

Chassis

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Chassis

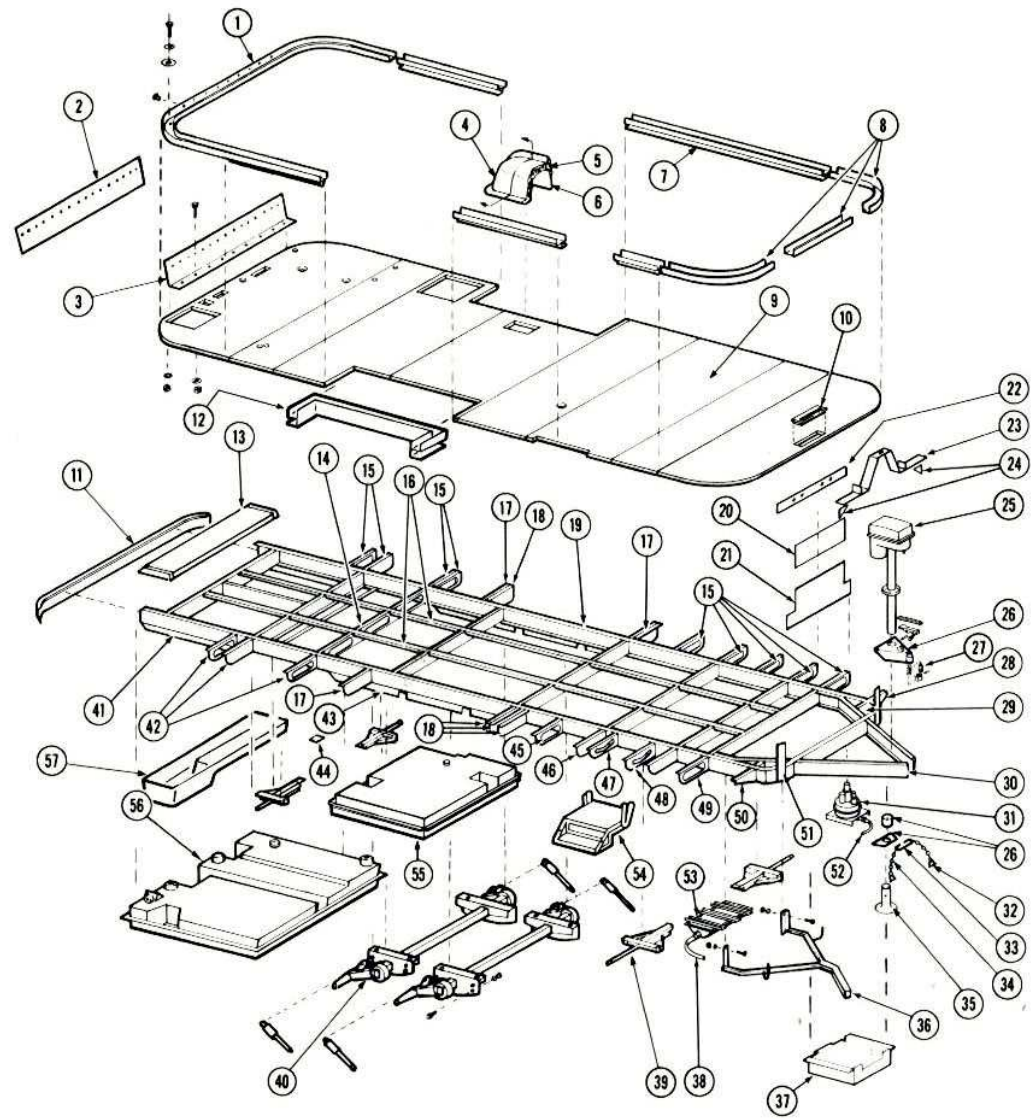


Fig. 1

Chassis Assembly

No.	Part No.	Description			
	410295	Chassis frame assembly (Excella center bath) - Ohio	24	450742	L.P.G. bracket gusset
	410294	Chassis frame assembly (Excella rear bath) - Ohio	25	400457	Power jack with flag holder
	912122	Chassis frame assembly (Excella center bath) - Calif.	26	400042	Hitch marvel, less jack, (see page 1-22)
	912123	Chassis frame assembly (Excella rear bath) - Calif.		680343	Includes the following -
1	101116	Floor channel formed rear		MC353-4	Coupler (MC883) 2 3/8" complete assembly
2	101170	Vinyl clad aluminum		—	Guide plate with modified hole
3	410172	Rear hold down plate	27	MC557	Guide plate bushing
4	200514	Wheel well insulator, interior (see figure 2)	28	410117	Coupler 2 3/8" latch assembly
5	200048	Insulation	29	410123	Outrigger, tapered (roadside)
6	201308	Wheel well, exterior	30	410171	Gusset plate
7	101056	Floor channel	31	400269	Tubing "A" frame
8	100065	Floor channel, formed front	32	400043	Actuator
	101116	Rear floor bow	33	400034	Shackle
9	800047	Firply 1/2"	34	400137	Chain, retaining loop
10	600682	Floor univolt vent	35	400471	Chain, safety
11	450602	Bumper	36	450414	Power jack stand
12	100120	Extrusion, wheelwell stiffener	37	400628	Spare wheel carrier
13	912120	Lid, hose carrier assembly	38	400274	Pan, vacuum booster tank
	380189	Hinge	39	994174	Vacuum reservoir hose
	380392	Hold back spring	40	912044	B.A.L. stabilizer jacks (see page 1-23)
	100595	End cap	41	410166	Axle and running gear assembly (see page 1-10)
	100147	Aluminum extrusion 60 3/8"	42	410115	Rear skid
14	400120	Crossmember, standard	43	400418	Outrigger, pierced (curbside)
	400121	Crossmember, rear		400119	Mounting plate, right hand
	400281	Crossmember, forward	44	385020	Mounting plate, left hand
	400123	Crossmember, notched	45	410115	Jack pad
	400157	Crossmember, solid	46	410019	Outrigger, pierced (curbside)
	400165	Crossmember, pierced	47	400055	Outrigger, solid (roadside)
	400140	Crossmember, holding tank	48	400454	Step outrigger (rear)
	410122	Crossmember, formed	49	410115	Step outrigger (forward)
15	410116	Outrigger, pierced (roadside)	50	410118	Outrigger, pierced (curbside)
16	400136	Longitudinal tubing	51	450428	Outrigger, tapered (curbside)
17	400027	Outrigger, solid notched (right hand)	52	400271	Front hold down plate
18	400026	Outrigger, solid notched (left hand)	53	400270	Vacuum supply hose
19	410281	Chassis channel	54	410169	Disc brake vacuum reservoir
20	101796	Hold down plate	55	942050	Main door step assembly (see page 1-5)
21	450428	Front hold down plate	56	942049	Water tank installation (see page 1-7)
22	450427	Brake vacuum tank mounting strap	57	942080	Waste tank installation (rear bath) (see page 1-8)
23	450426	Gas bottle base		912119	Waste tank installation (center bath) (see page 1-9)
					Hose carrier assembly

Replacement of Wheel Well (Exterior)

1. Remove wheels to allow access.
2. Using no. 30 drill, remove wheel well trim strip.
3. With sharp razor knife cut off old wheel well 2" above main rail around entire periphery and remove.
4. Install 2" aluminum strip (.032 min. thick) behind remaining portion of old wheel well. Pop rivet approximately 12" center to hold it in place.
5. Clean remaining portion of old wheel well and add generous bead of silicon or equivalent caulking compound.
6. With sharp razor knife, cut off lower flange of replacement wheel well.
7. Lift new wheel well into position taking care that the fiberglass insulation is in place.
8. Place 2" wide strip of aluminum (min. .032 thick) on exterior lower edge of new wheel well. Attach with sheet metal screws @ 3" centers thru ext. 2" wide strip, new wheel well, old wheel and 3" strip installed in step 4.
(See fig. 2).
9. Add silicon or equivalent caulking between exterior skin and new wheel well and replace wheel well trim.

