

NO 2823931
2" BAW
ON FRAME AT
HITCH-PLATE

HI-LO

77

OWNERS MANUAL

Serial No. X-7001

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at of I-4
9 mi no of I-4*

*Daniel Hearn
Corishear R.V.
Lakeland, FL.
1-813-858-4455
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- 98*



LIMITED WARRANTY*

Hi-Lo Trailer Co., hereinafter called Hi-Lo, 100 Elm Street, Butler, Ohio 44822, constantly strives by manufacturing procedures and inspections before shipment, to insure high standard of quality, workmanship and materials and therefore issue the following limited warranty subject to the limitations and conditions hereinafter provided.

Hi-Lo warrants the trailer to which this warranty applies:

- A. To be merchantable and fit for the ordinary purposes for which such trailers are ordinarily used; and
- B. Hi-Lo or its dealer will repair or replace, at Hi-Lo's option, any part which has never been subject to another warranty which is found to be defective.

(Note: The component parts of the trailer which are manufactured by others such as tires, running gear, battery, plumbing and electrical fixtures, compressors, pumps, air conditioners, furnaces, stereos, appliances and bedding are covered by the separate warranty, if any, and service policy of the manufacturer of such components. Service on these components will be covered by such manufacturer's warranty and service policy as delivered to the consumer-user at the time of the original purchase of the trailer.)

The warranties expressed in A and B above are in lieu of all other warranties, expressed or implied.

The said warranties contained in A and B above are subject to the following conditions and limitations:

1. All Hi-Lo warranties, express or implied, shall expire ninety (90) days from the date of purchase by the consumer-user; proof of purchase date will be required with all warranty claims. (Note: Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)
2. The Hi-Lo Trailer must have been used, operated and maintained in accordance with the printed instructions provided to the original consumer-user in the Care and Use Manual.
3. The warranties A and B above, are limited to and extend only to the first purchasing consumer-user.
4. These warranties, A and B above, shall not extend to any trailer or part thereof that has been subjected to abuse, misuse, accident or use or operation contrary to the Care and Use Manual.
5. These warranties, A and B above, shall not extend to a trailer or any part thereof which has been loaned, leased or rented.
6. These warranties, A and B, shall not extend to labor costs or repair costs other than costs of parts found to be defective.
7. Except where required by applicable law, Hi-Lo shall in no event be liable for special or consequential damages. Hi-Lo does not assume responsibility for loss or use of the trailer, loss of time, inconvenience, expense of gasoline, telephone, travel, lodging, loss or damage to personal property or loss of revenues; Hi-Lo does not undertake responsibility to any purchaser of its product for any undertaking, representation or warranty made by dealers or representatives selling its product beyond those representations and warranties herein expressed. (Note: Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.)
8. Hi-Lo may make changes in design and improvements in subsequent models without incurring any obligations to make such changes or improvements to units previously manufactured.

WARRANTY PROCEDURES

To obtain warranty repairs, the trailer should be taken to the authorized franchised dealer who sold you the Hi-Lo. This warranty work is to be rendered in accordance with the dealer's franchise service agreement. If the franchise dealer from whom the trailer was purchased is not available, contact Hi-Lo Trailer Co., 100 Elm Street, Butler, Ohio 44822, for instructions as to the nearest franchise dealer or arrangements to bring the trailer to the factory in Butler, Ohio for repairs.

All warranty work shall be performed by an authorized franchise dealer during the time specified in the public day and hours of such dealer. Within reasonable limits, preference will be given to warranty work in accordance with the dealer's franchise agreement.

Warranty work at the factory in Butler, Ohio can only be handled Monday thru Friday between 8:00 a.m. and 2:30 p.m., legal holidays excluded.

The procedures herein outlined and the remedies hereinabove outlined, shall be exclusive remedy for any alleged defect or breach of any warranty.

*(This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state. You also have implied warranty rights. In the event of a problem with warranty service, or performance, you may be able to go to a Small Claims Court, a State Court, or a Federal District Court.)

IMPORTANT

Read This Manual Thoroughly Before Operating This Vehicle

1. Tighten wheel nuts after first 100 miles (torque to 85 lbs.)
2. Check tire pressure periodically.
3. Do not over load trailer with excess cargo. (see label at front left corner of trailer.)
4. All heat producing appliances should be turned off before trailer is lowered — Also turn off valve at LP Gas cylinder.
5. Be sure to read appliance mfg. lighting instructions before attempting to light or operate appliance.

GENERAL INFORMATION

CONGRATULATIONS:

You've joined a growing group of travelers who own a trailer carrying the Hi-LO mark of distinction. Your new Hi-LO sets you apart as individuals who maximize their trailering comfort, excitement, and ease to enjoy outdoor life at its best.

With the many unique features found only in your new Hi-LO trailer, you gain significant advantages over owners of conventional units. Your new Hi-LO is safer and easy to tow — over highway or wilderness trail. It's easier on your car, simple to park and more economical to tow.

BEFORE YOU HITCH UP . . .

. . . read this manual carefully. It's designed to provide the maintenance information, service instructions, and use tips that make your travel and camping carefree and trouble-free. We also recommend you keep this manual at hand during your trips for easy reference.

YOUR HI-LO IS REGISTERED:

Hi-LO TRAILER CO. prides itself in each trailer's quality construction and excellent workmanship. When you buy your Hi-LO trailer, your Dealer will fill out an OWNERS REGISTRATION CARD and mail it to Hi-LO TRAILER CO. where it is kept on file.

APPLIANCE OPERATION AND SERVICE

Included in your Owner's Kit provided by your Hi-LO Dealer is literature on component manufacturers such as, but not limited to, appliances, water heaters and furnaces purchased with your trailer. These products are all built by nationally known manufacturers. These manufacturers also have a LIMITED WARRANTY on their equipment. FOR SERVICE ON COMPONENT PARTS, FIRST CONTACT YOUR COMPONENT MANUFACTURER'S SERVICE CENTER AS LISTED IN THE PRODUCT LITERATURE.

PREPARING FOR TRAVEL

PACKING AND INSPECTING YOUR HI-LO TRAILER

Part of the fun of trailer travel and camping is the ability to take along recreational equipment such as a boat, motor, fishing gear, and sports equipment. Comfort items such as awnings, folding tables, and chairs add to your camping pleasure. And, you will certainly want to include some of the food stuffs from your own kitchen. Also, be sure to fill your water tank according to instructions on page 7.

Although your Hi-LO trailer is sturdily built with margins of safety, too much extra weight can damage the undercarriage and cause excessive tire wear. Check label GW on left front corner for maximum gross vehicle weight.

Your Hi-LO trailer is designed and balanced for easier and safer towing so that just the right tongue weight rests on the car hitch. In packing extra equipment, it is important to maintain that balance as near as possible fore and aft. It is also recommended that the heaviest item be positioned as near as possible to directly over the wheels.

In stowing loose equipment, pack it in such a way as to avoid shifting during acceleration or braking. Pad heavy and sharp items to avoid damaging interiors and equipment. A little extra care and few minutes spent in getting your trailer ready for travel assures a pleasant trip.

HOW TO HITCH UP YOUR HI-LO TRAILER

1. Move vehicle into place so ball on vehicle hitch is directly below the ball lock coupler.
2. If your Hi-LO is equipped with electric brakes, place loop of brake away cable over hitch ball.
3. Lower ball lock coupler over hitch ball and secure.
4. Install the stabilizer bars, retract jack to its extent, and remove dolly wheel.
5. Plug in the electrical connections and check to see that the turn signals, brake, and trailer marker lights are working properly.
6. Hook up safety chains.

TO UNHITCH THE TRAILER, simply reverse the preceding steps.

BEFORE YOU GO . . .

. . . check inside to make sure all materials are stored securely. Then, check to make sure, the trailer is in the fully lowered position — **NEVER TOW THE TRAILER IN THE UPRIGHT POSITION FOR ANY DISTANCE.** When all is ready, close the doors firmly and lock the outer door. You're ready to get underway.

PARKING AND SET UP

For maximum living comfort in your Hi-LO, it's always advisable to position your trailer perfectly level. Upon arrival at your campsite, take a few minutes to locate an area where your trailer will be level from side to side. When you're unhitched, use the leveling jack on your trailer hitch to level the trailer from front to rear.

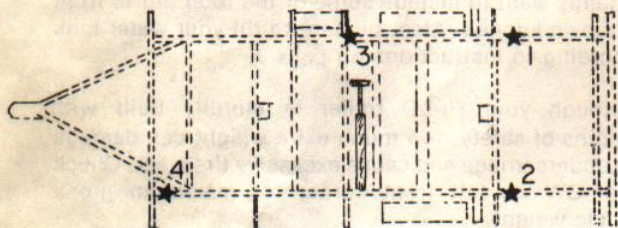


Figure 111-1

PLACING THE LEVELING JACKS

To provide a good solid base for indoor activity, it is recommended that you use four leveling jacks with your Hi-LO trailer. Position these jacks according to the diagram in Figure 111-1 as follows:

1. Under the shackle hanger just to the rear of the right wheel.
2. Under the shackle hanger just to the rear of the left wheel.
3. Under the cross frame member at the rear of the side door.
4. Under the cross frame member at the left front of the trailer.

Adjust these jacks up to a point where they make a tight fit between the frame and the ground. While you may use them to make minor adjustments, do not raise them to the point where they take the trailer weight off the wheels.

NOTE: If your trailer is equipped with a gas-operated refrigerator, it is especially important that your trailer be level for most efficient operation.

