

\$15.00

APACHE

Service Manual

1967 -85

CAMP TRAILER PARTS CO.

2287 Millville Road
Lapeer, MI 48446

(810) 664-3080

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1970

1. GENERAL

The overall lift system and its operation in raising is shown in figure

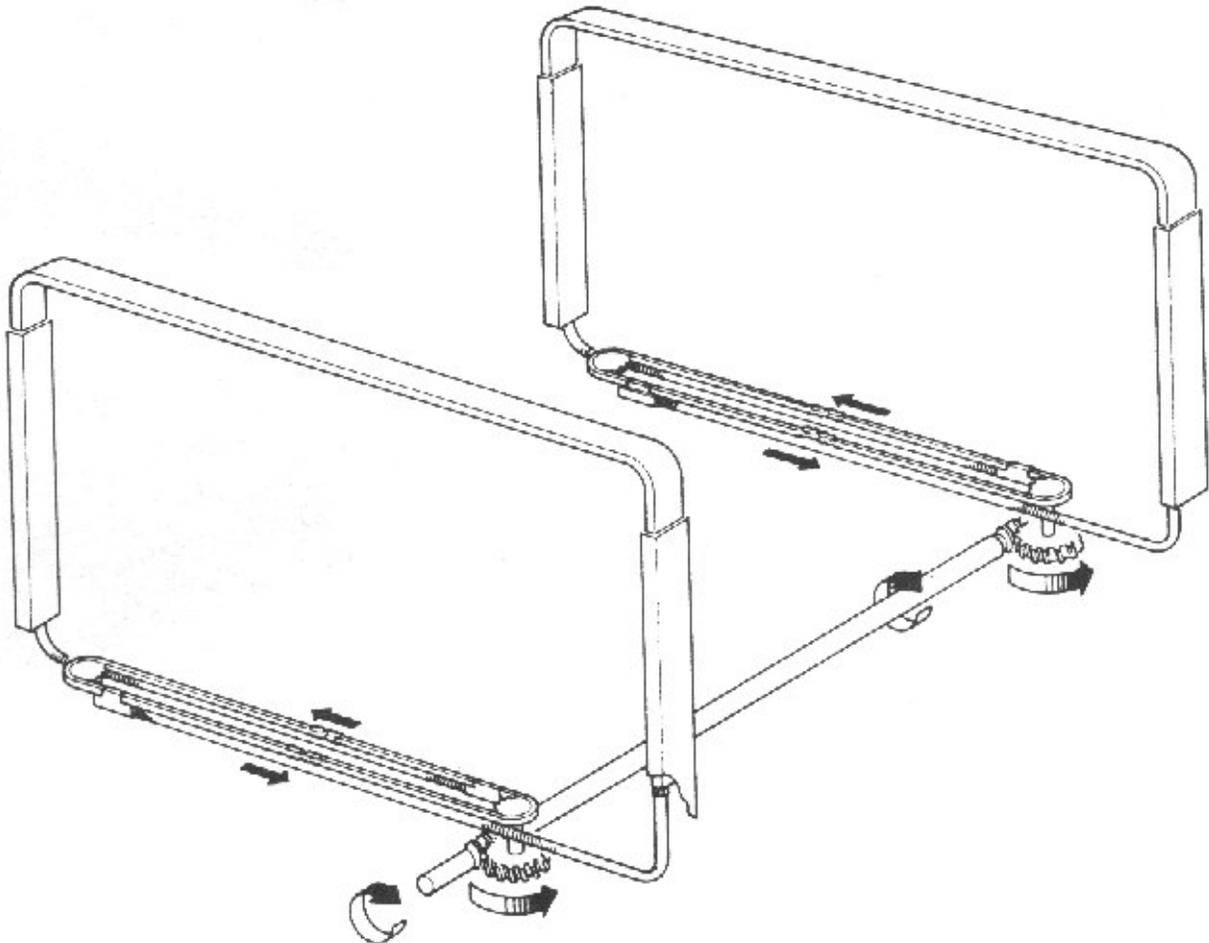


Figure 7

2. TROUBLESHOOTING (fig. 8)

<u>Problem</u>	<u>Possible Causes</u>
A. Road cover is jammed in up position or won't raise.	1) Push spring kinked or jammed. 2) Chain jammed at sprockets.
B. Front end will not raise.	1) Loose or broken chain. 2) Drive pin at connecting tube broken.
C. One end just pulsates up and down.	1) Chipped, worn, or broken gears in gear box. Replace gear box.

3. PRELIMINARY OPERATIONS

- a. The chain track is accessible from the trailer interior only. Therefore, if the system is jammed 2 to 24 inches in the up position, it will be necessary to crawl in on hand and knees, or attempt manual lifting of the cover. In the latter method, the crank is turned until resistance is felt. Then, back off a little, while at the same time, four people (who have been stationed at each corner) push up. This may straighten the push spring or chain so that the cover can be raised up. Stand side walls up to support cover.

- b. Rear Chain Track Access.

Access to the rear track is gained by removing the rear panel of each seat box and the rear inner lining (wood) panel on which the table is hinged.

- c. Front Chain Track Access.

- 1. Mesa III

Remove the ice box cabinet assembly.

- 2. Ramada II

Remove the inner panel of the porta-potti cabinet and the inner lining (wood) panel.

- d. Entering The Chain Track Proper.

- 1. Make sure road cover is supported by blocks or side walls.
- 2. Remove the two 3/8" nuts securing the track cover.
- 3. The cover can now be removed, exposing the chain, sprockets, and springs.

4. PUSH SPRING REPAIR

- a. If road cover is still jammed down, cut push spring at kink. Then with someone pushing up on that corner, crank the top up and erect side walls to support cover.
- b. Depress the tang which holds the middle lift post in place. Push down on the middle extrusion (fig. 8). This will expose the cable so that the cable can be removed.
- c. Unscrew cable from upper extrusion. If cable has been cut, remove this end.

