

A Word To The GMC Motorhome Owner...

Congratulations on your purchase of a GMC Motorhome. You have opened the way to an endless variety of happy holidays.

This manual has been prepared to acquaint you with the operation and maintenance of your Motorhome, and to provide important safety information. It is supplemented by two convenient folders which provide additional information on vehicle maintenance and warranties. We urge you to read these three publications carefully. Follow the recommendations to help assure the most enjoyable and troublefree operation of your vehicle.

While reading this manual you will notice that some specifications are given in both metric and customary units. Where precise accuracy is not needed, some conversions have been rounded to even numbers for your handy use.

An Operating Manual Appendix is provided with vehicles built after January 1, 1978, which have a gross vehicle weight rating (GVWR) in excess of 10,000 pounds. This Appendix covers items relating to compliance with Federal noise emission standards and includes the noise emission warranty. It also contains information on maintenance of the noise control system and lists acts which are considered to be tampering with the system. As noted in the Appendix, tampering with the noise control system is prohibited by Federal Law.

When it comes to service, remember that your GMC Motorhome Dealer knows your vehicle best. Your dealer is interested in your complete satisfaction. Return to him for Guardian Maintenance Service and any other repairs you may require.

To assist dealers in handling your needs GMC Truck and Coach maintains a number of Zone Offices throughout the country. If you have a problem that has not been handled to your satisfaction, please follow the procedure described under the "Owner Assistance" section.

Thank you for choosing a GMC Motorhome. We extend our best wishes for many years of pleasant traveling.

Cordially,


General Sales Manager

1978 GMC MOTORHOME OPERATING MANUAL

IMPORTANT

This manual should be considered a permanent part of the vehicle. It should remain with the vehicle when sold, to provide the next owner with important safety, operating and maintenance information.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of printing. The right is reserved to make changes at any time without notice.

For vehicles sold in Canada, substitute the name General Motors of Canada Limited whenever the name GMC Truck & Coach Division appears in this manual.

Service Publications

**GMC TRUCK & COACH DIVISION
GENERAL MOTORS CORPORATION
Pontiac, Michigan 48053**

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IMPORTANT INFORMATION ON VEHICLE LOADING

OVERLOADING

CAUTION

The components of your vehicle are designed to provide satisfactory service if the vehicle is not loaded in excess of either the Gross Vehicle Weight Rating (GVWR) or the maximum Front and Rear Gross Axle Weight Ratings (GAWR's). These ratings are listed on the Vehicle Identification Number (VIN) plate located behind the right front access door. Overloading can create serious potential safety hazards and shorten the service life of your vehicle.

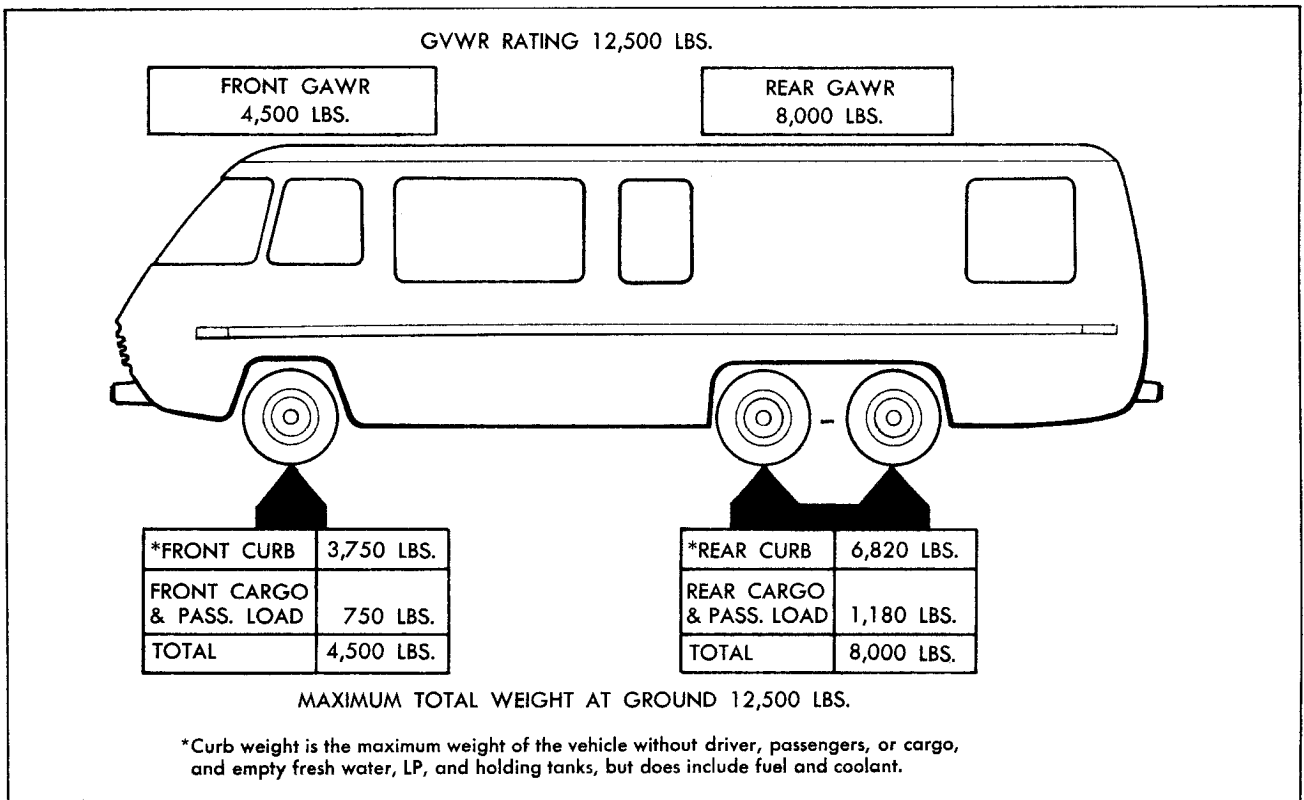
Your dealer can advise you concerning proper loading conditions of your vehicle.

When loading the Motorhome, it is important that it is properly loaded. All items should be loaded as centrally and as low as possible. This is essential to maintain proper vehicle handling. Even though a single item may not

weigh much alone, several of these items may have considerable weight. Proper loading is essential.

MAXIMUM FRONT AND REAR AXLE WEIGHTS (AS MANUFACTURED)

The weight of the cargo load must be properly distributed over both the front and rear axles. The VIN plate shows the maximum weight that the front axle can carry (front GAWR) and the maximum weight that the rear axle (rear GAWR) can carry. The GVWR represents the maximum permissible loaded weight of the vehicle and takes into consideration the engine, transmission, frame, suspension, brake, axle and tire capabilities. Actual front and rear end weights can only be determined by weighing the vehicle. This can be accomplished through highway weigh stations or other such commercial facilities. Consult your dealer for assistance. The cargo load should be distributed on both sides



of the centerline of the vehicle as equally as possible.

ALLOWABLE LATERAL WEIGHT VARIATION

The independent suspension on this vehicle could be adversely affected by an unbalanced load on either side of vehicle. The allowable front lateral weight variation is 250 pounds. The allowable rear lateral weight variation is 600 pounds.

Lateral weight variations in excess of the above, can result in abnormal vehicle handling.

VIN (Vehicle Identification Number) Plate

Your VIN plate shows the GVWR and the front and rear GAWR's for your vehicle.

<input type="radio"/>	GENERAL MOTORS CORPORATION	<input type="radio"/>
WARRANTY MAY BE VOIDED IF WEIGHT EXCEEDS ANY OF RATINGS SHOWN. GROSS VEHICLE WEIGHT INCLUDES WEIGHT OF BASE VEHICLE, ALL ADDED EQUIPMENT, DRIVER AND PASSENGERS, AND ALL PROPERTY LOADED INTO OR ONTO VEHICLE.		
RATINGS IN POUNDS - AS MANUFACTURED		
GROSS VEHICLE WEIGHT FOR THIS VEHICLE		
MAXIMUM FRONT END WEIGHT AT GROUND		
MAXIMUM REAR END WEIGHT AT GROUND		
VEHICLE IDENTIFICATION NO.		
<input type="radio"/>		<input type="radio"/>

Vehicle Identification Plate

Gross Vehicle Weight (GVW) is the weight of the originally equipped vehicle and all items added to the vehicle after it has left the factory. This would include the driver and all occupants, and everything that is loaded into (or onto) the vehicle. *The GVW must not exceed the GVWR.* Also, the front and rear weights of the loaded vehicle must not exceed the front and rear GAWR's.

CAUTION

Luggage or other cargo should be secured in place. This will help keep such things from being thrown about and injuring people in the vehicle in an accident.

EFFECT ON WARRANTY

Your New Vehicle Warranty does not apply to any part of your vehicle "which has been subject to misuse." Any part which fails because of over-loading has been subject to misuse.

TIRES

The tires on your vehicle should be of the proper size and be properly inflated. It is important to avoid over-inflation as well as under-inflation. See the **SERVICE AND MAINTENANCE** section for proper tire inflation pressures.

For continuing satisfaction keep your vehicle all GM. General Motors Parts are identified by one of these trademarks:



BEFORE DRIVING YOUR MOTORHOME

DRIVER CHECK LIST

BEFORE ENTERING VEHICLE

1. See that windows, mirrors, and lights are clean.
2. Check whether any tire is low or flat. (You may need to check with a gauge to tell if radial tires are properly inflated.)
3. Check that all exterior lights work.
4. Look for fluid leaks.
5. Turn off LP gas valve on LP tank (See CAUTION under "LP Gas System" in SERVICE AND MAINTENANCE section).
6. Check that sewer connection, all external compartments, and filler openings are properly stowed or closed and/or locked.
7. Check that items stored on exterior of vehicle are securely lashed.
8. Will any items stored on exterior of vehicle present a clearance problem?
9. Are there any rocks, posts, low-hanging lines or branches under or near the vehicle you must avoid before driving away?
10. Check area behind vehicle if about to back-up.

BEFORE DRIVING OFF

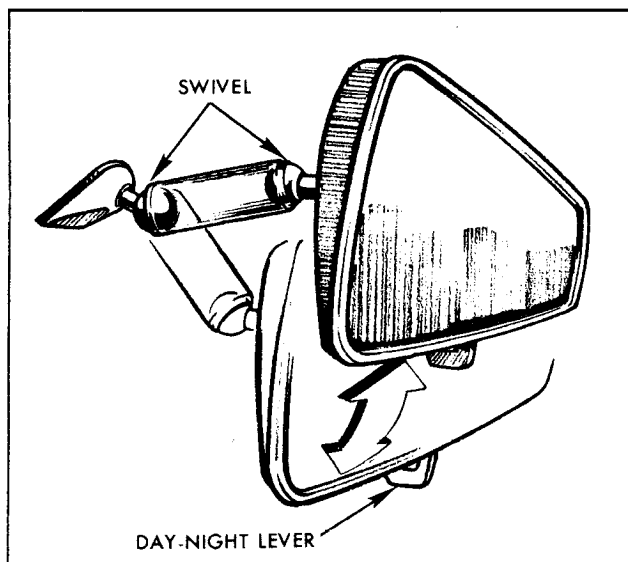
1. Lock entrance door.
2. Check that all windows are in suitable position for travel (See "Engine Exhaust Gas Caution (Carbon Monoxide)" at the beginning of STARTING AND OPERATING VEHICLE section.) Close all roof vents.
3. Turn off living area water pump.
4. Check that refrigerator door is fastened.
5. Check that nothing heavy is stored in overhead or high cabinets—it may fall out en-route and cause injury. Be sure the gun, ammunition, and fishing equipment cabinets are locked, if vehicle is so equipped.
6. Close and secure bathroom, closet, and all cabinet doors and drawers.
7. Check that counter tops, range top, kitchen sink, table tops and shelves are clear—even small items may become projectiles in an accident. It is not safe to cook while underway—hot food or liquid may scald in a sudden stop or accident.
8. Be sure all LP gas controls on furnace, range/oven and gas/electrical refrigerator (if so equipped) are turned off.
9. Check that all interior stowage is securely held.
10. Check that all lights and switches are set in positions suitable for travel.
11. Adjust driver's seat for comfort.
12. Check that driver's and front passenger's seat, and any other swivel-mounted seats are locked in position.
13. Adjust inside and outside mirrors. Adjust curtains where necessary for visibility.
14. If vehicle is equipped with optional Electro-Level System II, check that TRAVEL switch is positioned in "AUTO". Switch should be moved to "HOLD" after 5 minutes.
15. Fasten belt restraints.
16. Check that warning light bulbs light when key is turned to "ON" or "START" position.
17. Check all gauges.
18. Release parking brake, and see that the "PARK BRAKE" light turns off.
19. With engine running, check that warning lights are now out.
20. Be sure you know your vehicle and how to operate it and its system and equipment safely.
21. It is recommended that you refer to "TRIP TIPS" and "DRIVING TIPS" at the end of this section for additional information.

CAUTION

Counter and table tops should not be used for storage when underway—even for light weight, small articles. They might become dangerous projectiles during an accident. Heavy items stored in overhead or waist-high cabinets may also cause injury if a sharp turn or stop causes them to topple against inside of cabinet door, forcing it open. Store canned goods and other heavy items down low. Be sure the gun, ammunition, and fishing equipment cabinets are locked, if vehicle is so equipped.

GUARD AGAINST THEFT

For tips on how to protect your vehicle and its contents, see the "Steering Column Controls" section of this manual.



Inside Rearview Mirror

INSIDE REARVIEW MIRROR

The mirror can be adjusted up, down, or sideways to obtain the best view to the front and rear. Move the mirror lever to the night position to reduce glare from headlights of vehicles behind you.

OUTSIDE REARVIEW MIRROR

Adjust the outside mirror so you can just see the side of your vehicle in the side of the mirror closest to the vehicle.

KEYS

Two different keys are provided for the locks on your **VEHICLE**. The key code is stamped on

the "knock out" plug in each key head.

- *Key with square head (letter "J")*—for ignition lock only.
- *Key with oval head (letter "K")*—for all other locks.

For vehicle security:

- Record key code numbers; then knock plugs out of keys.
- Keep the key codes in a safe place such as your wallet, **NOT IN THE VEHICLE**.

If the original keys are lost, duplicates can be made using the key codes. Contact any GM dealer or your locksmith.

If you park in an attended lot, separate and leave your square ignition key only. Lock your glove box (also all other compartments with key locks) and take the round key with you. This will help prevent any illegal entry into the glove box or any other compartments with locks.

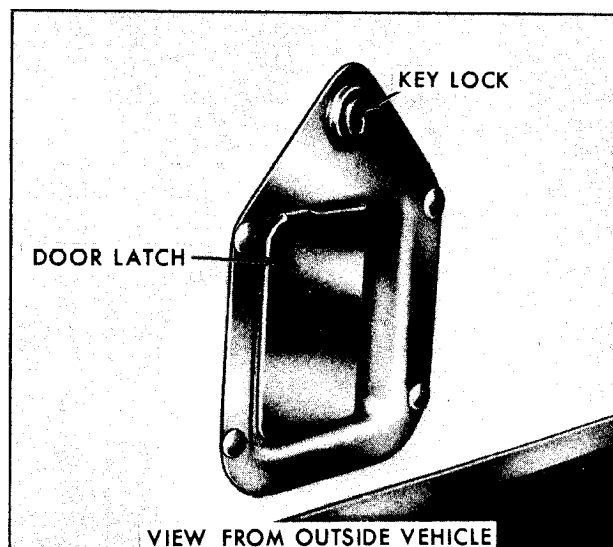
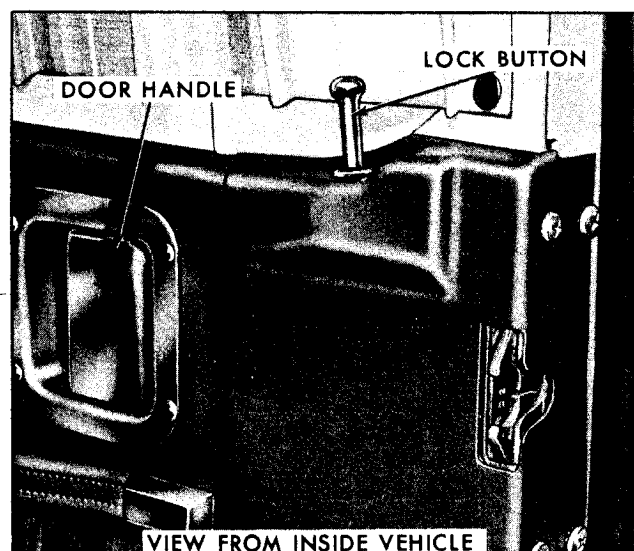
If the refrigerator is equipped with a lock, a third key will be provided.

ENTRANCE DOOR

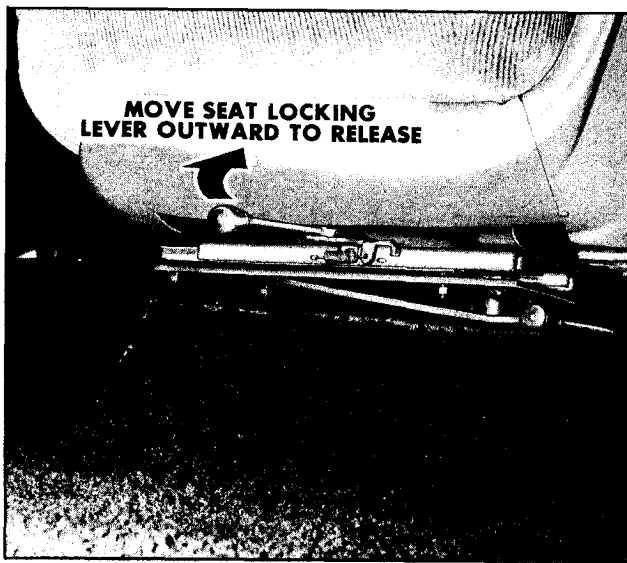
DOOR LATCH

Door must be locked from outside the vehicle by inserting the key into the door key lock and turning. To unlock, turn in the clockwise direction. Reverse the direction to lock.

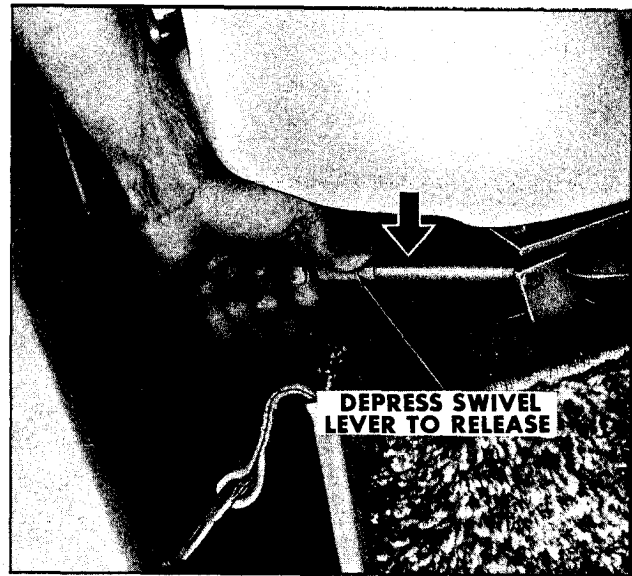
To lock door from inside vehicle, push the lock button **DOWN**. To unlock and open door from the inside, pull the lock button **UP** and pull on inside door handle.



Entrance Door Latch



Seat Track Mechanism (Typical)



Seat Swivel Mechanism (Typical)

CAUTION

For safety's sake, always lock the entrance door when driving. This provides greater safety in accidents, and helps keep children from opening the door. It also helps keep out intruders when stopped for lights, etc.

SEATS

DRIVER AND FRONT PASSENGER SEATS

The driver and front passenger seats may be adjusted to suit an individual's preference. To move seat forward or backward, simply release the seat locking lever located on the aisle side of the seat. Once released, exert slight body pressure in the direction desired. Release lever to lock the seat in the desired position.

The seats can be swiveled to provide easy entrance and exit. To swivel seat, depress seat swivel lever (as shown), then rotate seat. The seats are designed to lock only in the forward facing position.

CAUTION

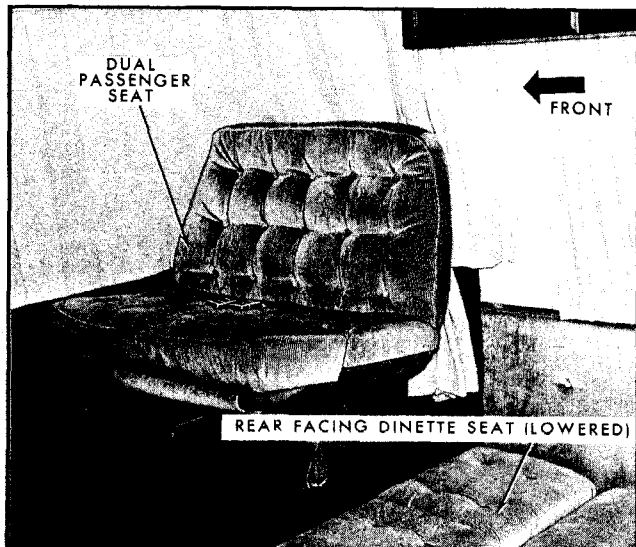
After adjusting a manually operated seat, push forward and backward on seat and twist seat to be sure the seat adjusters and swivel lock have latched. Movement of the seat indicates that at least one latch or the lock did not en-

gage. This could increase the chance of injury and/or the amount of injury in an accident. Take the vehicle to your dealer for service if you find that your seat adjusters do not latch.

Do not adjust a manually operated driver's seat swivel or fore and aft lever while the vehicle is moving. The seat could move suddenly and could cause the driver to lose control of the vehicle.



Dual Passenger Seat Swivel Mechanism



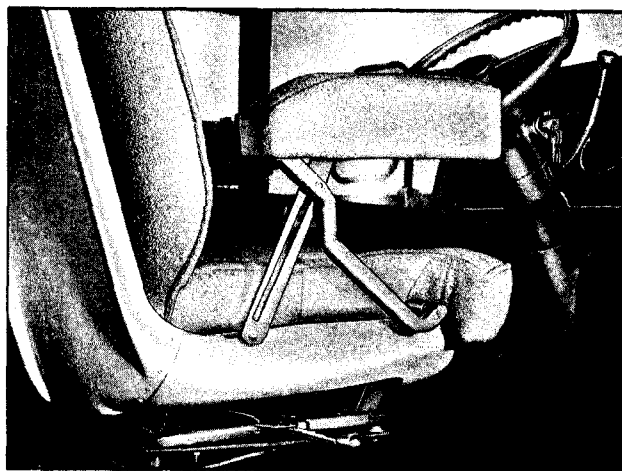
Dual Passenger Seat in the Swivelled Position

NOTICE: The optional dual passenger seat may be swiveled by raising the swivel lever (as shown), then rotate seat. If the vehicle is equipped with a dinette behind the dual passenger seat, it will be necessary to lower the rear facing dinette seat (as shown). This will allow the dual passenger seat to be swivelled to the desired position.

Armrests

The driver and front passenger seats are equipped with armrests.

When armrests are being used, they should be placed in the **DOWN** position (as shown). To use, grasp armrest by the front and lift, until armrest is in the **UP** position (as shown). To lower,



Armrest in the UP Position

grasp armrest by the front and lift, then lower assembly (as shown) into seat.

LIVING AREA SWIVEL SEATS

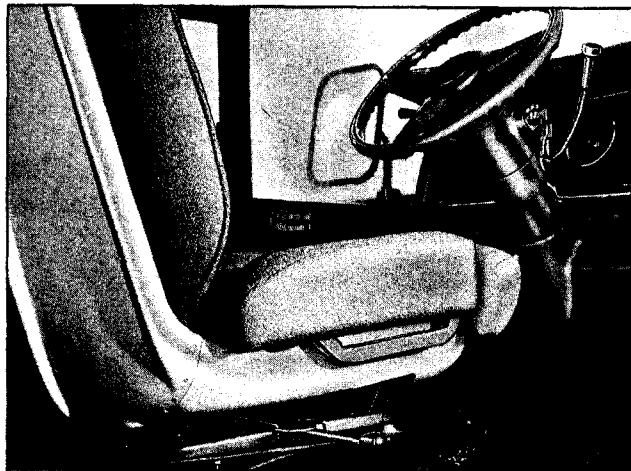
The optional swivel seats (behind the driver's seat) may be swiveled or adjusted for height as described in the following:

Swiveling Seat

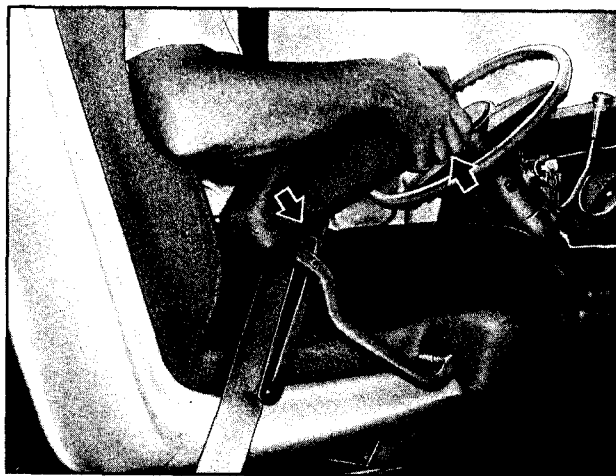
1. To swivel seat to desired position, depress seat locking lever (straight handled lever located on right side of pedestal—below right side of seat in travel position).

2. To temporarily hold seat in position, while vehicle is stationary, tighten seat friction lever (angled lever on the left side of pedestal—below left side of seat in travel position) by rotating lever clockwise.

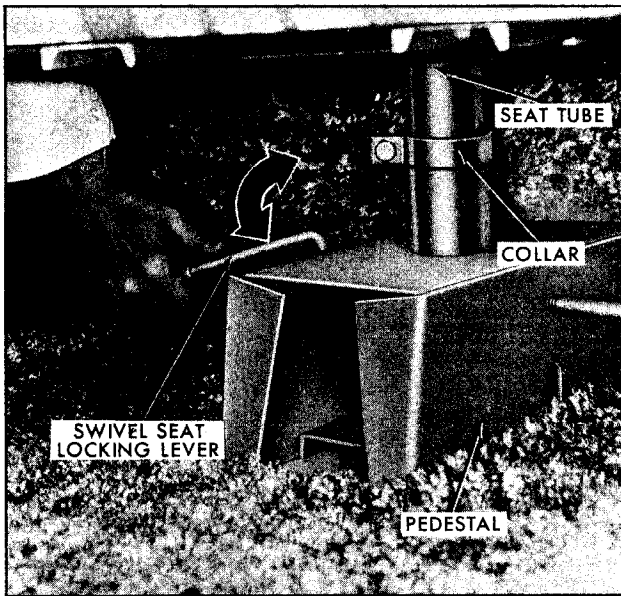
3. To return swivel seat to the correct position for traveling, first loosen the swivel seat



Armrest in the DOWN Position



Lowering Armrest

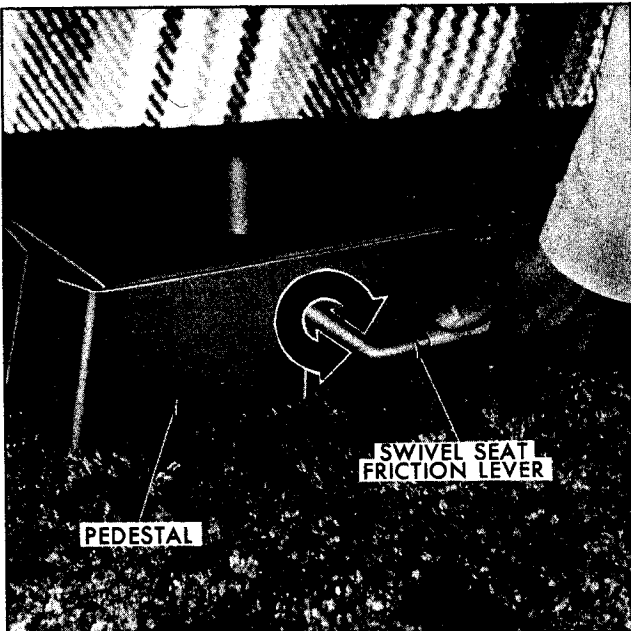


Releasing Living Area Swivel Seat Locking Lever

friction lever by rotating counterclockwise $1\frac{1}{2}$ to 2 turns.

4. Before driving off, **ALWAYS** rotate seats to travel position (both swivel seats facing each other). Check that swivel seat is locked in position by attempting to rotate seat.

5. If either living area swivel seat does not lock properly, perform swivel seat "Height Adjustment" as described below. If swivel seat



Positioning Living Area Swivel Seat Friction Lever



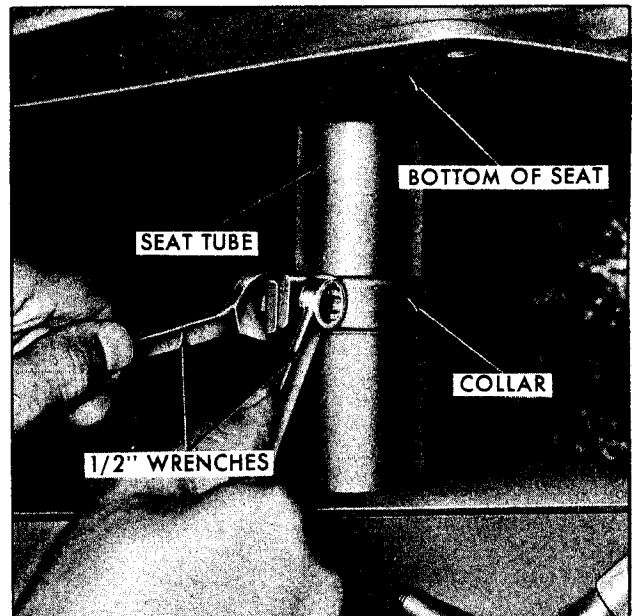
Living Area Swivel Seats Positioned for TRAVEL

mechanism still does not lock properly, take the vehicle to your dealer for service.

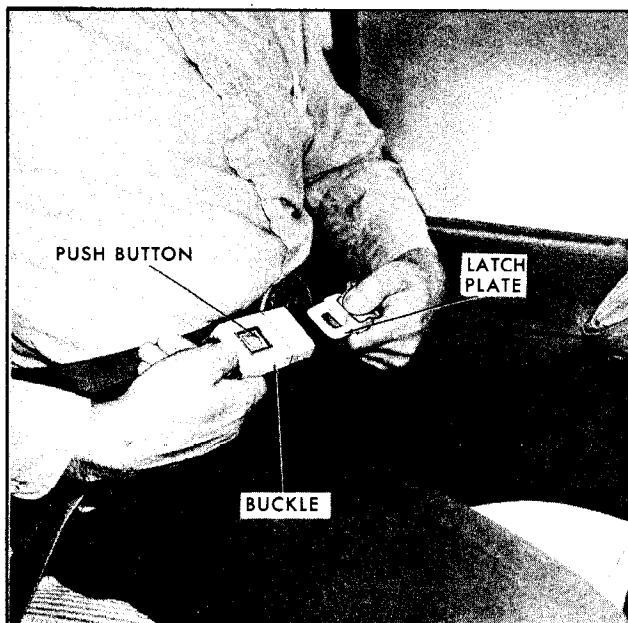
Height Adjustment

1. Using two $\frac{1}{2}$ " wrenches loosen the collar retaining bolt and nut assembly.

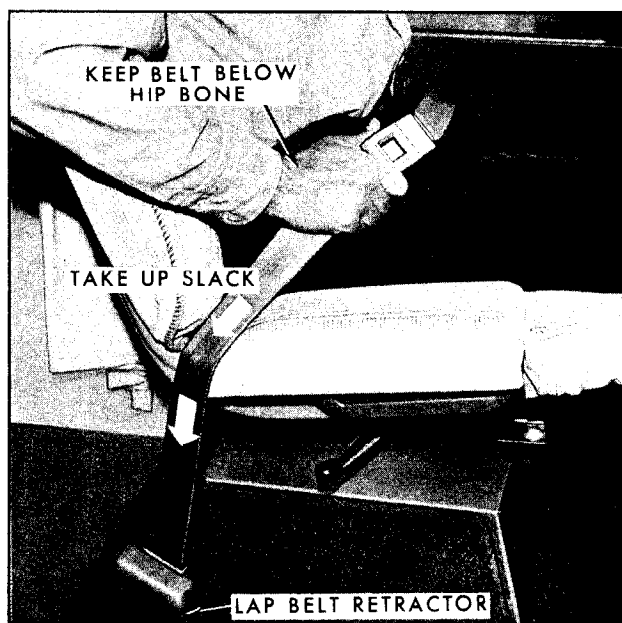
2. Depress swivel seat locking lever. Then raise or lower seat to desired height. Be sure swivel seat locking lever enters one of the holes provided in seat tube by attempting to rotate seat. If seat rotates, locking lever is not entering hole. Readjust seat height until it does. Then tighten collar retaining bolt and nut assembly.



Adjusting Height of Living Area Swivel Seat



"Buckling Up" Lap Belt



Lap Belt (Front Seating Positions)

HEAD RESTRAINTS FOR DUAL PASSENGER SEAT

NOTICE: The optional dual passenger seat may be equipped with a head restraint.

- To raise or lower, slide the head restraint up or down.

BELT RESTRAINTS

Your GMC Motorhome is equipped with lap belts in the driver and front passenger seating position(s), as well as certain other seating locations in the Motorhome. To help lessen the chance of injury and/or the amount of injury in accidents or sudden stops, General Motors urges that people riding in the vehicle be properly restrained at all times, using the seat belts provided. This includes pregnant women, and children of all ages. See following pages for use of restraints by children and pregnant women.

CAUTION

A snug fit with the lap belt positioned low on the hips is necessary to help lessen the chance of injury and/or the amount of injury in an accident. This spreads the force of the lap belt over the strong hip bone instead of across the soft abdomen. To help lessen the chance of injury and/or the amount of injury in an accident: Never use the

same belt for more than one person at a time; do not wear twisted belts; and do not damage belts or belt hardware by pinching them in the seat or door.

Always put on the lap belt with both armrests **DOWN**. Also take care that the lap belt is not wedged between the armrest and the seat. Once the lap belt is buckled snugly, the armrest may be used.

DO NOT put the lap belt in front of, through, or on top of the armrest when the armrest is in use. See illustrations for proper placement of lap belts.

DO NOT put lap belts over the armrests of the optional living area swivel seats. To help achieve a snug fit and low lap belt position, these belts **MUST** be routed between the seat cushion and the armrests.

The front outboard seating positions—have belt retractors which are designed to automatically take up excess webbing.

- Adjust the seat as needed and sit up straight and well back in the seat.
- In a single motion, pull the lap belt webbing across the lap far enough to push the latch plate into the buckle, until it clicks. If the webbing is not pulled out far enough to reach the buckle, let the lap belt rewind fully into

the retractor. This unlocks the retractor so the belt can be pulled out to the proper length.

- Position the belt across the lap as **LOW ON THE HIPS** as possible. Then adjust to a **SNUG FIT** by pulling the belt firmly across the lap toward the lap belt retractor, so it can take up slack. This reduces the risk of sliding under the belt during an accident. The belt retractor is designed to take up extra webbing by itself.
- To unfasten the belt, push the button in the center of the buckle.
- When no longer in use, the lap belt can be stowed by letting it rewind into its retractor.

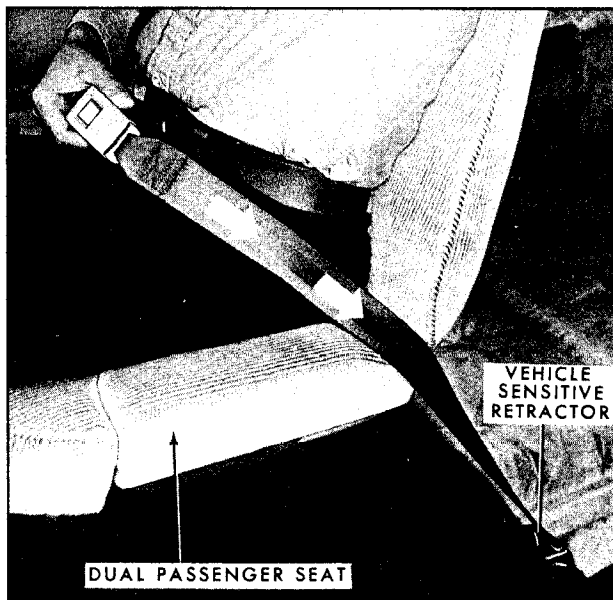
NOTICE: Do not let the belt twist while it is being rewound into the retractor. The bulk of the twisted belt may cause the retractor to jam so it will not rewind further. At the same time the retractor lock may keep the belt from being pulled out. If a belt should get jammed, you may be able to release it by working the belt in and out until the belt rewinds far enough to unlock. If the belt remains jammed, or other parts of the restraint system do not work properly, take the vehicle to your dealer for service.

The front inboard passenger seating position (dual passenger seat ONLY)—has a “Vehicle Sensitive Retractor” which is designed to lock **only** during a sudden stop or impact. At other times the belt is designed to move freely with the rider.

- Pull the lap belt across the lap far enough to push the latch plate into the buckle, until it clicks. This belt should be located, fastened, and released as described above under “The Front Outboard Seating Positions.” After fastening, check that the belt is **SNUG** by pulling the belt firmly across the lap toward the lap belt retractor. This will allow the retractor to take up slack.

Lap belts at seating positions other than the driver and front passenger(s) positions—should be located, fastened, and released as described above. They should be adjusted to a **SNUG FIT** by pulling on the end of the belt coming from the adjustable latch plate.

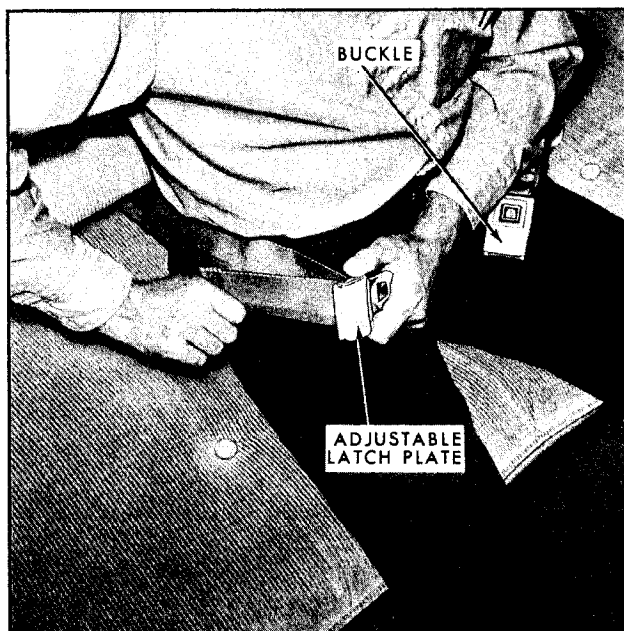
- To lengthen the lap belt place the latch plate at a right angle to the belt webbing and pull on the latch plate. The belt should then slide easily.



Taking Up Slack with “Vehicle Sensitive Retractor”

RESTRAINT OF PREGNANT WOMEN

General Motors urges that pregnant women use the lap belt at all times. This will help lessen the chance of a pregnant woman and her unborn child being injured and/or will reduce the amount of their injury in an accident. The belt should be worn as low and snug over the hips as



Lap Belts with Adjustable Latch Plate

possible, as advised for regular seat belt use (See the preceding instructions).

LAP BELT INSPECTION

- Now and then check that belts, buckles, latch plates, retractors and anchors work properly. Also check for damage that could keep the restraint system from doing its job, see below.
- Keep sharp edges and damaging objects away from the belts and other parts of the restraint system.
- Replace belts if cut, weakened, or frayed. Also have belts replaced if they have been worn in a collision.
- If there is any question, have belts replaced.
- Keep belts clean and dry.
- Clean only with soap and lukewarm water.
- Do not bleach or dye belts since this may badly weaken them.

CHILD RESTRAINT

Children in vehicles should be restrained to help lessen the chance of injury and/or the amount of injury in accidents or sudden stops. In using any infant or child restraint system, be sure to read and follow all instructions on installation and use.

All unused lap belts near the child should be stowed properly to help keep them from striking the child in an accident. Lap belts without retractors should have the buckles latched and the belts adjusted to remove slack.

If a child is riding in a vehicle without an infant or child restraint system, take care as follows:

1. Infants who cannot sit up by themselves should be restrained by placing them in a covered, padded bassinet. Place it crossways in the vehicle (widthwise) on the seat. The bassinet should be securely restrained with the regular vehicle lap belts.

2. Children who can sit up by themselves should be placed on a seat and lap belted. Never let a child stand or kneel on any seat or elsewhere in the vehicle, once it is moving.

TRAILER TOWING

Towing a trailer could affect handling, durability and economy. Your safety and satisfaction depend upon proper use of correct equipment.

Also, you should avoid overloads and other abusive use.

The maximum loaded trailer weight you can pull with your vehicle depends on what special equipment has been installed on it. We do not recommend towing any trailer over 1,000 pounds gross trailer weight.

To assist in attaining good handling of the Vehicle Trailer Combination, it is important that the trailer tongue load be maintained at approximately 10% of the loaded trailer weight. Tongue loads can be adjusted by proper distribution of the load in the trailer, and can be checked by weighing separately the loaded trailer and then the tongue.

CAUTION

Do not attempt to tow any trailer over 1,000 pounds gross trailer weight no matter what trailer towing equipment is installed. This could seriously affect your vehicle's performance, handling, and durability which could result in personal injury.

It should be remembered that when a trailer is connected, the trailer tongue weight is part of the load being carried by the vehicle and, therefore is included in the GVW of the vehicle.

CAUTIONS

Brakes

To help avoid personal injury due to poor braking action:

- Before going down a steep or long grade, reduce speed and shift transmission into a lower gear to control your vehicle's speed. Try not to hold the brake pedal down too long or too often. This could cause the brakes to get hot and not work as well.

Hitches

- When a trailer hitch is removed, be sure to have any mounting holes in the body sealed. This will prevent entry of exhaust fumes, dirt or water. (See Engine Exhaust Gas Caution.)

NOTICE: Periodically check that all trailer hitch bolts and nuts are tight.

BREAK-IN SCHEDULE

See the new vehicle break-in instructions in this manual. Also it is recommended that your new vehicle be driven for 500 miles (800 km) before trailer towing. At the end of this 500 mile break-in period, speeds over 50 mph (80 km/h) and full throttle starts should be avoided during the first 500 miles (800 kilometres) of trailer towing. The same care should be observed when a new engine, transmission, or final drive is installed in your vehicle.

TRAILER TOWING TIPS

Engine Cooling

In case your engine overheats, see the "In Case of Emergency" section in this manual.

Long Uphill Grades

When going up long grades, the chance of engine overheating can be reduced by downshifting the transmission to a lower gear and by reducing speed to 45 mph (70 km/h) or below.

Transmission

See the method for checking transmission fluid level in the "Service and Maintenance" section in this manual.

Parking

Vehicles with trailers should not be parked on a grade. However, if you must, this is the way to do it:

1. Apply regular brakes.
2. Have someone place wheel chocks under trailer wheels.
3. When wheel chocks are in place, release regular brakes until chocks absorb load.
4. Apply parking brake.
5. Place transmission selector lever in "PARK".

If the vehicle is parked on a grade, don't shift the transmission selector lever to "PARK" until the trailer wheels are chocked and the parking brake is set. If you do, the weight of the vehicle and trailer may exert so much force on the parking pawl in the transmission that it may be hard to get the selector lever out of "PARK."

When starting after being parked on a grade:

1. Apply regular brakes and hold until steps 2 and 3 are completed.
2. Start engine in "PARK".
3. Shift into gear and release parking brake.
4. Release regular brakes and drive until the chocks are free.

5. Apply regular brakes and have helper remove chocks.

OPERATION IN FOREIGN COUNTRIES

FUEL REQUIREMENTS

Your vehicle's engine can operate on regular grade leaded or unleaded gasoline with an octane rating of approximately 91, research method.

If you plan to drive your vehicle outside the U.S. and its jurisdictions or Canada, there is a possibility the gasolines available in some countries will not meet the needs of your engine. Use of low octane rated gasolines may cause engine knocking or serious engine damage, for which GMC Truck & Coach is not responsible.

To obtain gasoline information for the countries in which you plan to travel, write to GMC Truck & Coach Division, Service Department, Pontiac, Michigan 48053 (or in Canada, write to General Motors of Canada, Limited, Customer Services Department, Oshawa, Ontario L1J 5Z6).

When writing, please include:

1. The vehicle identification number.
2. The countries in which you plan to travel.

EXTERNAL ELECTRICAL POWER

In many countries outside of the United States and Canada, the electrical power supplied may not be compatible with your Motorhome electrical system. Serious appliance and electrical component damage will result if incorrect electrical power is used. Such damage is not covered by the New Vehicle Warranty. For additional details on external power, refer to LIVING AREA ELECTRICAL SYSTEM found later in this manual.

COMPONENT REPAIRS

Component repairs require the use of special tools and equipment. Technicians specially trained in the repair of Motorhomes and replacement parts may not be readily available outside of the U.S. causing delays and customer inconvenience. GMC is not responsible for any inconvenience which may result from these delays.

CB TRANSCEIVER

Operation of CB (Citizens Band) transceiver may be prohibited in some countries. In others, operation of this equipment requires a

special permit besides the valid station license. (Permits should be obtained before you leave the United States.)

To operate a CB unit in Canada, get a permit from a regional office of the Canadian Department of Communications. For information regarding other countries, contact the local consulates of the countries in which you plan to travel.

TRIP TIPS

A small amount of preparation prior to a trip will save a lot of time when traveling.

When loading heavy items into your Motorhome try to store them as low and centrally as possible. This will aid performance and handling of the vehicle. Remember even though an item may not weigh much individually the sum weight of several of these articles may be substantial.

CAUTION

When transporting luggage or other cargo in your Motorhome, it is recommended that all articles be secured in place. This precaution will help prevent such items from becoming projectiles in the event of an accident.

The following emergency equipment is recommended, at minimum:

- Fire Extinguisher
- Hydraulic Jack and Lug Wrench
- Spare Tire
- Flashlight
- First Aid Kit
- Road Emergency Flares
- Basic Tool Kit

NOTE: If vehicle is equipped with (optional) fender skirts, be sure tool kit includes a No. 2 cross-recessed screwdriver and 9/16" wrench or socket to aid in fender skirt removal, if necessary to change a rear tire.

These items might be found useful:

- Plastic Bucket and Funnel
- Water Hose and "Y" Connection, in case of two units on one water system
- Level
- Shovel
- Spare Automotive Fuses and Bulbs
- 2" x 4" Chocks or Blocks

The following checks should be made before starting on a trip:

OUTSIDE VEHICLE

1. Run through "Driver Check List" at the beginning of this section.
2. Check engine oil level.
3. Check fluid levels on batteries.
4. Visually inspect radiator coolant level.
5. Fill windshield washer reservoir.
6. Check tire pressure, and inspect tires for road damage, foreign objects.
7. Check operation of all outside lights.
8. Check that all exterior vents are unobstructed.
9. Check and empty holding tank.

INSIDE VEHICLE

1. Check operation of optional Electro-Level System.
2. Check gasoline supply.
3. Check transmission fluid level.
4. Check power steering fluid level.
5. Check operation of windshield wipers and windshield washers.
6. Check operation of brakes.
7. Check operation of interior lights.
8. Check all appliances and fixtures for proper operation.
9. Check operation of motor generator.
10. Check and fill living area water system.
11. Check and fill LP gas tank.
12. Check Maintenance Schedule folder to make sure all periodic maintenance and safety checks have been performed.
13. After the vehicle has been loaded, check to see that the vehicle's Gross Vehicle Weight, and front and rear axle capacities have not been exceeded. This check should be made fully loaded including passengers. (Refer to the "IMPORTANT INFORMATION ON VEHICLE LOADING" section of this manual for further information.)

Before leaving any camp-site make sure all litter has been picked up.

When traveling in winter it is recommended that the water tank not be filled until the destination is reached. This will ensure that the vehicle has thoroughly warmed up. The water and holding tank systems should be drained before leaving for home. Also, at this time, put

some non-toxic, non-flammable anti-freeze into the sink and shower traps. Heat tape has been found useful in preventing pipe freeze-up, where power is available. Some non-toxic, non-flammable anti-freeze in the holding tank will help keep the tank contents from freezing. The recirculating toilet should be drained immediately at the end of the trip.

DRIVING TIPS

The Motorhome driver controls are automotive-type to make the vehicle as comfortable as possible. The steering and braking controls are power assisted to help make driving as effortless

as possible. However, it must be remembered that the Motorhome is much higher, wider, and heavier than a family automobile.

Since the Motorhome is 9-ft. 2-in. high, with the roof mounted air conditioner, additional care is required to watch for low bridges and overpasses. **TREE BRANCHES CAN DO CONSIDERABLE DAMAGE TO THE WINDSHIELD OR ROOF OF THE VEHICLE TOO, SO WATCH FOR THEM.**

The Motorhome power-to-weight ratio is lower than that of the average automobile. Therefore it is essential to compensate for less acceleration when moving into traffic, or when passing another vehicle.

For continuing satisfaction keep your vehicle all GM. General Motors Parts are identified by one of these trademarks:



STARTING AND OPERATING VEHICLE

ENGINE EXHAUST GAS CAUTION (CARBON MONOXIDE)

Avoid breathing exhaust gases because they contain carbon monoxide which by itself has no color or odor. Carbon monoxide is a dangerous gas. It can cause unconsciousness and can be lethal.

If at any time you suspect that exhaust fumes are entering the Motor-home, have the cause determined and corrected as soon as possible. If you must drive under these conditions, drive with two rear windows CLOSED and ALL other windows fully OPEN. Adjust heating or cooling system for maximum ventilation (see below).

Protect against carbon monoxide entry into the vehicle body. The best way is to keep the engine exhaust system, body and body ventilation system properly maintained. It is recommended that the exhaust system and body be inspected by a competent mechanic:

- Each time the vehicle is raised for oil change.
- Whenever a change is noticed in the sound of the exhaust system.
- Whenever the exhaust system, underbody or rear of the vehicle is damaged.

See your Maintenance Schedule folder for inspection procedure.

To allow proper operation of the vehicle's ventilation system, keep front inlet grille clear of snow, leaves, or other obstructions at all times.

OCCUPYING A PARKED VEHICLE WITH ENGINE RUNNING FOR A LONG TIME IS NOT RECOMMENDED.

Do not run engine in confined areas such as garages any more than needed to move vehicle in or out of area. When vehicle is stopped in an UNCONFINED area with the engine running for any more than a short time, adjust heating or cooling system to force outside air into vehicle as follows:

- Set fan to high speed, upper control lever to any position except "OFF."

The two rear windows should be closed while driving to help prevent drawing exhaust gases into the vehicle. In addition, it is recommended that roof vent(s) be closed while driving. If a rear window or roof vent must remain open for some reason while moving, or if electrical wiring or other cable connections to a trailer must pass through the seal between them and the body, these precautions should be followed:

- Close all windows.
- Adjust heating or cooling system to force outside air into the vehicle . . . by setting fan to high speed and upper control lever to any position except "OFF."
- Fully open air vents in or under the instrument panel.

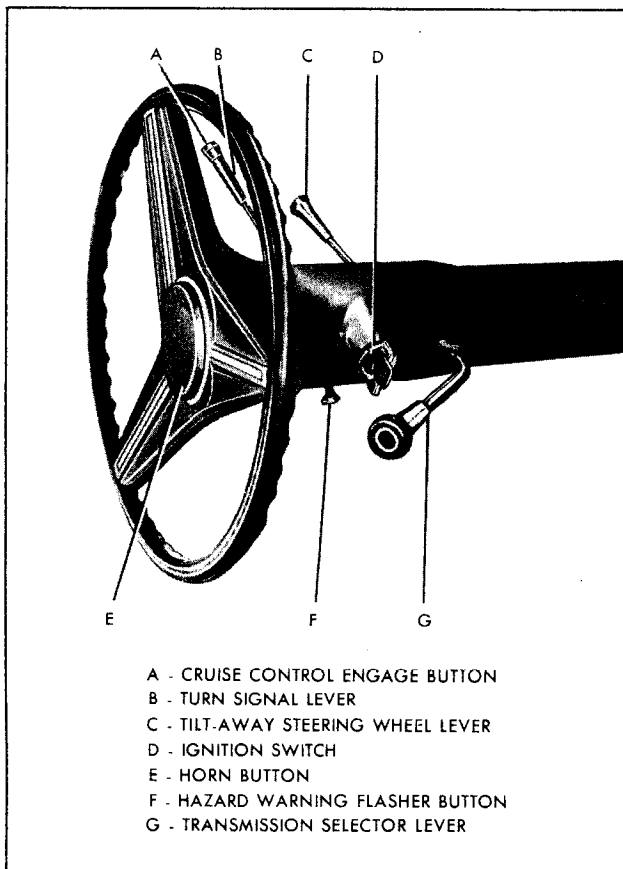
It is important that the engine inside access cover be properly seated to prevent possible leakage of exhaust fumes into the vehicle through this opening.

See "LIVING AREA FACILITIES CAUTION (CARBON MONOXIDE)" on page 33.

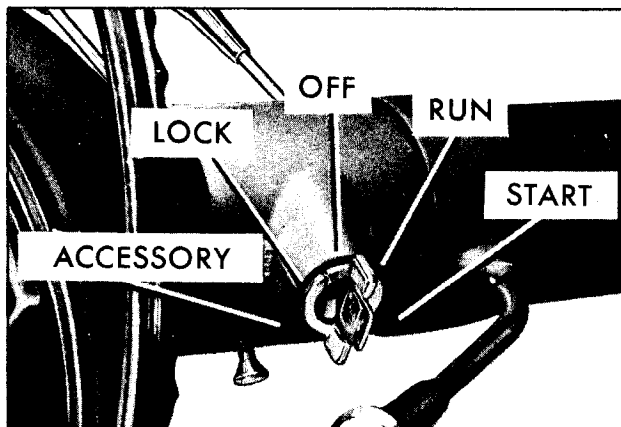
STEERING COLUMN CONTROLS

ANTI-THEFT STEERING COLUMN LOCK

The anti-theft lock on the right side of the steering column has five positions:



Steering Column Controls



Anti-Theft Steering Column Lock

- **ACCESSORY**—You can use some electrical accessories when the engine is not running. To engage this position, push key in and turn the top of the key towards you.
- **LOCK**—Normal parking position. Locks ignition and prevents normal use of steering wheel and shift controls. Key cannot be returned to “LOCK” and removed until shift lever is placed in “PARK.”
- **OFF**—You can turn the engine off without locking steering wheel and shift controls.
- **RUN**—Normal operating position.
- **START**—Starts engine.

NOTICE: The anti-theft steering column lock is not to be used in place of the parking brake. Always set the parking brake when leaving the vehicle.

If you have trouble turning the key to unlock the ignition, try to turn the steering wheel as hard as you can in the direction the wheels are turned. At the same time, turn the key with as much effort as you can apply with your hand. Do not try to use a tool of any kind to apply more force on the lock knob, as this could break the knob.

GUARD AGAINST THEFT

Your new Motorhome has features to help prevent theft of the vehicle itself, its equipment and contents. But these anti-theft features **DEPEND UPON YOU** to work.

THE TIME TO BE MOST ON GUARD IS WHEN LEAVING THE VEHICLE . . .

- **PARK IN A LIGHTED SPOT WHEN YOU CAN.**
- **LOCK THE STEERING COLUMN AND TAKE THE KEYS.**
 - Turn the key to “LOCK” and remove the key. This locks the ignition and **BOTH** steering and shift controls.
 - If you must leave a key with the vehicle, leave the square head key only. Take the round head key with you. This will help

prevent illegal entry into your vehicle at a later date or into your glove box (if locked).

- **FULLY CLOSE ALL WINDOWS AND LOCK ALL DOORS.**
- **KEEP COSTLY ITEMS OUT OF SIGHT (AND LOCKED UP).**
 - Never leave things of value in plain sight on seat or floor.
 - The glove box offers a place to hide small items (and if locked, protects even better).

PARKING

When leaving your Motorhome unattended:

- Set the parking brake *first*. (See caution on page 21.)
- Place the transmission lever in "PARK."
- Turn the key to "LOCK."
- Remove the key (the buzzer is designed to remind you).
- Lock entrance door.

NOTICE: Do not leave your vehicle unattended with the engine running. If the engine should overheat you would not be there to react to the temperature warning light or gauge. This could result in costly damage to your vehicle and its contents.

STARTING THE ENGINE

1. APPLY THE PARKING BRAKE.

2. Place transmission shift lever in "P" or "N" ("P" preferred). A starter safety switch prevents starter operation while the transmission shift lever is in any drive position. (If you have to restart the engine with the vehicle moving, place the shift lever in "N".)

3. Press down on accelerator pedal, and activate starter as outlined below for different conditions.

● Cold Engine

Fully depress accelerator pedal and slowly release. *With foot off the pedal*, crank the engine by turning the ignition key to the "Start" position; release when engine starts.

If engine starts, but fails to run, repeat this procedure. When engine is running smoothly (about 30 seconds), the idle speed may be reduced by slightly depressing the accelerator pedal and then slowly releasing.

NOTICE: Extended running of the engine (5 minutes or more) without pressing down on accelerator pedal could cause damage to the engine and exhaust system due to overheating.

● Warm Engine

Press down on accelerator pedal about halfway and hold while cranking the engine.

● Very Cold Weather (Below 0° F.) (—18° C.) or After Vehicle Has been Standing Idle Several Days—

Fully depress and release accelerator pedal two or three times before cranking the engine. *With foot off the accelerator pedal*, crank the engine by turning the key to the "Start" position and release when engine starts.

IF ENGINE FAILS TO START:

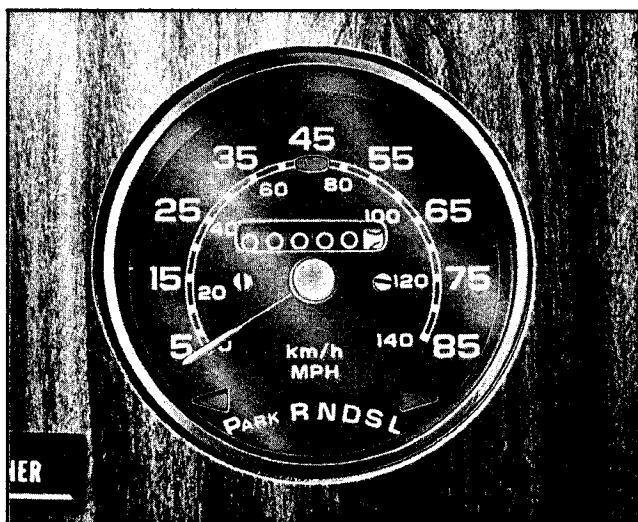
- First, fully depress and release the accelerator pedal several times, then remove foot from accelerator pedal and crank engine.
- If engine still does not start, fully depress the accelerator pedal and hold to the floor while cranking the engine.
- If the engine has been flooded with gasoline, it may start to run but not have enough power to keep running. In this case, continue cranking with the accelerator pedal fully depressed until the engine cleans itself of excess gasoline and runs smoothly.
- If engine doesn't crank properly due to a discharged main battery (automotive battery), place the battery switch in the "BAT BOOST" position. Switch is designed to return to the "BAT NORMAL" position after use.
- If the engine fails to start after performing the above steps, refer to "Emergency Starting" in the IN CASE OF EMERGENCY section.

NOTICE: Do not continue cranking the engine for more than 30 seconds at a time to prevent starter overheating.

NEW VEHICLE "BREAK-IN" PERIOD

You can drive your new Motorhome from its very first mile/kilometre without following a formal "break-in" schedule. However, there are things you can do during the first few hundred miles/kilometres of driving that will add to the future performance and economy of your Motorhome.

It is recommended that your speed during the first 500 miles (800 kilometres) be limited



*Transmission Shift Indicator
and Speedometer*

to a maximum of 55 mph (90 km/h); but do not drive for long periods at any one constant speed, either fast or slow. During this period, avoid full throttle starts and, if possible, avoid hard stops especially during the first 200 miles (320 kilometres) of driving.

Always drive at moderate speed until the engine has completely warmed up.

If you plan to use your new Motorhome for trailer towing, see additional information on page 10.

AUTOMATIC TRANSMISSION

The transmission selector lever is located on the right side of the steering column and the shift indicator is located in the bottom section of the speedometer cluster on the dash.

