

Dear Friends:

You are just about to set forth on some new adventures in your ULTRA VAN. We feel sure that we will soon be receiving mail from you telling us of some exciting trips that you have enjoyed. We look forward to these letters with interest.

On the following pages, we have tried to supply you with all the information about the care and operation of your ULTRA VAN. We may have overlooked some points. However, we have made a sincere effort to cover the main items as clearly as possible.

Read every page of the manual. Make a list of anything you do not clearly understand. Bring up these points with our representatives. They are willing to assist you in every way. When all matters in the care and operation are clear, you will drive your ULTRA VAN with more enjoyable self-assurance.

Yours truly,

ULTRA, INC.

L. P. Knipe  
Sales Manager

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ULTRA OFFICE ADDRESS

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Your Customer Relations Manager is:

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The above facts can be useful if ever there is a need to contact the Ultra Office. If a need arises concerning parts, warranties or service information, you can obtain replies earlier by contacting the Ultra Office.

"LITERATURE"

You will be given a small supply of the following pieces of literature. We know that you will be meeting many new friends once you are on the road in your ULTRA VAN. They will come to see your Van wherever you stop. You can use this literature to help them know more about the ULTRA VAN.

1. Booklet - The 24 page booklet is very descriptive. There are three of these in the literature packet. These we use only where there is a real interest in future ownership.
2. Black and White Brochures - This gives all the factual information on the ULTRA VAN in less detail. It is complete and can be used to give those people showing some interest in ownership. They can write in to us for the 24 page booklet. Write your name on these so they will know who showed them the ULTRA VAN.
4. Post Cards - These are for all your guests who are interested in more information. By merely filling in their name and address and mailing the card, we will send them all the details and literature on the ULTRA VAN. Be sure to put your name in the space provided.

At any time you wish more of any of the above listed material, please let the Sales Office know. We are ready to send them all the additional pieces of literature that can be used.

"WARRANTY INFORMATION" (See page #23)

SHELL - The external shell, tanks and suspension are all manufactured by or for Ultra, Inc. These parts all carry a one-year warranty against poor workmanship and defective material. Parts damaged through accident or negligence are not replaceable by warranty. The Company will cooperate with you on pricing of replacement items not covered under the warranty. Requested parts, pricing, etc., should be made to the Ultra Office. Please contact the Customer Service Manager or the Sales Manager.

ENGINE - Any problems arising with the engine or transmission are covered with a 90-day or 4,000-mile warranty, but must be handled by our office.

Paid bills for any minor correction should be sent to this office for reimbursement. Be very sure the garage details, on a separate sheet, what they found causing the problem especially if it entails a problem caused in manufacturing the engine. Minor engine repair up to \$20.00 may be made without our approval. Amounts over this should be discussed with our CRM or SM for prior approval of the expenditure. When seeking approval, please be prepared with the garage diagnosis so our service people can assist you with their thinking to save you excessive labor time lost. Every dealer will ask you for your General Motors Warranty Card. This is for their Guardian Maintenance program, and our warranty is not included in this program.

Read Carefully, The Items NOT Included By Warranty

1. Engine tune-up
2. Cleaning or replacement of spark plugs
3. Adjusting or replacement of ignition points
4. Adjusting or cleaning of carburetors
5. Adjusting valves and/or engine timing
6. Front wheel alignment and wheel balancing
7. Clutch or transmission adjustments
8. Brake and clutch lining replacement
9. Wiper blades replacement
10. Lubrication and oil and filter change
11. Tires or tubes (Warranted by Tire Manufacturer)
12. Brake cleaning, bleeding system, or shoe adjustment
13. Adjustment for body rattles and squeaks due to normal road hazards
14. Engine or chassis damage, due to weather and/or normal road hazards
15. Paint, chrome and trim damage due to after-delivery use
16. Any modifications other than factory recommendations to any unit as to use for competition racing will void warranty.
17. Cooling system cleaning or replacing of coolant
18. Positive crankcase ventilation valve cleaning
19. Service charges will be made for 6,000 mile, 12,000 mile, 18,000 mile, and 23,000 mile check-ups.

This engine will give you good performance if you keep it in time and in tune. Do not overload your Van. It operates best at a gross weight of 4,600 pounds. Try to be aware of weights as you load up for travel. The engine is not designed as a hot rod, and you will not have the reserve speed action at 60 miles per hour or above that you have in a car. Learn to handle your new coach, and allow ample room for passing until you know what you can do.

PUMPS - There are two pumps in your ULTRA VAN. These are replaced by our office and carry a one-year warranty against manufacturing defects.

CABINETS AND TRIM - The wall and cabinet trim is a Melamine finished material. Cabinets and wall pieces are all cut and inserted into place by our plant. All carry a one-year warranty. If a wall panel must be replaced, lay the broken piece out on plain paper and make a template so we may cut the replacement to size for you. The ceiling material is vinyl aluminum. Clean the ceiling with warm, slightly sudsy water and wipe clean. The plastic



can be kept nice with "Pride" or any similar product. The walls are plastic wood patterns made by Wilson Art Company. It is quite often that it can be matched at a local lumber company or cabinet shop.

APPLIANCES - The warranties and service on these are available in almost any city of any size. All instruction books and warranty cards are in the drawer in the galley. Be very sure to fill in the warranty cards and send them in according to the instructions.

#### "INSULATION"

The insulation material between the ribs of your ULTRA VAN is two-inch fiber glass. There is 1/16 inch padding on every rib. There is no transfer of heat through any rivet or metal screw that can be joined on the inside surface and the top. This eliminates condensation on the inner walls. The two-inch fiber glass insulation was used on Vans from #1 to #449. From Unit #450 on, the Vans are insulated with Urethane spray. This insulation is sprayed over the entire wall and ceiling, one inch thick. This is not only insulation but it is also an air-tight sealer, equal to two inches of fiber glass.

All materials are pre-tested and of high quality to assure you the very best in your ULTRA VAN. See page #23 for further information.

#### "DRIVING FACTS"

There are some things you must know about driving your ULTRA VAN which we pass on to you before you set out upon the highways and side roads in a life of Ultra travel.

1. To give you more living area, your Van is 94 inches, "outside dimensions", at the widest point. This is almost eight feet. With the mirrors on it, it is slightly over eight feet. State laws on width do not include the mirrors so you are under the maximum. Learn to give yourself room. While learning to drive the Van, glance into the lower mirror on the right side and note where your wheels are running on the pavement as compared to your position on your side of the road. Very quickly you will learn where to keep the Van near the center line for safe driving clearance.
2. Practice reversing the Van and handling this by using the rearview mirrors. You will be surprised how well you can master this. At first, it may seem hard, but the mirrors are well placed and very useful in developing this technique.
3. Practice placing the Van next to curbs on both sides. You can accomplish this easily by using the mirrors. Before long, you will handle this 22 foot Van as you do your own car.
4. Remember the seat is directly over your front wheels. Do not start your turn until you are even with the corner. Then the turning of the wheels sharply will let you clear the corner in the back without running the rear wheels over a curb. If one wheel does get off in the mud, remember your Van is equipped with positraction so you can come on out without major problems.



5. Your Van has more underneath clearance than a normal car. However, where the road signs suggest that the road ahead is not recommended for trailers, it is advisable for you not to try to drive your Van on these. If in doubt on under clearance, it is best to get out of the Van and check the conditions. Remember, your gas tank and water tank is the bottom of the Van.

6. Your ULTRA VAN is lightweight, and this gives many advantages, such as easy steering and more miles per gallon. This eliminates a lot of shifting up and down according to the terrain. However, this does not mean it will not give you some cross-winds or head-wind problems. Do not try to drive against winds that are reported to blow at 35 or more miles per hour. If you must go in these winds, do so easily and do not force the gas feed, which may make your engine fire too rapidly and overheat.

7. In the beginning, as you pass trucks, the wind will have a tendency to give you the sensation of being jerked to the left. This is mainly true in areas of heavy wind. As you approach a truck, take a light grip on the steering wheel with a slight pull to the right side just as you reach the rear of the truck. After you are acquainted with your ULTRA VAN, this will cease being a concern, but it can be alarming in the beginning.

8. When seeking an over-night parking area, try to find a level area. There is an "eye" type level that is furnished with your refrigerator. This can be placed on the shelf across the front to give you a good idea of the way the Van is setting. A level position will keep the refrigerator running good and it also makes more comfortable sleeping when the ULTRA VAN is near level.

9. Turning - The front wheels of your ULTRA VAN will turn at a 50 degree angle. You can turn the front of your Van quickly and in a tight corner. It will make a "U" turn in approximately 28 feet. This is also a big assistance in parallel parking.

Often we have heard it said that owning and traveling in an ULTRA VAN is like a marriage. We strive to get the very best, but still there must be some sacrifices from both parties. We have tried to give you the very best in equipment, but it can be no better than the care and understanding the owner gives it. For some of the many benefits incorporated in the Van, there may be a few sacrifices in your travels to get the ultimate from its use.

Now, let us start with the outside of your new ULTRA VAN, and cover it step by step so you know all about it.

**TIRES** - They are all 7:35 x 14, 4 ply 8 ply rated tubeless tires. They are designed for a weight load of just under 5,000 pounds. They are warranted by Dunlop and any correction can be handled by a Dunlop tire dealer. The tire pressure for the ULTRA VAN is 35 pounds in the front and 40 pounds in the rear. Have your title and purchase date available to prove the date of purchase. Some replacement costs are calculated on a basis of tire tread remaining.

**RIGHT REAR MIRROR** - It is mounted with screws to a curved cross rib above the windshield. If it is necessary to remove the bracket, it is just a matter of removing the screws. This mirror is in two sections.

The top shows the distance back. The lower tinted section reflects down to the road for width determination. If this mirror is ever broken or damaged, it will be necessary to contact our office for a new mirror bracket.

**WINDSHIELDS** - These are regular Chevrolet Van windshields cut off square on one end to fit our dividers. All windows are regulation safety glass. The dividers can be removed by unscrewing the chrome solid head nuts showing on the outside. The glass fits into a double-flanged rubber mounting. To seal this tight, a clear sealant is run into this rubber flange when the glass is inserted. It is also used in the dividers to seal out water. If a leak develops, any auto supply can furnish you with a satisfactory sealant for this area. Pull slightly back on the rubber flange, and let the sealant run down before releasing the flange back into position. This rubber flange can be unzipped for removing the windshield if you ever find it necessary. You can unzip it by inserting a piece of flat plastic, or a screwdriver in the center seam of the rubber flange that runs around the windshield. Push the plastic or screw driver slowly, and it will automatically unzip the rubber moulding. To re-install the rubber, just slide the flap back into the groove from which it came.

TO THE LEFT of the door, up high, is a courtesy light. A switch is on the inside wall above the refrigerator to turn this on in order to easily see who is at your door at night.

**LOWER LOUVERED DOOR** - Just to the left of the entrance door near the bottom of the Van, you will see a small louvered door. This door has a lock, which lets you get to the back of the refrigerator. It also lets you get to the fresh water overflow pipe and to the pickup pipe that supplies water to the inside faucets.

**GOLD STRIPE** - This is self-adhesive gold tape. We stock this, and if you ever need a length, please give the approximate length you may need. By peeling off the back of the tape, the stripe will then stick in place.

**HOT WATER HEATER** - It is located in about the middle of the ULTRA VAN, near the bottom. The door can be removed by turning the screw at the bottom of the door one-half a turn in either direction. This is the only appliance that is lit from the outside. In freezing weather, it is necessary to drain this tank. The tank is a six gallon Atwood-Bowen water heater. The tank can be drained with a regular outside waterhose faucet located at the left side of the control knob. This should be drained before blowing out the water lines. Acquaint yourself with the lighting instructions that are connected to the heater. All L.P. gas lines are in Fig. #20.

**VENT FAN** - At the top, below the drip rail, is the galley vent fan. Do not try to open this from the outside. There is a chain lock on the fan inside. Release this and the outside door automatically opens and the fan comes on. This can draw odors from the coach or act as a ventilating fan to draw in cool air from open windows.

**LOWER REAR DOOR** - This is a locked air vent to the engine. When you open this door, to the left you will see another door that is held shut with a wing-nut. Turn the wing-nut and it will allow you to swing the door up. This is extra Storage. Fig. #27.

NOTE - Keep the vent to the engine clear at all times.



The storage area is not water tight, but good for fishing gear, buckets, or those necessary and durable items. Since it is not water tight, it is advised that tools or equipment be wrapped in plastic for protection.

BUMPERS - These are special foam material that has a lot of bounce for protection. They are attached to the body with Leech's contact cement. The cement can be purchased from auto supply stores or trailer supply companies. New bumpers can be ordered from our Sales and Service Dept. if ever needed.

"Replacement of Front or Aft Bumpers" -

1. Pull off remaining parts of the bumpers.
2. For the parts which you cannot remove by hand, use a hack-saw blade. By bending the blade with the contour of the unit, using up and down motion, it will remove all parts which are contacted to the unit.
3. Now take liquid sand paper, Paso Cleaner or Wilbond Cleaner and clean all excess cement from the area.
4. Take the new bumper and put contact cement evenly over the entire bumper.
5. Now put the contact cement where the bumper will be placed on the unit.
6. Let the contact cement set for about 30 to 45 minutes, or until it gets good and tacky.
7. Find the center of the bumper and push it into place.
8. Make sure it is where you want it because it won't come off.
9. After the center of the bumper is in place, then push the remaining parts into position.
10. By pressing the bumpers firmly and completely across several times, the cement will then keep it in place.
11. About an inch and a half from each end, drill a #30 hole (use a 1/8" bit).
12. Use a #10 screw, two inches long, with a large flat washer to keep the ends from coming loose.

The front or aft bumpers can be replaced in this manner.

UPPER REAR WINDOW - This window cranks open from the inside. All other windows slide. While driving, for better ventilation, it is well to have this rear window open an inch and a half to two inches. If it is open any further while driving, it could vibrate loose and also let in a lot of dust. It is good to lubricate the center nylon slide with oil every so often for better operation of the window. You can use regular 3-in-1 oil or some silicone spray. The upper rear window will open only on units from #1 to #457. From #458 on, they will have a sealed rear window. The



reason for this is that it is almost impossible to keep this window from leaking. The cause for it leaking is the contour in which the window has to be installed.

REAR ACCESS DOOR - This is a keyed door, the same key that opens the main entrance door will also open the rear door. When this door is locked, it can be opened from the inside. It opens and raises up. It opens into the area between the rear twin mattresses behind the motor compartment. From the rear, lift up on the board under the carpet. In here is the spare tire and wheel, the jack, lug wrench, and battery charger. There is also some room for extra storage.

USING THE JACK - The jack supplied has sufficient strength to raise the Van while loaded. The jack should be positioned in the correct place at the wheel wells. You will note a piece of steel protruding at the bottom of the rear side on the front wheel wells and at the bottom of the front side of the rear wheel wells. The raised part of the jack goes under the steel protruding lips for successful raising and lowering of the Van. It is good to oil the jack every so often to keep it in good operating condition. Use regular 3-in-1 oil, or you could use regular motor oil. Fig. #27.

BATTERY CHARGER - This charger is equipped with a dial to indicate it is charging, and how much. When the Van is plugged into 110 volts with the shoreline, and the inside switches are up, this will automatically start charging your batteries.

NOTE - This battery charger is fully automatic. It will not overcharge the batteries.

Naturally your batteries are charging when the engine is going unless something is mechanically wrong. A red light on the dash will light when the generator is not charging.

Now, as we continue on around to the other side of your new ULTRA VAN, on the left back corner you will find a pull open door. This is where the propane tank is located. The door has cut outs on it. These will also be found on the underside of the Van. This is to allow air to enter the compartment and gas odors to escape. This tank can be filled by most any L.P. gas supplier. At the back of the manual is a drawing of the L.P. tank and all the fittings and their location. Fig. #1.

DO NOT FILL THIS TANK OVER 80% OF CAPACITY!!!!

#### "Propane Safety" -

1. Release all liquid above the 10% valve after each filling. This is the valve marked "STOP FILLING WHEN LIQUID APPEARS". Fig. #1.
2. Turn off all pilot lights while filling the propane tank.
3. Only the refrigerator pilot light should be left on while driving down the road. All others should be turned off. (Furnace, water heater, oven).

4. All fittings in the entire system should be checked with a soap solution after the first 1,500 miles and every 5,000 miles thereafter, or every 60 days.
5. Always use propane instead of butane. Propane will not freeze.

While we are at this area, you can look under the Van and see the back of the engine. There are two butterfly valves that are controlled by a thermostat. The valves are shut when the engine is cool. When the engine gets warmed up, they will open. These butterfly valves could get stuck, and if they do, the engine will over-heat rather rapidly. If the thermostat quits working, you can take a stick and block it open until you get to a Chevrolet garage to have it repaired. It is always good to check the valves when you stop for gas or spend a night at a parking area.

AIR VENT - Just ahead and up a little from the propane tank, you can see a hole covered with a screen. This is another air vent to the engine to keep it cool. Do not let any obstruction get into this, inside the engine compartment or on the outside.

Above each rear wheel well is a red reflector. This is a standard item at most auto stores if one is ever broken. At the top of the Van, just above the windows, are red side-clearance lights. These lights come on when you turn on the head lights. They can be replaced by removing the screws, cutting the wires, and connecting up the light.