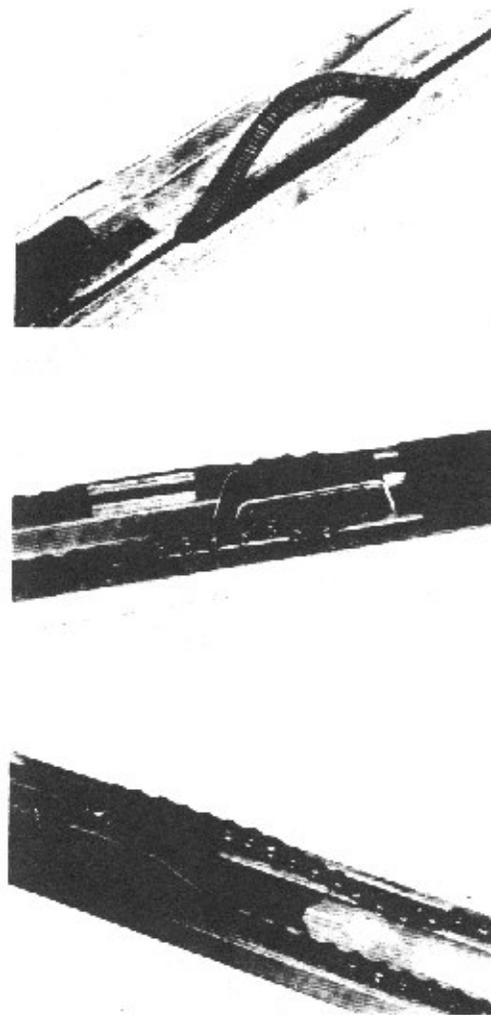


figure 8

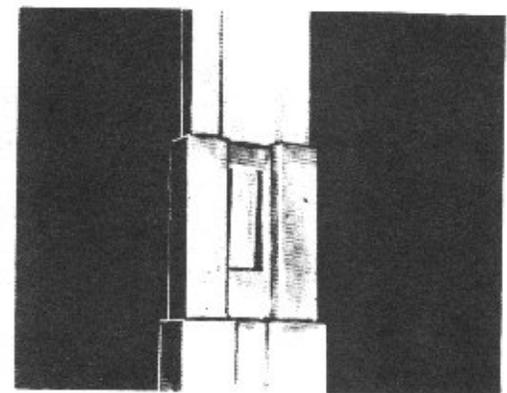


figure 9

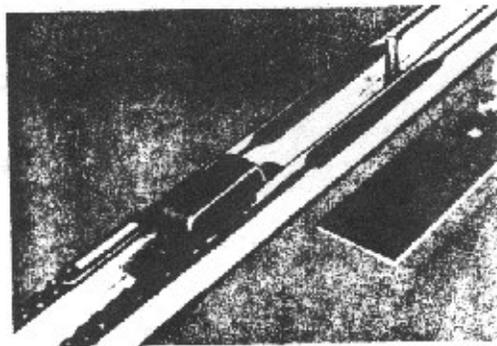


figure 10

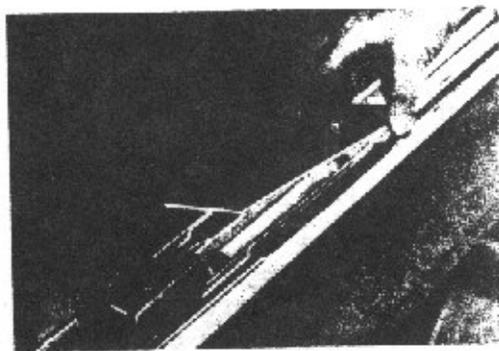


figure 11

- d. Loosen idler bracket so that chain has slack.
- e. Disconnect the chain from the follower of the damaged cable. Then, remove the cable-spring and follower through the elongated slot in the bottom chain track extrusion (fig. 10).
- f. Install the new push spring cable assembly into the slot in the bottom chain track extrusion. Feed bolt end up chain track (it may require some force to get end past radius) and position follower in track. Attach the cable to the corner post by screwing the bolt into the upper post. Reconnect follower to the chain (fig. 10).
- g. Raise the middle post extrusion so that the tang is engaged (fig. 9).
- h. Place a 2-3/4" x 8" 11 gauge steel plate (fig. 11) (Vesely part #19-00-694). Use a 3/8"-16 nut to retain plate. This plate will cover the elongated slot in the extrusion and prevent the cable from becoming jammed or kinked. Check other end of unit for plate and install if missing.
- i. Check and make certain that the idler sprocket is adjusted so that it is extended as far as possible so that the chain is tight. (See para. 5B. 5) Tighten idler sprocket bolts (fig. 12).
- j. Make certain all bolts and screws, which retain the lower chain track extrusion to the floor, are tight.
- k. Lubrication of the chain and spring and cable assembly is a must to prevent rust from forming on the moving parts.

We find that "LPS #3" is a good lubricant as it is a wax base water displacing-rust inhibitor with a anti-seize agent.

After assembly of the lift assembly, LPS #3 should be applied to the push spring, chain and sprockets. Make certain all parts are coated. Then pour Lubewaxy (vesely part #54-00-740) in the chain track.

- l. Install the chain track cover extrusion and reassemble the parts that were removed to gain access to the lift assembly.

5. CHAIN AND SPROCKET REPAIR

a. Chain and Sprocket Problems.

Any or all of the following problems could cause the lift system to become jammed.

1. Broken chain.
2. Chain loose and bunched at either sprocket. This loose chain can be caused by a bent idler sprocket saddle or loose mounting bolts.
3. Broken, chipped, or worn sprockets. This also can be caused by bent or loose idler sprocket.

b. Repair.

1. If the road cover is still jammed down, free up the chain and/or sprockets to allow raising. Then with someone pushing up at each corner of the problem end, crank the top up and erect side walls to support cover.
2. Inspect the chain, sprockets, and saddles for damage or excessive wear.
3. Chain replacement
 - A. Loosen idler sprocket.
 - B. Disconnect chain at master link unless broken, and remove.
 - C. Install new chain, using master link (Vesely part
4. Sprocket replacement.
 - A. If chain is not loose, loosen idler sprocket.
 - B. On idler sprocket, remove bolts securing it to chain track. Remove sprocket and saddle.
 - C. On drive sprocket, remove two bolts securing it to chain track. Remove sprocket and saddle.
 - D. Install new sprocket and adjust chain.

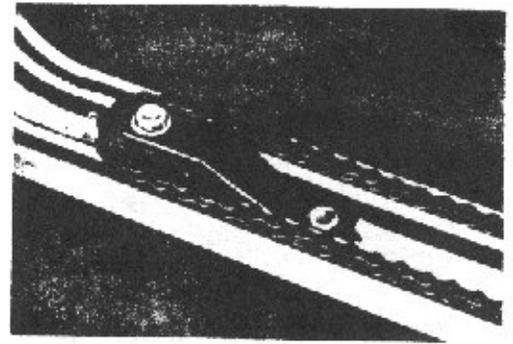
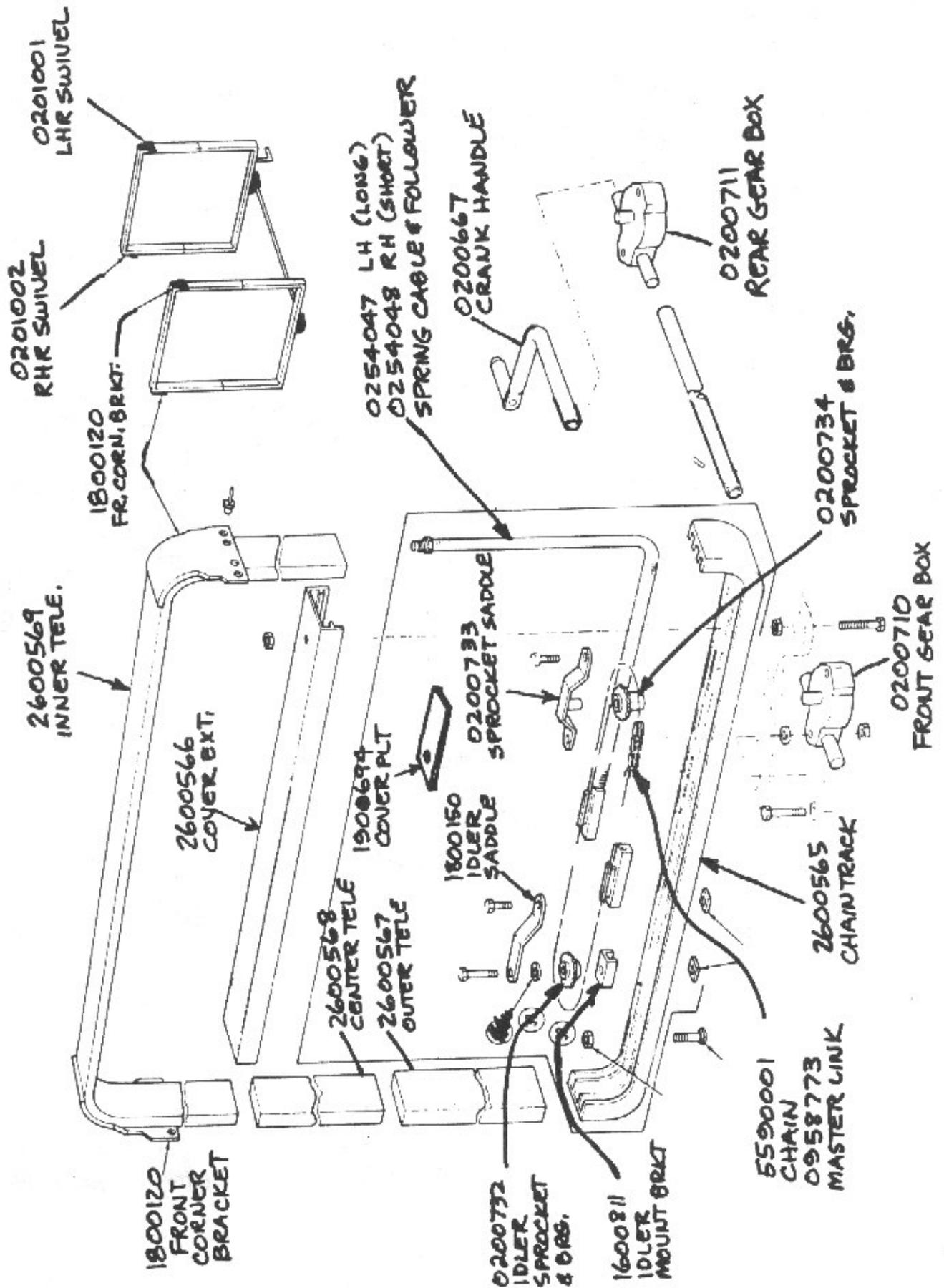