- **"PARK"**—Transmission lock when parking or while starting the engine. Pull the selector lever towards you to select or release this position. Never move the selector lever to "PARK" position unless the vehicle is completely stopped. "NEUTRAL" is the only other position in which your vehicle may be started.
- **REVERSE "R"**—For backing the vehicle. Bring the vehicle to a complete stop before moving the selector lever into Reverse.
- **NEUTRAL "N"**—The out-of-gear position. It is provided for starting a stalled engine while the vehicle is in motion or running the engine while standing with brake applied. This position is also used when the vehicle is being towed. **DO NOT COAST IN NEUTRAL.**

- **DRIVE RANGE "D"**—The driving range for city and highway driving. This position permits the transmission to operate through its complete range of gear ratios and to select automatically the proper ratio for road and load conditions.
- **SUPER RANGE "S"**—Used when super performance is needed for increased acceleration in traffic, hill climbing, or "Engine Braking" down-hill. The selector lever may be moved from "D" to "S" and vice versa, under most operating conditions. "SUPER" should not be used at speeds above 75 MPH.
- **LOW "L"**—Available for heavy pulling through mud or sand and for engine braking when descending steep hills. The selector lever may be moved to "L" at any speed but the transmission will only shift automatically into Low range when the vehicle speed is under approximately 40 MPH. The transmission will not upshift from Low range as long as the selector lever is in the "L" position.

CAUTION

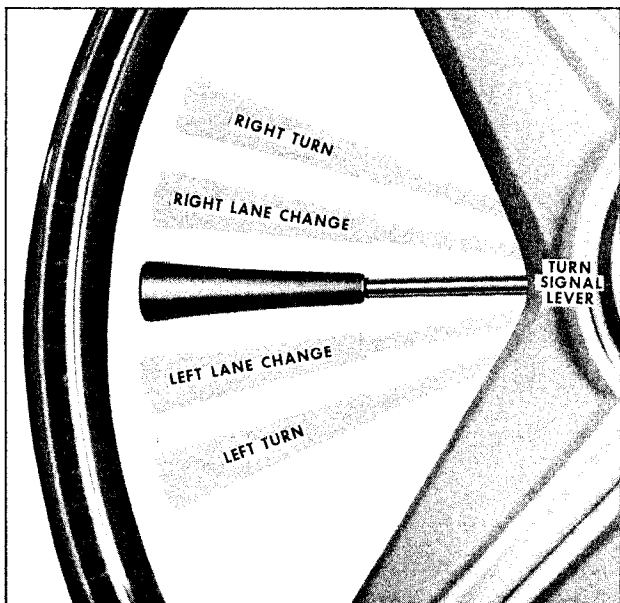
Before going down a steep or long grade, reduce speed and shift the transmission into a lower gear or lower range to control vehicle speed. Try not to hold the brake pedal down too long, or too often. This could cause the brakes to get hot and not work as well.

Use caution when speeding up, or when shifting into lower gear, on slippery surfaces with vehicle moving. Sudden acceleration or engine braking action (due to shifting into a lower gear) could cause the front wheels to skid. This could lead to loss of vehicle control.

- **FORCED DOWNSHIFT**—When additional acceleration is desired to pass moving vehicles or to climb steep grades at speeds between approximately 35 and 65 MPH, the transmission can be downshifted by depressing the accelerator pedal completely to the floor. It is also possible to obtain a forced downshift in "DRIVE" range at speeds under 35 MPH by depressing the accelerator pedal part way down.

TURN SIGNAL LEVER

The turn signal lever is on the left side of the steering column.



Turn Signal Lever

- **TURN SIGNAL**—Move the lever up to the second stop to signal a right turn. Move it down to the second stop to signal a left turn. When the turn is completed, the signal will cancel and the lever will return to horizontal.
- **LANE CHANGE SIGNAL**—In some turns, such as changing lanes, the steering wheel is not turned far enough to cancel the turn signal. You can flash the turn signal by moving the lever part way (to the first stop) and holding it there. The lever will return to horizontal when you release it.

A green light on the instrument panel flashes to tell you that the front and rear turn signal lights are working. If the light stays on, but does not flash, check for burned out bulbs. If the green light does not light when the lever is moved, check the fuse and indicator bulb.

HAZARD WARNING FLASHER

NOTICE: The hazard flasher is covered in the "In Case of Emergency" section later in this manual.

HORN CONTROL

The horn is actuated by depressing the button or spokes located in the center of the steering wheel.

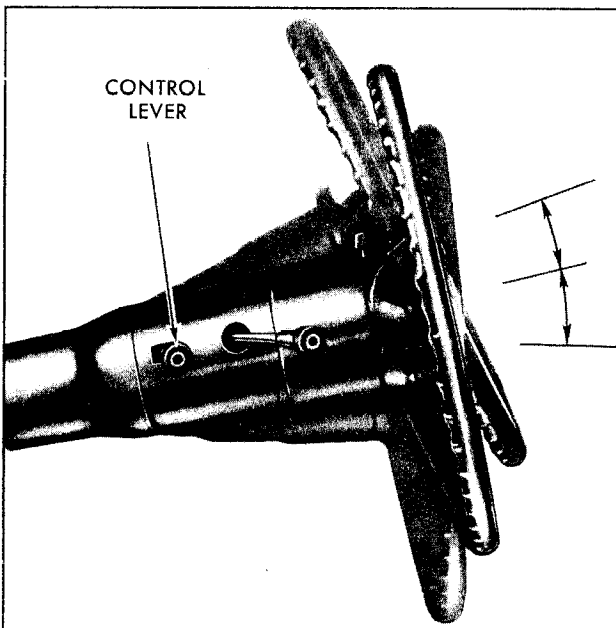
POWER STEERING

If the power steering system goes out because the engine has stalled or due to a failure, the vehicle can still be steered. However, much greater effort is needed, especially in sharp turns or at low speeds.

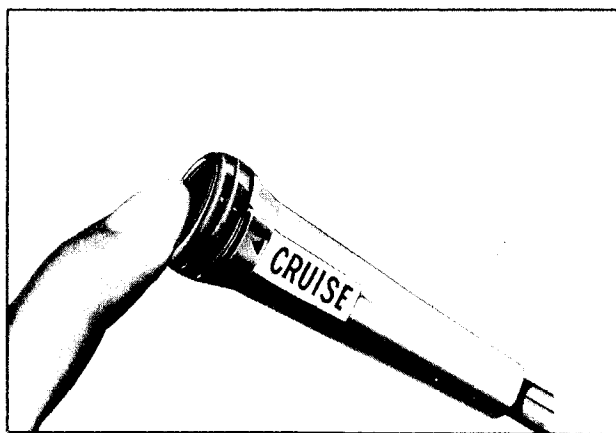
TILT STEERING WHEEL

The tilt steering wheel can be tilted up above normal position to provide additional room for entrance and exit as well as selected driving positions above or below normal height.

The tilt mechanism is operated by lifting up on the small control lever, on the left side of the steering column just below the directional signal lever, then moving the steering wheel to the selected position and releasing the lever.



Tilt Steering Wheel



Cruise Control Lever

CRUISE CONTROL

The optional Cruise Control is an automatic speed control system which is designed to allow the vehicle to hold a selected speed of approximately 30 MPH (50 KM/H) or higher—de-

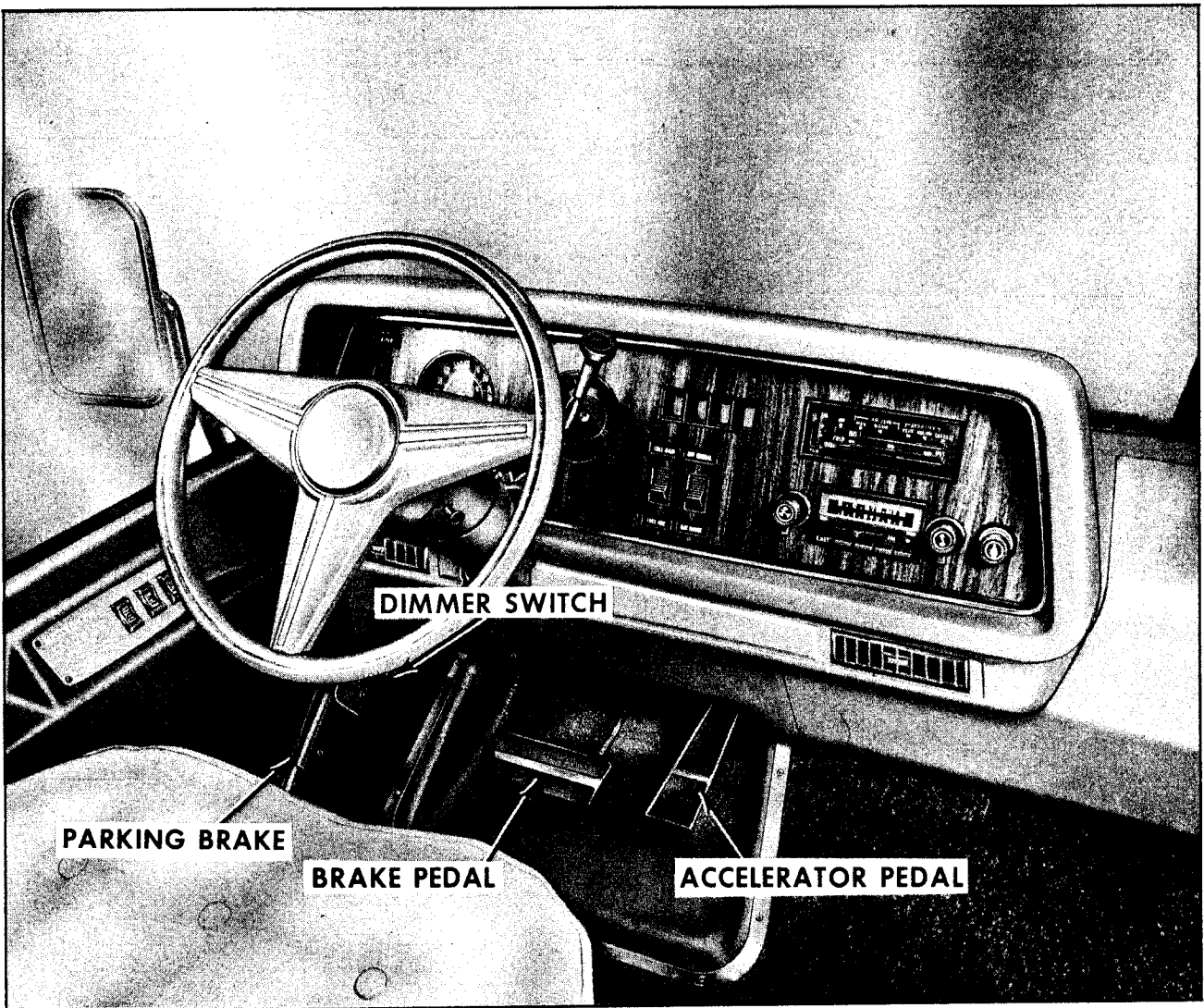
pending on engine limitations—thus increasing comfort and economy on turnpikes, and other non-congested highways.

- **TO OPERATE**—The Cruise Control engagement button is located in the end of the turn signal lever. Accelerate the vehicle to the desired speed and momentarily push in the engagement button, take your foot off the accelerator and this speed will be maintained.
- **TO RESET AT A FASTER SPEED**—Accelerate the vehicle to the desired higher speed, push in the engagement button fully and release slowly.
- **TO RESET AT A SLOWER SPEED**—Depress the engagement button fully and **HOLD**. Allow vehicle to decelerate. When vehicle reaches desired speed, release the engagement button slowly.

- **FOR PASSING**—You can increase your speed by depressing the accelerator pedal. When you remove your foot from the pedal, the vehicle will slow down to the cruising speed set prior to the acceleration.
- **TO DISENGAGE**—Lightly apply the brake pedal to disengage system.

CAUTION

To help keep the vehicle under control, do not use the Cruise Control when it may not be safe to keep the vehicle at a constant speed. For example, a constant speed may not be safe in heavy or varying traffic, or on winding or slippery roads. With the Cruise Control engaged, taking your foot off the accelerator pedal does not allow engine speed to return to idle.



Vehicle Floor Controls

FLOOR CONTROLS

POWER BRAKE SYSTEM

This vehicle is equipped with a Dual Hydraulic Split System With Power Assist. It is also equipped with disc type brakes on the front wheels and drum type brakes on the tandem rear wheels.

CAUTION

Driving through water deep enough to wet the brakes may cause the brakes not to work as well. As a result the Motorhome will not slow down at the usual rate, and it may pull to the right or left. After checking to the rear for other vehicles, apply the brakes lightly to check whether this has happened. To dry them quickly, lightly apply the brakes. At the same time keep a safe forward speed, with plenty of clear space ahead, to the rear and to the sides. Do this until the brakes return to normal.

NOTICE: The brake system warning light is covered on page 24 under "Instrument Panel and Controls" in this section.

- If power assist is lost because of a stalled engine or other reasons, the brakes can normally still be applied with power assist at least two times using reserve power.
- If the brake pedal is held down, the system is designed to bring the vehicle to a full stop on reserve power. However, the reserve power is partly used up each time the brake pedal is applied and released. Do not pump the brakes when brake power assist has been lost (except when needed to maintain steering control on slippery surfaces).
- Without power assist, the vehicle can still be stopped by pushing much harder on the brake pedal. However, the stopping distance may be longer.

SELF-ADJUSTING BRAKES

The brakes on this vehicle (except for the parking brake) are self-adjusting. They have been designed so that periodic brake adjustment is not required. The drum brakes adjust themselves when the brakes are firmly applied while the vehicle is moving backwards.

- The disc brakes adjust themselves each time the brakes are used.
- Thus, if the brake pedal goes down further than normal due to a lack of adjustment, drive backward and forward a few times. Apply the brakes firmly when going each way.
- See your dealer if pedal height does not return to normal, or if there is a rapid increase in pedal travel, which could be a sign of other brake trouble. Also see your dealer if the parking brake needs adjustment.

NOTICE: "Riding the brake" by resting your foot on the brake pedal when not intending to brake can cause overheated brakes. This can wear out the brake linings faster and damage the brakes themselves, as well as waste fuel.

NOTICE: Front disc brakes have a built-in wear indicator that is designed to make a high pitched squealing or cricket-like warning sound when the bare linings are worn to where new linings are needed. The sound will come and go, or be heard all the time when the wheels are rolling, but will stop when the brake pedal is pushed down firmly. There are also several brake checks listed in the Maintenance Schedule folder.

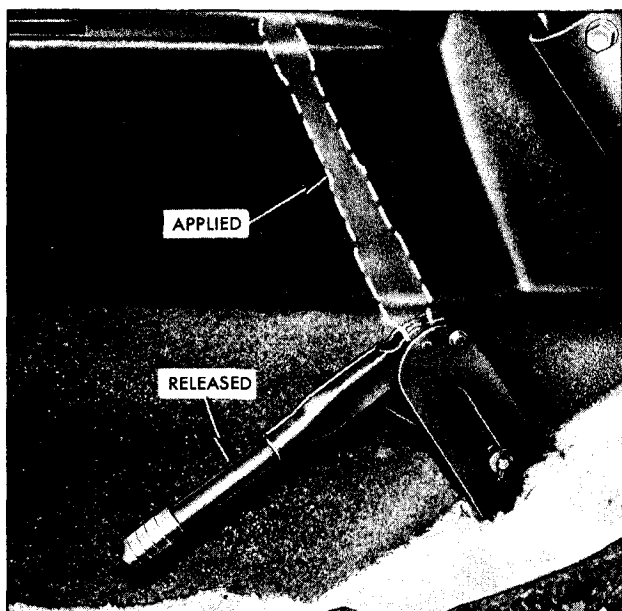
PARKING BRAKE

The amount of force needed to apply the parking brake can be adjusted by turning the knob on the upper end of the lever. This also adjusts how strongly the brake itself is applied. The greater the force needed at the lever, the greater the degree of brake application.

CAUTION

The parking brake should be set before leaving the driver's seat. This will help keep the vehicle from moving unexpectedly which could result in personal injury.

- To set the parking brake, fully pull up the handle on the floor near the left wall.
- For better holding power, first press down the regular brake pedal. Then hold it while setting the parking brake.
- To release the parking brake, push the handle down.
- To help remind you, the "Park Brake" light



Parking Brake Control

is designed to come on if the parking brake control is not fully released and the ignition key is on.

- Never drive the Motorhome with the parking brake set as this may overheat the rear brakes, reducing their effectiveness and causing excessive wear or damage.

If the vehicle is parked on a grade and the transmission is placed in "PARK" before the parking brake is set, the weight of the vehicle may exert so much force on the parking pawl in the transmission that the transmission selector

lever cannot later be pulled out of "PARK." To prevent this, the parking brake should be applied **BEFORE** moving the transmission selector lever to "PARK." When preparing to move the vehicle, the shift indicator should be moved out of the "PARK" position **BEFORE** releasing the parking brake. It is good driving practice to always set the parking brake first (when parking), and release the transmission from "PARK" first (when preparing to move the vehicle) at all times, even on the level. If "torque lock", as this condition is called, does occur, it may be necessary to have another vehicle nudge this vehicle up hill, to take some of the pressure off the transmission while the driver pulls on the transmission selector lever.

HEADLIGHT DIMMER SWITCH

To obtain high or low beam headlights, push the foot dimmer switch located on the floor to the left of the brake pedal. Each time the switch is depressed, the light beam changes. A headlamp beam indicator, on the face of the speedometer, is designed to light up when the headlights are on high beam.

HEADLIGHT "FLICKER"

The headlight circuits are protected by a circuit breaker in the light switch. An electrical overload on the breaker will cause the lights to "flicker" on and off, or in some cases to remain off. If this condition develops, have your headlight electrical circuit checked immediately.

INSTRUMENT PANEL AND CONTROLS

SPEEDOMETER AND ODOMETER

The speedometer indicates the forward speed of the vehicle in miles-per-hour and kilometres per hour. The odometer registers the accumulated mileage the vehicle has been driven. Also, located in the speedometer cluster are the turn signal indicators which show direction and proper operation of the turn signals, the high beam indicator light, and the shift indicator.

FUEL GAUGE

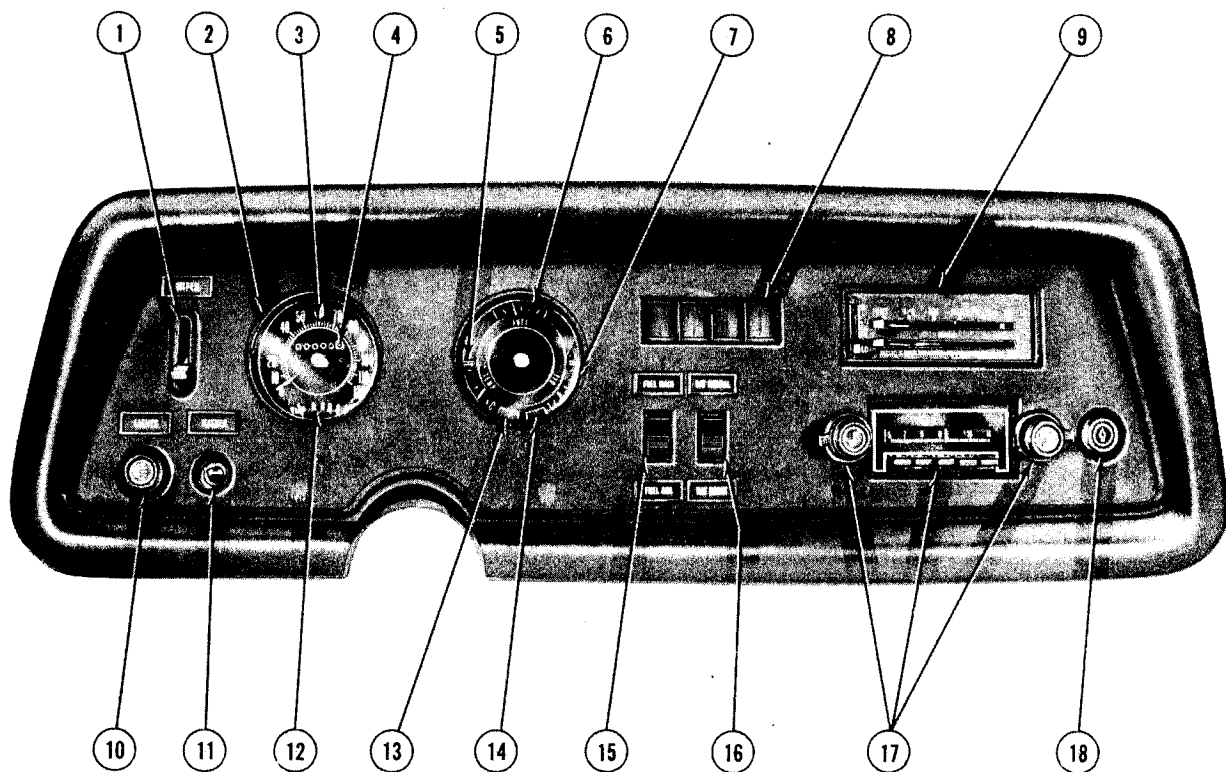
This gauge shows the approximate fuel level in the main tank when fuel selector switch is in the "FUEL MAIN" position, and the fuel level in the auxiliary tank when fuel selector switch

is in the "FUEL AUX" position. The pointer will indicate the correct positions only when the ignition is in the "ON" position.

Since both fuel tanks are interconnected, the indicated level is designed to read the same (with the switch in either position) until approximately 60% of the total fuel capacity has been used. See "Fuel Selector Switch" later in this section.

TEMPERATURE GAUGE

This gauge registers the temperature of the engine coolant. The center area of the water temperature gauge marks the normal operating range. However, if the needle moves beyond the center area marks into the "H" side or hot area



- | | | |
|-----------------------------|-------------------------|--------------------------------|
| 1. WINDSHIELD WIPER CONTROL | 7. OIL PRESSURE GAUGE | 13. GENERATOR LIGHT |
| 2. SPEEDOMETER | 8. WARNING LIGHTS | 14. BRAKE SYSTEM WARNING LIGHT |
| 3. HIGH BEAM INDICATOR | 9. HEATER/A.C. CONTROLS | 15. FUEL SELECTOR SWITCH |
| 4. ODOMETER | 10. LIGHT SWITCH | 16. BATTERY BOOST SWITCH |
| 5. TEMPERATURE GAUGE | 11. WINDSHIELD WASHER | 17. RADIO & CONTROLS |
| 6. FUEL GAUGE | 12. SHIFT INDICATOR | 18. CIGAR LIGHTER |

Instrument Panel

of the gauge, stop the engine as soon as possible, and remain stopped until the cause of the overheating is determined.

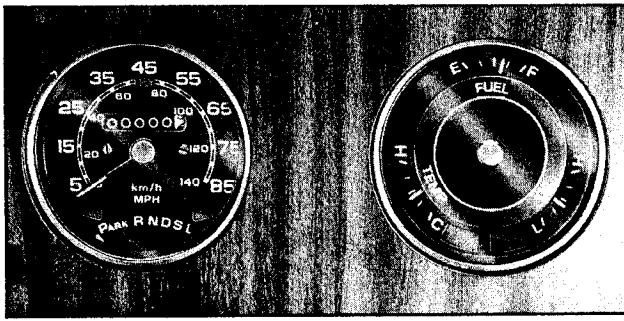
OIL PRESSURE GAUGE

This gauge registers engine oil pressure. The consistency of the oil in a cool engine will cause a high reading when the engine is first started. As the engine warms, the pressure will recede to normal. With the engine warmed up to normal operating temperature, minimum pressure at idle should be slightly above the "L" graduation (8 PSI). At normal operating speeds, minimum

pressure should be between the second and middle graduations (35 PSI). Should the pressure drop below these minimums, stop the engine immediately and check the cause of the low oil pressure. This could be the result of a dangerously low oil level in the crankcase. Driving the vehicle with low oil pressure can cause extensive engine damage.

CHARGING SYSTEM WARNING LIGHT

NOTICE: If vehicle is equipped with a voltmeter it will not be equipped with a charging system warning light.



Speedometer and Gauge Clusters

Located to the right of the temperature gauge is the charging system warning light. A red light "GEN" will appear with the ignition key in the "ON" position and the engine not running. This light lets you know the warning signal is operational. Should the light fail to come on, see your Motorhome dealer. When the engine is started, the warning light should go out and remain out. If the light remains on when engine is running, have your dealer locate and correct the trouble as soon as possible.

BRAKE SYSTEM WARNING LIGHT

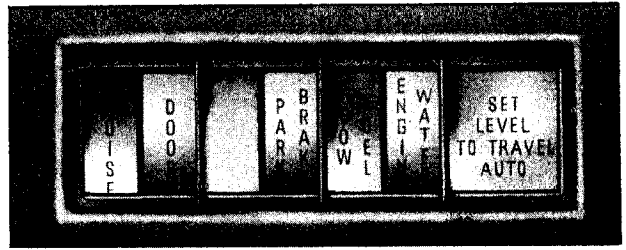
The regular brake is a dual system designed so that one part will provide some braking action if there is a loss of hydraulic pressure in the other part of the system. The system has a "Brake" light located to the left of the oil pressure gauge.

- The light is designed to come on briefly during engine starting so you can check that the bulb is okay.
- Have the system repaired if the light does not come on during engine starting.
- This warning light does not do away with the need for brake inspection and maintenance. The brake fluid level must be checked regularly. See the Maintenance Schedule folder for other brake checks.
- If the light comes on when the ignition key is on, after the brake pedal has been firmly pushed down, it may mean that there is something wrong with one part of the brake system.

WHAT TO DO:

1. Pull off the road and stop carefully. And remember that:

- Stopping distances may be longer.
- You may have to push harder on the pedal.



Warning Light Cluster

- The pedal may go down farther than normal.
 - 2. Try out the brakes by starting and stopping on the road shoulder—then:
 - If you judge it to be safe, drive cautiously at a safe speed to the nearest service outlet for repair.
 - Or have vehicle towed to dealer for repair.
- Continued driving without getting it repaired could be dangerous.

TELL-TALE WARNING LIGHT CLUSTER

A cluster of indicator lights is located just to the left of the heater controls. These are designed to inform the driver of the status of certain systems or conditions of which he should be aware. Among these are:

- "CRUISE" (Optional Equipment) — This indicator is designed to glow GREEN whenever the Cruise Control System is engaged and working.
- "DOOR"—The door light is designed to warn the driver that the entrance door is not properly closed.
- "PARK BRAKE"—As a reminder, the "PARK BRAKE" brake reminder light is designed to glow whenever the parking brake control is not fully released and the ignition is on.
- "LOW FUEL" (Optional Light) — The low fuel warning light in your vehicle is designed to come on when the main tank has less than five gallons of fuel left and the fuel selector switch is in the "FUEL MAIN" position. If, at any point after this, the fuel selector switch is changed to "FUEL AUX" the "LOW FUEL" warning light will then go out and come on again when the fuel in the auxiliary tank goes below five gallons. At this point both fuel tanks of your vehicle are nearly depleted.
- "ENGINE WATER"—This indicator light is designed to warn the driver that the coolant

level in the radiator is abnormally low. (See "Servicing Details" later in this manual, before attempting to refill cooling system.)

- "SET LEVEL TO TRAVEL AUTO"—This light is designed to inform the driver that the Electro-Level System TRAVEL switch should be set to the "AUTO" position before driving the vehicle. (See "Electro-Level System" later in this section for additional details.)

VOLTMETER

The optional voltmeter is calibrated in volts and is divided into three segments. During operation, the indicator hand should remain in the center segment to indicate a normal battery condition. If indicator remains in left-hand segment, an undercharge condition exists. If hand remains in the right-hand segment, an overcharge condition exists. When indicator shows either an undercharge or overcharge condition, have your dealer check the battery and charging system at once.

HEADLIGHT SWITCH

The headlight switch serves four functions:

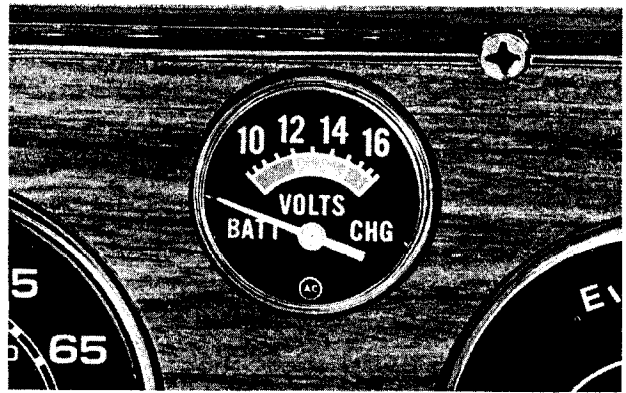
1. Pulling the switch half-way out provides parking lights, instrument panel lights, tail lights, side marker lights, and clearance and identification lights.
2. Pulling the switch all the way out provides all driving lights, — this includes headlights, plus those mentioned above.
3. To dim instrument panel lights, turn switch knob clockwise.
4. To operate the dome lights, turn switch knob fully counterclockwise.

WINDSHIELD WIPER LEVER

The windshield wipers are variable speed, and hydraulically powered. The lever control, on the left side of the instrument panel varies the speed of the wiper blades from stop ("DOWN" position) to fast (extreme "UP" position).

WINDSHIELD WASHERS

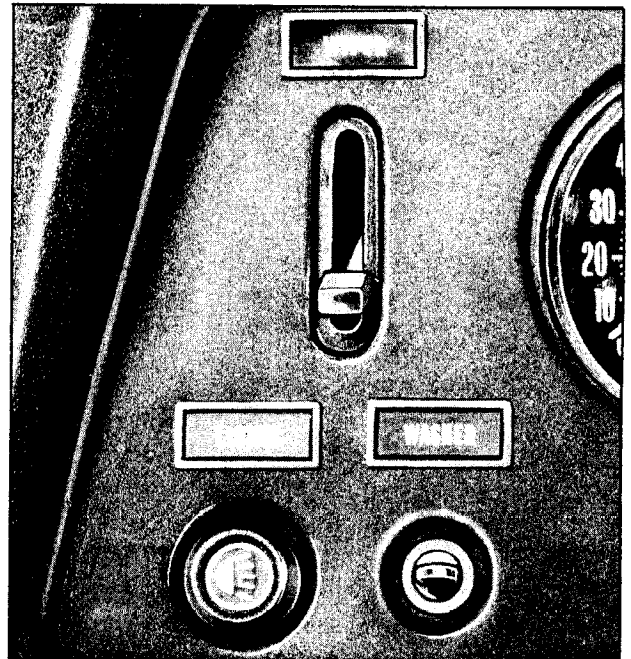
The windshield washers are controlled by the washer switch located under the windshield wiper lever. To operate the washers, turn the



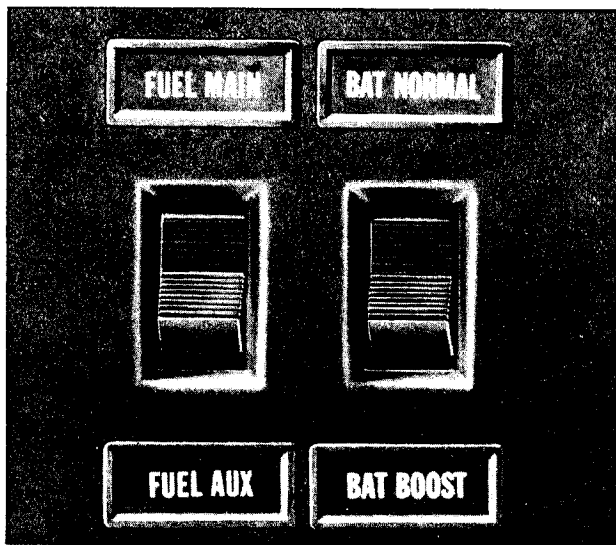
Voltmeter

wipers to an ON position, then push down on the switch until the desired amount of washer fluid has been directed to the windshield.

- Check the washer fluid level regularly—do it often when the weather is bad.
- Use a fluid such as GM Optikleen to help prevent freezing damage, and for better cleaning.
- Do not use radiator antifreeze in the windshield washer; it could cause paint damage.
- In cold weather, warm the windshield with the defrosters before using the washer—to help prevent icing that may block the driver's vision.



*Windshield Wiper, Washer,
and Headlight Controls*



Fuel Tank and Battery Switches

FUEL SELECTOR SWITCH

The fuel selector switch, located below the warning light cluster, has two positions—"FUEL MAIN" and "FUEL AUX." This switch allows the driver to change the fuel pick-up and fuel gauge sending unit from the main tank, as it goes empty, to the auxiliary tank which will normally contain 7 to 9 gallons of fuel. It is recommended that any time the fuel system is filled, this switch be put in the "FUEL MAIN" position and left there until auxiliary fuel is needed.

BATTERY BOOST SWITCH

The GMC Dual Battery System provides power from the automotive and living area batteries to the vehicle's 12-volt electrical system, either in combination or singularly. The components used to provide charging and/or switching are conventional, except for a diode assembly with which both batteries will receive charging current whenever the vehicle is running. The diode assembly has separate outputs to the two batteries and provides isolation between the batteries and their associated circuits whenever the engine is not running.

The main battery (or automotive battery) supplies power to the chassis circuit; i.e., engine, external lights, etc. The living area battery (or batteries) power(s) the Motorhome living area; i.e., internal lights, refrigerator, etc.

When additional power is needed for either battery circuit, hold switch momentarily in

"BAT BOOST" position. After use, switch is designed to return to the "BAT NORMAL" position.

NOTICE: If the battery boost switch is retained in the "BAT BOOST" position for extended periods this can result in batteries being discharged.

The living area battery (or batteries) will recharge whenever the motor generator is running, or whenever your Motorhome is connected to an external power source (see page 34), in addition to being recharged while the vehicle's engine is running.

CIGAR-CIGARETTE LIGHTER

Push the lighter in all the way to operate. When it is heated sufficiently to use, it is designed to "snap" back to normal position with noticeable sound. Avoid holding the lighter in by hand while it is heating.

For added safety, the cigar-cigarette lighter has a heat-sensitive terminal which is designed to melt and break the circuit if the lighter becomes overheated.

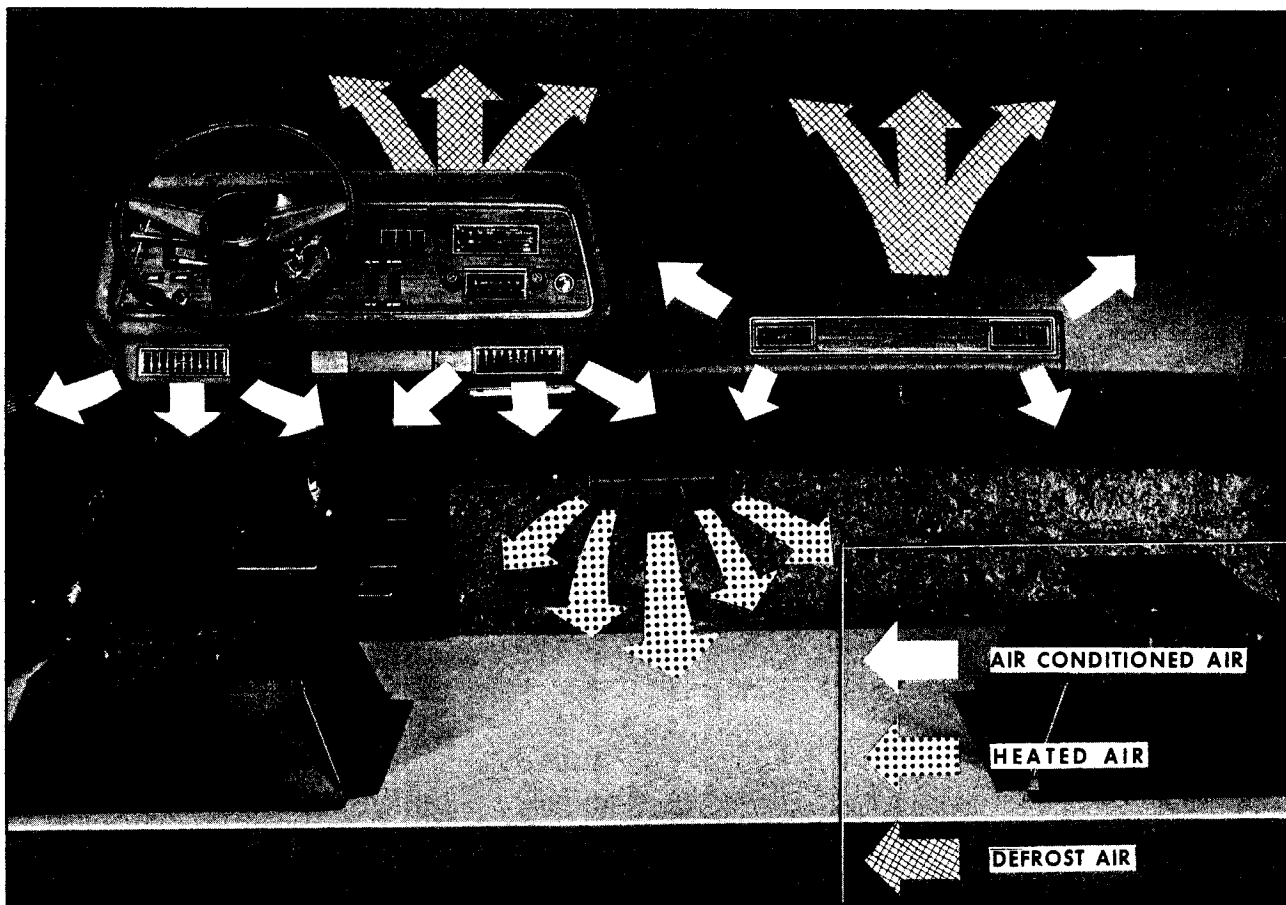
AUTOMOTIVE HEATING AND AIR CONDITIONING SYSTEM

The Automotive Heating and Air Conditioning System offers year-round driving comfort. In addition to providing circulation of cool air during hot weather, the system can provide warm air in cold weather and dehumidify outside air in humid weather (see air flow illustration). Another feature of the system is continuous low-speed operation of the heater and air conditioner blower, resulting in an uninterrupted supply of outside air flow into the vehicle whenever the ignition switch is on. The following portion of this manual provides operating instructions for obtaining heating and cooling comfort.

NOTICE: See Engine Exhaust Gas Caution at the beginning of this Section.

AIR OUTLETS

Air is directed through a combination of the heater floor vent, the adjustable outlets in the instrument panel, and the defroster vents at the base of the windshield. Each instrument panel outlet can be adjusted to divert air throughout the driver and front passenger area. Note the driver's left-hand outlet can be closed.



Air Flow Schematic (Typical)

CONTROLS

The heater and air conditioner controls are located on the instrument panel to the right of the steering column. They consist of a fan switch and two sliding levers. The upper sliding lever selects the source of air and the lower one determines the temperature of air.

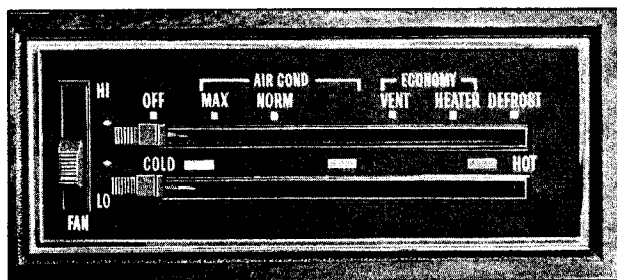
FOR COOLING—

Move the top lever to either of the two “AIR COND” positions, “MAX” or “NORM.” Adjust the bottom (temperature) lever to the desired air temperature and adjust the fan switch to meet the air flow requirements. For maximum cooling or quick cool down in hot, humid climates, or during extended idle conditions — move the top lever to “MAX” and the lower lever to “COLD.” This provides 80% recirculated air and 20% outside air at high blower speed independent of fan speed switch setting. Moving the top lever to “NORM” provides 100% outside air. Blower speed is determined by the fan switch setting. The temperature of the dehumidified air can be controlled in all positions by moving the lower lever.

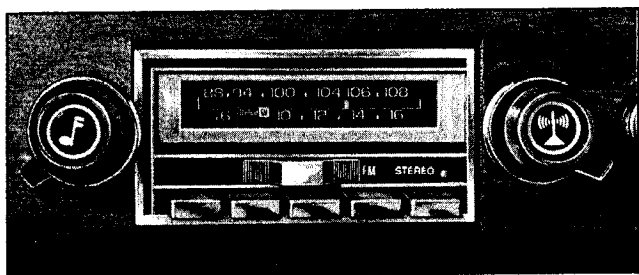
NOTICE: A protective device installed on all vehicles will turn the compressor off should the system leak refrigerant, thus avoiding possible costly repair and inconvenience to the owner.

FOR VENTILATING—

With the top lever in the “VENT” position, 100% outside air enters the vehicle through the air conditioning and heater outlets. Heat may be



Automotive Heating and Air Conditioner Controls



AM-FM Stereo Radio with Tape Deck (Tape Removed)

added to the vent air by adjusting the bottom lever. Any one of the four blower speeds may be selected.

FOR HEATING—

Move the top lever to “HEATER” to bring heated air into the vehicle of which 90% is through the heater outlet and 10% through the defroster outlets. The bottom lever should be positioned for the desired air temperature and the fan switch moved for the proper air flow.

FOR DEFROSTING

Moving the top lever to “DEFROST” brings 100% outside air into the vehicle of which 90% is through the defroster outlets and 10% through the heater outlet. Adjusting the bottom lever gives the desired temperature and moving the fan switch produces the right air volume. The air conditioner compressor engages automatically at outside temperatures above freezing.

- For better driver vision, clear the windshield, rear window, outside mirrors, and all side windows of ice and snow before driving.
- Run the blower on “High” for a few seconds before driving off. This helps clear the air intake of snow and further lessens the chance of fogging on the inside of the windshield.

TO TURN SYSTEM OFF—

Move the top lever to the “OFF” position. The blower will continue to operate at low speed whenever the ignition switch is on, bringing outside air into the vehicle through the heater outlet.

FOR ECONOMY—

With the top lever in “OFF” or “ECONOMY” modes (“VENT” and “HEATER”), the air conditioning compressor does not operate and the reduced engine load can result in improved fuel economy. Use the “VENT” position in mild temperatures, 30 to 70°F. (—1 to 21°C.), when

cooling requirements are not great, and the “HEATER” position for most heating requirements to maximize fuel economy. If comfort is not maintained, or if windows tend to fog, return the top lever to “NORM,” or “DEFROST” position.

NOTICE: The air conditioner compressor will operate in “MAX,” “NORM,” and “DEFROST” when the outside temperature is above freezing. Keep the vehicle windows closed for best operation of the air conditioner and heater systems.

RADIO AND TAPE PLAYER

Your Motorhome may be equipped with either a Delco AM-FM Stereo Radio or a Delco AM-FM Stereo Radio with Tape Deck.

AM-FM STEREO RADIO

The optional AM-FM Stereo Radio permits you to receive FM broadcasts as well as the standard AM. Choose the desired band by sliding the selector bar to the right for AM, or to the left for FM.

This radio will automatically switch to stereo operation whenever an FM stereo broadcast is being received, and an indicator will light. “Stereo” operation means that the radio is separating stereo broadcast back into the original two channels, called “left” and “right.” Stereo sound is noticeably more realistic to the ear.

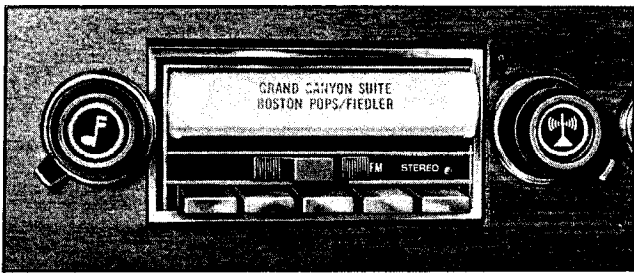
For the most pleasing stereo effect, the six speakers are criss-crossed, with the left front, right middle, and left rear speakers reproducing the left channel and the opposite speakers reproducing the right channel. Balancing the speakers is not required as this adjustment has been made at the factory. Should it become necessary to make this adjustment, see your GMC Motorhome dealer.

FM RECEPTION

Although FM is normally static free, reception can be limited by terrain, atmospheric conditions, station strength, and distance from the transmitter. Momentary static, flutter, or station swapping can be caused by buildings or other obstructions. If good reception cannot be maintained, tuning to a stronger station will bring improvement.

CONTROLS

Left Knob—This knob turns the set “On” or “Off” and controls the “oVlume.” (To operate



AM-FM Stereo Radio with Tape Deck (Tape Installed)

the radio, ignition must be in "Run" or "Accessory" position.) Behind the "Volume" knob is the "Tone" control. When turned clockwise, it increases treble; when turned counterclockwise, it increases bass.

Right Knob—This knob is a "Manual Tuning" control for selecting radio stations. A "Fader" control is located behind it. This control adjusts the sound between the forward (front and middle) and rear speakers.

Pushbuttons—The radio features five pushbuttons with which you can select your favorite stations. After pushbutton operation, it may be necessary to manually "fine-tune" the radio for best reception.

To "set-up" pushbuttons:

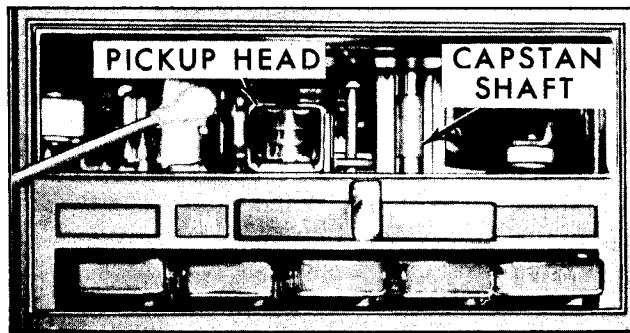
1. Manually tune to the desired station.
2. Choose the button you wish to use. Pull it straight out, then push it back in firmly until it stops.
3. Follow this procedure for each of the five buttons.

On your AM-FM stereo radio, you may select an AM station and an FM station for each button, providing a total of 10 selections. This is done by sliding the selector bar to the right and setting each button for AM stations. Then slide the bar to the left and repeat the procedure for FM stations.

NOTICE: Do not move the selector bar while any pushbutton is pulled out, or damage to the radio could occur.

AM-FM STEREO RADIO WITH 8-TRACK TAPE

This system provides the convenience of an AM-FM stereo radio combined with a stereo tape player in the same unit. To operate the tape feature:



Cleaning Tape Player

- Turn the radio on.
- Insert the cartridge through the radio dial door, level side up, and open end first. This automatically switches the unit from radio to tape operation.
- After the cartridge is firmly seated, adjust the volume and fader controls to your preference.
- Each of the four programs will play in succession automatically, or you can change programs manually by pushing in the left knob. Each time the knob is pushed and released, the unit will step to the next program.

To remove the tape cartridge, depress the pushbutton labeled "Eject." The unit will return to radio operation.

NOTICE: The tape cartridge should be taken out when not in use to prevent possible damage to the tape player and to the cartridge.

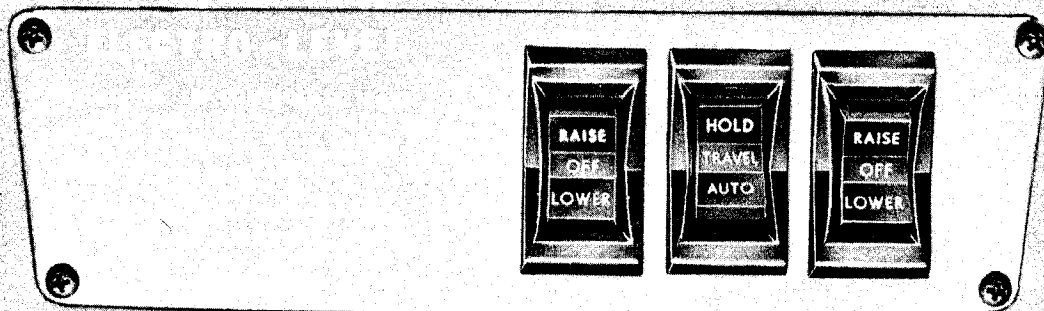
Cartridge and Tape Player Care

Store cartridge away from extreme heat or direct sunlight, and protect the open end from dirt or damage. Eight-track cartridges do eventually wear out and replacement may be necessary if they become noisy.

The tape player pickup head and capstan (revolving metal post) should be cleaned after every 100 hours of operation with a swab moistened in rubbing alcohol. Access is through the tape door.

ANTENNA

The radio antenna is mounted on top of the vehicle. If necessary, adjustments for maximum antenna effectiveness on AM can be made by your authorized GMC Motorhome dealer.



Electro-Level System Control Panel

MOBILE RADIO SYSTEMS

Mobile two-way units are subject to Federal Communications Commission (FCC) rules and must be installed by trained radio people. Mobile telephones installed by your local phone company, Citizens Band (CB) radios, and garage door opener will not affect vehicle operation. If any other mobile radio transmitters are installed, there can be possible adverse effects on vehicle operation.

ELECTRO-LEVEL SYSTEM

Early model 1978 vehicles are equipped with Type I rear air suspension. Later model vehicles are equipped with Type II rear air suspension. Both ELECTRO-LEVEL suspension systems operate in the same manner, using an automatic leveling feature to maintain a constant ride height at the rear tandem suspension when the vehicle is travelling down the highway.

In addition, the Electro-Level system provides the ability to level the vehicle when stopped at a campsite or parking area where the ground surface is not level. With Electro-Level, the rear of the vehicle can be raised or lowered approximately 4 inches from normal ride height. This is accomplished by pushing a rocker switch (or switches) on the Electro-Level control panel, which is located to the left of the driver, below the window.

CONTROL PANEL

The driver controls consist of three rocker switches on the Electro-Level control panel.

These switches function to automatically or manually level the vehicle. The center rocker switch (TRAVEL) is used for a travel or hold mode, and the two outer rocker switches (RAISE-LOWER) are used to raise or lower the rear of the vehicle.

NORMAL OPERATION

Highway Travel

When driving down the highway, the normal position for both the RAISE-LOWER switches is "OFF." The center TRAVEL switch should be in the "HOLD" position. This allows the vehicle to maintain a designed ride height, and eliminates unnecessary operation of the air compressor(s).

NOTICE: If the Motorhome has been in a raised or lowered position while parked on an uneven surface, the TRAVEL switch should be moved to "AUTO" for the first five minutes before the vehicle is put into motion. This will allow the vehicle to level itself for highway driving. Then move the switch to "HOLD" after normal ride height is achieved. A reminder light in the dash panel (which says "SET LEVEL TO TRAVEL AUTO") is designed to light any time the engine is running and the transmission shift lever is moved to "D."

Campsite or Parking Area

The two RAISE-LOWER switches may be used as necessary to raise or lower the rear of the vehicle. When using Electro Level at a campsite the vehicle engine need not be running

to operate the system; however, the ignition switch must be in the "ON" or "ACCESSORY" position.

"RAISE"—With a rocker switch in this position the appropriate sides of the vehicle will raise at the rear to any desired position, up to a maximum of approximately 4 inches above normal ride height. When desired height is reached, return rocker switch to "OFF" position.

"LOWER"—With a rocker switch in this position the appropriate side of the vehicle will lower at the rear a maximum of approximately 4 inches below the normal ride height. In order to maintain a desired height, return rocker switch to "OFF" position.

NOTICE: When rear of the vehicle is at desired level, be sure the TRAVEL switch is moved to "HOLD" and ignition switch is turned to "OFF."

A glass of water or a bubble-type level, when placed in a normally level location inside the Motorhome, can be used to help in determining the desired level condition.

Off-Road Operation

In order to gain maximum ground clearance, both RAISE-LOWER switches should be placed in the RAISE position. It is recommended that a speed of 15 mph (20 km/h) should not be exceeded since the air suspension in this position has maximum pressure supplied.

CONTROL COMPONENTS

Control components for Type I and Type II vehicles (located in the closet module) are discussed later in this manual. Refer to "Rear Suspension" in the SERVICE AND MAINTENANCE section for component information.

MAINTENANCE

Refer to "Rear Suspension" in the SERVICE AND MAINTENANCE section later in this manual for maintenance information.

EMERGENCY OPERATION

In the event of rear suspension air loss, refer to "Rear Suspension Failure" in the IN CASE OF EMERGENCY section of this manual.

For continuing satisfaction keep your vehicle all GM. General Motors Parts are identified by one of these trademarks:



OPERATION OF LIVING AREA FACILITIES

LIVING AREA FACILITIES CAUTION (CARBON MONOXIDE)

Avoid breathing exhaust gases because they contain carbon monoxide, which by itself has no color or odor. Carbon monoxide is a dangerous gas. It can cause unconsciousness and can be lethal.

Whenever operating the optional motor-generator it is essential the left-rear window of the vehicle be kept closed to prevent possible entry of motor-generator exhaust gases into vehicle. Inspect the motor-generator exhaust system at vehicle lubrication intervals or when a change is noticed in the sound of the exhaust system or if it is damaged. Do not run motor-generator in a confined area, such as a garage.

The Motorhome is equipped with LP gas operated range/oven, furnace, and may be equipped with an optional cook top, and gas/electric refrigerator. These components generate carbon monoxide when operated and should be used only if there is enough ventilation. Whenever operating range or oven(s) be sure power range hood fan above range is turned on, and operating. Also see that all exterior vents on Motorhome for power range hood, furnace, and gas/electric refrigerator are open and kept clean and free from clogging materials such as snow, leaves, dirt, grease, etc.

See **ENGINE EXHAUST CAUTION** (Carbon monoxide) page 15.

LIVING AREA ELECTRICAL SYSTEM

GENERAL INFORMATION

The Motorhome living area electrical system is designed for utmost convenience. It is capable of supplying the vehicle with power from at least two sources (three, if equipped with a motor generator).

All electrical components except the water heater, the roof mounted air conditioner (if equipped), and the plug receptacles, are powered by the 12-volt auxiliary (living area) battery which is automatically charged each time the vehicle's engine is running.

In addition, your vehicle may be plugged into a 120-volt external power source which will supply 120-volt power throughout the living area, power all 12-volt components through a power converter, and charge the living area battery.

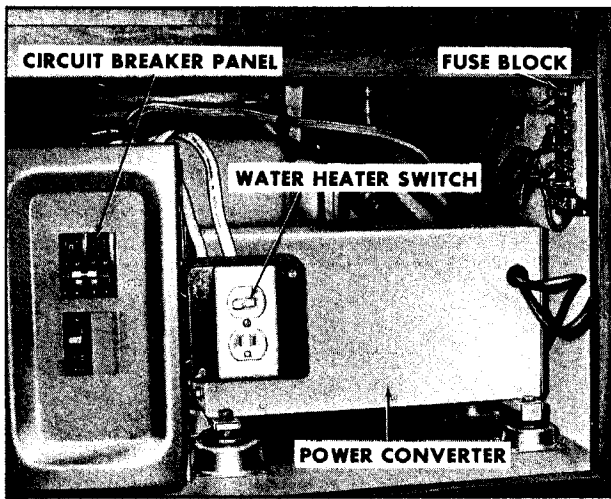
If your Motorhome is equipped with a motor generator, the vehicle will be supplied with 120-volt and 12-volt power throughout the living

area, and recharge the living area battery, any time the motor generator is running.

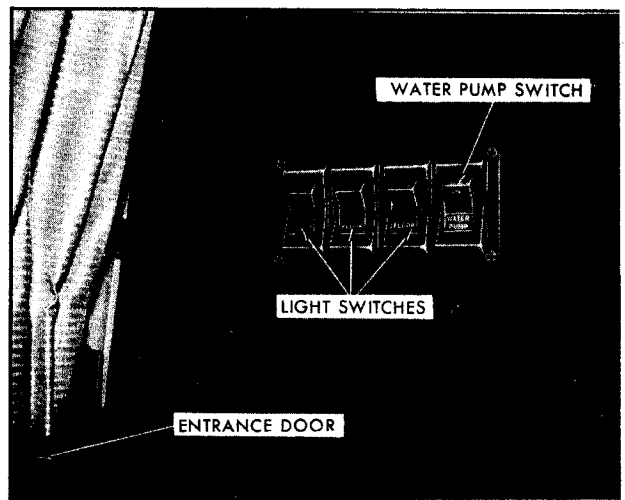
NOTICE: The living area battery should be used for short term use only. When the vehicle's engine is not running it is recommended that the vehicle be connected to an external power source, or, the (optional) motor generator be operated, whenever possible. Before connecting to an external power source or operating the motor generator be sure to read the following pages.

CAUTION

To help avoid a potentially lethal situation, do not connect any 120-volt appliances or any other equipment outside the Motorhome through use of an extension cord, or directly, to an interior receptacle. The interior receptacles in this vehicle are not ground-fault protected.



Living Area Electrical Compartment



Light Switch Panel (Typical)

120-VOLT TO 12-VOLT CONVERTER AND BATTERY CHARGER

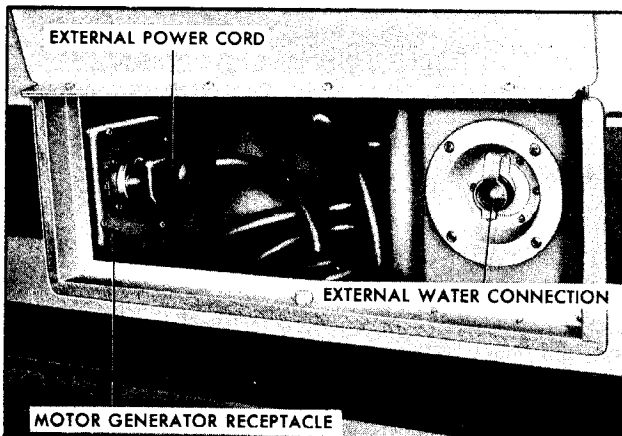
The Motorhome is equipped with a 45 amp 120-volt to 12-volt power converter. Its function is to take a portion of the 120-volt current, that is received when the vehicle is plugged into an external power source, or when the motor generator is running, and change it to 12-volts which powers much of the Motorhome. It will also charge the auxiliary (living area) battery any time 120-volt current is being received. The unit is located in the living area electrical compartment, next to the hall closet.

CAUTION

Do not use living area electrical compartment as a storage area. The converter must have a free flow of air through and around the unit. If air flow is restricted, the converter could overheat which could result in malfunction and permanent damage. Do not let the unit get wet, but do keep it as clean as possible to help assure its long life. The converter can be cleaned with low pressure air (30 PSI maximum) if necessary.

EXTERNAL POWER

The external utilities compartment located in the left side of the Motorhome contains the 21-foot power cord used for external power connections.

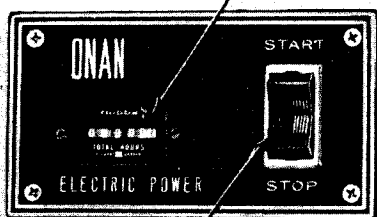


External Utilities Compartment

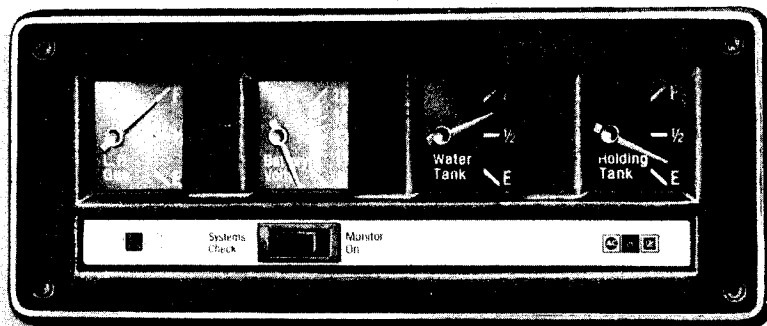
To make an external power connection, remove the cord from the compartment and plug it into a suitable power receptacle. All internal switching will take place automatically. When disconnecting from an external power source the power cord should be plugged into the motor generator receptacle within the external utilities compartment. This connects the motor generator to the Motorhome electrical system. If the vehicle is not equipped with a motor generator simply coil the power cord neatly within the external utilities compartment.

Your Motorhome's external power cord contains two 120-volt circuits, rated to carry 40 amperes each. The electrical connection to be

MOTOR GENERATOR HOUR METER



MOTOR GENERATOR START - STOP SWITCH



Monitor Panel and Onan Motor Generator Switch

used must be suitable for these requirements. If the receptacle is designed to mate with the prongs on the power cord plug, the electrical connection can be expected to **CARRY RATED LOAD**. It is recommended that the power cord not be plugged in if the receptacle is not designed for your plug. In this event you can use your optional motor generator.

CAUTION

If the available power supply is other than 120/240 volt, 60 cycle rating, or is not properly grounded, it is essential that no attempt be made to plug in. Your Motorhome's electrical system is not designed for such electrical systems and connection could result in serious personal injury or property damage.

LIGHTING SYSTEM

All the lighting throughout the Motorhome is on the 12-volt system. Some of these lights may contain a three-way switch which allows a choice in the amount of light given off. The switches to these lights are located on the light fixture itself.