SQUARE OPENING - Just ahead of the air vent to the engine is a square door held into position with several screws. This is an inspection door to check the L.P. gas fitting coming from the tank. To check this fitting, just remove the screws and the door will come off. Check connections with soapy water as stated earlier.

FURNACE VENT - Above the access door to the L.P. gas fitting, is the outside furnace vent. This vent takes in fresh air and puts out the furnace fumes. This furnace vent is painted with a heat proof paint. If you ever need to repaint it, the correct kind of paint to get is White 50-40

SHORELINE CONNECTION - Stored with your spare tire, there is also a 25 foot length of shoreline cord. This cord can be plugged in on the side of the Van and then connected to 110 volt power. This will supply 110 volt power to the Van. Be sure to disconnect the shoreline before driving away. Store in the spare tire compartment when not in use.

WATER FILL - Just in front of the shoreline connection is a locked water-fill door. After the door is unlocked, it can be raised up. Remove the water cap and put a hose in the fill hole. Only using half water pressure, you can then fill the fresh water tank. When the tank is full, water will run out of the overflow pipe on the opposite side of the Van. Fig. #25.

FINAL TANK DRAIN - About the middle of the Van, on the curve at the bottom, is a push button door. Pushing the button in the top center of the door will allow the door to swing down. After the door is open, you can see from right to left the following: a switch, a drop drain lever, and a hose line connector. If you choose to use a three-inch drop drain,

the three-inch hose is stored with the spare tire area. Unscrew the three-inch cap, screw on the flex-hose over the connection. The flexible hose will extend about 20 feet. Put the other end of the hose in the dumping station. Now, pull out on the center lever. This will dump the final tank. Flush tank with clear water.

If you choose to use the convenient Ultra Pump, connect a 50-foot length of regular water hose to the connection on the far left. After this end is installed, then put the other end well down into a regular stool at your home or at a service station. Now, turn on the switch that is at the far right. This will also dump your final tank. You can tell from the tone of the running pump when it is empty. Turn off the switch, remove the hose, flush stool in the station, and rinse ends of the hose clean. Then store the hose in with the spare tire. Once or twice a year, it is well to remove the three-inch drain cap, and flush the tank with fresh water. Drop some ammonia through the stool to keep it odor free. Run clean water through the tank and hose occasionally.

**FRESH WATER TANK DRAIN** - For cold weather, you can drain the water from the fresh water tank by removing the drain plug in the center bottom of the tank. Blow out the water lines by opening the louvered door to the left of the entrance door. There is a  $\frac{1}{2}$  inch black hose with a clamp connecting it to the far left pickup connection. By opening the faucets in the bathroom and at the galley sink, you can then blow air through the  $\frac{1}{2}$  inch black hose. This will clear out the water in the fresh water line.

**GAS FILL** - In front of the final drain and up a little higher, is another locked door. This is where to fill the gas tank. Fig. #25. Because of the baffles in the tank, it fills slowly. Have the service attendant use the slow speed in the gas feeder pipe. USE ONLY ETHYL GAS. If you should try to fill with gas and it will not fill at all, it could be that the gas vent pipe is clogged shut. The vent pipe is located under the right front wheel well. It extends down about two inches and is a clear plastic hose. This can be cleaned by using a wire to open the end of the hose. Fig. #26.

**FRONT REFLECTOR** - Over each of the wheel wells is an amber reflector. If ever needed they can be purchased at most auto stores. Above the front side sliding windows are amber clearance lights. These also come on when the head lights are turned on.

**GREASE POINTS** - It is necessary to keep the ULTRA VAN lubricated. The Van should be greased every 2,000 miles. It is highly recommended that the owner do this himself. You can purchase a grease gun with a rubber extension at most auto parts stores. These grease points are clearly pointed out in a drawing at the back of this manual. There are only eight grease fittings, and it takes just a short time to do the job. Fig. #19.

**NOTE:** The type of grease to use is any multi-purpose grease. At the assembly plant, the new Vans are lubricated with Valvoline X-All grease. This grease protection against rust and corrosion is water repellent and will not melt under heat. If you should find a grease fitting that will not take grease, it can be removed and replaced by screwing it out and replacing it with a new one. These have standard size threads.



TOWING - If it is ever necessary to tow your Van, be sure that they hook to each side of the lower "A" frame of the suspension under the wheel wells. If it is ever lifted, make sure that a board or blankets are placed between the chain and the body to keep it from being damaged.

NOTE: The ULTRA VAN is equipped with an automatic transmission. If it is ever necessary to be towed more than fifteen miles, be sure that the drive shafts are disconnected. There are four bolts on each side and it is only a twenty-minute job. If they are not disconnected, the transmission could be damaged.

TANKS - There are three tanks under the floor of the Van. They are as long as the Van is wide. The first tank, or the front tank, is the gas tank. This is a thirty-gallon tank and the gas fill is on the left front side. There is a gas plug in the center of the tank. This is in case you ever need to drain the tank. It is a welded tank and has three baffles to keep the weight from shifting. The third tank is the final holding tank. It is a fifty-gallon fiberglass tank with two ways to empty the tank. The tanks have a smooth bottom finish to allow an even under air flow. The fresh water tank can freeze in cold weather so it should be drained. The final holding tank can be kept from freezing by adding some alcohol base anti-freeze. Permanent type anti-freeze will not harm the tanks and will lubricate the Ultra Pump but it is a bit more expensive. This can be put in through the two basins and the stool. The tanks are screwed into place against the reinforced base of the side wall. If it is ever necessary that these have to be removed, it can be done by following these steps: In some coaches, the holding and fresh water tanks may be sheet metal.

#### GAS TANK -

1. The gas fill hose is located on the bottom right hand side where either the bookcase or divan is inside the Van. Remove the bottom hose clamp and the hose from the gas tank.
2. Looking under your unit and the gas tank, in the center of the tank is the drain plug. Remove this plug to drain what gas is in the tank.
3. The gas gauge is on the back side of the tank in the center. Remove the wire from the gauge, and to the left of the gauge is the gas pick-up hose. Remove the clamp and slide the hose off. The gas vent and overflow hose is on the right front side of the tank. Remove the clamp and slide the hose off here also.
4. After removing the six screws on each corner of the tank, you are ready to remove the tank. To reinstall the tank, reverse the above procedures.

#### REMOVAL OF THE FRESH WATER TANK -

1. Open the outside refrigerator door and disconnect the two hoses from the top of the fresh water tank. They are from left to right: (1) hose to the fresh water pump (2) the vent and overflow hose. These two hoses can be disconnected by removing the clamp at the bottom of the hose.
2. A drain plug is located underneath the Van in the center of the tank. Remove this plug and allow the water to drain out. The

water gauge is located near the center of the tank. Remove the wire that is connected to it. Behind the divan or the bookcase is where the water-fill hose is located. Remove the clamp at the bottom and pull the fill hose from the tank. After removing the six retaining screws on each corner of the tank, then you will be able to lower the tank. To reinstall the tank, reverse the above procedures.

#### Removal of the Final Tank -

1. Drain the tank before starting the removal process.
2. Disconnect the three-inch drop drain on the front side of the Van and also the connecting fittings along the back of the tank. After removing the four retaining screws in each corner of the tank, you will be able to pull the tank down and out from under the unit. To reinstall the tank, reverse the above procedures.

TANK BAFFLES - The baffles in all the tanks are constructed with holes at the top and on the corners to allow the liquid to transfer from one compartment to another within the tank, but restricted enough so there is not a weight shift or excessive noise.

As we face the door, let's look on the inside of the Van.

FLOORING - A thick plywood flooring is above the aluminum and fiberglass tanks. On top of this plywood is polyfoam and then the nylon carpeting. This allows you to have a well-insulated as well as a sturdy flooring. The carpet is stapled in place around the edges. If it is ever necessary to remove the carpet, be sure to do it gently from one staple to the next. Reapply it the same way. Do Not drive nails through this area as there is a danger of hitting your tanks. Fig. #10.

Shall we step up into the Van and go to the front. We will start here and work our way back through the Van seeing and learning about everything. Let's begin with the driver's seat.

SEATS - First, the seats are loose on top of the wheel wells. This is purposely planned to give versatile use of the front seats. Once you are seated, the seats will remain firmly placed. There is a seat belt, one side is firmly fastened to a reinforced section of the wheel well and the other side to your left is bolted through the paneling into a construction rib. These belts meet safety standards. The driver's seat can be turned completely around and makes comfortable seating for the dining table. Or, by turning it long ways of the Van, you have a nice divan at night with a reading light overhead. In fact, both seats operate the same way and this gives you a living room atmosphere with reading lights over each divan. We suggest while traveling that you USE THE SEAT BELTS. These have saved many people in automobiles from serious injury.

FRONT BED - These seats convert into a bed. Under one of the rear mattresses, there is a piece of plywood. Place this between the two wheels with both seats in a position so that the backs are parallel with the side walls. Remove the cushions, putting one at each end of the bed first. The

other two cushions go into place by forming an inverted "V". Then push down the center which wedges the cushions in closer together for a comfortable bed.

EMERGENCY BRAKE - This is mounted on the left of the driver's seat, pulling up to set the brake and turning the handle slightly. Turn handle parallel and a slight pull releases and lets the brake arm down. This is connected to a cable that runs to the rear of the Van and can be worked on easily as it is exposed on the underside. It is always well to carry two short lengths of 2 x 4 blocks to place under two wheels on steep inclines or for a long duration of time. This does not denote any weakness of the brakes but only an added safety precaution. When applying the emergency brake, press down on the foot brake for a more secure setting. Fig. #16.

DRAPERIES (FRONT) - Release behind the tieback location on the front drapes, and you will find a wood knob attached to a dowel. This pushes in to keep the side window from being opened from the front outside. To slide the window, merely pull gently out on the knob to a point where the window will slide open. Some people remove these dowels and store them in the cabinet over the driving compartment and remove them at night to lock the windows or when leaving the Van. These two sliding windows are not screened as it may be necessary to lean out to check clearances or give turn signals. If it is ever necessary to replace the right or left front side windows, you can do this by following these steps:

1. Remove moulding strips on all four sides on the inside.
2. Loosen front side of panel back of window.
3. Pry and pull out the felt weather stripping near the center of the front side. This will enable you to raise and pull out the glass from the bottom. Avoid breaking it in pieces as you will need it for a pattern for the new glass.
4. After getting a new glass and new weather stripping, mould the weather stripping to fill front top and bottom of the window channel.
5. To know where to cut off each end of the weather stripping, measure the distance from the front of the window to the row of rivets at the back of the window.
6. Place contact cement on the top and bottom grooves to first make the weather stripping slip, and a little later hold.
7. Slip the weather stripping in at the top and bottom quickly, taking care not to kink it.
8. After this is completed, you can refasten the side panel and replace the inside moulding.

DRIVING INSTRUMENTS - Directly in front of the driver's seat is the dash and it has all the usual gauges and switches as are generally found in Chevrolet cars. All of them are marked. The protruding arm is the gear shift. The positions are (R) reverse, (N) neutral, (D) drive, and (L) low.



You have No park gear. In the center on the lower part of the instrument panel, you will see a switch marked (F) fuel and (P) propane. With the white line on the knob pointed to (F), this will give you the reading of how much gas is in the gas tank. When the white line is pointed to the (P), this indicates how much propane is in the propane tank. Vans above 443 do not have this setting.

SMALL RED LIGHT - This is an indicator light to let you know if the water pump is running or not while you are driving. This generally means a faucet is leaking or running and will need to be shut off.

SMALL SWITCH - The switch to the left side under the windshield is for turning the lights on or off over the picture window.

SUN SHADES - (Adjustable by thumb screws)

OVERHEAD CABINET - Over the driver is what is called the front overhead canopy. This is so shaped to fit the front contour of the ULTRA VAN. It is made from fiber glass, and should it ever get damaged, it can be repaired with any fiber glass kit obtained from an auto supply, then tinted in. This is colored when manufactured, but can be painted at any time you may desire, using a lacquer paint. This canopy has two entrance doors, one on each side for storage, maps, tools, etc.

FRONT WALL PANELS - All wall panels can be removed. There are "Z" shaped strips mounted in internal ribs and each panel slides into position on these. The wall panels are all melamine plastic and high quality. They are easily cleaned with warm water and soap. They will shine with the use of "Pride". Use care in removing any panel that not too much strain is applied from bending or bowing as a panel may break. If a panel is broken, you should lay the broken pieces together on a large sheet of paper to outline a template and mail it to our factory. We will cut a duplicate panel and return it to you. This assures you that the new piece will be identical to the broken piece. Many times this plastic can be matched at a local lumber yard.

CEILING PANELS - These are vinyl-covered aluminum. They are also held in place by "Z" strips with an adhesive to each cross-top rib. Luke-warm water and mild detergent or soap will clean these panels.

INSULATION - Between the outer skin and the inner walls, there is one inch of Urethane Foam. There is little or no chance of wall or ceiling moisture drip. There is no heat loss or gain through the roof or sides as there are no screws or bolts joining or extending through from the inside of the Van to the outside, so there is no place to transfer heat. In all coaches prior to serial 450, insulation is fiber glass 2 inches thick which was packed between the ribs, and adhesive was used to hold it in place.

BOOKCASE AND TABLE - The table stays in place when in the down position, as it is engineered to the exact length to wedge into the fiber of the carpet. Merely raise the table top, and on the right underneath side you will find a thumb screw. By turning this slightly, two corner legs drop down into support position. When folding up, put the left leg up first, then overlay with the right leg and turn thumb screw to hold legs in place. Lower table and push it firmly back against bookcase with toe. The slide strip

is there so the table position can be moved. In the down position of the table, it slides easily forward to the driver's seat or back. A drop of oil on this slide, or an occasional small amount of wax, will keep this slide operating smoothly. There is storage and shelf area behind the table. If it is ever necessary to remove this section, slide the table top clear off and you will find the bookcase mounted to the inner wall ribs with metal screws. Notice in the lower right hand corner, there is a metal contoured cover. This must be shaped this way as it covers the gasoline tank filler spout. This can be removed to get to the spout of service is necessary. This may be easier than removing the entire bookcase to work on the spout filler. The other floor plan is a divan in place of the above. The divan has storage under the seat cushion.

PICTURE WINDOW - As a safety feature, they are Pop Out style safety plate windows. The windows slide, and have small lift up style locks to hold them in place when the Van is locked. All windows except the two front side windows are screened. All of the window drapes are on a slide track. All drapes should be dry cleaned.

OVERHEAD STORAGE - You will notice the appealing hardware and overhead cabinets over the galley as well as around the rear section of the Van. All cabinet doors are reinforced with plywood and use a standard hardware magnetic catch. All overhead cabinets are lined with polyfoam to keep the noise down or items stored from vibrating on the cabinet shelf.

GALLEY REFRIGERATOR - As you face the kitchen compartment, on the lower left side is the refrigerator. This is a Dometic. Service and warranty cards are in one of the small drawers in the galley. Be very sure you file the warranty by completing the information on the warranty card and mailing. The pilot can be lighted from the front by removing the lower plate. It snaps loose at the top, push down hard and remove. The pilot may also be lighted from the outside. Set the thermostat on position 4. There is a button to push in and hold for 30 to 45 seconds - then give a clockwise turn of the knurled knob. There is a wheel and flint in the back and the spark from this will ignite the pilot light. Hold this for 15 to 20 seconds until the thermocouple is warmed up and the pilot light will stay on. You may then set the thermostat to high or low, according to the temperature you wish. Remember, if you turn it too high, it is possible that everything will freeze in the storage compartment. The lighter uses a regular flint as in a cigarette lighter. In case you need to replace this, your booklet gives you the direction for removing the light.

In case you should have a little difficulty in getting as large a spark as necessary, cleaning the wheel with a wire brush will usually correct it. Read your direction book carefully and note the use of the "eye level". It is generally found in motor homes that the refrigerator will operate at levels that are also level enough for comfortable sleeping.

LARGE STORAGE DRAWER - This is over the refrigerator. Lift slightly to open. On the wall above the refrigerator you will note 2 switches. One of these is for outside light so you can see who may be at the door after dark. The other is a two way switch with the other one up by the driver. You can open the door reach in and turn on the inside Van lights. This will also turn them off or they can be turned off and on by the other switch up by the driver.

CENTER DRAWERS - There are three small center drawers. These are notched to keep them closed when in motion. Lift up slightly and pull out.

GAS RANGE - This is a Magic Chef. Complete instructions are in one of the small drawers. Be sure to complete and mail the warranty card. The entire top will raise from the front for easy cleaning.

Some time you may wish to make a thorough study of the directions that come with your range. In the packet you will find a book of suggested recipes. In case you have not had experience in cooking at various altitudes, you will have to make some allowances if you are traveling in the mountains. Some firms give special high altitude recipes.

As everyone knows, water boils at 212 degrees. This, however, is at sea level. As altitude increases, there is less atmospheric pressure, and water boils at a lower temperature. A little practice and understanding of this will enable you to soon catch on if you are traveling in the high country.

Your Magic Chef is a high class unit in every way. With it, you will find a book of instructions and illustrations of parts. However, here are a few simple points that will take care of your normal needs.