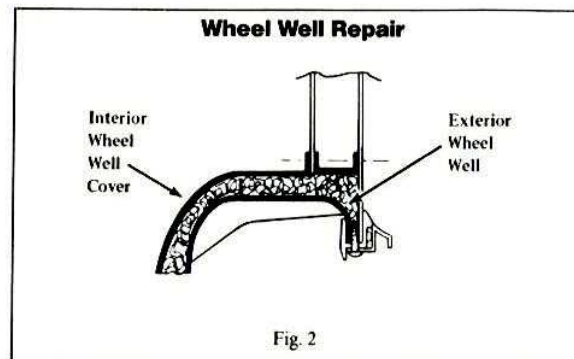
Repair Damaged Wheel Well (Exterior)

Rock damage or split may be repaired as follows:

1. Remove wheel assembly to gain access.
2. Clean dirt from area to be repaired and rough surface with sandpaper.
3. If damage is a crack, drill $\frac{1}{4}$ " hole at each end to stop crack propagation.
4. Caulk surface liberally.
5. Use a piece of aluminum or galv. metal at least 1" larger than damaged area and attach with sheet metal screws.
6. Fillet caulk perimeter of metal plate.

Replacement or Repair of Wheel Well Cover (Interior)

1. Original cover is held in place with screws and/or pop rivets attached to floor and trailer wall.
2. Where furniture does not permit the removal of entire cover, repair to the present cover may be more advantageous.
3. Cut out damaged area and remove.
4. Cut appropriate portion from a new wheel well cover.
5. Install new section, securing its perimeter with screws to floor, wall and original wheel well.
6. Fillet caulk as necessary.