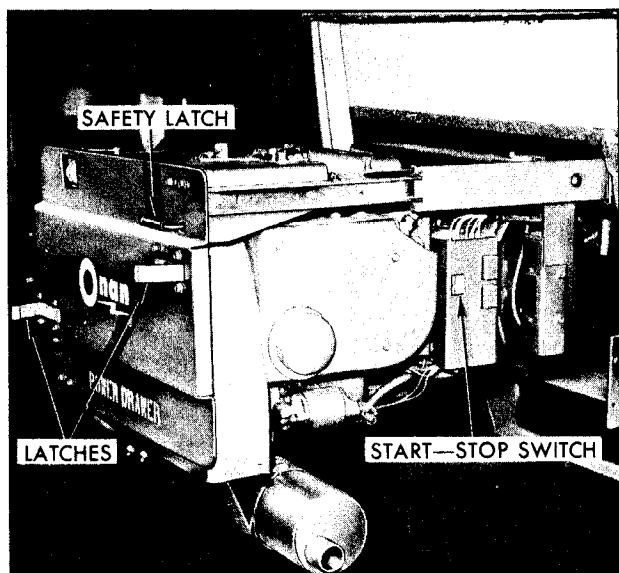
A panel of light switches is located near the entrance door. These switches operate the porch light, the kitchen light, the aisle floor light, and the water pump switch.

MONITOR PANEL

The Motorhome Monitor Panel is a series of four gauges located at eye level in the living area. Included are:

- **L.P. GAS**—This gauge is designed to indicate the amount of liquid petroleum gas remaining in the tank.
- **BATTERY VOLTS**—During operation, the indicator should remain in the center segment of the dial to indicate normal battery condition. If the indicator shows less than 11-volts, an under-charge condition exists in the living area battery and a recharge is required.
- **WATER TANK**—This gauge is designed to indicate the amount of water remaining in the living area water tank.
- **HOLDING TANK**—This is designed to indicate content level in the holding tank. Never allow this gauge to reach the "FULL" mark. If the holding tank is overfilled the overflow will back up through the bathroom shower drain.

These gauges are activated by a "ROCKER" switch located on the face of the panel. This switch has three positions; "ON," "OFF," and "MOMENTARY ON." An indicator light glows when gauges are operating.



Onan Motor Generator

MOTOR GENERATOR

NOTICE: Before operating motor generator see the carbon monoxide caution at the beginning of this section.

The motor generator will allow operation of all 120-volt appliances without an external power connection, thus allowing the vehicle to be independent of an external power source. The motor generator is located in an exterior compartment in the left rear corner of the vehicle.

The Onan unit is mounted on slides and can be pulled out like a drawer for ease in servicing the unit. To slide out the unit depress the buttons on the two latches. Then pull up on safety latch in upper right-hand corner and pull unit out.

OPERATING INSTRUCTIONS

The unit can be started from inside the Motorhome by using the remote switch. The Onan remote switch is located at eye level on the side of the refrigerator. A START-STOP switch is also located on the right side of the generator.

Before starting the motor generator the external power cord must be plugged into the motor generator receptacle. Both of these com-

ponents are located in the external utilities compartment on the left side of the vehicle. Be sure the crankcase has been filled with oil to the "F" full mark on the dipstick. Check oil only when the motor generator is not operating.

The remote START-STOP switch is a three-position rocker switch. By pressing the top half of the switch the starter on the motor generator will be activated, hold in the switch until the unit is started. The switch should then be released. When the motor generator is running the small amber light next to the switch will be lit. To stop the unit depress the bottom half of the switch, and hold in until the unit comes to a full stop. The START-STOP switch on the unit itself operates in a similar manner.

CAUTION

Do not crank engine for longer than 30 seconds at a time. Excessively long cranking periods may cause heat damage to starter motor.

NOTICE: If the motor generator has been running with a load connected, disconnect the load and allow it to run for a few minutes (with no-load connected) before pushing STOP button.

The circuit breaker on top of the unit will trip when the demand for electricity in amperes exceeds the motor generators capabilities. If the circuit breaker does trip, remove part of the electrical load and reset the breaker.

HOUR METER

Located to the left of the START-STOP switch is the HOUR METER. The HOUR METER indicates total amount of hours motor generator has operated. This gauge will aid in determining when the motor generator should receive periodic inspections, maintenance and service parts replacements in conjunction with the Maintenance Schedule folder. The Maintenance Schedule folder includes Onan Motor Generator Maintenance.

HIGH TEMPERATURE OPERATION

Make sure that nothing obstructs air flow to and from the unit.

Motor Generator housing should be unaltered and undamaged. Keep cooling fins on Onan unit clean.

LOW TEMPERATURE OPERATION

1. Use correct SAE No. Oil for temperature conditions (see **SERVICE AND MAINTENANCE** section later in this manual to determine proper viscosity oil). Change oil only when engine is warm.

2. Keep fuel system clean and battery in well charged condition.

LOW OIL LEVEL

If motor generator suddenly stops during a tight turn or sudden stop of the Motorhome, the cause is most likely a low oil level. The unit is designed to shut-down when oil level is abnormally low. Before attempting to restart unit, check oil level and correct as necessary.

DUSTY AND DIRTY OPERATION

1. Keep unit clean. Keep cooling system clean.
2. Service air cleaner as required.
3. Change crankcase oil and filter more often than normal.
4. Keep governor linkage on Onan unit clean.

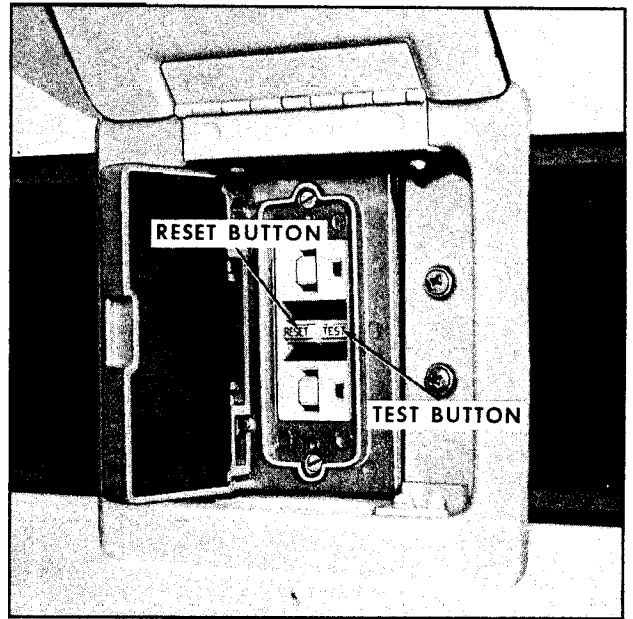
FUEL

The motor generator's fuel is supplied from the vehicle's main fuel tank.

NOTE: The motor generator may be operated while the vehicle is underway. However, the vehicle's gasoline supply will be depleted at a faster rate.

EXTERIOR RECEPTACLE

The optional exterior receptacle includes a ground-fault interrupter circuit breaker designed to protect you from the hazards of line to ground electric shock. The exterior receptacle is located on the right side of the vehicle, beside the lower refrigerator vent.



Exterior Receptacle

The exterior ground-fault circuit interrupting receptacle is designed to protect people using appliances that are plugged into this receptacle.

If an appliance continuously trips the receptacle, the appliance is defective and should be repaired or replaced.

TESTING THE EXTERIOR RECEPTACLE

For maximum protection against electrical shock hazard, the exterior receptacle should be tested at least once a month and the test date recorded.

TEST PROCEDURE:

1. Push "test" button. The "reset" button should pop up, showing a red line which indicates that power to the protected circuit is discontinued.
2. To restore power, push the "RESET" button.

CAUTION

If the "RESET" button does not pop up when the test button is pushed, a loss of ground fault protection is indicated and a potentially lethal situation exists. Do not use. Have receptacle serviced by a qualified electrician.

LIVING AREA WATER SYSTEM

Your GMC Motorhome is equipped with its own self-contained water system. Refer to "Water System Schematic." The water tank and pressure pump is located at the right rear corner of the Motorhome. The water pump switch is located near the entrance door.

Water pressure is maintained by a 12-volt water pump which is designed to automatically maintain enough pressure to ensure a steady water flow. A pressure switch is located at the water pump to maintain line pressure between 12 psi and 24 psi.

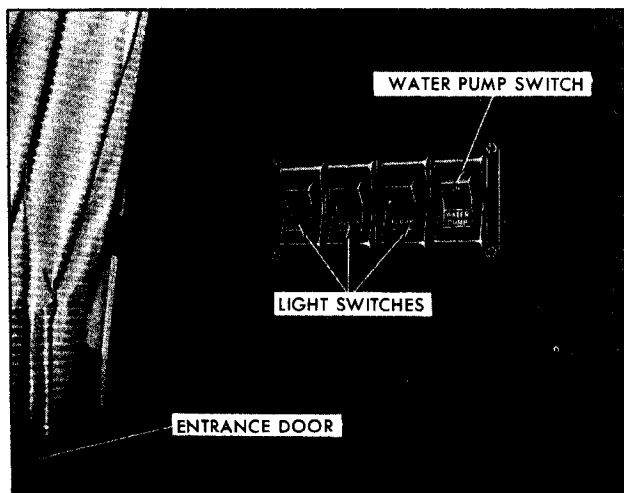
Information on how to sanitize, drain, and maintain your vehicle's water system can be found in the **SERVICE AND MAINTENANCE** section.

NOTICE: Do not attempt to increase water pressure with high pressure air. Be sure the water pump is turned "OFF" when the water tank is empty.

FILLING WATER TANK

NOTICE: The water tank fill door is equipped with a lock. The key for this lock (oval head) is the same as for the entrance door, glove box and external utilities compartment.

1. Unlock filler door and open.
2. Unthread water fill cap from filler opening.



Location of Water Pump Switch

3. Insert hose or funnel into filler opening and fill tank. Capacity of water tank is 40 gallons.

NOTICE: When tank is full, water will spill from the filler opening.

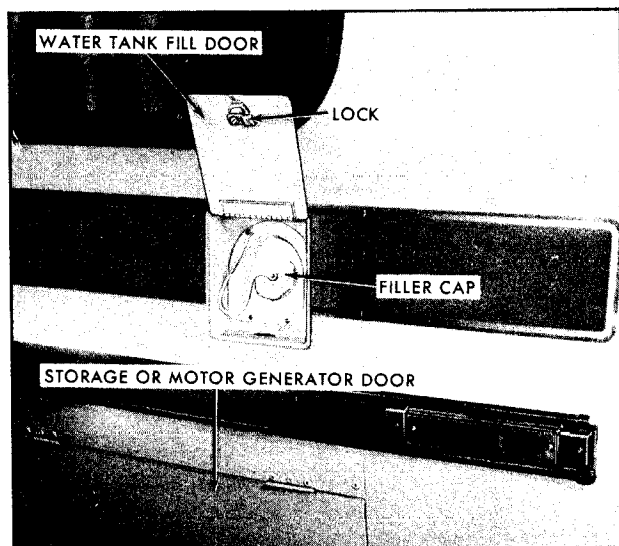
4. Turn on water pump switch. Open bathroom faucets to clear air from lines if the water tank has been dry and to let water heater fill.
5. Install filler cap securely after filling tank to help prevent contamination of water system.
6. Always lock water tank fill door.

EXTERNAL WATER CONNECTION

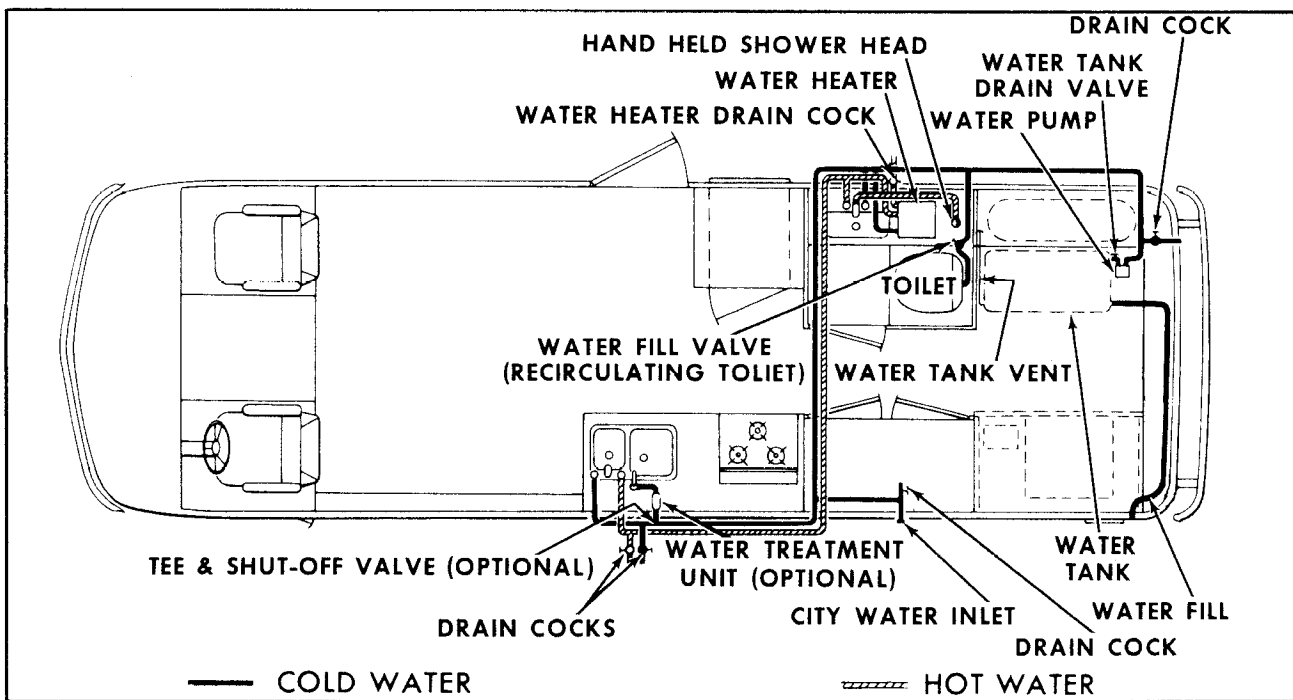
Connecting to a park or city water supply is easily accomplished. It is not necessary to drain the vehicle's water system.

1. Remove the plastic cap at the hose connection located in the external utilities compartment.
2. Attach hose and turn ON external water supply.
3. When disconnecting hose, be sure to install plastic cap at hose connection to aid in keeping dirt out of water lines.

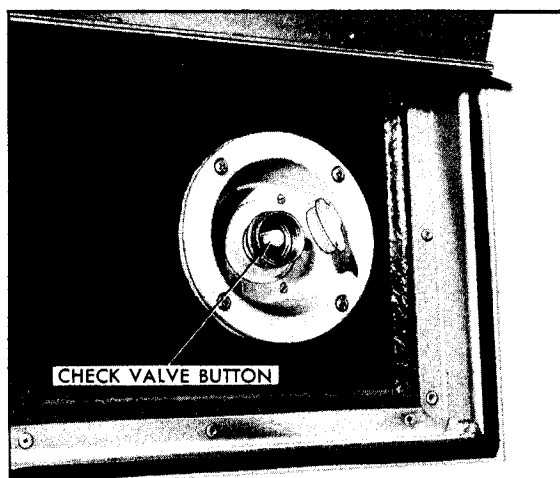
NOTICE: To avoid possible damage to external water connection components, from freezing, when not being used—perform the following:



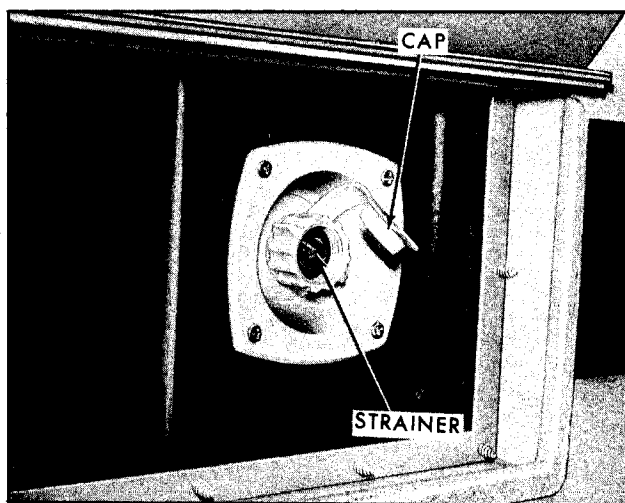
Location for Filling Water Tank



Living Area Water System (Typical)



External Water Connection (Type 1)



External Water Connection (Type 2)

a. Remove access cover from back panel in closet.

b. Open drain valve for external water connection (See Page 122).

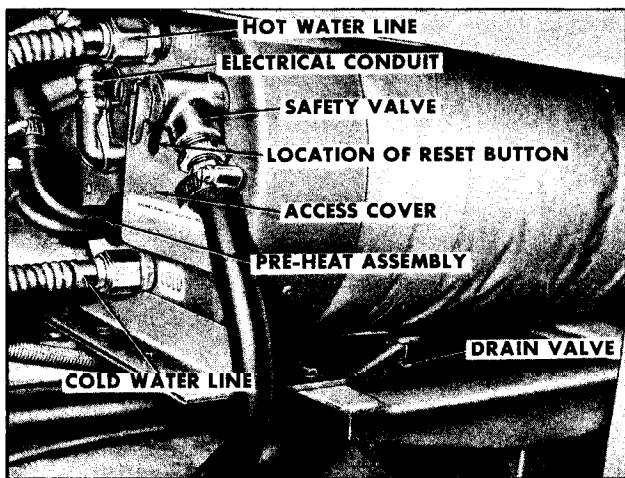
c. At the external water connection (Type 1), momentarily depress the check valve button to allow this portion of plumbing to drain. Type 2 connection is internally vented.

d. Install hose connection cover.

e. Close drain valve and install access cover in closet.

WATER PUMP

A 12-volt pressure water pump is used to operate the water system. The water pump operates off the vehicle's auxiliary 12-volt battery. The water pump is activated by a switch located near the entrance door. The water pump switch is amber in color and lights up when switch is in "ON" position. The pump's pressure switch is factory adjusted to hold a line of pressure from 12 psi to 24 psi. When initially starting the water pump or if the pump has not been



Water Heater (Typical)

operated for some time, open the kitchen faucet to release line pressure before turning ON switch. After pump has been started, leave faucet open until water flows and lines have been cleared of air. Once this procedure has been followed, the pump will work automatically and will maintain a line pressure from 12 psi to 24 psi.

When the water storage tank runs dry, or when the unit will be out of operation for a period of time, the water pump switch should be turned OFF.

It is a good idea to travel with the pump switch OFF unless water is needed. The pump runs quietly and may not be heard.

If the following maintenance problems should arise, follow the step-by-step procedures. If they do not solve the problem consult a GMC Motorhome dealer.

1. Pump will not prime (it should do this automatically):

- a. Check to be sure there is water in the tank.
- b. Check to be sure battery is not run down.
- c. Check for kinks in the inlet hose.
- d. Check for air leaks at inlet fittings. If air is leaking into inlet fittings, tighten fittings or apply clamps as necessary.
- e. Check for clogged line.

2. Pressure drops:

- a. Check faucets and connections for leaks.
- b. Make sure faucet aerators are clean.

- c. Check to be sure there is water in tank.
- d. Check to be sure the battery is not run down.

3. Pump runs when there is no apparent demand for water:

- a. Check all faucets and fixtures to make sure they are shut off and not leaking.
- b. Check lines for leaks.
- c. Make sure there is water in the tank.

WATER HEATER

Your GMC Motorhome is equipped with a 6-gallon 120 volt AC water heater with a factory setting of 150°F. It is located behind the lower storage compartment in the bathroom.

The water heater has a drain valve to be used when draining the water system. An "ON-OFF" switch for the water heater is located in the living area electrical compartment.

If hot water is not being supplied, check to be sure that water heater switch is turned "ON". If hot water is still not supplied, depress reset button located behind access cover at point shown on water heater illustration.

CAUTION

Do not operate water heater unless there is water in the living area water system. If unit is operated without water this will result in damage to the heating element.

The Motorhome water heater, if equipped with a pre-heat system that pre-heats the water in the water heater by circulating engine coolant through hoses to the water heater and back to the engine. The pre-heater will heat water only if the engine is running and at normal operating temperature. Otherwise, the water heater operates on 120-volt AC power from the motor-generator (if equipped) or from an external 120-volt AC source (see "External Power" previously in this section for additional information).

NOTICE: The safety valve on the water heater is a pressure relief valve. It is normal during operation of the water heater for water to drip from under the Motorhome below the water heater. This is a designed relieving of pressure due to the heating of water within the water heater.

KITCHEN FACILITIES

ALL-ELECTRIC REFRIGERATOR

The Norcold All-Electric Refrigerator will operate either on 12-volts DC or 120-volts AC. It operates on the same principle as the standard domestic refrigerator. This dual-voltage refrigerator automatically switches from AC to DC or DC to AC. When a power supply of 120-volts AC is connected to the vehicle, the voltage selection relay is energized and disconnects the unit from DC operation. When the AC supply is disconnected, the refrigerator automatically reverts to DC operation.

Turning the thermostat knob to the "OFF" position will stop operation of the refrigerator.

NOTICE: A key is provided to lock the refrigerator door(s) if equipped with a lock. This is an aid to keep door(s) closed while vehicle is moving.

OPERATION

A single thermostat controls the operation of the refrigerator. This thermostat is mounted at the rear, inside the refrigeration cabinet below the freezer compartment. The knob is marked "OFF, 1, 2, 3, 4, 5." The nearer the knob is set to "5," the colder the temperature becomes in the cabinet.

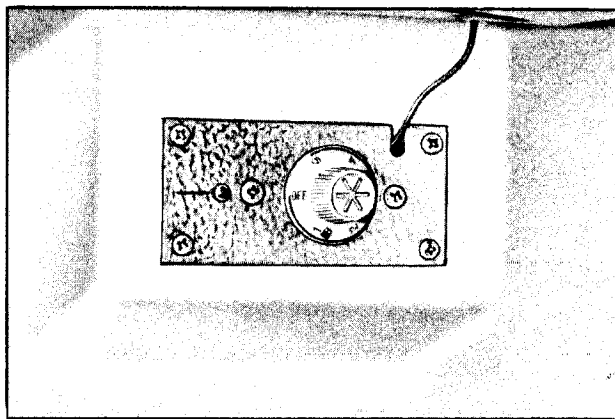
Once the desired temperature is reached, the thermostat will control the cabinet temperature equally well on either voltage supply.

There is a circuit breaker incorporated in the 12-volt circuit of the refrigerator. It is located behind the kick plate below the refrigerator door. When the circuit breaker opens a small light will come on beside the breaker. The circuit breaker is reset by pushing IN on the red button next to the light.

OPERATING TIPS

The following operating suggestions will serve as a guide in operating your unit efficiently during 12-volt DC (battery) operation:

1. In order to conserve battery power it is advisable to set the thermostat knob at the lowest setting that will provide adequate refrigeration. This practice will reduce the running time of the refrigerator and draw less current from the battery. A setting of "3" is a normal position.



All-Electric Refrigerator (Control Panel)

2. Always operate the refrigerator with a 120-volts AC source connected to the Motor-home when available, especially during initial start-up of the unit. Depending upon the ambient temperature, the initial start-up may require one to two hours continuous operation before refrigeration temperatures are attained and unit cycling begins.

3. Never employ "Quick Chargers" to the battery unless the thermostat is set to "OFF" or the 12-volt DC leads to the refrigerator are disconnected. Damage will occur if the high voltage of the "Quick Charger" is permitted to reach the DC circuitry of the refrigerator.

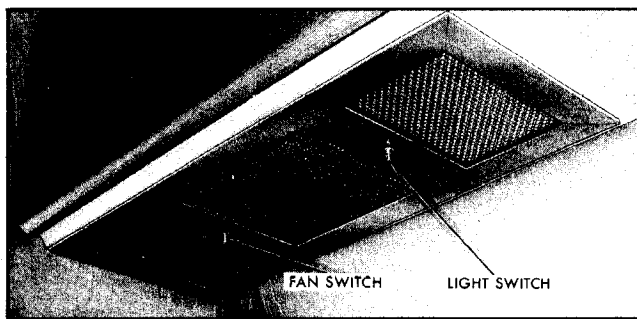
Leveling

The All-Electric Refrigerator will operate efficiently 30 degrees off-level so it is not necessary to level the refrigerator.

Defrosting

Since ice and frost are poor heat conductors, a frost build-up of $\frac{1}{4}$ " or more should be avoided. It decreases overall cooling capacity and increases power consumption. To lessen frost accumulation avoid putting hot or steaming food in the refrigerator.

To defrost the refrigerator, turn the thermostat to the "OFF" position. When accumulated ice has melted, the water can be removed from the drip pan under the freezer compartment.



Power Range Hood

Cleaning

Refer to "Appearance Care" section later in this manual for details.

To Shut Off Refrigerator

When refrigerator is not in use set the thermostat to "OFF," remove water from drip pan, remove all food-stuffs from cabinet, and leave door slightly ajar to permit air circulation.

POWER RANGE HOOD

The Motorhome is equipped with a power range hood to provide lighting and ventilation while cooking. To aid in removing cooking odors, steam or other fumes while cooking, **ALWAYS** turn on the power range hood fan, as the first step.



LP Gas Range/Oven Controls (Typical)

Details on cleaning the power range hood filter are given in the "Appearance Care" section later in this manual.

LP GAS KITCHEN RANGE/OVEN

CAUTION

To help avoid personal injury and/or property damage:

- Before operating the Range/Oven see the carbon monoxide caution at the beginning of this section.
- Always wait 5 minutes before re-lighting Range/Oven to allow excess gas to dissipate.
- The Range/Oven is not designed for and should **NEVER** be used as a space heater.
- Do not operate Range/Oven while traveling or while refueling your vehicle at a gasoline service station. The pilot lights or burners may ignite gasoline fumes.
- Do not leave the top burners on without a utensil for any length of time. Overheating of the grates may cause the porcelain enamel to craze and chip.
- Do not use the broiler area to store utensils as the oven burner and pilot may become damaged, or knocked out of proper alignment.

Recreational vehicle range/ovens differ from conventional residential units in several ways:

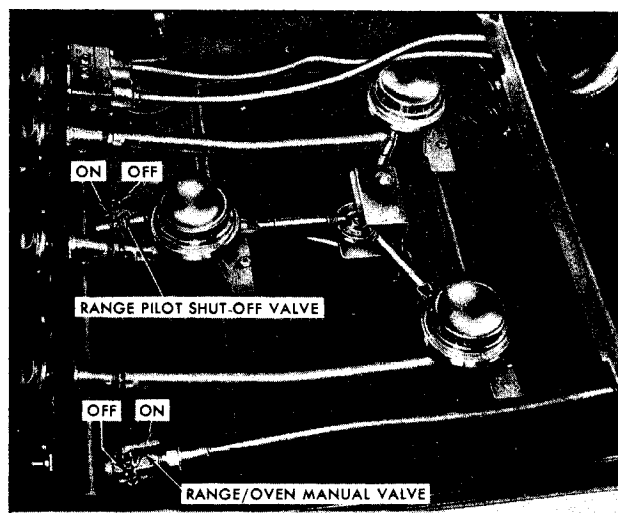
1. The units are more compact.
2. The units are equipped with oven thermostat control which allow you to manually shut off the gas to the oven pilot when traveling. Also, the range pilot is controlled by a separate range pilot shut off valve.
3. Clips are provided for the top burner grates and oven rack to help prevent rattles and dislodgement while traveling.

Any time the range/oven is in operation, the power range hood fan should be operating to help ensure proper ventilation.

In order to operate the range/oven the gas supply must be turned on at the L.P. gas tank.

CAUTION

The Range/Oven should not be used when the vehicle is moving, and the LP gas should be turned off at the LP gas tank. The burners or pilot lights may blow out creating a fire or explosion hazard. In addition, a sudden movement of the vehicle could throw utensils or scalding liquids from the stove which could result in serious personal injury or property damage.



Range/Oven LP Gas Valves

OPERATION OF 3-BURNER UNIT

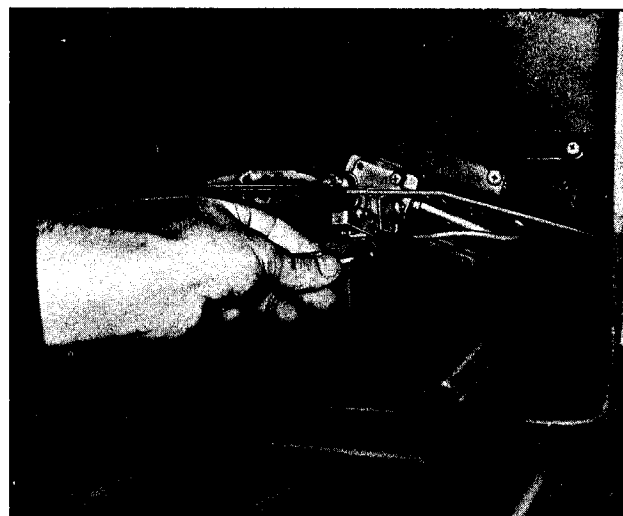
The 3-burner range/oven has two pilots—one for the 3 range burners and one for the oven.

Pilots

1. Turn on power range hood fan.
2. Be sure manual control valve at LP gas tank is fully open (see page 111 for location of valve).
3. Be sure all knobs are in the "OFF" position. The oven thermostat should be in the "PILOT OFF" position.
4. Lift cook top panel and turn range/oven manual valve and range pilot shut off valve to ON position.
5. Light range pilot with a match as shown.
6. Depress the oven thermostat and turn counterclockwise to OFF position.
7. Open the oven door, allow the compartment to ventilate, then light the oven pilot with a match. A small flame should be noted at the top of the pilot burner. After the initial light-up, it may take a minute or so to clear the air from the line so the flame stays lit.



Lighting Range Pilot



Lighting Oven Pilot

CAUTION

When lighting pilots, it is recommended **BOTH** pilots be lit, even if plans are to use just one cooking means. Once the oven thermostat is moved from the "PILOT OFF" position and the range pilot shut off valve is in the ON position, gas will issue from both range and oven pilots. Failure to light both pilots could result in fire or explosion caused by accumulating LP gas.

8. The oven pilot is non-adjustable. The range pilot adjustment screw is located behind the range pilot shut off valve.

RANGE

1. Be sure power range hood fan is operating.
2. Push control knob in and turn gas on counterclockwise all the way to get gas to the burner.
3. As soon as the burner lights, flame may be reduced to the desired height.
4. To turn off the burner, turn the control knob clockwise all the way to the "OFF" position. The knob is designed to lock in this position.

OVEN

1. Be sure power range hood fan is operating.
2. To turn on the oven light, push in oven light button located at the right side of the knob panel. Push again to turn out.
3. To light the oven burner, depress and turn the thermostat dial counterclockwise to the desired temperature setting. It will take approximately 45 seconds before the safety valve will open and the oven burner ignites.
4. When through with oven, turn the thermostat dial to the "OFF" position. In this position the oven pilot will remain lit.
5. When traveling or when the Motorhome is not in operation; return the thermostat dial to the "PILOT OFF" position and turn range/oven manual valve and range pilot shut off valve to OFF position. This should turn off the gas to the range and oven pilots.

CARE AND CLEANING

For details on care and cleaning of the Range/Oven, refer to "Appearance Care" section later in this manual.

LP GAS KITCHEN COOK TOP

CAUTION

To help avoid personal injury and/or property damage.

- Before operating the cook top see the carbon monoxide caution at the beginning of this section.
- Always wait 5 minutes before re-lighting cook top to allow excess gas to dissipate.
- The cook top is not designed for and should **NEVER** be used as a space heater.
- Do not operate the cook top while traveling or while refueling your vehicle at a gasoline service station. The pilot light or burners may ignite gasoline fumes.
- Do not leave the burners on without a utensil for any length of time. Overheating of the grates may cause the porcelain enamel to craze or chip.

Anytime the cook top is in operation, the power range hood fan should be operating to help ensure proper ventilation.

In order to operate the cook top the LP gas must be turned on at the LP gas tank.

CAUTION

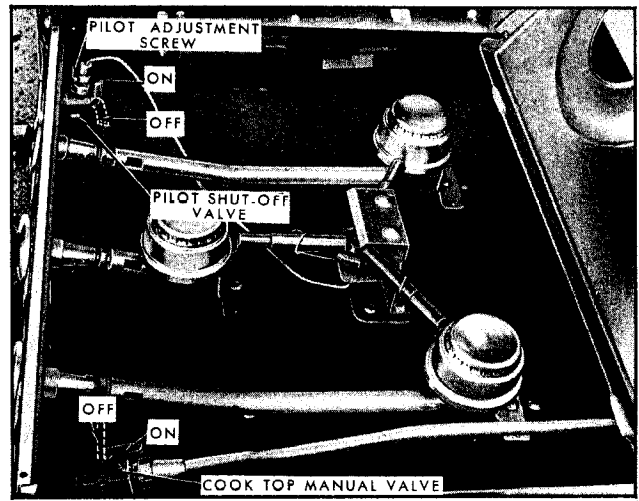
The cook top should not be used when the vehicle is moving, and the LP gas should be turned off at the LP gas tank. The burners or pilot lights may blow out creating a fire or explosion hazard. In addition, a sudden movement of the vehicle could throw utensils or scalding liquids from the stove which could result in serious personal injury or property damage.

OPERATION OF COOK TOP

The 3-burner cook top has one pilot for the 3 burners.

Pilot

1. Turn on power range hood fan.
2. Be sure manual control valve at LP gas tank is fully open (see page 111 for location of valve).
3. Be sure all knobs are in the "OFF" position.
4. Lift cook top panel and turn cook top manual valve and pilot shutoff valve to ON position.
5. Light pilot with match as shown.
6. The cook top pilot adjustment screw is located behind the pilot shutoff valve.



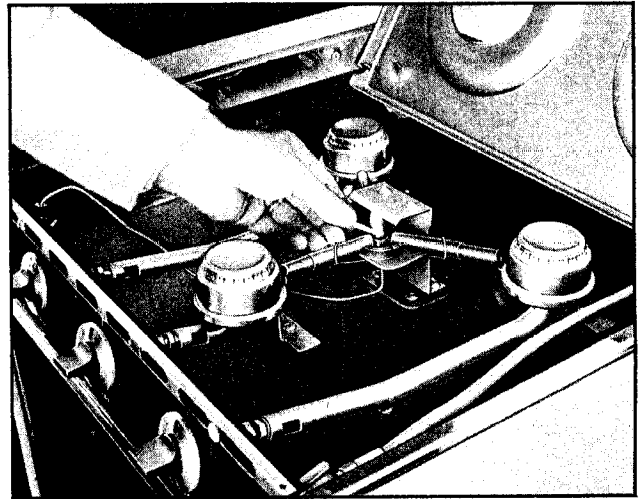
LP Gas Cook Top

Using Cook Top

1. Be sure power range hood fan is operating.
2. Push control knob in and turn gas on counterclockwise all the way to get gas to the burner.
3. As soon as the burner lights, flame may be reduced to the desired height.
4. To turn off the burner, turn the control knob clockwise all the way to the "OFF" position. The knob is designed to lock in this position.

CARE AND CLEANING

For details on care and cleaning of cook top, refer to "Appearance Care" section later in this manual.



Lighting Cook Top Pilot

MICROWAVE OVEN

The optional Thermador microwave oven operates on 120-volts AC (60 hertz). Before using the microwave oven be sure you read and understand ALL of these instructions.

CAUTION

Failure to follow the precautions below could result in personal injury:

PRECAUTIONS TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY.

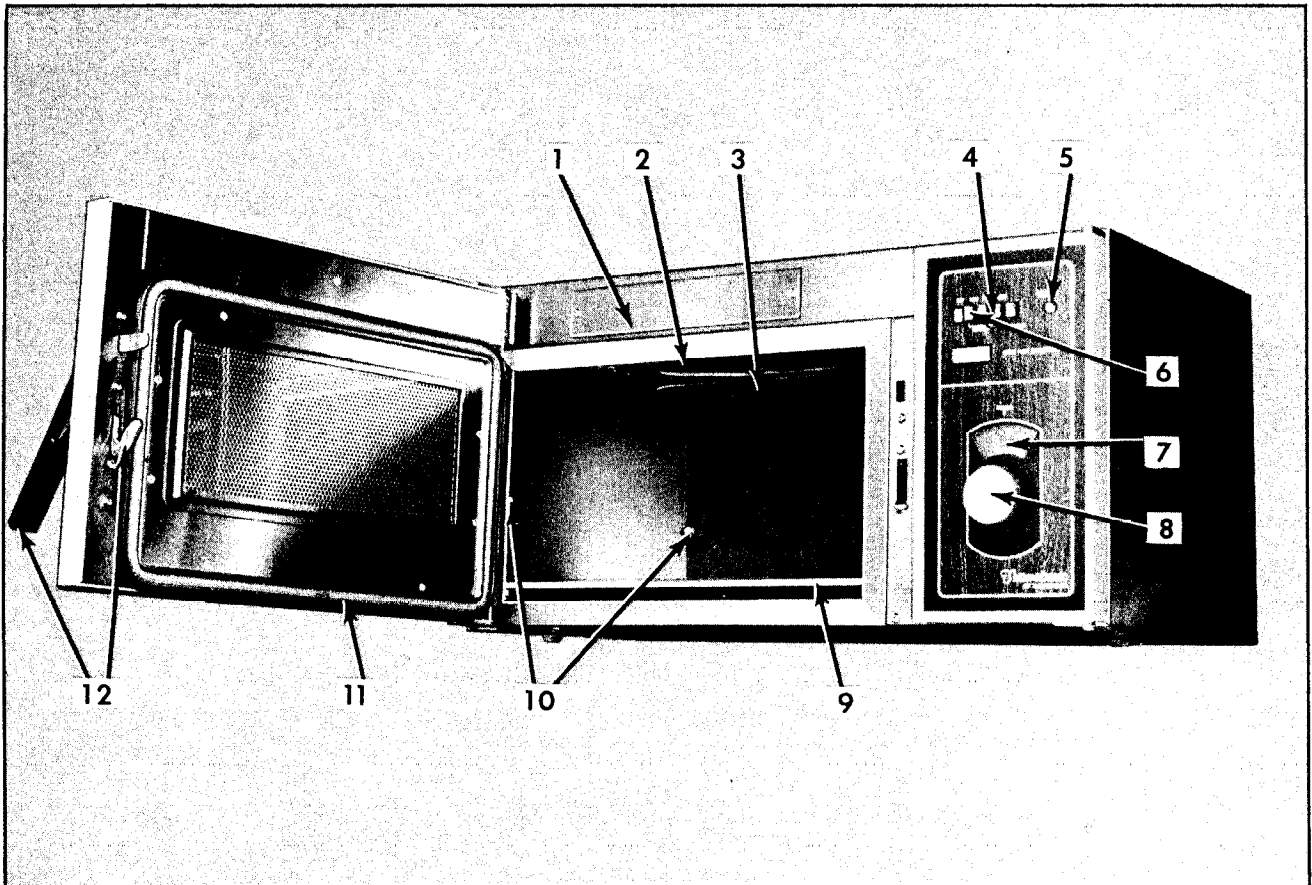
a) Do not attempt to operate this oven with the door open since open-door operation can result in harmful ex-

posure to microwave energy. It is important not to defeat or tamper with the safety interlocks.

b) Do not place any object between the oven front face and the door or allow soil or cleaner residue to accumulate on sealing surfaces.

c) Do not operate the oven if it is damaged. It is particularly important that the oven door close properly and that there is no damage to the: (1) Door (bent), (2) hinges and latches (broken or loosened), (3) door seals and sealing surfaces.

d) The oven should not be adjusted or repaired by anyone except properly qualified service personnel.



1 ACCESS PANEL TO CAVITY
LIGHT BULBS

2 MICROWAVE STIRRER

3 INFRARED BROWNER
ELEMENT

4 PUSHBUTTONS

5 MICROWAVE INDICATOR
LIGHT

6 STAY HOT CONTROL

7 TIMER DIAL

8 TIMER KNOB

9 SHELF IN LOWER POSITION

10 SHELF UPPER SUPPORTS

11 DOOR SEAL

12 DOOR LATCH

Microwave Oven Components

SAFETY

Your Thermador Thermatronic Oven has four pushbuttons and a timer for controlling the microwave energy. Microwave energy is designed to be generated **ONLY** when the door is closed and latched.

These are the features that keep the microwaves inside the oven:

First, the door seal which is a conductive seal consisting of a silicone rubber tube, overknit with two layers of Monel wire mesh.

Second, the door latch is designed to positively position the door seal to the oven cavity flange.

Third, two electrical safety interlocks are designed to turn off the microwaves when the door is opened. The safety interlocks are operated by the movement of the handle. The microwaves are designed to stop before the door moves even a tiny fraction of an inch. A monitor switch backs up the two interlocks and is designed to operate with the very first move-

ment of the door towards open. The purpose of the monitor is to render the oven inoperative in case there is an interlock failure.

Fourth, the metal screen between the inner and outer glass panels on the door is specially designed to prevent the passage of microwave energy.

MICROWAVE OVEN REGISTRATION

It is a Federal requirement that records be maintained on location of all microwave ovens. Consult the manufacturer's literature (supplied with oven) for registration details.

MICROWAVE COOKING

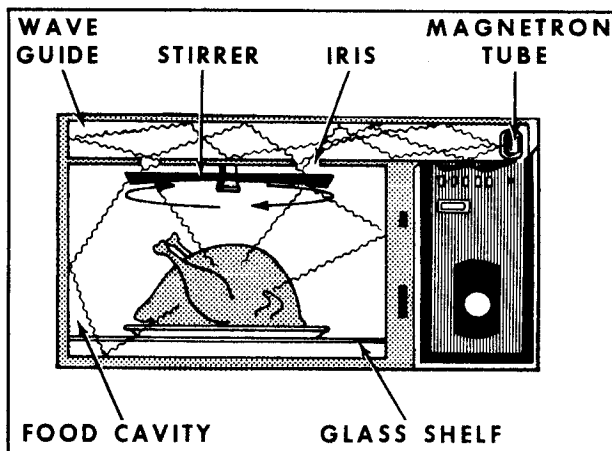
How Do Microwaves Cook?

The microwave oven is the simplest of all cooking appliances to use. **ONLY TIME** is used when cooking with the microwave oven. Temperatures are forgotten.

The microwave oven contains a magnetron tube which sends microwaves to the food cavity. These microwaves are high frequency waves of energy, much like radio waves. The oven generates microwave energy at a frequency of 2450 Megahertz. The microwave energy is absorbed by food, transmitted through paper, glass, and china and reflected by metals.

Microwaves act on the moisture molecules contained in foods. These moisture molecules vibrate very rapidly when exposed to a microwave field. In the Thermatron oven, this vibration occurs at the incredible rate of two billion, four-hundred and fifty million times a second. The molecular vibration causes friction, which in turn creates heat, much the same way that rubbing your hands together causes your palms to warm up a bit. The effect is then, that the food literally vibrates itself hot. It is this heat which cooks the food.

Microwave cooking can be thought of as bulk heating; that is, the entire bulk of food is heated simultaneously to the depth of microwave penetration. This penetration is approximately one inch. From this point, the food is then cooked by conduction, just the same as when you prepare a roast in a conventional oven. Therefore, it is possible to cook a roast anyway you like it, rare, medium or well done.



How Do Microwaves Cook?

With conventional cooking methods, the surface of the food dries and seals in the moisture. With microwave cooking, the surface of the food remains moist during the entire cooking process because all of the food is being heated simultaneously. Therefore, food tastes the same when it is reheated as when it is first cooked.

The microwaves are generated by the magnetron located in the upper portion of the oven. They travel through the iris. As they enter the oven the microwaves strike the stirrer and are distributed all around the interior of the oven.

MICROWAVE COOKING TECHNIQUES

NOTICE: You may easily adapt your favorite recipes for use in your microwave oven by checking Thermador's cookbook—"Richard Deacon's Microwave Cookery" supplied with the oven.

A microwave oven has special features that make it different from a conventional oven. You won't have to learn to cook all over again, just remember foods cook so quickly it is easy to overcook, so check more often. You can use utensils you never before used for cooking. Testing for doneness is still done the same way it always has been done, when cooking by time only; a toothpick tells when cakes or breads are done, or a fork pierced into vegetables indicates if they're soft.

Use cooking times, as a guide; they are approximate, because food preferences and amounts being cooked differ. Always choose the

minimum time to check for doneness. A vegetable cooked tender crisp may be just right for one person and undercooked for another. The size, shape and material of the cooking dish can make a difference. A large, deep casserole will heat foods slower than a large, shallow casserole of the same capacity.

Arrangement

When cooking one item, place it in the center of the shelf. To cook multiple items: place two side by side, three in a triangle, four in a square, five in a circle, etc., without placing any item in the center. Always leave at least 1 inch of space between each item. Microwaves are more attracted to the corners and outer edges of the food, therefore these areas cook more rapidly.

Cover

In microwave cooking, as in conventional cooking, casseroles are often covered to retain moisture and to speed cooking. When cooking with microwave energy a glass lid, plastic wrap, wax paper or paper towels make a good cover. When using plastic wrap that forms a tight seal punch a few holes in it to prevent steam build-up. When using the Browner or Stay-Hot, a heat-proof glass cover must be used. Be careful of steam when removing covers. Unless a recipe specifies a cover, leave the dish uncovered.

Rotate, Stir or Turn Over

When cooking conventionally, heat can be adjusted or food stirred to distribute the heat and cook evenly. During microwave cooking, the same thing is done, but in a different manner. Depending on the food, one of these techniques may be necessary. A pie crust or delicate food is rotated $\frac{1}{4}$ to $\frac{1}{2}$ turn during baking; a casserole may be stirred $\frac{1}{2}$ way through the cooking time to bring the slower cooking center food to the faster cooking outside edges. A topping may then be added and the casserole returned to the oven to finish cooking. Roasts, baked potatoes, etc., are often turned over after $\frac{1}{2}$ of the cooking time. Roasts and larger items that can't be stirred should be rotated $\frac{1}{2}$ turn when turned over.

Some recipes require that the food be rotated or stirred more than once. However, the recipe will state this. Remember, during the last half of cooking, the food will require the most attention. Check the food through the window; if necessary, open the door to check more carefully.

Shield

Often, foods are not evenly shaped. Foil can be used to shield uneven or small parts of food that may overcook before the bulk of the food is done. For example, small pieces or strips of foil can be used to wrap poultry wings, legs and neck openings or the smaller end of a roast or ham. If a thermometer is being used be certain the foil does not come in contact with it. Be certain foil does not touch the sides of the oven. Watch for signs of overcooking as the food is turned over or checked for doneness; shield any area necessary at that time. Foil can be held in place with a toothpick.

Standing Time

Some cooking continues within the food after it has been removed from the oven. All food should have a standing time (rest) after cooking, to allow for this continued cooking. The amount of time varies depending on the density, size, amount and moisture content of the food. If a food appears to be just about done, before adding extra cooking time, give the food a few minutes of standing time. Approximate standing times are:

1 to 5 minutes for small or individual items.

5 to 10 minutes for chicken pieces, cakes, sauces and most vegetables.

10 to 15 minutes for main dishes, whole chicken, roasts, potatoes and foods that are quite dense.

To avoid overcooking, add extra cooking time slowly, 1 to 2 minutes at a time. More time can always be added but overcooked food cannot be repaired. Overcooked food will be tough or dehydrated.

INFLUENCES ON COOKING TIME

Volume

The larger the food or the more items of food, the longer it will take to defrost, heat or cook. With one small item, all the microwave energy is being used for cooking it alone. When two or more items are being cooked, they must share the energy. The increase in time is not proportional to the increase in volume. In other words, twice the amount of food will not necessarily take twice as much time to cook. The increase in time varies according to the food and may be one-half to three-quarters longer than the time required to cook the original quantity.

Starting Temperature

The colder the food the longer it will take to heat or cook. Reduce cooking time slightly if the food that is normally cold at the start of cooking has warmed to room temperature. It is recommended that all frozen meat, fish or poultry be thawed before cooking, unless the recipe calls for frozen food.

Density

A dense, compact food, like a roast, will take longer to heat or cook, than a porous food, like bread. With porous food, the microwaves can readily penetrate throughout. With denser food items, the microwaves penetrate the outer portion, then the center is heated by conduction from the depth of microwave penetration. With dense items, it may be necessary to use a standing time, or a lower power setting, or both, to allow the center to cook without the edges being overcooked. Moist foods heat faster than dry foods as microwave energy is easily absorbed by moisture within the food.

Fats and Sugar

Fats and sugars heat very fast with microwave power. Cheese on top of a casserole will heat more readily than the filling; the icing on top of a coffeecake may be starting to melt when the bread portion is just warm. Use of a lower microwave power or adding topping after half of the cooking will keep the topping from overcooking before the casserole is cooked.

HOW TO USE THE THREE MICROWAVE POWER LEVELS

High—This power level is excellent for cooking vegetables, liquids, fish, fruits, and sauces.

Medium—Use this power level for cooking poultry, cakes, fruit-crust desserts, most shellfish, some convenience foods and roasting, reheating breads, thick soups, stews, spaghetti, and defrosting foods.

Low—This setting is used for cooking delicate sauces and desserts, cheese and some egg dishes, beef, pork and lamb, some convenience foods, breads and defrosting uncooked food.

FOODS NOT RECOMMENDED FOR MICROWAVE COOKING

1. Canning—canning in any type of oven, conventional or microwave is not recommended.

When canning non-acid or low acid foods, it is important to be certain that all potentially harmful bacteria are killed. In home canning this can be done by cooking foods at temperatures above boiling 212°F. (100°C.). This requires the use of a pressure cooker usually set at 10 pounds pressure for 240°F. (116°C.). Microwave cooking and surface unit cooking can go only to boiling temperatures and no further—as long as water is still in the utensil.

Foods high in acid must also be held at boiling temperatures for specified lengths of time. For these foods a conventional water bath canner is best because it allows the jars of food to be submerged in boiling water to assure constant heat to each jar during the canning process.

Many jellies, jams, conserves, marmalades, fruit butter, and some relishes may be prepared in the microwave oven. Relishes and pickles should be processed with a vacuum seal in a water bath canner according to the U.S. Department of Agriculture recommendations.

2. Deep fat frying—the temperature of the oil cannot be controlled.

3. Foods that have a crisp exterior on both sides such as: pancakes, french toast or grilled sandwiches.

4. Eggs—cooked in their shells are not recommended, as microwave cooking is so fast that pressure can build up inside the shell and cause it to explode. Any food with a skin or outside covering, such as potatoes, tomatoes, or apples, etc., should be pierced to prevent bursting during cooking.

5. Popcorn—making popcorn in a microwave oven is not recommended as there are too many variables. Age and low moisture content of the kernels, temperature and time. Prolonged cooking does not yield more popcorn, but can cause a fire or make the dish too hot to handle and possibly break.

CAUTION

To help avoid personal injury and/or property damage:

Care should be taken when removing dishes from the oven. Some materials absorb small amounts of microwave energy and the dishes may be hot to touch. Heat transfer from the food to

the dish will also make some dishes too hot to handle without potholders.

Deep fat frying should be avoided, as the temperature of the fat cannot be controlled.

SELECTING PROPER COOKING UTENSILS

The most suitable cooking utensils will allow microwaves to pass through, yet remain reasonably cool. Some utensils will either absorb or reflect microwaves; interfering with cooking time, causing uneven cooking, or damaging the utensil. Glass, paper, ceramics, and some plastics make good microwave cooking and heating utensils. With foods that take a long period of time to cook, it is recommended that oven or heat-proof dishes be used, as there is considerable heat transfer from the food to the cooking utensils. Always use broiler-proof dishes when using the Browner element.

When selecting a utensil be sure to choose one that is large enough. Many foods expand more in volume when cooked by microwaves than when cooked conventionally.

Glass and China

This category includes glass, ceramic, pottery, earthenware and china. Dishes with a metal trim (gold or silver) should not be used, as the metal trim may be damaged. Some paints and glazes used in various glass items contain metallic substances and these dishes should not be used in the microwave oven.

Oven-Proof Dishes

In this category are dishes which are designed for conventional oven usage (electric or gas). This type of dish is fine for use in the microwave oven. However, the manufacturer's instructions should be consulted before using it under the Browner element.

Broiler-proof Dishes

These are dishes that are made for use under a conventional broiler and they can be used under the Browner element as well as for microwave cooking.

Corning Ware

All Corning products can be used except those with a metal part in the construction: Centura dinnerware, Cook-n-Serve covers and closed

handle Corelle cups. These dishes absorb microwave energy and can become too hot to handle. Eventually these dishes may crack or break. Be sure to check manufacturer's instructions.

Paper

This includes towels, dishes, napkins, cartons, freezer wrap, wax paper, etc. Paper dishes are ideal for reheating, however avoid cooking foods more than 4 to 5 minutes on paper. Plastic coated paper dishes are recommended to retard the absorption of juices. Paper towels placed under the food are a good absorber for moisture and/or grease. Paper towels placed over the food will reduce spatter.

Some types of paper may burn if used in the oven for a prolonged time.

CAUTION

Do not use the Browner with paper or plastic products as it will cause them to burn or char.

Plastics

Plastic must be used with caution. Use only plastics that can withstand heat from the food, such as semi-rigid freezer containers or dishwasher safe plastics (heat-proof). Soft plastics may melt or distort if used for cooking; or if used for heating foods with high sugar or fat content. Plastic dishes should be used only for heating foods, as transfer of the heat from the food may distort some containers. Some plastics absorb enough energy to cause charring. This type of plastic ware quickly becomes too hot to handle and is not recommended for use with microwave cooking.

Plastic wrap is ideal for covering dishes when a lid is not available. Cover dish loosely making a puncture to allow steam to escape, but still keep the heat in.

Do not use plastic wraps that stretch for sealing. Do not use poly-vinyl chlorides for cooking.

Cooking Pouches

Cooking bags designed to withstand freezing, boiling and oven heat may be used according to the manufacturer's instructions. However, **DO NOT** use metal twist ties. Close bags with string. Make a slit (X) in all cooking bags and pouches to allow steam to escape.

CAUTION

Do not use the Browner or Stay Hot element with cooking pouches to avoid melting of the pouches.

Straw

A straw basket can be used for the short time it takes to heat rolls or coffeecake.

Wood

Wooden spoons can withstand short periods of microwave energy. Wooden bowls or boards are not recommended for use as microwaves evaporate the natural moisture in the wood causing splitting or cracking.

Metal

In general, we do not recommend using metal utensils for cooking. Metal reflects microwaves, therefore the microwaves can only reach the food from the top of the container. However, there are some instances when metal can be used selectively with good results. They are:

NOTICE: If metal is used within the oven cavity during microwave cooking arcing may occur. If such arcing does occur, there may be appearance damage to the food cavity walls, but will not affect the oven's performance as a cooking device.

1. Aluminum foil can be used to prevent or slow the cooking or heating of an area of food. If a portion of a roast, legs, wings or neck opening on poultry, or other food item is cooking too fast, cover the area with a small piece of foil. This is often referred to as shielding. When doing this be certain the foil is not touching the walls or other metal parts of the oven.

2. Metal skewers, clamps, etc., may be used if there is a larger amount of food in proportion to the metal.

3. TV dinners and convenience foods can be heated in their foil trays if the containers are no deeper than $\frac{7}{8}$ inch. Otherwise, the food should be transferred to a glass dish or paper container for heating. Leaving the food in the shallow metal container will not harm the oven. To prevent glass shelf damage due to arcing, always place a dry paper towel under any metal container when heating with microwave. See section on Convenience Foods in the cookbook for detailed instructions.

Be certain metal, used as described above, does not touch metal sides of oven.

NOTICE: Do not heat canned food in the can, as it will not heat, except from the top. Do not wrap food in aluminum foil when cooking with microwaves. The foil will reflect the microwaves and the food will not cook.

Bonded Adhesives

Some cups, mugs and casserole covers have handles attached with a glue. These handles may come off if the dishes are used with microwave energy.

Lacquer Ware

Lacquer ware may crack or become discolored if heated in the microwave oven.

Thermometers

Most thermometers should not be used in a microwave oven, as the microwaves are attracted to the mercury, causing them to become inaccurate. There are some thermometers now available that can be used in microwave ovens and, if they are heat-resistant, may be used with the Browner or the Stay Hot.

HOW TO OPERATE THE MICROWAVE OVEN

Your microwave oven is operated by a Push-button Switch, a Stay Hot Control and a 35 minute Timer. The pushbuttons marked **LOW**, **MEDIUM**, and **HIGH** control the three (3) microwave power levels. The pushbutton marked **BROWNER** controls the Infrared Browner Element; located at the top of the cooking cavity. The **STAY HOT CONTROL** is designed to keep food at serving temperatures.

Your microwave oven may be used many ways. The three power levels, **LOW**, **MEDIUM** and **HIGH** are available for microwave cooking. Both **LOW** and **MEDIUM** are useful for Defrosting. The Browner is used to give foods eye appeal. The Stay Hot Control is for keeping hot foods at serving temperature.

Microwave energy and the Browner element cannot be used together.

The microwave may be set for a period of time up to 35 minutes. For longer periods the timer must be reset.

When using the browner, the timer can be set for up to 35 minutes and the browner will be on full heat for approximately 25 minutes. Thereafter, it will be controlled at a lower heat by an automatic thermostat.

If the door is opened while cooking, the oven is designed to turn off the microwave energy, the timer, and the stirrer. If the Browner or Stay Hot is on it will remain on when the door is opened.

Cooking, Defrosting, or Browning

1. Select power level—LOW, MEDIUM OR HIGH, OR BROWNER.

2. Place the food in the oven.

3. Set the timer and close the door. For more accuracy in short cooking times, turn the timer past the 5 minute mark, then back to the desired cooking time.

4. A few seconds before the end of the time set on the timer, a bell will chime. When the bell stops ringing the timer will be at the zero, the Microwave (☞ ON) light will go out. Microwave energy, or the Browner, are automatically turned off when the timer reaches "0".

5. When you are finished be sure to push the OFF button.

NOTICE: The browner is designed to be used only for browning, not for cooking.

Microwave Indicator Light (☞)

The Microwave Indicator light (☞) is located at the right of the pushbuttons. This light will glow red whenever microwave energy is being generated by the magnetron tube. When the door is opened the light will go out, indicating the microwave energy is OFF.

Timer

Located at the bottom of the control panel is the timer. It allows a cooking time up to 35 minutes.

When the microwave oven is turned ON, the light behind the timer will come on automatically.

To set the time, turn the knob clockwise to the desired time. Depending on the pushbutton selection the unit is energized with microwave (if the door is closed) or the Browner. A few seconds before the end of the time set on the

timer a bell will chime. It will stop when the timer reaches "0". When using the Stay Hot feature after the Browner, the timer will chime periodically. If the timer is turned to OFF, the chime will stop. The door may be opened at any time to check the food. The timer stops and microwave energy ceases whenever the door is opened, and continues as soon as the door is closed. The timer does not have to be reset if the door is opened. The timer has been color-coded for ease in reading. The first section has a mark every 15 seconds. The 0 to 5 minute section is color-coded red. The second section, which has a mark every minute from 6 to 35 minutes is color-coded blue.

For more accuracy during short cooking times, turn the timer beyond 5 minutes, then back to the desired cooking time.

Stay Hot Control

Your microwave oven also functions as a Stay Hot Oven using the heat of the Infrared Browner Element to maintain the oven at food serving temperature. The temperatures are controlled by two automatic thermostats, one for Browning and one for Stay Hot.

To keep hot foods moist, at serving temperatures, they must be covered.

Stay Hot Only — Timer dial must be at "0" or OFF. Press Stay Hot Control, pushbutton will glow, oven will heat and maintain hot food at serving temperatures. Oven interior and timer dial will not be lighted. Turn off by pressing Stay Hot Control.

Stay Hot and Microwave — Press Stay Hot Control, and operate microwave as desired. When you are finished cooking by microwave, and the timer reaches "0", the Stay Hot feature automatically starts. The fan will stop when the timer reaches "0". The Stay Hot will remain on until turned off by pressing the Stay Hot Control. \

Stay Hot and Browning — Press Stay Hot Control, and operate Browner as desired. During browning the heating element is controlled by the Browner thermostat, when timer reaches "0" heating element is controlled by Stay Hot thermostat. Stay Hot will remain on until turned off by pressing Stay Hot Control.

1 OFF PUSHBUTTON

6 MICROWAVE INDICATOR
LIGHT

2 POWER LEVEL-LOW
PUSHBUTTON

7 STAY HOT CONTROL

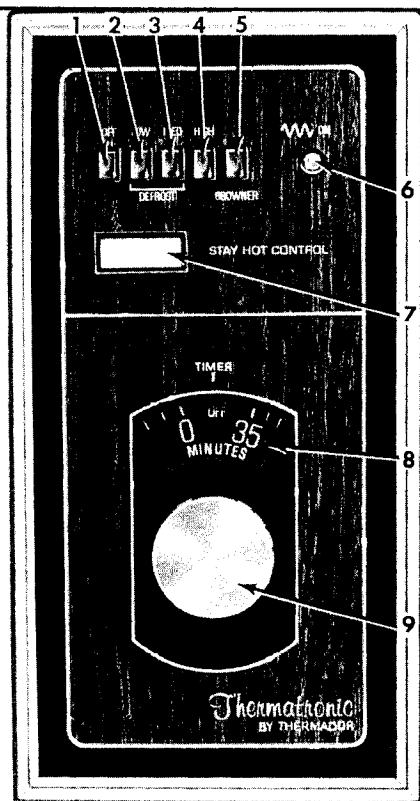
3 POWER LEVEL-MEDIUM
PUSHBUTTON

8 TIMER DIAL

4 POWER LEVEL-HIGH
PUSHBUTTON

9 TIMER KNOB

5 BROWNER PUSHBUTTON



Microwave Oven Controls

When using the Stay Hot feature after the Browner, the fan will operate and the timer bell will chime periodically. If the Browner is turned OFF, the fan, the timer and the light will be OFF. If the timer is turned to OFF, the chime will not operate.