It is a small thing, but note the spring clasp that holds the grates down to prevent rattling. The top of the range is hinged at the back and may be lifted up from the front. Just inside of the front top of the gas line that runs to the burners, you will see a small setscrew. To completely shut the gas off, this is turned to the right. Fig. #14.

To light a burner, press the black control knob in and turn to the left, light, then regulate the flame to desired height.

Just to the left under the range top is a shut-off valve that regulates the gas to the oven. Turn this on and you can then light the oven pilot light. This is a double thermocouple lighting system. The small pilot light will warm up the second thermocouple. When this is warmed up the oven burner will come on. The red handle on the front of the range may be set in desired temperature and the thermostat will automatically control your oven heat. Note you have "B" position which is "broil". A drip and broiler pan are included.

The exhaust fan above the range operates by releasing the chain and letting the outside door open. This is an exhaust type fan and can pull in cool air on hot days.

WATER SWITCH - To the right of the galley window under the vent fan is a switch with two settings, automatic and off. Automatic means that when you turn on and use water, the switch setting will activate the pump and pressure to keep an even flow from the outlet. The off setting is for when you are not going to be in the Van for some time. Connected to the side of the fresh water pump is a pressure regulator. At some time you may find it necessary to adjust the pressure. This is how to tell if the pressure regulator is operating correctly:

1. While you are drawing water, if the pump keeps turning on and off...You Need More Pressure!!!



2. If you are drawing water, shut off the faucet, if the pump keeps running...You Need Less Pressure!!!
3. After this, you can make the correct adjustment on the water pressure regulator as follows:
  - a. Connected to the fresh water pump to the front or side, you will see a small black box. Fig. #24.
  - b. In the center of the box, you will see a regular slotted screw.
  - c. Remove the screw, and the complete front will come off the box.
  - d. After the front is removed, in the center of the regulator you will see an Allen head screw. This is how you make the adjustment.
  - e. If you need more pressure, turn the Allen head screw to the right
  - f. If you need less pressure, turn the Allen head screw to the left.

It takes just a small amount of a turn to make a big difference in the pressure. After it is set properly, put the front cover back on.

The P.A.R. water pump is also the fresh water pump. It is located under the galley cabinets on the left side of the new hot water heater. The P.A.R. water pump can be exchanged quickly by following these steps:

1. Looking at the fresh water pump to the back of the pump near the outer wall, you will see two black rubber hoses. There are worm clamps that connect the hoses to the pump.
2. You can remove the two clamps with a regular slotted screw driver.
3. After the clamps are removed, then pull off the rubber hoses. Sometimes the hoses cannot be pulled off. So take a knife and cut the hose as near to the pump as possible. There is most usually enough hose left to connect the new pump into position. You may have to slide the new pump back a little farther than the first one was.
4. After the two hoses are completely disconnected from the pump, loosen the electric wires that are connected to the water pressure regulator. Be sure to mark where the wires are to be replaced on the new pressure switch.
5. The pump is mounted on rubber legs with one screw on each leg. Remove the four screws and the pump will then come out.

To install the new fresh water pump, just reverse this procedure.

110 VOLT PLUGS - Throughout the ULTRA VAN, there are four double plugs. One of these is above the work surface top over the refrigerator. Another is under the front shelf, one on the forward wall of the book shelf cabinet, and one in the closet on the rear wall. These are not activated until you are attached with the shoreline to the 110 volt current.

HEATER - L.P. Gas - On the wall opposite the galley is your heater. This will operate when you are moving, but very probably will not be required since there is engine heat available. The heater is vented to the outside for safety. There is an instruction book and warranty card which must be completed and mailed in. Read the instructions carefully for lighting. Fig. #11.

The L.P. Gas, of course, should be turned on by turning the valve full according to the directions at the tank. ALWAYS WAIT ABOUT FIVE MINUTES FOR GAS TO ESCAPE FROM ANY L.P. UNIT BEFORE ATTEMPTING TO RELIGHT.

The knob that regulates the temperature can be pulled off the shaft coming through the grill. Pull the loop at the top out and make a quarter turn to match the slot at the top of the grill. The grill will then come off, and you can get to the pilot light.

There is a safety valve that keeps the gas from getting into the chamber except then the thermostat calls for heat and the pilot light is off. To light, there is a small peep-hole which may be raised. Press in on the small button below and hold for approximately 30 seconds. The first time it may take longer to get all of the air out of the line. You can then place a match to the pilot light. Continue to hold it for another 15 to 20 seconds until the thermocouple warms up. If the pilot light should go out, repeat the performance and hold the button in a bit longer. When you have replaced the grill, replace the knob and set at the desired temperature. There is a thermostat which will turn the heat off and on according to the setting you have made.

This is a safety approved sealed combustion chamber. You will note, fresh air is taken in the lower portion from the outside, and the flame is likewise vented from the top through this same area.

NOTE: Remove the screws on the small plate on the outside to get to the L.P. gas line connection of the heater to periodically check for gas leaks. Fig. #28.

To check L.P. gas couplers, use a small brush and soapy, sudsy water. If bubbles show, make only a very small turn on the couplers until bubbles do not show. Some sealants are on the market for this purpose. Do Not turn couplers too tight to break the flare on the tubing.

COMPARTMENT WALLS - They are melamine plastic. They fasten into the bulkheads or ribs above the ceiling with screws and "Z" or "U" channels. They can be removed by bowing the panel in the center, which will allow it to then slide out of the "Z" or "U" channels.

BATTERY SWITCHES - In the lower part of the vertical back piece over the step, there are two switches on a horizontal setting. That is the "ON" position. To turn "OFF", merely push down. When parked where 110 volt is not available, it is best to turn one battery off and reserve this power for starting. After using lights from one battery, reverse these switch settings and start from a full charged "hot" battery. Once engine is running, turn on the battery which you used for lights the night before, and it will re-charge as you travel.

CLOSET - Looking at the back wall of the closet, you will find two circuit breakers. The right switch is the 110 circuit breaker. The left is the battery charger switch. These switches should be left on at all times. If the left switch is off, the charger will not work. If the right one is off, the 110 volt outlets will not work.

The closet door can be cleaned with warm water and soap, then wiped with clean clear water. It is good to wax the track occasionally for proper and smooth operation.

BATHROOM - The bathroom door is a most unusual feature. It makes a door for the bathroom and also separates the ULTRA VAN into two compartments. It will swing on open into the living area if crowded conditions exist in the bedroom area. When you look into the bathroom, here is what you find. In the roof is an exhaust vent with a motor driven fan. The on-off switch is connected directly to the motor for easy access. On the upper left is a towel bar that keeps the towel high and out of the way of the directional shower head. The medicine cabinet purposely swings to the right to keep it from opening in sudden stops. This mirror can break. The basin is a corner lavatory to allow more room, and it is also equipped with hot and cold faucets. The shower hose and head are above the basin. It turns on by pushing on the small extruded knob on the shower head. Then pull up on the knob that extends above the hot and cold faucet. This will allow the water to switch from the faucets to the shower head.

FINAL TANK - The final tank and the Ultra Pump can be kept from freezing by pouring an alcohol base anti-freeze down the stool, the basin, and through the shower drain. After this is done, run the emptying pump to get some alcohol into it. Fig. #23. If the final tank is emptied and new water added, it is well to remember to add more anti-freeze. Ultra Pump, Fig. #21. Three inch hose connection Fig. #22.

REAR OVERHEAD STORAGE - There is a big storage area all around the upper rear section of the Van. Once you raise any of the reinforced hinged doors, you will note the open area for storage of many items. The cabinet buttons are all lined with polyfoam to decrease noise. Light wires are under the polyfoam.

VERTICAL WALL AT REAR ENTRANCE STEP - You will note a louvered door on this vertical panel with a thumb type switch to open and close the louvers. This is to heat while engine is idling. There are two foam plugs to insert in the heat ducts in the summer. Be sure to remove these when cooler weather starts. If you pick up your Van in winter, these plugs are furnished and layed in one of the rear overhead cabinets.

ENGINE COMPARTMENT - At the top of this step, you will see a latch, this is to hold the engine compartment doors tight. It merely turns left to open. At the rear of the left door is a thumb type latch hidden beneath the carpet. Open these two latches and the doors fold open for access to the engine. Fig. #12.

OIL - Type of oil at break-in and what type to use. Some people are misinformed about the quality of oil used by the factory when the engine is manufactured. Many people think that the initial oil used in a new engine should be drained at 500 miles or so. This practice should be



discouraged. When the engine is built, it is fire tested, using oil with special break-in additives, and then drained out. When the engine is installed in the vehicle at the assembly plant, a high quality oil is installed. This factory fill oil should be left in for the prescribed length of time.... that is, four months or 6,000 miles. Under adverse driving conditions, this could be a shorter length of time.

If, when you check the oil, it appears to be dirty or streaky on the dip stick of a new engine, you are seeing a lubricant used to coat many new parts during assembly of the engine. It is called "Molykote".

After the first oil change, the oil should then be changed every 3,000 miles or 90 days. Change the oil filter every other oil change.

All season oil is good for local driving. For long distance and hard driving, it is better to use a regular 30 or 40 weight motor oil. In cooler or moderate climates, it is better to use 30 weight oil. In hot climates, then it is better to use 40 weight oil.

TRANSMISSION - The transmission oil should be checked periodically. Oil should be added only when the level is near the "Add" mark on the dip stick with oil at normal operating temperature. The oil level dip stick is located in the right front of the engine compartment.

NOTE: The difference in oil level between FULL and ADD is one pint.

To get an accurate oil reading on transmission oil, the engine should be idled with the transmission oil at normal temperature and the control lever in neutral.

Do Not Overfill -

When the oil level is at the full mark on the dip stick, it is just slightly below the planetary gear unit. If oil is added to bring the oil level above the full mark, the planetary unit will run in the oil, foaming and aerating the oil. This may cause malfunction of the transmission assembly.

The transmission oil should be changed at about every 12,000 miles. When it is time to drain the oil, loosen the filler tube attaching nut in the oil pan and allow oil to drain. To refill the transmission, tighten the filler tube and add four pints of fluid. This is assuming that the converter was not drained. The capacity of a dry transmission is 12 pints.

DIFFERENTIAL OIL - Periodic maintenance and adjustments are not required for the rear axle. However, the differential case should be checked for lubricant leaks and other visual defects or wear. If it is ever necessary to remove the oil, this can be done by removing the inspection cover on top of the differential and using a syphon gun to get out the oil. "When replacing the oil, use only lubricant for positraction differentials".

NOTE: When refilling the differential, fill from the top until oil will come out the filler plug located on the side of the differential.

### "1968 CORVAIR TIMING SPECIFICATIONS"

This is a job for one with a timing light and mechanical knowledge or pistons can be damaged. The correct timing specifications are outlined below:

110 horsepower automatic transmission - 12 degrees B.T.D.C.

140 horsepower automatic transmission - 4 degrees B.T.D.C.

Fig. #17.

**SPARK PLUG CHECK** - Improper installation is one of the greatest single causes of unsatisfactory spark plug service. If as many as two are loose, all air pressure in the cooling system will be lost, and the engine will also over heat. It would also cause a whistling sound that would be hard to locate.

**NOTE:** The spark plug check should be made in this manner:

1. Remove spark plug wires.
2. Remove any foreign matter from around spark plugs by blowing out with an air hose.
3. To remove the plugs, you will need a 13/16" spark plug socket with a universal drive on the socket.

Clean the plugs thoroughly by using an abrasive-type cleaner. Check to make sure the porcelains are not glazed or blistered. If they are, it should be replaced.

All spark plugs should be the same make and number. Use a round feeler gauge to make the correct gap. Before setting the gap, file the center electrode flat. Never bend the center electrode that extends through the center porcelain. Always make the adjustment by bending the ground or side electrode and set the gap at .035.

Always use new gaskets and torque to 20-25 pounds.

**REAR COMPARTMENT** - Directly behind the engine compartment is the spare tire, lug wrench, jack and battery charger. The entrance to this area is through the rear outside door already covered.

**MATTRESS AREA** - The twin mattresses are merely laid in place and are light-weight foam material. They are easily moved about for cleaning. Under one of the mattresses, you will find a piece of plywood. This is the piece, that when in place and the seats turned parallel with the sides of the Van with the seat cushions removed, that makes the front bed. Place the cushions at the head and foot first, then set the other two in the center opening, pushing down on the middle which forces the cushions in tight for a comfortable bed.

Under the mattress on the right, you will find a wood door. This is the access door to the two batteries. Check your batteries with regularity for the correct water level.

We have completely gone around the outside of the Van and had a trip through the inside.

Be sure to ask the representatives about anything you do not understand. We have tried to cover all items on the ULTRA VAN, but I am sure there will still be some items you would like to inquire about.

The last several pages of the manual are diagrams. This is to assist you in service, if required.

We feel sure, with a clear understanding of how your ULTRA VAN operates, you will have many miles of pleasure and fun.

#### "SPECIAL ATTENTION ITEMS"

WARRANTY - In the opening of the owner's warranty book there are some coverages of warranted items--we have tried to make these as clear as possible. There have been some misunderstandings and therefore we will try to clarify the questions.

Pump warranty will only cover parts, not for labor. We are joining other motor homes manufacturers in only warranting the power train in the continental United States and Canada. There are sound reasons for this--such as poor roads and very poor gasoline. Also the service available is not up to standard, and it is very hard to get special parts.

There is no automotive warranty that covers any personal living expenses while waiting for repairs. Ultra Inc. cannot be held responsible for these. We will do all we can to assist in getting any special parts to you the quickest way if ever needed but we cannot be responsible for mail delays or time taken by other mechanics.

REPAIRS - In anything like a motor home a certain amount of personal maintenance and care is necessary. Some are adept at making these repairs, others are not. For this reason we offer these suggestions.

MECHANICAL REPAIRS - During the first 4,000 miles these repairs should be made by an authorized dealer of General Motors cars. They know the engine better, and we can only cover your warranty this way. Your engine is warranted by Chevrolet, but claims must be made through us.

OUTSIDE SHELL - If repairs are needed, any airport who has a service man for metal aircraft can easily cut away dented sections and repair. Some good sheet metal man can also do this.

UTILITIES AND PANELS - These repairs to LP gas lines, electrical, or plumbing can generally best be done by a travel trailer repair location. Basically all recreational vehicles have similar systems. This should best help you determine where to take your Van if you are in need of assistance.

TOWING - If ever you need to be towed, there is a poured A frame under the front wheels. Caution any tow man about hooking on steel chains to these. Many owners carry a length of rope and tie each



end to the A frame and then to be pulled when stuck or in trouble. If a tow man feels he is liable to tear a transmission, merely remove the U joints on the rear axle to let the Van roll free to be pulled.

EXACT COLOR MATCHING - Every ULTRA VAN owner should be proud of his vehicle and maintain its good appearance. In case of body scratches or the exterior being damaged, you may need to touch up the exterior finish of your Van. Go to a Pep Boys store, or any store carrying "DUPLI-COLOR" brand spray enamels. Ask for General Motors acrylic #122. It is an exact color match. This Dupli-Color must be sprayed in several very light coats. Allow to dry  $\frac{1}{2}$  hour between coats. Be sure to smooth and prepare the area with fine sandpaper first. Already used wrong white? - just spray this ivory white over it. EASY!

CORVAIR ENGINE DRIPS OIL - Simply reach under it with a  $\frac{7}{16}$ " box-end wrench to tighten the row of studs around the bottom of the crankcase. Also, do the same with the transmission case. Not too tight, just very snug. Crankcase and transmission "sealer-type" additives help, too.

#### "CORRECT ENGINE BREAK-IN"

This is a new engine; the following facts are supplied to us by General Motors so please read carefully.

1. SPEED - Drive at variable speeds on 15 minute intervals from 0 to 45 miles per hour for the first 250 miles. Using variable speeds, you can then increase the speed up to 55 miles per hour for the second 250 miles. After 500 miles you should be able to drive as you desire.
2. CRUISING SPEED - This is up to you, but most find they have the best control and cover many miles at 55 or 60 miles per hour. You will get your best gas mileage at these speeds. After the break-in period of 500 miles, you can find your best cruising speed.

The best rule is to always remember, when you have the accelerator depressed two-thirds of the way and due to a long grade or heavy wind you notice the speedometer is losing speed SHIFT TO "L" (LOW). Do not lug the engine by forcing the footfeed further.

CRACKS IN THE FIBERGLASS - Extremes of temperature (hot daytime sun, chilly nights) will occasionally contribute to surface "craze" or even develop definite line cracks in the fiberglass body sections. These unsightly blemishes are very easily filled with clear EPOXY RESIN, a liquid material obtainable at auto parts stores. Often (a small job), the toothpaste size tube of epoxy and another of hardening agent will be sufficient. Follow DIRECTIONS. Mix properly, then fill the cracks using a putty knife. Next day, smooth the surface down with fine sandpaper UNDER A SMALL BLOCK OF WOOD. Finish with Dupli-Color #122.

CARE OF THE PUMP - Always be very sure there is liquid on the grinder blade to pass through the pump. Inside the pump is a rubber impeller that, when run dry, will swell and lock the pump. Should this happen, let the pump set to cool off, then restart using water through the pump. Fig. #21.