Main Door Step Assembly

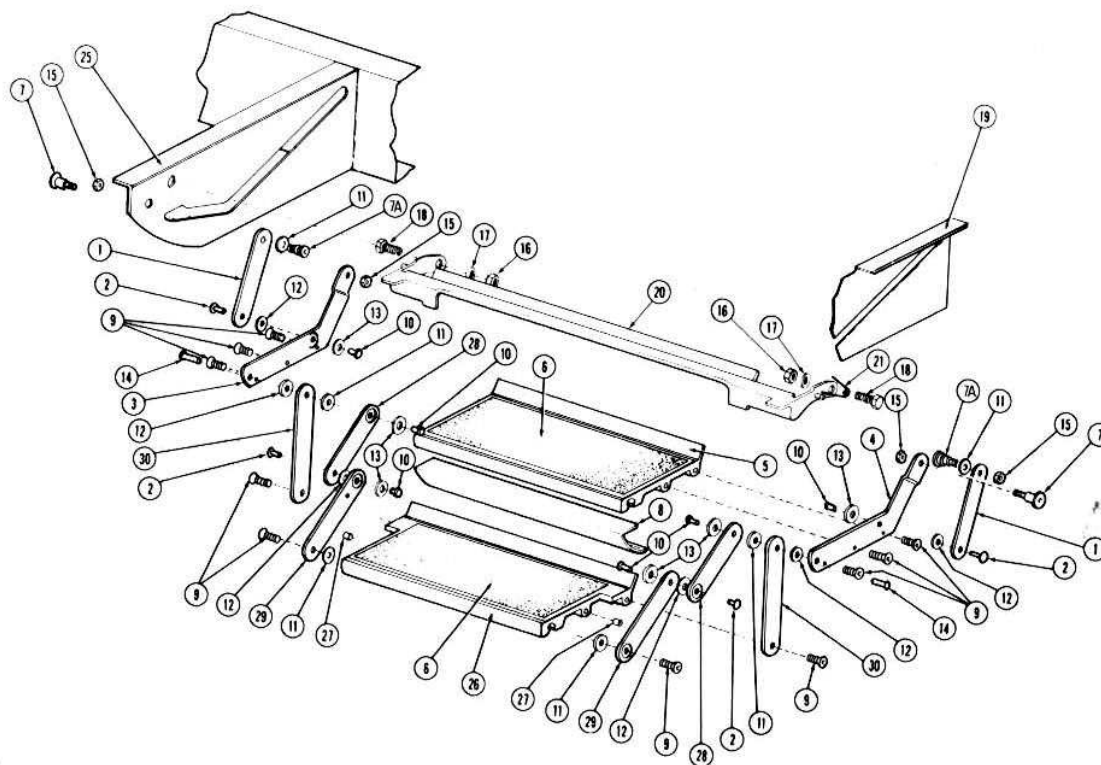


Fig. 3

Step Assembly

No.	Part No.	Description
	410136	Main door step assembly
	912118	Latch assembly
1	*	Arm, support upper
2	*	Pin, hinge
3	*	Step bracket, left
4	*	Step bracket, right
5	*	Extrusion, step 20 1/2"
6	380069	Safety tread
7	01152	Shoulder bolt, 1/2" shoulder 3/8" THD.
7A	01145	Shoulder bolt, 3/8" THD.
8	—	Panel
9	*	Flat head socket screw
10	*	Socket bolt
11	*	Washer, bronze, 3/8" ID x 3/8" OD x .010
12	*	Washer, wave 3/8" ID
13	*	Washer, Alum. 5/16" ID x 1/4" OD x 1/16
14	*	Pivot pin
15	350005	Nut
16	350000	Nut, nylock 1/4"-20
17	300005	Wash, flat 1/4"
18	345016	Screw 1/4" x 20 x 1" hex head
19	400054	Outrigger, R.H.
20	100298	Step release casting
21	450433	Spring
25	400055	Outrigger, L.H.
	*	Part of assembly No. 410136

Auxiliary Step Assembly (Optional)

	410169	Auxiliary step assembly
26	410200	Extrusion, step 20"
27	410201	Spring plunger (bullet catch)
28	400004	Hinge arm, upper
29	400003	Hinge arm, lower
30	400005	Arm, support lower

Main Door Step Removal

1. Using a number 11 drill bit, drill the rivets that attach the underbelly to the step frame.
2. Drill under curved sides of trailer. Use metal snips and cut underbelly from step frame approximately 8" square (both sides of step).