RAISING YOUR HI-LO

With your Hi-LO positioned on your campsite and leveled, you are ready to raise the upper half into position.

1. Fasten top section door all the way open with door holder provided.
2. Hold bottom door section open at an angle of 90 degrees.
3. Lift up on the self-centering control switch and hold in this position until the top has reached its full height (at which time the hydraulic system will relieve itself with a loud squeal and the safety latch will engage automatically.)

USING YOUR APPLIANCES

To prepare all appliances and facilities for use, be sure to refer to the proper manuals accompanying the equipment — especially for lighting all pilot lights. Plug the extension cord into the entrance receptacle on the left bottom section of the trailer and into a 110-volt source to activate the 110 volt outlets inside the trailer.

If your Hi-LO is equipped with a toilet, it is one of three types: marine, portable or recirculating. The instruction booklet accompanying these units should be reviewed carefully before use.

If your campsite is equipped with drain facilities, pull the flexible hose from its storage place in the rear bumper. After loosening the termination cap, install the drain hose on the termination fitting and place the other end in the drain facility. This will allow drainage of wastes from your sink and shower, bypassing the holding tank.

The holding tank on your Hi-LO trailer holds waste from the toilet only. This holding tank should be emptied when full or at the end of your trip in an appropriate dumping station as follows: With the hose fastened securely to the termination fitting and the other end well into the dumping station fitting, pull out on the Slide-EZ valve lever. When the holding tank is drained completely, push the Slide-EZ valve lever in completely, and remove the flexible hose. Wash water through the flexible hose and then store it in the rear bumper.

The sink and shower drainage are completely independent from the holding tank. A gray water (drainage water other than body waste) tank is available through your dealer for sink and shower drainage.

If your Hi-LO is equipped with two holding tanks, one tank for body waste and one tank for gray water. Each tank has a separate valve and are connected to a common outlet.

CAUTION: All drain caps must be in place while in transit.

BEFORE YOU LOWER YOUR HI-LO

When you're ready to leave your campsite, follow these steps to assure proper lowering of your Hi-LO trailer:

1. Close valve on L.P. gas container.
2. Check to be sure all counters are cleared, folding partitions are in place, and bunk is in stored position.
3. Turn off oven pilot, to pilot off position, and shut off gas at the valve on the bottle.
4. Close and latch all windows. Disconnect drainage, water and electric connections from outside of trailer and replace covers.
5. Lower and secure front window sun shade. In "R" models optional rear table must be taken down and stored.
6. Set doors in same position as for raising.
7. Release safety by pulling release located near control switch — if necessary raise top section enough to accomplish this.
8. Make one last check for obstructions on counter tops, and make sure no one is close to or in contact with the trailer before lowering.
9. Depress self-centering control switch lever and allow the top section to come all the way down. If equipped with key switch, insert key and turn counter clockwise.
10. Remove and store leveling jacks.
11. Put slide-out door step in "stow-away" position.
12. Hitch up your trailer as described in hitching-up instructions.

ELECTRICAL SYSTEM

The electrical circuits within your Hi-LO trailer consist of a combination 110/125-volt a-c and 12-volt d-c system. This is provided so that you may use campsite electrical service where available or operate independently off your car and trailer batteries. When using outside power, it is recommended that you first check to make certain the source provides service within the compatible voltage rating. A shoreline and inlet plug is provided with your trailer to make these connections. As a reminder of this circuit capacity, the instruction plate in Figure IV-1 is attached to your Hi-LO trailer near the 110/125-volt inlet.

**THIS CONNECTION IS FOR
110-125 VOLTS AC,
60 HZ [CYCLES] SERVICE.
DO NOT CONNECT TO
HIGHER VOLTAGE.**

Figure IV-1

Tail lights, brake lights, turn signals, warning lights, hydraulic power lift, 12 volt interior lamps, and 12 volt water pump or air compressor are all independent of the 110/125-volt a-c circuit and operate only on the 12-volt d-c current. Interior lighting is also wired on the 12-volt d-c circuit. The duplex receptacles located inside the trailer are wired for 110 and 125-volt a-c power. Optional appliances may operate on the 110/125-volt circuit — check the accompanying manual for instructions.

Operating power for the 12-volt d-c system is provided by a 12-volt wet cell battery mounted adjacent to the pump and motor assembly as shown in Figure IV-4. This is a standard rated battery that may be replaced by any service station or battery dealer. It is connected in parallel to the electrical system of your towing vehicle so that your generator automatically recharges your trailer battery. See Drawing B for wiring diagram. The connection is normally made at the first terminal connector after the car battery on the positive side (+). It is recommended that you consult your car dealer for this hook-up.

NOTE: The auto charging system will not give your trailer battery a full charge. To insure the longest possible battery life, it is recommended that this battery be recharged to full capacity at least twice a season on a slow-rated charging unit.

YOUR HI-LO RAISING AND LOWERING SYSTEM

Years of service and a continuing improvement program have proved the Hi-LO telescoping mechanism (shown in Figure IV-4) to be as trouble-free as any feature in your trailer. It requires no routine servicing, and, if operated properly, it should work smoothly throughout the lifetime of your trailer. The raising and lowering system is controlled by a spring return, either a center off toggle switch or key switch and a safety release cable located to the left of the entrance-way.

Safety Feature — Your Hi-LO trailer is equipped with a safety mechanism which locks the upper section in position when raised to full height. Release for this safety lock is located near the control switch.

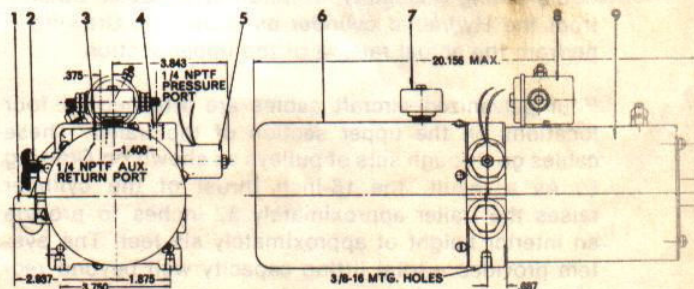


Figure IV-4

The Electric/Hydraulic Power Unit is located at the "A" Frame of the chassis and consists of the following elements as shown in Figure IV-4: (1) relief valve; (2) manual release valve; (3) 1/4 NPTF aux, return port; (4) 1/4 NPTF pressure port; (5) electric release valve; (6) reservoir; (7) filler breather port; (8) solenoid start switch; (9) electric motor (and also a 12-volt battery). This complete unit is factory adjusted and preset for smooth and efficient operation. It should require no further adjustment. However, for your information, here are some facts about the unit which may prove useful in the future.

Electric Motor-A standard d-c Prestolite Starter Motor operates the hydraulic pump. While it should seldom need servicing or replacement, and automotive supply house can supply a replacement in an emergency.

Raising Solenoid-Engaged by raising control switch, the solenoid completes the circuit to supply power to the pump.

Hydraulic Pump - The hydraulic pump is close-coupled to the electric motor as shown in Figure IV-4. It is capable of producing pressure up to 3,000 psi; however, the raising mechanism of your Hi-LO trailer requires much less for efficient operation. This unit includes a by-pass valve that operates when the hydraulic lifting cylinder has reached its maximum thrust. This by-pass is a built-in safety device to harness the power. A harmless squeal will be detected when it is activated to indicate the top section is fully raised into position.

Lowering Solenoid - Engaged by depressing control switch level to activate bleed-off valve and lower top section.

Hydraulic Cylinder - The cylinder that raises your Hi-LO is located in a transverse position and mounted in the center of the frame assembly. See Drawing E. This unit is readily accessible from the trailer underside. As the pump and other elements of the lifting system, it is rated beyond maximum requirements to insure dependable performance.

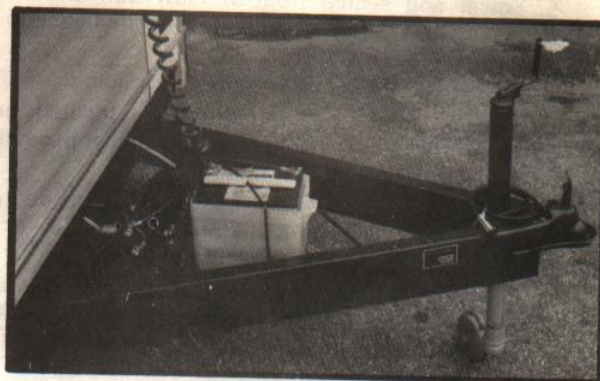
Cable Lifting Assembly - Aircraft type cables operate from the Hydraulic cylinder as shown on Drawing E perform the actual raising of the upper section.

Four galvanized aircraft cables are attached to four locations on the upper section of the trailer. These cables go through sets of pulleys as shown on Drawing E. As a result, the 16-inch thrust of the cylinder raises the trailer approximately 32 inches to provide an interior height of approximately six feet. The system provides a total lifting capacity well beyond recommended requirements.

The upper section of your Hi-LO is also equipped with nylon glide assemblies and the bottom section with matching trunnion guides to keep the upper and lower section in perfect alignment at all times.

How It Works - Drawing E illustrates the cable arrangement for the raising and lowering system which works as follows: As the toggle control switch is lifted, it closes the circuit to the 12-volt solenoid switch. Power then flows from the battery to the electric motor which drives the hydraulic pump to force hydraulic fluid to the cylinder and extend the raising cables. The battery is grounded to a trailer cross-member which is in turn grounded through the hitch ball and ground wire of trailer connector. When the toggle control switch is depressed downward, the 12-volt solenoid is activated to open the lowering valve. The hydraulic fluid is bled off into the reservoir and the cylinder closes to pull the cables and lower the top section to the storage or traveling position.