SERVICE IN HUTCHINSON - In prior letters we solicited your cooperation in scheduling your requests for service in advance. There are too many times recently that people have dropped in that our shop has been covered up. No longer can we handle warranty service on overtime hours so it shall be the owners' responsibility to make an appointment for service. We will work as rapidly as possible 5 days a week from 8:00 a.m. to 4:30 p.m. and detain you no longer than necessary.

We have had many requests for some specific information on L.P. gas and the L.P. gas tanks used in the ULTRA VAN.

These tanks are furnished to us by Manchester Tank & Equipment Company, who have been in this business many years. To get the data you need, we went straight to them for specific information. The following facts are taken directly from their information to us:

1. The tank is constructed to the latest edition of the ASME Code. All tanks built after January 1, 1968, have a working pressure of 312 pounds. Fig. #1.
2. Tanks manufactured prior to January 1, 1968, were built with a working pressure of 250 pounds.
3. The relief valve setting, that is the pressure that the relief valve will discharge, is the same as the working pressure; 250 pounds in the case of the tanks built prior to January 1, 1968, and 312 pounds on the ones thereafter. The working pressure and the relief valve setting were increased to eliminate the so-called popping off of the relief valve under normal conditions. Propane has a pressure of 200 pounds at 100 degrees Fahrenheit and raises rapidly when the temperature is above 100 degrees Fahrenheit.
4. The tank is equipped with a fixed liquid level outage guage for filling the tank only to 80% of its liquid capacity. Should the tank be overfilled, even by as little as 10%, the pressure would rise in container rapidly with the increased temperature.
5. The tank in the Van is rated at 10.5 gallons, but for the greatest safety for all kinds of weather it should not be filled over 8.4 gallons or 36 pounds.
6. The way to insure that the tank is not over filled is to open the bleeder valve, and if liquid appears, then you know the tank is too full. Vent the bleeder valve until the liquid stops appearing.
7. Stations filling tanks are not always careful to bleed off a tank. Check this yourself every time the tank is filled.

There are two good books that Manchester has available that some may want, but the second one particularly tells about L.P. gas and the car.

Helpful Information About L.P. Gas / or Rego L.P. Gas Serviceman's Manual

Write to Manchester Tank & Equipment Company At:

|                           |    |                         |
|---------------------------|----|-------------------------|
| 2280 Norton Avenue        |    | P. O. Box 318           |
| Lynwood, California 90262 | or | Lithonia, Georgia 30058 |

OVERHEAT - There are several things that can be causing this. Following are some things to check:

1. If you have been pushing the engine in wind as covered in Item #4.
2. Low oil pressure.
3. There are two large butterfly vents at the rear of the engine. Check to make sure they open when the engine warms up.
4. Most generally you will find, however, that the overheat is caused by an engine being out of tune or time. Try to locate a Chevrolet dealer that services trucks, as they generally have a mechanic experienced on Corvair Greenbrier wagons. They are most helpful in working on the Van.

FUSE LOCATION - There are two sets of fuses. One set is located on the wall right behind the left front wheel well. These fuses operate the items listed below, from top to bottom:

1. Windshield Wipers.
2. Defroster fans and map lights.
3. Lighter, stop lights, and horn.
4. Headlamps.
5. Radio.
6. Turn Signals.

The other fuse box is located under the galley area. The fuses operate the items listed below, from top to bottom:

1. Galley vent fan.
2. Entrance light and courtesy light.
3. Fresh water pump.
4. Fan in bath.
5. Chopper pump.
6. Fresh water gauge.

TIRE ALIGNMENT - The tires are aligned at the factory before the Van is ever taken out of the building. There is a drawing at the back of the book to show how the adjustment is made. The only way the tires can become out of alignment usually is by hitting a large chuck hole in the road or bumping into a curb too hard. Under normal use, the tires should stay in alignment. Fig. #18.



If you ever find it necessary to have the tires re-aligned, take the Van to a truck repair shop. They have the wide equipment to make the correct adjustment. Show the drawing to the service man so he will know what the correct settings are.

ENGINE REMOVAL - At some time you may find it necessary, or desirable, to remove the engine. The engine, transmission, and differential can all be removed at the same time by the placing of a jack with a pad in the center of the power train. This will take the pressure off the motor mounts. There are two motor mount bolts in the front of the engine, and two in the back of the engine. After the motor mount bolts are removed, disconnect all electrical wires that are connected to the engine. Now the engine can be lowered from the compartment and rolled out from under the Van. Reverse the procedure to re-install the engine.

SPEEDOMETER CABLE - The speedometer is greased upon installation at the factory. This is an item that should not be overlooked. Around every eight or ten thousand miles it would be good to check and grease if necessary. This can be greased at most all service stations. They can do this by unscrewing the speedometer on the instrument panel and shooting grease down through the speedometer housing.

The foot brakes are regular Chevy II brakes. They are self adjusting. Each time you back up and step on the brakes, it will reset the pedal. Also an item to keep in mind is the master cylinder for the brakes. This is located just under the bottom of the brake pedal under the carpet, and by removing the large nut, see what the brake fluid level is. It should be full at all times.

HORN - The dual horns are located under the left front wheel well. If ever adjustments need to be made, there is a lock nut in the center of each horn with a screw in the center. Loosen the lock nut, then turn the set screw either in or out. This will change the tone of each horn.

REPLACEMENT OF SHOCKS - When it is necessary to replace the shocks, the replacement can be made by following these steps:

1. Jack the front end of the unit up and remove the front tires.
2. Remove the three retaining bolts from the upper "A" frame at the upper ball joint connections, using a hydraulic jack to hold the lower "A" frames in place. This will let the spring loosen.
3. Remove the two retaining bolts at the bottom of the shock. Now let the jack under the lower "A" frame down about three inches. Remove the two retaining bolts at the top of the shock and pull the shock out at the top of the spring.

Reverse procedure for installing the new shock.

ON ALL OLD UNITS - There are five pumps on all older units. This covers all units under the number 411. Any ULTRA VAN that is #411 and above only has two pumps which are the Ultra Pump and the fresh water pump.

| TYPE                    | USE            | LOCATION                        | WHERE TO PURCHASE PARTS  |
|-------------------------|----------------|---------------------------------|--|
| FOR UNITS UNDER #411    |                |                                 |  |
| Peters & Russell        | Fresh Water    | Under Galley                    | Peters & Russell, Inc.<br>Springfield, Ohio 45501  |
| Pony                    | Shower         | Center of Back<br>Cap Cover     | Western Brass Works<br>Proven Pump Division<br>1440 N. Spring St.<br>Los Angeles, Calif. 90012 |
| Western Brass           | Flush          | Behind Range<br>under galley    | Western Brass Works<br>same as above   |
| Jabsco                  | Chopper        | Right Side of<br>Back gap cover | Ultra, Inc.<br>101 West 5th<br>Hutchinson, Ks. 67501   |
| FOR UNITS #411 AND OVER |                |                                 |  |
| Peters & Russell        | Fresh Water    | Under Galley                    | Peters & Russell, Inc.<br>Springfield, Ohio 45501  |
| Jabsco                  | Final Emptying | Center Front<br>of final tank   | Ultra, Inc.<br>101 West 5th<br>Hutchinson, Kansas 67501  |

PARTS REQUEST - For quicker service, please show your Van number on all letters. On a call in, please give your Van number also. This is for information, parts, etc. We are getting so many Vans in the field that by giving us the Van number, it will help a great deal on your shipment.

#### HOW TO REMOVE THE BOOKCASE

1. Remove table from bookcase.
2. Remove the moulding at the top of the bookcase by bending the "U" strips down.
3. After the moulding is removed, you may be able to see the pop rivets that hold the top lip of the bookcase to the wall. Drill these pop rivets out.
4. Inside the bookcase at the top, there are five (5) retaining screws. Remove these. At the bottom, there are two (2) retaining screws at each end. Remove these and you will be able to pull the bookcase out.
5. If your unit is equipped with a Coleman Furnace with duct work, remove the lower shelf in the bookcase and disconnect the duct work at the far left by removing the hose from the furnace outlet.
6. Move the bookcase to the right about 2 inches and it will pull out.

## Gas Refrigerators

### Burner Jet Removing, Cleaning, and Replacing.

1. If your unit is equipped with the large outside refrigerator door, it is not necessary to remove the refrigerator. If your unit has the small outside door, it will be necessary to remove the refrigerator from the cabinets.
2. Remove burner cover and wind guard, by unscrewing two sheet metal screws.
3. Remove tubing nut at base of burner jet. CAUTION: Always use a backup pair of needle-nose pliers to hold small six-sided stud from being twisted off in burner body.
4. If it is impossible to provide proper backup on jet stud, then remove burner from refrigerator.
5. When burner is removed from refrigerator, a larger pliers or wrench can be used to provide necessary backup in removing jet from burner body.

### To Clean Burner Jet.

1. Remove burner jet as noted.
2. Run music wire, string gently through jet from discharge orifice side.
3. Remove loose particles in jet by sucking air from inlet side. CAUTION: Do not get foreign particles in lungs.

### To Replace Burner Jet.

1. Be sure that jets for larger and smaller refrigerators are not exchanged.
2. If jets cannot be unplugged, or are damaged, order a new replacement.
3. Place inlet end of jet into stud extending from burner body. Discharge end of jet goes through hole in metal tab at end of mixing tube.
4. Carefully tighten tubing nut. CAUTION: Use a backup needle-nose pliers or wrench to hold small stud in burner body from being twisted off.
5. Using backup wrench or pliers, turn tube slightly as required so that jet points directly down mixing tube and into center of opening in burner head.
6. Retighten tubing nut at base of jet. CAUTION: Do not over tighten.
7. CAUTION: Check for gas leaks with soapy water before lighting refrigerator.



## CHEVROLET PARTS - OTHER THAN ENGINE

| <u>PART NAME</u>                  | <u>PART #</u>  | <u># PER UNIT</u> |
|-----------------------------------|----------------|-------------------|
| Horn, blow ring                   | 3822667        | 1                 |
| Ball Joint                        | 3865827        | 4                 |
| Seat                              | 3793884        | 2                 |
| Lever                             | 3783459        | 1                 |
| Cam                               | 3826333        | 4                 |
| Bearing & Cable                   | 5677819        | 1                 |
| Switch Control                    | 910502         | 1                 |
| Steering Lowering Bushing         |                | 1                 |
| Wheel seal                        | 3876191        | 2                 |
| Insul Contact                     | 768233         | 1                 |
|                                   | SBG-6-T        | 1                 |
| Cam Bolt                          | 3858038        | 8                 |
| Spindle Nut                       | 3858108        | 1                 |
| Clip Ring                         | 3872951        | 1                 |
| Bumper                            | 3880522        | 4                 |
| Frame Bushing                     | 6255708        | 12                |
| Arm Assy Steer                    | 430848         | 1                 |
| Seal                              | 783711         | 3                 |
| Tie Rod Ends                      | 3737595        | 3                 |
| Seal                              | 3763211        | 4                 |
| Washer Upper Shock                | 5544049        | 4                 |
| Hose Clamp                        | QS100-M65      | 2                 |
| Hose Clamp                        | 1552 x 9 5/16" | 2                 |
| Tubeless Valve Stems              |                | 5                 |
| Seal & Shaft Cable                | 656194         | 1                 |
| Lug Nuts                          | 358501         | 20                |
| Fitting for Speed C.<br>(Ferrule) | 94353          | 1                 |
| Fitting for Speed C.<br>(Nut)     | 95112          | 1                 |
| Washer                            | 3775189        | 2                 |
| Spindle Nut                       | 378137         | 1                 |
| Lever                             | 3823364        | 2                 |
| Link                              | 5462526        | 1                 |
| Link                              | 5462527        | 1                 |
| Spring                            | 5461984        | 1                 |
| Nicopass                          | 18-3-M         | 4                 |
| Front Shocks                      | 3178181        | 2                 |
| Shock Grommet                     | 3790341        | 2                 |
| Grommet                           | 3852230        | 16                |
| Spring                            | 3695705        | 1                 |
| Spring                            | 3724695        | 1                 |
| Spacer for Engine Mt.             | 3785373        | 2                 |
| Engine Mount                      | 3788221        | 2                 |
| Steering Gear                     | 5695498        | 1                 |
| Sus. Gil Spring                   | 3764408        | 4                 |
| Spring                            | 5462264        | 1                 |
| Spring                            | 5462500        | 1                 |
| Cam Washer                        | 379035         | 4                 |
| Screw                             | 5462961        | 1                 |
| Screw                             | 5462962        | 1                 |
| Gasket (Muffler)                  | 3866590        | 2                 |

|                          |         |       |
|--------------------------|---------|-------|
| Plate                    | 5460399 | 1     |
| Nut                      | 5462948 | 1     |
| Nut                      | 5462947 | 1     |
| Pivot                    | 5462257 | 1     |
| Wheel Cylinder           | 5462964 | 1     |
| Boot                     | 5456779 | 1     |
| Chev Pin                 | 383269  | 2     |
| Pin Unit                 | 3794200 | 2     |
| Socket                   | 5467946 | 2     |
| Nut & Screw              | 5462962 | 1     |
| Master Cylinder          | 5459390 | 1     |
| Brake Pedal              | 3036    | 1     |
| Spring Brake Hose        | 476737  | 4     |
| Brake Handle             | Ford    | 1     |
| Brake Line Nut Fitting   | 105 x 3 | 8     |
| Splicer Brake Line Conn. | 300 x 3 | 4     |
| 4-way Plug - Front       | 7895    | 1     |
| 3-way Tee Lk. Line Rear  | 7853    | 1     |
| Rod Hydraulic            | 3812970 | 1     |
| Chev Swivel              | 6255965 | 1     |
| Nut & Screw              | 5462961 | 1     |
| 30" Brake Hose           | C11056  | 2     |
| 15" Brake Hose           | C12086  | 2     |
| Cap for Pin (In Pin Kit) |         |       |
| Spring Kit               | 3792385 | 2     |
| Repair Kit               | 6256929 | 1     |
| Ring                     | 9415099 | 1     |
| Retainer, Dust           | 3858811 | 1     |
| Retainer                 | 3775190 | 1     |
| Pin Kit                  | 3833475 | 2     |
| Master Cylinder Bushing  | 3798256 | 2     |
| Pivot                    | 5462256 | 1     |
| Spring                   | 5462970 | 1     |
| Rod                      | 5464748 | 1     |
| Nylon Pulley             | 3866579 | 1     |
| Backing Plate            | 3885909 | 1     |
| Backing Plate            | 3885910 | 1     |
| Shield                   | 3867221 | 1     |
| Brake Drum               | 3858300 | 2     |
| Brake Shoe - Front       | 3845292 | 1 set |
| Muffler                  | 3869830 | 1     |
| Head Light Assy. - Ford  | BO 875  | 2     |
| Muffler Clamp            | 61-4154 | 2     |
| Fuel Filter              | WF-32   | 1     |
| Packing                  | 3866590 | 2     |
| Knuckle                  | 3890126 | 2     |

## SPECIAL ATTENTION ITEMS

DESIGN GROSS WEIGHT----- 3,500 pounds

Design Gross Weight is the weight of the vehicle as it comes off the factory assembly line, with standard equipment and furnishings--no passengers. It includes engine oil, transmission fluid, differential oil, hydraulic fluid, spare tire and wheel, and full LP gas tank. Water tanks and gasoline tank empty.

CURB GROSS WEIGHT----- 5,000 pounds

Curb Gross Weight is the weight of the vehicle ready for the road, but without driver or passenger. Includes the Design Gross Weight plus typical amounts of personal gear, groceries, kitchen equipment, bedding, extra furniture and full of water and gasoline.

WINDSHIELD WIPERS Fig. #4.

Your windshield wipers are your life preservers. They are not used very often in some localities, but when you need them they are very indispensable. Your vehicle comes equipped with two windshield wipers each driven by its own electric motor. The switch controlling both wipers is located on the instrument cluster. Since the two motors are not interconnected mechanically you may experience some difficulty in getting the wiper blades to park horizontally when you turn the switch off. Some vehicle owners have added an extra switch to enable them to control each wiper motor individually and this facilitates parking the wiper blades horizontally. It is possible to add a third windshield wiper at the center of the windshield. This may be added at the factory on special order for new vehicle owners or you can install one yourself in your vehicle if you think it is a necessity.

Periodic inspection of your windshield wiper blades is recommended. If you find that they are weathered and starting to show fine cracks they should be replaced. Replacements may be obtained from any gasoline station or auto supply parts store selling AMCO Blades.

Be sure that your blades are properly installed. Each blade has a notation stamped on it which says "THIS SIDE UP".

If your wipers do not cover the windshield surface properly and if they strike the sides or bottom of the windshield, they can be adjusted by pulling the wiper arm off the wiper motor shaft and repositioning it until operation is proper.

## HEADLAMPS

It is very important to check your headlamps frequently for proper alignment to be sure they are properly aimed for all load and road conditions. If your headlamps are aimed too high, you are liable to get a citation from the Highway Patrol and angry high beam flashes from oncoming traffic. If your beam is too low you are courting disaster by driving in the dark. You may not be able to see a stalled vehicle or a stray animal on the road ahead in time to stop. The illustration, Fig. #2, outlines the proper method of checking your headlamps.



Always have the vehicle on a level surface and aim the headlamps, from the prescribed distance, against a flat vertical surface such as the side of a building or garage door.

Remove headlamp rim.