Preheating—The Stay Hot feature may be used for preheating the oven prior to cooking with microwaves or browning, as described above.

CAUTION

Do not use plastic wrap to cover food when using the browner or the stay hot control to avoid burning or charring of the plastic.

Microwave Stirrer

The stirrer is a slowly rotating fan. It distributes the microwave energy evenly throughout the oven, by mixing the microwaves that bounce off the walls, ceiling, back and bottom of oven. **DO NOT** disturb the movement of the blades. The stirrer blades must rotate during cooking. If they do not rotate, uneven cooking

and possible damage to the oven may result. The stirrer stops when the door is opened.

Infrared Browner Element

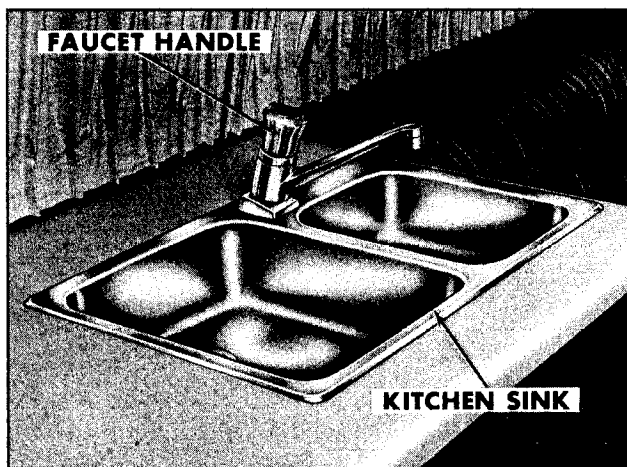
The infrared Browner Element is designed to be used only as a browner, not for toasting, cooking, or broiling.

The Browner remains on when the door is opened and there is time remaining on the timer. The Browner must be used separately. It is recommended that it be used at the end of the microwave cooking period.

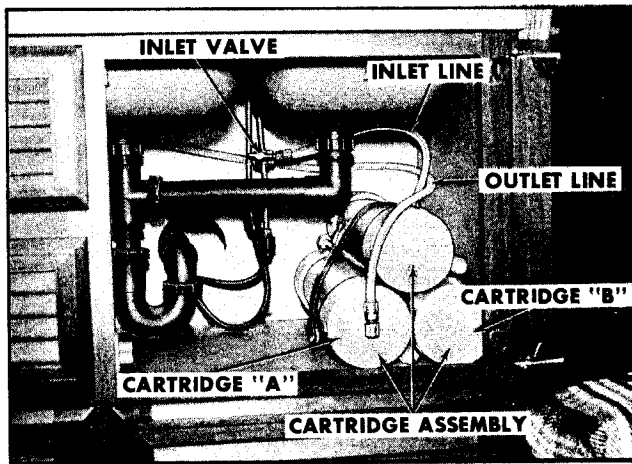
Shelf

There are two shelf positions. The lower position is used the majority of the time. When using the Browner, you may find the upper position best. The closer the food is to the Browner element, the faster the browning will be. The shelf must always be in place when cooking, this allows the microwaves to be reflected up into the bottom of the food being cooked.

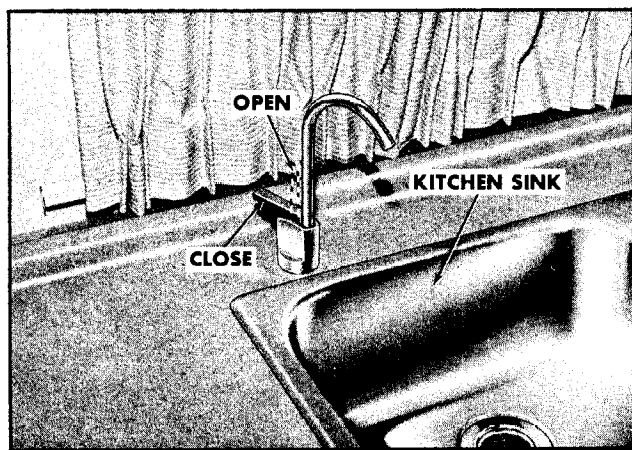
To **REMOVE** the shelf: Open the door as wide as it will go. Move shelf to the right. Tilt



Kitchen Sink and Faucet



Water Treatment Unit Cartridge Location (Typical)



Water Treatment Unit Faucet (Typical)

left side of shelf up into the upper left corner of the oven. Pull shelf straight out in a diagonal position.

To **INSTALL** the shelf: Open the door as wide as it will go. Hold shelf in a diagonal position with the left side tilted up. Place in oven and lower onto ceramic bumpers.

To **MOVE** shelf to **UPPER POSITION**: Move shelf as far as it will go to the right. Tilt left side of shelf up and move towards upper left corner of the oven. Move right side of shelf up beyond upper ceramic bumpers. Reposition shelf down into upper shelf position.

Use the shelf with the smooth side up. Do handle the shelf carefully, because like all glass it is breakable. If it is accidentally damaged or broken, it must be replaced by the same material which is specially designed for use in the Thermatronic oven. See your Motorhome dealer for replacement.

- Never cover the glass shelf with aluminum foil.
- Unintentional short term operation of the oven or overcooking of small portions of food may cause the glass shelf to break.
- When heating food in shallow foil trays (TV dinners, etc.) always place a dry paper towel between the foil tray and the glass shelf to avoid damage due to arcing.
- After cooking times of 5 minutes or more, the glass shelf may be hot.

Interior Light

When any pushbutton is turned on, the light comes on. When the Stay Hot Control only is on, there is no light in the cavity.

Fan

Your microwave oven has a cooling fan which operates when using microwave energy or the Browner. The fan turns off when the unit cycles into Stay Hot, after microwave.

KITCHEN SINK AND FAUCET

Your GMC Motorhome is equipped with a stainless steel double bowl sink with a swing spout and adjustable spray spout. To operate faucet pull the handle up, turn clockwise for cold water and counter-clockwise for hot water. For cleaning and care of the stainless steel sink see the **APPEARANCE CARE** section later in this manual for more information.

WATER TREATMENT UNIT

An optional water treatment unit is located at the kitchen sink. The treatment unit cartridge assembly is located in the cabinet below the kitchen sink. When unit is new or after cartridge assembly replacement, open the water treatment unit faucet. Allow the water to run for about five minutes. A slight grey color in the water is designed to disappear after several

NOTICE: Under normal family usage the cartridge assembly is designed to last for several years. Interval for replacement for either cartridge may be determined by restriction of water flow at faucet. The filter cartridges are designed to restrict water flow when replacement is required. Be sure the cartridge assembly (all three tanks) is removed from the vehicle when unheated, and temperatures fall below freezing. The cartridge assembly should then be stored in a heated facility.

CARTRIDGE REPLACEMENT

NOTICE: Replace the primary cartridge "A" (refer to sticker on cartridge for identification)

when the flow rate diminishes. Cartridge "B" may also require replacement after an extended period of use. This replacement is to be made when the replacement of cartridge "A" fails to restore the flow rate of assembly to a satisfactory level.

1. Shut off water pump and close inlet valve to cartridge assembly.
2. Remove plastic tubing connectors at either end of old cartridge.
3. Remove old cartridge and discard.
4. Locate the new replacement cartridge in the same position as the one just removed with arrow on label pointing to the outlet end of unit.
5. Connect plastic tubing to the new cartridge making certain that the tubing coming from the inlet valve connects to the "INLET" fitting.
6. Open the inlet valve, turn on water pump and then place water treatment faucet handle in the "UP" position (faucet is located beside the kitchen sink faucet). Allow a full flow of water from faucet for about 15 minutes. Unit is now ready for normal usage.

BATHROOM FACILITIES

STANDARD TOILET

The standard toilet is a fresh water sanitation system. It uses a pressure flushing system wherein water cleans the bowl with each flush and washes contents directly into the holding tank. This water injection produces a swirl effect and uses a measured amount of water to rinse efficiently. The unit is a self-cleaning type designed with an odor and gas tight teflon seal which closes off the holding tank when not in use. Since every flush uses fresh water, chemical additives are not mandatory.

OPERATING INSTRUCTIONS.

1. After use, depress flush pedal located at base of toilet. This will automatically flush and refill toilet with water. Keep pedal depressed until bowl is cleaned and release.

2. If you wish to add water to bowl without flushing, depress the water pedal. Hold depressed until desired water level is reached and release.

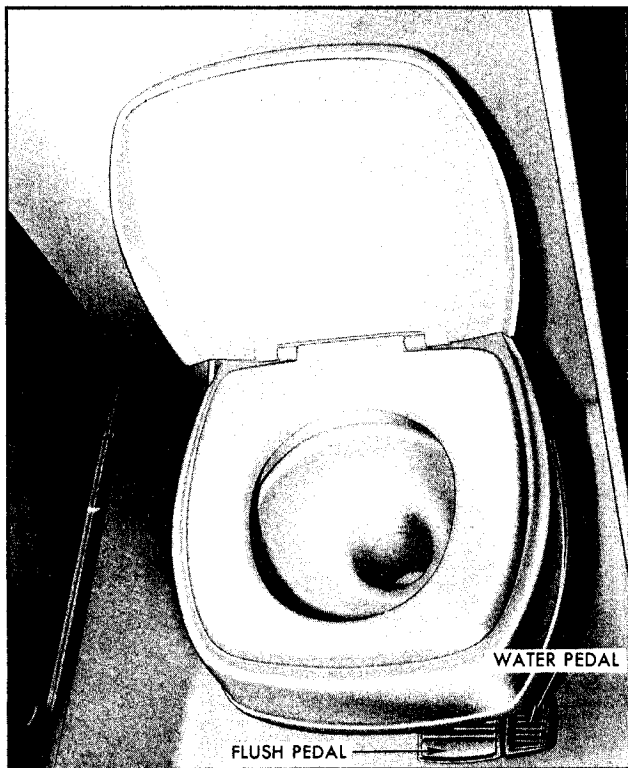
3. Cleaning of toilet bowl can be accomplished by using any high grade, non-abrasive cleaner. Highly concentrated or high acid content cleaners might damage rubber seals.

4. The toilet dumps directly into the vehicle holding tank. Therefore it is recommended that holding tank be drained at regular intervals to avoid overfilling. The suggested drain interval is, whenever refilling living area water tank

OPERATING TIPS FOR TOILETS

1. Do not put facial tissue, automotive type anti-freeze, coffee grounds, laundry bleach, or highly concentrated or high acid content household cleaners in your holding tank or toilet systems as they may damage the plastic or rubber parts in the system.

2. Special non-toxic non-flammable deodorizing chemicals can be added to holding tank, but are not required. Follow directions on container.



Standard Toilet

3. Be sure to use biodegradable toilet tissue **ONLY** in the GMC Motorhome to maintain holding tank sending unit operating performance.

4. Keep your holding tank drain valve closed when parked and connected to a sewer system. By doing this, enough fluids are put into the holding tank to entirely wash away the waste in the holding tank when drain valve is opened.

5. Details on winterizing or draining vehicle holding tank are covered in the **SERVICE AND MAINTENANCE** section of this manual.

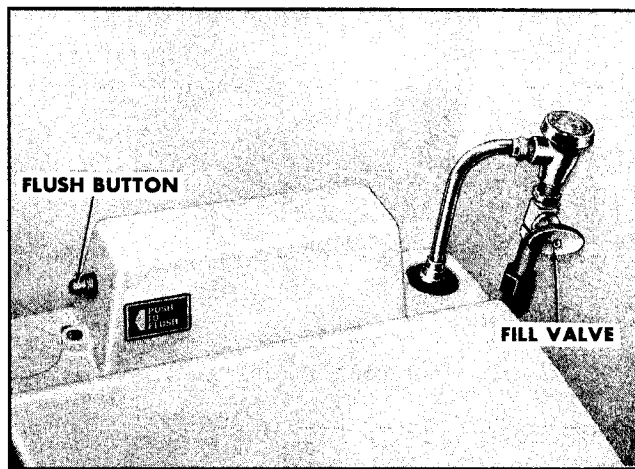
RECIRCULATING TOILET

The optional recirculating toilet operates by recirculating a chemical solution. The advantage is that you are conserving water when flushing and also by not adding volume to your holding tank. The toilet operates on 12-volt DC.

OPERATING PROCEDURES

Initial Flush Charge

1. Be sure handle on dump valve is pushed in.



Recirculating Toilet Controls

2. Open fill valve, filling toilet to the charge level as indicated by the letter "C" on prism. This will be approximately 3 gallons. Close the fill valve.

3. Add recirculating toilet chemical as recommended by manufacturer of chemical.

To Flush

Depress flush button and hold for approximately seven seconds.

NOTICE: Do not depress flush button when unit is empty.

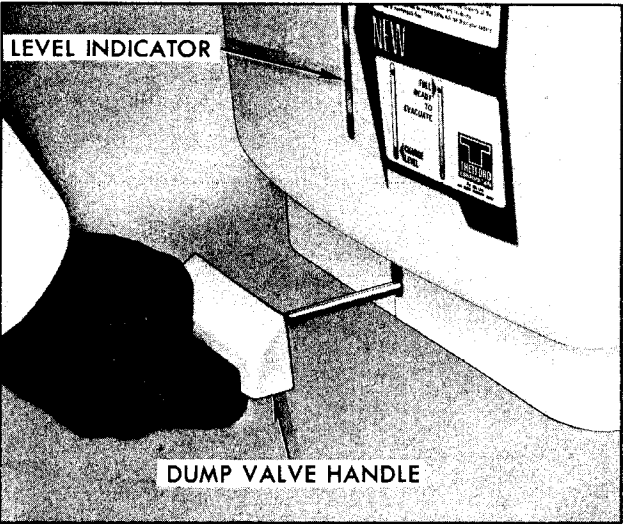
To Empty Toilet Into Holding Tank

1. When prism indicator shows level at the letter "F" it is time to empty the toilet. When full, toilet holds approximately seven gallons. The toilet may also be emptied when the blue chemical solution turns green as this is an indicator that the active ingredients are used up.

2. Pull the dump handle all the way out. The handle is located near the floor at the center of the front of the toilet. When toilet is empty, as indicated by the prism, push the handle back in and recharge toilet as directed under "Initial Flush Charge" described previously.

CLEANING TIPS

1. There are several excellent cleaning compounds that may be used. Be sure to read the label to be sure compounds will not damage plastic parts and tubing.



*Dumping Waste Contents of
Recirculating Toilet*

2. Recreational users advise it is best to flush the toilet before each use to aid in maintaining cleanliness.

3. Another aid to flushing is to lay some toilet tissue in the bowl just prior to use.

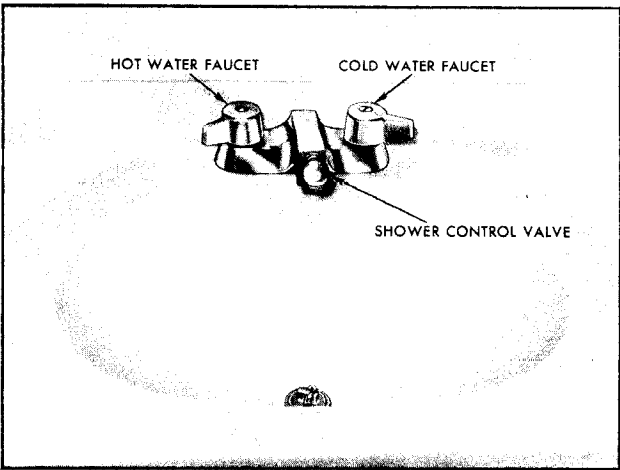
BATHROOM SINK AND SHOWER CONTROL VALVE

The Motorhome bathroom sink has the shower control valve built into the spout.

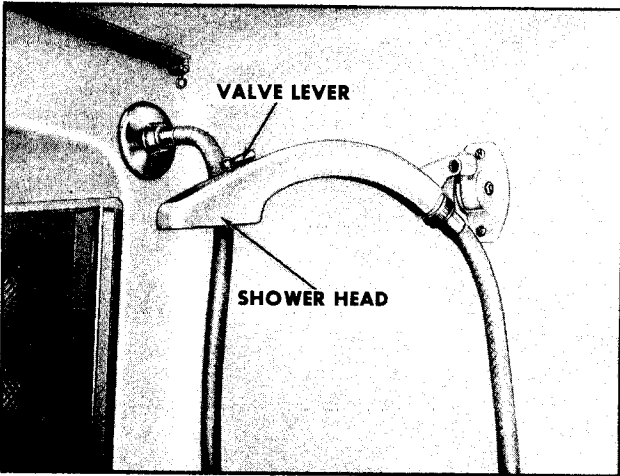
With the shower control valve knob pushed in, the off position, water temperature may be adjusted prior to taking a shower. Once the desired temperature is set, remove the shower head from the wall and point towards the sink. Open the valve at the shower head, pull the shower control valve knob out and allow water to flow into sink until it warms to the desired temperature. Adjustments in temperature may be made as required.

Showers can take a lot or a little water. A suggestion would be to take a "camper's" shower. Wet yourself down, then turn off the water at the shower head, soap up and then turn water back on to rinse.

NOTICE: Remove shower drain plug before taking a shower. Shower drain plug should be installed when shower is not in use.



Bathroom Sink



Shower Head (Typical)

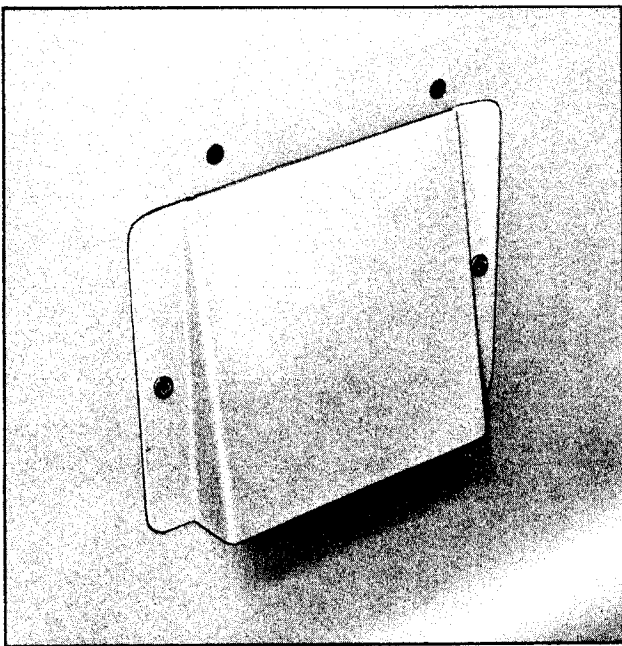
NOTICE: Leave shower head valve in off position when not in use to avoid getting showered unexpectedly when the shower control valve is turned on.

BATHROOM WARM AIR DUCT

The warm air duct is non-adjustable. It is located near the bottom of the shower compartment. Warm air will be supplied when furnace is operating.

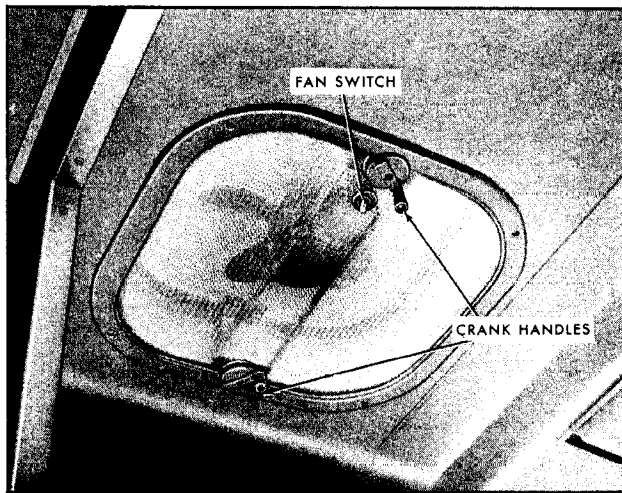
BATHROOM EXHAUST VENT AND FAN

Located in the ceiling of the bathroom is the bathroom exhaust fan. The opening of the ceiling vent and a window will aid in removing condensation from the bathroom.



Bathroom Warm Air Duct (Typical)

The vent is crank-operated from inside the Motorhome. In rainy weather it is possible to leave the ceiling vent open slightly for ventilation without entry of water into the Motor-



Bathroom Exhaust Vent and Fan

home (depending upon the magnitude and direction of rain).

NOTICE: All windows and roof vents must be tightly closed when operating the air conditioner or furnace to obtain maximum cooling or heating.

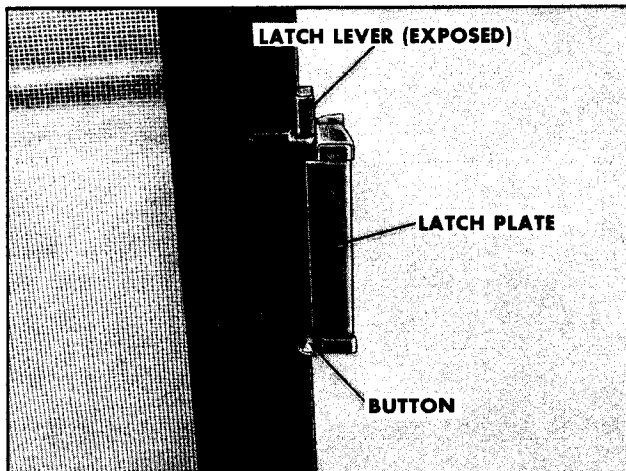
The power fan will increase the efficiency of the vent. Then fan is operated by the button switch at the corner of the vent.

VENTILATION

WINDOWS

The side windows in the driver's compartment are operated by squeezing the latch and sliding the window to the rear.

The side windows in the living area are equipped with screens. The windows are operated as follows:



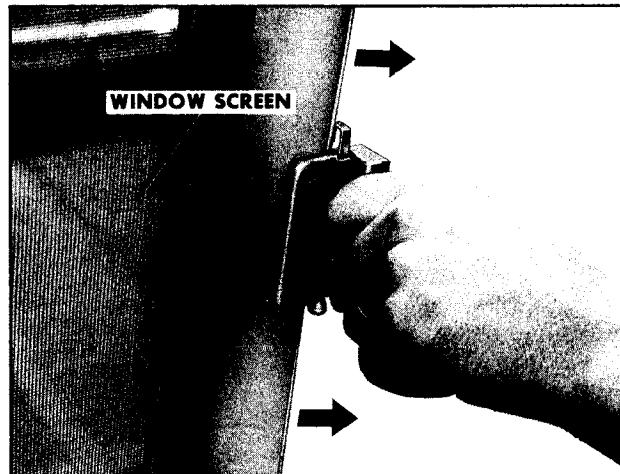
Window Latch (Unlocked)

SLIDING WINDOWS

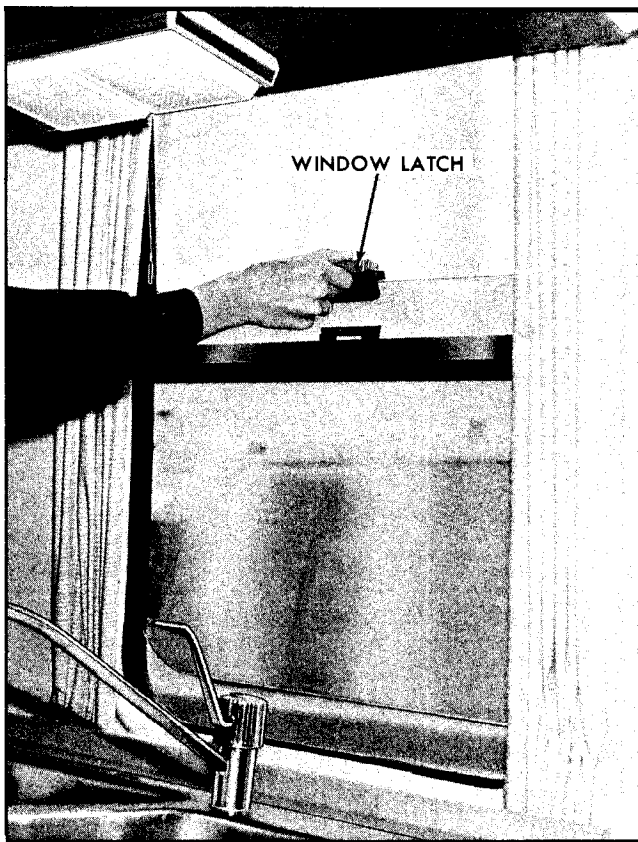
The horizontal and optional vertical sliding windows in your vehicle are equipped with a locking type latch.

To Open Window

Unlock window latch by pushing upward on button, until latch lever is exposed (see illus-



Opening Horizontal Window



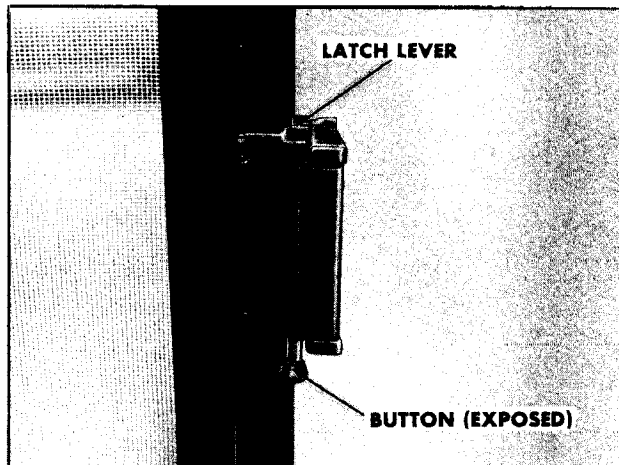
Opening Vertical Sliding Window

tration). Firmly grasp latch plate, and slide window to desired position (see illustration).

To Close Window

Grasp latch plate, and slide window to the fully closed position. Push downward on latch lever, until button is exposed (see illustration) to lock sliding window in position. To be sure window latch assembly is locked, depress latch plate and carefully attempt to open window. If window opens, repeat "To Close Window" procedure. If window latch assembly still does not lock return vehicle to your dealer for service.

NOTICE: If windows do not slide easily in sliding glass track, it may be helpful to spray track



Window Latch (Locked)

grooves with Silicone Spray Lubricant, GM Part No. 1050018 or equivalent.

CEILING VENTS

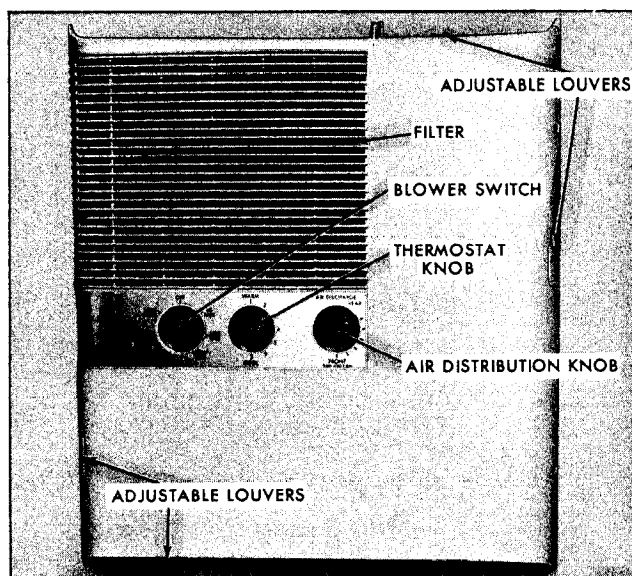
The purpose of the ceiling vents is to allow warm air to escape that may accumulate at ceiling level when the vehicle is parked in the sun. The opening of a ceiling vent and a window will aid in removing condensation from the windows.

The vents are crank-operated from inside the Motorhome. In rainy weather it is possible to leave the ceiling vents open slightly for ventilation without entry of water into the Motorhome (depending upon the magnitude and direction of rain).

NOTICE: All windows and roof vents must be tightly closed when operating the air conditioner or furnace to obtain maximum cooling or heating.

Power fans are available for the ceiling vents. These will increase the efficiency of the vent. They are operated by the button switch at the corner of the vent.

ROOF-MOUNTED AIR CONDITIONER



Duo-Therm Air Conditioner Controls

The controls of the air conditioner are mounted on the unit in the ceiling of your Motorhome and can provide either cooling or air circulation.

To operate the unit for air circulation, set the blower fan switch at the desired setting:

Hi Fan High Fan Speed Only

Med. Fan Medium Fan Speed Only

Low (Lo) Fan Low Fan Speed Only

To operate the unit for cooling set the thermostat and the blower fan switch at the desired settings:

Hi Cool High Fan Speed with Cooling

Med. Cool Medium Fan Speed
with Cooling

Low (Lo) Cool Low Fan Speed
with Cooling

Air distribution to the vents on the Duo-Therm unit is controlled by the air distribution knob. Louvers on each vent can be adjusted to the desired position.

The unit is shut down by placing the blower switch in the "OFF" position. The Duo-Therm unit is equipped with a delayed start feature. When the unit is turned on, the fan will start, and in approximately two minutes the compressor will start. After shut down, unit will not start for approximately two minutes.

The air filter must be checked and cleaned frequently as required by use. Wash filter in warm soapy water, rinse, shake off excess water and allow to dry. (Do not use compressed air to dry filter.)

For continuing satisfaction keep your vehicle all
GM. General Motors Parts are identified by one
of these trademarks:



FURNACE

NOTICE: Before operating the furnace see the carbon monoxide caution at the beginning of this section. Whenever operating the furnace the window above it should be fully closed to help avoid the possibility of drawing carbon monoxide exhausted from its vent back through the window.

The furnace should not be operated when the vehicle is underway, and the LP gas should be turned off at the LP gas tank.

DUO-THERM DIRECT SPARK IGNITION FURNACE

SEQUENCE OF NORMAL OPERATION

When the thermostat calls for heat, the furnace blower motor is energized immediately. When the blower reaches minimum operating speed (approximately 1-2 seconds) the main burner of the furnace is designed to ignite. The furnace will continue to run until the thermostat is satisfied or is turned to a lower setting. Following approximately one minute of burner operation a slight "snap" will be heard from within the furnace. This is the furnace fan switch changing to its normal run position. After this occurs and the thermostat is satisfied or is

turned to a lower setting the main burner flame will go out, but the blower will continue to run for a short period of time and then shut off. If thermostat is adjusted to a lower setting or to "OFF" before the furnace has operated for one minute, the blower and main burner will shut off at the same time.

OPERATING FURNACE

This furnace has no pilot light, but is ignited by a direct spark ignition system. No manual lighting is required.

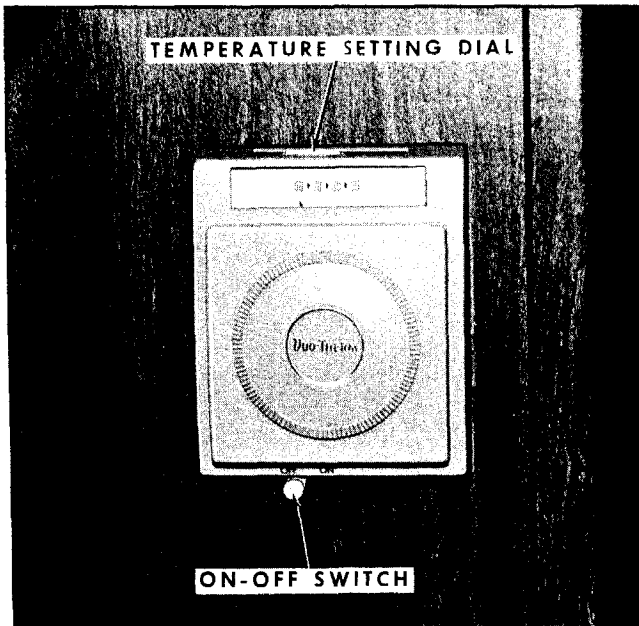
1. Set thermostat located in rear of Motor-home living area to "OFF" position. Remove front panel from furnace. Turn gas valve on furnace to "OFF" position. Wait 5 minutes.

This will allow any LP gas fumes in combustion chamber to dissipate.

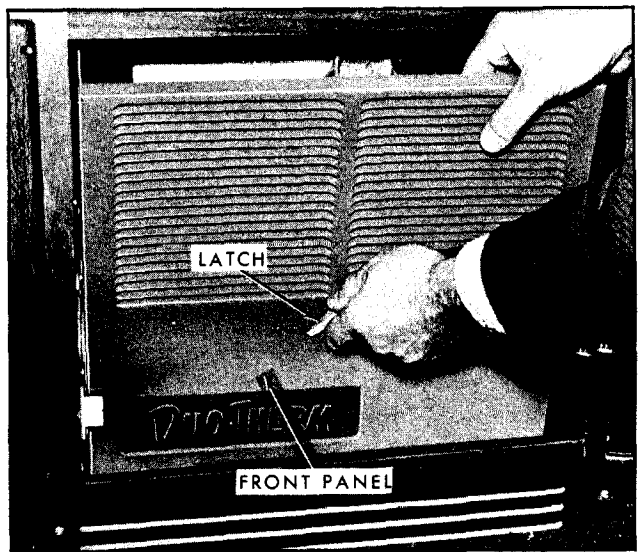
NOTICE: Be sure control valve at LP gas tank is fully open.

2. Open furnace manual valve fully. The manual valve is located just above the furnace. Do not attempt to operate furnace with valve partly opened as proper operation depends on valve being fully open.

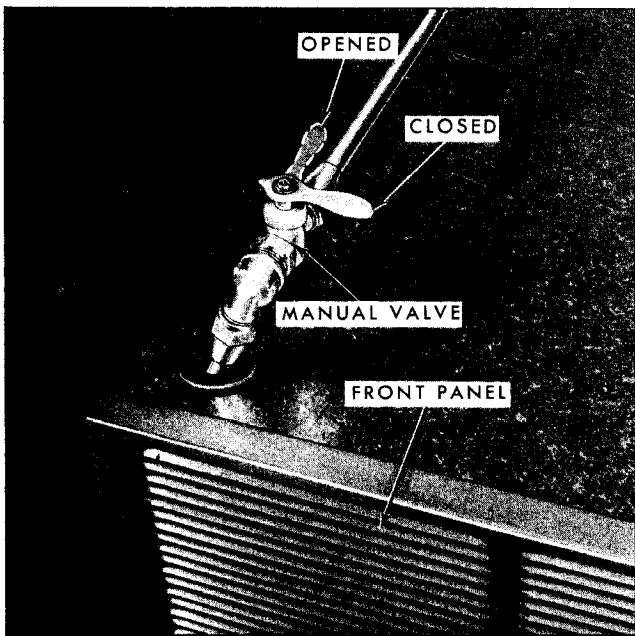
3. Turn furnace gas valve to "ON" position. Do not attempt to operate furnace with valve partly opened as proper operation depends on valve being fully opened.



Furnace Thermostat



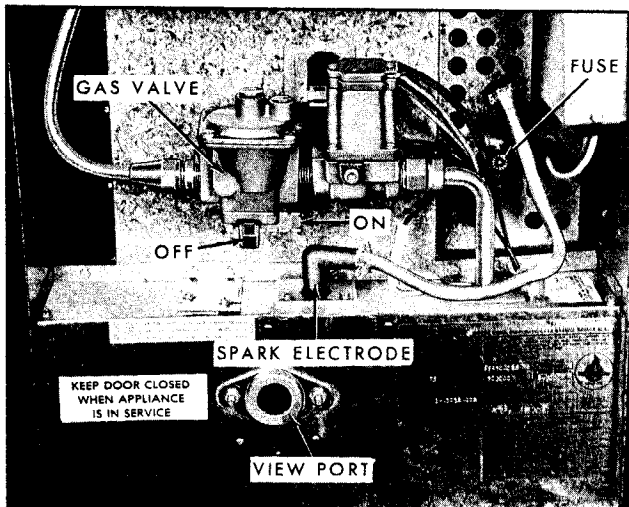
Removing Furnace Front Panel



Furnace Manual Valve

4. Set thermostat to "ON" and adjust to desired temperature setting. When furnace ignites it will continue to run until thermostat is satisfied or is turned to a lower setting.

5. Allow 15 seconds for burner to ignite. Look for flame at furnace view port. Install



Duo-Therm Direct Spark Ignition Furnace

furnace front panel when ignition is obtained. Furnace will now operate automatically.

6. If burner does not light, set thermostat on "OFF" position, wait 15 seconds and repeat steps 4-5.

7. If ignition is not obtained after 3 attempts, go to shutdown and determine cause.

SHUTDOWN

1. Turn gas valve to "OFF" position.
2. Set thermostat on "OFF" position.

FURNACE OPERATING TIPS

MAINTENANCE AND CLEANING

1. It is necessary that the control compartment be kept clean to maintain furnace efficiency. Routine inspection and cleaning is recommended at least once a year.

2. If main burner has been allowed to operate with a high yellow flame, a soot formation is sometimes deposited inside the combustion chamber. See your GMC Motorhome dealer for corrective action.

3. The furnace is equipped with a sealed motor and requires no periodic oiling.

COMPLAINT—NO HEAT

1. Living area battery—low voltage. Recharge battery, if necessary.

2. Check fuse on furnace (15 Amp.) and also furnace fuse on living area electrical fuse panel (15 Amp.).

3. LP gas tank empty or turned off.

4. LP gas tank valve or furnace manual valve closed.

5. Frozen regulator valve at LP gas tank.

6. Loose electrical connection at electrode. Faulty or broken electrode.

7. Check for disconnected wires at thermostat.

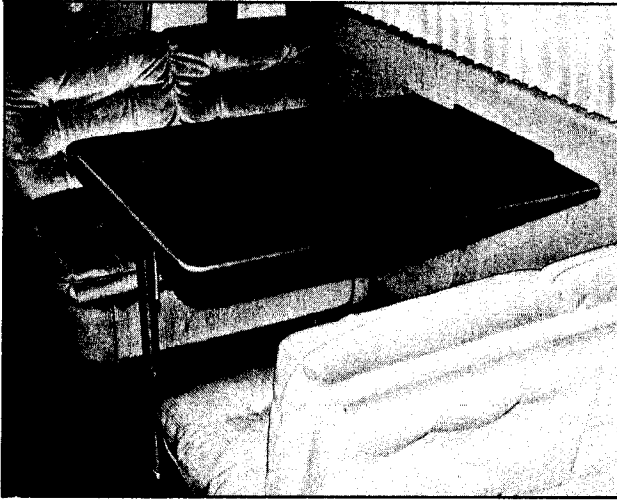
8. Malfunctioning combustion air switch.

9. Malfunctioning gas control valve.

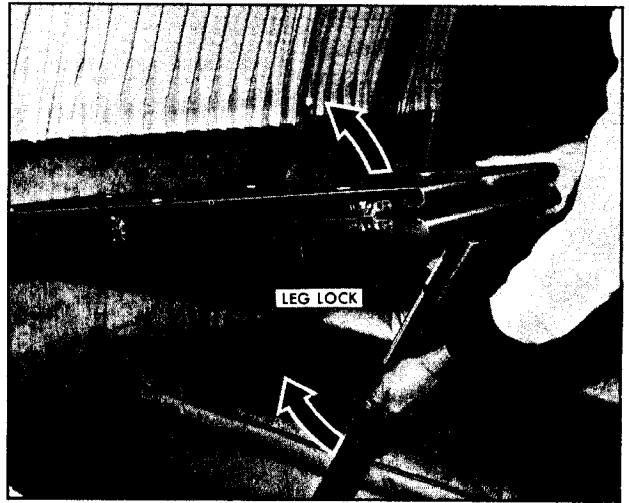
10. Blower motor burned-out.

11. Defective blower relay.

FURNITURE



Double Dinette (Dining Position) (Typical)



Dinette Table (Disengaging Leg)

DOUBLE DINETTE

The double dinette is adjustable and provides a normal sitting position, two intermediate sitting positions and a sleeping position.

NOTE: Use table leg to support dinette table when table is being used (as shown in dining position).

The double dinette easily converts to a double bed. To prepare the bed, take the following steps:

- Fold table leaves and push in supports (if so equipped).
- Slightly raise the aisle end of the table and depress folding leg lock and fold attached leg under all the way.
- Continue to raise the table end until it becomes disengaged from the wall.
- Place table on floor between dinette seats.

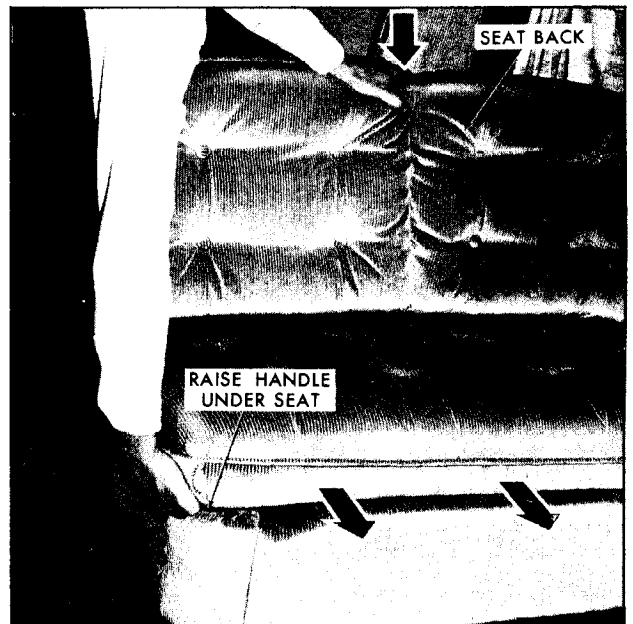
NOTICE: There are two handles located under seat cushion, one at each side of seat. Use of one handle should be sufficient when converting double dinette from sitting position to sleeping position and when converting double dinette from sleeping position to sitting position.

- Raise handle, located under seat cushion at aisle side of seat, and push seat back downward (as shown) and seat will slide into sleeping position. Repeat procedure on the opposite side.

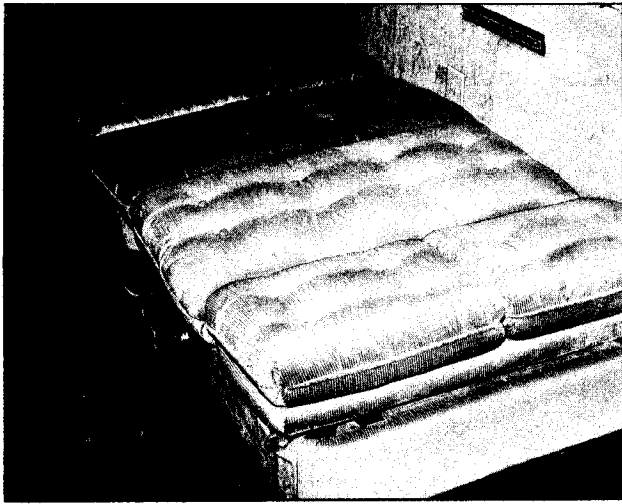
NOTICE: Keep seat belt webbing and hardware clear of dinette and davo seat parts when you change position of seats for sitting or sleeping. This helps prevent damage to these belt systems.

FRONT DAVO

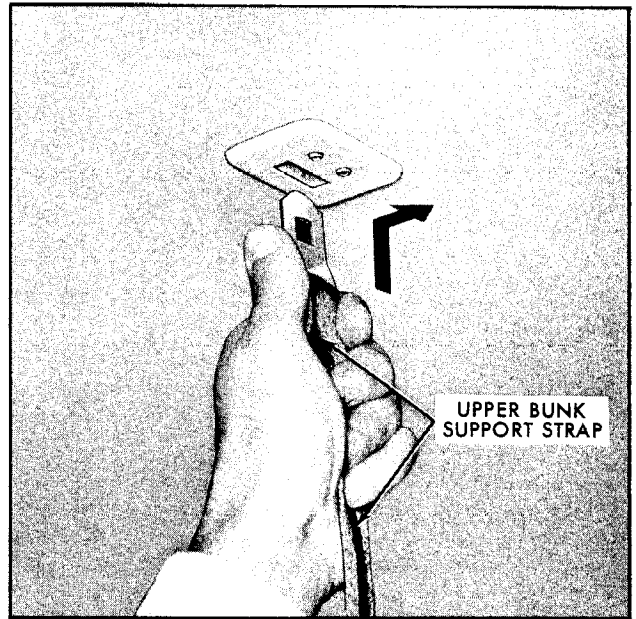
The front davo converts into two bunk beds. To prepare the davo for sleeping, take the following steps:



Double Dinette (Converting to Sleeping Position)



Double Dinette (Sleeping Position)



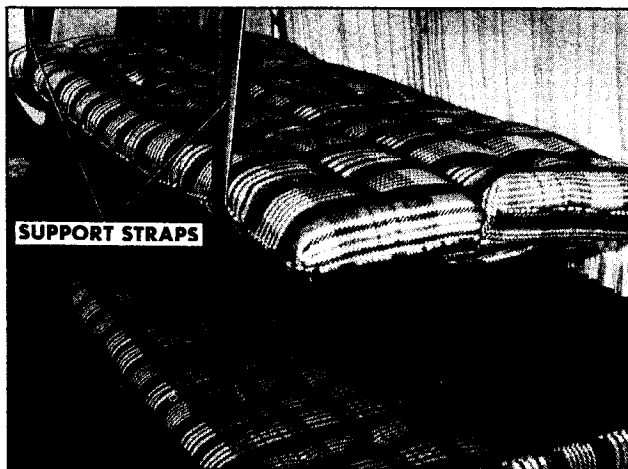
Connecting Upper Bunk Support Straps to Ceiling Brackets

- Swing the back support out from the wall.
- Unfold the additional section on the back support to bring it to full width.
- The two support straps can now be hooked to the recessed brackets provided in the ceiling (as shown).

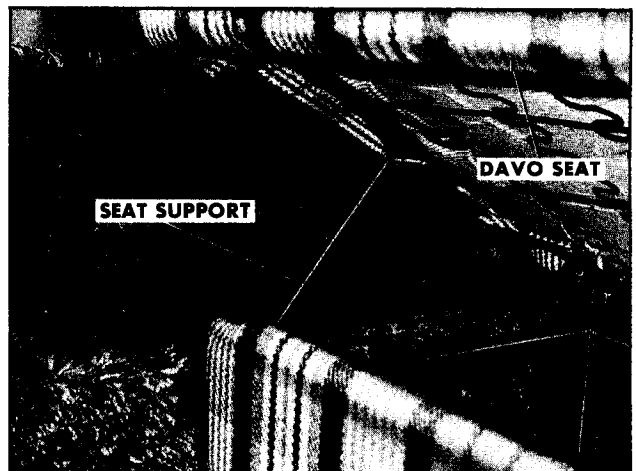
NOTICE: The area under the davo seat is a storage area. For access lift the seat and pull up the seat support at the forward side of the davo (as shown).



Front Davo



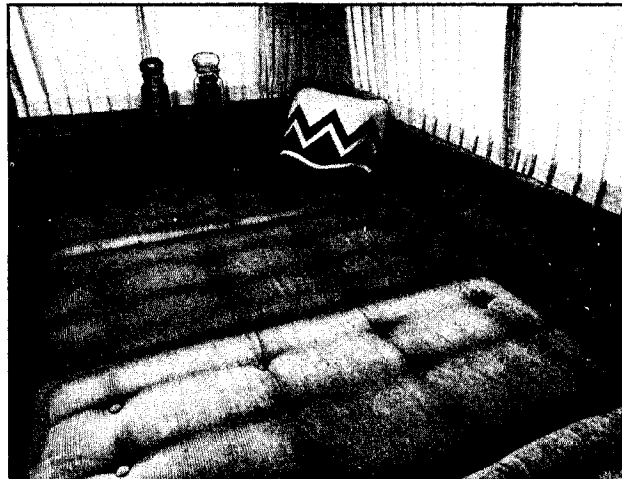
Front Davo (Converted to Bunk Beds)



Davo Seat Support



Side Facing Settee



Settee in Sleeping Position

SWIVEL CHAIRS

If the Motorhome is equipped with the swivel chairs in the living area, see **STARTING AND OPERATING** section earlier in this manual for lap belt and seat instructions.

CAUTION

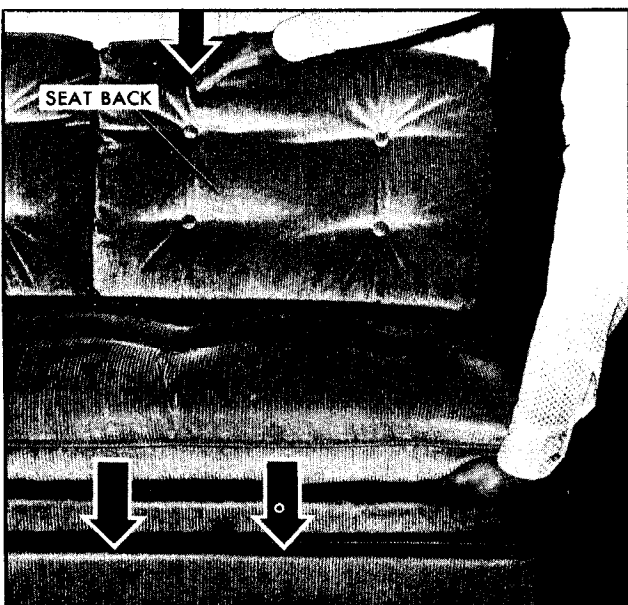
Check that all swiveling seats are locked in position before driving off. If any seat swiveled during an accident the occupant may be more likely injured.

SIDE FACING SETTEE

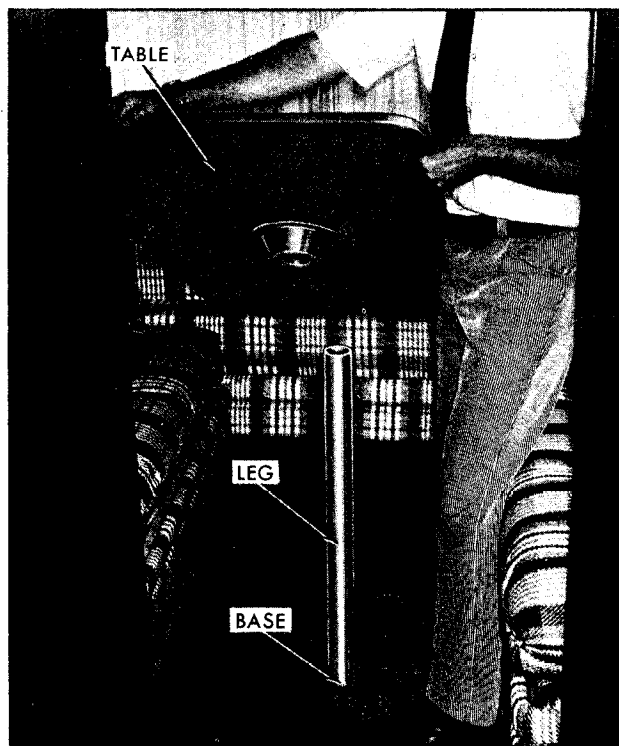
The rear side facing settee is adjustable and provides a normal sitting position, two intermediate sitting positions and a sleeping position. The rear side facing settee converts into a double

bed for sleeping. To convert the side facing settee for sleeping perform the following:

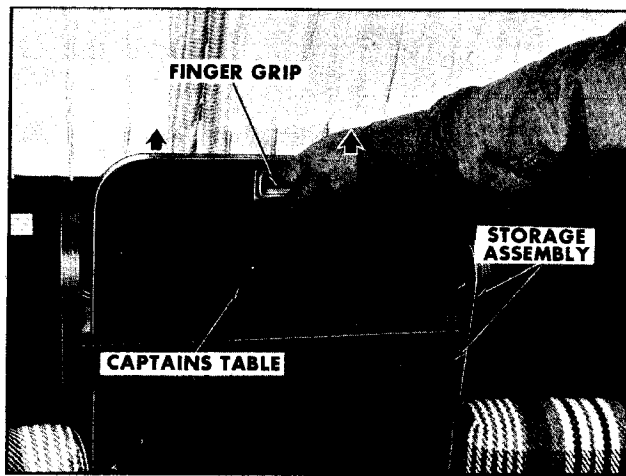
- Raise forward edge of seat cushion, and push seat back downward (as shown) and seat will slide into sleeping position. Repeat procedure on the opposite side.
- To convert rear side facing settee back to seating position, grasp forward edge of seat cushion, and raise seat back upward and seat will slide into sitting position. Repeat procedure on the opposite side.



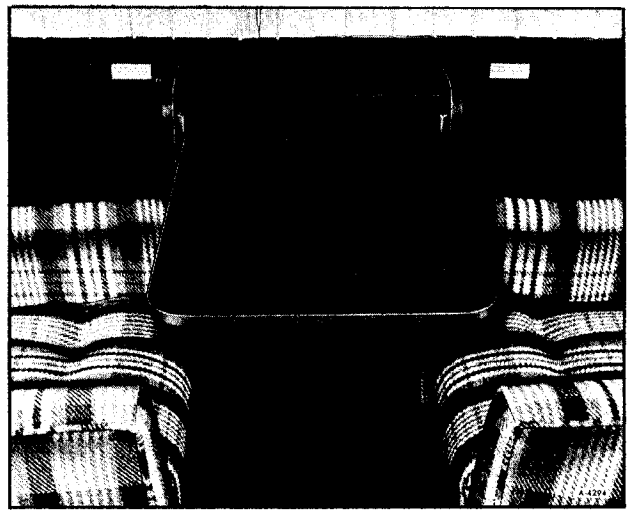
Preparing Settee for Sleeping



Rear Dinette



Removing Captain's Table from Storage Assembly



Captain's Table Positioned for Use

REAR DINETTE

The optional rear dinette can be converted into a double bed. To prepare the rear dinette for sleeping, perform the following:

- Pull the table and leg assembly out of the base mounted in the floor.
- Pull leg out of mounting hole under table top. Store the table top and leg on the floor in rear of Motorhome.
- To complete sleeping arrangement, follow procedure under "Side Facing Settee."
- Installing the table and leg into the base will help prevent them from being thrown down the aisle in an accident or sudden stop.

CAPTAIN'S TABLE

The Captain's table is stored in an assembly against the outer wall between the swivel seats. To use or store the table perform the following:

- Grasp the table at the finger grip and pull up until it stops. Lower the table down between the swivel seats.
- To store, lift the table up toward the windows, and lower it into the storage assembly.

BATTERY-OPERATED CLOCK

The optional battery-operated wall clock is located above the kitchen range.

Battery Replacement

Remove clock from wall by raising approximately $\frac{1}{2}$ -inch, then carefully separate clock from wall. Remove and discard used battery. Install new $1\frac{1}{2}$ -volt "C" cell battery, being sure that positive (+) end of battery is installed as shown (when viewed from the back of clock).

Setting Hands

To set hands, pull Hand Set Knob slightly outward and rotate it **CLOCKWISE ONLY** (as viewed from front of clock). **NEVER** move the hands **COUNTERCLOCKWISE** as this may damage the mechanism.

Start Clock

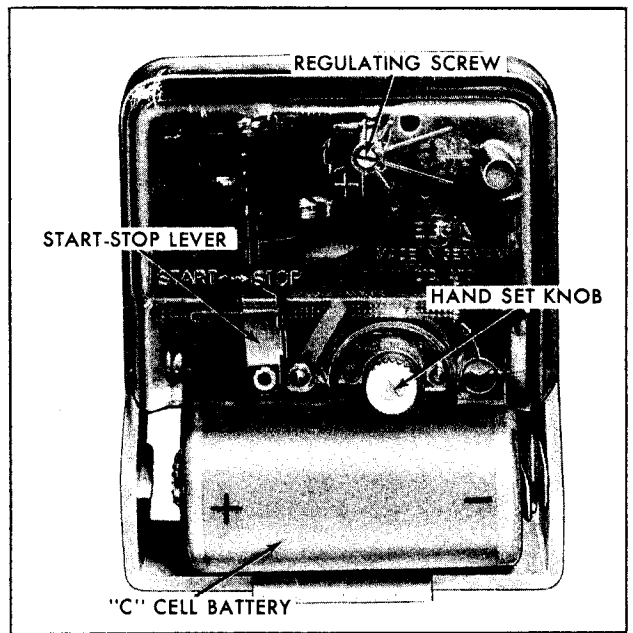
To start clock, simply move the **START-STOP** lever to the left. If necessary to stop clock, move lever to the right.

Time Regulation

If clock is not maintaining proper time, it may be necessary to adjust position of regulating screw. Note the time movement cover is marked (+) and (-). If the clock runs fast, turn screw towards (-). If the clock runs slow, turn screw towards (+). A movement through one section (between slots) will adjust the timekeeping 5 seconds per day.



Removing Clock from Wall



Backside of Clock

ENTRANCE DOOR CLOSET

Latches

Type 1 Latch—(See illustration) is opened by grasping the handle depression and pulling the door open. To close the door, simply shut in the normal manner.

Type 2 Latch—(See illustration) is opened by momentarily applying pressure at the right edge

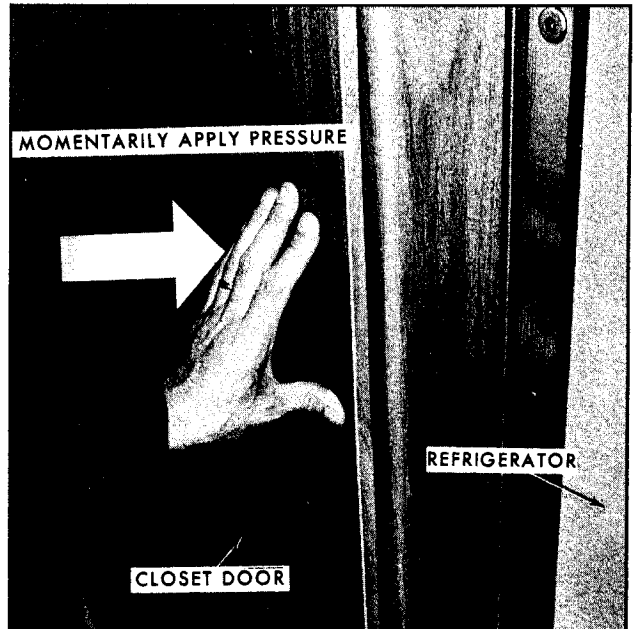
of the door. The door latch is designed to pop open, when following the above instruction. Do not attempt to open door by pulling on the edge. To close the door, simply shut in the normal manner.

GUN AND AMMUNITION CABINETS

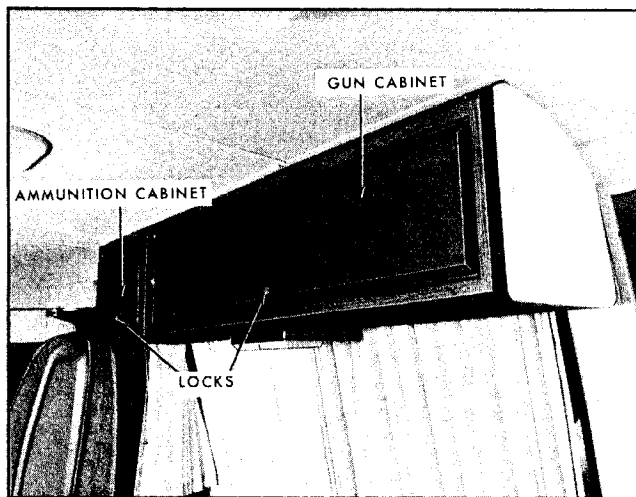
The optional gun and ammunition cabinets located as shown above the right-hand dinette,



Opening Closet Door with Type 1 Latch



Opening Closet Door with Type 2 Latch



Location of Gun and Ammunition Cabinets

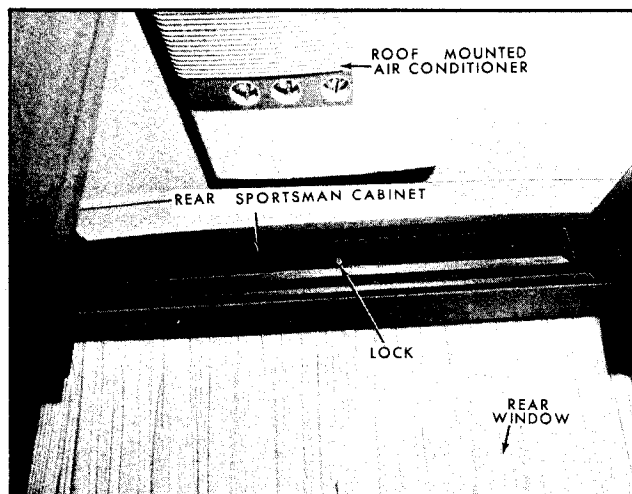
are each equipped with a lock. The oval head key is designed to lock both cabinets, to aid in preventing unauthorized access to guns or ammunition while stored in the Motorhome.