Figure IV-7A



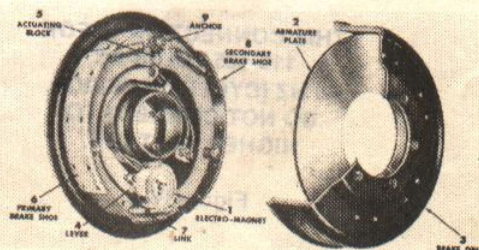
YOUR HI-LO TRAILER COUPLER

Your Hi-LO Trailer comes equipped with a coupler. Figure IV-7A shows the coupler used with electric brakes. This coupler has positive lock latch that automatically snaps in place over the hitch ball.

HOW THE ELECTRIC BRAKE SYSTEM WORKS

The electric trailer brake system is basically an electric circuit. This means that it must be a complete, clean, tight conductor from beginning to end, and it begins and ends at the battery. Any break or poor connection will prevent or interfere with the flow of electrical energy which means loss of braking. See Figure IV-8A and IV-8B.

Figure IV-8A



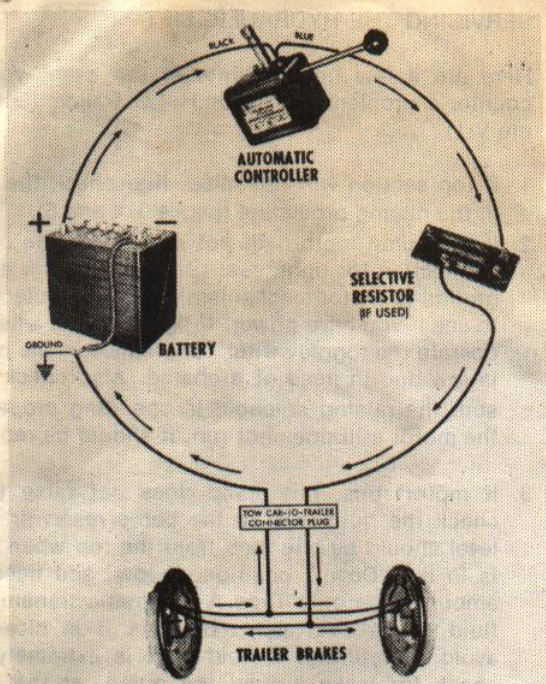


Figure IV-8B

APPLIANCE OPERATION AND CARE

Gas/Electric Refrigerator — If your trailer includes a combination gas/electric refrigerator, you will find a booklet prepared by the manufacturer in your Owner's Kit which gives you complete operation and service information of this appliance. We recommend you read and follow the instructions for most efficient operation of this unit — note especially the importance of a level floor. While the manufacturer indicates that the refrigerator will operate in transit, **TRAVELING WITH OPEN GAS LINES FROM STORAGE BOTTLES TO APPLIANCES IS UNSAFE PRACTICE.**

We advise turning off all pilots and shut off of the gas supply at the bottle valves before getting underway.

In most travel situations, this will create no inconvenience or cause food to spoil. The refrigerator is well insulated and will hold its cold temperature over long periods of time. You can add further to its cold-holding capacity by doing the following:

1. Start your refrigerator at least two hours before you start your trip. Fill it with food at least one hour before you leave. This will insure both food and the compartment are cold when you start.
2. Avoid using the refrigerator while traveling. If necessary, make your door openings as infrequent and as short in duration as possible.

3. Include a plastic bag or container of ice cubes if space permits. These will help maintain the cold and will be handy to have when you reach your destination.
4. Turn on your refrigerator as soon as possible after arriving at your campsite.

An instruction plate for lighting and turning off your refrigerator is located near the pilot. Check the instruction book as well, and follow each step as indicated.

3 WAY/ELECTRIC REFRIGERATOR

If your Hi-LO is equipped with a 3-Way refrigerator, there will be an instruction booklet accompanying the trailer. We recommend you read and follow the instructions for the most efficient operation of this unit.

The best routine when going on a trip is to plug in your coach utility cord at your home about six hours before leaving. Switch the refrigerator to 110v. This will mean that the refrigerator is cold before you start your journey. Be sure trailer is in raised position. Do not operate refrigerator over one hour while trailer is in lowered position unless the vehicle is in motion. On the highway switch to Low Volts until you get to your destination. When you arrive, switch to LP Gas or 110v.

NOTE: IF THE REFRIGERATOR VOLTAGE SELECTOR IS ACCIDENTALLY LEFT ON 12v. IT WILL RESULT IN A DISCHARGED BATTERY.

Oven/Range Combination — If your Hi-LO includes an oven/range unit, you will find an operating guide book in your Owner's Kit. Be sure to read it carefully and follow directions step by step, and be sure the pilot is off during transit.

Automatic Gas Heater and Units equipped with a hot water heater will include an instruction manual in the Owner's Kit. This unit should also be turned off while in transit or whenever the trailer is in the lowered position.

NOTE: An additional plate concerning the Hi-LO unit's gas piping is located on the tongue of the trailer adjacent to the mounting for the gas bottles. For your reference, it is reproduced in Figure IV-9.

Figure IV-9.

**THIS GAS PIPING SYSTEM IS DESIGNED
FOR USE OF
LIQUEFIED PETROLEUM GAS ONLY.
DO NOT CONNECT NATURAL GAS
TO THIS SYSTEM.**

Securely cap inlets[s] when not connected for use. After turning on gas, except after normal container replacement, test gas piping and connections to appliances for leakage with soapy water or bubble solution.

Water Tank — A tank for your water supply is standard equipment. This tank is located under the right front seat and is filled through a fitting on the outside wall of the trailer.

Filling the water tank is accomplished by inserting a standard hose into the exterior water fill or hose connection at the front of the trailer.

After each trip, it is recommended that the remaining water in the tank be run off at the faucet. For prolonged storage and during the winter months, this tank can be drained completely by unscrewing the plugs in the tank bottom.

NOTE: The water system should be sanitized, flushed and drained before using.

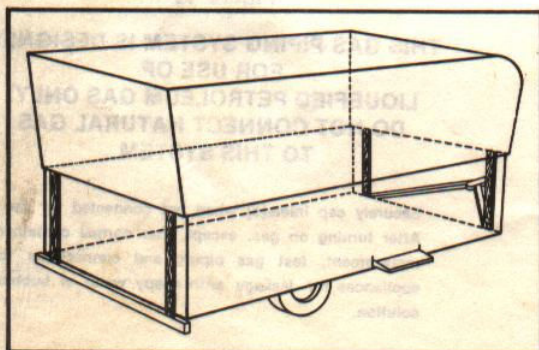
INSTRUCTIONS FOR SANITIZING POTABLE WATER SYSTEMS

To assure complete sanitation of your potable water system, it is recommended that the following procedures be followed on a new system, one that has not been used for a period of time, or one that may have become contaminated:

1. Prepare a chlorine solution using one gallon of water and $\frac{1}{4}$ cup of Chlorox or Purex household bleach (5% sodium hypochlorite solution). Pour one gallon of solution into tank for each 15 gallons of tank capacity.
2. Complete filling of tank with fresh water. Open each faucet and drain cock until all air has been released from the pipes and entire system is filled.
3. Allow to stand for three hours.
4. Drain and flush with potable fresh water.
5. To remove any excessive chlorine taste or odor which might remain, prepare a solution of one quart vinegar to five gallons water and allow this solution to agitate in tank for several days by vehicle motion.
6. Drain tank and again flush with potable water.

V SERVICE AND TROUBLESHOOTING

Figure V-1



SERVICING THE HYDRAULIC LIFT

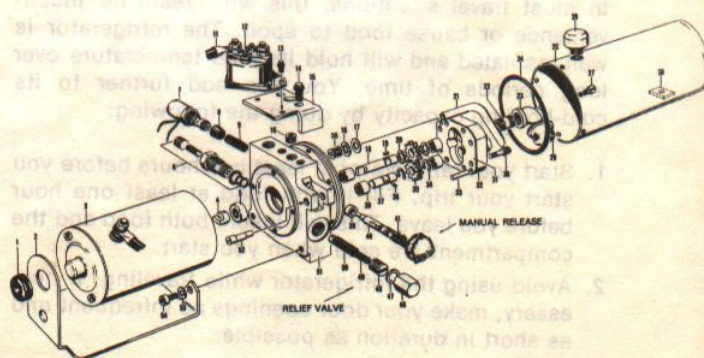
Here are a few helpful hints in the event you encounter a problem with your Hi-LO trailer: (See Figure V-1).

1. If top section will not raise, first check the steps in the raising procedure (pages 3, 4 and 5).
2. If the pump motor will not run, check the battery connection for tightness. (Be sure there is a good ground to motor mechanism). Turn on trailer lights to see if you have power. If lights go out when you operate the toggle switch for the motor, the battery is low and in need of a charge. Also check to be sure the raising solenoid is operating properly. If the motor still does not run, it should be replaced.
3. If motor runs, but pump does not raise trailer, check the fluid level in the pump reservoir. Fluid level should be one inch from the top when trailer is in the "Down" position. If low, add necessary amount. Use only Type A automatic transmission fluid or its equivalent. Be sure it is clean and avoid over filling. If fluid level is extremely low, check for leaks around the pump, at the lifting cylinder, and the connecting hoses. Also check the pressure relief valve for proper setting — 1500 psi.
4. If the pump motor runs but there is a loud squeal and the top section will not raise, the pressure relief valve needs adjustment. Follow the four steps below for adjusting.