Adjust each headlamp individually until the bright spots fall at the positions indicated on Fig. #2. Use both the up and down and side to side adjustment screws for this operation. If you adjust the high beams first, the low beams will usually fall at the positions indicated. See Fig. #3.

Keep your headlamps clean, properly adjusted and check frequently to be sure that both beams are operating.

#### SIDE WINDOWS - DRIVER'S & PASSENGER'S

The side windows may be slid back for ventilation and hand signaling. A lock is provided, inside the vehicle, to prevent unauthorized entry. A screen may be added to this opening, if desired. It is not recommended that you drive with the screen installed as this will impede hand signaling and also cause wind noise. Drain holes are provided in the bottom channel, see Fig. #5. These should be periodically checked to see that they are clear of obstructions which might prevent proper drainage.

#### DOOR - MAIN ENTRANCE

The entrance door, see Fig. #6, is equipped with a window and screen. It is hinged at the front. It is equipped with a catch to hold the door open. Normal maintenance would include lubricating the hinges and tightening screws around the door frame. It is also advisable to check the drain holes in the window bottom channel.

Care should be exercised when opening the door in a high wind to be sure it does not fly back against the vehicle body.

The lock and inside safety catch should be lubricated occasionally.

Vehicle serial number #1 to #310 are equipped with two hinges. See Fig. #6. Vehicle serial number #311 and subs are equipped with a long piano hinge. Fig. #9.

#### WINDOWS

The windows may be removed by pulling up, from the inside, on the brackets provided. The window frames may be made to slide easier in their channels if they are removed and the frames and channels rubbed with wax. While you have them out check the drain holes.

A light coating of paste wax will keep the aluminum frames shiny and bright on the side. To prevent corrosion on the outside of the frames from the weather, salt, air, or smog, a spray solution is available which will prevent pitting and oxidation. This solution, which comes in a pressurized spray can, is made by the CORICONE CORP., Long Beach, California, and it is available at most boat and marine supply stores. Apply according to directions and your aluminum window frames will stay bright and shiny for a long time.

VENTS - ROOF

Two roof vents of the type shown in Fig. #7, are installed on the vehicle. One is for the general living area. The other is installed in the bathroom ceiling and includes a ventilating fan. Both vent doors may be operated from the inside of the vehicle by manipulating the control knobs provided.

In driving in dusty conditions it is advisable to leave the vent open in front. This helps to create a pressure within the vehicle and this keeps the dust out.

GENERAL MAINTENANCE - VEHICLE EXTERIORLEAKS

It is possible that occasional leaks will develop around the sheet metal joints in the roof, rivet holes and window frames. Go over all joints carefully inspecting for possible sources of leaks and apply DAP. DAP is a synthetic plastic putty, white in color, which can be easily applied to suspected areas. After sealing the joint the excess putty can be removed with a rag dampened with turpentine. DAP may be obtained at most hardware stores.

LAMPS - EXTERIOR - RUNNING

All exterior running lamp, tail and stop lights, etc, should be inspected regularly to see that they are functioning properly. If you want to make your lamps more effective just remove the plastic lens and apply a piece of aluminum foil behind the lamp bulb. Then replace the lens. This will give your lamps more reflective power and enable them to be seen at a greater distance. A good safety precaution.

CURTAINS

Curtains are provided in vehicles for all windows and windshield areas to assure privacy. The curtains may be made to operate easier and smoother by rubbing wax or paraffin on the curtain slides. Fig. #8.

FLOOR - RUG

The entire living area of the vehicle is covered with a high quality nylon rug of the color and pattern chosen by the prospective owner. See Fig. #10. Take care of the carpeting just as you would the carpeting in your own home. Grease and mud spots may be readily wiped off with a rag using warm water and a mild detergent, or one of the commercial rug cleaners may be used. Occasionally, the staples used by the factory to keep the carpet down will work loose. It is recommended that you check this frequently, as the loose staples are not too easy on bare feet.

ENGINE ACCESS DOORS Fig. #12.

These doors are located in the sleeping area at the rear of the vehicle.

Most maintenance operations may be performed by opening these doors and exposing the engine. Even though this area, which generates a lot of heat, is located directly below the sleeping area there is hardly any heat

transference due to the thickness of the plywood doors and the ample ventilation provided in the engine compartment.

It is recommended that a foam rubber seal, obtainable at most auto supply stores in 5 inch rolls with an adhesive backing be used to seal these doors. An asbestos sheet lining may also be added to the doors to fireproof and keep the engine noise out of the inside of the vehicle.

Some owners have attached an overcenter bracket to hold the doors open while required maintenance operations are being performed.

#### HEATER - SPACE Fig. #11.

The living area of the vehicle is equipped with a thermostatically controlled space heater which burns propane or butane gas.

If you ever have to light the heater when a high wind is blowing outside you will experience some difficulty in keeping the match lit and the pilot light from blowing out. To overcome this condition, make yourself a shield out of a piece of tin, about 5 inches square. See Fig. #13. An old tomato can will do. Cut out the ends, snip it down the middle, flatten it out and bend a slight hook on one side. When encountering high winds, hang this shield, on the outside, between the heater vent tube and the baffle. This will prevent the wind from blowing through the heater and putting out your match. WARNING: BE SURE TO REMOVE THE SHIELD AFTER YOU HAVE LIT THE HEATER.

Periodic maintenance on the heater includes: (1) Keep area around the under heater clean, free of dust and free of combustible material. (2) Be sure that the pilot light is properly adjusted. See heater instruction book. (3) Remove inspection plate behind heater in outside of vehicle and check all gas line connections with a soapy solution. Carefully tighten any connections which show any sign of a leak.

When traveling, it is advisable to turn the heater off, including the pilot light, and use the heat from the engine heater for warmth.

#### RANGE - COOKING

Give your cooking range the same care as you would your gas or electric range at home. It is a high quality appliance with easy to clean baked enameled surface and chrome trim. See Fig. #14. The oven is thermostatically controlled and can be used for baking or broiling. See the instruction book, furnished with the range, for proper cooking, maintenance and adjustment procedure.

There is one thing to remember. Your range in the Van is not a stay-at-home range. It is constantly subjected to bumps and twists. For this reason it should be periodically inspected for loose screws and fastenings and especially the gas lines and connections should be checked with a soapy solution for leaks.

To get the most efficiency out of your top burners be sure that they are adjusted to give the cleanest blue-tipped flame possible. The procedure for this adjustment is given in the range instruction book.



When using the range for cooking, always have the roof vent or a window cracked for ventilation. You should also use your electrically driven ventilating fan, located just above the range, to clear the inside atmosphere of grease fumes and smoke. WARNING: DO NOT USE YOUR RANGE BURNERS OR OVEN FOR HEATING PURPOSES. THIS IS A DANGEROUS PRACTICE AND COULD RESULT IN A SERIOUS ACCIDENT.

#### REFRIGERATOR

There is a very comprehensive instruction book which comes with the refrigerator. Take some time to read it. It will save you a lot of headaches and spoiled food later.

Once in a while, inspect the interior. Wash it out with a mild solution of baking soda and water. Inspect the freezing coils, in both the freezing compartment and the large compartment, and remove any accumulated ice. Wipe the racks to keep them shiny and free from food drippings. Keep the enameled door exterior clean with a good quality wax.

After long trips and hard runs over rough roads it is advisable to check the gas lines and connections for possible leaks. These are located under the refrigerator and may be reached by the inspection door. It is also necessary to remove the large access door behind the refrigerator to reach the burner, pilot light and gas connections. The burner and pilot light should be removed, according to instructions, and soot deposits removed.

On long trips you should frequently check your pilot light, wind, etc.

#### RUNNING GEAR - FRONT

The front end of your vehicle, which includes the wheels, brakes, steering system, suspension system, and shock absorbers has been carefully designed and constructed to give you long trouble free service and complete control of your vehicle under all road and driving conditions.

Good steering and handling abilities will depend on keeping the front end properly aligned at all times. Proper alignment will materially contribute to long tire life. In your travels, if you should inadvertently strike a curb, a deep chuck hole, or an obstruction in the road you should get the end alignment checked as soon as possible. Most garages or front end alignment shops familiar with this type of work should be able to perform this operation from the information given. While this work is in progress, have the garage man check all the vital points in steering and suspension system to be sure that there are no loose bolts and to see that everything is properly safe. One very important place to check is where the "A" frame attaches to the wheel spindle. The bolts which hold these two parts together should never be allowed to work loose.

Your front shock absorbers are another important piece of equipment in your front end system. See that the rubber snubbers are in place and that the fastening points are secure. Shock absorbers contribute greatly to a smooth ride and good handling characteristics of the vehicle. They won't last forever. Inspect for leaks or other signs of malfunction every 3,000 miles. Keep vehicle safe by replacing shock absorbers when ever they show signs of wear. Constant jouncing, wheel chatter, sloppy

steering and wandering are good signs that you need new shock absorbers. Replacements may be obtained at most garages, auto supply stores or at Sears. It is recommended that you replace with the same type of shock absorber as that installed on the vehicle. Heavy duty or oversized shocks are not necessary. Some owners may decide to buy shocks with overload or booster springs. These will help to keep your front end from sagging, bottoming, rolling on sharp turns and will materially aid in extending the life of the shock absorber.

Lubrication points are shown in sketch, see Fig. #19. All lubrication points should be serviced every 2,000 miles. Most garages or service stations will do this without the necessity of hoisting your vehicle on a hydraulic lift. You can do this operation yourself by obtaining a high pressure grease gun.

Finally, it is a good idea to check your wheel lugs each time you start on a trip to see for sure that they have not worked loose.

Go over your tires regularly to inspect for cuts, bruises, nails and signs of abnormal wear. Keep them inflated to the recommended tire pressures.

#### RUNNING GEARS - REAR

There are two brake systems in your vehicle. One is the service brake system. The other is the emergency brake system. The service brake system is of the self-energizing, self-adjusting type and it is hydraulically operated. The emergency brake system is mechanically operated and is connected to the rear wheels only. See Fig. #16.

The brake system has been designed to provide enough braking area to bring your vehicle to a safe and smooth stop under all driving conditions. Keep in mind that your vehicle is heavier than most passenger cars so always allow yourself a safety margin when bringing your vehicle to a stop. The brake system does not require constant maintenance, but it should be kept in mind that this is a very vital function and all parts of the system should be kept in top operating condition. When you feel your brake pedal is getting spongy, if the pedal goes down too far, if the brakes chatter or grab, you may have a leak in one of your wheel cylinders or air in the line. Have your brakes checked by a competent brake service station.

#### ENGINE

GM powerful resources and some shrewd design work by its engine department have enabled it to come up with a remarkable six cylinder, air-cooled pancake engine. This is the engine used in your vehicle. The engine is unorthodox, not so much in the air cooling, since this method of heat dissipation has been used before, but in the demonstrated fact that a fully enclosed, fan only, powerplant can be operated under all conditions of heat and cold for thousands of miles.

No attempt will be made here to go into extensive detail regarding the engine. However, the vehicle owner, especially the new owner, must keep in mind that certain maintenance and servicing functions must be performed if the engine is expected to deliver peak performance.

Given to the idiosyncrasies of each individual engine, the flat-rate mechanic will not take the time. For example: You cannot arbitrarily set the timing of all engines to an identical figure. Variations in the advance curve from engine to engine calls for some special tuning techniques. The sharp tune-up man knows all this, and although it may cost you a little more, you will get a better running engine if you let him do the work.

For those owners interested in familiarizing themselves with the engine and perhaps doing some of their own service work, we recommend that they write to HELM, INCORPORATED, P.O. Box 7706, Detroit, Michigan 48207 for the latest Corvair Engine Shop Service Manual.

Maintenance functions which most vehicle owners should have no difficulty in performing themselves are outlined below:

#### 1. OIL AND OIL FILTERS

New vehicle owner, taking delivery of their vehicle at the factory should watch his oil level very closely. Your new engine, due to close manufacturing tolerances, is still quite "Stiff". For this reason, a thin run-in oil is put in. This oil helps the engine parts to wear in smoothly, at the same time providing adequate lubrication. Watch the level of the oil very closely by means of your engine oil dip stick for the first few hundred miles after leaving the factory. These are the miles that are the most important in the life of your engine. You can do your engine more harm, in these first few miles, by running it too long in low gear or by lugging it in high gear than you would in 10,000 miles of ordinary driving after the engine is run in. Ordinarily, the level of the run-in oil will go down gradually as you pile up the first few hundred miles. When adding oil to your engine we recommend that you put a RAG around the oil filler pipe and drape it over the blower belt and pulleys on both sides.

#### TIMING

The distributor on your engine controls the timing of the spark in the individual cylinders. The spark occurs before top dead center, or after top dead center depending on how the distributor is set. When the spark occurs before top dead center, it is said to be advance. When it occurs after the piston reaches top dead center, it is retarded. This condition is usually expressed in degrees of advance or retard. To get the most efficiency out of the fuel, modern engines have their spark set at some point before the top dead center (BTDC). This allows the fuel and air mixture, in the cylinder, to be completely ignited before it pushes the piston down on its power stroke. Modern fuels allow you a wide latitude in the setting of your spark BTDC. Up to a point, the more advance the spark is BTDC the more power you will get out of your engine. However, if you should advance the spark setting too far BTDC you will reach a point where the engine will start talking back to you in no uncertain terms.

You will have reached the point where the fuel and air mixture is ignited too soon and the ignited mixture is actually trying to push the piston down to the opposite direction from its normal travel. The resulting sounds you will hear are a series of sharp pings coming from all cylinders---loud protests that the spark is improperly set. Do not run your engine under these conditions.



Your spark setting will depend on several factors, all important to the proper running and long life of your engine. The first factor affecting engine performance is the type of fuel you use. The octane rating and the quality of the fuel varies from state to state. A 100 octane gasoline is not necessarily 100 octane rating, in spite of what the signs and ads say. Altitude, road and wind conditions and the load you are carrying all have a definite and important bearing on where your spark should be set for optimum performance.

For this reason, you should familiarize yourself on how to adjust your distributor so that your engine will never ping under any of the conditions mentioned above. It is well to remember that prolonged pinging will promptly cause the engine to overheat and blow a hole through the pistons.

When you take delivery of your new vehicle, whether you are an expert mechanic or not, young or old, tall or short, male or female, be sure to ask the factory to show you where the distributor is and how to adjust it, if necessary. Some owners do not do this and after leaving the factory, they find that their engine is not performing as it should, so they pull into a garage in some small town to have it adjusted. The mechanic, not knowing and caring little about the conditions the vehicle operates under, sets the timing according to the book--usually anywhere from 13 to 22 degrees BTDC. This may or may not take care of the problem. It all depends on what the road conditions, altitude, and wind conditions are, and the type of fuel you buy on the road ahead of you. Learn how to adjust your distributor, and you will be able to take care of these conditions as they arise.

To adjust your distributor, you should have a short 9/16" box end or open end wrench, or you may purchase a special wrench which will make the job a lot easier. Adjust the distributor from the inside of the vehicle while you are facing the aft. Looking down on the distributor you will see a bolt head. This bolt is used to hold the distributor down and when loosened will allow the distributor to be rotated.

Under the bolt head you will find a spring washer. This is used to keep a certain amount of tension on the bolt when it is loosened. After loosening the bolt a few turns (Rotate the bolt to your left to loosen it.), grab the distributor by the cap, using both hands, and rotate it in either direction not more than 1/16 of an inch at a time. If you want to retard the spark, turn it clockwise. To advance the spark, turn it counterclockwise.

#### TO RETARD TURN CLOCKWISE

#### TO ADVANCE TURN COUNTERCLOCKWISE

Tighten the bolt somewhat after you have made this adjustment. You may have to make this adjustment several times until you have reached the proper setting for the condition you are operating under. Keep in mind that if you should retard the spark too far you will not hear any ping, but you will lose power, cause the engine to overheat, and possibly burn out your exhaust valves if you allow it to run in the condition too long.

Adjust your spark until you hear a slight ping, under load, then back it off just enough to make the ping disappear. Never run your engine for any length of time if you can hear the slightest ping. Pull off the road as soon as you can and adjust it.

Some owners prefer to leave the bolt just loose enough to allow them to quickly adjust the timing to suit the varying road condition--but not too loose to allow the distributor to vibrate out of adjustment.

While you are driving, constantly keep a sharp ear open to the sound coming from your engine. Your engine is located almost 20 feet behind you in a nearly sound proofed compartment. Learn to get the feel of it and to listen for any unusual sounds, and you will have miles of trouble free driving.

Your vehicle is not a hot-rod. You may be able to snap your head back when you step on the gas in your personal car, but you won't do it with the ULTRA VAN. It has sufficient power for all road conditions but take it easy.

#### BLOWER BELT

Most owners refer to this piece of equipment as the fan belt. Technically, it is known as the blower belt and it is used to transmit power from the V pulley on the end of the crankshaft to the V pulley on the blower fan mounted horizontally on top of the engine. Due to the design of the engine, the belt goes through a series of gyrations and twists to perform this function. Do not minimize the importance of this belt. Your engine is air cooled, not water cooled. Cooling air is furnished by this 11" blower running at just under 1.6 times crankshaft speed. The blower generates 1800 cubic feet of air per minute at 6,300 RPM (equivalent to 4,000 RPM engine speed) and takes 8.5 horsepower for its operation at that speed.