CAUTION

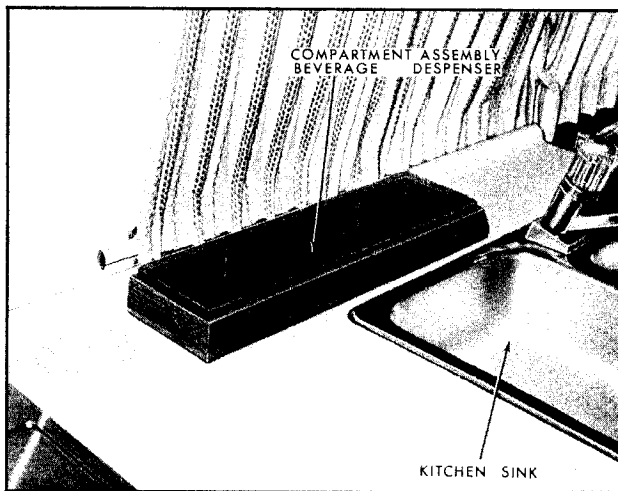
Locking the cabinet will also help prevent items stored within from being thrown out in an accident or sudden stop. Failure to lock the cabinet when the vehicle is underway could result in personal injury and/or property damage.

REAR SPORTSMAN CABINET

The optional rear sportsman (fishing) cabinet is located above the rear window of the



Location of Rear Sportsman Cabinet



Location of Compartment Assembly—Beverage Dispenser

vehicle, and is equipped with a lock. The oval head key is designed to lock the cabinet to prevent unauthorized access.

CAUTION

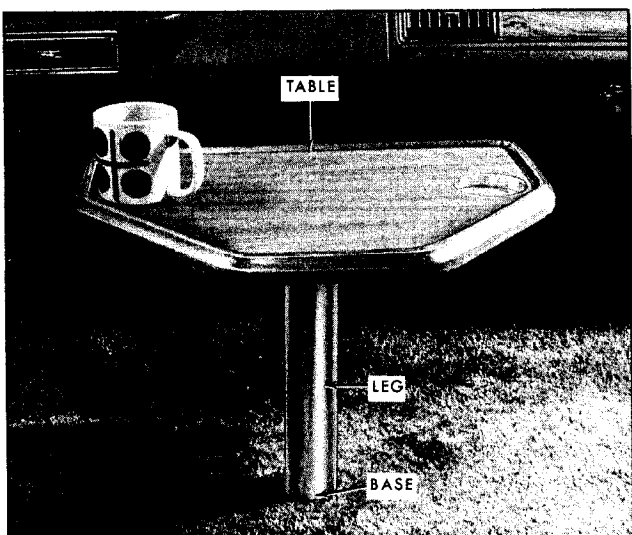
Locking the cabinet will also help prevent items stored within, from being thrown out in an accident or sudden stop. Failure to lock the cabinet when the vehicle is underway could result in personal injury and/or property damage.

COMPARTMENT ASSEMBLY —BEVERAGE DISPENSER

The optional compartment assembly—beverage dispenser is located behind the kitchen sink, as shown. Note, beverage containers are not furnished with this option. Be sure containers and other items are not stored in this compartment while vehicle is underway. Any containers or other items stored in this compartment must be removed and stored away, preferably low in the vehicle when it is underway.

CAUTION

Removing all containers or other items from the beverage dispenser will help prevent such items from being thrown out in an accident or sudden stop which could result in personal injury and/or property damage.



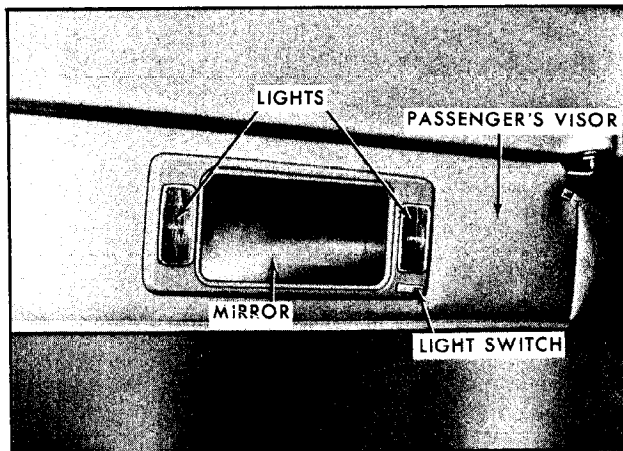
Driver's Compartment Table

SHELF RACK FOR ENTRANCE DOOR CLOSET

The optional shelf rack for the entrance door closet is designed to be a holder for spice bottles and drinking glasses.

CAUTION

Be sure to use only containers and glasses that are designed for use with this shelf rack. Failure to use proper bottles and glasses, or to latch the door properly when the vehicle is underway could result in personal injury and/or property damage.



Lighted Visor Vanity Mirror

DRIVER'S COMPARTMENT TABLE

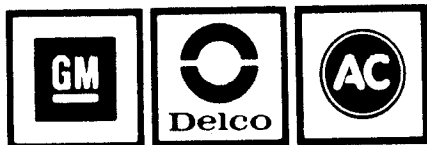
The optional driver's compartment table can be stored by placing the table at the right-side (outboard) of the front passenger seat. To remove the table perform the following:

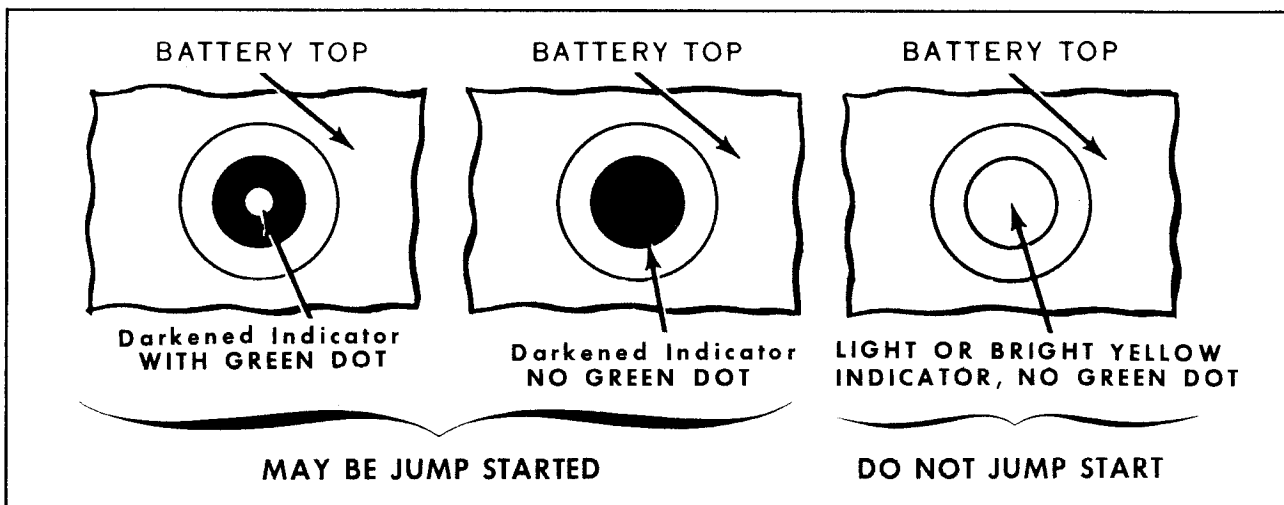
- Pull the table and leg assembly out of the base mounted in the floor.
- Pull leg out of mounting hole under table top. Store the table and leg on the right-side (Outboard) of the front passenger seat.

LIGHTED VISOR VANITY MIRROR

The optional lighted visor vanity mirror can be used by rotating the visor until it is properly positioned for viewing in the front passenger seat. The light switch can be used to help illuminate the area viewed in the mirror. To prevent battery discharge be sure the light switch is turned off when the mirror is not being used.

For continuing satisfaction keep your vehicle all GM. General Motors Parts are identified by one of these trademarks:





Test Indicator Conditions (Freedom Battery)

- the positive battery terminal on either vehicle, or
- metal in contact with either positive terminal.

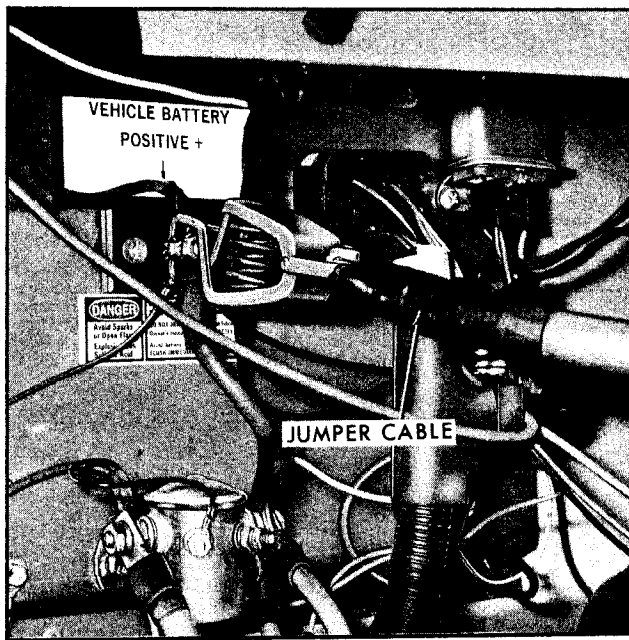
Also, make certain when attaching the jumper cable clamps to the junction block stud, and to the positive terminal of the other battery, that neither clamp contacts any other metal.

1. This vehicle has a 12-volt automotive battery and a negative ground electrical system. Make sure that the other vehicle also has a 12-volt battery and negative ground. Its owner's manual may provide that information. **If unsure of voltage (or if the voltage and ground are different from your vehicle), do not attempt to jump start as personal injury or severe damage to electrical and electronic parts may result.**
2. Position the vehicle with the good (charged) battery so that the jump starting cables will reach. **Do not allow the vehicles to touch, and check to see that the bumpers do not touch.**
3. Turn off all electrical motors and accessories in both vehicles. Turn off all lights except those needed to protect the vehicle or illuminate the work area. Turn off the ignition, apply the parking brake firmly, and put the automatic transmission in "PARK" (manual transmission "NEUTRAL") in both vehicles.
4. If the discharged battery has filler caps, check the fluid level. **(Do not use an open flame to check and do not smoke.)** Add clear drinking water to the proper level if low, and replace

caps before jump starting. If the battery is a Delco sealed-type, do not attempt to jump start the vehicle, or charge or test the battery if the center of the test indicator in the battery is bright or light yellow. (See illustration) Instead, install a new battery.

5. Jumper Cable Connection Instructions (See Illustrations)

- Connect the first jumper cable from the positive "+" (red) terminal on the battery in the **other** vehicle to the positive terminal junction block stud in this vehicle, marked "VEHICLE BATTERY POSITIVE." This is located behind the right access door above the main (automotive) battery. **Never** connect "+" (red) to "-" (black), or "-" to "+".
- Next, connect one end of the second cable to the grounded negative "-" (black) terminal of the **OTHER** vehicle's battery, regardless of which vehicle has the discharged battery.
- Lastly, connect the other end of the second jumper cable to the radiator right mounting bracket (passenger side) in **THIS** vehicle. See illustration on page 73. Do not connect the cable to pulleys, fans, or other parts that move. Beware of touching hot manifolds which can cause severe burns.
- 6. Start the engine in the vehicle with the good (charged) battery and run the engine at a moderate speed.



*Connecting Jumper Cable to
"VEHICLE BATTERY POSITIVE" Stud*

NOTICE: If the discharged battery is completely dead, it may be necessary to run the engine of the vehicle with the charged battery for a few minutes at a moderate speed to slightly charge the discharged battery. This will help when cranking the engine in the vehicle with the discharged battery, especially when outside temperatures are very low.

7. Start the engine of the vehicle that has the discharged battery.
8. Remove the battery cables by reversing the above sequence **EXACTLY**. Start by removing the cable from the radiator right mounting brackets in **THIS** vehicle as the **FIRST** step.

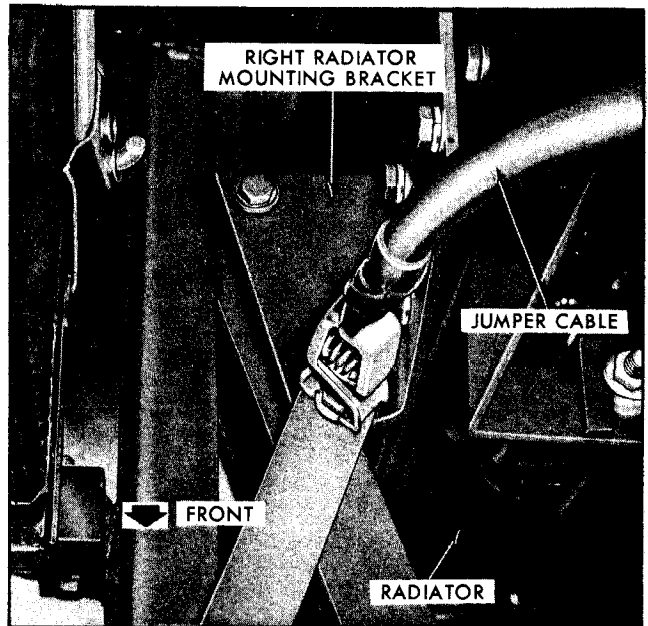
ENGINE COOLANT

Your cooling system may overheat during severe operating conditions. This may occur when:

- climbing a long hill on a hot day
- stopping after high speed driving
- idling for long periods in traffic or
- towing a trailer.

If the hot light comes on:

- Turn your air conditioner off if it is on.



*Connecting Jumper Cable to Radiator Right
Mounting Bracket (Passenger Side)*

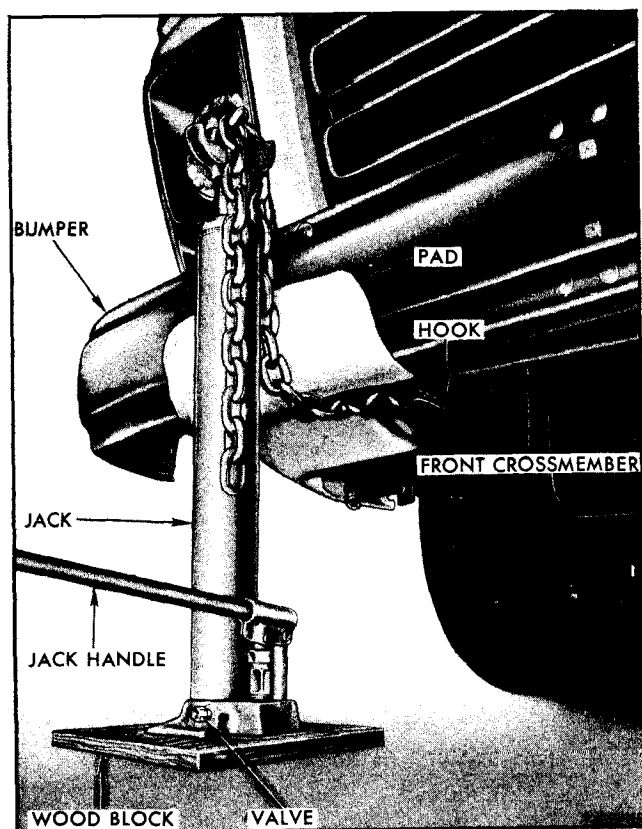
- Put the transmission in neutral if stopped in traffic.

If the light doesn't go off within a minute or two:

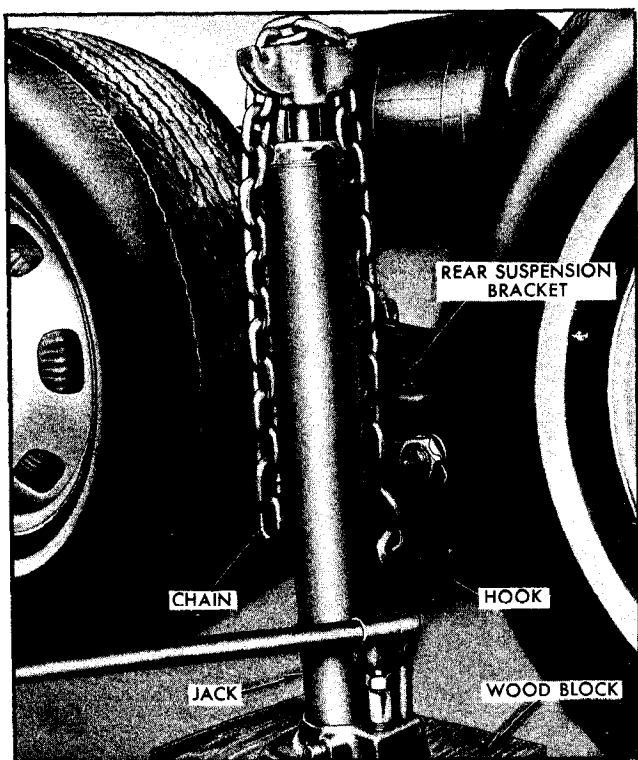
- Pull over to a safe place and move your shift control lever to "PARK." Then put on your parking brake.
- **DON'T TURN OFF THE ENGINE. INCREASE THE ENGINE IDLE SPEED** until it sounds like it's going about twice as fast. Bring idle back to normal after two or three minutes.
- Lift the right front access door. Check the level of the coolant by looking at the "see through" coolant recovery tank. (It is not necessary to remove the radiator cap to check coolant level, and it can be dangerous if engine is still hot. See caution below.) The proper coolant level when engine is operating is between the "Full" and "Add" marks on the tank.

CAUTION

To help avoid the danger of being burned, do not remove the radiator cap while the engine and radiator are still hot. Scalding fluid and steam can be blown out under pressure if the cap is taken off too soon.



Jacking at Front of Vehicle



Jacking at Rear of Vehicle

● If coolant level is low:

- Check for fluid leaks at hose connections or from radiator or water pump. Check to see that drive belts are intact, and that the fan is turning.
- Add coolant at the first opportunity. Coolant should be added only to the recovery tank (See “Service and Maintenance” section for details.)

- If you are losing coolant because of leaks, or a fan belt is broken or loose and/or the red light persists, stop the engine until the cause of overheating is corrected.

After the red light is out, resume driving at a reduced speed. If the light does not come back on in about ten minutes, return to normal driving.

JACKING

CAUTIONS

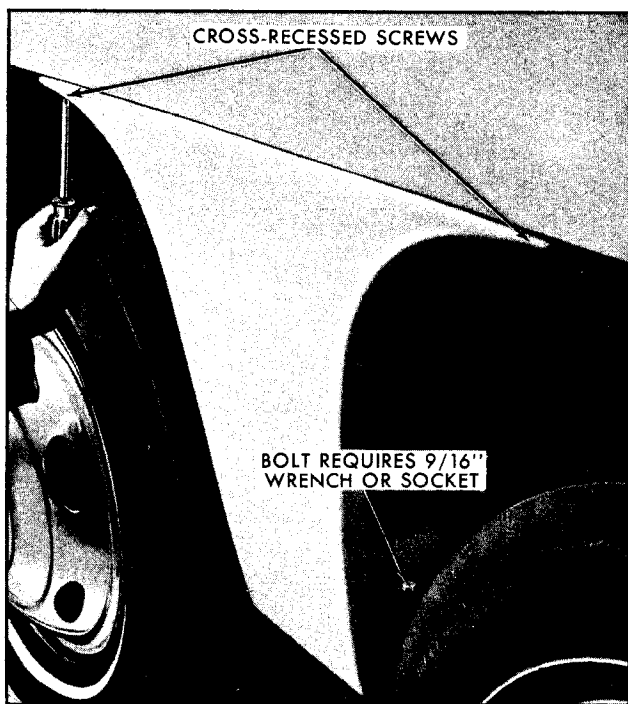
In order to reduce the chance of personal injury:

1. Follow jacking and stowage instructions.
2. Use jack only when changing wheels.
3. Never get beneath the vehicle when using jack.
4. Do not start or run engine while vehicle is on jack.

INSTRUCTIONS

NOTICE: The jack is located under the rear facing dinette seat or davo seat, located behind the front passenger seat.

1. Park on level surface and set parking brake firmly.
2. Set automatic transmission in “PARK.”
3. Activate hazard warning flasher.
4. Remove wheel opening cover, if equipped.
5. Block both front and rear of the wheel diagonally opposite the jack position.
6. Loosen, but do not remove, wheel nuts by rotating wrench counterclockwise.



Removing Fender Skirt

7. IF JACKING AT FRONT —

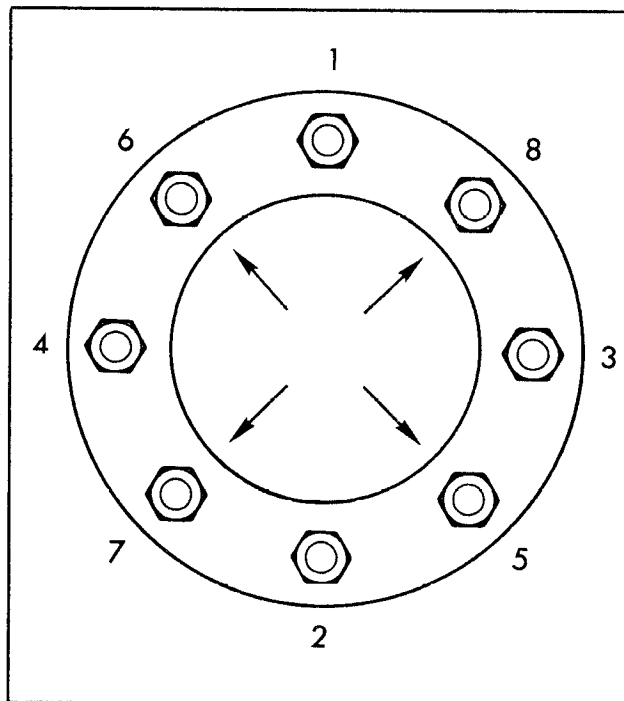
- Place hydraulic jack on wood block (provided with jack) near front bumper bracket.
- Place hook at flange of front cross-member.
- Pass chain under bumper and adjust chain length to snug fit by adjusting at fork on top of jack.

8. IF JACKING AT REAR—

- Remove fender skirt, if vehicle is so equipped, using a No. 2 cross-recessed screwdriver and 9/16" wrench or socket (as shown).
- Place hydraulic jack on wood block close to rear suspension bracket (see illustration). The hook is placed in the drainage slot under bracket. Adjust chain length so link will fit in fork at top of jack.

9. Close valve at base of jack and insert jack handle.

10. Operate jack with slow, smooth motion. Raise vehicle so tire just clears surface.



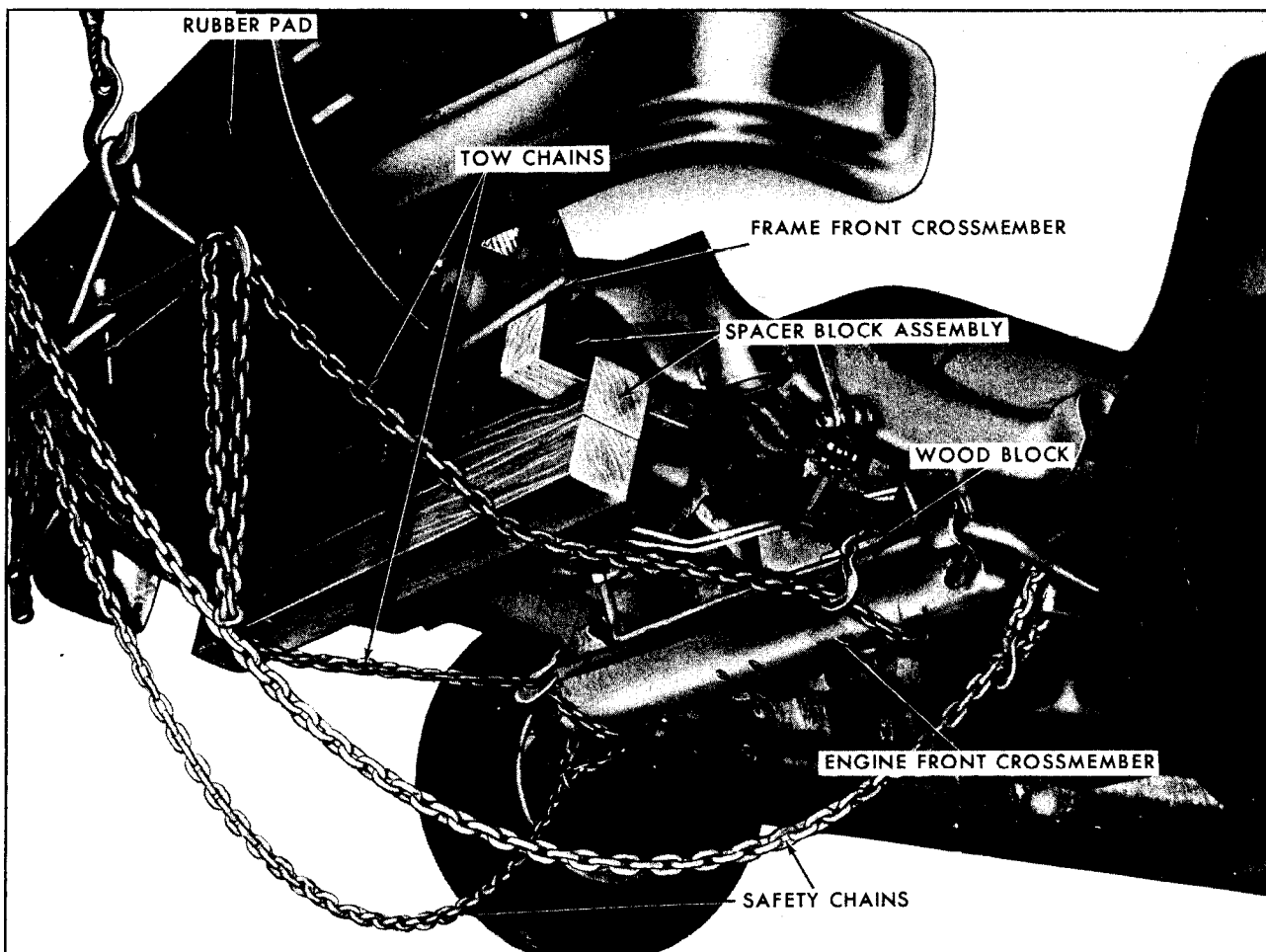
Wheel Nut Tightening Sequence

11. Replace wheel and, using lug wrench provided, slightly tighten wheel nuts. Wheel must be seated on hub.
12. Open valve at base of jack to lower, and lower vehicle. Fully tighten wheel nuts, using lug wrench provided, by applying clockwise pressure near end of wrench. Be sure to follow the nut tightening sequence shown in illustration. Wheel nut torque should be set at 250 foot-pounds.

WHEEL NUT TORQUE CAUTION

CAUTION

As soon as possible after installing a wheel, **AND** at 500 miles (800 kilometres) after such installation, have a mechanic tighten wheel nuts with a torque wrench to 250 foot-pounds. **IN ADDITION**, when the Motorhome, or wheel, or fasteners are new, have the torque set at the first 500 miles (800 km). This precaution is necessary because the clamping system used on Motorhome wheels in some cases needs to seat before the fasteners will hold a uniform clamp load and remain fully tightened. Also, nut tightness on all wheels should be set with a torque



Towing Vehicle on Four or Six Wheels

wrench at the intervals shown on the chart in the Maintenance Schedule folder.

Wheel nuts should be tightened alternately and evenly to the correct torque in the sequence shown. Improperly tightened wheel nuts could eventually allow the wheel to come off while the Motorhome is in motion, possibly causing loss of control. (Also see the caution in the **SERVICE AND MAINTENANCE** section of this manual regarding the danger of mixing metric and customary fasteners.)

STOWAGE OF TIRE AND JACK

CAUTION

Always securely restow the spare tire assembly (if so equipped), all jacking equipment, and any covers or doors,

using the means provided. This will help keep such things from being thrown about and injuring people in the vehicle in an accident.

NOTICE: A tire that is run while seriously low on air will overheat, and may result in a fire that may severely damage the vehicle and its contents.

TOWING

Proper equipment must be used to prevent damage to vehicles during any towing. State (Provincial in Canada) and local laws which apply to vehicles in tow must be followed. Get detailed towing instructions from your Motorhome dealer.

Your vehicle should always be towed from the front. It should be towed on all six wheels if possible. When towing on all six wheels, the vehicle should be towed at speeds less than 35

mph (60 km/h) for distances up to 50 miles (80 kilometres), provided the final drive, axle, transmission and steering system are normally operable. However, if the front of the vehicle must be raised before it can be towed, it is important that you follow this precautionary procedure:

NOTICE: If the front of the vehicle is raised for towing, vehicle speed should be limited to 5-15 mph (10-20 km/h), depending on road surface. This should be done to avoid damage to the vehicle.

If the front of the vehicle must be raised for towing, raising the front wheels four inches off the ground will leave about five inches ground clearance at rear (assuming the vehicle started at design ride height and with proper loading).

For any towing, the steering must be unlocked, transmission in **NEUTRAL**, and the parking brake released. Also, be sure the ignition key is in the "OFF" position (not "ACCESSORY" or "LOCK").

Connect towing equipment to engine front crossmember as shown in illustration. Do NOT attach to bumpers or brackets. Remember also that power brakes and power steering will not work when engine is off.

If the vehicle is to be towed by a wrecker, use only equipment designed for this purpose, following the instructions of the wrecker manufacturer. A safety chain system must be used.

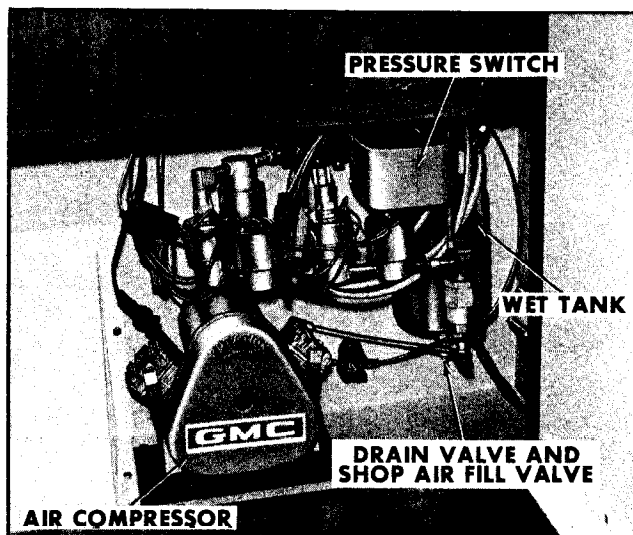
IT IS NOT RECOMMENDED THAT VEHICLE BE TOWED WITH THE REAR LIFTED, AS THIS COULD RESULT IN FRONT SUSPENSION OR CROSSMEMBER DAMAGE.

FREEING VEHICLE FROM SAND, ETC.

If your Motorhome gets stuck in sand, mud, or snow, move the transmission shift lever from "D" to "R" in a repeat pattern while applying moderate pressure to the accelerator. **Do not race engine.** For best traction, avoid spinning wheels.

CAUTION

Do not spin wheels faster than 35 mph (60 km/h) or for more than 3 minutes at a time. Personal injury and damage may result from excessive wheel spinning, including transmission overheating, tire disintegration and/or differential failure.



*Location for
Adding Air—Type I Rear Suspension*

REAR SUSPENSION FAILURE

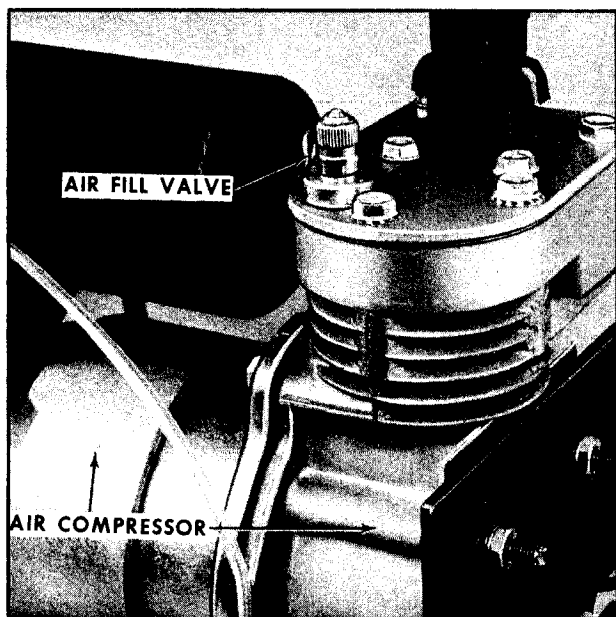
EMERGENCY OPERATION

In the event of total air loss for any reason, the vehicle may be driven at a speed of 5-15 MPH (10-20 km/h) depending on road surface, with the rear of the vehicle in the fully "DOWN" position. Care should be exercised since ground clearance at the rear will be at a minimum. If total air loss has occurred, vehicle should be taken to nearest Motorhome dealer. (For further information on the rear suspension system, refer to the **SERVICE AND MAINTENANCE** section of this manual.)

Depending upon the type of rear suspension failure, it may be possible to add air to the rear suspension air bellows. This should be done **inside** the Motorhome in vehicles with both Type I and Type II suspension systems. (To determine which type of rear suspension system you have, refer to "Rear Suspension" in the **SERVICE AND MAINTENANCE** section of this manual.)

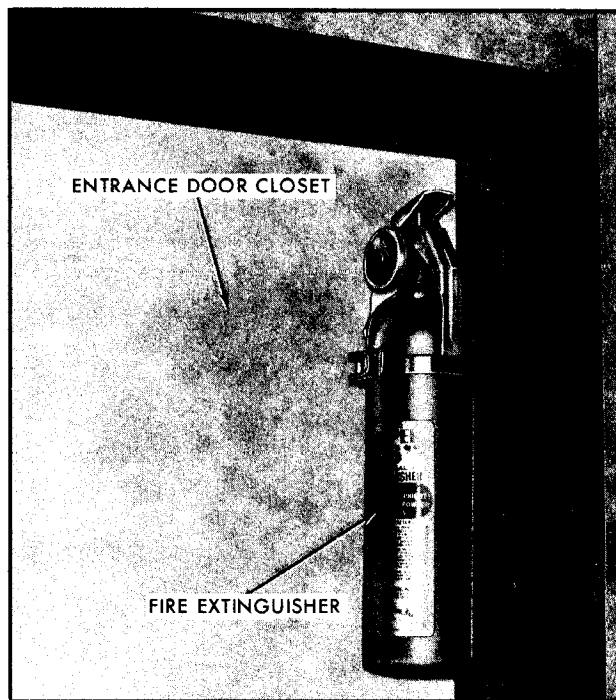
In vehicles with mechanical height control valves (Type I suspension), air should be added to the rear suspension wet tank at the shop air fill valve (see illustration). Wet tank is located with the control components in the closet of the Motorhome.

In vehicles with electronic height control sensors and two air compressors (Type II suspension), air should be added to the air valve fitting (see illustration) on the output side of each compressor. Compressors are located with the control components in the closet of the Motorhome.



*Location for
Adding Air—Type II Rear Suspension*

This procedure (adding air) can be done at a local gas station. When adding air in this manner, be sure the engine is running or the ignition switch is turned to "ON" or "ACCESSORY" position. Also, make certain that the outer rocker switches on the Electro-Level panel are in "RAISE" position. Leaving key and switches in these positions is necessary to electrically actuate the Electro-Level system before air can be added. While adding air, have someone stand outside the Motorhome (but not near the bellows) to signal when the vehicle appears to be level. If this is not done, too much air could be



Location of Fire Extinguisher (Typical)

added to the bellows and the rear of the vehicle will then be in a raised position unsuitable for driving.

CAUTION

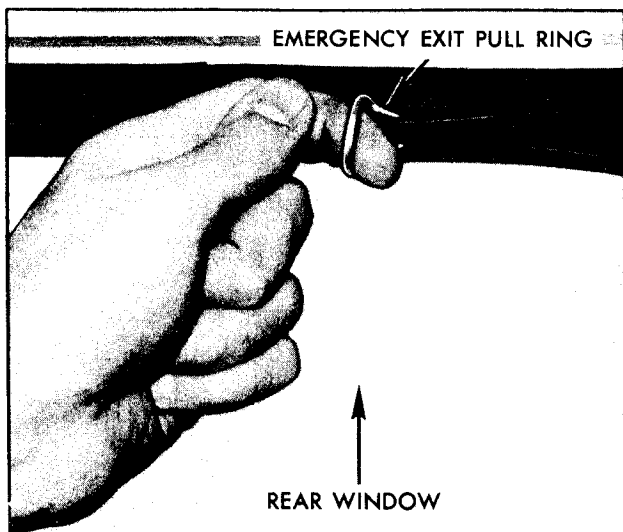
Normal air bellows pressure is between 80-90 PSI. When adding air to the rear suspension in an emergency situation, DO NOT EXCEED 120 PSI AT ANY TIME, or bellows or pistons could explode, possibly causing personal injury and/or property damage.

When vehicle is leveled, move the RAISE-LOWER switches to the "OFF" position and the center TRAVEL switch to "HOLD." This will electrically "lock" the Electro-Level system, trapping air in the bellows to maintain a normal ride height.

Adding air is an emergency procedure. Vehicles with rear suspension "leak down" or air loss failure should be taken to the nearest Motorhome dealer for inspection and repair.

EMERGENCY EXIT

The rear window of the vehicle can be used as an exit in an emergency. To use the emergency exit, pull the ring located at the top center



Emergency Exit Pull Ring

of the rear window until window seal is removed, and then push the glass out of the frame. Do not pull ring except in case of emergency. The window is not hinged, and it is designed to be pushed out. Take care that window will not fall on anyone outside the vehicle. Be careful of possible broken glass on ground when exiting from the vehicle.

FIRE EXTINGUISHER

The dry chemical fire extinguisher is located in the entrance door closet or in the galley overhead cabinet.

It is recommended that you be familiar with the operating instructions located on the fire extinguisher.

For continuing satisfaction keep your vehicle all GM. General Motors Parts are identified by one of these trademarks:



APPEARANCE CARE

CARE AND CLEANING OF INTERIOR

CAUTION

Because fumes are more dangerous in a small space, be sure the vehicle is well ventilated while using any cleaning agent. Follow the manufacturer's advice in using such products.

NOTICE: To avoid possible permanent discoloration on white or light colored seat trim, **DO NOT** let materials with unstable dyes come in contact with seat trim materials until totally dry. (This would include certain types of casual clothing, such as colored denims, corduroys, leathers and suedes; also decorative paper, etc.)

With the advent of modern trim materials it is **VERY IMPORTANT** that proper cleaning techniques and cleaners be used. Failure to do this on the first cleaning may result in water spots, spot rings, setting of stains or soilage, all of which make it more difficult to remove in a second cleaning.

The portions of the following cleaning instructions that are in **BOLD TYPE** are especially important and **must** be performed.

Dust and loose dirt that accumulates on interior fabric trim should be removed often with a vacuum cleaner or soft brush. Vinyl or leather trim should be wiped regularly with a clean damp cloth. Normal trim soilage, spots or stains can be cleaned with these GM cleaners.

Description	Part No.
GM Spot Lifter — 8 oz. Solvent Type	1051398
GM Multi-Purpose Powdered Cleaner 6 lbs. Foam Type	1050429

The above products are excellent cleaners when used properly. They are available through the GM Parts System.

1. Remove stains as quickly as possible before they become "set."
2. Use a clean cloth or sponge and change to a clean area frequently. (A **SOFT** brush may be used if stains persist.)

3. Use solvent type cleaners in a well ventilated area, also, do not saturate the stained area.
4. If a ring should form after spot cleaning, the entire area of the trim assembly should be cleaned **IMMEDIATELY**.
5. Follow instructions on the label of the cleaner.

CAUTION

Many cleaners may be poisonous or flammable, and their improper use may cause personal injury or damage to the inside of the vehicle. Therefore, when cleaning the interior, do not use volatile cleaning solvents such as: acetone, lacquer thinners, enamel reducers, nail polish removers; or such cleaning materials as laundry soaps, bleaches or reducing agents (except as noted in the fabric cleaning advice on stain removal that follows). Never use carbon tetrachloride, gasoline or naphtha for any cleaning purpose.

CLEANING GENERAL SOILAGE OR WATER SPOTS FROM FABRIC TYPE TRIM WITH FOAM TYPE CLEANER

GM Multi-Purpose Powdered Cleaner is excellent for this type cleaning and for cleaning panel sections where a minor cleaning ring may be left from spot cleaning.

Vacuum area thoroughly to remove excess loose dirt. **ALWAYS** clean a full trim assembly or complete section. Mask adjacent trim along stitch or welt lines. Mix Multi-Purpose Powdered Cleaner in strict accordance with directions on label of container. Mix proportionally for smaller quantities. Use suds only on a clean sponge or soft bristle brush. Do **NOT** wet fabric too much or rub harshly with brush. Immediately after cleaning, wipe off any excess cleaner residue with slightly damp absorbent towel or cloth.

IMPORTANT — Immediately after wiping, force-dry fabric with air hose, heat dryer or heat lamp. (Use caution with heat dryer or heat lamp to

prevent damage to fabric.) When trim materials with a sheen or luster finish are dry, wipe fabric lightly with a soft, dry clean cloth to restore its sheen or luster.

SPOT CLEANING FABRIC TYPE TRIM MATERIALS WITH SOLVENT TYPE CLEANER

Before trying to remove spots or stains from fabric, determine as accurately as you can what kind and how old the spot or stain is. Some spots or stains can be removed with water or mild soap solution (see "Removal of Specific Stains"). Spots or stains should be removed as soon as possible.

Some types of stains or soilage such as lipstick, inks, and grease, are very difficult (sometimes impossible) to completely remove. When cleaning this type of stain or soilage, be sure not to enlarge the soiled area.

GM Fabric Cleaner (Solvent Type) is excellent for spot cleaning grease, oil or fats from fabric trim. Excess stain should be gently scraped off trim material with a clean, **DULL** knife or scraper. **USE VERY LITTLE CLEANER**, light pressure, and clean cloths (preferably cheese cloth). Cleaning action should be from outside of stain **FEATHERING** towards center of stain. Keep changing to a clean section of cloth. When stain is cleaned from fabric, immediately dry area with an air hose, heat dryer or heat lamp to help prevent a cleaning ring (use caution with heat dryer or heat lamp to prevent damage to fabric). If a ring forms, immediately repeat the cleaning operation over a slightly larger area with emphasis on **FEATHERING** towards center of area. If ring still persists, mark off surrounding trim sections and clean entire affected trim panel section with GM Multi-Purpose Powdered Cleaner as previously described under "Cleaning General Soilage or Water Spots with Foam Type Cleaner."

REMOVAL OF SPECIFIC STAINS

GREASE OR OIL STAINS — Includes grease, oil, butter, margarine, shoe polish, coffee with cream, chewing gum, cosmetic creams, vegetable oils, wax, crayon, tar and asphalts. Carefully scrape off excess stain; then use Fabric Cleaner (Solvent Type) as previously described. Shoe polish, wax crayons, tar and asphalts will stain if allowed to

remain on trim; they should be removed as soon as possible — use caution as cleaner will dissolve them and may cause them to "bleed."

NON-GREASY STAINS — Includes catsup, coffee (black), egg, fruit, fruit juices, milk, soft drinks, wine, vomit and blood. Carefully scrape off excess stain; then sponge stain with cool water. If stain remains, use Multi-Purpose Powdered Cleaner (Foam Type) as previously described. If odor persists after cleaning vomitus or urine, treat area with a water-baking soda solution — 1 teaspoon baking soda to 1 cup of warm water — finally, if necessary, clean lightly with Fabric Cleaner (Solvent Type).

COMBINATION STAINS — Includes candy, ice cream, mayonnaise, chili sauce and unknown stains. Carefully scrape off excess stain; then clean with *cool* water and allow to dry. If stain remains, clean with Fabric Cleaner (Solvent Type).

CLEANING VINYL OR LEATHER TRIM

Ordinary soilage can be removed from vinyl or leather with warm water and a mild soap such as saddle soap or oil soap, or approved equivalent. Apply a small amount of soap solution and allow to soak for a few minutes to loosen dirt; then, rub briskly with a clean, damp cloth to remove dirt and traces of soap. (This operation may be repeated several times if necessary.) Soilage such as tars, asphalts, shoe polish, etc. will stain if allowed to remain on trim. They should be wiped off as quickly as possible and the area cleaned with a clean cloth dampened with GM Vinyl Cleaner (Solvent Type).

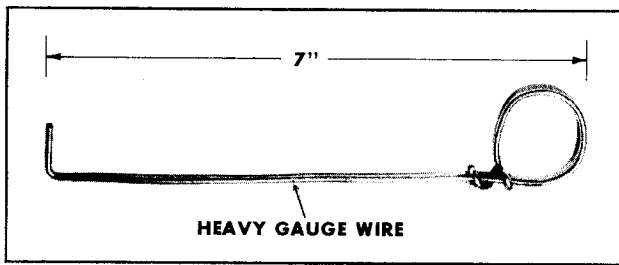
SEAT BELT CARE

- Clean only with mild soap solution and lukewarm water.
- Do not bleach or dye belts since this may severely weaken them.

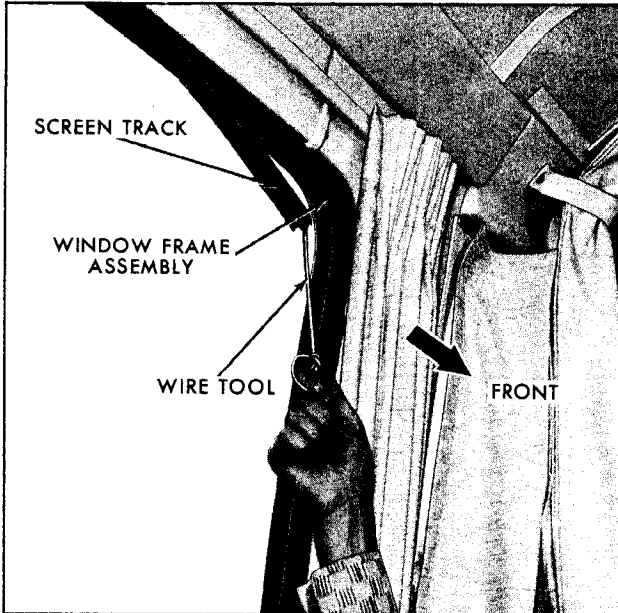
GLASS SURFACES

The glass surfaces should be cleaned on a regular basis. Use of GM Glass Cleaner or a commercial household glass cleaning agent will remove normal tobacco smoke and dust films sometimes caused by ingredients used in vinyls, plastics or other interior trim materials.

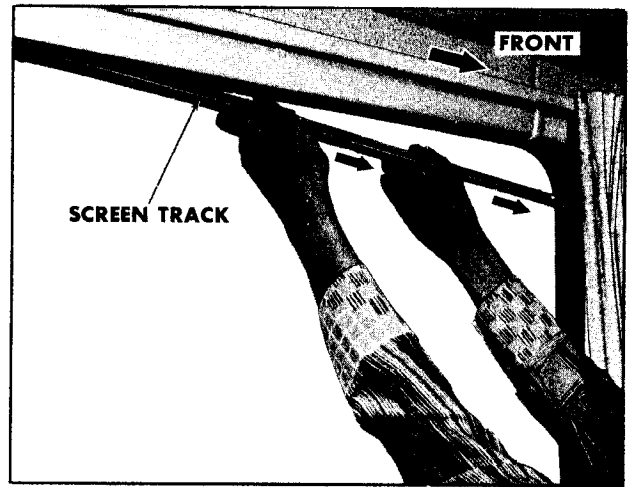
NOTICE: Never use abrasive cleaners on any vehicle glass, as they may cause scratches.



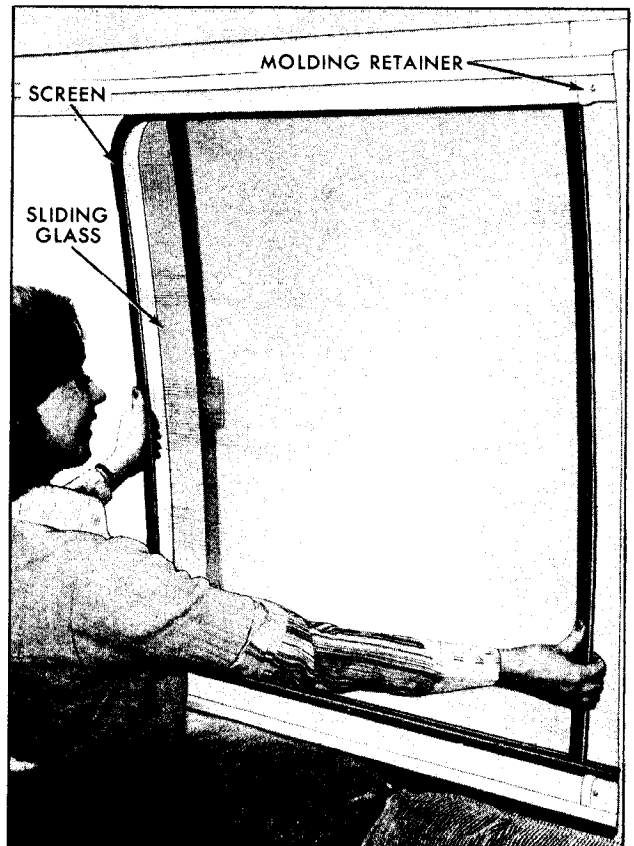
Screen Track Removal Tool



Separating Track From Window Frame Assembly



Removing Screen Track



Removing Window Screen

WINDOW SCREEN REMOVAL

To aid in cleaning interior glass on your vehicle, the horizontal sliding window screens may be removed as follows:

NOTICE: To help avoid damaging screen track, DO NOT remove screen before removing screen track.

1. Remove upper screen track using a reasonably stiff wire shaped to form the screen track removal tool (as shown), Insert tool at outer end of screen track and separate track from window frame assembly. Grasp track and pull completely free of window assembly.

2. Unlock window, slide glass and screen forward almost to moulding retainers.

3. Lift screen up into window frame assembly. Pull bottom of screen away from window and remove screen.

WINDOW SCREEN INSTALLATION

1. To install screen, lift screen up into window frame assembly. Slide screen fully rearward.



Vacuum Cleaner Components (Typical)

2. Note that screen track when installed contacts the inner edge of sliding window track. The screen track has three grooves, and the widest groove should face the outside of the vehicle. Position screen track in window frame assembly and slide it rearward, until contact is made with adjacent upper screen track. Seat track into position by pressing track firmly up into window frame assembly.

3. Slide screen back and forth several times to assure proper sealing of track. If screen will not slide, track is binding. Using a small wood block and mallet, carefully tap the track firmly into position.

CAUTION

DO NOT use a screwdriver to install screen track. The screwdriver may fracture the window glass.

VACUUM CLEANER

The Motorhome integral vacuum cleaner (if equipped) operates on 120-volt current. The vehicle must be connected to an external power



Connecting Flex Hose to Wall Socket

source or the motor generator must be in operation in order to operate the vacuum cleaner.

Vacuum cleaner components are stored in the entrance door closet or in the compartment under the refrigerator. The components are a long flex hose, wand, and a wide assortment of wand attachments including one for shag carpeting.

To operate the vacuum system, remove flex hose from the closet, lift vacuum inlet hinge cap, just under the entrance door closet, and insert the proper end of the flex hose. At this point the vacuum system will be operating and is used in the same manner as any household vacuum cleaner.

BAG AND FILTER MAINTENANCE

The vacuum cleaner contains two filters—the bag itself (which catches the dirt) and a secondary filter to keep any residual dirt out of the motor. These components are located in the compartment under the refrigerator.

1. To remove the filled filter bag, slide cardboard end of bag with rubber seal off intake tube. Pull bag forward and out of cabinet.
2. To install new filter bag, position in cabinet. Slide cardboard end with rubber seal up over intake tube by starting at back of tube and pulling forward and up.
3. The secondary filter is located at the top of the filter bag chamber. The secondary filter should be removed and cleaned annually or more often if restriction occurs. Clean in a

solution of luke warm water and mild detergent. Rinse thoroughly with clean water and allow to air dry before installing secondary filter.

DRAPERIES

Your vehicle is equipped with cloth or woven wood draperies (see illustration for identification).

CLOTH DRAPERIES

The cloth draperies used in the GMC Motorhome are to be **PROFESSIONALLY DRY CLEANED ONLY**.

WOVEN WOOD DRAPERIES

Dust build-up is the major cause of soilage so the fabric should be vacuumed periodically. If the fabric becomes soiled, a solution of luke-warm water and mild detergent should be used to sponge off the fabric, taking care not to soak the material, particularly any fringe trim. Very stubborn or ground in stains can be touched up with GM Spot Lifter (Part No. 1051398). Bleach or strong household cleaner should not be used.

KITCHEN SINK

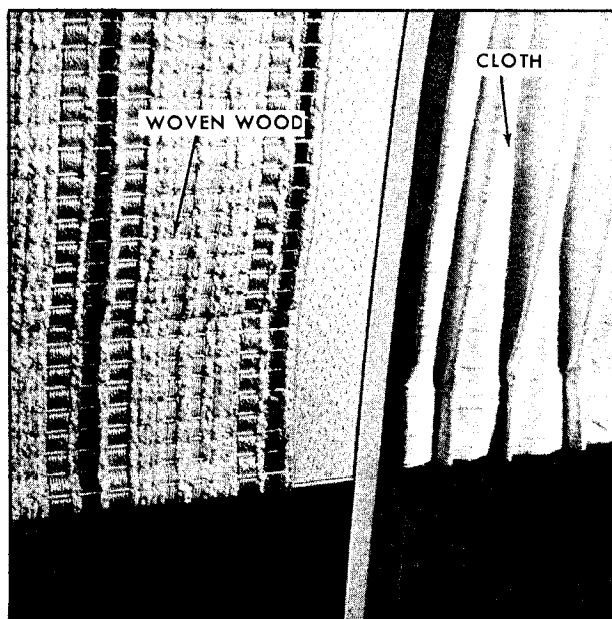
The stainless steel sink should be cleaned with a liquid or finely ground powder. Scouring powder is not recommended for stainless steel and will ruin the finish. Stainless steel cannot be harmed by boiling water. However, salt, mustard, mayonnaise and catsup will cause pitting and should be cleaned off immediately.

REFRIGERATOR

The cabinet interior should be cleaned regularly. Remove shelves and wash the lining with lukewarm water to which a mild soap may be added. Dry thoroughly, especially around door frame and door gasket. Warm water only should be used to wash the cooling evaporator, ice trays and shelves. Never use strong chemicals or abrasive cleaning materials on any part of the cabinet.

POWER RANGE HOOD FILTER

It is important that the power range hood filter be inspected frequently and cleaned as needed. To clean filter, remove retaining nuts at power hood switches, and wash filter in hot, soapy water. Rinse thoroughly and reinstall.



Drapery Identification

LP GAS RANGE/OVEN

GENERAL—Regular cleaning with a warm detergent solution and a soft cloth will keep your range looking bright and new. This should be done as soon as range cools.

CHROME—To keep the mirror bright finish, wipe with a damp cloth and dry thoroughly. Stubborn stains may be removed with lemon juice, vinegar, or chrome polish.

BROILER PAN—Remove the broiler pan from oven immediately after use. Drain fat. Sprinkle rack with detergent and cover with wet paper towels and let soak before washing in hot soapy water.

OVEN INTERIOR—Clean as soon as possible after use when the oven is cool. Grease spatters that are allowed to become hard and baked on become very difficult to remove. Care must be taken to avoid bending the thermal sensing element, which could cause a variation between the oven temperature and the dial setting. If oven cleaners are used, protect aluminum gas tubing, thermostat sensing element and electrical components from the cleaners. Thoroughly rinse oven with a solution of one tablespoon vinegar to one cup of water and wipe dry.

TOP BURNERS—Top burners may be cleaned with a detergent solution. If any burner port should become clogged, clean with a toothpick. Never use pins or other metal objects to clean

the ports, as they may become enlarged. If the burner is washed in a sink, dry immediately by shaking off all excess water and lighting the burner until all water has evaporated.

NOTICE: Properly clip the top burner gates and oven rack after cleaning to help prevent them from rattling or becoming dislodged while the vehicle is underway.

LP GAS COOK TOP

CHROME—To keep the mirror bright finish, wipe with a damp cloth and dry thoroughly. Stubborn stains may be removed with lemon juice, vinegar, or chrome polish.

TOP BURNERS—Top burners may be cleaned with a detergent solution. If any burner port should become clogged, clean with a toothpick. Never use pins or other metal objects to clean the ports, as they may become enlarged. If the burner is washed in a sink, dry immediately by shaking off all excess water and lighting the burner until all water has evaporated.

NOTICE: Properly clip the top burner grates after cleaning to help prevent them from rattling or becoming dislodged while the vehicle is underway.

MICROWAVE OVEN

Keep the door and inside of your microwave oven clean. No grease, soil or spatter should be allowed to build up. A build up of soil will absorb microwave energy, just the same as the food you are cooking and may increase the cooking time.

EXTERIOR APPEARANCE CARE

The acrylic finish on your vehicle provides maximum beauty, depth of color, gloss retention and durability.

WASHING

The best way to preserve this finish is to keep it clean by frequent washings. Wash the vehicle in lukewarm or cold water.

Do not use hot water or wash in the direct rays of the sun. Do not use strong soap or chemical detergents. All cleaning agents should be

INTERIOR

The interior of the microwave oven is made of stainless steel and should be cleaned as follows:

- To clean the walls, simply wipe with a damp cloth or clean with a mild detergent in warm water, rinse and dry.
- Use a household cleaner, with ammonia, if spatters are greasy. Spray on, wipe, rinse and wipe dry.

GLASS SHELF

To clean the shelf, tilt up and remove. Wash in warm, soapy water, rinse and dry.

INFRARED BROWNER ELEMENT

The infrared browner element will clean itself when it is turned on.

Microwave Stirrer

The microwave stirrer can be removed for cleaning by holding TEFLON disc near the center and removing nut. When replacing, push the stirrer up as far as it will go and replace nut carefully to avoid cross threading. **HANDLE WITH CARE. DO NOT** drop or bend.

GLASS

Make certain that glass surfaces are cool. Clean as you would any other piece of glass. Clean with soapy water, rinse and dry, or use a commercial glass cleaner.

ALUMINUM

Metal trim is aluminum. Use hot sudsy water, rinse thoroughly and dry. To remove stubborn stains use a non-abrasive aluminum cleaner. Do not allow ammonia or any alkaline solution to contact aluminum parts. These products will permanently discolor aluminum.

POLISHING AND WAXING

Polishing is recommended to remove accumulated residue and eliminate any "weathered" appearance.

Your GMC Motorhome dealer offers several polishes and cleaners which have proven value in maintaining original finish appearance and durability.

PROTECTION OF EXTERIOR BRIGHT METAL PARTS

Bright metal parts should be cleaned regularly to maintain luster. Washing with water is all that is usually required. However, GM Chrome Polish may be used on **CHROME** or **STAINLESS STEEL** trim, if necessary.

Use special care with **ALUMINUM** trim. Never use auto or chrome polish, steam or caustic soap to clean aluminum. A coating of wax, rubbed to a high polish, is recommended for all bright metal parts.

FOREIGN MATERIAL DEPOSITS

Calcium chloride and other salts, ice melting agents, road oil and tar, tree sap, bird droppings, chemicals from industrial chimneys and other foreign matter may damage vehicle finishes if allowed to remain on painted surfaces.

Prompt washing may not thoroughly remove all of these deposits. Additional cleaners may be required. When using chemical cleaners developed for this purpose, be certain they are safe for use on acrylic painted surfaces.

FINISH DAMAGE

Any stone chips, fractures or deep scratches in the finish should be repaired promptly. Exposed metal will corrode quickly and may develop into major repair expense.

Minor chips and scratches can be repaired using touch-up materials available from your GMC Motorhome dealer. Larger damages to the finish can be corrected in your dealer's body and paint shop facility.

CLEANING WHITE SIDEWALL TIRES

Use GM White Sidewall Tire Cleaner or a tire cleaner which will not harm aluminum trim. A stiff brush may be used with the cleaner.

UNDERBODY MAINTENANCE

Corrosive materials used for ice and snow removal and dust control accumulate on the underbody. If allowed to remain, these materials can result in accelerated rusting and deterioration of underbody components such as fuel lines, frame and floor pan, exhaust system.

At least once each year, preferably after a winter's exposure these corrosive materials should be removed by flushing the underbody with plain water. Particular attention should be given to cleaning out those areas where mud and other foreign materials collect.

If desired, your GMC Motorhome dealer can perform this service for you. In addition, he can provide recommendations on undercoating materials which will help protect your vehicle from corrosion.

UNDERCOATING

Due to the fiberglass and aluminum body construction of the vehicle added protection by additional undercoating is not necessary. However, if you do wish to apply undercoating material, it should be kept off of all moving or rotating parts. It should also be kept off air conditioner fittings, body drain holes, exhaust systems, and plumbing.

NOTICE: See list of **GM APPEARANCE CARE AND MAINTENANCE MATERIALS** on the following page.