1. Remove Hex Cap and Washer. (46 & 47 in Fig. V-2)
2. With a screwdriver, tighten the adjusting screw (48 in Fig. V-2) $\frac{1}{4}$ turn at a time until the top section will raise by the control switch.
3. With the top section all the way up, tighten the adjusting screw another $\frac{1}{4}$ turn.
4. Replace Hex Cap and Washer.

NOTE: As soon as possible, check this setting with a hydraulic pressure gauge. If trailer top does not go all the way up, check for low fluid level in the pump reservoir. Also check the pressure relief valve.

Figure V-2



5. If top section appears to be out of level when raised, check by measuring from the bottom edge of the trailer body. Distance should be the same on all four corners. If it is uneven, it is probably due to normal stretch of the cables and should be corrected as follows:

Check the leveling adjustment points. For simple front and back realignment, adjust the proper adjusting nut located on the underside of the trailer (Items 5, 6, 7 and 8 of Drawing "E"). All front-to-back adjustment should be made with the trailer upper section supported so that tension is removed from the cables — accomplished by lowering the upper section onto four 2" x 4" boards of the same length to brace between top section and frame member. (Figure V-1).

For example, if the front section is lower than the rear, you will correct this condition as follows:

1. Lower the top section onto 2" x 4" boards as shown in Figure V-1.
2. Loosen the locking nut (See Drawing E).
3. Turn the front adjusting nut until all slack in the cable is taken up.
4. Tighten the locking nut.
5. Raise trailer; remove 2" x 4" boards, and check for proper alignment.

If one corner of the trailer is low, it may be corrected as follows:

1. Lower the top section onto 2" x 4" boards.
2. Loosen the locking nut on appropriate cable.
3. Adjust nut to take up slack in cable.
4. Tighten locking nut on cable.
5. Raise trailer; remove 2" x 4" boards, and check for proper alignment.

IF UPPER SECTION WILL NOT LOWER:

1. Release safety catch. (follow lowering procedure on page 4). If safety catch does not release and lift motor runs and make a loud squeal (ref. page 3, raising procedure No. 3) the pressure relief is out of adjustment or low on hydraulic fluid. (ref. page 7, item 3 and 4).
2. If the safety catch does not release and lift motor runs and does not make a loud squeal, the lowering valve is blocked in open position.
 - A. Dirt in valve: Run lift motor for 10 sec. (at 1 min. intervals) 4 times to dislodge any dirt that may be in the lowering valve.
 - B. Manual release valve open: Be sure manual release screw handle is turned out and not in partially opened position.
 - C. Check toggle switch: With switch in center (off) position or in raising (up) position there should be no 12 volt supplied to the terminal to which the yellow wire is attached. Twelve

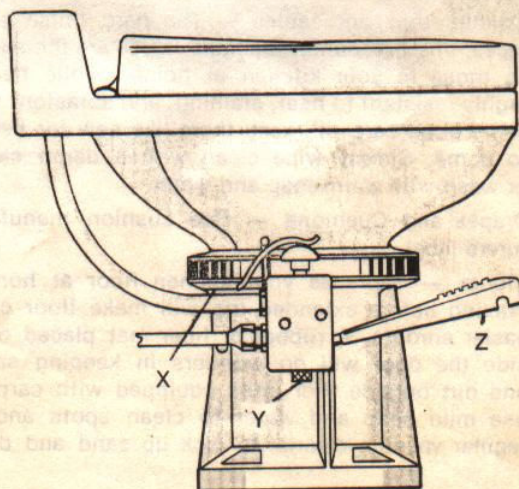
volt should be supplied to this terminal only when switch is in lowering (down) position. (Drawing "B"). If toggle switch does not follow this pattern — replace switch. For temporary operation: to raise trailer off of safety release, using screwdriver short between black and white wire. To lower short between black and yellow wire.

3. If safety catch releases and trailer will not lower:
 - A. Check all cables to be sure that the cable is in the pulley grooves.
 - B. Lower trailer with manual valve. Turn manual release valve handle clockwise until trailer lowers. Then turn handle counterclockwise to original position. Then raise trailer ½ way and try toggle switch. This releases high pressure that may have generated in lowering valve.
 - C. Check ground wire from lowering valve to motor bracket. Be sure terminals are tight.
 - D. With 12 volt test light, check center terminal (black wire) of toggle switch to ground. If no light, check fuse 3 or check for broken wire between toggle switch and fuse block.
 - E. Using screwdriver short between black and yellow wire of toggle switch. If valve operates — replace toggle switch.
 - F. Check connection at black lead wire of lowering valve to yellow wire of toggle switch for broken wire or loose terminal
 - G. Replace lowering valve.

ACCESSORIES

To make your travel in your Hi-LO as comfortable as possible, numerous accessories are offered as optional equipment. Undoubtedly, your trailer already includes several of these items. As you gain more experience with your Hi-LO, you may want to add several more. Your local Hi-LO dealer will be glad to arrange delivery and installation for you.

HOW TO WINTERIZE YOUR HI-LO WATER SYSTEM



1. Open all interior valves, sink, shower, etc.
2. Drain supply tank by removing both plugs from bottom of tank.
3. Drain demand pump if trailer is equipped with same. (Note: Check manual supplied with pump).
4. Lower front of trailer by cranking down with jack.
5. If equipped with hot water tank, open drain valve and pressure relief valve at front of tank. This is located back of cover at front of trailer; under pilot light. Remove drain plug in hot water supply line.
6. To drain marine type toilet:
 - a. Remove drain plug at rear of toilet. (X)
 - b. Remove drain cap on bottom of valve. (Y)
 - c. Depress flush lever (Z) until all water drains from system. *For the Thetford and other Models, check manual provided with unit.
7. Blow out all lines with air, including sink trap.
8. Slowly crank trailer back to level position.
9. Replace all plugs to close system.

SERVICING THE BRAKING SYSTEM

To keep your trailer's braking system in top notch condition, a few simple procedures should be followed:

ELECTRIC BRAKES:

Electric brakes need no special care or service other than keeping connections and wiring free of dirt and other foreign matter. Brake adjustment, relining and repair are similar to those on your car. Any qualified service station can do the job.

CAUTION: Do not pull breakaway pin for parking brake, as this will result in a constant drain on the battery and run it down.

WHEELBEARING LUBRICATION

To avoid potential problems, remember to repack the wheel bearings with a good grade of grease every 3,000 miles or before any major trip. Check tightness of wheel lugs every 1,000 miles.

GOOD HOUSEKEEPING HINTS

1. Counter tops and tables — The hard finish surfaces; of your counter tops and tables are the same as those in your kitchen at home. While being highly resistant to heat, staining, and abrasion, the same good care will keep them like new for years to come. Simply wipe clean with a damp cloth or wash with warm soap and water.
2. Drapes and Cushions — See cushion manufacturers label.
3. Floors — Same as your kitchen floor at home. Waxing before extended trip will make floor care easier enroute. A rubber or fiber mat placed outside the door will do wonders in keeping sand and dirt outside. For units equipped with carpet, use mild soap and water to clean spots and a regular vacuum cleaner to pick up sand and dirt.

4. Appliances — Same as your appliances at home.
5. Trailer exterior — Almost the entire outside surface of your Hi-LO consists of prefinished aluminum that will keep its beautiful lustre indefinitely if given the proper care. Mild soap and water will help retain the natural gloss. Do top half first in lowered position, then raise and do the bottom half.

These helpful housekeeping hints will help you preserve the beauty, comfort, and value of your Hi-LO trailer for years to come. They're well worth the small effort involved.

SWING-A-WAY BED INSTALLATION

1. Install wall bracket:

For front bunk installation:

- a. Remove locator screws on front cabinet.
- b. Drill $\frac{1}{4}$ " holes in place of locator screws. Drill through wood cabinet face and steel plate in back of cabinet face.
- c. Attach wall bracket w/ $\frac{1}{4}$ " x $1\frac{1}{2}$ " bolts.
- d. Drill $\frac{1}{4}$ " holes for lower mounting holes in wall bracket and fasten w/ $\frac{1}{4}$ " x $1\frac{1}{2}$ " bolts.

For rear bunk installation:

1. Remove locator screws and attach wall bracket w/ $1"$ x 10 type A screw.
2. Install swing cable bracket:
 - a. Remove locating screw and install swing cable bracket w/ $1"$ x 10 type A screw.
3. Install swing arm to steel bed frame:
 - a. Attach w/ $\frac{1}{4}$ " x $1\frac{1}{2}$ " bolt and lock nut. Do not tighten too tight. (allow arm to swing).
4. Install ceiling bracket pin to steel bed frame:
 - a. Drill holes through $1"$ tube front rail of bed frame. (see diagram for hole location) Attach with $\frac{1}{4}"$ x $1\frac{1}{2}"$ bolt and lock nut.
5. Drill $\frac{1}{4}"$ hole in side rail of bed frame for swing cable (see Page 10 for dimension E).
6. Attach swing arm (mounted on bed frame) to wall brackets w/ $\frac{1}{4}"$ x $1"$ screw and lock nut. Do not tighten too tight. (allow arm to swing).
7. Install ceiling bracket:
 - a. Swing bed to storage position and align ceiling bracket.
 - b. Drill $\frac{5}{32}"$ hole. (Be careful not to drill through roof — set drill bit length to $1"$ maximum)
 - c. Mount ceiling bracket w/ $1"$ x 10 type A screws.
8. Attach swing cable to side rail of bed frame w/ $\frac{1}{4}"$ x $1\frac{1}{2}"$ bolt and lock nut.
9. Lower bed and swing down leg. Bed should be level and the swing cable should be loose (not supporting the weight of the bed).