The belt also drives the generator or alternator. These units consume anywhere from 3 to 5 horsepower depending on the load and speed.

From the above information, you can readily realize the important functions this belt plays in the operation of your engine.

Inspect your belt, check it for proper tension and for signs of fraying or cracking before you start out on a trip. If your belt slips, it will not deliver the required power to your blower fan or to your generator or alternator. Your engine will overheat, and your batteries will not be properly charged. A slipping belt may not cause the red warning light to come on. A broken belt will give immediate warning because the generator will stop, and the red generator warning light will come on.

Stop immediately if you get an indication that you have a broken belt. The engine will quickly overheat and "Freeze" if you do not. If this is not possible, under some road traffic conditions, turn off your ignition, put transmission in neutral, and coast until you find a spot to pull off.

Always carry a spare belt with you. Belts may be easily changed by loosening the idler pulley on the left hand side of the engine, looking down, and slipping in the new belt. Check the tension of the new belt frequently, and tighten it until all the stretch has been taken out. To

check for proper tension, grab the belt (with the engine turned off) between the idler and blower pulleys and move it up and down. You should be able to move it about 3/4 of an inch without applying too much force. If you cannot, the belt is too tight.

It is recommended that you get a replacement belt, or a spare belt, made by the Gates Rubber Company. It is known as the "Green Strip" Belt. It is sold by most auto supply stores. This is a premium belt with nylon cord reinforcement, and it will give you long and trouble free service. It costs about \$5.00, but it is worth it.



# LP GAS

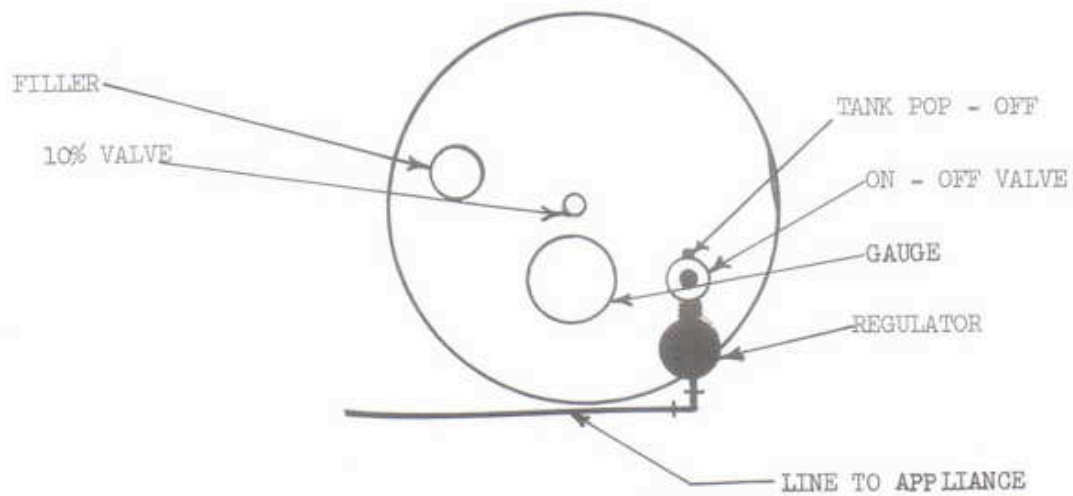
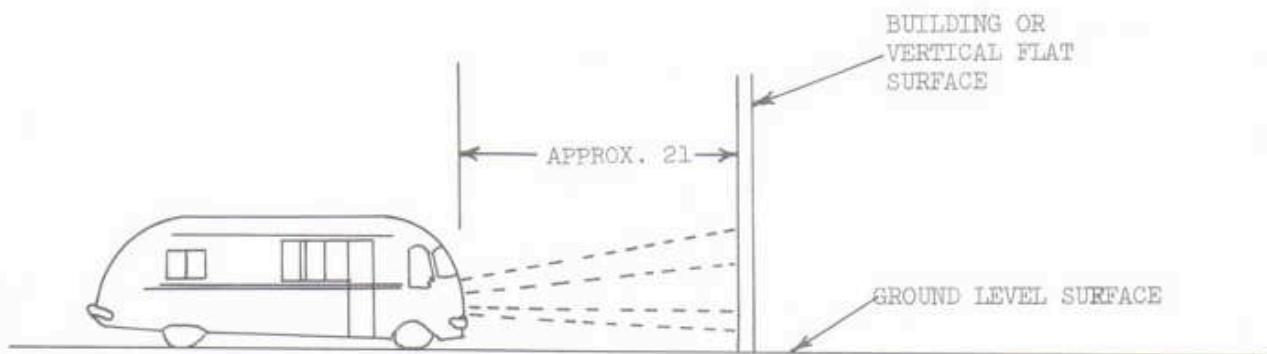


FIG. 1

# HEADLAMP ALIGNMENT



FOR MORE EXACT SETTING CHECK WITH LOCAL HEADLAMP ALIGNING SERVICE

FIG. 2

# HEADLAMPS

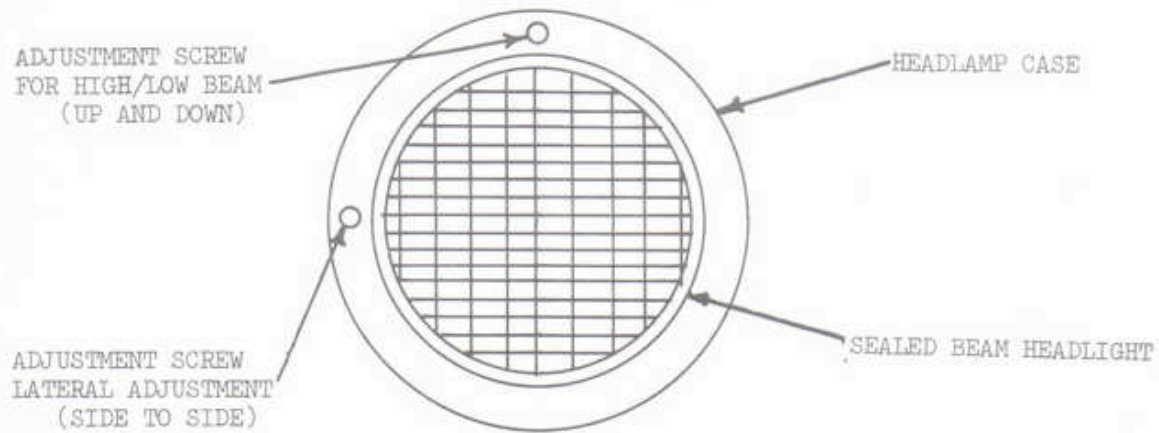
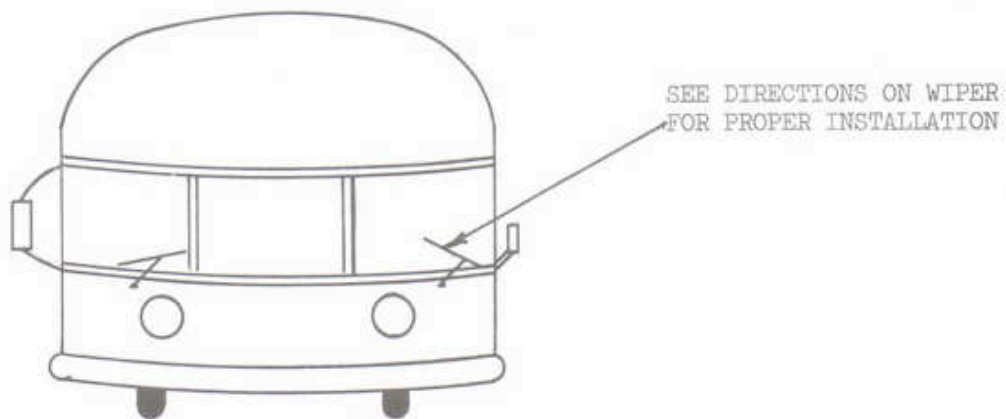