GM APPEARANCE CARE AND MAINTENANCE MATERIALS

<u>Part Number</u>	<u>Size</u>	<u>Description</u>	<u>Usage</u>
1050001	16 oz.	Washer Solvent and Gas Line De-icer	Windshield washing system and gas line
1050017	32 oz.	Power Steering Fluid	Power Steering
1050019	16 oz.	Spray-A-Squeak	Weather Strips—stops squeaks on metal to metal and metal to rubber contact
1050172	16 oz.	Tar and Road Oil Remover	Removes old waxes, polishes, tar, and road oil
1050173	16 oz.	Chrome Cleaner and Polish	Removes rust and corrosion on chrome and stainless steel
1050174	16 oz.	White Sidewall Tire Cleaner	Cleans white and black tires
1050214	32 oz.	Vinyl/Leather Cleaner	Spot and stain removal on vinyl or leather
1050223	16 oz.	Finish Guard Cleaner	One step cleaner and wax
1050244	16 oz.	Fabric Cleaner	Spot and stain removal on cloth and fabric
1050422	12 oz.	Heat Valve Lubricant	Free up sticky heat risers — general purpose penetrant
1050427	23 oz.	Glass Cleaner	Glass cleaning and spot cleaning on vinyls
1050429	6 lb.	Multi Purpose Powdered Cleaner	Cleans vinyl and cloth on door trim, seats, and carpet, also tires and mats
1050520	16 oz.	Lubriplate (White Grease)	Grease for various compartment door hinges and latches
1051398	8 oz.	Spot Lifter	Spot and stain removal on cloth and fabric
1051515	32 oz.	GM Optikleen	Windshield washer solvent and anti-freeze
1015516	32 oz.	Washer Solvent and Gas Line De-Icer	Same as 1050001
1051772	20 oz.	Presoftened Cleaner/Wax	One step cleaner/wax
1051855	32 oz.	Dexron® II	Automatic Transmission
1051858	16 oz.	GM Super Engine Oil Supplement E.O.S.	Consult your Dealer for specific usage
1052103	1 gal.	Permanent Type Coolant and Anti-Freeze	Year round coolant and anti-freeze
1052271	23 oz.	GM Gear Lubricant	Final Drive Lubricant
1052272	15 gal.	GM Gear Lubricant	Same as 1052271

SERVICE AND MAINTENANCE

CAUTION

As with any machine, care should be taken when making any check, doing any maintenance, or making any repair to avoid being injured. Improper or incomplete service could also lead to the vehicle itself not working properly which may result in personal injury or damage to the vehicle or its equipment. If you have any questions about carrying out some service, have the service done by a skilled mechanic.

CAUTION

This vehicle has some parts dimensioned in the metric system as well as in the customary system. Some fasteners are metric and are very close in dimension to well-known customary fasteners in the inch system. Mismatched or incorrect fasteners can result in damage to the vehicle or possibly personal injury. Note that, during any vehicle maintenance, any fasteners used to replace older ones must have the same measurements and strength as those removed, whether metric or customary. (The numbers on the heads of metric bolts and on the surfaces of metric nuts show their strength. Customary bolts use radial lines to show this, while most customary nuts do not have strength markings.) Fasteners taken from the vehicle should be saved for re-use in the same spot when possible. Where a fastener cannot be used again, care should be taken to choose a replacement that matches the old one. For information and help, see your GMC Motorhome dealer.

MAINTENANCE SCHEDULE

For owner convenience, a separate folder has been provided with your vehicle which contains a complete maintenance schedule. It also briefly describes the safety, emission control, lubrication, and general service that your vehicle requires.

The maintenance folder is supplemented by

this section of the Operating Manual, as well as a Warranty Information folder also furnished with your vehicle. Read all three publications for a full understanding of your vehicle's maintenance needs.

GMC TRUCK AND COACH DIVISION SUPPORTS NIASE MECHANIC CERTIFICATION

What is "NIASE"?

The National Institute for Automotive Service Excellence* is a nonprofit corporation. It was started to promote the highest standards of automotive service. It's run by a 36-member Board of Directors who are from the automotive service business, education, government and consumer groups. GMC Truck and Coach Division supports NIASE.

What does "Certified" mean?

"Certified" means that the mechanic has demonstrated his training and skill in one or more service repair areas such as engine, brakes, and electrical systems. In total, there are 16 NIASE skills: These cover eight mechanical passenger car, six mechanical truck and two body areas.

*U.S. only



NIASE Certification

How are mechanics certified?

Mechanics volunteer to take tough written exams to test their knowledge. These tests were developed and are offered by the Educational Testing Service of Princeton, New Jersey. (These are the same people who administer college exams and other large scale testing programs.) In addition, at least two years of on-the-job experience as a mechanic are needed to become certified.

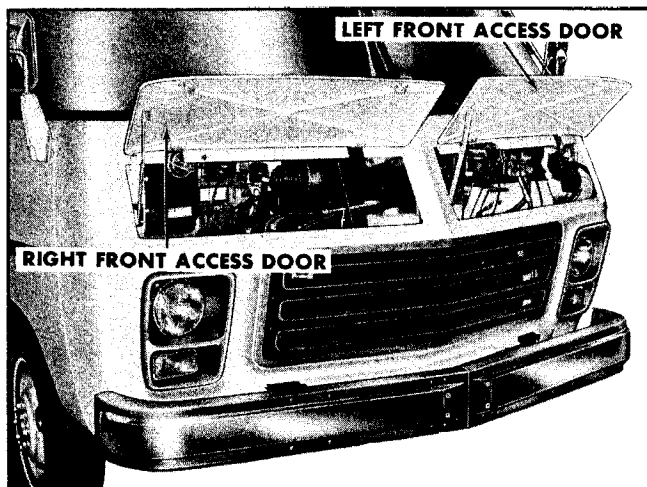
How do I know a mechanic is certified?

NIASE awards certificates and pocket cards. These show the areas in which the mechanic has been certified. The mechanic is also entitled to wear the authorized shoulder patch.

What does it do for me?

Certification helps assure you that the job will be done right — by a highly trained person. It helps protect your investment.

ACCESSIBILITY



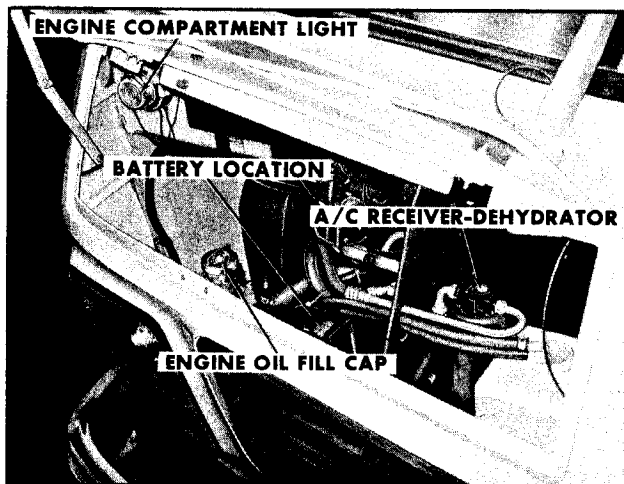
Front Access Doors

EXTERIOR COMPARTMENTS

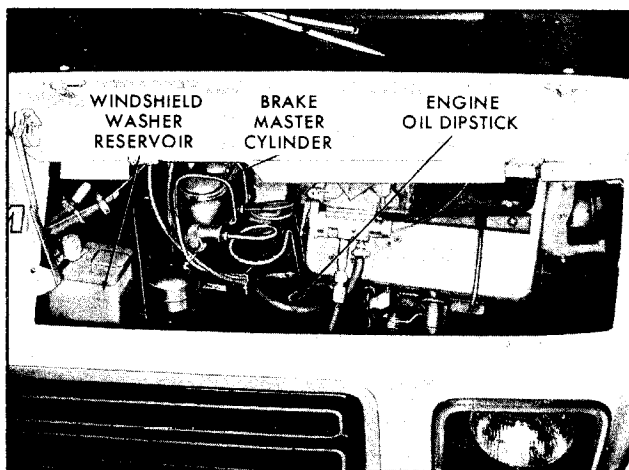
Your vehicle has an entrance door on the right side and six compartment doors. Their locations are shown on the following illustrations.

Be sure the doors are secured tightly to prevent their opening after vehicle is in motion.

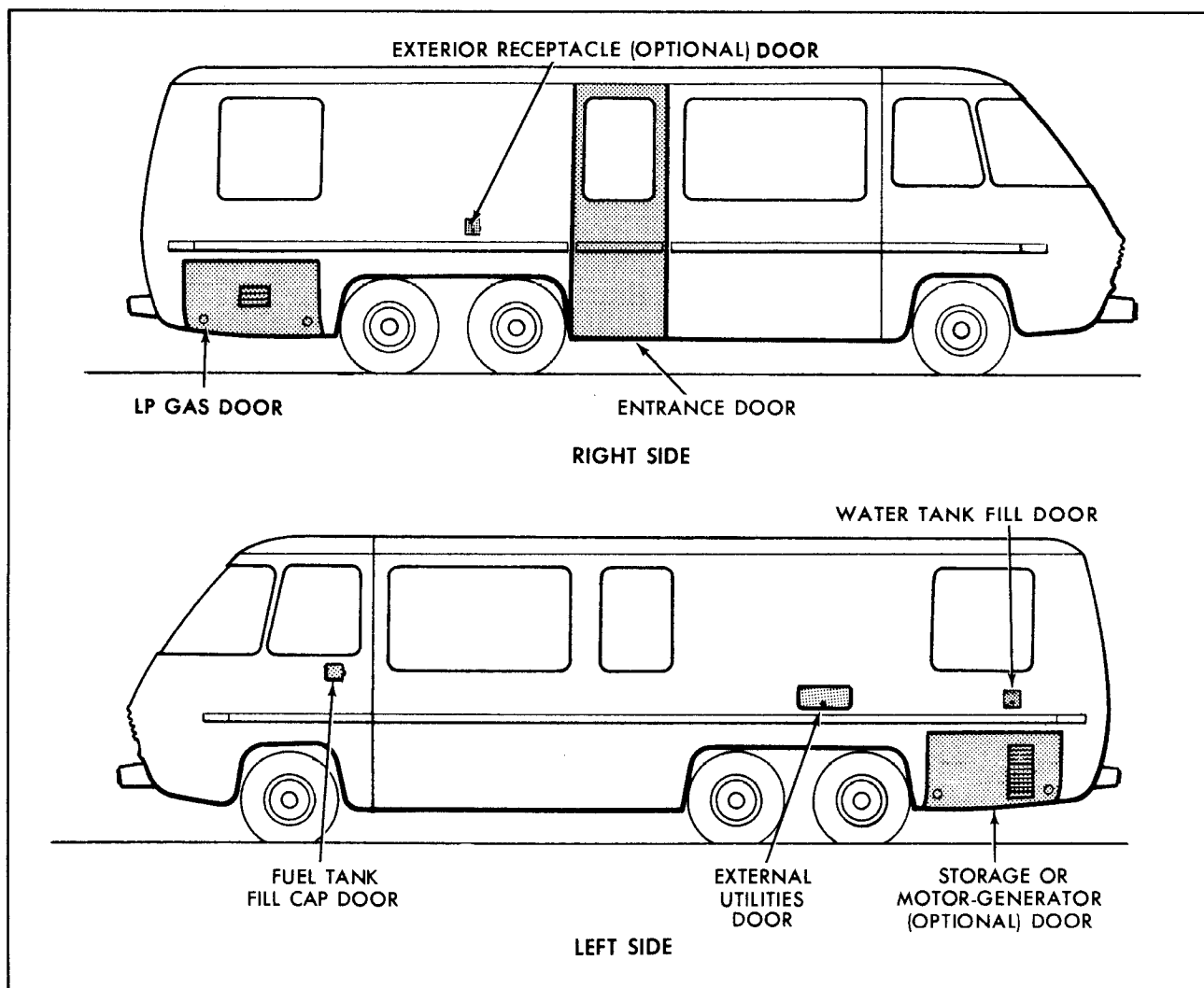
There are two front access doors on your vehicle. Turn the latch knob to the left to release each door. Items that can be checked or filled through the right access door are the main (automotive) battery, engine oil fill, radiator, radiator cap, coolant recovery tank and the air



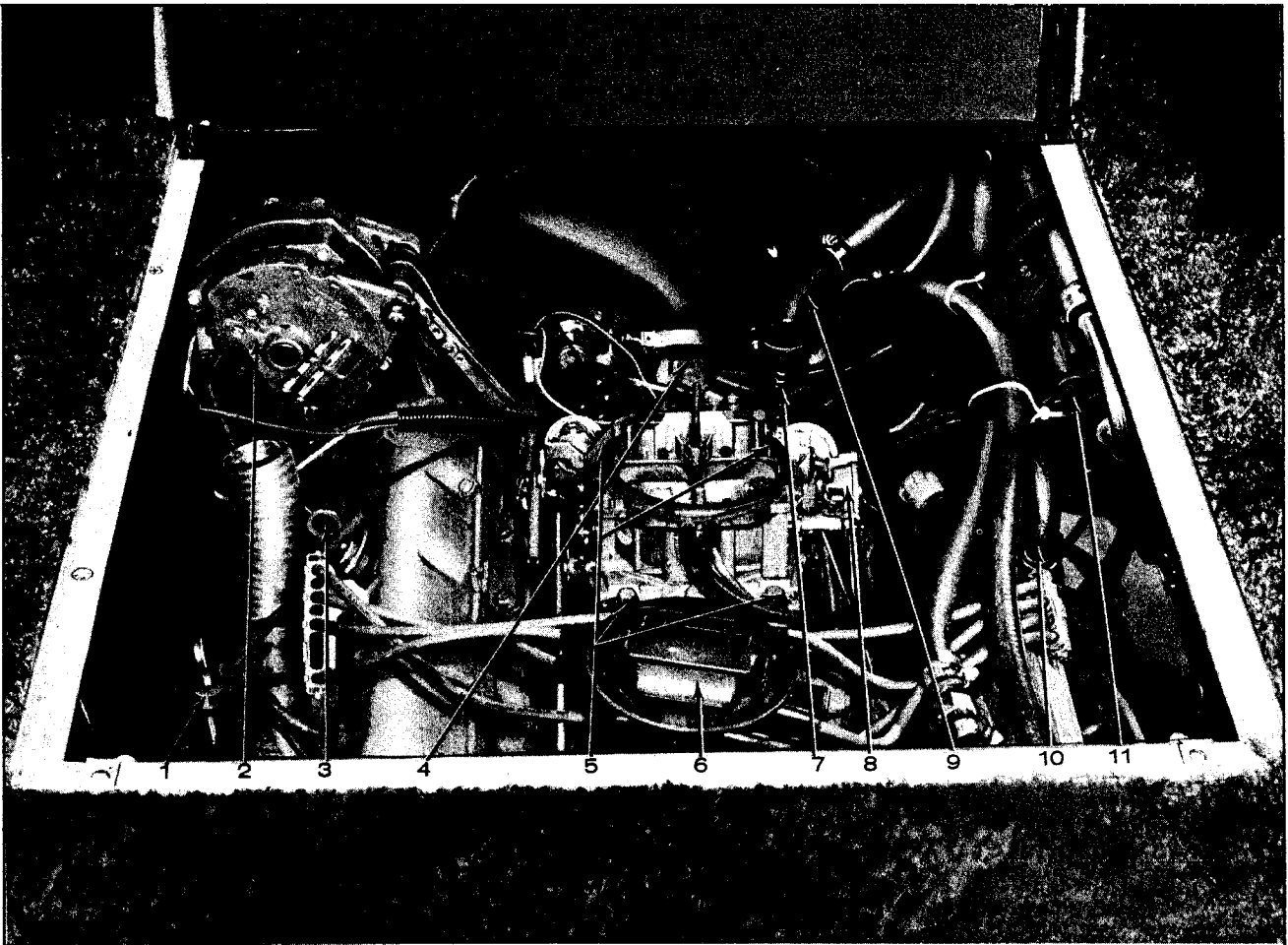
Right Front Access Compartment



Left Front Access Compartment



Exterior Compartment Location (Typical)



1. Automatic Transmission Fluid Dipstick and Fill Tube
2. Generator
3. PCV Filter
4. Thermostat Housing
5. Carburetor Attaching Bolts (4)
6. Distributor

7. Thermal Vacuum Switch
8. Carburetor Choke Coil Cover
9. Engine Oil Fill Hose and Tube Assembly
10. PCV Valve
11. Air Conditioning Compressor

Engine Compartment (Typical)

conditioner receiver-dehydrator sight glass. Items that can be checked or filled through the left access door are the windshield washer reservoir, brake master cylinder and engine oil dipstick.

Be sure to secure the access doors after closing them by turning the latch knob to the right to prevent the doors from opening after the vehicle is in motion.

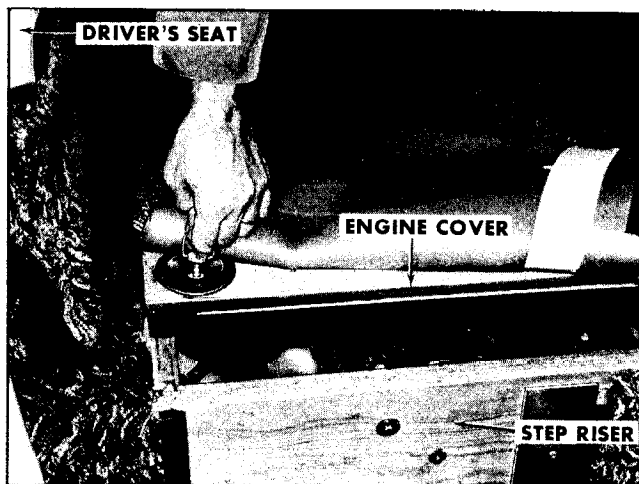
CAUTION

Before pouring fluid into any filler opening anywhere on the vehicle, or allowing anyone else to do so, make certain that the correct filler opening and type of fluid has been selected. A wrong choice could result in serious personal injury or property damage.

ENGINE ACCESSIBILITY

Access to the engine is provided by an engine cover located between the driver and passenger seats. The cover is designed to be secured at the two rear corners by securing bolts. The securing bolts have rings and may be loosened or tightened by hand or screwdriver. The cover is designed to be secured at the front by a retaining lip.

To remove the engine cover loosen the securing bolts and lift up using the wire loops. To install the engine cover place the cover in its frame and slide forward as far as possible. Tighten the securing bolts.



Removing Engine Access Cover

CAUTION

It is essential that when installing the engine cover it be fully seated to its seal and secured by the lip at its forward edge and the securing bolts at its rearward edge. Do NOT allow cables, carpeting, floor mats or any other material to interrupt the seat between the cover and the engine compartment. If the engine cover is not correctly installed and seated, engine exhaust could leak into the passenger compartment creating a safety hazard (see the carbon monoxide caution at the beginning of the section

on STARTING AND OPERATING VEHICLE). If the engine must run with the cover off for maintenance purposes, care should be taken to assure that the vehicle's interior is well ventilated.

ENGINE COMPARTMENT LIGHT

The optional engine compartment light (located behind right front access door) is turned ON when access door is opened. The light, attached to a 25-foot cord, may be removed from engine compartment for use as necessary.

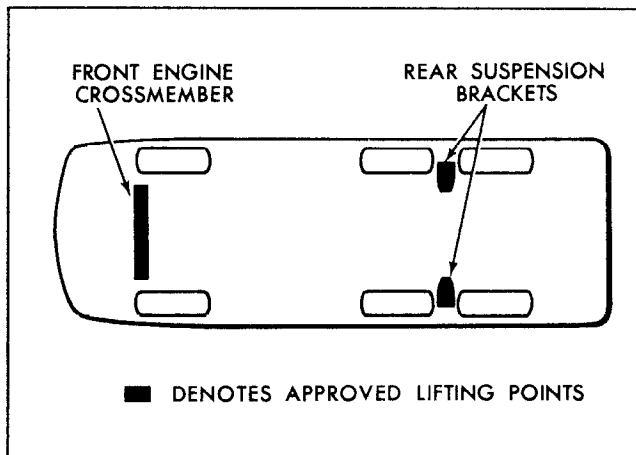
HOISTING INSTRUCTIONS

A twin post hoist of sufficient capacity and with proper adapters and/or fittings must be used.

Front hoisting position is the front engine crossmember.

Rear hoisting must be done at the rear suspension brackets. If an "I" beam type adapter is used it should be approximately 82 inches in length to gain adequate support at suspension brackets.

If vehicle is to be placed on safety stands for maintenance or repairs, the hoisting points should be used.



Vehicle Hoisting Points

CAUTION

To help avoid serious personal injury and/or damage to your vehicle, the vehicle should be raised only on twin post hoists of 15,000 pounds or more total rated capacity, at the suspension

points noted (see diagram). Before raising, check overhead clearance to see that it is sufficient for the vehicle. Do NOT use the vehicle jack for hoisting or maintenance. It is designed for use only when changing tires.

LUBRICATION DETAILS

ENGINE

ENGINE OIL AND FILTER RECOMMENDATIONS

- Use only SE quality engine oils (see markings on containers).
- Refer to Maintenance Schedule folder for oil change and filter replacement intervals.
- After driving in a dust storm, change the oil and filter as soon as you can.
- See your GMC Motorhome dealer for advice on the frequency of oil and filter changes under unusual driving conditions.

- The oil and filter change intervals for your engine are based on the use of SE quality oils and high quality filters like AC oil filters. Use of non-SE oils or oil change intervals longer than listed in the Maintenance Schedule folder could reduce engine life and might affect your warranty.
- Your engine was filled with an SE quality engine oil when it was built. You do not have to change this oil before the suggested change period. Check the oil level often when your engine is new until you learn how often oil must be added. Keep in mind your engine may use more oil when it is new.

OIL VISCOSITY

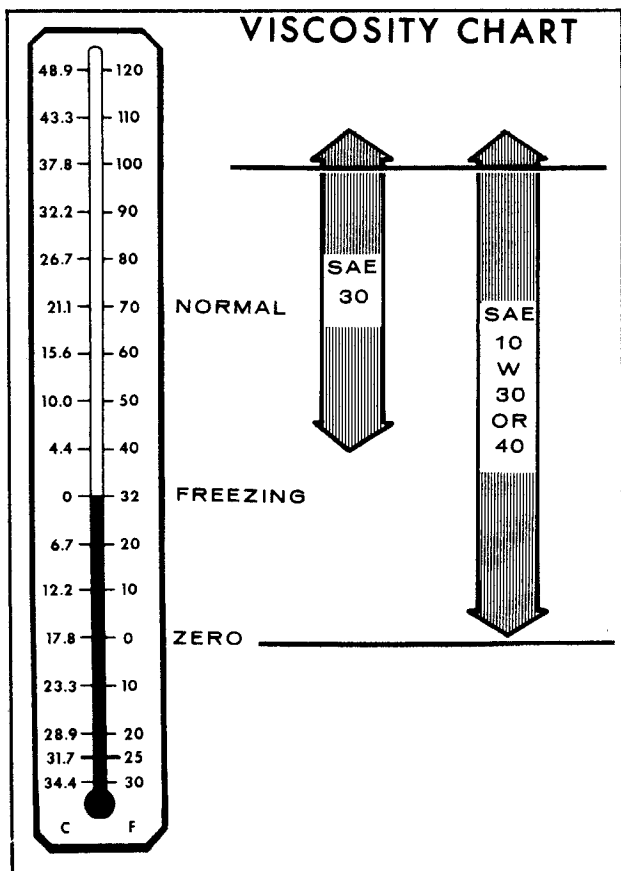
Use the chart below to select the proper oil thickness (called viscosity or SAE Viscosity Grade) for the temperature range you expect before your next oil change. This will help cold and hot starting. It will also give good engine life, and fuel and oil mileage.

RECOMMENDED SAE VISCOSITY

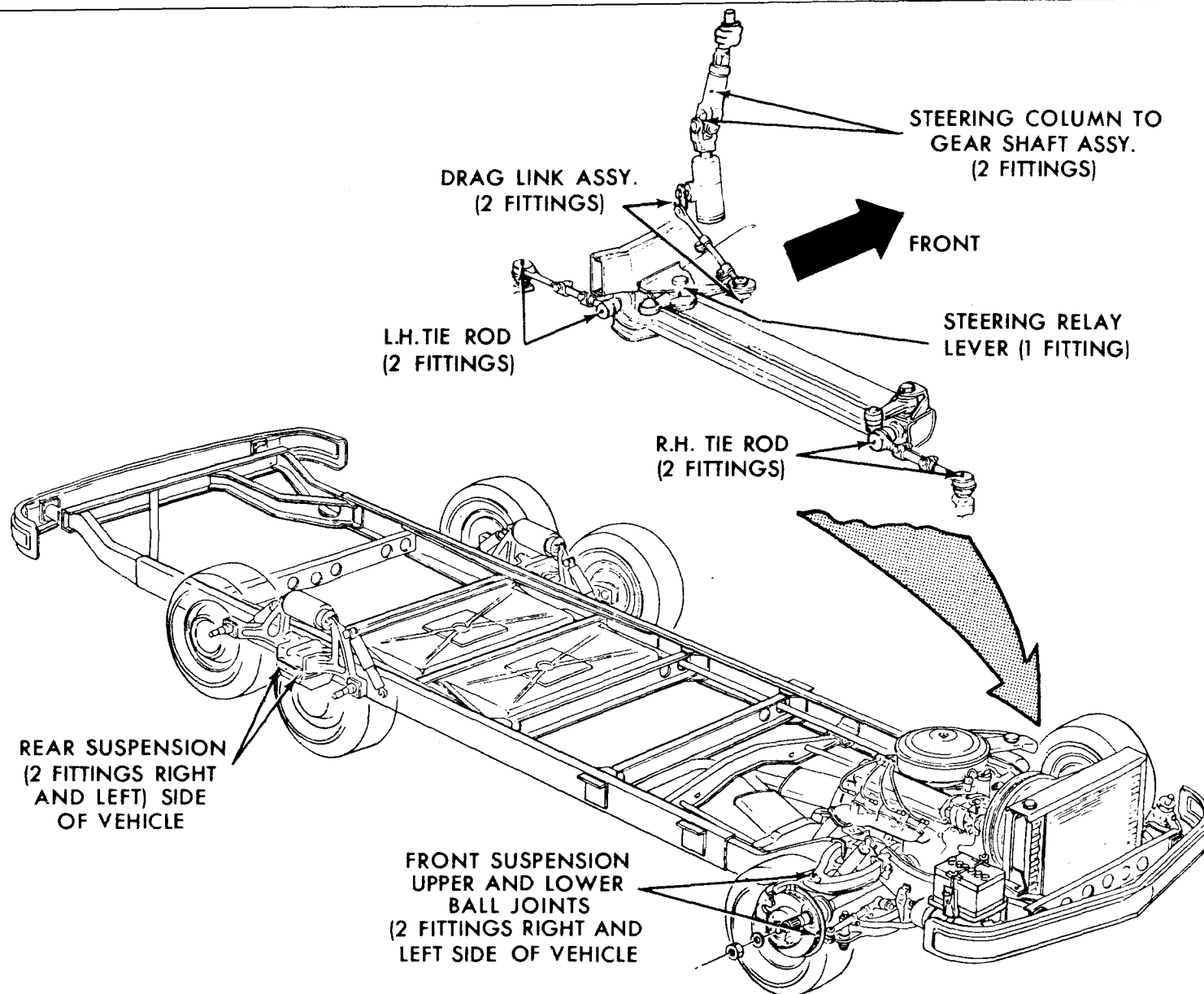
- Single grade oils are preferred, however, multigrades such as SAE 10W-30 or 10W-40 are also acceptable.
- SAE 5W-20 oils are not recommended for sustained high speed driving.
- SAE 5W-30 oils (if available) may be used if extreme low temperatures are anticipated.

ENGINE OIL ADDITIVES

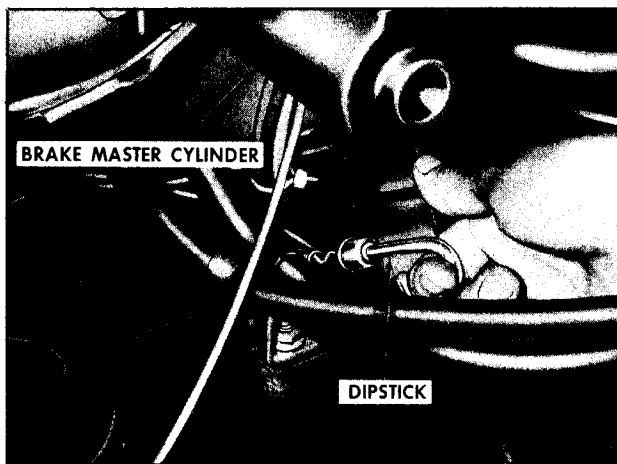
There are many extra engine oil helpers or additives for sale. Your engine should not need these extra engine oil helpers if SE quality engine oil is used and changed as suggested. If you think your engine has an oil-related problem, talk to your GMC Motorhome dealer. If needed, your dealer can provide you with a tested and approved oil helper called GM Super Engine Oil Supplement.



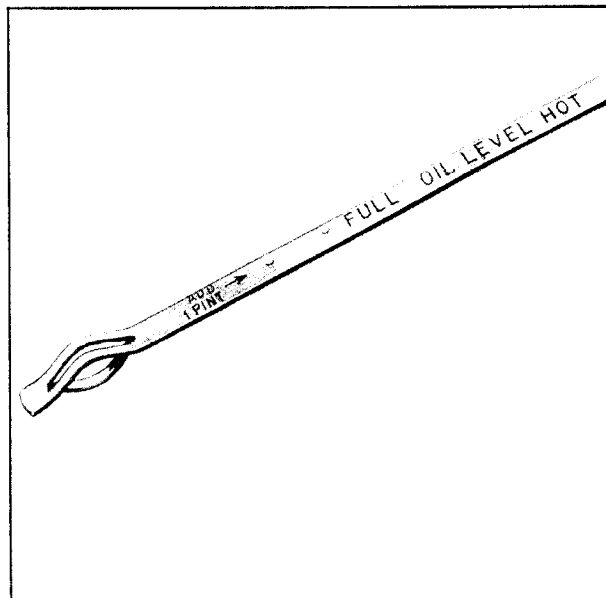
Engine Oil Viscosity Chart



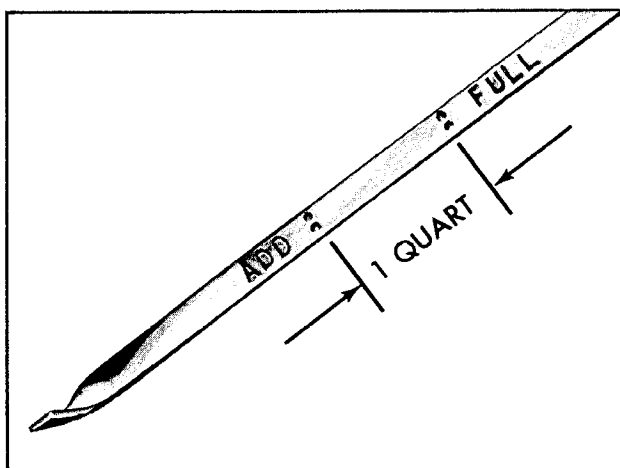
Location of Chassis Lubrication Fittings



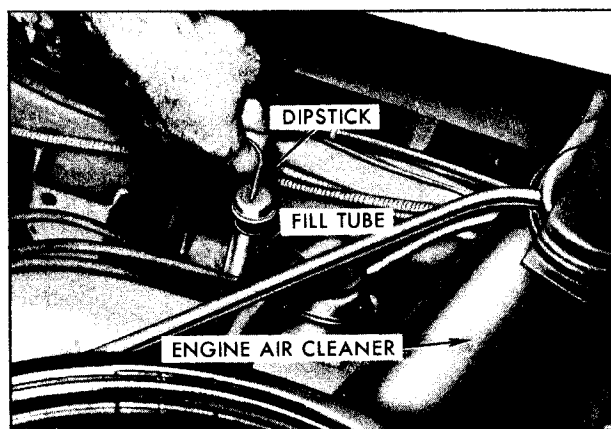
Removing Engine Oil Dipstick



Transmission Dipstick



Engine Oil Dipstick



Removing Transmission Dipstick

CHECKING OIL LEVEL

- **Warm** — The best time to check the engine oil level is when the oil is warm such as during a fuel stop. First, allow about 5 minutes for the oil to drain back to the oil pan. Then pull the dipstick out (located inside the left front access door), wipe it clean, and push it back down all the way. Now pull the dipstick out and look at the oil level on the dipstick. The oil level dipstick is marked "FULL" and "ADD." The oil level should be maintained within the margin, neither going above the "FULL" line nor below the "ADD" line. In all cases the oil level should be kept above the "ADD" line. Push the dipstick back down all the way after taking the reading. Add oil if needed. One (1) quart will raise the oil level from "ADD" to "FULL".
- **Cold** — If oil level is checked when oil is cold, do not run the engine first. The cold oil will not drain back fast enough to the pan to give a true oil level.

AUTOMATIC TRANSMISSION FLUID RECOMMENDATIONS

The transmission dipstick and fill tube is located under the engine access cover on the left side of the engine.

Use only automatic transmission fluids labeled with the mark DEXRON® II. You can buy these fluids from your GMC Motorhome dealer or other service outlets.

Automatic transmissions are often over-filled because the fluid level is checked when the fluid is cold. When cold, the dipstick shows that fluid should be added. However, the low reading is normal; the level will rise as the fluid gets warm. The fluid level will increase more than $\frac{3}{4}$ inch as fluid warms up from 60°F. to 180°F. (16°C. to 82°C.).

Overfilling can cause foaming and loss of fluid. Transmission damage can result. Low fluid level can cause slipping or loss of drive.

Check the transmission fluid level at each engine oil change period:

NOTICE: If the vehicle has just been driven for a long time at high speed or in city traffic in hot weather, or if the vehicle has been pulling a trailer, the correct fluid level cannot be read. Wait until the fluid has cooled down (about 30 minutes).

1. Drive vehicle several miles (kilometers), making frequent starts and stops, to bring transmission up to normal operating temperature (approx. 190-200°F.) (88-93°C.).

2. Park vehicle on a level surface.
3. Apply parking brake.
4. Place selector lever in "PARK" and leave engine running.
5. Open all but the two rear windows, then remove engine cover.
6. Remove dipstick and wipe clean.
7. Reinsert dipstick until cap seats.
8. Remove dipstick and note reading.

If fluid level is at or below the "ADD" mark, add sufficient fluid to raise the level to the "FULL" mark. One pint raises the level from "ADD" to "FULL."

NOTICE: DO NOT OVERFILL. It takes only one pint to raise level from "ADD" to "FULL" with a hot transmission.

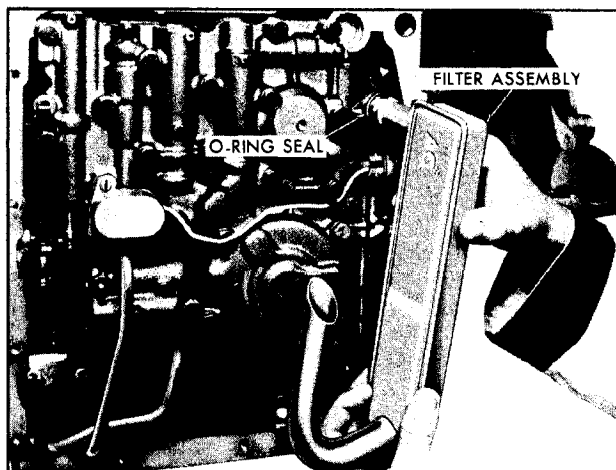
AUTOMATIC TRANSMISSION DRAIN INTERVALS

Refer to Maintenance Schedule folder for transmission drain intervals.

TRANSMISSION OIL AND FILTER REPLACEMENT

NOTICE: Have a drain pan ready as lubricant will begin to drain as bolts are loosened.

1. Remove (13) bottom pan attaching screws.



Replacing Transmission Oil Filter

2. Remove bottom pan and discard gasket.
3. Remove and discard oil filter assembly.
4. Install new O-ring seal on new filter and intake pipe and filter assembly and install.
5. Using a new pan gasket, install pan. Torque attaching screws to 12 foot-pounds.
6. Add four (4) quarts of DEXRON® II automatic transmission fluid and check fluid as noted above.

FINAL DRIVE

FINAL DRIVE LUBRICANT

Check lubricant level of final drive at intervals specified in the Maintenance Schedule folder. Add lubricant, if necessary, to fill to level of filler plug hole. Use SAE 80W GL-5 or SAE 80W-90 GL-5 Gear Lubricant. For those vehicles driven in Canada, use SAE 80W GL-5 Gear Lubricant.

Lubricant Replacement Procedure

1. Remove (10) cover attaching bolts. Have a drain pan ready as lubricant will begin to drain as bolts are loosened.
2. Remove cover and allow lubricant to drain. Discard old gasket.
3. Using a new cover gasket, install cover. Torque attaching bolts to 24 foot-pounds. Shield to be bent over breather hole.
4. Add four pints of recommended lubricant through fill plug hole or fill until lubricant level is at the plug hole. Install fill plug.

STEERING SYSTEM

POWER STEERING SYSTEM

Check the fluid level in the power steering pump reservoir at each oil change period. This requires the removal of the engine access cover. The reservoir is located near the Delcotron generator. Add GM Power Steering Fluid (GM 1050017) as necessary:

- If fluid is warmed up (about 150°F. or 66°C. —hot to the touch), it should be between “HOT” and “COLD” marks on the filler cap indicator.
- If cool (about 70°F. or 21°C.), fluid should be between “ADD” and “COLD” marks.

Fluid does not need periodic changing.

STEERING LINKAGE

The steering linkage (tie rods) and suspension should be lubricated, using a Lithium Soap Multi-purpose grease that meets GM Specification 6031-M, at every oil change. Seals should be checked for damage (see Maintenance Schedule folder).

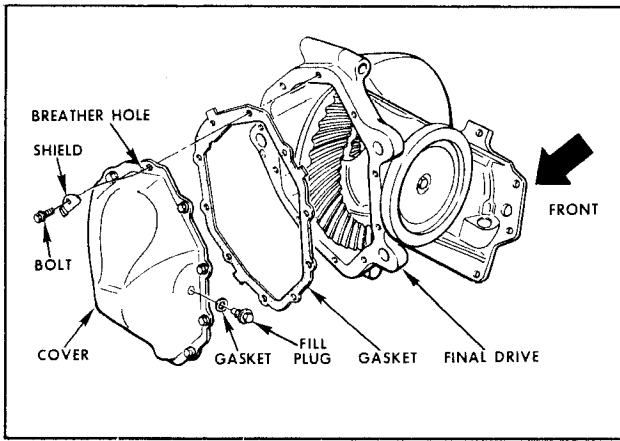
BRAKE SYSTEM

BRAKE MASTER CYLINDER

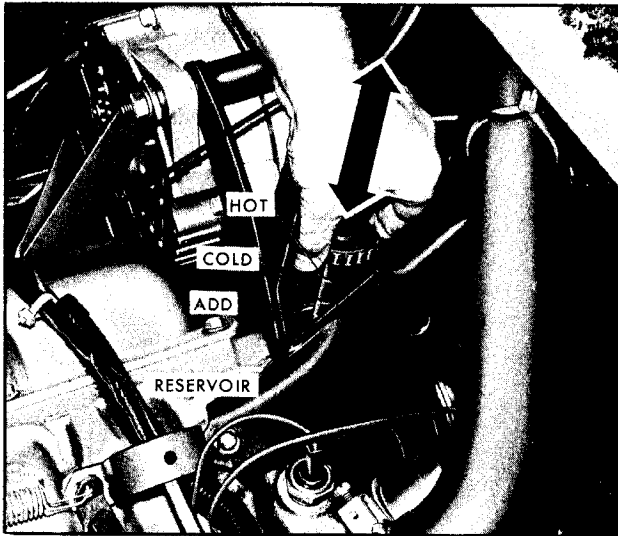
The master cylinder is located behind the left front access door at the front of the vehicle. The fluid level in the master cylinder should be checked at each oil change. Wipe off the brake cylinder filler cap and unsnap the retainer. A low fluid level in the front brake master cylinder reservoir could be an indicator that the disc brake pads need replacing. The fluid level must be maintained at ¼ -inch below the top of each reservoir with Delco Supreme No. 11 or DOT-3 Brake Fluid or equivalent. When replacing the cap be sure to fasten the retainer securely, taking care not to let dirt enter the reservoirs.

BLEEDING BRAKES

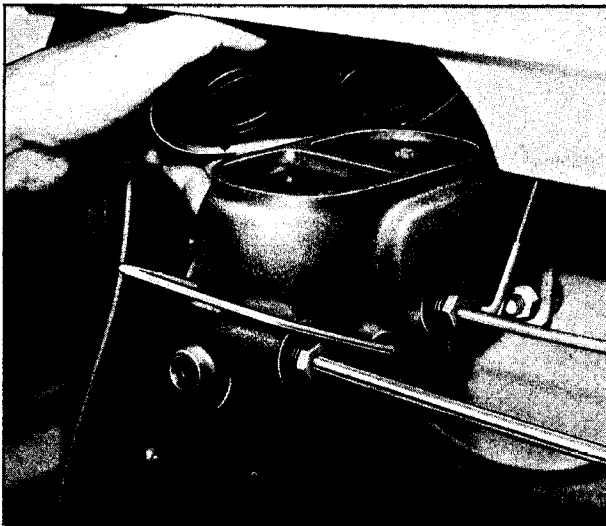
The need for bleeding brakes is generally indicated by springy, spongy pedal action. Pressure bleeding equipment must be used and a definite bleeding sequence and procedure must be followed. Consult your GMC Motorhome dealer.



Final Drive Cover Removal



Checking Power Steering Fluid Level



Checking Brake Master Cylinder

SERVICING DETAILS

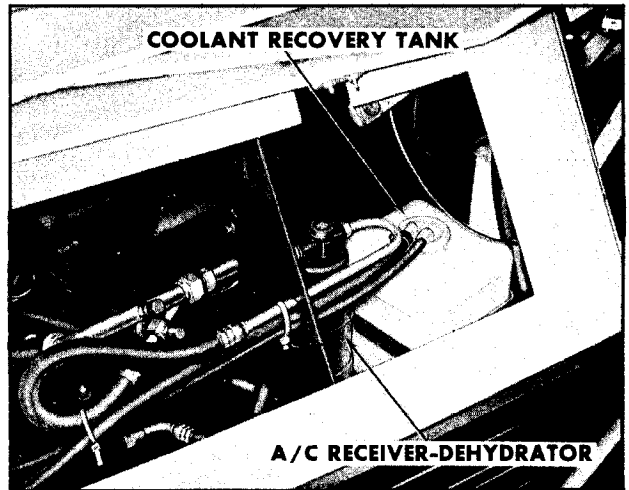
ENGINE COOLING SYSTEM

The coolant recovery system is standard on all Motorhomes. The coolant in the radiator expands with heat and the overflow is collected in the recovery tank. When the system cools down, the coolant is drawn back into the radiator. The cooling system has been filled at the factory with a quality coolant that prevents corrosion and can be used all year. It meets the standards of General Motors Specification 1899-M. This coolant solution provides freezing protection to -20°F. (-29°C.), -35°F. (-37°C.) in Canada; and it has been made to be used without replacement for the period specified in Maintenance Schedule folder, providing the proper concentration of coolant is maintained. After the interval specified in the Maintenance Schedule folder, the coolant should be drained and replaced to prevent corrosion.

COOLING SYSTEM CARE

Checking Coolant Level

Open right front access cover. Do not remove radiator cap to check coolant level. Instead, check by looking at the "see thru" coolant recovery tank. Level should be at the "COLD" mark on the recovery tank when the system is cold; and at the "HOT" mark during engine operation. Add a 50/50 mixture of a good quality ethylene glycol antifreeze and water to the recovery tank when more coolant is needed. If frequent additions are needed, see your dealer for a cooling system check.



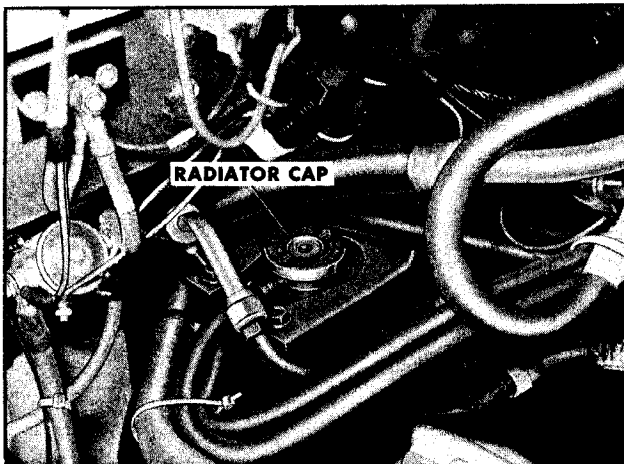
Coolant Recovery Tank (Typical)

NOTICE: If the proper quality antifreeze is used, there is no need to add extra inhibitors or additives that claim to improve the system. They may be harmful to the proper operation of the system, and an unnecessary expense.

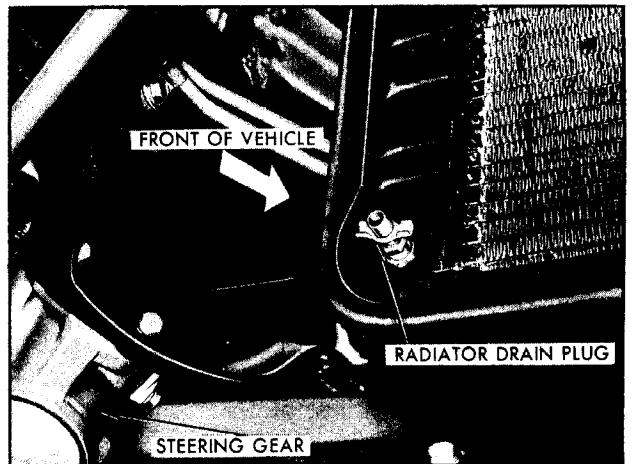
Annual Service

The cooling system should be serviced each year as follows:

1. Wash radiator cap and filler neck with clean water. (See CAUTION on radiator cap removal which follows.)
2. Check coolant level and have tested for freeze protection.



Location of Radiator Cap



Radiator Drain Plug

3. Have system and radiator cap tested for proper pressure holding capacity (9 psi). If replacement cap is needed use a cap designed by AC for coolant recovery systems and specified for your vehicle.

4. Tighten hose clamps and inspect all hoses. Replace hoses if swollen, "checked" or otherwise deteriorated.

5. Clean frontal area of radiator core and air conditioning condenser.

Draining and Refilling

At intervals specified in the Maintenance Schedule folder, the cooling system should be drained, flushed and refilled as follows:

1. Remove radiator cap when engine is cool:
 - Rotate cap slowly counterclockwise until it reaches a "stop" (Do not press down while rotating).
 - Wait until pressure (indicated by a hissing sound) is relieved; then press down on cap and continue to rotate counterclockwise.

CAUTION

To help avoid the danger of being burned, do not remove radiator cap while the engine and radiator are still hot. Scalding fluid and steam can be blown out under pressure if the cap is taken off too soon.

2. Run engine, with radiator cap removed, until upper radiator hose is hot (this shows that the thermostat is open).

3. Stop engine and open radiator drain valve to drain coolant. (Drainage may be speeded by removing drain plugs in the block.)

4. Close valve (install block drain plugs, if removed). Add water until system is filled.

5. Repeat steps 2, 3, and 4 several times until the drained liquid is nearly colorless.

6. Drain system and then close radiator drain valve tightly. (Install block drain plugs, if removed.)

7. Remove recovery tank cap, leaving hoses in place. Remove coolant recovery tank and

empty fluid. Scrub and clean bottom and sides of tank with soap and water. Flush well with clean water and drain. Reinstall tank.

8. Add enough ethylene glycol coolant meeting GM Specification 1899-M, to provide the required cooling function as well as freezing and corrosion protection. Use a 50 percent solution, -34°F. (-36°C.) but no more than a 70 percent solution. Fill radiator to the base of the radiator filler neck and raise level of coolant in the recovery tank to the "HOT" mark. Reinstall recovery tank cap.

9. Run engine, with radiator cap removed, until radiator upper hose becomes hot.

10. With engine idling, add coolant to radiator until level reaches bottom of filler neck. Install cap, making sure arrows line up with overflow tube.

NOTICE: If Motorhome is equipped with water heater pre-heat, coolant level in coolant reservoir must be checked and coolant added, as necessary, after several hours of operation. The additional length of heater hose used in this system requires a longer period to normalize the coolant level.

It is the owner's responsibility to:

- Maintain cooling system freeze protection at -20°F. (-29°C.) to ensure protection against corrosion and loss of coolant from boiling. This should be done even if freezing temperatures are not expected.
- Add ethylene glycol base coolant that meets GM Specification 1899-M when coolant has to be added because of coolant loss or to provide added protection against freezing at temperatures lower than -20°F. (-29°C.); -35°F. (-37°C.) in Canada.

NOTICE: Alcohol or methanol base coolants or plain water alone should not be used in your vehicle at any time.

"ENGINE WATER" LIGHT IS ON

If the cooling system "ENGINE WATER" light is illuminated this is an indication that the coolant level in the radiator is abnormally low and requires immediate service. Be sure to heed the CAUTION on this page.

1. Allow engine to cool. While engine is cooling, visually inspect radiator, engine, all cooling system hoses for source of low coolant level, and correct problem if possible.

2. If leakage problem cannot be readily corrected, do not run engine until vehicle is repaired and refilled by a qualified mechanic.

3. Refill cooling system by performing Steps 8-11 of "Draining and Refilling".

THERMOSTAT

The engine coolant temperature is controlled by a thermostat. It prevents circulation of coolant through the radiator until a preset temperature is reached. This thermostat is installed in the engine coolant outlet. The same thermostat is used in both winter and summer. When a replacement is necessary, Delco parts are recommended.

ENGINE FUEL SYSTEM

FUEL REQUIREMENTS

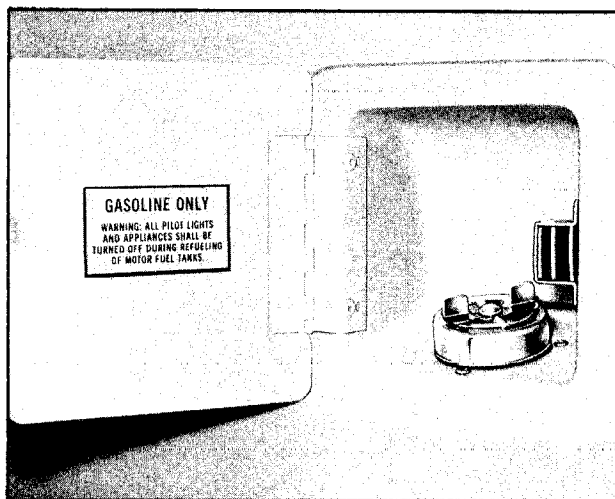
Regular grade leaded gasoline, the emissions certification fuel, may be used under normal operating conditions and to eliminate knock*. The engines do not require Premium grade fuel and its use would be an unnecessary expense.

Your vehicle's engine was also designed to operate on unleaded gasoline. If an unleaded gasoline is used it must meet Federal government minimum octane number specifications. Federal regulations require that pumps delivering such gasoline be labeled with the word **UNLEADED**.

*Knock is a metallic rapping noise that sometimes happens during the combustion process. If knocking persists, consult your dealer. Continuous or excessive knocking may result in engine damage. Failure to take steps to stop such knocking is misuse of the engine for which GMC Truck & Coach Division is not responsible under the terms of the new Vehicle Warranty.

FUEL SYSTEM

The vehicle has two gasoline tanks of approximately 25 gallons each and a fuel switching device (see "FUEL SELECTOR" switch) which allows the driver to switch from the main tank (when empty) to the auxiliary tank which will normally contain 7 to 9 gallons of fuel.



Gasoline Fuel Filler Compartment

The gasoline fuel filler compartment is located on the left side of the vehicle, directly under the driver's window.

CAUTION

It is important that all pilot lights be turned off and open flames kept away when filling the fuel system to help reduce the possibility of personal injury and/or vehicle damage from fire.

GAS CAP—The cap is equipped with a double set of locking tangs.

To Remove:

- Rotate cap one-half turn counterclockwise to clear the first set of tangs from the slots inside the filler neck. This will allow any residual pressure to escape.
- Pull the cap outward and rotate one-quarter turn counterclockwise to clear second set of tangs. Then remove the cap.
- To install, reverse this procedure.

NOTICE: If the gas cap requires a replacement, only a cap with the same features should be used. Failure to use the correct cap can result in a serious malfunction of the fuel system. Correct replacement caps may be obtained from your GMC Motorhome dealer.

NOTICE: If automatic gasoline pump nozzle shuts off before both fuel tanks are full, it is recommended that a delay of approximately one minute be held prior to continuation of filling tanks. Automatic nozzle should then be adjusted for a slower fuel feed, to fill remainder of tanks.

CARBURETOR

To obtain maximum engine performance and fuel economy, the following items should be checked or replaced as recommended in the Maintenance Schedule folder:

- Carburetor idle speed.
- Carburetor mounting torque.
- Carburetor choke mechanism and choke hoses.
- Fuel filter.

NOTICE: Refer to Tune-up label on engine for correct specifications.

NOTICE: Tightening fuel inlet nut beyond specified torque can damage nylon gasket.

FILTER REPLACEMENT

To replace carburetor filter, disconnect fuel line, remove filter nut, gasket, filter, and spring. Install spring and element (open end of filter facing toward filter nut). Install gasket; tighten fuel inlet nut. Do not exceed 18 foot-pounds torque. Reconnect fuel line and tighten fuel line nut. Do not exceed 18 foot-pounds torque on fuel line nut. Then, with engine running, check for fuel leaks.

ENGINE AIR CLEANER

The air cleaner is a disposable type element. Replace the element as specified in the Maintenance Schedule folder. Do not wash, oil, or clean

with air hose. The air cleaner will require more frequent service under dusty conditions. Your GMC Motorhome dealer can advise you on the proper interval. When replacement is necessary, an AC ACron air filter element is recommended.

NOTICE: If the air cleaner is removed during repair or maintenance, be sure to put it back on correctly. Without the air cleaner on, the engine may backfire and cause a fire in the engine compartment.

CHASSIS ELECTRICAL SYSTEM

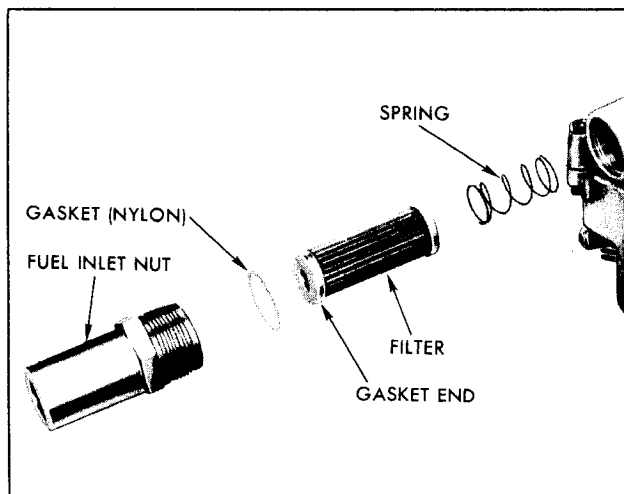
FREEDOM BATTERY

Your new vehicle is equipped with a Delco FREEDOM battery. It needs no periodic maintenance. Its top is permanently sealed and has no filler caps. Water will never have to be added.

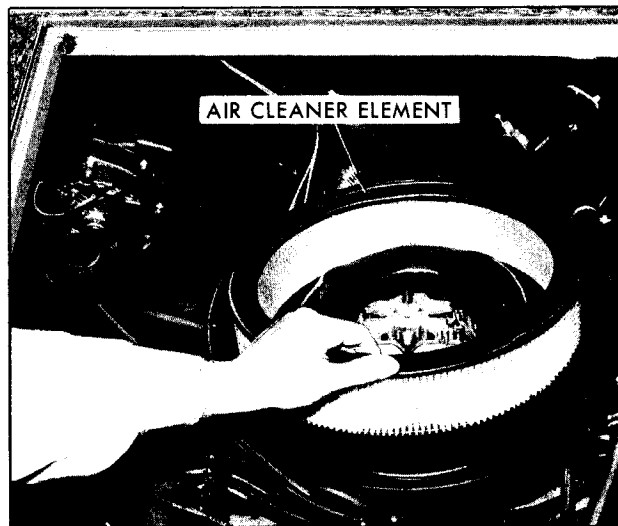
The test indicator (if so equipped) on the top of the battery provides information for testing purposes only. For full power needs, a Delco battery is recommended at replacement time.

DISTRIBUTOR

Distributor maintenance, which is the owner's responsibility, includes regular examination of the distributor cap for cracks, checking condition of ignition wires, and adjustment to proper ignition timing at specified intervals. Refer to the Maintenance Schedule folder for additional information.



Fuel Filter Components



Removing Engine Air Cleaner Element

NOTICE: Refer to Tune-up label on engine for correct specifications.

SPARK PLUGS

The frequency of spark plug service intervals is explained in the Maintenance Schedule folder. Servicing is the owner's responsibility. Before removing plugs, clean plug wells thoroughly, clean the threads and seats in the cylinder heads to assure proper seating and heat transfer.

HEADLIGHTS

Make a headlight beam adjustment check a regular part of your "Safety Maintenance" program. Sealed-Beam units are No. 6014 which are equipped with ground guide points for the use of a mechanical aiming device. Your authorized dealer is best qualified to adjust your headlights.

Headlight Beam Adjustment

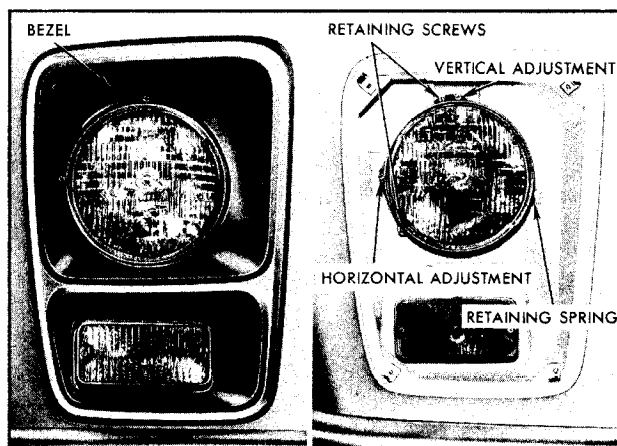
NOTICE: Cutouts in headlight bezel permit access to adjustment screws.

Headlights should be adjusted properly. The top adjusting screw provides vertical adjustment and the side adjusting screw provides horizontal

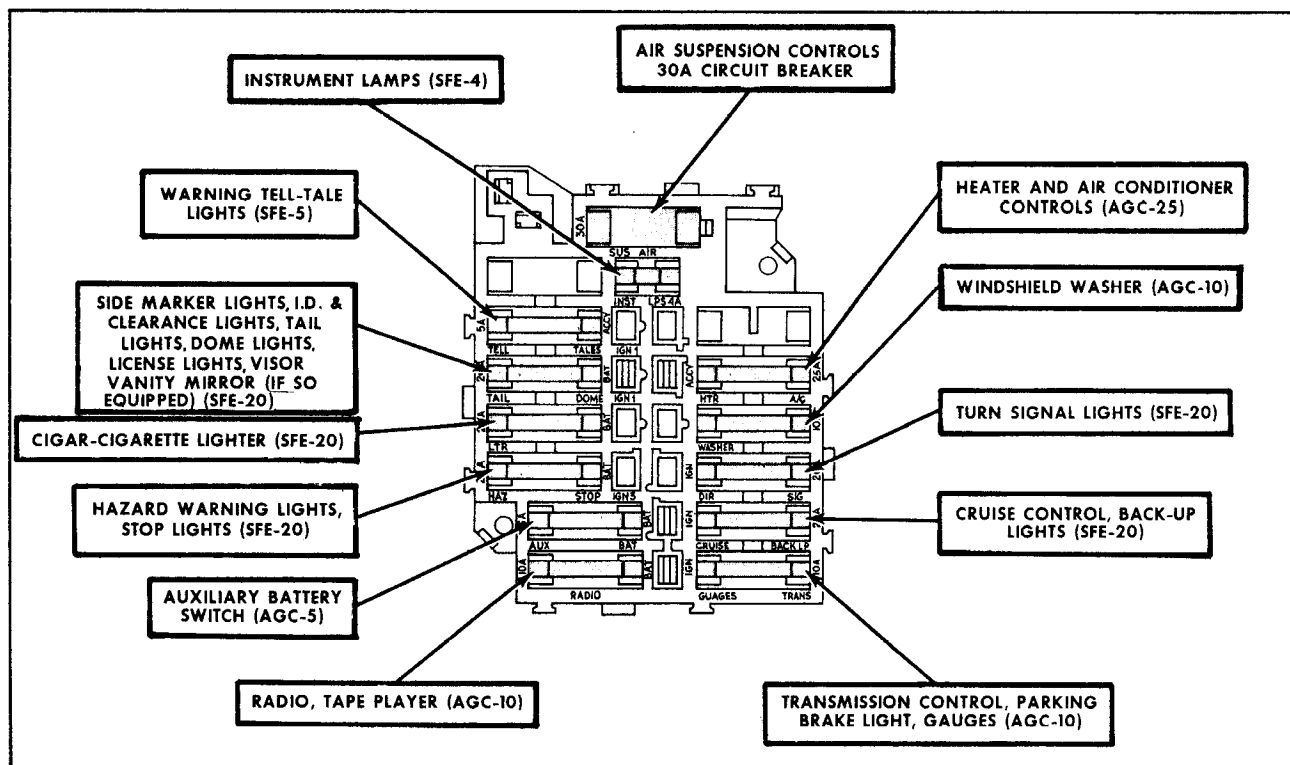
adjustment. Headlights should not have to be adjusted after replacing Sealed-Beam unit, providing headlights were in proper adjustment before replacement and adjusting screws were not disturbed during replacement.