MODEL	A	B	C	D	E	F	G DOOR SIDE	G ROAD SIDE
2577	84	46	19-3/8	10	15	26 1/2	4	18 3/4
2577-D	84	46	19-3/8	10	15	26 1/2	4	18 3/4
2277	84	46	19-3/8	10	15	26 1/2	4	18 3/4
2277-R Front	84	46	19-3/8	10	15	26 1/2	4	18 3/4
2277-R Rear	84	46	19-7/8	10	20	25 1/2	4	4
2277-B	84	46	19-3/8	10	15	26 1/2	4	18 3/4
1977	80	46	17 1/2	10	15	24 1/2	4	18 3/4

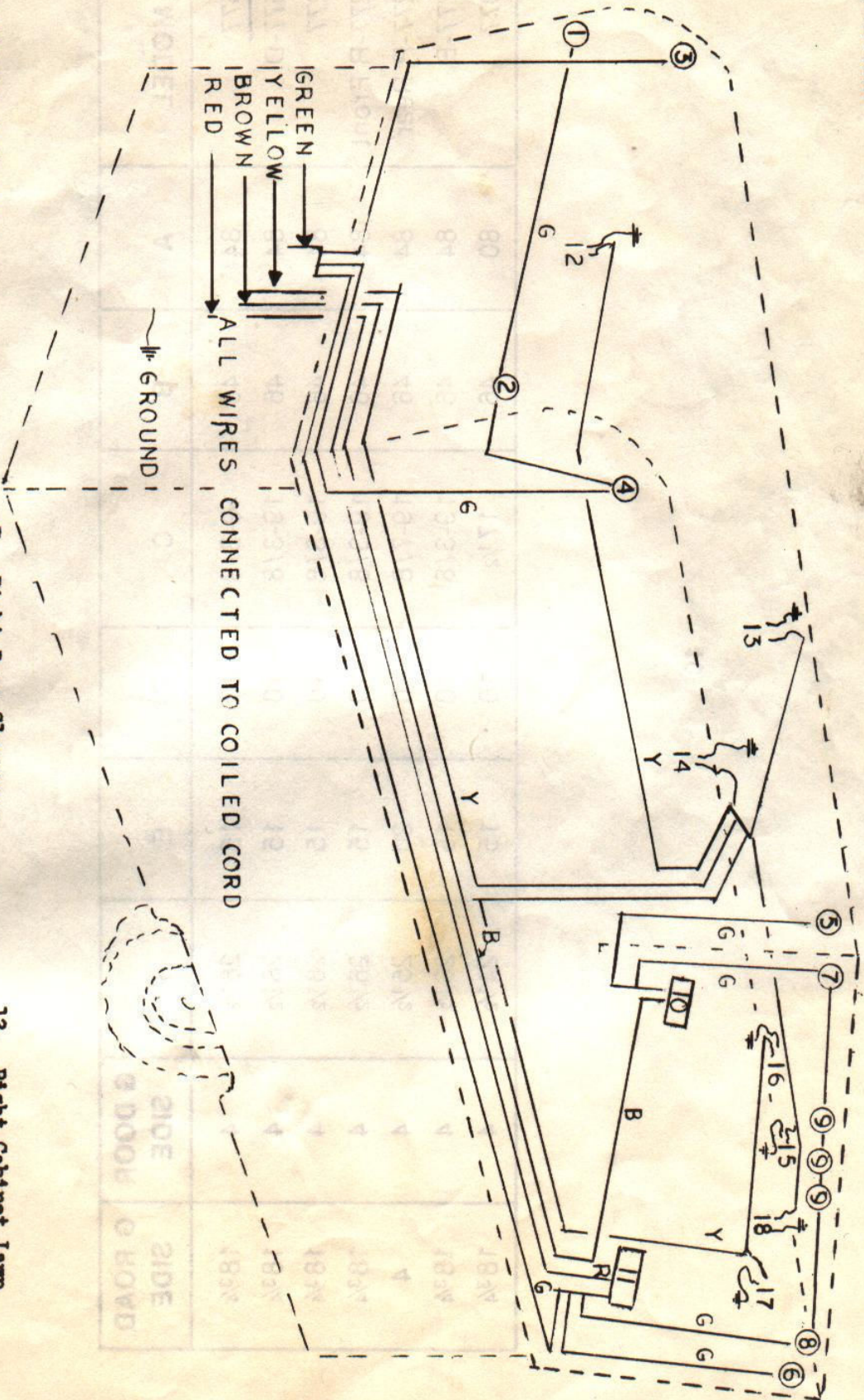
12 VOLT SCHEMATIC UPPER SECTION

DRAWING A

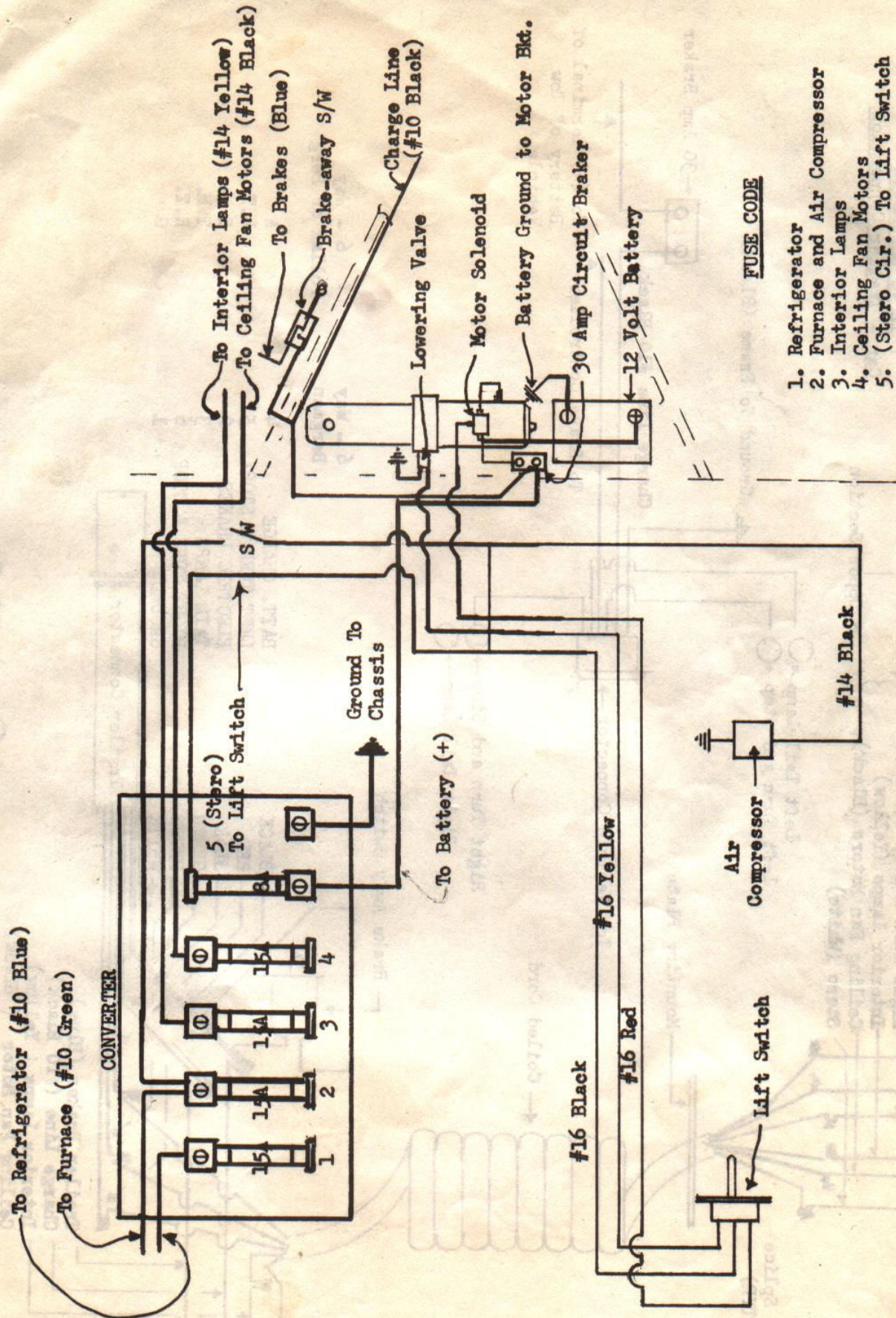
1. Right Front Clearance
2. Left Front Clearance
3. Right Front Marker
4. Left Front Marker
5. Right Rear Marker
6. Left Rear Marker

7. Right Rear Clearance
8. Left Rear Clearance
9. Rear Cluster
10. Right Tail and Stop
11. Left Tail and Stop
12. Front Interior Lamp

13. Right Cabinet Lamp
14. Left Cabinet Lamp
15. Bath Fan
16. Right Rear Interior Lamp
17. Left Rear Interior Lamp
18. Bath Lamp