FIG. 3

# WINDSHIELD WIPERS

FIG. 4



# SIDE WINDOWS DRIVER'S AND PASSENGER'S

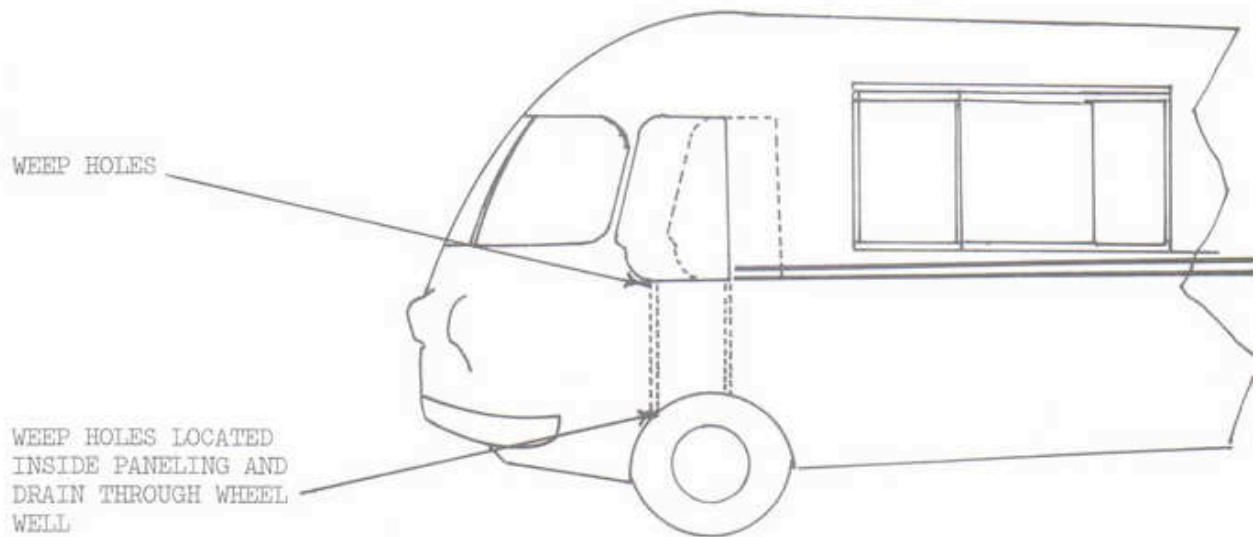


FIG. 5

# ENTRANCE DOOR

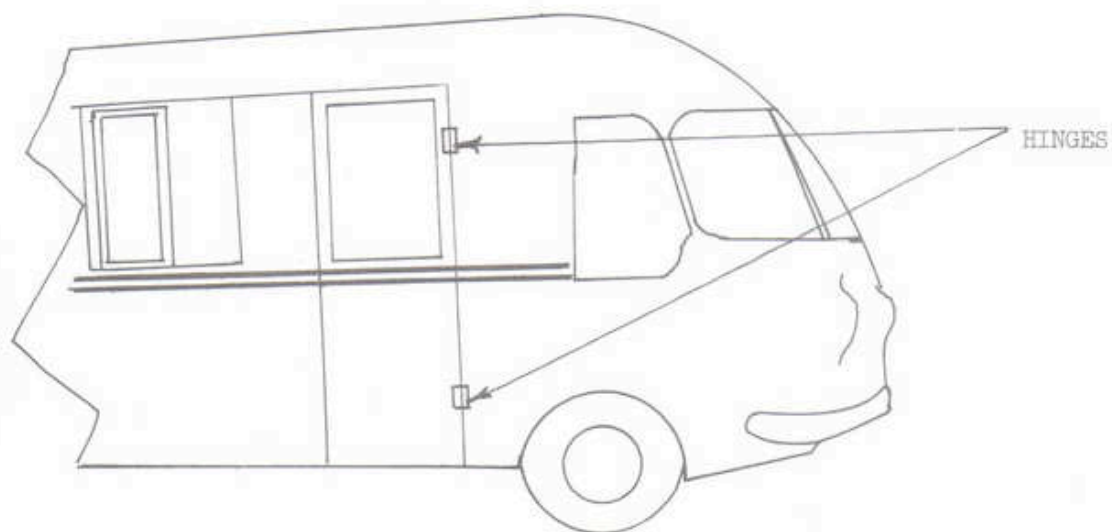


FIG. 6



# THREE WAY ROOF-VENTS

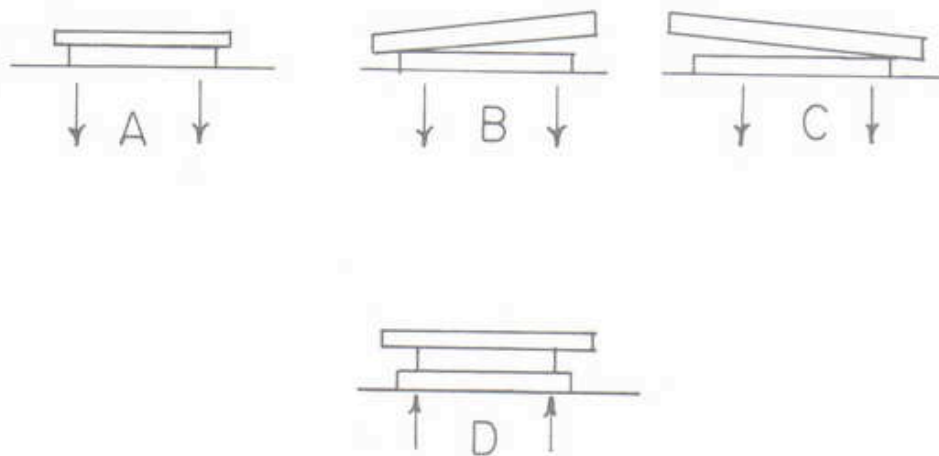


FIG. 7

# CURTAINS

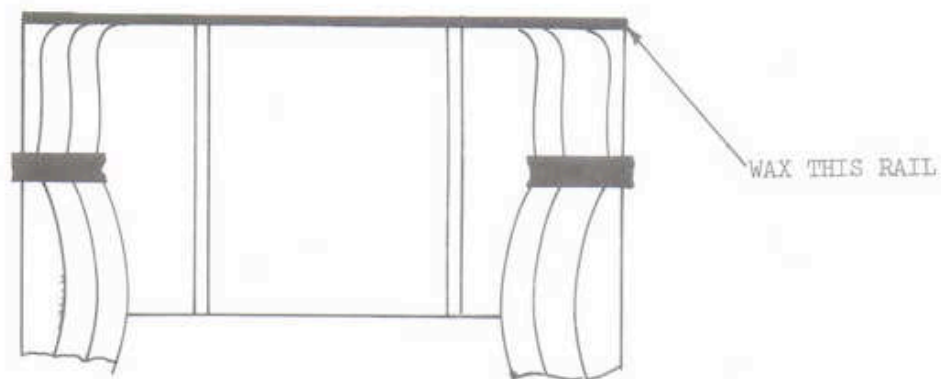


FIG. 8

# ENTRANCE DOOR

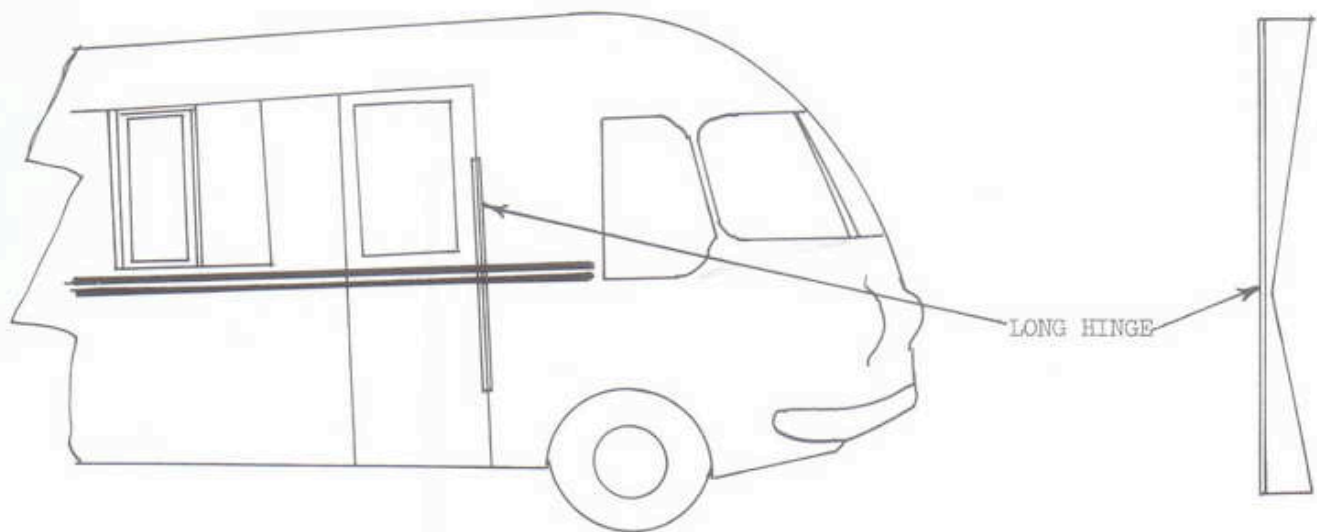


FIG. 9

# CARPET



FIG. 10

# SPACE HEATER

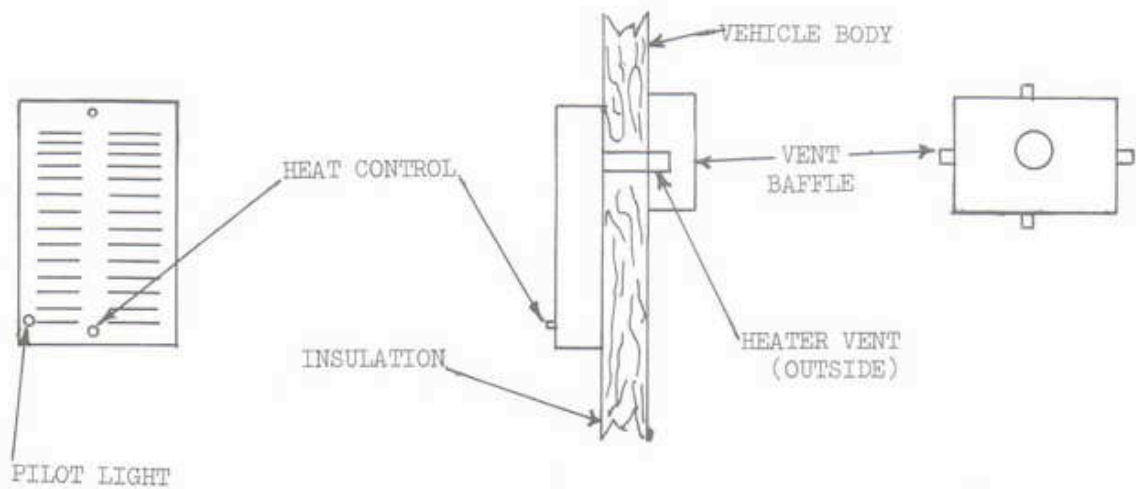


FIG. 11

# ENGINE ACCESS DOOR

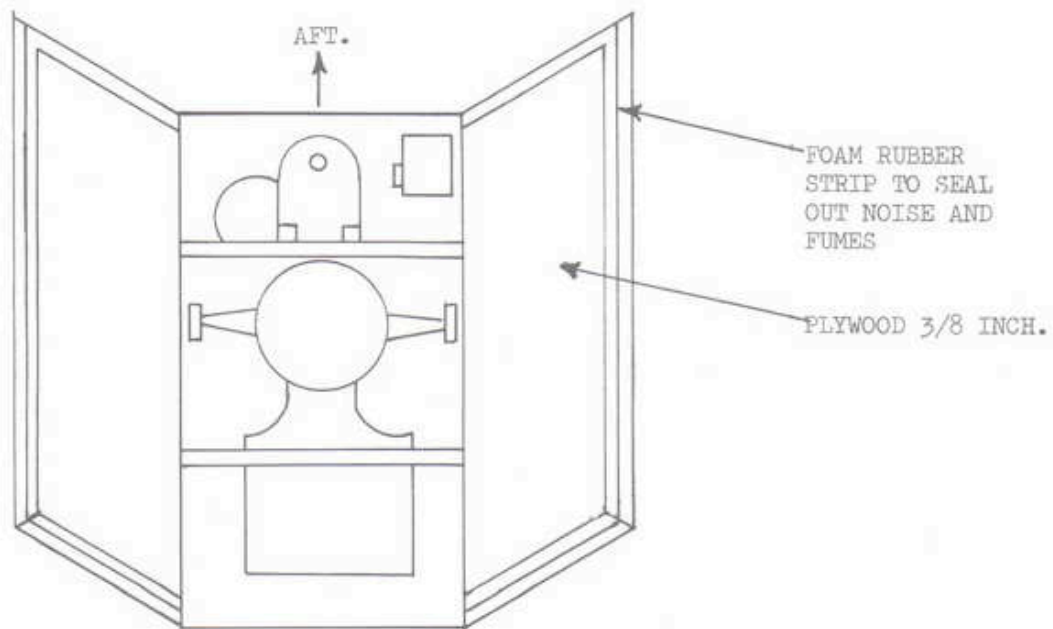


FIG. 12



# WIND - SHIELD FOR SPACE HEATER

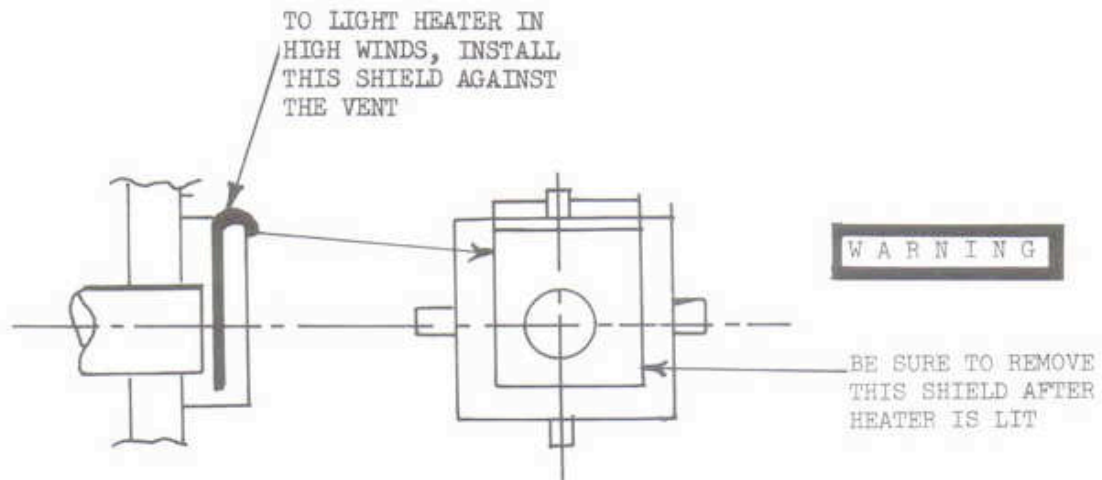


FIG. 13

# GAS RANGE

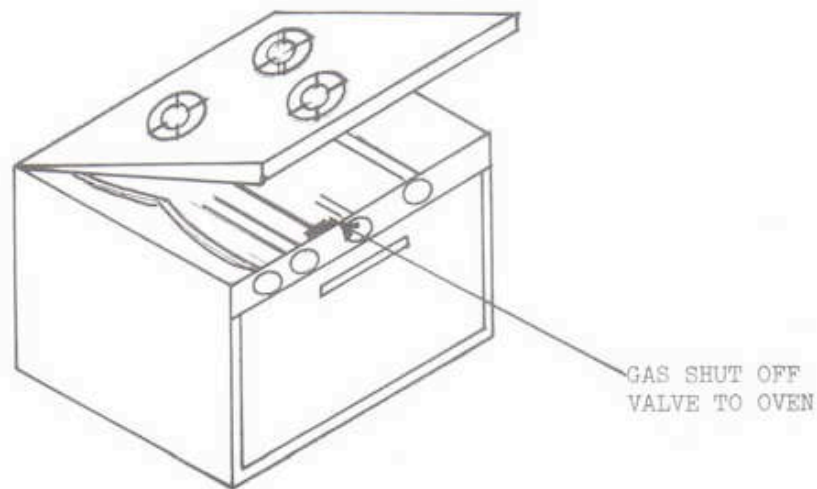
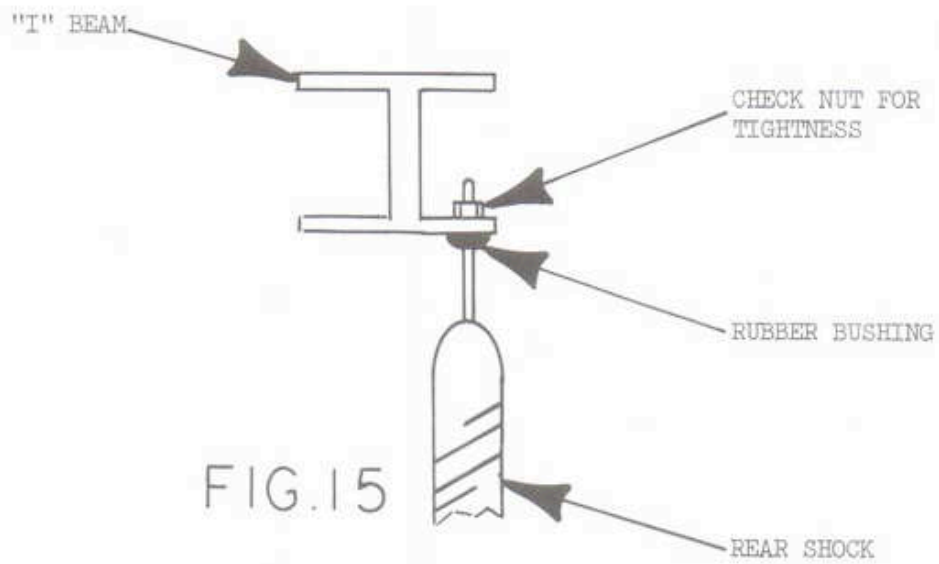
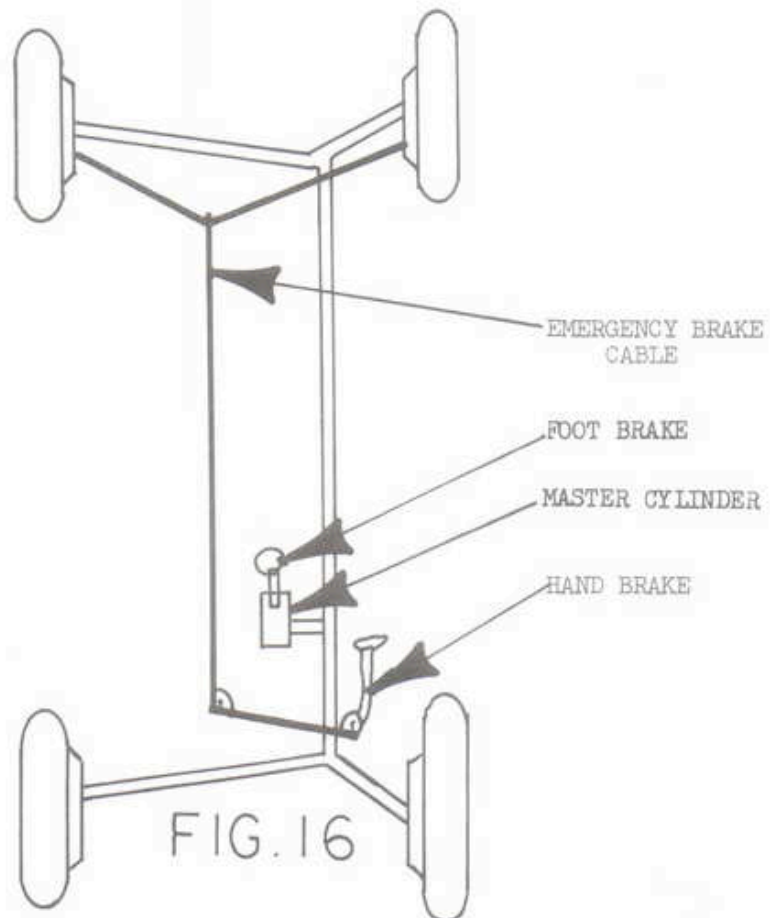


FIG. 14

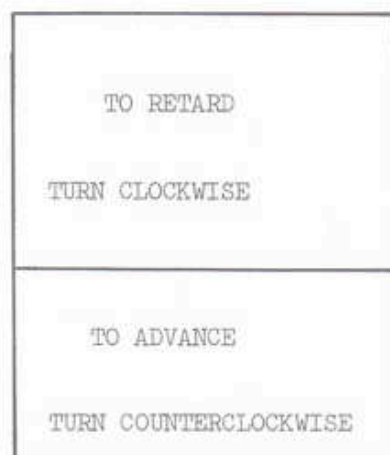
# REAR SHOCK



# BRAKE SYSTEM



IF YOU WANT TO RETARD THE SPARK TURN -----CLOCKWISE

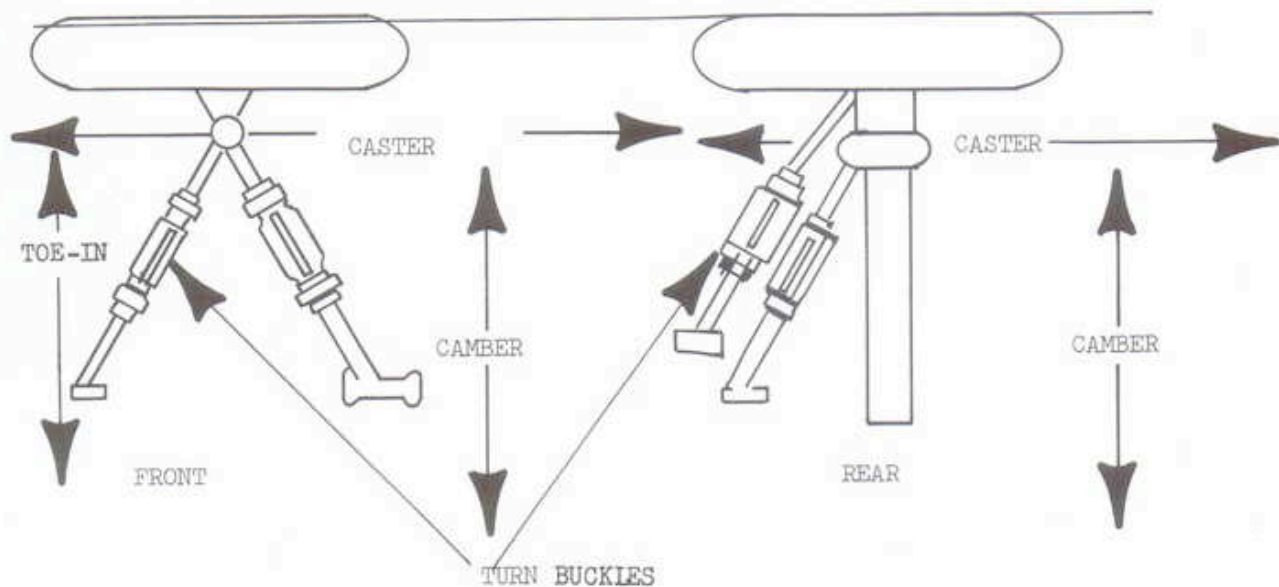


IF YOU WANT TO ADVANCE THE SPARK TURN -----COUNTERCLOCKWISE

FIG. 17



# WHEEL ALIGNMENT



CASTER -  $1/2^\circ$  POSITIVE, BOTH SIDES

CASTER -  $0^\circ$

CAMBER -  $0^\circ$  LEFT SIDE -  $1/4^\circ$  POSITIVE RIGHT SIDE

CAMBER -  $0^\circ$

TOE - IN -  $1/8$  INCH TOE - IN

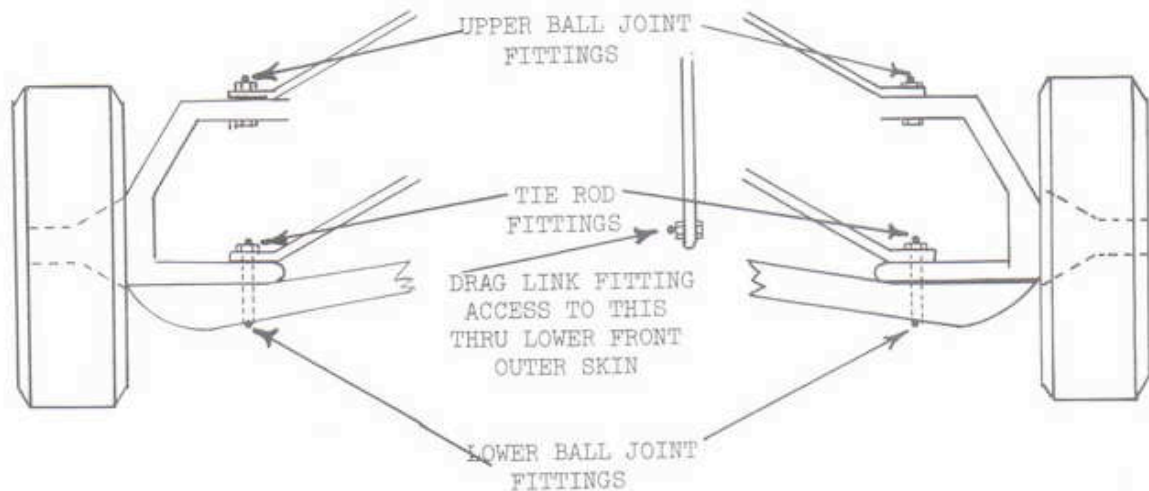
CASTER AND CAMBER ADJUSTMENTS CAN BE MADE WITH TURN BUCKLES. WHEN MAKING ADJUSTMENTS WITH THE WHEEL BUCKLES IT MAY TAKE SEVERAL TURNS TO GET AN ACCURATE SETTING.

PLACE STRING IN FIRST GROOVE OF FRONT TIRE - RUNNING DOWN ALONG THE SIDE OF THE REAR TIRE TO GET DESIRED ADJUSTMENTS.