3. The 8" square opening will now permit access to the four bolts (item No. 7) attaching step to mounting frame.
4. Use an allen wrench to hold the head of these bolts and an end wrench to remove the nut. NOTE: The bolt that holds the pivot arm is reversed from the bolt that slides in the slotted outrigger.
5. When replacing, reverse step No. 4.
6. Replace cut-out area using a piece of underbelly approximately 9" square with pop rivets in each corner and one additional rivet centered on each side. Pop rivet size is AD45BS.

Installation Auxiliary Step (Optional)

1. Attach support (Item No. 30) and linkage (Item No. 28) arms to step brackets (left hand, Item No. 3, and right hand, Item No. 4).
2. Attach second linkage arm (Item No. 29) to first linkage arm (Item No. 28).
3. Attach step (Item No. 26) to lower end of support arm (Item No. 30).
4. Attach step (Item No. 26) to lower end of second linkage arm (Item No. 29).
5. Insert screws, bolts, spacers and washers as shown.
6. Use Locktite C to prevent screws and bolts from coming loose.

Bumper Removal and Replacement

1. Remove 4 bolts attaching bumper to frame.
2. Remove bumper.

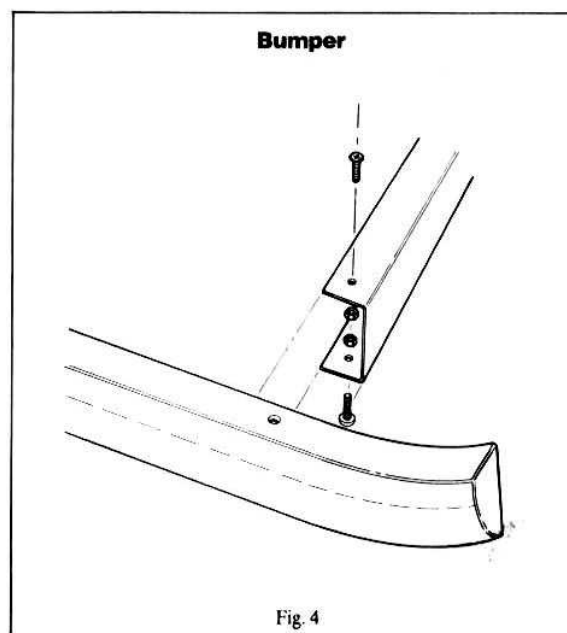
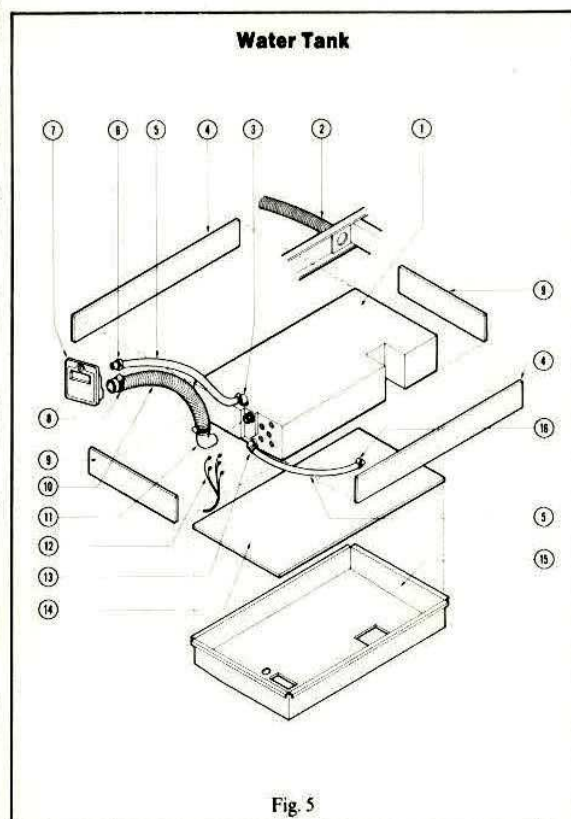