figure 12

5. Chain Adjustment. (fig. 12)

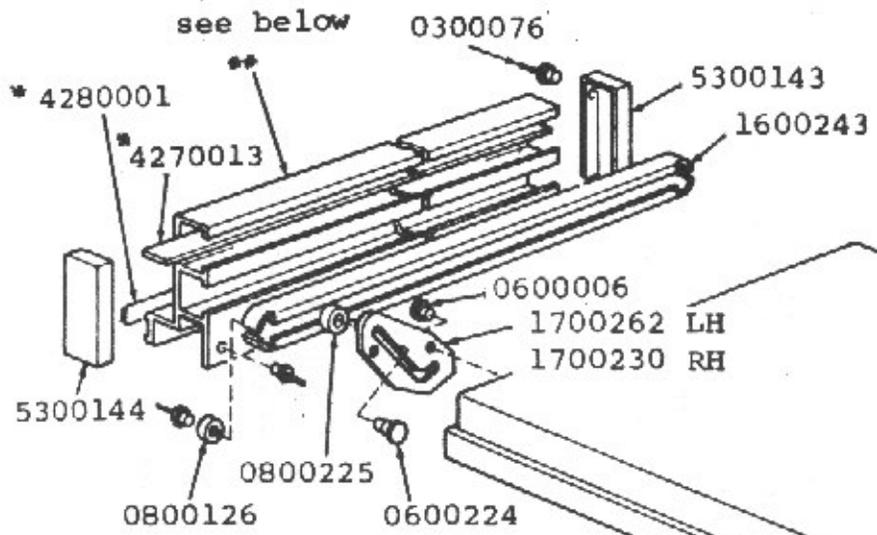
The chain must be tight for proper operation. Adjusting the tightness is simply accomplished by loosening the idler sprocket bolt and moving as required for tightness.

6. Make certain there is, or you have, installed a cover plate over the elongated slot in the bottom extrusion (Vesely part #19-00-694) (see problem #1, Pg. 13).
7. Check all bolts and screws for tightness
8. Lubrication of the chain and spring and cable assembly (See para 4k).
9. Reinstall parts removed to gain access.

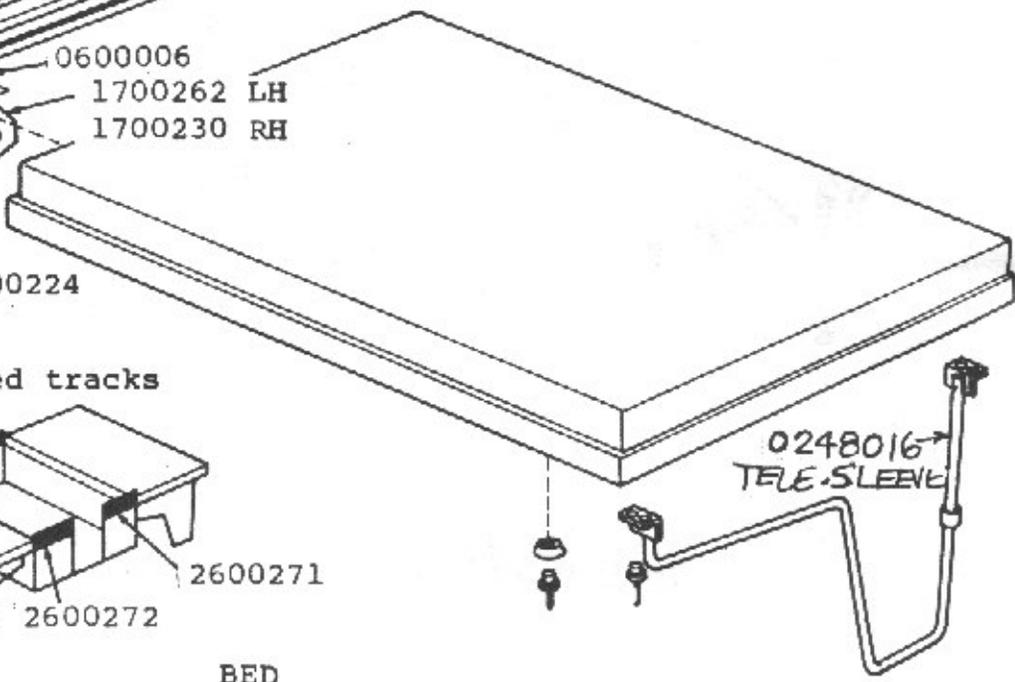
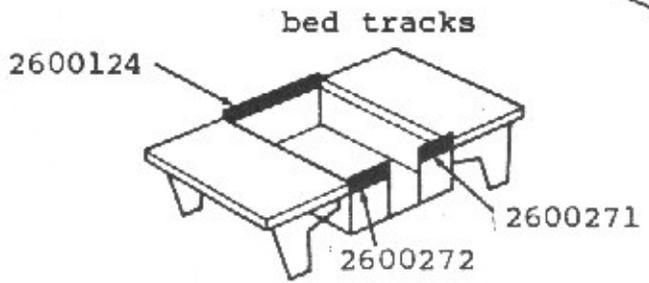