Headlight Replacement

To replace a Sealed-Beam unit, remove bezel. Then disengage the tension spring using a stiff hooked tool. Rotate the Sealed-Beam assembly slightly to disengage mounting ring slots from groove of each adjusting screw, then pull for-



Headlight Replacement



Chassis Fuse Block

ward. Disconnect wiring at the base of unit and separate the Sealed-Beam assembly by removing the two retaining screws. Install Sealed-Beam unit in reverse order of removal.

EXTERIOR LIGHTS

All exterior lights can be easily replaced by removing lens, pushing bulb in slightly and turning counterclockwise, except side marker lights which are simply pressed in. Then, with new bulb, reverse procedure.

CHASSIS FUSES, FUSIBLE LINKS, CIRCUIT BREAKERS

The wiring circuits in your vehicle are designed to be protected from short circuits by a combination of fuses, circuit breakers, and fusible thermal links in the wiring itself. This helps to reduce the hazard of electrically-caused fires in the vehicle.

The fuse and circuit breaker block is located behind the glove compartment. To gain access to the chassis fuse block, open the glove box door, then release the secondary cable latch in the back of the glove compartment. Glove box will now come forward, exposing fuse block. All chassis circuits are protected by fuses or circuit breakers located here except:

- **HEATER BLOWER**—Which has a fusible link built into harness located behind the right access door near the heater blower relay.
- **HEADLAMP CIRCUITS**—Are protected by a circuit breaker in the main light switch. An electrical overload in the light circuit will cause the lights to go on and off or in some cases to remain off. If this condition develops, have the wiring circuits checked immediately.

Circuit breakers of remote reset type can be reset only after turning the affected circuit con-

trol switch "OFF" for approximately 40 seconds, or by removing the breaker from clips for this period of time.

CAUTION

Do not touch body of any installed breaker of this type with bare hands; if circuit should happen to be shorted or overloaded—the breaker body could be hot and cause a burn.

A replaceable fuse link is located at the battery pickup junction block behind the right access door. If an overload should occur, this link is designed to fail (open circuit), preventing damage to the main wiring harness. Another link of the same wire gauge and length must be installed in its place in the event of failures.

NOTICE: When replacing fuse or circuit breaker, make sure replacement is of same number as marked on block.

TURN SIGNAL FLASHER

The turn signals operate with the same flasher, which is clipped to the left side of the steering column.

HAZARD WARNING FLASHER

The hazard warning flasher is clipped behind the instrument panel just to the right of the steering column.

WHEELS AND TIRES

TIRES

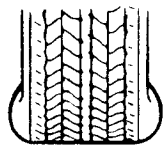
The tires installed on your vehicle are engineered to provide a proper balance of these performance characteristics under normal driving conditions:

- Endurance
- Handling
- Noise
- Ride
- Road Hazard Resistance
- Rolling Resistance
- Traction
- Tread Mileage

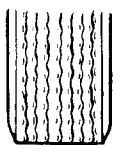
This section contains some tips on how you can obtain the most benefit from your tires.

VEHICLE LOADING

See Page 1 in this Manual for Important Information on Vehicle Loading.



PROPERLY INFLATED
RADIAL TIRE



PROPERLY INFLATED
BIAS OR
BIAS-BELTED TIRE

Tire Inflation

INFLATION PRESSURE

The cold inflation pressures listed on the Tire Placard (located on the glove compartment door) provide for the best balance of tire life, riding comfort, and vehicle handling under normal driving conditions.

Incorrect tire inflation pressures can have adverse effects on tire life and vehicle performance. Too low an air pressure causes increased tire flexing and heat build-up. This weakens the tire and increases the chance of damage or failure. It can result in tire overloading, abnormal tire wear, adverse vehicle handling, and reduced fuel mileage. Too high an air pressure can result in abnormal wear, harsh ride, and also increase the chance of damage from road hazards.

Tire inflation pressures should be checked (this includes the spare tire, if so equipped) at least monthly. Always check tire inflation pressures when tires are "cold."

1. The "cold" tire inflation pressure applies to the tire pressure when the vehicle has not been driven more than one mile (1.6 kilometre) after sitting for three hours or more.

NOTICE: The cold inflation pressures for your tires are:

Steel Belted Radial Tires 65 psi
Bias-Belted Tires 60 psi

2. It is normal for tire pressures to increase 4-8 psi or more when the tires become hot from driving. **Do not** "bleed" or reduce tire inflation pressures after driving your vehicle. Bleeding serves to reduce "cold" inflation pressure and increase tire flexing which can result in tire damage and failure.
3. **For sustained driving at speeds over 65 mph (100 km/h), where permitted by law,** cold inflation pressures should be increased 10 psi above the recommended cold inflation pressures.
4. Always use a tire pressure gauge (a pocket type gauge is advised) when checking inflation pressures. Radial tires may look under-inflated when at recommended cold inflation pressure.
5. Be sure to reinstall the tire inflation valve caps, if so equipped, to prevent dirt and moisture from getting into the valve core, which could cause air leakage.
6. If an air loss occurs while driving, do not drive on the deflated tire more than needed to stop safely. Driving even a short distance

on a deflated tire can damage a tire and wheel beyond repair.

NOTICE: A tire that is run while seriously low on air will overheat, and may result in a fire that may severely damage the vehicle and its contents.

INSPECTION AND ROTATION

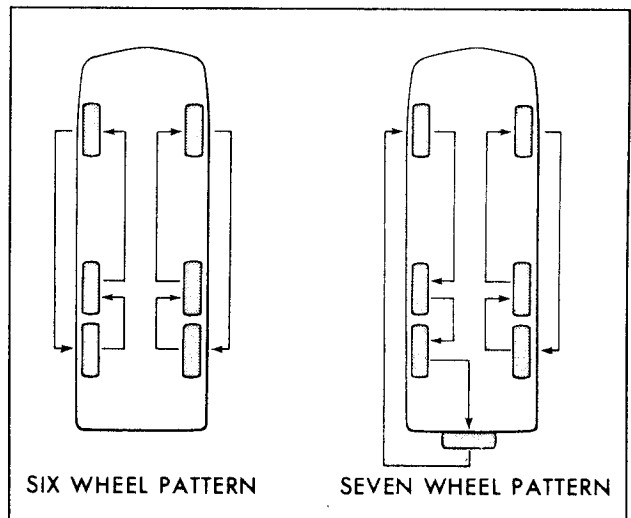
Front and rear tires perform different jobs and can wear differently depending on the types of roads driven, your driving habits, etc. To obtain the longest tire life you should inspect and rotate your tires regularly. (See Tire Rotation Diagram in this section.) Many GMC Motorhome dealers and tire dealers will perform a free tire inspection to look for uneven or abnormal tire wear.

To equalize wear it is recommended that the tires be rotated every 6,000 miles (or sooner if irregular wear develops) as shown.

For the longest tire life, any time irregular wear is seen, have the tires checked and rotated by your Motorhome dealer and have the cause of the uneven wear corrected. After rotation be sure to check wheel nut tightness (see "Notice" below) and to adjust tire pressures, front and rear. (See "Tire Pressure Placard" located on the glove compartment door.)

NOTICE: Wheel nuts should be tightened at certain intervals; see Wheel Nut Torque maintenance requirements under "Tightening Wheel Nuts" later in this section.

NOTICE: The disc brake pads should be inspected for wear when the tires are rotated.



Tire Rotation Diagram

ALIGNMENT AND BALANCE

Proper front end alignment improves tire tread mileage. Your vehicle's front end suspension parts should be inspected periodically and aligned when needed. (See the Maintenance Schedule folder for more information.) Improper alignment will not cause the vehicle to vibrate. However, improper toe alignment will cause front tires to roll at an angle which will result in faster tire wear. Incorrect caster or camber alignment will cause your front tires to wear unevenly and can cause the vehicle to "pull" to the left or right.

Proper tire balancing provides the best riding comfort and helps to reduce tire tread wear. Out-of-balance tires can cause annoying vehicle vibration and uneven tire wear such as cupping and flat spots.

TRACTION

A decrease in driving, cornering, and braking traction occurs when water, snow, ice, gravel, or other material is on the road surface. Driving practices and vehicle speed should be adjusted to the road conditions.

When driving on wet or slushy roads, it is possible for a wedge of water to build up between the tire and road surface. This is known as hydroplaning and may cause partial or complete loss of traction, vehicle control, and stopping ability. To reduce the chance of traction loss, follow these tips:

1. Slow down during rainstorms or when roads are slushy.
2. Slow down if road has standing water or puddles.
3. Replace tires when tread wear indicators are showing.
4. Keep tires properly inflated.

TIRE CHAINS

The radial tires which are standard on your vehicle are quite effective in winter snow conditions. If you feel the need for improved traction, conventional or studded* snow tires are recommended for use instead of tire chains.

However, if tire chains are used for improved traction in mud, sand or other conditions, use caution to avoid contact between the wheel housing and the chain. This condition could

arise, especially in the case of sharp turns, since the side-to-side clearance between the chain and the wheelhousing is at a minimum.

To reduce the chance of chain damage to your vehicle.

- Use chains that will give you the largest amount of clearance (especially between the sides of the wheel and the wheel housing). Otherwise, the chains may contact and possibly damage the wheel housing or the vehicle frame.
- If possible, use chains that have fasteners or buckles on the side of the chain that do not stick out further than the side chain links themselves.
- Install the chains as tightly as possible, then tighten again after driving $\frac{1}{4}$ to $\frac{1}{2}$ mile (0.4 to 0.8 kilometre).
- Avoid severe turns which could cause contact between the chain and the vehicle wheel housing or frame.
- Drive in a restrained manner, avoiding large bumps, potholes, sharp turns and other maneuvers which could cause the Motorhome to bounce up and down.
- DO NOT EXCEED 20 mph (30 km/h), or the chain manufacturer's speed limit, if lower.
- Follow the chain manufacturer's instructions.

*Studded snow tires may be used only in states where lawful. When travelling, it is the owner's responsibility to comply with state laws regarding the use of studded snow tires.

TIRE REPLACEMENT CONSIDERATIONS

CAUTION

Do not mix different construction types of tires on your vehicle such as radial, bias, and bias-belted tires except in emergencies, because vehicle handling could be affected and may result in loss of control.

You should replace your tires when—

1. Your tires are worn to a point where $\frac{2}{32}$ inch or less tread remains, or the cord or fabric is exposed. To help you detect this, your tires have built-in tread wear indicators that appear between the tread grooves when the tread depth is $\frac{2}{32}$ inch or less. When the

indicators appear in two or more adjacent grooves at three spots around the tire, the tire should be replaced.

2. Your tire tread or sidewall is cracked, cut, or snagged deep enough to expose the cord or fabric.
3. Your tire has a bump, bulge or split.
4. Your tire sustains a puncture, cut, or other injury that can't be correctly repaired because of the size or location of the injury.

When replacing tires, you should use size 8.75-16.5LT or 8.75R-16.5LT, load range "D". Also, the construction type must be bias-ply steel belted, or steel belted radial.

Use of any other size or type tire may affect load carrying capacity, ride, handling, speedometer/odometer calibration, vehicle ground clearance, and tire clearance to the body and chassis. If replacing only a single tire, it should be paired on the same axle with the least worn tire of the other five.

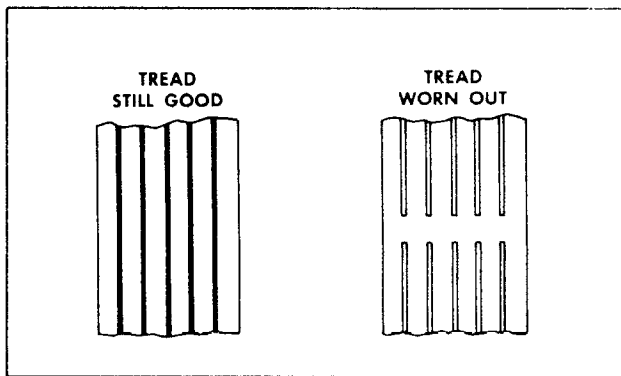
WHEEL REPLACEMENT CONSIDERATIONS

Wheels must be replaced if they become damaged (for example: bent, heavily rusted, leak air) or if lug nuts often become loose. Do not straighten bent wheels or use inner tubes in leaking wheels used with tubeless tires. Such wheels may have structural damage and could fail without warning.

When replacing wheels for any reason, the new wheels should be equal in load capacity, inflation pressure capacity, diameter, width, offset, and mounting configurations to those originally installed on your vehicle.

A wheel of the wrong size or type may adversely affect load carrying capacity, wheel and bearing life, brake cooling, speedometer/odometer calibration, stopping ability, headlight aim, bumper height, vehicle ground clearance, and tire clearance to the body and chassis. Replacement with "used" wheels is not advised: They may have been subjected to harsh treatment or very high mileage and could fail without warning.

Motorhome wheels will accommodate both radial and bias belted tires. However, if wheel replacement is required, be sure the word "RADIAL" is stamped in the rim.



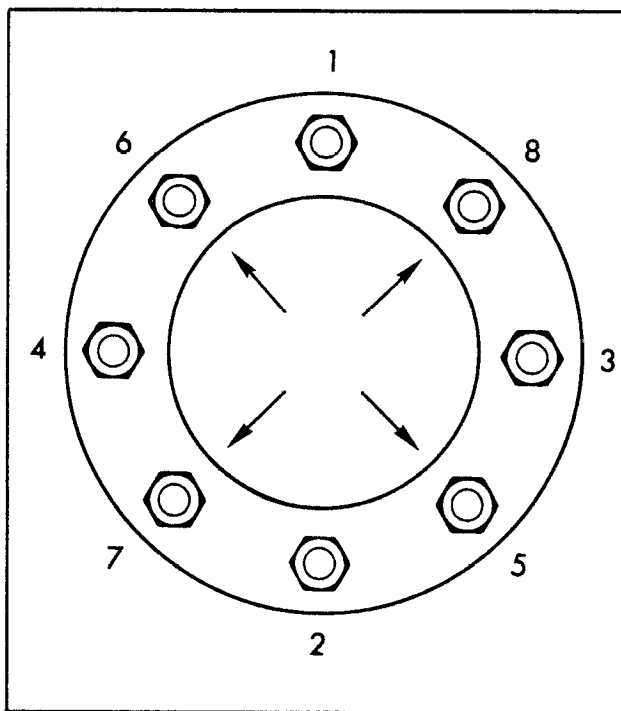
Tire Tread Wear Indicator

NOTICE: The use of wheels and/or tires with higher load carrying limits than originally equipped on your vehicle does not in itself increase the GAWR's or the GVWR of the vehicle.

Proper replacement wheels can be obtained from your GMC Motorhome dealer.

WARRANTY

Tires are warranted by the tire manufacturers. Warranty information is included in the New Vehicle Warranty folder furnished with your vehicle.



Wheel Nut Tightening Sequence

TIGHTENING WHEEL NUTS

IT IS THE OWNER'S RESPONSIBILITY TO FOLLOW THESE PRECAUTIONARY PROCEDURES:

CAUTION

As soon as possible after installing a wheel, AND at 500 miles (800 kilometres) after such installation, have a mechanic tighten wheel nuts with a torque wrench to 250 foot-pounds. This precaution is necessary because the clamping system used on Motorhome wheels in some cases needs to seat before the fasteners will hold a uniform clamp load and remain fully tightened. ALSO, nut tightness on all wheels should be set with a torque wrench at the intervals shown in the Maintenance Schedule folder.

Wheel nuts should be tightened alternately and evenly to the correct torque in the sequence shown. Improperly tightened wheel nuts could eventually allow the wheel to come off while the Motorhome is in motion, possibly causing loss of control. (Also see the caution at the beginning of this section regarding the danger of mixing metric and customary fasteners.)

Tighten wheel stud nuts as follows:

1. Install all nuts loosely, then finger-tighten only the nuts marked by arrows (see illustration).
2. Tighten all nuts to specified torque in sequence illustrated. Never use oil or grease on studs or nuts.

See IN CASE OF EMERGENCY section for procedure used to change tire.

CAUTION

To help avoid personal injury and/or property damage, if any wheel experiences a single stud failure caused by a loose-running wheel, all wheel studs should be replaced.

A loose-running wheel may cause only one stud to break, but several more studs may become fatigued to the point of failure, but not actually breaking. Replacing only the broken stud and remounting wheel will then set the stage for a second and possibly more

serious failure. If holes in the wheel have become elongated or enlarged, replace wheel.

WHEEL BEARINGS

FRONT WHEEL BEARINGS

At intervals listed in the Maintenance Schedule folder, front wheel bearings should be cleaned and inspected for wear or damage by your Motorhome dealer. The bearings should be replaced if necessary. If bearings are suitable for continued use, they should be repacked with bearing grease—GM Part Number 1051344 or equivalent, a premium high melting point lubricant.

REAR WHEEL BEARINGS

A periodic rear wheel bearing repack is required as indicated in Maintenance Schedule folder. These bearings should be cleaned and repacked with Lithium Soap Multi-Purpose Grease meeting GM Specification 6031-M or equivalent.

The adjustment of the bearing must be done with the wheel off the floor, and rotating the wheel while tightening nut. At this time make the torque readings as follows:

1. Tighten adjusting nut with a torque wrench to 25-30 foot-pounds with wheel rotating to ensure that all parts are properly seated and threads are free.
2. Back off nut one-half turn. Re-tighten nut finger-tight.
3. If unable to install cotter pin at finger-tight position, back off one slot, then secure with cotter pin.
4. Rear hub must be rotated at least three revolutions of spindle nut during tightening and retightening operations.
5. End play should be .001" to .005". Also at this interval the rear suspension control arms should be lubricated. This is accomplished at the fittings between the rear wheels.

FRONT SUSPENSION

The front suspension consists of control arms, stabilizer bar, shock absorbers and a right and left side torsion bar. The front suspension components are designed to provide satisfactory service, ride, and handling if not overloaded, and if adjusted to specified vehicle front end ride height.

RIDE HEIGHT

The front of the torsion bar is attached to the lower control arm. The rear of the torsion bar is mounted into an adjustable arm. The front ride height is controlled by this adjustment.

The simplest way to adjust is to move arm slightly to achieve ride height and drive unit a few blocks so as to overcome delaying action.

NOTICE: Ride height is measured from top of elongated slot in frame rail to ground level. Tire inflation should be checked prior to making any ride height adjustment.

Ride height should be adjusted by raising vehicle to relieve strain on adjusting bolt. Lubricate adjusting bolt with chassis grease. Adjustment is made by repositioning adjusting bolt to wind-up and unwind torsion bar. Whenever ride height is changed, be sure to check front end alignment and readjust if necessary.

NOTICE: Overloading and incorrect ride height can create serious problems and shorten the service life of the vehicle. Adjust front suspension ride height to specifications shown.

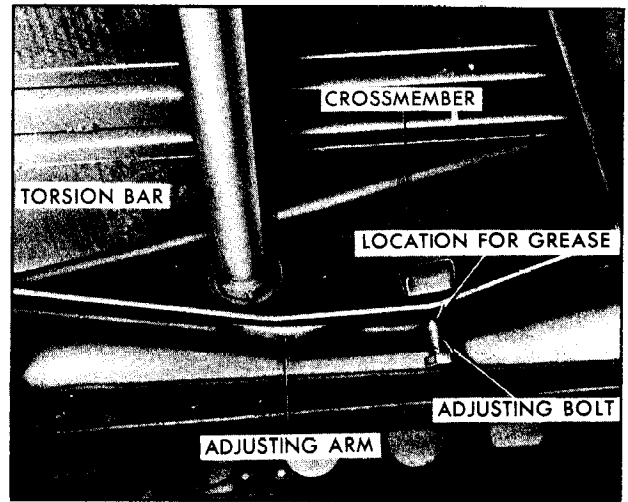
MAINTENANCE

No maintenance other than lubrication is normally required. Refer to lubrication information given earlier in this section for intervals and lubrication points.

REAR SUSPENSION

TYPE I

Type I rear suspension consists of the following components: control arms, mounting brack-



Location—Front Ride Height Adjustment

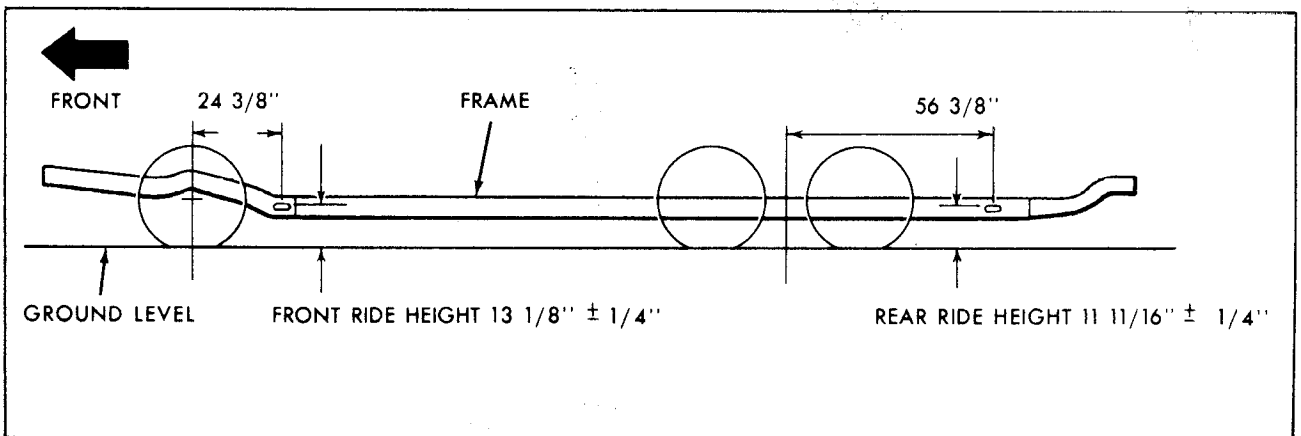
ets, air bellows, shock absorbers and mechanical height control valves located outside the vehicle at the tandem rear wheels (see illustration); an air compressor, solenoid valves, wet tank and pressure switch located in the control component module inside the vehicle (see illustration).

The rear suspension operates automatically as load varies, and is designed to maintain a consistent frame height.

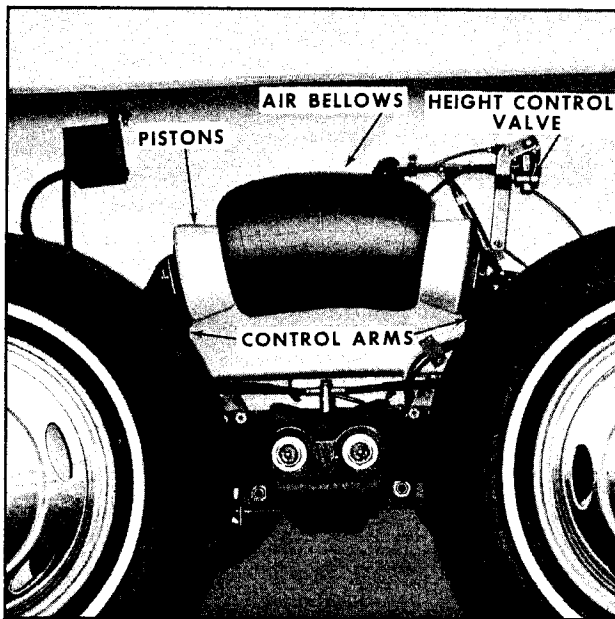
Ride Height

Ride height is measured from top of elongated slot in frame rail to ground level. Tire inflation should be checked prior to making any ride height adjustments.

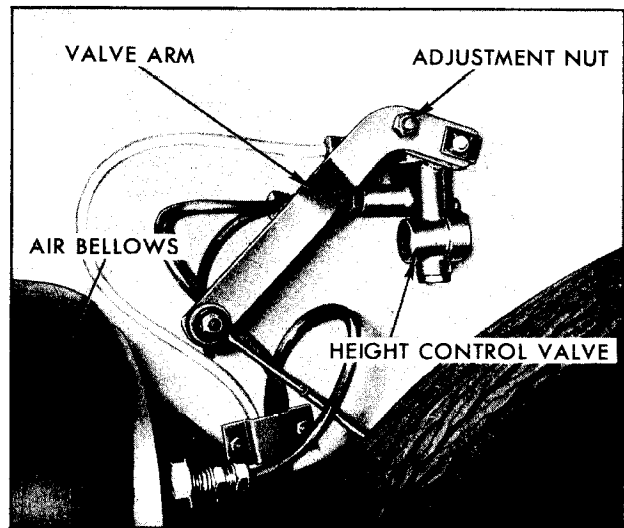
The rear suspension can be manually adjusted for variations in load distribution. Adjustment is made at the adjustment nut on the height control valve arm (see illustration).



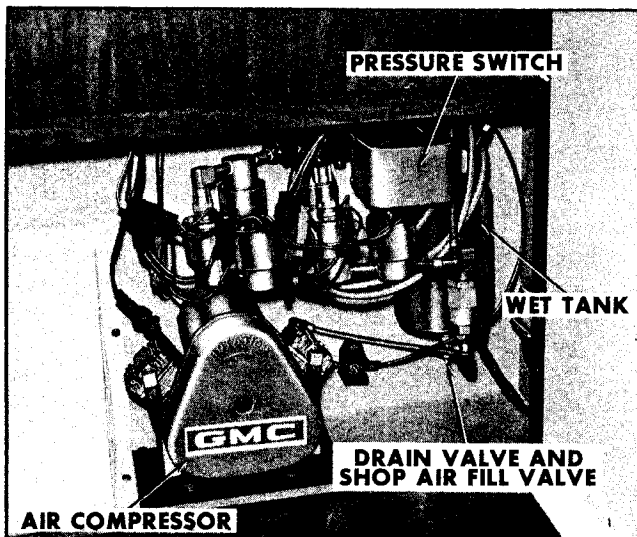
Checking Vehicle Ride Height



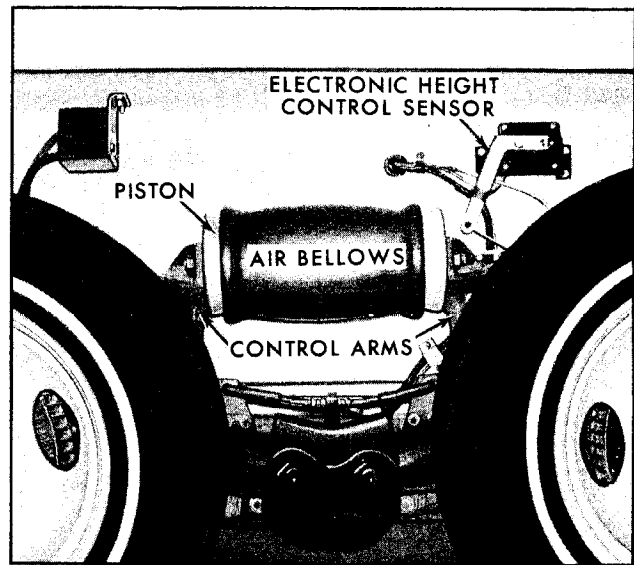
*Type I Rear Suspension Components
(Exterior of Vehicle)*



*Location—Rear Ride Height Adjustment
(Type I Rear Suspension)*



*Interior Control Components
(Type I Rear Suspension)*



*Type II Rear Suspension Components
(Exterior of Vehicle)*

NOTICE: Occasionally check air bellows to see if they are caked with mud deposits. If deposits are present, remove them from air bellows.

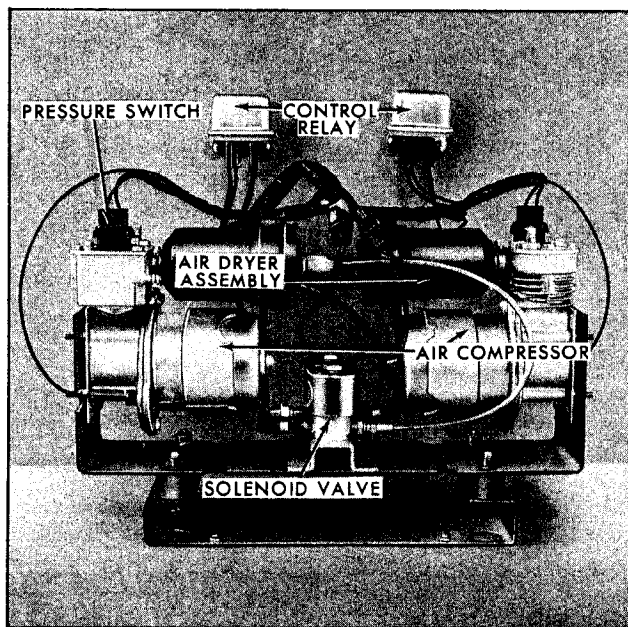
TYPE II

Type II rear suspension consists of the following components: control arms, mounting brackets, air bellows, shock absorbers, and electronic height control sensors located outside the vehicle at the tandem rear wheels (see illustration); two air compressors, two solenoid valves and two control relays located in the control component module inside the vehicle (see illustration).

Maintenance

1. The wet tank (see illustration) should be drained at 3 month or 3,000 mile intervals, or more often if above normal air compressor operation is encountered.

2. The air compressor must periodically have the air filter washed with soap and water solution or replaced. Filter should be serviced at intervals specified in Maintenance Schedule folder.



*Interior Control Components
(Type II Rear Suspension)*

The rear suspension operates automatically as load varies, and is designed to maintain a constant frame height.

Ride Height

Ride height is measured from the top of the elongated slot in the frame rail to ground level. Tire inflation should be checked prior to making any ride height adjustment.

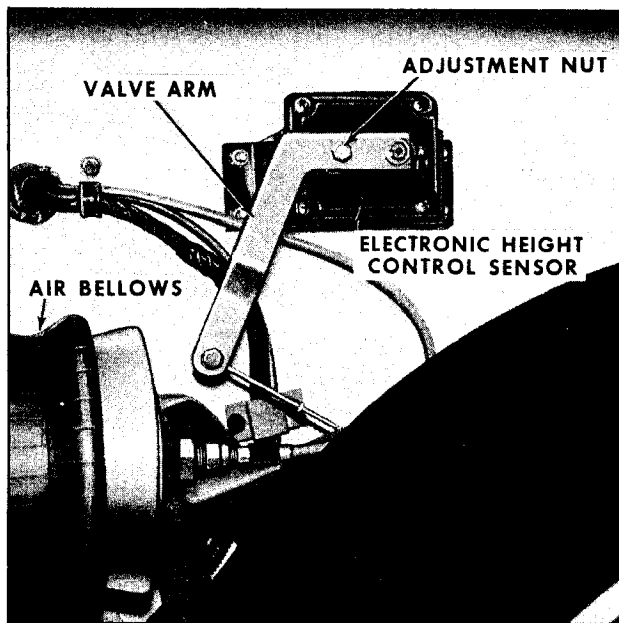
The rear suspension can be manually adjusted for variations in load distributions. Adjustment is made at the adjustment nut on the electronic height sensor arm.

Maintenance

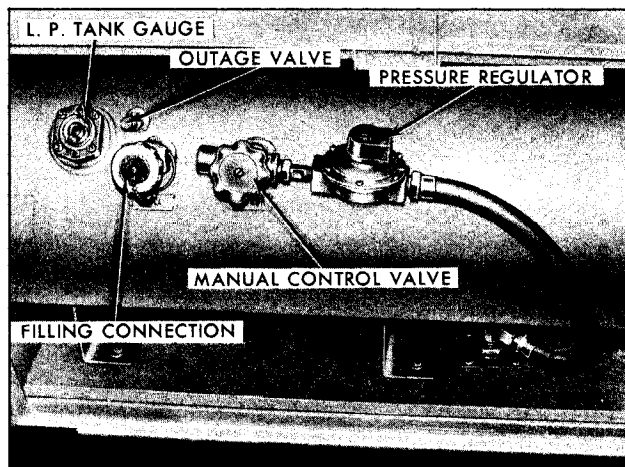
No routine maintenance is required on Type II rear suspension systems other than an occasional check of the air bellows to see if they are caked with mud deposits. If deposits are present, remove them from bellows.

LP GAS SYSTEM

NOTICE: If gasoline or LP gas fumes are noticed at any time, the cause should be determined and corrected without delay because of the possibility of fire.



*Location—Rear Ride Height Adjustment
(Type II Rear Suspension)*



LP Gas Tank Controls (Typical)

Bottled LPG (Liquid Petroleum Gas) is safe, economical, clean and conveniently available. It operates the kitchen stove and furnace in your Motorhome.

The tank is located on the right side of the vehicle in a compartment behind the rear wheels. The tank is accessible only from outside of the vehicle.

The knob on the left is the filling connection. This is where the tank is filled. Next to it is the outage valve, which is designed to prevent the tank from being overfilled. The control valve is next to it. This is where the main LP gas line to the vehicle can be shut off. On the line leading out of the control valve is the regulator valve. It should not be tampered with.

To fill the tank, drive the Motorhome to an LPG Dealer (**DO NOT REMOVE THE TANK**). The Dealer must use a P.O.L. adapter to fill the tank. The adapter is to be inserted into the filling connection. When liquid appears at the outage valve the tank is full.

Always refill empty LP gas tank as soon as possible. Appliances will stop working when the gas supply becomes exhausted.

NOTICE: The LP gas tank on your vehicle was purged of moisture prior to shipment from GMC Truck & Coach Division. However, it is recommended to avoid moisture problems from the LP gas itself, periodically have methyl alcohol added to your tank by an LPG dealer. Always have methyl alcohol added to tank for winter operation, to help prevent moisture from freezing in the LP gas lines or at the pressure regulator.

When you are not using the gas appliances, shut off the control valve on the tank.

You may find that in the southern part of the country only Butane is available for your LPG tank. It will work fine except that at temperatures below 30°F. (−1°C.). Butane is in a liquid state. In this temperature range no vapor is produced to fuel the appliances. If you expect to encounter temperatures below 30°F. (−1°C.), discharge the Butane from the tank and refill the tank with propane gas. Propane gas does not vaporize below a temperature of −44°F. (−42°C.).

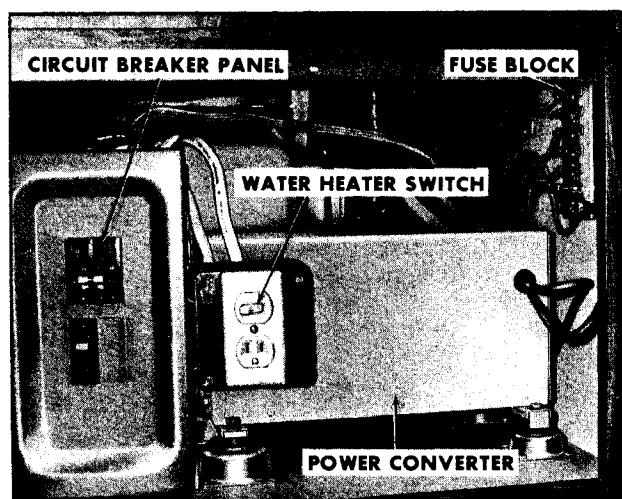
When opening the manual control valve to operate the system, open it all the way, then close it one-quarter turn. This will enable you to tell if the valve is open or closed.

CAUTION

BEFORE opening the control valve, check that controls for all gas appliances are in the OFF position. If this is not done, LP gas could accumulate inside the vehicle creating a fire or explosion hazard.

DO NOT alter LPG tank in any way. The regulator on the tank is pre-set. DO NOT attempt to adjust it. This should be done by an authorized service outlet.

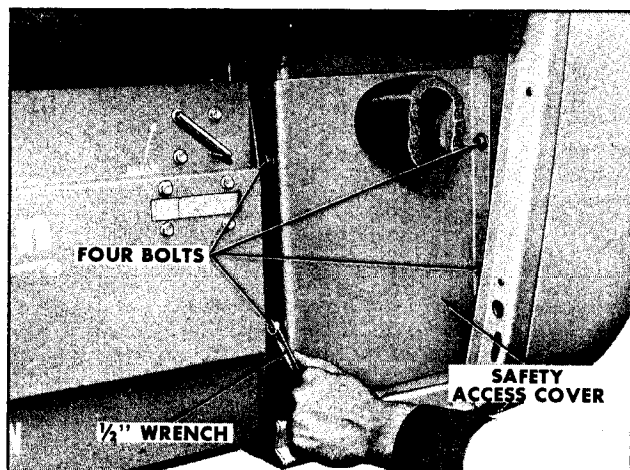
It is recommended that you travel with your LPG system off. All pilots and burners should be turned off and the control valve on the LPG tank should be off. This should also be done whenever the vehicle will not be in use. This reduces the hazard of leaking gas.



Living Area Electrical Compartment

LIVING AREA ELECTRICAL SYSTEM

Both the 12-volt DC and 120-volt AC circuits in the Motorhome living area are designed to be protected by a series of fuses and circuit breakers. The 12-volt living area circuits are protected by automotive-type fuses, and the 120-volt circuits are protected by circuit breakers like those found in modern homes.



Removing Safety Access Cover from Living Area Battery Compartment

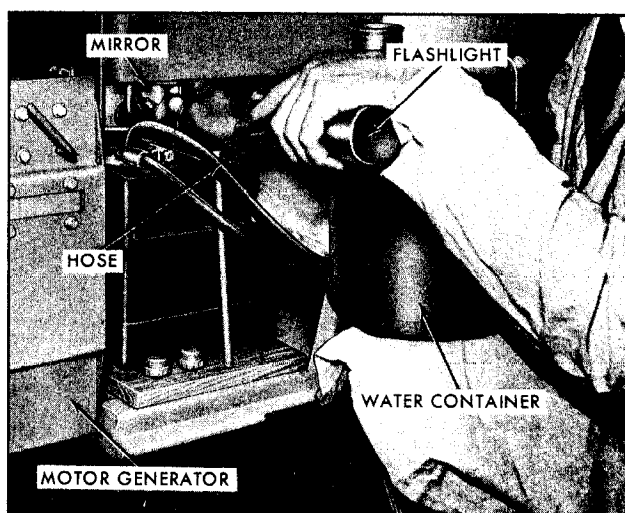
The 12-volt living area fuse block is located in the electrical compartment, next to the hall closet, along with power converter and main circuit breaker panel. In the event of an overloaded circuit, the cause should be corrected and a new fuse of the same capacity installed. For explanation of 12-volt fuse block number code, refer to **GENERAL DATA SPECIFICATIONS** later in this manual.

The main circuit breaker panel contains circuit breakers that are designed to snap to the "OFF" position in the event of an overloaded 120-volt circuit. Once the cause of the overload is corrected the circuit breaker switch may be moved back to the "ON" position. The circuit breaker panel is located in the living area electrical compartment.

The 120-volt / 12-volt power converter requires no periodic maintenance but care must be taken to ensure a proper flow of air through and around the unit. The power converter is located in the living area electrical compartment.

CAUTION

To help avoid personal injury and/or property damage, do not use living area electrical compartment as a storage area. The power converter must have a free flow of air through and around the unit. If air flow is restricted, the converter could overheat which could result in malfunction and permanent damage. Do not let unit get wet, but do keep it as clean as possible to help assure its long life. The converter can be cleaned with low pressure air (30 PSI maximum) if necessary.



Checking and Adding Water to Living Area Battery (Flame Arrestor Cap Type)

BATTERIES

The living area battery (Flame Arrestor Cap Type) or batteries (Freedom Type) are located just to the rear of the motor generator. To gain access to either type of battery, use a 1/2-inch wrench or socket to remove four bolts from the safety access cover (see illustration). Then remove cover. Be sure safety access cover is properly installed on the battery compartment when servicing is complete.

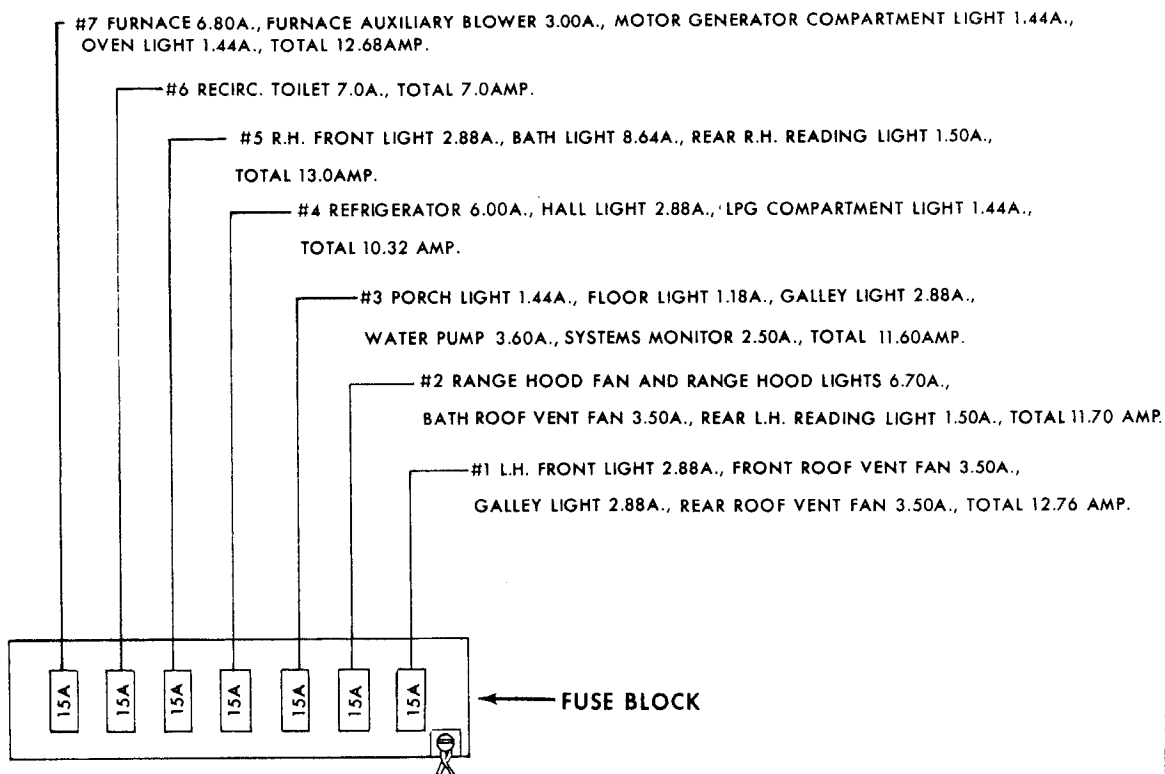
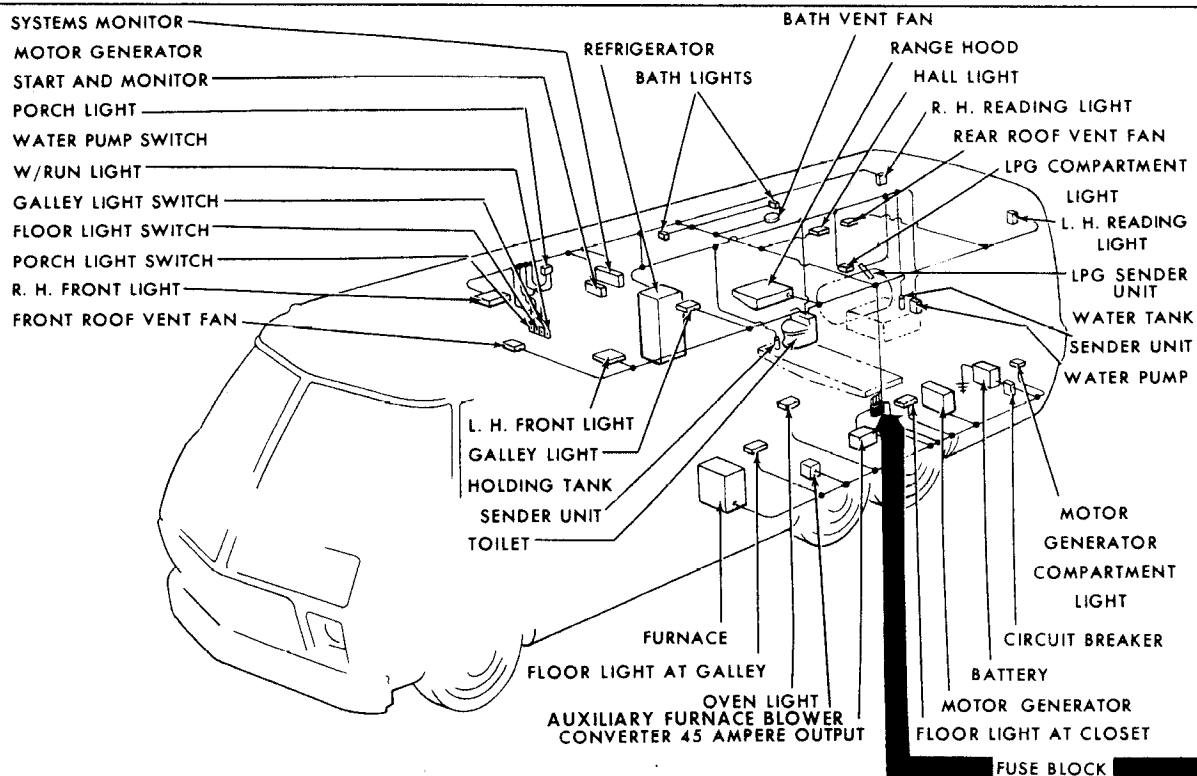
For full power needs, a Delco Battery is recommended at replacement time.

CAUTION

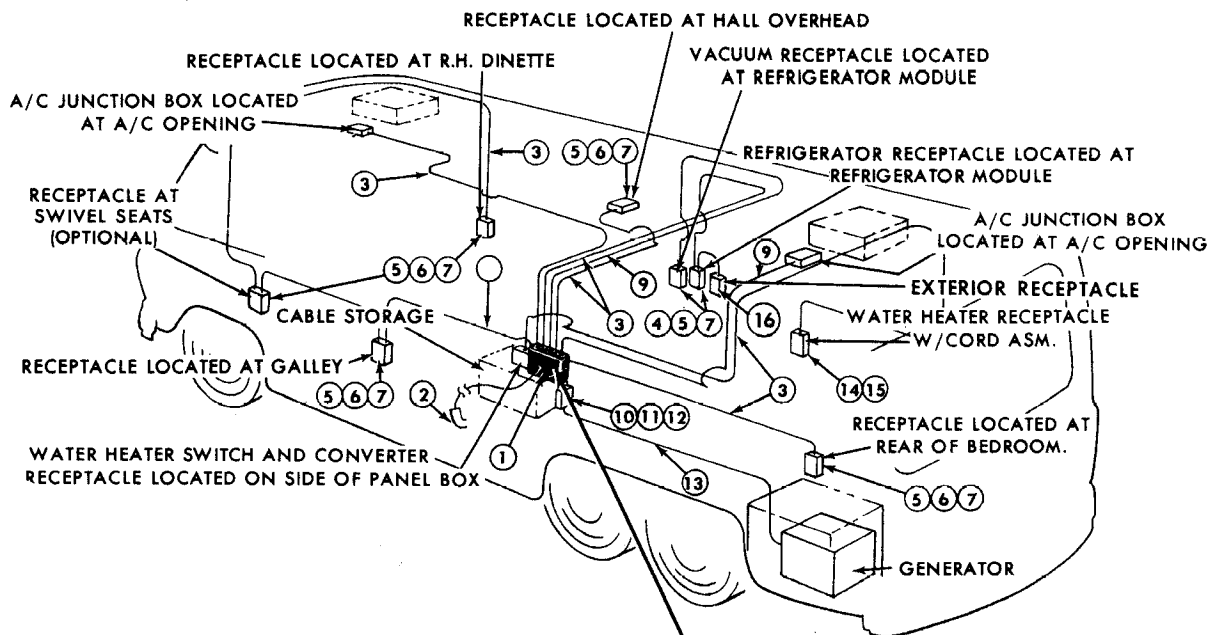
Follow the precautions listed in the **Jump Starting Caution** (see the "In Case of Emergency" section earlier in this manual) when working on or near a battery. Personal injury (particularly to eyes) or property damage may result from battery explosion, battery acid or electrical short circuit (burns).

Flame Arrestor Cap Type Battery

- Check fluid level in each cell monthly (as shown). Add colorless, odorless drinking water as needed to bring level to split ring at bottom of cell filler well. Do not overfill.
- Keep your battery, battery cables, terminals, and battery hold down bracket clean. Cleaning should be done every 12 months. Use a brush, and clean with ammonia and water or baking soda and water. Flush off with clean water.



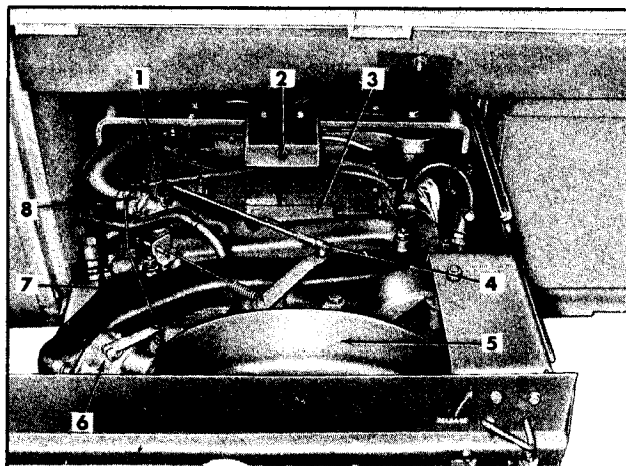
Living Area 12-Volt DC Electrical System



ITEM NO.	PART NAME
1	MAIN PANEL BOX
2	#8-4 WIRE CORD TYPE '50' W/PLUG
3	WIRE 12/2 W/GROUND WIRE
4	SINGLE RECEPTACLE
5	OUTLET BOX
6	DUPLEX RECEPTACLE
7	OUTLET PLATE
8	SWITCH & RECEPTACLE
9	14/2 W/GROUND WIRE
10	3 POLE 4 WIRE RECPTACLE
11	OUTLET BOX
12	OUTLET PLATE
13	#6-2 WIRE CORD IN METAL CONDUIT
14	'J' BOX
15	BLANK COVER PLATE
16	EXTERIOR RECETACLE

CIRCUIT BREAKER PANEL				
CIRCUIT #1	CIRCUIT #2	CIRCUIT #3	CIRCUIT #4	CIRCUIT #5
FRONT AIR COND. RECEPT.	WATER HEATER RECEPT.	HALL OVER RECEPT.	MICROWAVE RECEPT.	REAR AIR COND. RECEPT.
	CONVERTER RECEPT.	BEDROOM RECEPT.		
		GALLEY RECEPT.		
		SWIVEL CHAIR RECEPT.(OPT.)		
		R.H. DINETTE RECEPT.		
		REFRIGERATOR RECEPT.		
		EXTERIOR RECEPT.		
		VACUUM RECEPT.		

A-6870



1. VOLTAGE REGULATOR-RECTIFIER
2. CIRCUIT BREAKER
3. BREAKER POINT BOX
4. GOVERNOR LINKAGE
5. BLOWER SCROLL
6. ELECTRIC CHOKE
7. CHOKE LINKAGE
8. CARBURETOR

Onan Motor Generator (Top View)

Freedom Battery

Freedom batteries need no periodic maintenance. The top is permanently sealed and has no filler caps. Water will never have to be added. The test indicator (if so equipped) provides information for testing purposes only.

ONAN MOTOR GENERATOR MAINTENANCE

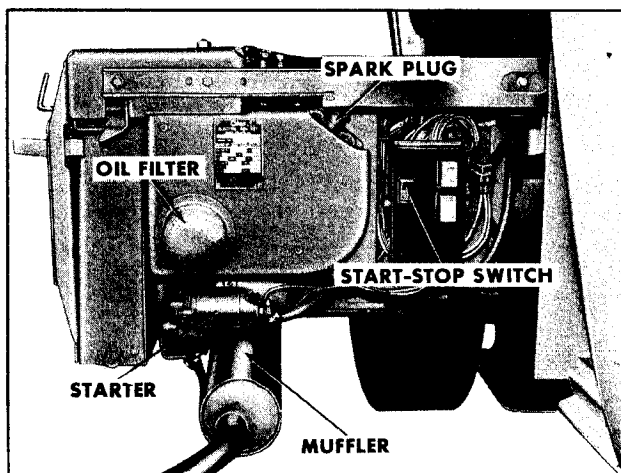
SERVICE INTERVALS

For service intervals refer to the Maintenance Schedule folder.

CHECKING OIL LEVEL

Check the oil level daily, or at least every eight hours of operating time. Check more often on a new unit as oil consumption is generally higher until piston rings seat properly.

NOTICE: Motor Generator crankcase is pressurized during operation. Do not remove oil filler cap and dipstick while unit is running.



Onan Motor Generator (Right Side View)

CHANGING OIL

Initial oil change should be made after the first 25 hours of operation; change every 100 hours after that. If operating in extremely dusty or cold weather conditions, change oil more frequently.

The 6KW Model has an oil capacity of 4 quarts; 4½ quarts if replacing oil filter.

Do not mix brands or grades of motor oil. Use a good quality oil with the designation SE/CC. If necessary to add oil between changes, use the same brand and grade of oil.

Use the following chart as a guide for the proper oil according to temperature ranges:

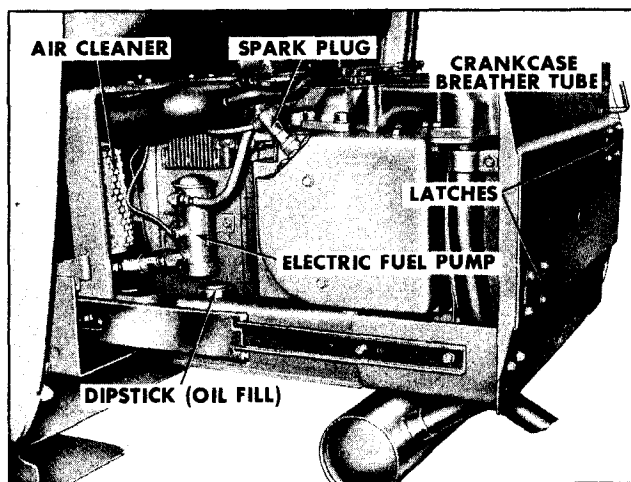
TEMPERATURE RECOMMENDED OIL	
Above 30°F. (−1.1°C)	SAE 30
0°F (−17.8°C.) to 30°F. (−1.1°C.)	SAE 5W30 or 10W40
Below 0°F. (−17.8°C.)	SAE 5W30

NOTICE: Fill engine with oil through dipstick tube.

The oil drain plug is located on the bottom side of the engine oil base. Unit must be pulled out on its slide rail to gain access.

OIL FILTER

Change the crankcase oil filter at least every 200 hours. The filter is located on the right side of the unit (facing the compartment). Remove by turning counterclockwise with a filter wrench. Before installing new filter, coat the gasket on



Onan Motor Generator (Left-Side View)

the filter's base with a light film of new oil. Install by turning clockwise until a light friction is noted, then turn an additional $\frac{1}{4}$ to $\frac{1}{2}$ turn.

NOTICE: Do not overtighten filter as damage may occur to rubber gasket which will cause filter to leak. Be sure to install sealing ring around filter; this ring is an air seal to prevent cooling air loss.

FUEL PUMP FILTER ELEMENT

Every 400 hours drain the fuel pump and check filter element. Remove fuel pump mounting screws and turn off hex nut on base of pump. If element appears dirty, replace with a new one. Be sure to replace gaskets when reassembling.

GOVERNOR

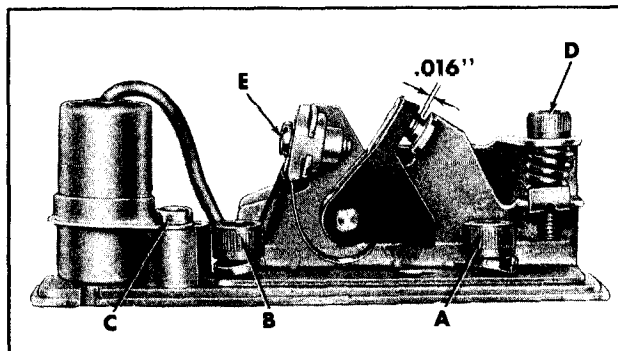
The governor controls the speed of the unit by opening or closing the throttle according to the load placed on the motor generator. Every 200 hours check governor linkage for freedom of movement through its entire travel. Clean and lubricate ball joint with graphite.

BATTERY

Motor generator is cranked from auxiliary (living area) battery. See "Living Area Electrical System" earlier in this section.

SPARK PLUGS

Check, clean and reset spark plugs every 100 operational hours. Replace spark plugs that show signs of fouling or electrode erosion. It is



Onan Breaker Point Adjustment

recommended that spark plugs be replaced at the beginning of each new season.

COOLING SYSTEM

The motor generator is cooled by a flywheel blower fan which pulls air over the cylinders and cooling fins. The air path is directed by sheet metal shrouds and plates. These shrouds and plates must always be installed properly so unit does not overheat.

Check and clean the cooling fins every 200 hours of operation. Remove any dust, dirt or oil which may have accumulated. Check compartment air inlet and air outlet for build-up of dirt, etc.

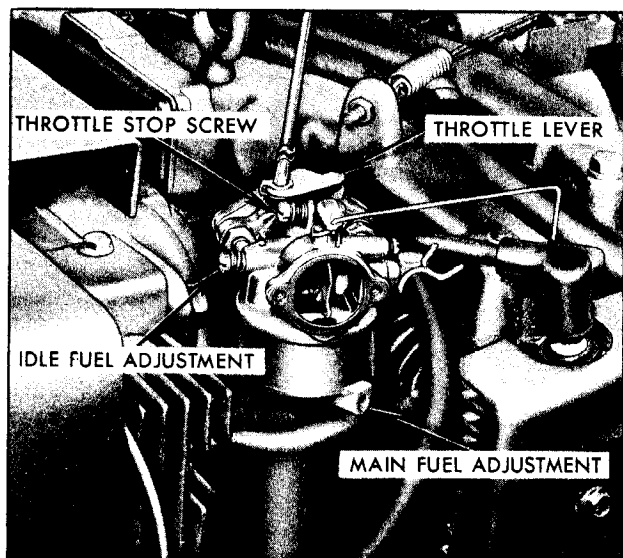
AIR CLEANER

Check and clean the air cleaner element at least every 100 operational hours. Loosen wing nut to remove. Clean by tapping base lightly on a flat surface. Replace element at least every 500 hours on the 6KW Model. Clean or replace more often in dusty conditions.

NOTICE: If the air cleaner is removed during repair or maintenance, be sure to put it back on correctly. Without the air cleaner on, the engine may backfire and cause a fire in the motor generator compartment.

BREAKER POINTS

To maintain maximum efficiency from the unit, check the breaker points every 100 hours and change the breaker points every 200 hours of operation. To change the breaker points use the following procedure:



*Onan Motor Generator
Carburetor Adjustment Points*

1. Remove the single screw and the cover on the breaker box.

2. Remove the two spark plugs so the engine can easily be rotated by hand. Check condition of spark plugs at this time.

3. Using a screw driver, remove mounting screw (C). Use an allen wrench to remove mounting screws (A) and (B). Remove points and condenser.

4. Replace points and condenser with a new set. Tighten screws (A), (B), and (C).

5. Remove the access hole cover on the top of the blower housing. This provides an access to view timing mark.

6. Rotate the engine clockwise (facing flywheel) by hand until mark on gear cover aligns with mark on flywheel. On the 6KW Model, rotate it to the 20° BTDC mark. Turn another ¼ turn (90°) to ensure points are fully open.

7. Using an allen wrench inserted in screw (D) on the right side of the points, turn points until gap measures .016 with a flat thickness gauge (be sure gauge is clean). Replace cover and screw on breaker box.

CARBURETOR

The carburetor has a main fuel (power) adjustment and an idle fuel adjustment. The main adjustment affects operation under heavy load

conditions. Idle adjustment affects operation under light or no-load conditions. Under normal circumstances, factory carburetor adjustments should not be disturbed.

On the 6KW Model the normal settings are 1½-turn open for main fuel adjustment and one turn open for idle fuel adjustment.

NOTICE: Forcing the needle against its seat will damage it. The needle does not completely shut off fuel when turned fully in.