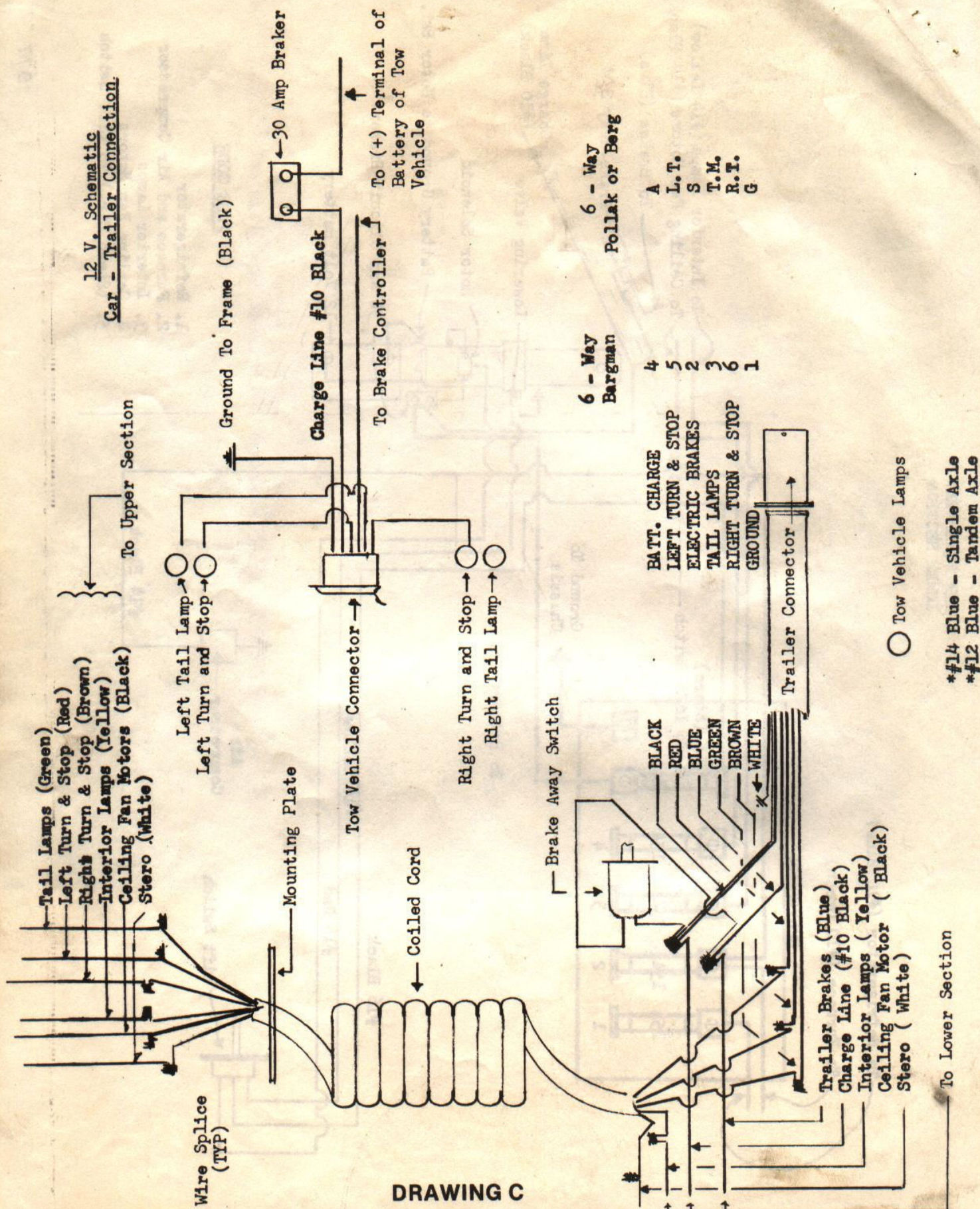
12V SCHEMATIC
LOWER SECTION



FUSE CODE

1. Refrigerator
2. Furnace and Air Compressor
3. Interior Lamps
4. Ceiling Fan Motors
5. (Stereo Cir.) To Lift Switch

12 V. Schematic
Car - Trailer Connection.



SWING-A-WAY BED INSTALLATION

Locating Screws

Swing Cable Bracket
Wall Bracket

Ceiling Bracket

Wall Bracket

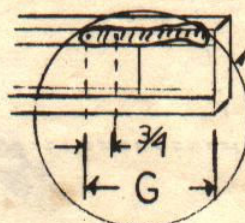
Swing Cable

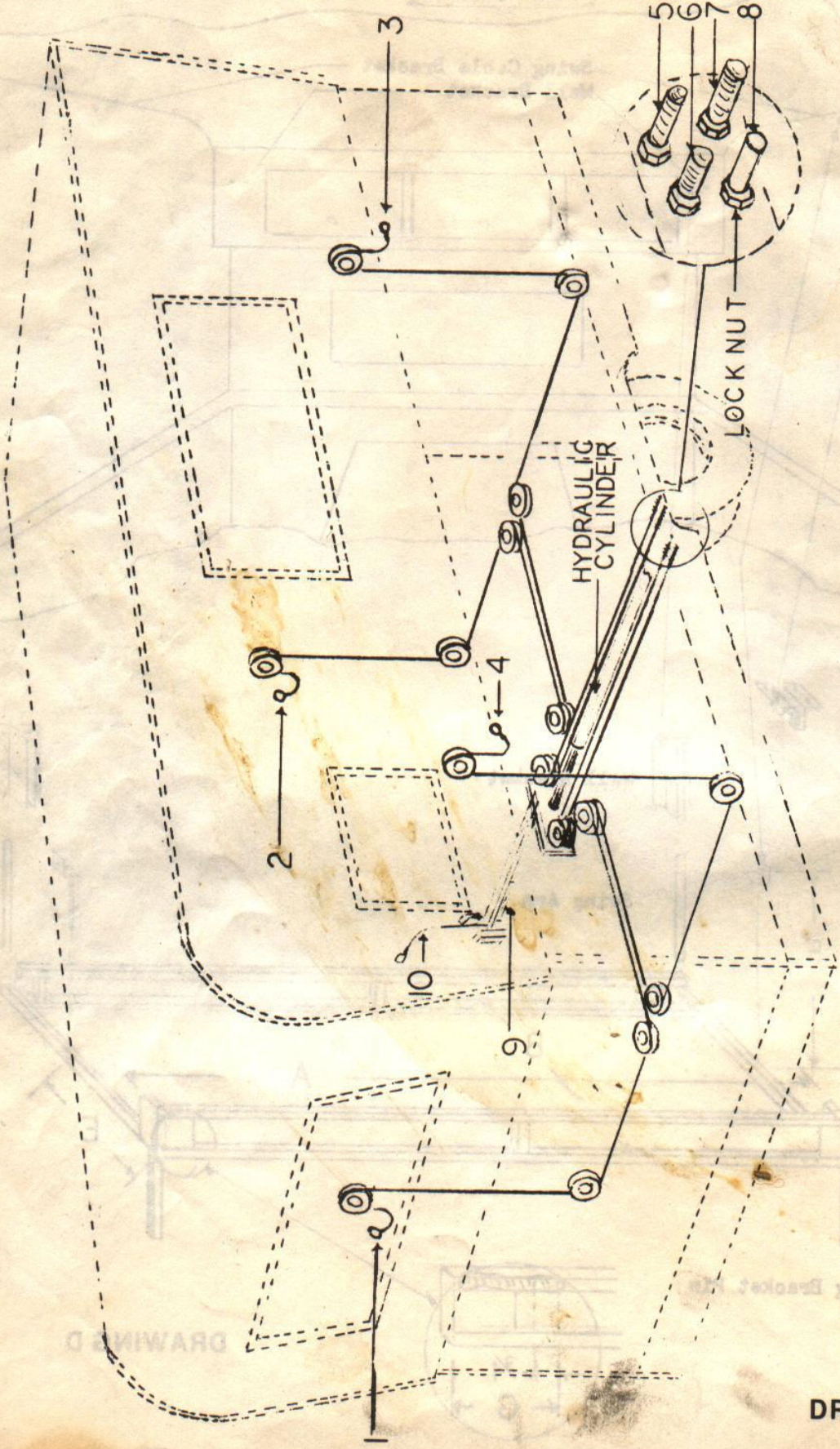
Swing Arm

Leg

Ceiling Bracket Pin

DRAWING D

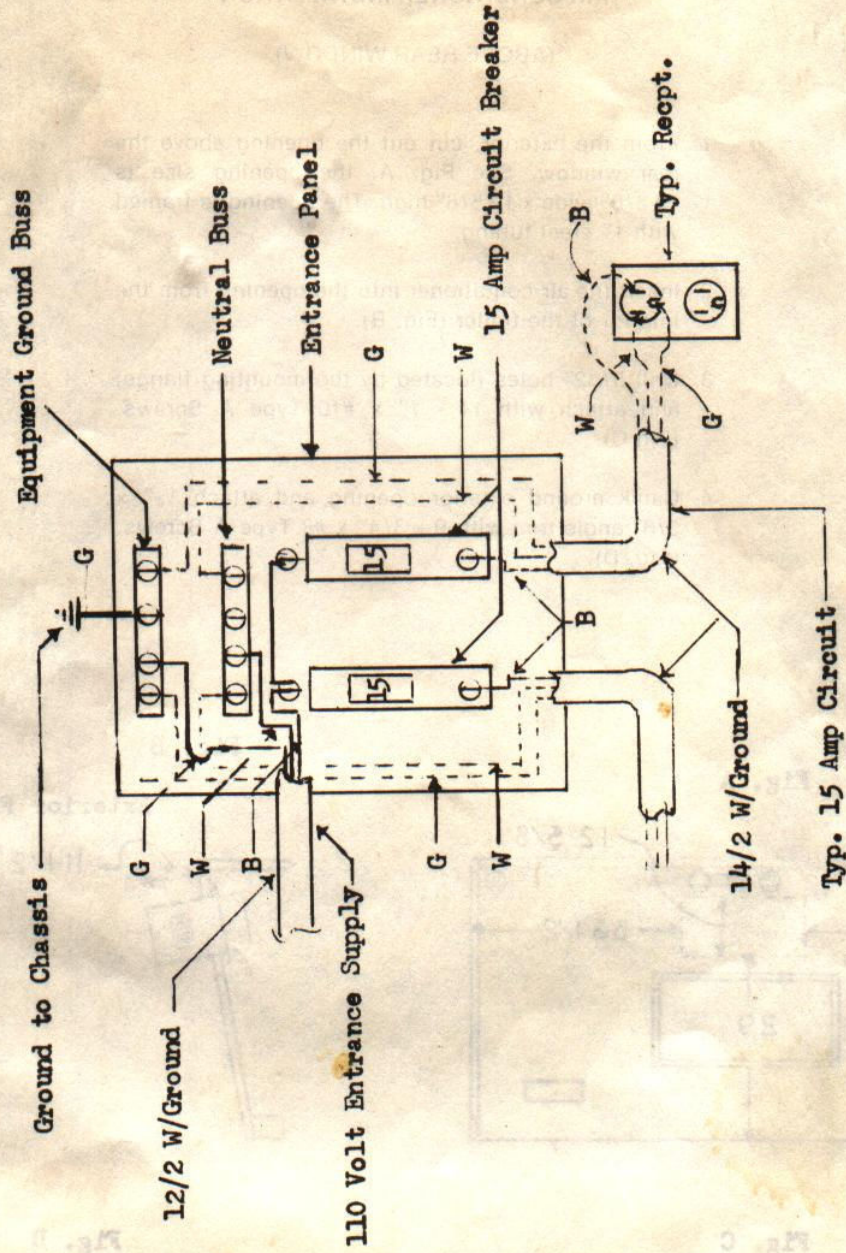




CABLE LENGTHS
 2 - 220 ³/₄" O.A.
 2 - 212" O.A.
 NEW CABLES INSTALLED
 7/97

DRAWING E

110 VOLT SCHEMATIC



G - Green or Bare Copper
W - White
B - Black

DRAWING F

AIR CONDITIONER INSTALLATION

(ABOVE REAR WINDOW)

1. From the exterior, cut out the opening above the rear window. See Fig. A. the opening size is $19\frac{3}{8}$ " wide x $12\frac{5}{8}$ " high. The opening is framed with 1" steel tubing.
2. Insert the air conditioner into the opening from the interior of the trailer (Fig. B).
3. Drill $\frac{5}{32}$ " holes (located by the mounting flange) and attach with 14 - 1" x #10 Type A Screws. (Fig C).
4. Caulk around exterior opening and attach $\frac{1}{2}$ " x $\frac{5}{8}$ " angle trim with 9 - $\frac{3}{4}$ " x #8 Type A Screws. (Fig. D).

Fig. A

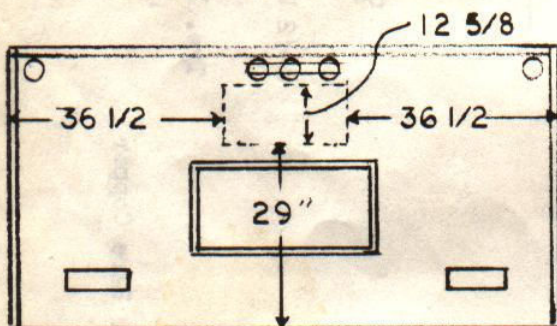


Fig. B

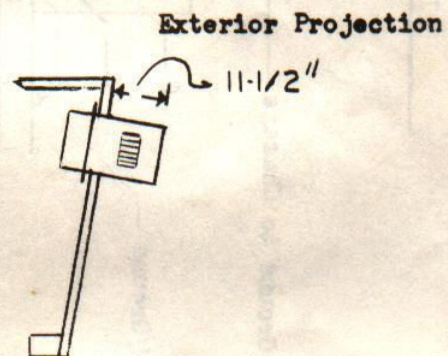


Fig. C

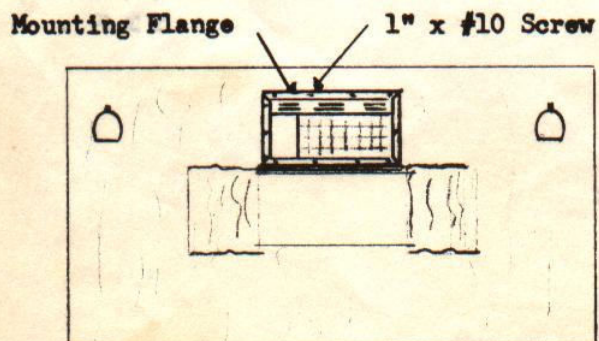
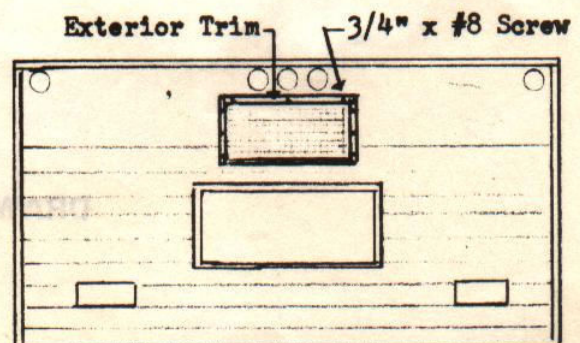


Fig. D



THE LP-GAS SYSTEM

GENERAL

As with other systems in your RV, all components have been tested and approved for use in recreational vehicles by a nationally recognized testing laboratory. When properly handled, LP-gas will provide you with trouble-free operation of your heat producing appliances.

LP-gas (liquid petroleum) is a material composed of various hydrocarbons such as propane, propylene, butanes, butylenes, or a mixture of them. In its gaseous form (vaporized), it is colorless and carries an added garlic-like odor for detection. Besides being inflammable, it is potentially lethal to inhale. LP-gas is compressed into liquid form for storage and transportation. It is also known as bottle gas. Propane gas will vaporize during extreme cold (above 44° F. below Zero), while butane will not vaporize below 30° F. Most LP-gas fueling stations sell only propane for recreational vehicle use.

The LP-gas tank mounted on your vehicle contains LP-fuel in liquid form under high pressure. As fuel is used, vapor (LP-gas) passes from the top of the tank through a regulator which reduces the pressure to about 6½ ounces per square inch. Vapor at the low pressure is then transferred through the gas distribution lines for appliance use.

CHECKING FOR LEAKS