1970 LIFT SYSTEM

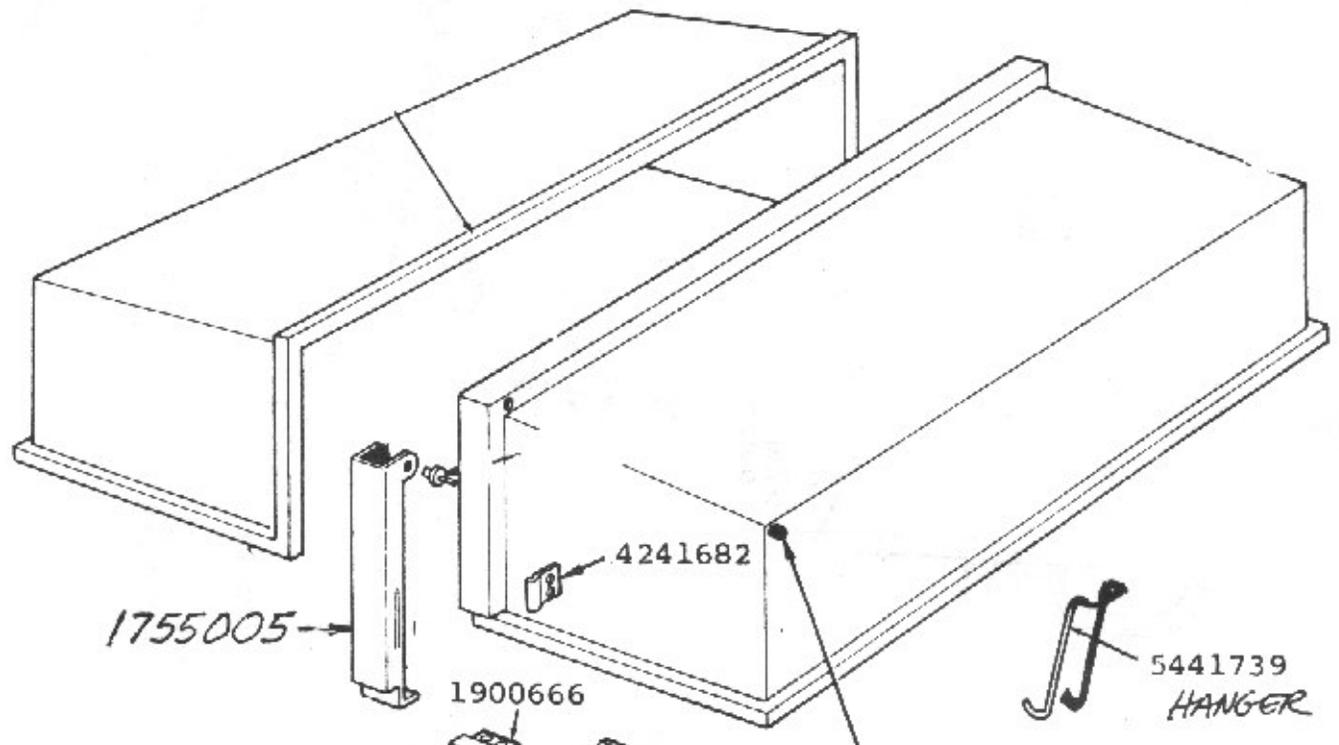
Bed track
see below



*-Order to length required



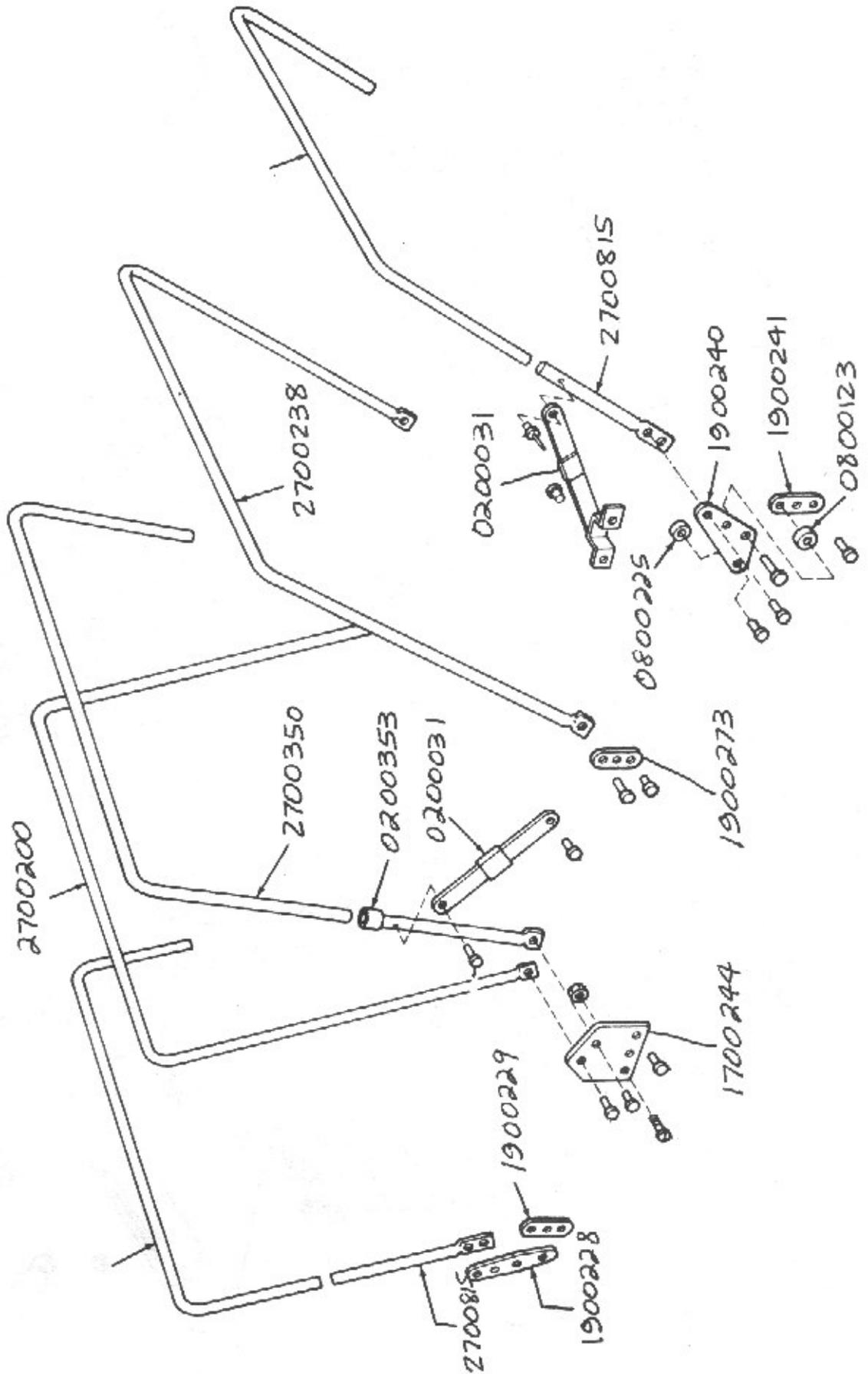
BED



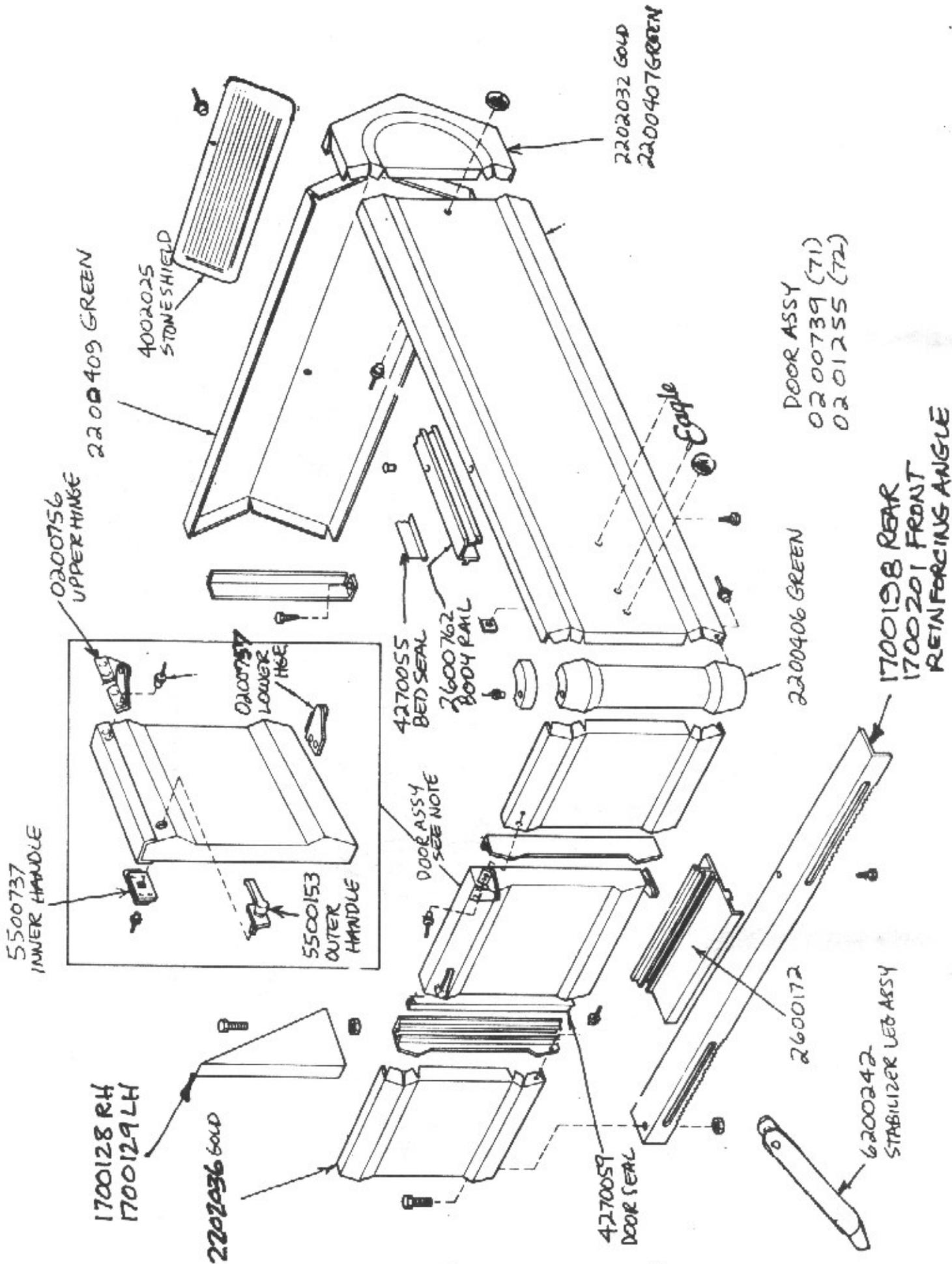
0241674 LH
0241675 RH

ROAD COVER

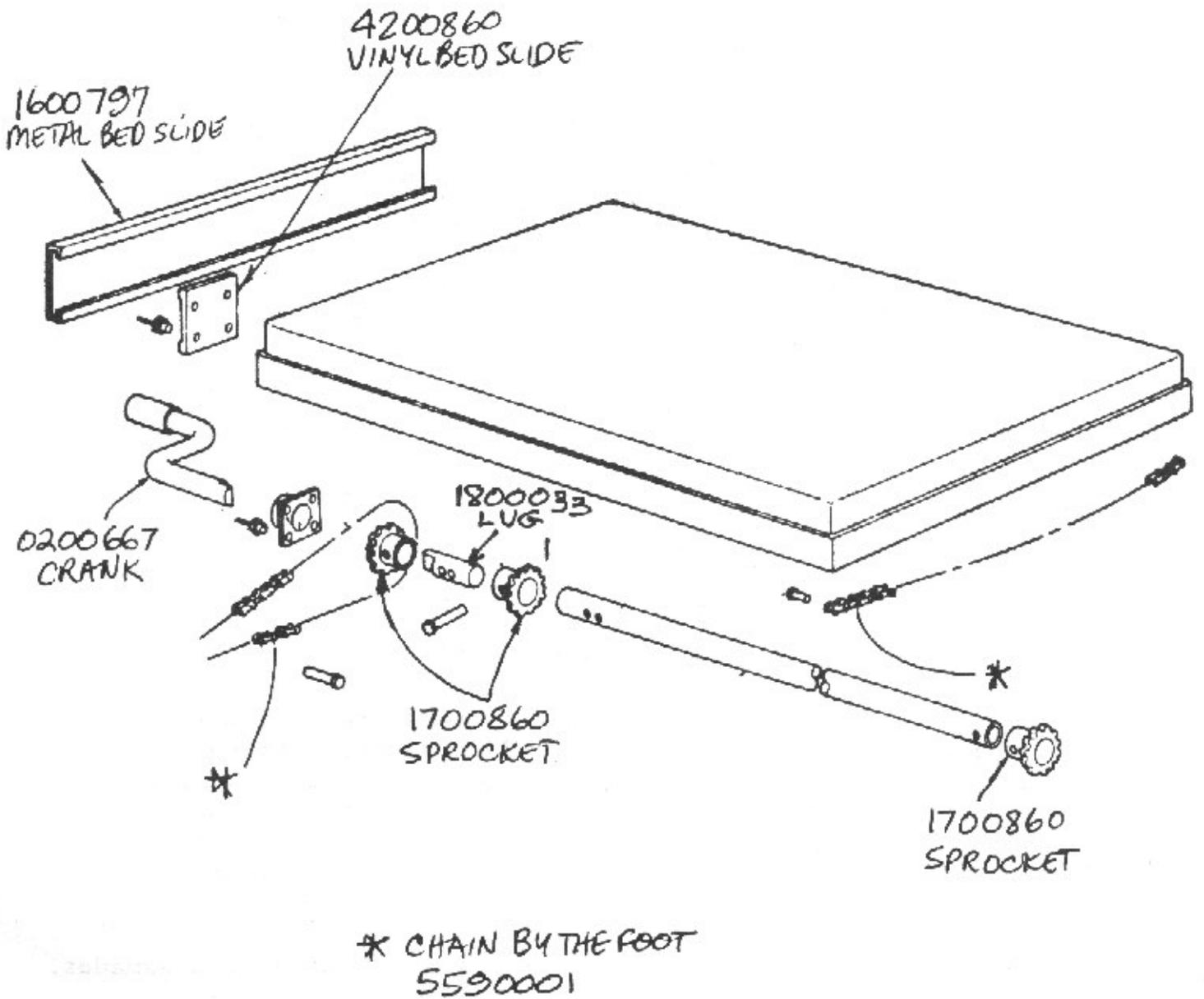
EAGLE 4



Tent Bows and Attaching Parts (Eagle 4)



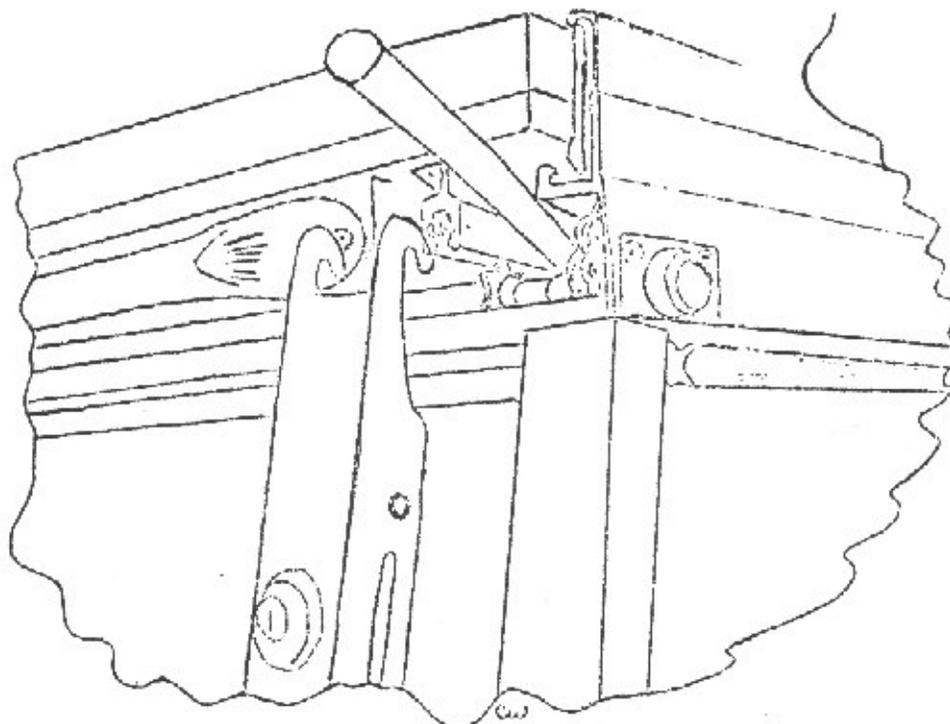
Body Assembly (Eagle 4)



68-69 BED MECHANISM

1967-69

BED TIMING PROCEDURE

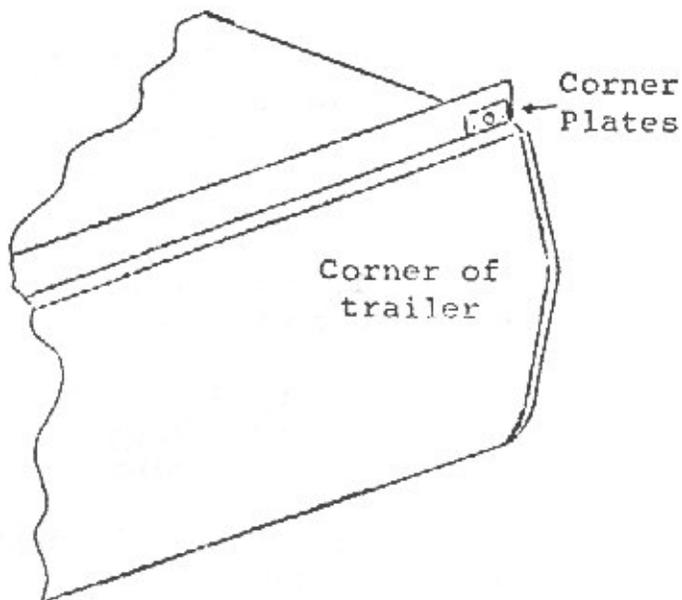


TO RETIME MESA AND RAMADA BEDS THAT ARE OUT OF TIME:

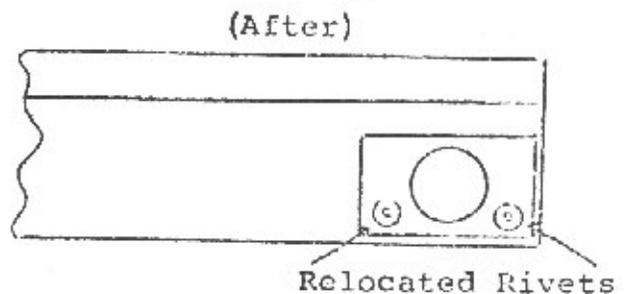
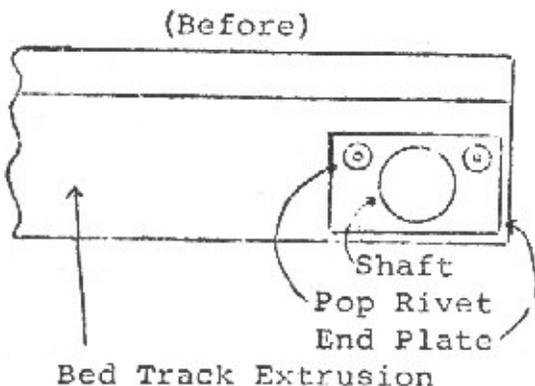
Insert crank handle between the sprocket shaft and the bed. Using the crank as a pry, lift the bed up, jumping it over the sprocket, back into the trailer, until the bed is square, or back in time. It should be noted at this point, if unit jumps back out of time, an adjustment must be made to the corner shaft support plates. See "Suggestion to Remedy Chain Drive Slippage and How to Prevent Beds from Jumping Time," on page 9.