Before final adjustment, allow the engine to warm up. Make the idle adjustment under no load. Open the main fuel adjustment until the engine runs smooth under acceleration with no load. Slightly more fuel may be needed (open about ¼-turn further) when sudden load is applied or if operating in very cold weather. Set the throttle stop screw with no load connected and while running at a low speed setting. Turn the screw to give approximately 1/32-inch between the throttle stop screw and throttle lever.

If the engine develops a "hunting" condition (alternate increase and decrease of engine speed), try correcting by opening the main fuel adjustment a little more. Do not open more than ½ turn beyond the maximum power point.

STANDARD TOILET

There is no routine maintenance required on the standard toilet. If a problem occurs, check and make the appropriate correction.

1. PROBLEM:

- Water keeps running into the bowl.

CAUSE:

- The blade in the bottom of the bowl is not closing completely, which in turn keeps the water control valve partially open. The groove into which the blade seats when completely closed is clogged with foreign material. Odors could also leak up into vehicle.

SOLUTION:

- Depress foot pedal to expose blade seal.
- Insert the end of a coat hanger or similar object into the seating groove and remove

the foreign material. Avoid damaging the rubber seal while cleaning.

2. PROBLEM:

- Toilet leaks. There is water on the floor.
- Specify the symptom. Determine if water is leaking from:
 - a. The vacuum breaker.
 - b. The water control valve.
 - c. Bowl to mechanism seal (if this is the problem, the water would not stay in the bowl).
 - d. Closet flange base seal.

SOLUTION:

- a. The vacuum breaker—if the vacuum breaker leaks when flushing the toilet, replace the vacuum breaker. (Toilet must be removed.)
- b. If the vacuum breaker leaks when the toilet is not in operation, replace the water control valve.
- c. Leaks at the bowl to mechanism seal—remove mechanism, and replace mechanism seal.
- d. Leaks at closet flange area—check front and rear closet flange nuts for tightness. If leak continues remove the toilet, check the closet flange height. The height should be between 1/4" and 7/16" above the floor. Adjust closet flange height accordingly and replace closet flange seal.

3. PROBLEM:

- Foot pedal operates harder than normal or blade sticks.

SOLUTION:

- Dry blade and apply a light film of Silicone spray to blade.

4. PROBLEM:

- Toilet fails to flush with pedal depressed.

CAUSE:

- Ball valve sheared off due to trying to flush toilet when water is frozen in valve.

SOLUTION:

- Replace ball valve. (Toilet must be removed.)

RECIRCULATING TOILET

Routine maintenance is not required on the recirculating toilet other than recharging which is described in OPERATION OF LIVING AREA FACILITIES section earlier in this manual. If a problem occurs, check and make the appropriate correction.

1. PROBLEM:

- Toilet wobbles.

CAUSE:

- a. Closet retaining nuts not tight.
- b. Mounting brackets not seated to floor.
- c. Closet flange too high.
- d. Mounting surface uneven.

SOLUTION:

- a. & b. Tighten closet retaining nuts.
- c. & d. Check closet flange height by laying straight edge across flange and measuring gap between straight edge and floor at four (4) leg locations (1/4 to 7/16 inch is recommended).

2. PROBLEM:

- Flushing action is weak or noisy.

CAUSE:

- a. Pump is running backwards (reversed wiring polarity).
- b. Cycling unit without enough charge water.
- c. Pump damaged by continuous dry operation.

SOLUTION:

- a. The black wire is positive (hot) and the white wire is negative (ground).
- b. Charge to proper level (3 gallons). Fill to charge level (c) on indicator lens.
- c. Replace pump assembly.

3. PROBLEM:

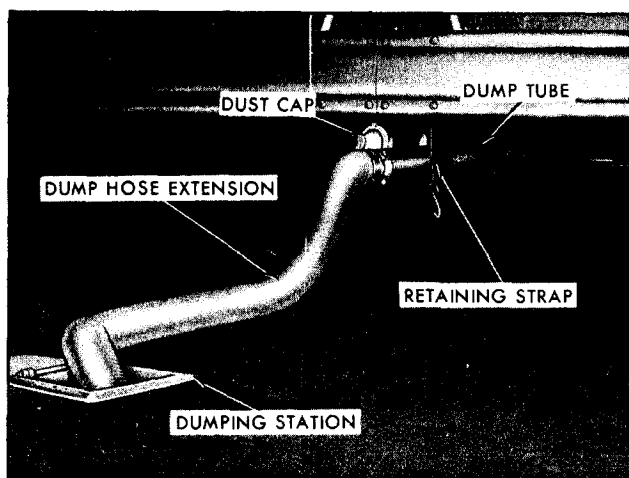
- Lack of capacity.

CAUSE:

- Too much charge water.

SOLUTION:

- Use three gallons only to charge. Fill to charge level (c) on indicator lens.



Dumping Station Connection

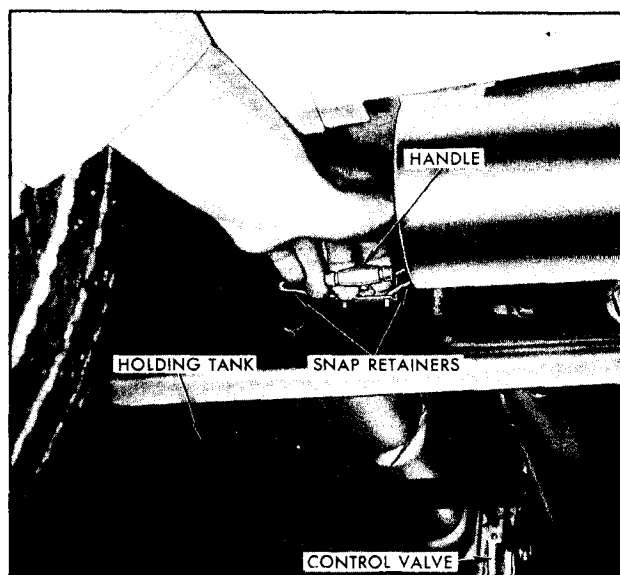
DRAINING HOLDING TANK

NOTICE: If holding tank is allowed to overflow, the overflow will back up through the bathroom shower drain.

1. Be sure the holding tank valve is closed. It is located on the left-hand side of the vehicle just behind the left rear tandem tire.
2. Remove dump hose extension from the storage tube inside rear bumper.
3. Disconnect dump tube retaining strap mounted to center of rear crossmember. Remove dust cap from dump tube. Lower dump tube approximately 6-inches to allow for proper flowage of holding tank contents.
4. Join dump tube extension to dump hose by rotating adapter clockwise.
5. Put end of dump hose extension into sanitary dumping station opening. Make sure there are no sags in hose as this would prevent complete dumping.
6. Release two snap retainers at the control valve and pull handle straight out to open. This will drain holding tank completely.

NOTICE: If you are using a sewer hook-up in an RV park keep the valve closed until you leave or until the holding tank becomes full. This will allow solids to drain more readily.

7. After the holding tank is empty, it is recommended that the control valve be closed and



Opening Holding Tank Control Valve

several gallons of water be added to tank through the toilet. Then pull handle out to rinse tank. A garden hose may be left running into toilet with valve open to further rinse dump hose and extension.

8. It is advisable to add about ½-gallon of water and some nontoxic, nonflammable odor-control type chemical to holding tank.
9. Be sure to push control valve handle back in as far as it will go and re-latch two snap retainers to assure valve will be positively locked while traveling. Install dust cap on dump tube. Connect dump tube retaining strap to center of rear crossmember.
10. Restore dump extension to storage tube located inside rear bumper.

DRAINING LIVING AREA WATER SYSTEM

1. Remove the water tank fill cap.
2. Open the holding tank dump valve, after making proper connection to approved dumping station.
3. Turn off water heater at switch in Living Area Electrical Compartment.

NOTICE: To gain access to water compartment remove trim panel and water compartment access door of rear right-hand seat.



Access to Water Pump and Controls

4. Open the water drain valves at the water pump and the water tank, and the two water line drain cocks at the kitchen sink. To gain access to water line drain cocks for kitchen sink remove the second drawer located to the left of the kitchen sink compartment door. Open the water heater drain valve.

5. Open kitchen and bathroom faucets.

6. Turn on water pump (if not already running).

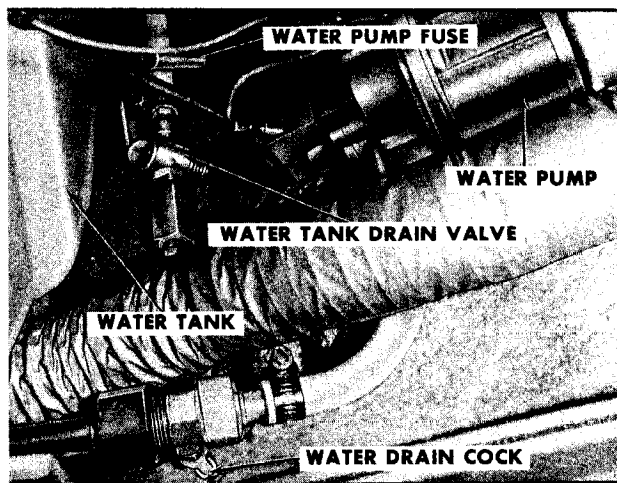
7. With the standard toilet, depress the foot pedal until water no longer enters the toilet bowl.

8. Allow system to drain.

9. Turn off water pump.

10. With the recirculating toilet, open the toilet water line fill valve, open dump valve, and momentarily press the flush button.

11. Open shower head shut-off valve and turn the shower on. Extend shower head toward sink drain. Allow the shower head and flexible hose to drain.



Water Tank Compartment

12. Remove access cover near lower shelf in closet. Open drain valve for external water connection. On all Motorhomes, at the external water connection (inside external utilities compartment), remove hose connection cover. Depress momentarily the button on the check valve (if so equipped) to allow this portion of plumbing to drain. Install hose connection cover.

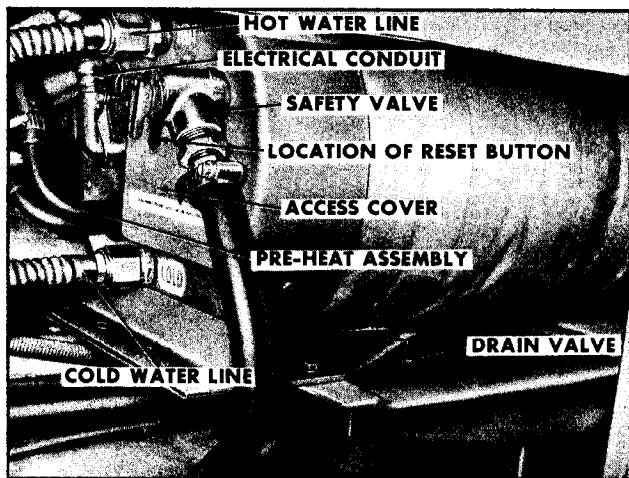
13. Using low pressure air (30 psi maximum), blow back through all faucets, forcing water from any low areas.

14. Connect water pump hoses and close all the water line drain cocks and valves, including the water heater drain cock. Close kitchen and bathroom faucets, close toilet water line valve (if equipped). Close holding tank dump valve and latch. Stow holding tank tubes and replace dust cap. Install water tank fill cap.

WATER TANK FILTER

When water flows from the fresh water tank it circulates through the water tank filter before entering the water pump.

The water tank filter, which is located in the water compartment, is transparent and should be checked periodically and cleaned annually.



Water Heater (Typical)

A helpful sign that filter is dirty is when the transparent filter has become discolored.

Removing Filter from Water Lines:

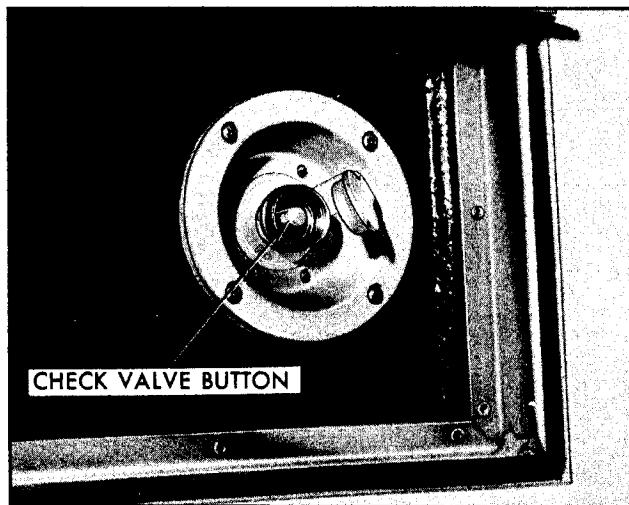
1. Turn water pump and water heater switches to "OFF" position.
2. Drain water tank.
3. Disconnect the two clamps that attach water filter to water line hoses.
4. Separate filter from hoses.

Disassembly of Water Filter:

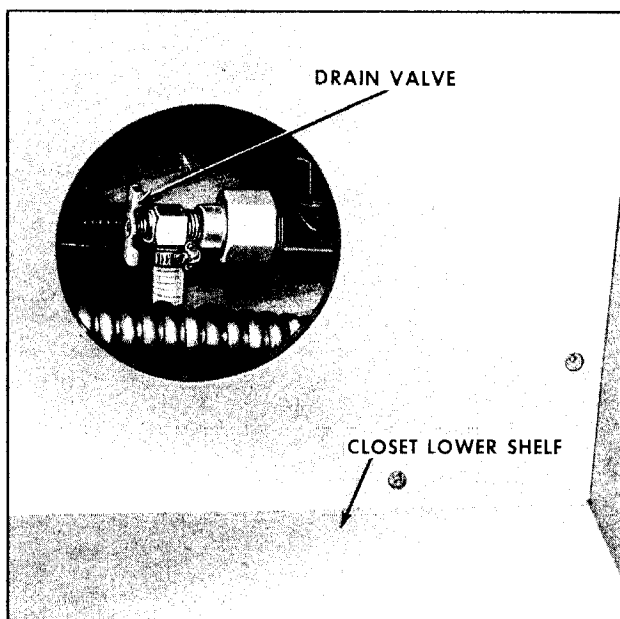
1. Remove screws which attach filter.
2. Remove filter screen.
3. Clean filter and screen with water and a soft nylon bristle brush.

Assembly of Water Filter:

1. Place filter screen into filter.
2. Assemble filter together with screws.



External Water Connection (Type 1)



External Water Connection Drain Valve

Installation of Water Tank Filter:

1. Attach filter to water line hose connections.
2. Tighten hose clamps.
3. Refill water tank.

SANITIZING LIVING AREA WATER SYSTEM

To help assure complete sanitation of your living area water system, it is recommended that the following procedures be followed on a new system, one that has not been used for a period of time, or one that may have become contaminated:

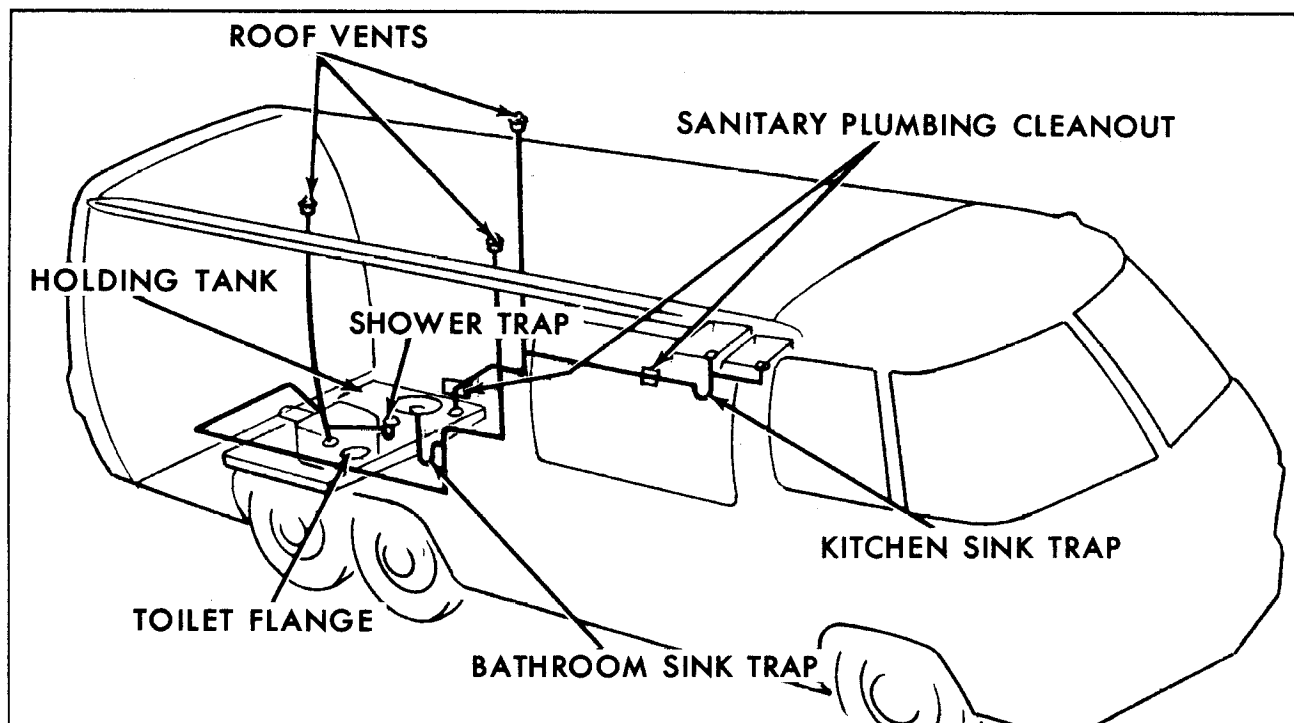
NOTICE: Be sure inlet valve to water treatment unit cartridge is closed while sanitizing living area water system.

1. Prepare a chloride solution using one gallon of water and $\frac{1}{4}$ cup of household bleach (5% sodium hypochlorite solution). Pour one gallon of solution into water tank for each 15 gallons of tank capacity.

2. Complete filling of tank with fresh water. Open each faucet and drain cock until all air has been released from the pipes and entire system is filled.

3. Allow to stand for three hours.

4. Drain and flush with potable (drinkable) fresh water.



Drainage System (Schematic)

5. To remove any excessive chlorine taste or odor which might remain, prepare a solution with one quart of vinegar to five gallons of water and allow this solution to agitate in tank for several days by vehicle motion.

6. Drain tank and again flush with potable water.

WINTERIZATION

When traveling in winter it is recommended that the water tank not be filled until the destination is reached. This will ensure that the vehicle has thoroughly warmed up. The water and holding tank systems should be drained before leaving for home. Also, an approved plastic pipe nontoxic, nonflammable antifreeze should be put in the sink and shower traps. If equipped with a recirculating toilet the standard winterization is to replace one-half of the charge water with an approved nontoxic, nonflammable antifreeze. This antifreeze added to the holding tank will help keep the tank contents from freezing.

See "Vehicle Storage" for additional information.

VEHICLE STORAGE

Your Motorhome may be stored for considerable lengths of time provided the following steps are performed:

1. SHORT TERM STORAGE—UP TO 60 DAYS AND ABOVE 32°F. (0°C.)

a. Fill fuel tanks to reduce excessive build-up of moisture in the fuel tanks.

b. Park Motorhome as level as possible, end for end and side to side.

c. Wash Motorhome. If exposed to road salts the exterior and underside should be thoroughly washed and flushed.

d. Remove all perishables, leave refrigerator door open. Be sure controls are turned off.

e. Ventilate the living area, drawers, cabinets, closets, etc.

f. Drain the holding tank, toilet and living area water system as described earlier in this section. Be sure the water pump and water heater are turned off. On vehicles with standard toilet, add silicone lubricant to toilet flush valve blade (edge only) and seal. It is recommended that a holding tank deodorizing chemical be added to the holding tank.

g. Turn off LP gas at tank valve.

h. Make sure furnace manual valve and thermostat are set at "OFF," range/oven burners at "OFF," oven at "PILOT OFF." If equipped with gas/electric refrigerator be sure gas is turned off at unit's control panel.

i. Plug or tape all drains to retard evaporation of residual moisture in drain traps.

j. Tape over vents to prevent insects from entering. Be sure to remove tape before operating LP gas appliances, to help avoid poisoning by carbon monoxide (see caution at beginning of section on OPERATION OF LIVING AREA FACILITIES).

k. Check Motorhome weekly to ensure that undesirable conditions are not forming (water seepage, mold, odors, etc.). Household air deodorizers or disinfectants in aerosol cans may be used as required, however, do not spray directly on any surface.

l. Maintain proper tire pressure.

m. Crack one window for ventilation, close all others as well as roof vents.

n. Check batteries (main and auxiliary) for charge. Specific Gravity reading of 1.255 is required to prevent deterioration of flame arrestor cap type battery. Add colorless, odorless drinking water if necessary and charge.

o. Turn off radio, exterior lights, and interior lights.

p. If Motorhome is to be moved, run engine at least two minutes with the transmission selector in "PARK."

q. Start and run engine for approximately 15 minutes weekly. Check engine, transmission and motor generator oil levels. Dipsticks should always be properly seated on tubes to prevent moisture from entering.

2. LONG TERM STORAGE — 60 DAYS OR MORE AND ABOVE 32°F. (0°C.)

a. Perform all of the above steps except Step q.

b. Run engine approximately 15 minutes with automotive air conditioning controls turned to "ON" position. Perform this operation every 30 days.

c. Treat all bright metal and rubber surfaces with a wax emulsion applied with a brush. A good liquid floor wax or equivalent is satisfactory.

d. Disconnect batteries, and check Specific Gravity every 30 days. See additional instructions for batteries under "Living Area Electrical System" given earlier in this section.

3. WINTER STORAGE—BELOW 32°F. (0°C.)

a. While many of the steps in preparing your Motorhome for storage when temperatures go below 32° F. are the same as preparing for storage above 32° F., freezing temperatures present an additional hazard.

b. Fill fuel tanks to reduce excessive build-up of moisture in the fuel tanks.

c. Check coolant level and add antifreeze if required, to protect to the lowest expected temperature during storage (at least -20° F.) (-29° C.) (-37° C. in Canada).

d. Change engine oil as shown on the recommended SAE Viscosity Chart to aid cold weather starting.

e. Park Motorhome as level as possible, end for end and side to side.

f. Wash Motorhome. If exposed to road salts, the exterior and underside should be thoroughly washed and flushed.

g. Remove all perishables and anything which may freeze (canned goods, medicine, etc.). Leave the refrigerator door open. Be sure controls are turned off.

h. To ventilate living area, open drawers, cabinets, closets, etc. If equipped with water treatment unit, remove cartridge assembly to avoid possible freezing.

i. Drain the holding tank, toilet and living area water system as described earlier in this section. Flush toilet. On vehicles with standard toilet, add silicone lubricant to toilet flush valve blade (edge only) and seal. If equipped with recirculating toilet, drain and then charge with antifreeze solution (1½ gallons nontoxic, non-flammable antifreeze and 1½ gallons water). Be sure the water heater is turned off. Also, be sure the water treatment cartridge assembly is removed from vehicle and stored in a heated facility. Be sure living area water tank has been drained,

then add antifreeze solution (5 gallons non-toxic, nonflammable antifreeze and 5 gallons water) to water tank. Open all faucets and turn on water pump. When colored water comes out of the faucets, close faucet and turn off water pump.

NOTICE: Be sure inlet valve to water treatment unit is closed before pumping nontoxic antifreeze solution into pumping system. Also, after winter storage do not install water treatment cartridge assembly until nontoxic antifreeze has been flushed from the water system.

j. Turn off LP gas tank valve.

k. Make sure furnace manual valve and thermostat are set at "OFF," range/oven burners at "OFF," oven at "PILOT OFF." If equipped with gas/electric refrigerator be sure gas is turned off at unit's control panel.

l. Add nontoxic, nonflammable antifreeze ($\frac{1}{2}$ cup) to the kitchen, bathroom, and shower drains.

m. Tape over drain openings (except toilet) to prevent evaporation if storage is lengthy (6 months or more).

n. Crack one window for ventilation, close all others as well as roof vents.

o. Start and run engine weekly for approximately 20 minutes. Check batteries (main and auxiliary) for charge. Specific gravity reading of 1.255 is required to prevent deterioration to flame arrestor cap type battery. Add colorless, odorless drinking water if necessary, and charge. If very low temperatures are expected the batteries should be removed and stored in a warmer area.

p. Check engine transmission and motor generator (if equipped) for evidence of oil leaks.

q. Maintain proper tire pressure.

r. Remove accumulations of snow as often as possible.

s. Turn off radio, exterior lights, and interior lights.

t. Tape over vents to prevent possible entry of snow. Be sure to remove tape before operating LP gas appliances, to help avoid poisoning by carbon monoxide (see caution at beginning of section on OPERATION OF LIVING AREA FACILITIES).

u. Before moving, run engine at least two minutes with the transmission selector in "PARK" position.

v. Drain moisture from suspension wet tank.

MOTOR GENERATOR STORAGE

If the motor generator will be out of service for more than 30 days, the following steps should be taken to protect the unit:

1. Run the unit until thoroughly warm.
2. Disconnect fuel supply and run until unit stops.
3. Drain oil from crankcase while still warm. Refill and attach a tag stating oil viscosity used.
4. Remove each spark plug. Pour one ounce of rust inhibitor (or SAE 50 oil) into each cylinder. Crank engine several times. Install spark plugs.
5. Service air cleaner.
6. Clean governor linkage and protect by wrapping with a clean cloth.
7. Plug exhaust outlet to prevent entrance of moisture, dirt, bugs, etc.
8. Wipe entire unit with a clean cloth. Coat rustable parts with a light film of grease or oil.

VEHICLE TRIP PREPARATION

The trip preparation is designed to prepare the Motorhome for an extended trip or vacation. Following the preparation list will aid in providing convenience and proper operation of the vehicle.

SPRING AND/OR SUMMER TRIP PREPARATION

Exterior

- a. Fill LP gas tank.
- b. Sanitize and fill water tank.
- c. Empty and deodorize holding tank.
- d. Check that all exterior vents are unobstructed.
- e. Drain moisture from suspension wet tank.
- f. Check operation of the following lights:
 - Headlights
 - Parking and turn signals
 - Tail and stop
 - Emergency flashers
 - Back up lights

Marker and clearance
License

- g. Check the following fluid levels
 - Engine oil
 - Batteries (If Freedom battery, check test indicator)
 - Engine coolant
 - Windshield washer reservoir
 - Motor generator oil
- h. Check tires for pressure and wear.
- i. Wash Motorhome
- j. Check windshield wipers for wear

Interior

- a. Check the operation of the following:
 - Electro-Level system
 - Wipers and washers
 - All interior lights
 - Range/Oven
 - Refrigerator
 - Air Conditioner
 - Automotive
 - Roof-mounted
 - Vent fans
 - Water pump
 - Water heater
 - Faucets (includes shower)
 - Toilet-Charge recirculating toilet
 - Motor generator
 - Interior electrical system
 - 12-volt
 - 120-volt
 - Water treatment unit
 - Monitor panel
- b. Check the following fluid levels:
 - Transmission
 - Power steering
- c. Clean the following:
 - Upholstery
 - Counter tops
 - Cabinetry
 - Range/Oven
 - Sinks
 - Toilet
 - Screens
 - Windows
 - Vacuum carpeting

NOTICE: In addition to the above items, be sure all scheduled vehicle maintenance has been performed. See Maintenance Schedule folder for details. The folder includes information on required fluids and lubricants for your vehicle.

FALL AND/OR WINTER TRIP PREPARATION

Exterior

- a. Fill LP gas tank (Add methyl alcohol).
- b. Fill water tank
- c. Empty and deodorize holding tank
- d. Check that all exterior vents are unobstructed.
- e. Drain moisture from suspension air reservoir.
- f. Check operation of the following lights:
 - Headlights
 - Parking and turn signals
 - Tail and stop
 - Emergency flashers
 - Back-up lights
 - Marker and clearance
 - License
- g. Check the following fluid levels:
 - Engine oil
 - Batteries (If Freedom battery, check test indicator)
 - Engine coolant (test freeze protection level)
 - Windshield washer reservoir
 - Motor generator oil
- h. Mount snow tires
- i. Check tire pressure and wear
- j. Wash Motorhome

Interior

- a. Check operation of the following:
 - Electro-Level system
 - Wipers and washers
 - All interior lights
 - Range/Oven
 - Refrigerator
 - Air conditioner
 - Automotive
 - Roof-mounted
 - Vent fans
 - Motor generator
 - Interior electrical system
 - 12-Volt
 - 120-Volt
- b. Check operation of following (if water system is filled):
 - Water pump
 - Water heater

Faucets

Toilet—Recirculating toilet charged with recreational vehicle anti-freeze solution.

- c. Add recreational vehicle anti-freeze * (approx. ½ cup) to the following P-traps:

Kitchen sink
Bathroom sink
Shower drain

- d. Check the following fluid levels:

Transmission
Power steering

*Recreational vehicle anti-freeze means a non-toxic, nonflammable anti-freeze.

- e. Clean the following:

Upholstery
Counter tops
Cabinetry
Range/Oven
Sinks
Toilet
Screens
Windows
Vacuum carpets

NOTICE: In addition to the above items, be sure all scheduled vehicle maintenance has been performed. See Maintenance Schedule folder for details. The folder includes information on required fluids and lubricants for your vehicle.

For continuing satisfaction keep your vehicle all GM. General Motors Parts are identified by one of these trademarks:



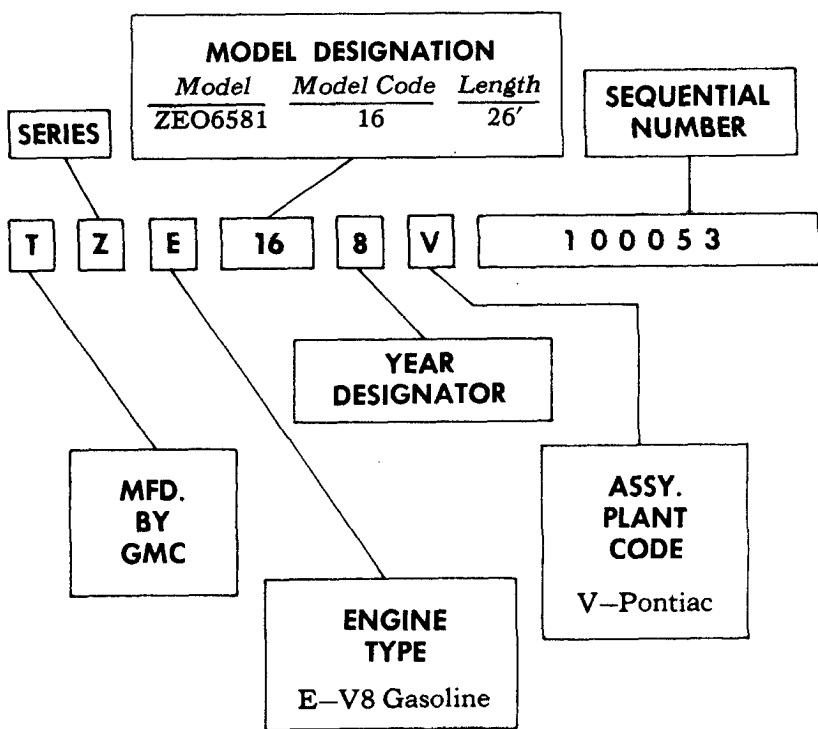
GENERAL DATA AND SPECIFICATIONS

These specifications are given for information only. Before using this information, see the cautions and other instructions throughout the manual. For further information, refer to the maintenance manual covering this vehicle. Your GMC Motorhome dealer may also be able to offer assistance.

VEHICLE IDENTIFICATION NUMBER (VIN)

This is the legal identification of the vehicle. It appears on a plate, which is located behind the right front access door (passenger side). The VIN also appears on the Vehicle Certificate of Title and Registration.

(TYPICAL IDENTIFICATION NUMBER TZE168V100053)



VEHICLE DIMENSIONS

Track	Front — 75.28 in.
	Rear — 82.12 in.
Wheelbase	160 in.
Length (Including optional spare tire)	26 ft.-9 in.
Width	96 in.
Height	8 ft.-1 in.
	With Roof Air Conditioner 9 ft.-2 in.
Interior Ceiling Height	76 in.

TIRE INFORMATION

SEE "Wheels and Tires" in the SERVICE AND MAINTENANCE section of this manual and the tire placard on the glove box door.

CAPACITIES

Fuel System	Two, 25 Gal. Tanks
Cooling System	23½ Qts.
Engine Oil	5 Qts. (Including Filter 6 Qts.)
Turbo Hydramatic	Drain & Refill 4 Qts.
	After Complete Overhaul 12 Qts.
Final Drive (Differential)	4 Pts.
Power Steering Pump	½ Qt.
Power Steering System	1½ Qt.
LP Gas Tank	62.0 Lbs.
Living Area Water Tank	40 Gal.
Holding Tank	40 Gal.
Hot Water Tank	6 Gal.

ENGINE*

Displacement	403 cu. in.
Carburetor	4 Barrel
Compression Ratio	7.9:1
Bore	4.351 in.
Stroke	3.385 in.
Firing Order	1-8-4-3-6-5-7-2

*See Tune-up label on engine for additional specifications.

BATTERIES

Type

Main (Automotive) Battery	
Freedom Type	Freedom Catalog No. R89-5
No. R89-5 Rated 4000 Watts @ 0°F. (—18°C.)	
Auxiliary (Living Area) Battery	Extra Duty Catalog No. 758
No. 758 Rated 4500 Watts @ 0°F. (—18°C.)	

MISCELLANEOUS

Radiator Cap (pressure opening)	9 PSI
	AC Type RC32
Thermostat	195°F.
Power Converter Output	45 Amps.
Furnace—Forced Air	30,000 BTU

VEHICLE FUSES AND CIRCUIT BREAKERS (Con't)

Cruise Control, Back-up Lights	CRUISE BACK-UP	SFE-20
Transmission Control, Parking Brake Light, Gauges	GAUGES TRANS	AGC-10

The following circuits employ circuit breakers or have fuses located as indicated:

Headlight Circuit Breaker	Built Into Light Switch
Main Harness Fusible Link	Between Junction Block and Horn Relay
Heater Blower Fusible Link	Built Into Line At Right Access Door Near Heater Blower Relay
Hazard Signal Flasher GM No. 673499	In Clip Behind Instrument Panel at Fuel Selector Switch
Turn Signal Flasher GM No. 491392	On Steering Column
Vehicle Trouble Light AGC-10	In Line, Behind Access Door, Near Light
Air Suspension Compressor 30A Circuit Breaker	In Fuse Block
Water Pump	In Line, Near Water Pump

LIVING AREA 12-VOLT SYSTEM FUSES

The following are located in the fuse block in the living area electrical compartment, near the hall closet. Do not use fuses of higher amperage rating than those specified below, or damage may result.

Usage	No. on Fuse Block	Fuse Type
L.H. Front Light Front Roof Vent Fan Galley Light Rear Roof Vent Fan	No. 1	AGC-15
Range Hood Vent Fan and Lights Bath Vent Fan Rear L.H. Reading Light	No. 2	AGC-15
Porch Light Aisle Lights Galley Light Water Pump Systems Monitor	No. 3	AGC-15

LIVING AREA 12-VOLT SYSTEM FUSES (Con't)

Refrigerator Hall Light LPG Compartment Light	No. 4	AGC-15
R.H. Front Light Bath Light Rear R.H. Reading Light	No. 5	AGC-15
Toilet (Recirc.)	No. 6	AGC-15
Furnace Furnace Auxiliary Blower Oven Light Motor Generator Compartment Light	No. 7	AGC-15

ONAN MOTOR GENERATOR (6000 WATT—50 AMP)

Bore	3 ⁹ / ₁₆ in.
Stroke	3 in.
Oil Capacity	4 Qt.
	(With Filter Change) 4 ¹ / ₂ Qt.
Spark Plug Type	ACR46S
Spark Plug Gap020 in.
Breaker Point Gap016 in.
Ignition Timing (Running or Static)	20° BTDC
Tappet Adjustment (Engine Cold)	
Intake003 in.
Exhaust012 in.

LIGHT BULB SPECIFICATIONS (INSTRUMENT PANEL)

<u>Usage</u>	<u>Quantity</u>	<u>Bulb. No.</u>
Brake System Tell Tale	1	161
Generator Tell Tale	1	161
Park Brake Tell Tale	1	74
Cruise Control Tell Tale	1	74
Door Ajar Tell Tale	1	74
Low Fuel Tell Tale	1	74
Engine Water Tell Tale	1	74
Electro-Level Tell Tale	2	74
High Beam Indicator	1	161
Turn Signal Indicator	2	168
Instrument Cluster Lights	2	194
Speedo Cluster Lights	2	194
Dome Lights	2	211
Radio Dial (AM/FM/Stereo/Tape)	1	566
Radio Dial (AM/FM/Stereo)	1	1893
Heater Control	1	1895
Voltmeter	1	53

LIGHT BULB SPECIFICATIONS (LIVING AREA)

<u>Usage</u>	<u>Quantity</u>	<u>Bulb. No.</u>
R.H. Front Light	2	1141
L.H. Front Light	2	1141
Kitchen Light	2	1141
Hall Light	2	1141
Porch Lights	1	1141
Compartment Lights	2	1141
Range Hood Lights	2	1156
Rear Compartment Reading Lights	2	1383
Bathroom Lights	6	1141
Aisle Lights	2	67
Visor Vanity Mirror	2	74
Microwave Oven		
Oven Cavity (120-volt)	2	25 Watt
Timer Dial (120-volt)	1	7 Watt

LIGHT BULB SPECIFICATIONS (EXTERIOR)

<u>Usage</u>	<u>Quantity</u>	<u>Bulb No.</u>
Clearance and I.D.	10	67
License	1	67
Side Markers—Front	2	194
Side Markers—Rear	2	194
Back-Up Lights	2	1156
Parking and Turn Signals	2	1157
Stop and Tail	2	1157
Headlights	2	6014

120-VOLT SYSTEM CURRENT RATING

Water Heater	8.7	Amp.
Power Converter	6.8	Amp.
Refrigerator	0.7	Amp.
Roof Mount Air Conditioner (Front)	15.0	Amp.
(Rear)	12.0	Amp.
Vacuum Cleaner	7.0	Amp.
Microwave Oven	14.8	Amp.

12-VOLT LIVING AREA COMPONENTS CURRENT RATING

R.H. Front Light	2.88 Amp.
L.H. Front Light	2.88 Amp.
Hall Light	2.88 Amp.
Rear R.H. Reading Light	1.50 Amp.
Rear L.H. Reading Light	1.50 Amp.
Kitchen Light	2.88 Amp.
Aisle Lights (Per Light)	.59 Amp.
Porch Light	1.44 Amp.
Bathroom Lights	8.64 Amp.
Range Hood Vent Fan and Light	6.70 Amp.
Furnace	6.5 Amp.
Water Pump	5.5 Amp.
Refrigerator	6.0 Amp.
Recirculating Toilet	7.0 Amp.
Monitor Panel	2.5 Amp.
Front Vent Fan	3.50 Amp.
Rear Vent Fan	3.50 Amp.
Bath Vent Fan	3.50 Amp.
Furnace Auxiliary Blower	3.00 Amp.
Motor Generator Compartment Lamp	1.44 Amp.
LPG Compartment Lamp	1.44 Amp.

FRONT END ALIGNMENT

NOTICE: Front and rear ride height must be checked and adjusted, if necessary, before proper front end alignment can be attained. Refer to "Front Suspension" and "Rear Suspension" earlier in this manual for details on ride height.

Caster (Degrees)*	+2° ± 1/2°
Camber (Degrees)**	R.H. + 1/2° ± 1/4°
	L.H. + 3/4° ± 1/4°
Toe (Inches)	-1/8 ± 1/16

*L.H. and R.H. must be within 1/2°.

**L.H. camber must be more positive (+) than R.H. camber.

OWNER ASSISTANCE

Your satisfaction and goodwill are important to your dealer and the GMC Truck & Coach Division. Normally, any problems that concern the sales transaction or the operation of your vehicle will be handled by your dealer's Sales or Service Departments. Sometimes, however, despite the best intentions of all concerned, misunderstandings can occur. If your problem has not been handled to your satisfaction, we suggest you follow these steps:

STEP ONE—*Discuss your problem with a member of dealership management.* Often complaints can be quickly resolved at that level. If the problem already has been reviewed with the Sales or Service Manager, contact the Dealer himself or the General Manager.

STEP TWO—*Contact the GMC Truck & Coach Division Zone Office closest to you listed on page 139* (or in Canada contact the General Motors Zone Office). If your problem can't be quickly resolved by the dealership without further help, contact the Zone's Customer Services Department and provide them with:

- Your name, address, telephone number
- Vehicle Identification Number*
- Dealer's name and location
- Vehicle's delivery date and mileage
- Nature of problem

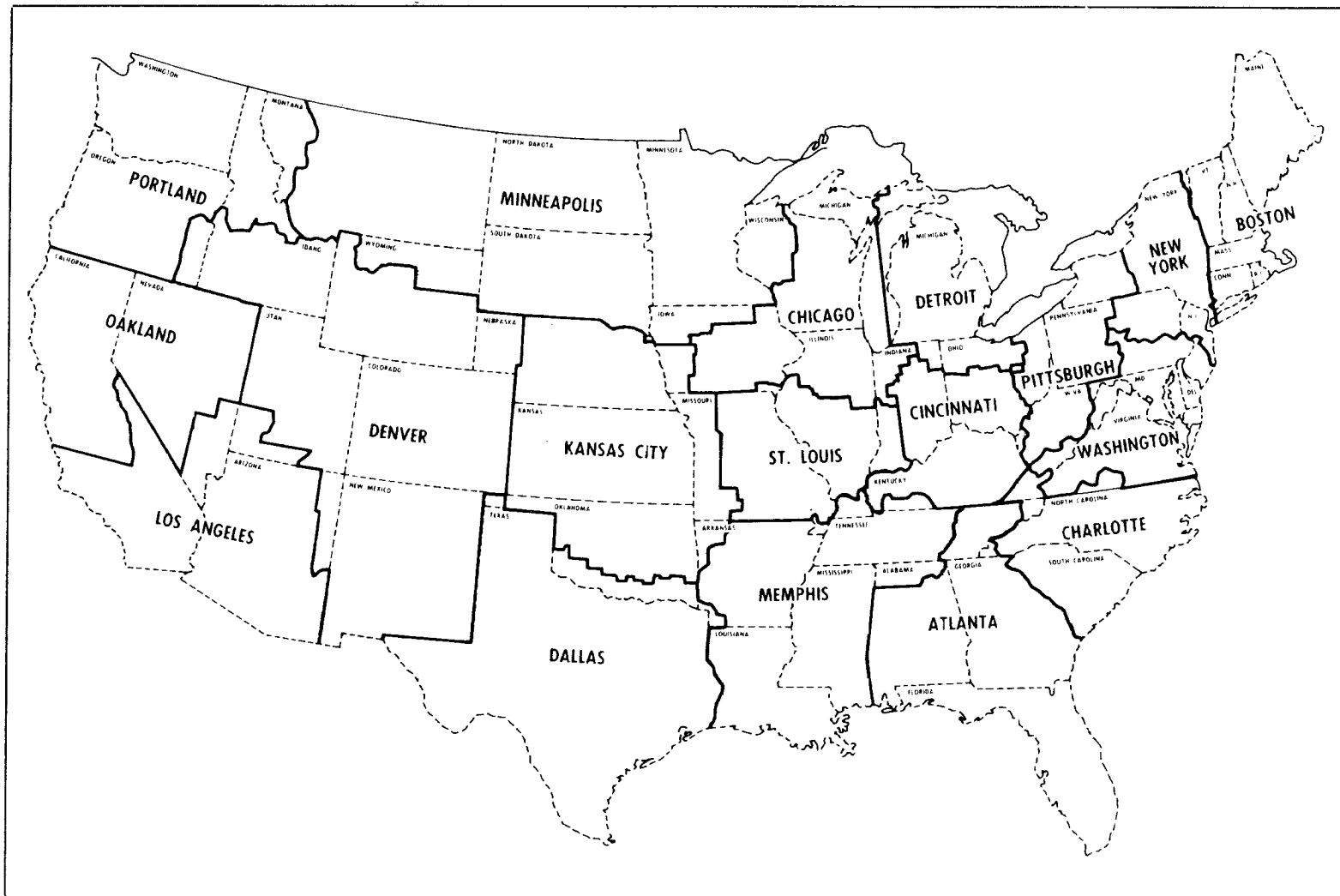
STEP THREE—*Contact the Customer Services Representative, GMC Truck & Coach Division, 660 South Blvd. East, Pontiac, Michigan 48053 (phone 313-857-4547).* (In Canada, contact the Customer Services Representative, Oshawa, Ontario, phone 416-644-6624.) The representative will review all the facts involved. Then, if it is felt that some further action can be taken, the Zone will be so instructed. In any case, your contact will be acknowledged providing GMC Truck & Coach Division's position in the matter.

When contacting the Zone or Home Office, please bear in mind that your problem likely will be resolved in the dealership, utilizing the dealer's facilities, equipment and personnel. So it is suggested that you follow the above steps in sequence when you have a problem.

Your purchase of a GMC Truck & Coach product is greatly appreciated by both your dealer and GMC Truck & Coach Division. We want to help you in any way we can to make sure you are completely satisfied with your vehicle.

*Available from vehicle registration, title or vehicle identification plate.

U.S. ZONE TERRITORIES



U.S. ZONE OFFICES

When calling for assistance, please ask for Customer Services Representative

ATLANTA

5730 Glenridge Drive
Atlanta, Georgia 30302
Mailing Address
P.O. Box 50267
455-5570
Area Code 404

BOSTON

45 Williams Street
Wellesley, Mass. 02181
235-1114
Area Code 617

CHARLOTTE

6000 Monroe Rd.
Suite 222-A
Charlotte, N.C. 28230
Mailing Address
P.O. Box 180
Charlotte, N.C. 28230
371-5192
Area Code 704

CHICAGO

Commerce Plaza
2021 Spring Rd.
Oakbrook, Ill. 60521
Mailing Address
P.O. 4392
Chicago, Ill. 60680
654-6468
Area Code 312

CINCINNATI

4010 Executive Park Dr.
Suite 320
Cincinnati, Ohio 45241
841-5856
Area Code 513

DALLAS

6007 Peeler Street
P.O. Box 35187
Arlawn Station
Dallas, Texas 75235
688-5605
Area Code 214

DENVER

4715 Colorado Blvd.
Denver, Colo. 80216
320-5080
Area Code 303

DETROIT

600 S. Saginaw
Plant #4
Pontiac, Mich. 48053
857-3553
Area Code 313

KANSAS CITY

1509 N.E. Parvin Rd.
Kansas City, Mo. 64116
281-6061
Area Code 913

LOS ANGELES

8155 Van Nuys Blvd.
Suite 1030 Panorama Towers
Panorama City, Calif. 91402
873-5478
Area Code 213

MEMPHIS

3495 Lamar Ave.
Box 18467
Holiday City Sta.
Memphis, Tenn. 38118
346-5254
Area Code 901

MINNEAPOLIS

3001 Broadway N.E.
Minneapolis, Minn. 55413
378-3470
Area Code 612

NEW YORK

275 Old New
Brunswick Rd.
Piscataway, N.J. 08854
246-5203
Area Code 201

OAKLAND

10626 E. 14th Street
Oakland, Calif. 94623
Mailing Address
P.O. Box 24033
Oakland, Calif. 94623
577-0519
Area Code 415

PITTSBURGH

Two Parkway Center
875 Greentree Rd.
Pittsburgh, Pa. 15220
928-5081
Area Code 412

PORTLAND

5355 S.W. Western Avenue
Beaverton, Ore. 97005
646-7945
Area Code 503

ST. LOUIS

Suite 320
Crestwood Executive Center
St. Louis, Mo. 63126
849-5725
Area Code 314

WASHINGTON

Suite 410—Profess. Bldg.
1109 Spring St.
Silver Spring, Md. 20910
537-5353
Area Code 202

**Note: The State of
Alaska is serviced by
the Portland Zone.**

GENERAL MOTORS OVERSEAS DISTRIBUTION CORP. OFFICES

HAWAII, GUAM, AMERICAN SAMOA

General Motors Overseas
Distribution Corporation
1600 Kapiolani Boulevard
Suite 714
Honolulu, Hawaii
Mail—P.O. Box 341
Honolulu, Hawaii 96809
(808) 946-3988

MEXICO

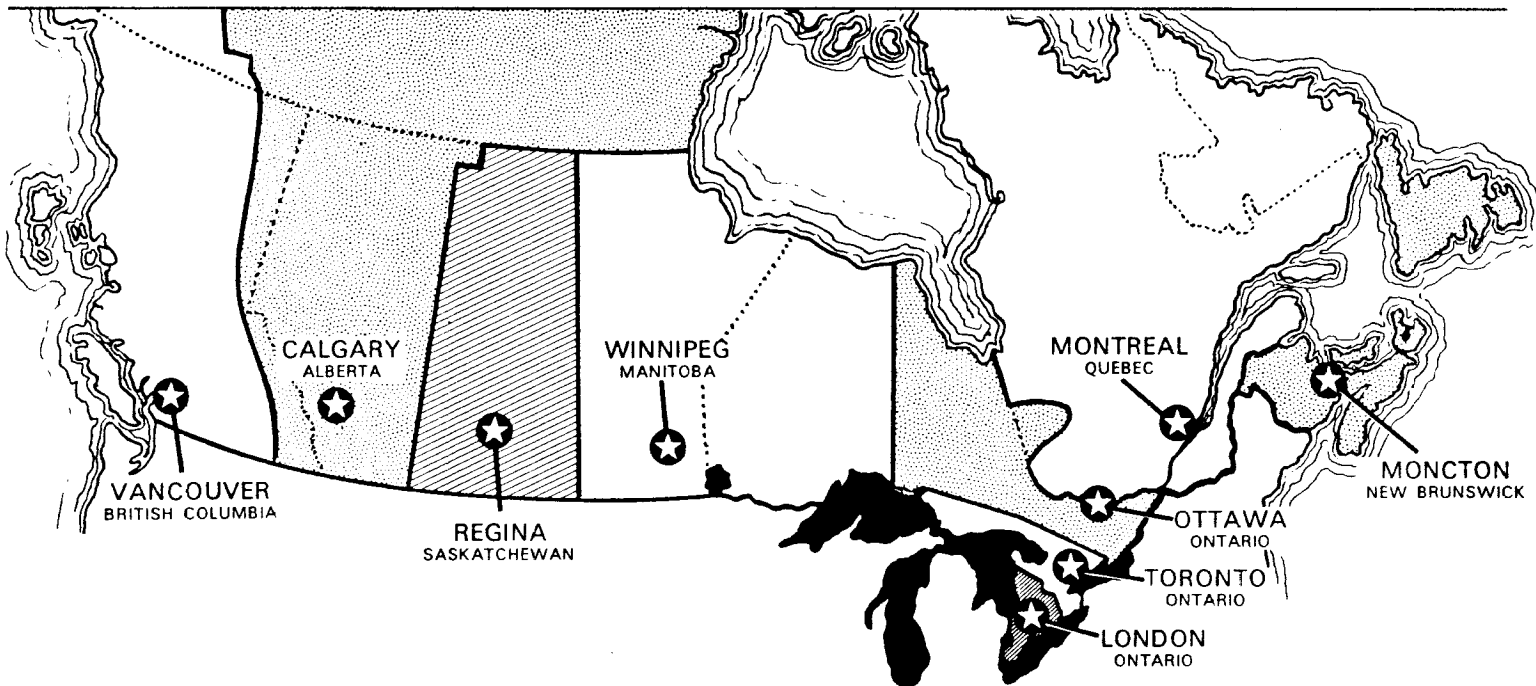
General Motors de Mexico
S.A. de C.V.
Av. Ejercito Nacional No. 843
Mexico 5, D.F.
Mail—Apartado 107 Bis
Mexico 1, D.F.
5 45-70-20

PUERTO RICO, U.S. VIRGIN ISLANDS

General Motors Overseas
Distribution Corporation
Suite No. 10
Centro Comercial San Francisco
Avenida De Diego
Rio Piedras, Puerto Rico
Mail—G.P.O. Box 4382
San Juan, Puerto Rico 00936
(809) 763-1315

PANAMA CANAL ZONE

General Motors Overseas
Distribution Corporation
Edificio De Diego
Esq. Calle 40 Y
Avenida Balboa
Panama, R.P.
Mail—Apartado 7872
Panama 9, Republic of Panama
25-1983



ZONES	ADDRESS	AREA CODE	PHONE NO.
VANCOUVER	900 Terminal Avenue Vancouver, B.C. V6A 2N6	604	684-9444
CALGARY	Box 2510 Calgary, Alberta T2P 2M7	403	243-4621
REGINA	581 Park Street Regina, Sask. S4N 5A9	306	543-2224
WINNIPEG	1345 Redwood Avenue Winnipeg, Man. R2X 0Y9	204	633-1080
LONDON	951 Pond Mills Road P.O. Box 5412 London, Ontario N6A 4P6	519	452-5151

ZONES	ADDRESS	AREA CODE	PHONE NO.
TORONTO	1200 Eglinton Ave. East Toronto Ont. M3C 1J1	416	446-5053
OTTAWA	875 Belfast Road Ottawa, Ont. K1G 0Z4	613	237-5051
MONTREAL	5000 Trans-Canada Hwy. Pointe Claire, Quebec H9R 4R2	514	697-9160
STE. FOY	979 Avenue de Bourgogne P.O. Box 10800 Ste. Foy, (Quebec), Que. G1V 4K7	418	653-2054
MONCTON	653 St. George Street Moncton, N.B. E1C 8M2	506	854-1500

AFTER-HOUR INFORMATION SERVICE

If you have attempted to contact a GMC Motorhome dealer after normal business hours, without success, you may call the toll-free number below. The operator will give you the location and phone number of the nearest dealer that provides After-Hour Assistance.

It should be understood, however, that any charges for after-hours service assistance must be borne by the owner. In those instances where the repair qualifies under our published warranty, the dealership charge for additional services, such as for after normal business hour repairs, will be at the owner's expense.

800-521-2806

In Michigan call: 800-482-9228

EMERGENCY SERVICE

**Engine
Transmission
Final Drive (Differential)
Front Suspension**

In the event you require Emergency Service to your vehicle's engine, transmission, final drive (differential), or front suspension and a GMC Motorhome dealer is not located in the immediate geographic area — the nearest Oldsmobile dealer may be able to offer you emergency service assistance. Any work performed will be at the discretion of the particular Oldsmobile dealer contacted. You will be required to pay the servicing Oldsmobile dealer and if the vehicle is under Warranty, the repair order can be submitted to the selling GMC Motorhome dealer for review and consideration for reimbursement.

MAINTENANCE MANUAL AND PARTS BOOK

Maintenance Manual and/or Parts Book can be purchased through any GMC Motorhome dealer.

IMPORTANT FACTS YOU SHOULD KNOW ABOUT GASOLINE MILEAGE AND HOW TO IMPROVE IT

How you drive, where you drive, and when you drive all affect how many miles/kilometres you can get from a gallon/litre of gasoline. The careful attention you give your vehicle as far as maintenance and repairs are concerned will also contribute importantly to fuel economy.

FUEL SELECTION

Use regular grade leaded or unleaded gasoline. Additional details on Fuel Requirements are given in **SERVICE AND MAINTENANCE** section.

"JACKRABBIT" STARTS

Gasoline can be saved (and engine and tire life prolonged) by avoiding fast starts away from lights and stop signs.

STOP-AND-START DRIVING

Frequent stops and starts during a trip really cut down on your miles per gallon (kilometres per litre). Plan even your short trips to take advantage of through streets to avoid traffic lights. Pace your driving like the expert drivers to avoid unplanned stops.

EXCESSIVE IDLING

An idling engine uses gasoline, too. If you're faced with more than a few minutes wait and you're not in traffic, it may be better to "turn off" and start again later.

SUDDEN STOPS

Sudden stops can also waste gasoline; instead of moving the vehicle, the energy is wasted as heat in braking. Energy in the form of gasoline is also needed to accelerate back to driving speed.

LUBRICANTS

A properly lubricated vehicle means less friction between moving parts. Consult this manual and the Maintenance Schedule folder for the proper lubricants to use and the lubrication intervals.

AIR CLEANER

Your vehicle receives its power from a mixture of gasoline and air. The air is taken into the system through the air cleaner. So it's important to replace the air cleaner at required intervals. A dirty air cleaner element reduces the engine performance and can waste gasoline.

TUNED ENGINE

Proper tuning (a check on timing, spark plugs, emission control devices, etc.) can improve your vehicle's gas mileage. You just can't expect an "out-of-tune" engine to give you good gas mileage and cleaner air.

EXCESS WEIGHT

Fuel economy is related to the work the engine must do. The heavier the load, the more it takes to run your vehicle. Keep weight to a minimum by removing any personal effects or luggage from the vehicle when they are not needed.

TIRE INFLATION

Under inflation not only causes needless wear of the tires, but can also waste gasoline. It's a good idea to check tire pressures often and, for best fuel economy, keep your tires inflated to the pressure shown in the Tire Placard (located on the inside of the glove compartment door).

WHEEL ALIGNMENT

Improper toe alignment will cause the front tires to roll at an angle which will result in faster tire wear. It takes power to overcome improper alignment which, in turn, wastes gasoline.

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GAS STATION INFORMATION

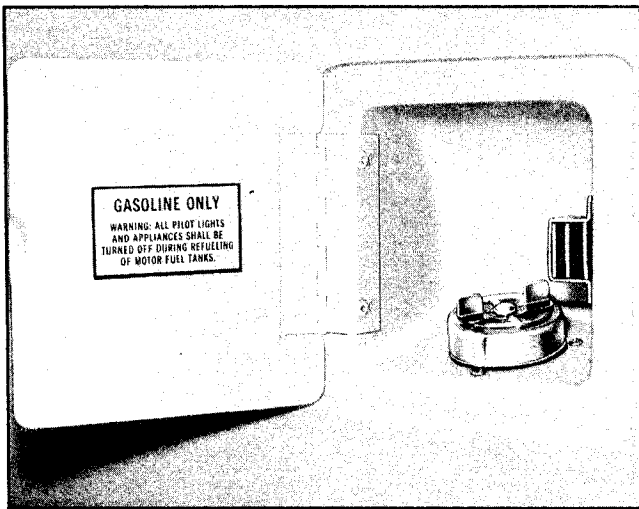
Refer to **SERVICE AND MAINTENANCE** section for details on removal and installation of engine cover, placing vehicle on suitable hoist, etc.

CAUTION

To help prevent the possibility of personal injury and/or vehicle damage due to fire or explosion, turn off LP gas supply at the LP gas tank. Be sure all pilots are out, before filling gasoline tanks.

Always check that fluid inputs are made into the correct filler openings to help avoid serious personal injury and property damage.

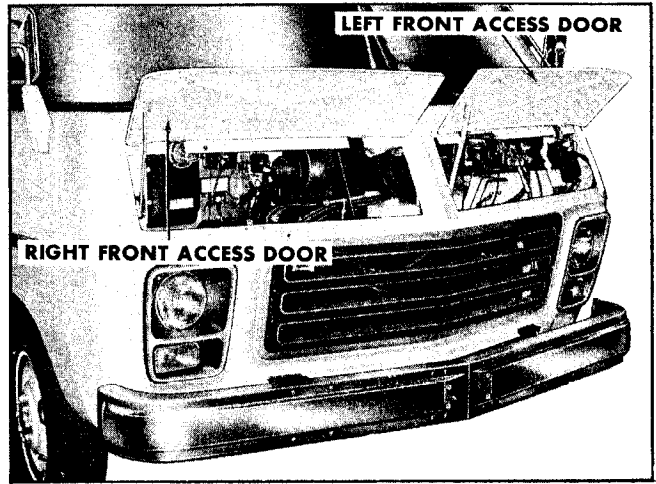
GAS CAP—Located on the left side of the vehicle, directly under the driver's window. See gas cap removal procedure in **SERVICE AND MAINTENANCE** section.



Gas Cap Location

GASOLINE RECOMMENDATION—Use a regular grade leaded or unleaded gasoline. Additional details on Fuel Requirements are given in the **SERVICE AND MAINTENANCE** section.

FRONT ACCESS DOORS—Release by turning latch knob to the left to loosen.



Front Access Doors

ENGINE OIL DIPSTICK—Located inside the left front access door. Check oil level as the last operation in a fuel stop. Maintain between "ADD" and "FULL" marks on dipstick.

ENGINE OIL RECOMMENDATION—Use only SE quality oils. The chart in the **SERVICE AND MAINTENANCE** section will serve as a guide for selecting proper oil viscosity.

TIRE INFLATION PRESSURES—Check at least monthly. Keep inflated to pressures shown on tire placard affixed on the inside of the glove compartment door.

WINDSHIELD WASHER—Check reservoir fluid level regularly. Use a washer fluid, such as GM Optikleen or equivalent.

BATTERIES—If your vehicle is equipped with a Freedom battery the test indicator provides information for testing purposes only. Check fluid level monthly, if equipped with flame arrestor cap type battery. When fluid level is low, add colorless, odorless drinking water to bring level to split ring in filler openings.