Upon delivery and periodically thereafter, check your gas system for possible leaks. Although the entire distribution system and its attached appliances have undergone extensive factory testing for leaks, with normal use being subject to road vibrations, connections and fittings can develop leaks. Usually you can detect these leaks by the strong odor of garlic or onions. If you do encounter this odor, turn off all open flames immediately and commence a systematic search for leaks throughout the gas system. Use a bubble solution or soapy water — NEVER A MATCH — on connections and fittings. Bubbles will appear at the leaky points. When tightening connections, use two wrenches with opposing torque to prevent twisting of copper tubing. If the leak doesn't show up in the manifold or copper tubing distribution system, then check the appliances.

LP-GAS REGULATOR SETTING

Never attempt to reset the gas regulator yourself. Have an authorized service agency make any regulator adjustments. Even a little amount of pressure over the recommended 6½ ounces per square inch can cause damage to appliance regulators.

USING THE AUTOMATIC CHANGEOVER REGULATOR

Your model RV may incorporate an automatic changeover regulator. This apparatus allows both gas bottles to be turned on simultaneously. The arrow on the regulator handle indicates which bottle is in service. Then the indicated bottle in service becomes empty, changeover is automatically accomplished to commence drawing fuel from the other bottle. At this point, the plastic window will display a red signal or flag to indicate the condition, where upon first notice you should then flip the lever over to indicate service on the other bottle. The first bottle which was depleted can then be turned off, uncoupled and taken to be refilled without disturbing the RV gas supply. After refilling, it can be remounted and again turned to the "On" position. When the other bottle is depleted, the LP-gas supply will again be automatically changed over.

GAS CONTAINERS — USING ALCOHOL

When gas containers are not in use for some time, or are empty, it is advisable to keep the service outlet valve closed to minimize entry of moisture inside containers or the regulator. Moisture can cause freeze-up damage to regulators. To minimize chance of freeze-up, have your dealer add a half cup of dry methyl alcohol into each container.

FILLING LP-CONTAINERS

WARNING

YOUR VEHICLE HAS EXTERIOR COMBUSTION AIR INLETS. APPLIANCE PILOT LIGHTS SHOULD BE TURNED OFF DURING GASOLINE OR LP-GAS REFUELING ON THE UNIT. [Required by law in some States.]

LP-gas is available throughout the country. When one bottle is depleted, it is best to have it refilled without delay. Woodall's, Rand McNally, and other publications have listings of LP-gas stations. Many travel parks have LP-gas available.

Local regulations sometime require that I.C.C. removable cylinders be removed from the RV for filling. Caution the supplier not to overfill your tank. A 20% or 10% relief valve is incorporated on some tanks for safety. This valve is normally opened during filling and will indicate when the tank is filled to the proper limit by appearance of liquid replacing vapor. At all other times, the overfill valve should be tightly closed by hand only.