This should apply to all '67, '68, and '69 Mesas and Ramadas.

SUGGESTION TO REMEDY LOOSE DRIVE CHAIN
OR HOW TO PREVENT BEDS FROM JUMPING TIME



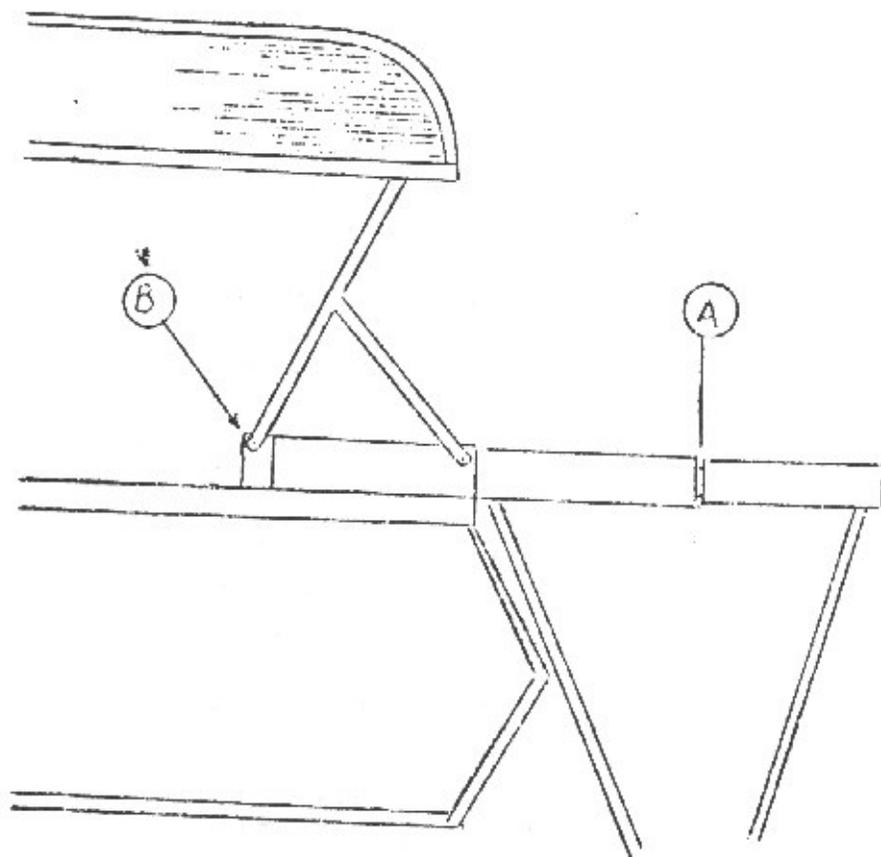
1. Drill out the two pop rivets in the top of the corner plate.
2. Remove plate, turn upside down so that the two pop rivet holes are now at the bottom.
3. Insert crank into the actuator shaft, lift it up and out toward the end of the trailer, while you hold it. Using the two rivet holes as a guide, re-drill and install new pop rivets in the bottom of the plate.



This will lift the shaft driving the sprocket deeper into the chain under the bed. If necessary move the plates on the opposite end of the trailer.

PLASTIC BED SLIDE REPLACEMENT PROCEDURE (Using the New Nylon Bed Slide)

For use when no help is available. When help is available, use Page 23

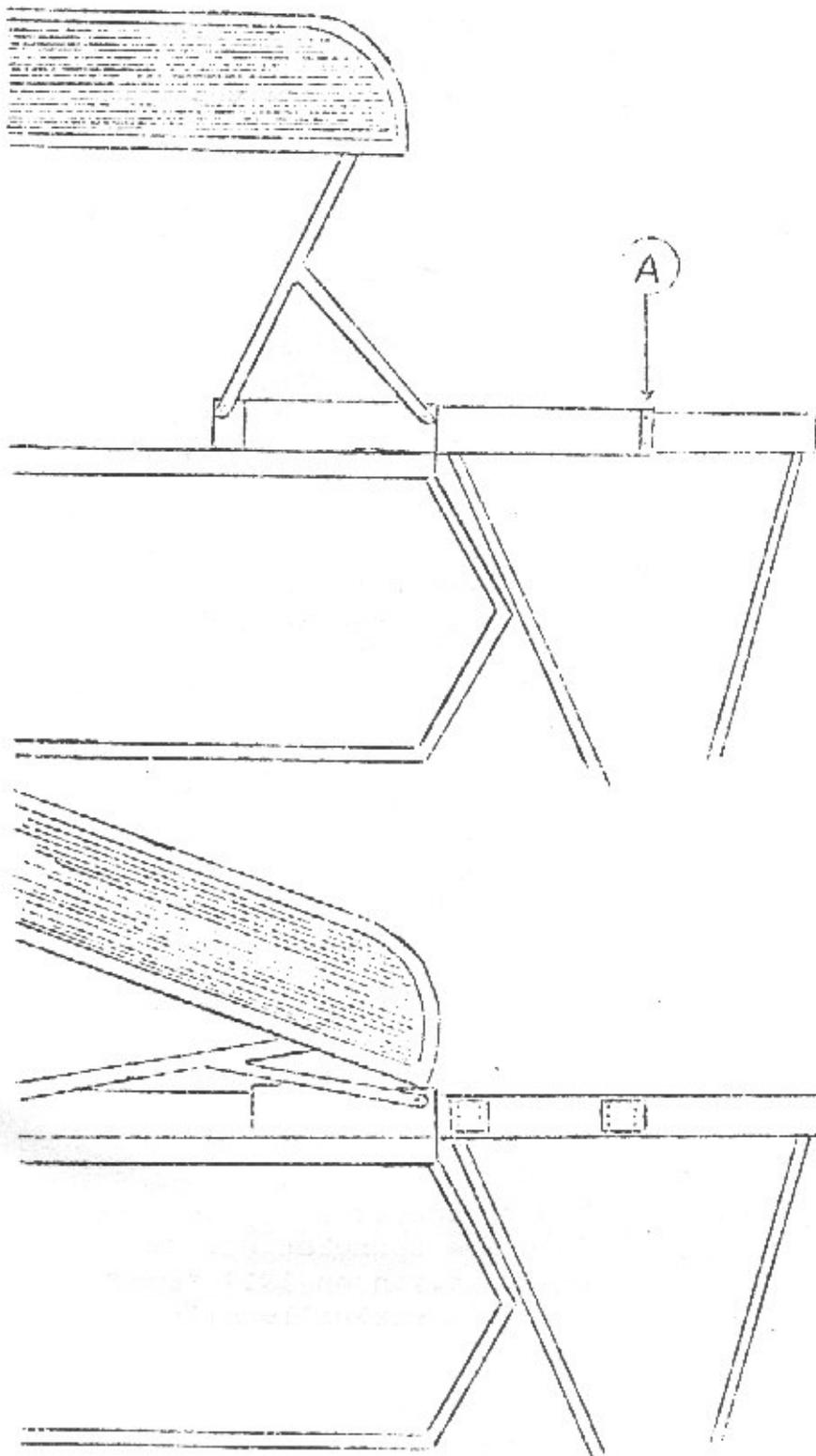


Note: With this new nylon bed slide all of the existing bed slides must be changed, even if only one is broken.

1. Open the unit and drop both bed legs.
2. Drill out the two pop rivets holding the bed stop. (Point A)
3. Using a $\frac{1}{4}$ " drill bit, drill out the $\frac{1}{4}$ " rivet holding the road cover support bow to the galvanized bed slide. (Point B)
4. Push this galvanized bed slide back into the body of the trailer exposing both of the plastic bed slides on this side of the bed.
5. Replace both plastic bed slides with the all new nylon bed slide
6. Slide galvanized bed slide back over the new nylon bed slides. Replace bed stop with two #64 pop rivets. (Point A) Replace $\frac{1}{4}$ " rivet. (Point B)
7. Go on to change all of the existing plastic bed slides with nylon.