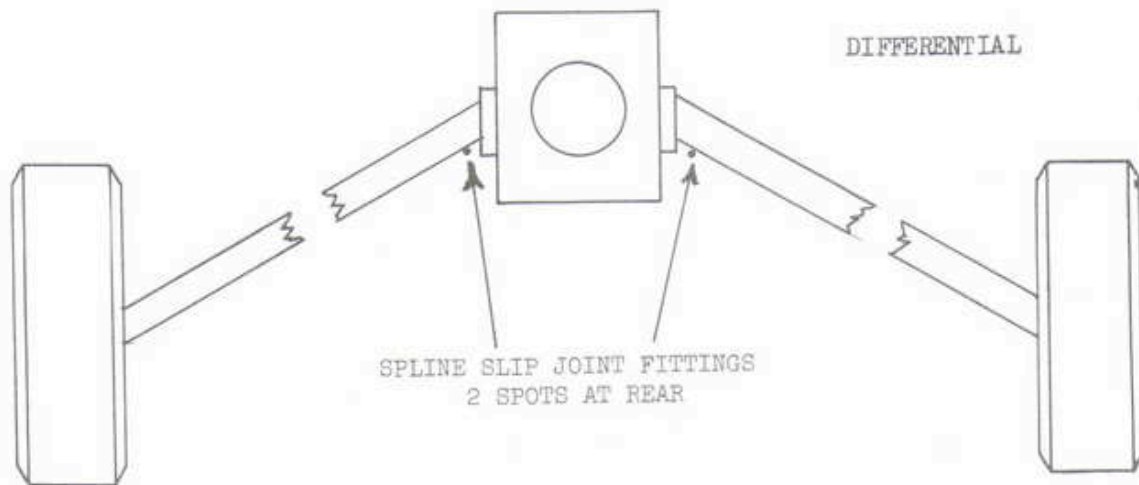
FIG. 18

# GREASE POINTS

LOOKING TOWARD VAN - FRONT - 7 LOCATIONS



AT THE REAR OF THE VAN



ALL FITTINGS ARE STANDARD SIZE

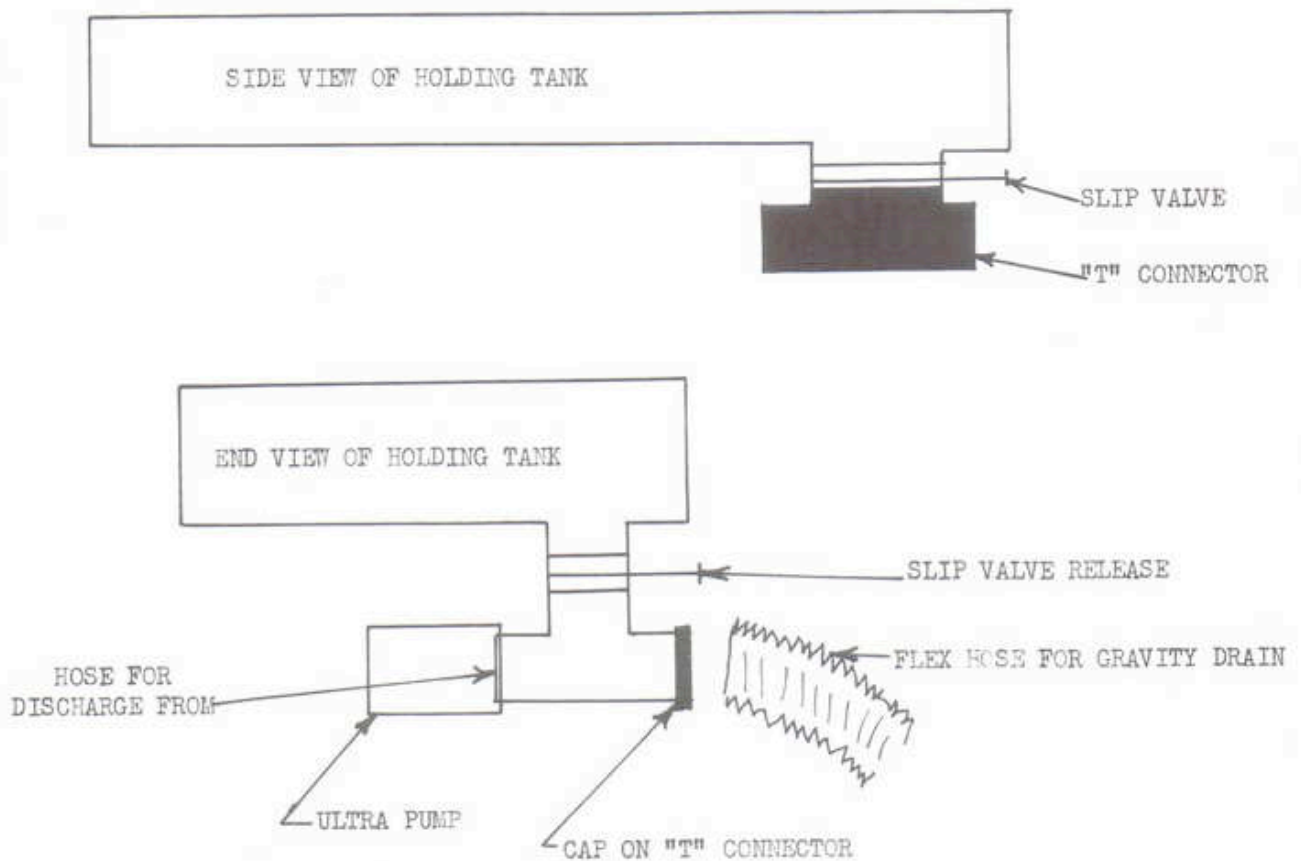
SERVICE STATIONS AND GARAGES WILL HAVE TO JACK UP THE VAN TO DO THIS - HAVE THEM USE THE JACK POINTS IN THE WHEEL WELLS.

MANY PREFER TO OWN A HAND GUN AND DO THIS FOR THEMSELVES.

FIG. 19

## INSTALLATION OF ULTRA PUMP ON A "T" CONNECTION

"T" TYPE CONNECTORS ARE AVAILABLE THROUGH TRAILER SUPPLY HOUSES. BE SURE THE "T" CONNECTION HAS A CAP ON THE SIDE TO BE USED FOR THE FLEX HOSE, GRAVITY DRAIN, DIRECT SEWER HOOK UP. THIS SAME HOOK UP PROCEDURE APPLIES TO A "Y" ADAPTER.



WHEN SLIP VALVE OPENS AND CAP IS ON THE GRAVITY DRAIN SIDE, THE ULTRA PUMP WILL PICK UP SEWAGE, EMULSIFY AND DISCHARGE THROUGH A GARDEN HOSE. IF USING A DIRECT GRAVITY DRAIN THERE IS NO SEEPAGE BACK THROUGH THE PUMP. CAP ON GRAVITY SIDE CAN BE HELD IN PLACE BY 3" HOSE CLAMP USED TO HOLD FLEX HOSE IN PLACE.

FIG. 22



# HOLDING TANK

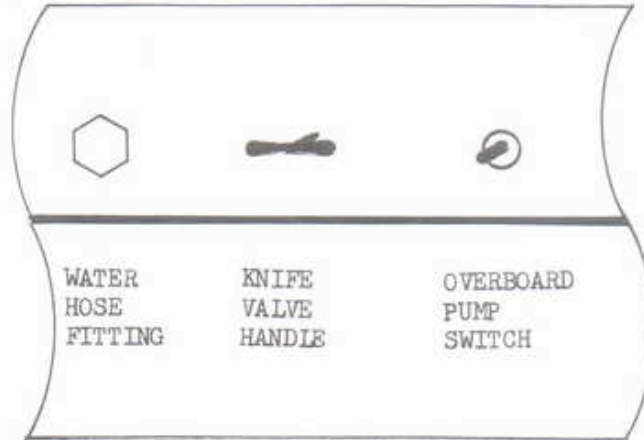


FIG. 23

# FRESH WATER PUMP

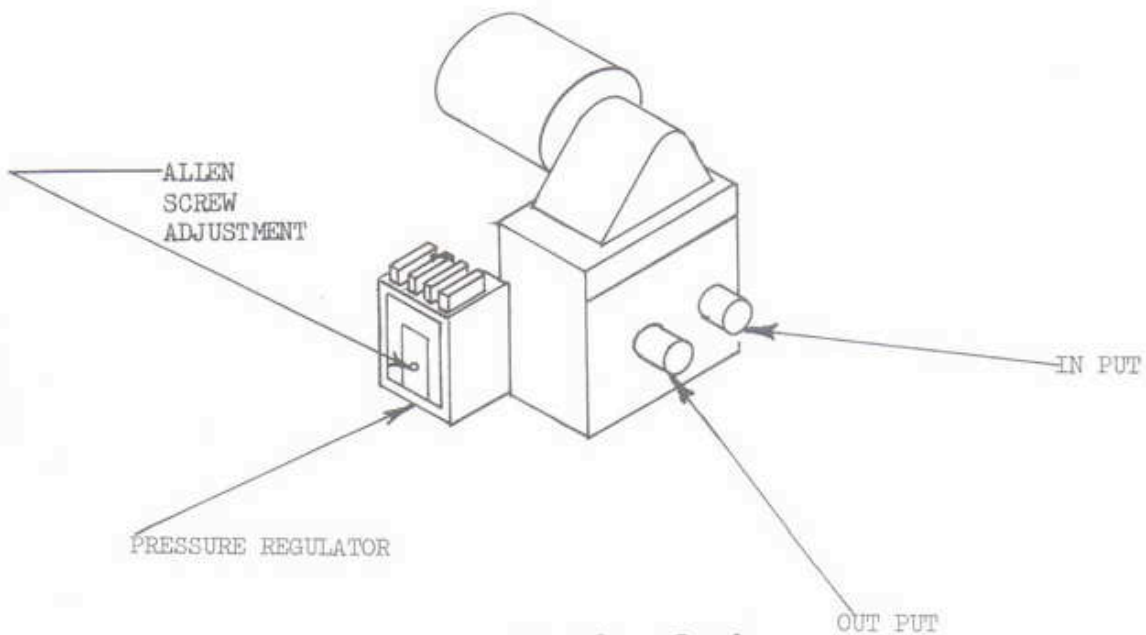


FIG. 24

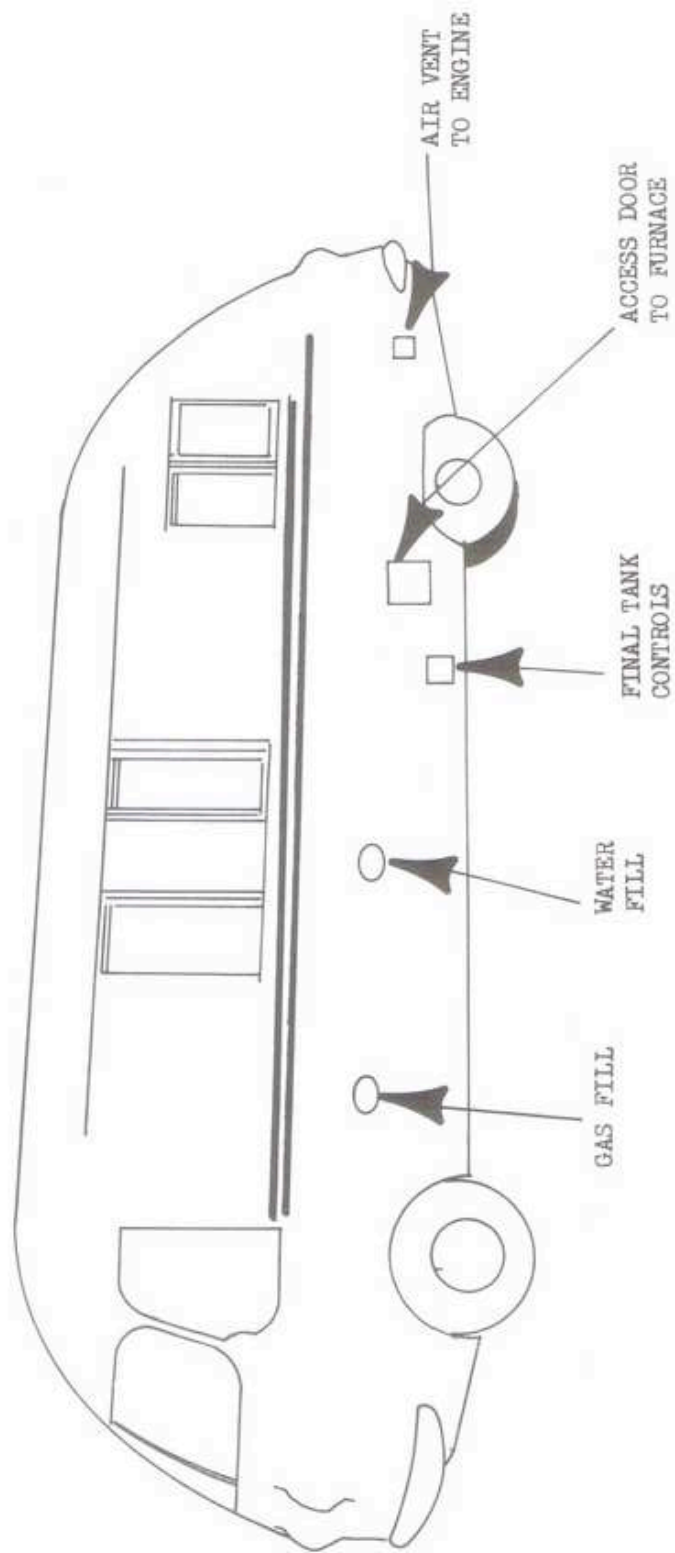


FIG. 25 / 28

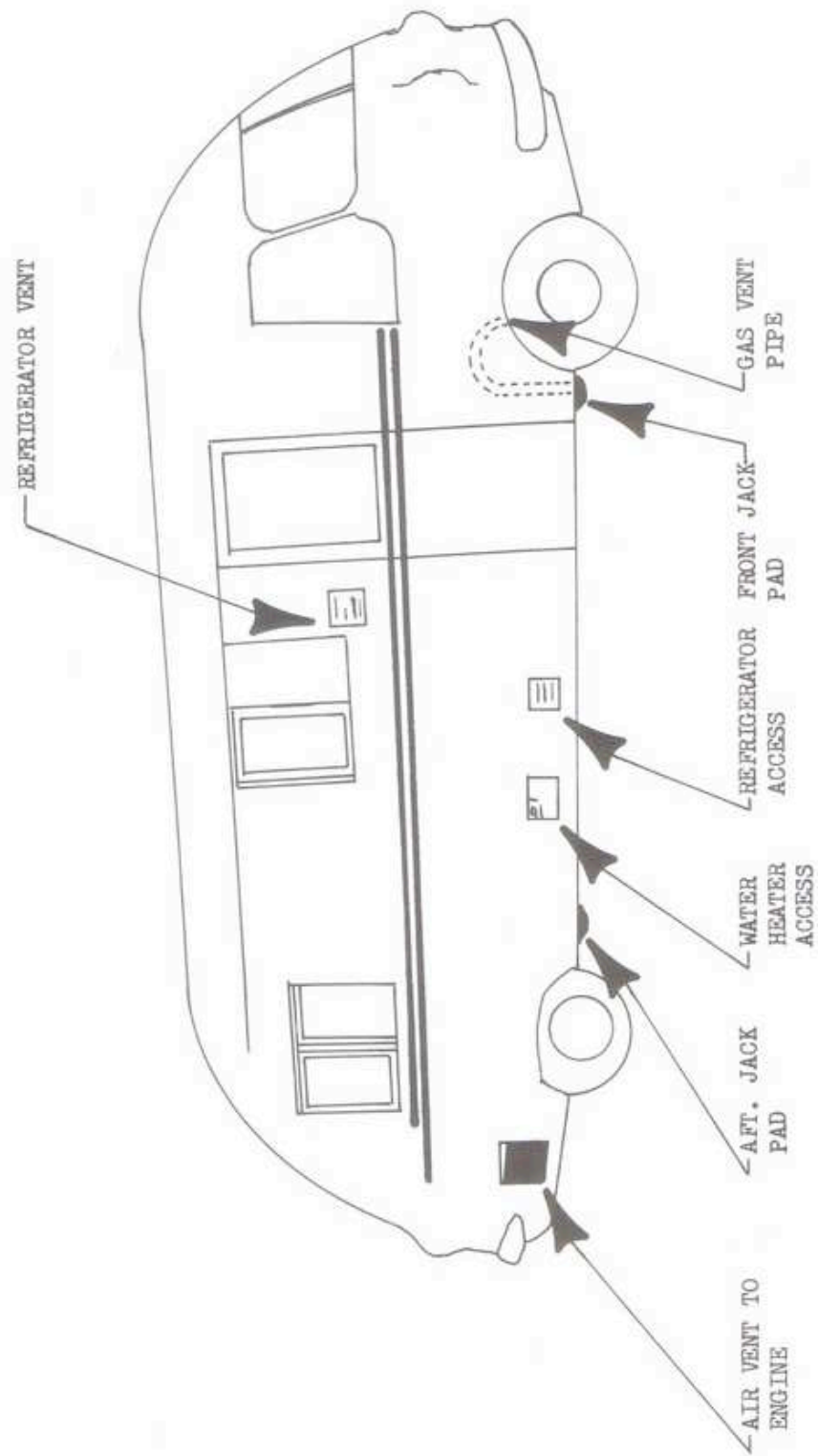


FIG. 26/27