIL TO LEVEL OF FILLER PLUG, DRAIN AND REFILL AT FIRST 1,000 TO 3,000 MILES AND THEN AT RECOMMENDED INTERVALS. CHECK LEVEL TESTING PLUG IN "HOWL" OF AXLE	HYPOID GEAR OIL S.A.E. 140 OR S.A.E. 89W/140 OR S.A.E. 80W/140
4.	ONCE A YEAR	1,000 MILES	WHEEL BEARINGS FRONT AXLE AND TAG AXLE	CHANGE LUBRICANT WHENEVER SEALS ARE REPLACED OR WHEN BRAKES ARE RELINED OR AT LEAST ONCE A YEAR.	HYPOID GEAR OIL S.A.E. 89W/90
5.	*25,000 MILES OR 6 MONTHS	5,000 MILES OR MONTHLY	HYDRAULIC POWER STEERING & FAN PUMP	CHECK LEVEL AT RESERVOIR DIPSTICK. CHANGE OIL & FILTER AT REGULAR SERVICE INTERVALS, OR WHEN BYPASS INDICATOR IS IN THE "RED" AT FULL THROTTLE WITH SYSTEM WARM.	TEXACO HAVOLIN MOTOR OIL S.A.E. 10W/30
6.	SEE GENERAL INSTRUCTIONS	MONTHLY	AUTOMATIC TRANSMISSION (ALLISON)	EXTERNAL FILTER-FIRST 5,000 MILES THEN AT NORMAL OIL CHANGE INTERVALS. INTERNAL FILTER-25,000 MILES OR 12 MONTHS OIL-25,000 MILES OR 12 MONTHS	DEXTRON OR DEXTRON II
7.	*5,000 MILES OR 6 MONTHS	—	STEERING LINKAGE (DRAG ROD)	2-FITTINGS ⑦	NLGI GRADE NO. 2

KEY	SERVICE PERIOD	CHECK	
8.	—	—	PRO
9.	*15,000 MILES OR 3 MONTHS	—	PRO JOI
10.	*15,000 MILES OR 3 MONTHS	—	PRO
11.	24,000 MILES	—	STE
12.	*50,000 MILES OR 6 MONTHS	—	BRA
13.	*50,000 MILES OR 6 MONTHS	—	BRA
14.	*50,000 MILES OR 6 MONTHS	—	TIE

*WHICHEVER OCCURS FIRST