Note: All 8 of the plastic bed slides must be changed because of the different mold that has been used for this new nylon bed slide.

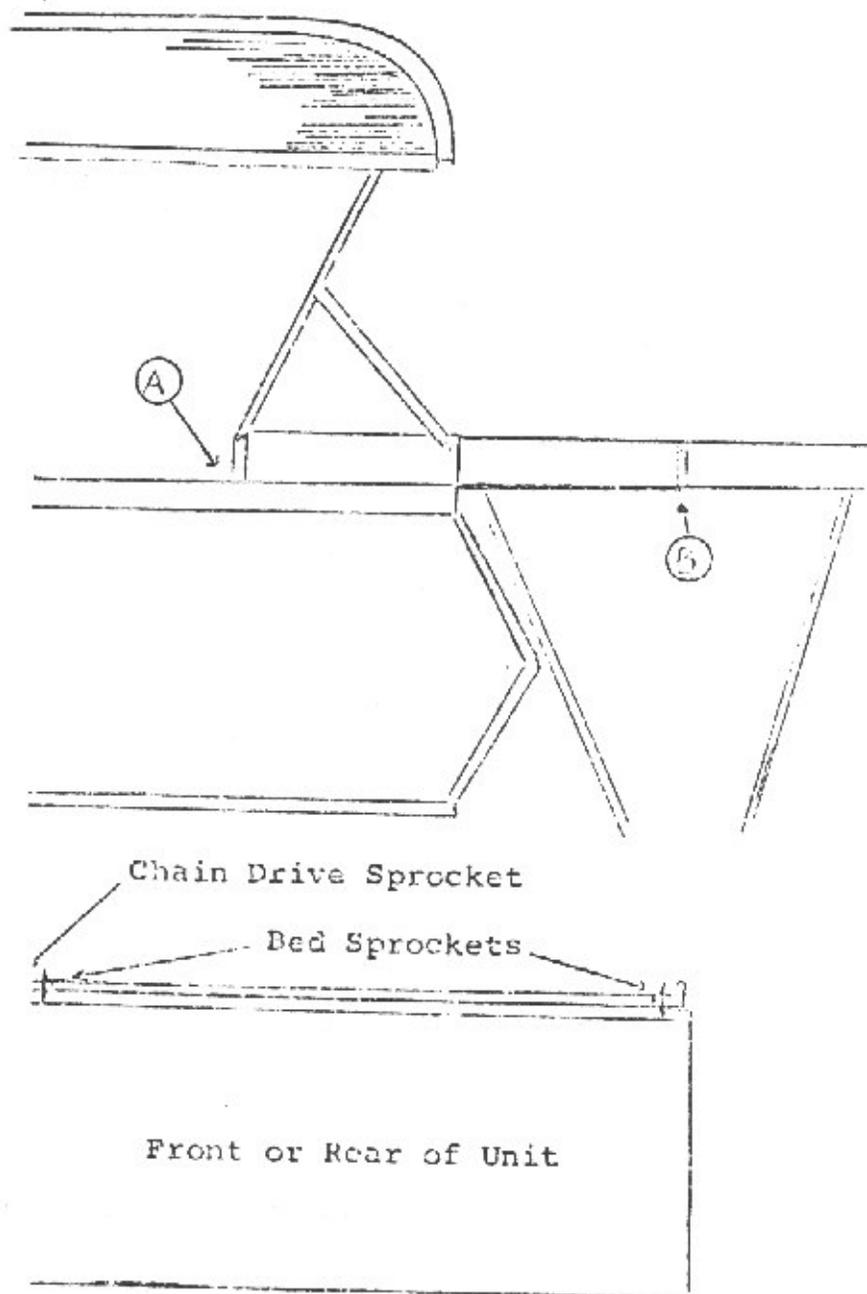
PLASTIC BED SLIDE REPLACEMENT PROCEDURE
(This procedure will expose all
four bed slides on one end of the trailer)



1. Open the unit and drop both bed legs on each bed. (See top drawing)
2. With help to support the road cover, drill out the two pop rivets holding the bed stops at each side of the bed. (Point A) Do both sides of one end or one bed only. Lower the end of the road cover onto the trailer body, (see bottom drawing) exposing the four (4) bed slides on one bed for replacement.
3. Lift the road cover up and slide both galvanized bed slides over the new nylon bed slides, re-install bed stops, (Point A) and go on to other end.
4. Be sure the side walls of the trailer are parallel. To check this with the trailer open, measure between the aluminum bed tracks in 3 different places.

If the walls are not parallel, remove the screws attaching the cabinets to the floor and move the cabinets until the side walls are evenly spaced.

SPROCKET REPAIR

Procedure

1. Get the unit in the up position.
 - a. By cranking
 - b. By pulling pins
2. Attach a "C" clamp or vise grips at points "A" on each bed track so the top will not come down.
3. Drill out the two pop rivets holding the bed stops, remove bed stops. (Point B)
4. Drill out pop rivets holding vinyl bed seal extrusion and remove extrusion. ('68, '69 only)
5. Remove the bed, or move out enough to work between the bed and unit with bed legs down.
6. Remove the sprocket pins.
7. Drive the actuator shaft to the chain side enough to remove the damaged sprockets and replace with new sprockets.
8. Insert the actuator shaft back into position.
9. Reverse procedure 5, 4, 3, 2, 1.

Note: These instructions cover the bed sprockets only. Because of the sprocket application, the chain drive sprocket seldom requires changing. This repair is fairly common on 1967 Ramadas and Mesas, but a new sprocket design in 1968 virtually eliminated any further sprocket problems.

Should it be necessary to replace the drive sprockets, locate the "repair link" in the chain and take the chain apart. This will release the drive sprockets for replacement. Additional 30 min.

ELECTRICAL SYSTEM

GENERAL

1. 12 VOLT SYSTEM DESCRIPTION

The individual electrical schematics are self explanatory and graphically present each model system.

- a. Method of Grounding. The electrical system is grounded through the white ground wire via the trunk harness to the tow vehicle. This ensures better connection than grounding each fixture to the body and frame, thus relying on the hitch for grounding to the tow vehicle.
- b. Circuit Protection. The running light circuits are protected by the fuses within the tow vehicle. Protection for the accessory circuit is within the trailer. This is described further within later sections.

2. 12 VOLT TROUBLE SHOOTING

- a. Power source for tests. The trailer electrical system may be tested by connection to the tow vehicle or with a loose battery. When using a loose battery, be sure to ground the trailer frame and white ground lead of the trailer harness. This will simulate attachment to the tow vehicle (coupler to hitch) and provide a path for any short circuit. Without grounding the frame, a short between the 12 Volt hot line of the trailer body will not be evident until attachment to the tow vehicle.
- b. Preliminary Checks.
 1. Make sure the trailer to tow vehicle connection is secure.
 2. Inspect the harnesses from tow vehicle to trailer for damage.
 3. Make sure the white lead is grounded properly in the tow vehicle.
 4. If system works, but incorrectly, check continuity. This indicates an incorrect connection between harnesses or attachment to tow vehicle. Check to see that white is connected to white, blue to blue, etc.
 5. Check to see if converter switch is positioned properly.

6. Heater blower and electric water pump will operate in reverse if white and black are wired in reverse.

c. Isolating Shorts. Start at the output end of the first harness, disconnect and test (with 12 Volt test light) for the presence of electricity. If electricity is present, reconnect and test at next harness connection. Continue this process through circuit. When electricity is lost or a short is indicated, the problem lies in the last harness tested.

3. 110 VOLT ELECTRICAL

The simplicity of this system leaves few problem areas. However, if the system is found inoperative, check the following:

- a. Blown fuse in converter (check for cause of overload).
- b. Loose connections in converter or outlet box.
- c. Check continuity.
- d. Broken or shorted power cord.