The main valve on the LP-gas container should be tightened by hand only using caution not to over-tighten. The valve is designed to satisfactorily close with only a reasonable amount of tightening. Continual over-tightening will eventually damage the valve and will require its replacement. If a valve is replaced, always replace it with the RV type that incorporates a check valve as some local regulations prohibit filling tanks that don't have one.

When LP-gas containers are filled to the proper level there is available space for safe expansion of the vaporized liquid. If your tank becomes overfilled and is not allowed to "bleed off" before installation with the RV system, it may gain pressure due to exposure to hot sun rays and will begin "blowing off" pressure from the relief valve. This can be detected by the strong odor around tanks and can be heard close up. Keep all open flames away from this area. It is best to remove the bottle, take it to a safe area, and bleed off the excess pressure by opening the valve and closing it when discharge has been sufficient.

Handle your LP-tanks with care. Note that when disconnecting, you must turn the wrench in a clockwise direction because the connection utilizes left hand threads. Similarly, when reconnecting, turn wrench counter clockwise. When tightening, only "snug up" — avoid over-tightening.

LP-GAS CONSUMPTION

Most gas appliances are only intermittently operated. Unless there is heavy use of hot water, water heater consumption is not too great. Operating under wintry conditions, requiring heavy use of the furnace, or doing a lot of oven baking for hours at a time is what really consumes the gas rapidly. During freezing weather and high wind conditions, furnace consumption can be extremely heavy. Those who have need to use an RV during much freezing weather many times install storm windows to reduce the amount of heat required.

LP-gas consumption depends upon individual use of appliances and the length of time operated. Each gallon of LP-gas produces about 91,500 BTU's of heat energy. A typical seven gallon container will provide about 640,500 BTU's of heat energy. Following is a list of typical appliance consumption when turned full on for one hour of operation:

APPLIANCE	HEAVY BTU Consumption
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Water Heater	8,500
Refrigerator	1,350
Furnace	11,000 or 16,000
Range Oven	10,000
Each Range Burner	5,000

SAFETY CONSIDERATIONS

SAFETY IN USING LP-GAS

You should check for leaks at the connections on the LP-gas system soon after purchase and initial filling of LP-tanks, and continued periodic checks of the system are recommended. Even though the manufacturer and dealer have already made tests for leakage, this check is advisable because of the vibration encountered during travel. Your vehicle was manufactured to provide you with full access to all gas line connections. Leaks can be found easily with a soapy water solution applied to the outside of the gas piping connections. Usually tightening of connections will close leaks. If not, ask your authorized dealer service to make the necessary repairs.

LP-gas is heavier than air. Leaking gas tends to flow to low places, much as will water. It will sometimes pocket in a low area. LP-gas can usually be detected by an identifiable odor similar to onions or garlic. Never light a match or allow any open flame in the presence of leaking gas.

Be sure to shut off the main LP-gas supply valve when the vehicle is not in use. This rule should also apply while the vehicle is moving to prevent any accidental ignition of gasoline fumes while refueling by the pilot lights in the water heater, furnace or refrigerator.

Never allow gas containers to be filled above the liquid capacity indicated on the container. If a container is overfilled, liquid gas may flow through the regulator causing it to freeze and/or introduce a dangerous excessive gas pressure into the lines. In addition, an overfilled container placed in hot sunlight may expel excess gas through the relief valve and be susceptible to ignition by any nearby open flame.

ELECTRICAL SYSTEM SAFETY

As delivered, your coach has been engineered and checked for your complete safety. Circuit breakers and fuses are installed to protect electrical circuits from overloading. Do not make unauthorized changes to circuitry or add on fixed appliances yourself. If you wish changes, consult your dealer and he will assist you in obtaining a safe installation.

An approved power supply cord has been supplied with the vehicle. Always use this cord for hook-up to the 120 volt source. Note that the cord has a three pin plug, which provides proper grounding through the third (round) pin. Grounding is your personal protection from electrical shock. Do not use any adapter, cheater, or extension cord that will break the continuity of the grounding circuit connected to that third pin. NEVER remove the grounding pin for convenience of being able to connect to a non-grounded (only 2 prong) receptacle. Use a grounding adapter with two prongs plus a "pig-tail" conductor which should be externally grounded.

NEVER operate your RV with a "hot skin." If you can feel a shock — even a small one — from the RV while standing on the ground, you should immediately disconnect the RV and locate the trouble. The fault is usually from a break in the grounding circuit which should be continuous from the skin or frame to the distribution panel board to the third pin on the power supply cord and thence to the park receptacle and earth ground.

SAFETY WHEN EMERGENCY STOPPING

Always carry road flares and/or reflective triangular highway warning devices to be displayed when necessary. Pull off the roadway as far as possible when changing flats or for other emergency situations. Turn on your vehicular hazard warning flashers when parked alongside a roadway, if only for a minute or two. Get members of your family out of the RV and have them stand clear of the vehicle area when parked on the edge of a highway.

ADDITIONAL SAFETY CONSIDERATIONS

1. Sanitize the fresh water supply system periodically (see sanitizing instructions).
2. Try to keep water connection fittings from coming in contact with the ground or drain hose to reduce chance of contamination.

SAFETY CONSIDERATIONS

3. Never attempt to fix gas or electrical appliances yourself. Enlist services of a qualified technician.
4. Always have a serviceable fire extinguisher placed in an easily accessible location. This extinguisher should have a rating of at least 2 BC units.
5. Don't overload your vehicle (refer to Sections "H" and "I").
6. Be careful not to cause an improper load distribution which can adversely affect roadability and/or towing safety.
7. Insure that tires are in good condition and properly inflated. Watch inflation especially close for tandem wheel models — under-inflated tires get hot. Hot tires are more apt to blow out.
8. Check and tighten wheel lugs regularly.
9. Check brakes in a safe area — not while traveling a busy highway.
10. Use seat belts (motor homes).
11. Disconnect television power cord and antenna lead-in during local thunderstorm and lightning activity.
12. Always solidly chock trailer wheels before unhitching.
13. Before leaving a camp area with a trailer in tow, insure that the safety pin or locking lever is seated, breakaway wire is attached to tow vehicle, and the electrical cord and safety chains are connected.
14. Have wheel bearings cleaned and packed at regular intervals.
15. Check condition of trailer brake magnets and linings periodically.
16. Observe the warning labels attached to your vehicle concerning LP-gas, water, electricity, and loading.

SAFETY WHEN EMERGENCY STOPPING

Always carry road flares and/or reflective triangular warning devices to be displayed when necessary. Pull off the roadway as far as possible when changing tires or for other emergency situations. Turn on your venturi-actuated warning lights when parked alongside a roadway. If only for a minute or two, get members of your family out of the RV and have them stand clear of the vehicle area when parked on the edge of a highway.

ADDITIONAL SAFETY CONSIDERATIONS

1. Sanitize the fresh water supply system periodically (see sanitizing instructions).
2. Try to keep water connection fittings from coming in contact with the ground or other hose to reduce chance of contamination.

LOADING THE VEHICLE

WEIGHT DISTRIBUTION AND LOAD CAPACITY:

Located on the left exterior wall of your trailer, near the front, is the Federal Certification Label which gives the maximum weight-carrying capacities of your trailer and each axle, designated by the letters "GVWR" and "GAWR," respectively.

The Gross Vehicle Weight Rating (GVWR) is the maximum your trailer should weigh with water and LP-gas tanks full, and with food, clothing and all other supplies aboard.

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

Your Hi-LO is rated as follows:

MODEL*	FACTORY WEIGHT	HITCH WT.	G.A.W.R.	G.V.W.R.	MAX. CARGO WT.	RECOM-MENDED HITCH WT.**
2577	3950	575	2900-2900	5000	1050	12-15%
2577-D	3950	575	2900-2900	5000	1050	12-15%
2277-B	3525	450	2900-2900	5000	1475	12-15%
2277	3525	450	2900-2900	5000	1475	12-15%
2277-R	3525	450	2900-2900	5000	1475	12-15%
1977	2575	350	2900	3300	725	12-15%

*Standard Equipment.

**% of loaded weight (Factory Wt. + Cargo Wt.) 750 lbs. max.

When loading your trailer, store heavy gear first, keeping it on or as close to the floor as possible. Heavy items should be stored directly over or slightly ahead of the axles. Store only light objects on high shelves. Distribute weight to obtain even side-to-side balance of the loaded vehicle. Secure loose items to prevent weight shifts that could affect the balance of the trailer.

With the trailer fully loaded, drive to a scale, unhitch the trailer from the tow vehicle, and weigh separately the load on the hitch coupler and the load on the axles. The load on each axle should not exceed its GAWR. The total of the axle loads and hitch load should not exceed the GVWR. For best towing stability the load at the hitch coupler should be between 10% and 15% of the fully loaded trailer weight. If a weight-distributing hitch is employed, the load on the axles should also be weighed with the trailer hitched to the tow vehicle to make certain the load on each axle does not exceed its GAWR. If weight ratings are exceeded, move or remove items to bring all weights below the ratings.

WEIGHT OF OPTIONAL EQUIPMENT

Swing Away Bed	80 lbs.	2-20# Gas Bottles	40 lbs.
4 cu. ft. Refrigerator (replacement) ..	20 lbs.	Spare Tire and Mount	55 lbs.
Air Conditioner (window)	60 lbs.	16,000 B.T.U. Furnace	50 lbs.
Roof Air Conditioner	130 lbs.	11,000 B.T.U. Heater	25 lbs.