1972

1. SYSTEM PECULIARITIES

- a. Refrigerator Operation. Although the refrigerator operates on 12 Volts when connected to the tow vehicle, it must be switched to 110 Volt when the converter is used for the source of the 12 Volt. This is necessary since the converter is not wired to supply 12 Volt to the refrigerator.
- b. Circuit Protection. The accessory circuit is double fused within the trailer. There is an in-line fuse (12 Amp) protecting the entire accessory circuit and a converter fuse (8 Amp) protecting all accessories except the refrigerator regardless of converter switch position.
- c. Range. Removal and Installation.

CAUTION: GAS MUST BE OFF AT BOTTLE

- 1. Remove stove lid by removing the center screw. (fig. 1)
- 2. Remove 6 screws holding stove to counter.
- 3. Unscrew gas line fitting.

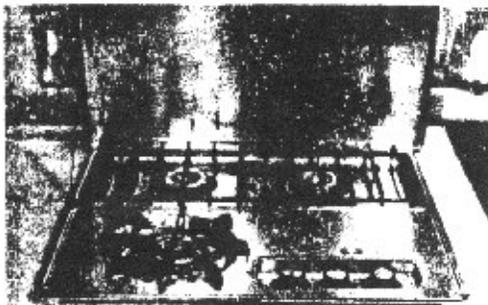


figure 1

4. Install in reverse order.
5. Check gas line fittings for leaks.

d. Furnace. Removal and Installation.

CAUTION: GAS MUST BE SHUT OFF AT BOTTLE

1. Remove exterior grill and chimney by removing screws securing them to body.
2. Remove interior grill.
3. Remove screws securing furnace to cabinet.
4. If furnace is equipped with blower, disconnect harness.
5. Slide out furnace until flexible gas line is visible. Disconnect line and slide out furnace.
6. Install in reverse order of installation using foam tape, Vesely Part Number 41-90-016 as a sealant on exterior grill.
7. Check gas line fittings for leaks.

e. Furnace Blower Removal and Installation.

1. Remove interior grill.
2. Disconnect electrical harness.
3. Remove three screws securing blower assembly to furnace. Remove blower.
4. Install in reverse order of removal. Make certain foam damper is in place to prevent rattles.

6. Install in reverse order.
7. Check gas line fittings for leaks.
8. Check 12 volt.

b. Repairs and/or Adjustments.

1. See refrigerator service manual.
 - A. 1972 Tuco Refrigerator.
 - B. 1973 Instamatic Refrigerator.

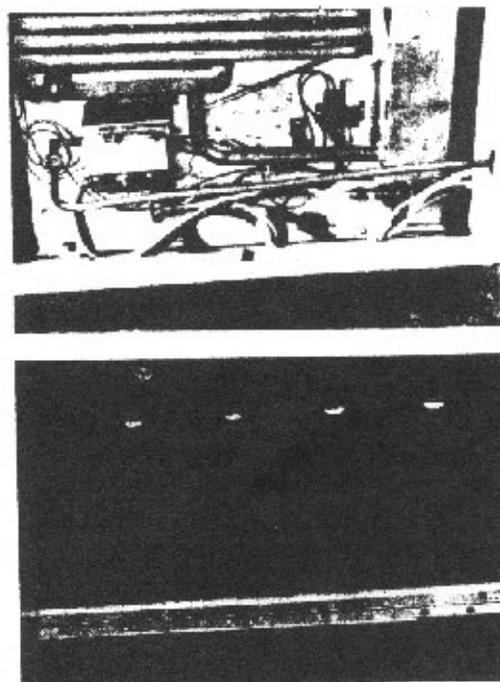


figure 2

3. REFRIGERATOR

CAUTION: Gas must be shut off at bottle.

a. Removal and Installation.

1. Remove four screws in top of refrigerator through round holes in fiber panel on top of bottom cabinet.
2. Open outer vent door and remove two screws in back bottom of refrigerator.
3. Disconnect gas line.
4. Disconnect 12 volt wires.
5. Remove refrigerator from inside of trailer.

4. ICE BOX

The most common problem encountered is stoppage of the drain hose. Generally, this is caused by one of the following:

- a. Food particles or foreign objects lodged in tube.
- b. Hose kinked between bottom of box and floor. Usually correctible by pulling hose below floor.
- c. Hose fed through wrong hole in floor. In this case, it is necessary to remove the four screws securing the box to the cabinet and removing the box. The hose is now fed through proper hole.

A.B.S. PLASTIC REPAIRS

To repair small cracks in side walls or road cover, rough up the area to be repaired with sand paper - then apply a thin coat of M.E.K. Part #5400763. Work the M.E.K. down into the crack and let it dry. Apply a second coat to the surface and when dry it can be sanded or painted. On 85's the textured surface can be re-coated by pressing fiberglass mat into the wet M.E.K.

Larger cracks and even small missing pieces can be repaired or replaced by using fiberglass mat and M.E.K. (order A.B.S. Repair Kit).

Rough up the surface to be repaired as above. Cut a piece of fiberglass that will overlap the broken area by 1". Soak the fiberglass in M.E.K. until it is thoroughly saturated, then cover the broken area with it. Repeat the process on both sides of the break. When its thoroughly dry, depending on size of the break, you may want to apply another layer of fiberglass or just a finish coat of M.E.K., finish sand and paint.

LIVING HINGE

The plastic hinge originally used on the boot ends failed easily. The new product we had build is a fabric hinge (Part #33900150 that holds up beautifully.

Remove the screw that retains plastic hinge, discard plastic hinge and thread new fabric living hinge in place and replace screw to secure in place.

ROAD COVER AND HARD SIDES

1. ROAD COVER

a. Removal and installation.

1. Raise road cover to set-up height and disengage all four side wall roller arms (fig. 1).
2. Lower road cover to height which will allow access to inside corners from outside and yet low enough for cover to be lifted off.
3. Drill out three (3) rivets in each corner securing inner telescope extrusion to road cover (fig. 1).
4. Lift off road cover.
5. Install in reverse order of removal.

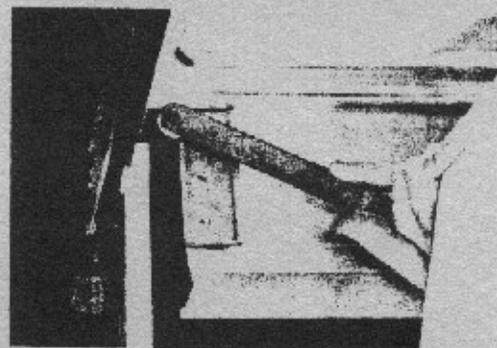
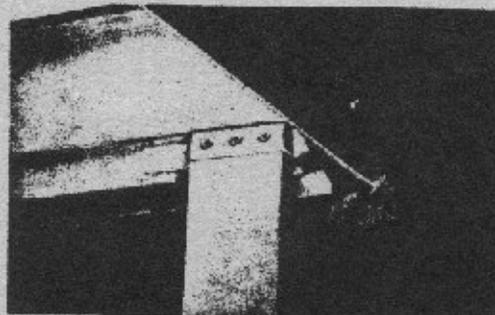


figure 1

b. Vent Fan.

1. Removal and installation

- A. Raise road cover to gain access into interior. From the interior, remove one (1) screw securing fan shroud and screen.
- B. Remove four (4) screws in plate securing fan and shroud.
- C. Disconnect electrical harness (fig. 2).
- D. Fan and shroud can now be lifted off road cover. It may be necessary to pry the shroud due to the adhesive qualities of the sealant.
- E. Clean old sealant off and use new sealant when installing. Install in reverse order of removal.

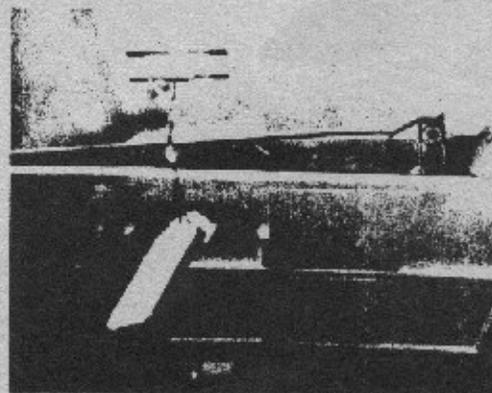


figure 2

c. Dome light removal and installation

1. Remove lens by snapping out.
2. Remove four (4) screws securing light.
3. Disconnect electrical harness and remove light. See Chapter VIII for method of gaining access to wires in road cover.
4. Install in reverse order of removal.