Fig. 4

Floor Splice To Repair a Damaged Floor Section

1. Determine how much damaged section must be removed.
2. Remove no more than necessary, making straight cuts wherever possible (a saber saw can be used). In areas where the outriggers, stringers and main frame are located it will be necessary to use a circular saw in which the cutting depth is only through the wood.
3. After damaged section is removed, use it for a pattern to cut replacement section. If it is not possible to use damaged section, place new section over cut-out area and mark from bottom side. Then, with a saber saw, cut replacement section to fit cut-out area.
4. Using 4" wide pieces of flooring plywood the same length of cut-out area, place a heavy bead of a good wood glue (such as Elmer's glue), approximately 1" from edge on one side and flow the glue the full length of the piece.
5. Fit these strips on the bottom side of the cut-out area, allowing approximately 2" of strip to extend into cut-out area.
6. Secure these strips into place with wood screws every 2" along the edge. (Screws must be counter sunk.)
7. After strips are in place along all sides, apply a bead of wood glue to portion of strip extending in cut-out area, then put replacement section into cut-out area.
8. Install counter sunk wood screws every 2" along edge of replacement section.
9. Any cracks can be filled by using rock hard wood putty. After it is dry it can be sanded to a smooth finish.



No.	Part No.	Description
	942050	Water tank installation (Excella)
1	600833	Water tank
2	600193	Flex heat duct - 2" x 48"
3	600836	Elbow, 3/8 mpt x 1/2 barb
4	200152	Styrofoam - 1/2"
5	600758	Hose, 1/2" Polybutylene
6	340022	Clamp spring 3/8"
7	600351	Water fill spout w/gasket
8	340024	Clamp, No. 24
9	200509	Styrofoam - 1/2"
10	600579	Flex-hose - 1 1/2" x 28"
11	600580	Elbow - 1 1/2 mpt x 1 1/2
12	500443	Probe harness (Excella)
	500509	Probe harness (Airstream)
13	600103	Spring, st7-41
14	200507	Styrofoam - 1/2" x 28 1/2" x 55"
15	600834	Water tank pan
16	340007	Adj. clamp, No. 8
	360001	Sealant, No. 4058
	360074	G. E. Sealant RTV102

Water Tank Removal

1. Empty tank by opening a drain valve or faucet and turn water pump switch on.
2. Remove hose clamps from fill and vent pipes. Remove heat duct.
3. Disconnect water tank probe wires (these are push-together connectors) in area below galley.
4. Loosen clamp on discharge line leading from tank to water pump and remove line from tank.
5. Under trailer, remove clamps securing gas lines.
6. Disconnect gas lines and swing them free of water tank area. In some cases, depending on model, the lines can be moved without disconnecting. On a few models the lines leading to the shut-off valves must be removed.
7. Support center of support pan and tank with floor jack.
8. Remove bolts securing support pan to chassis.
9. Lower support tank pan assembly.
10. When installing, reverse above steps, making sure styrofoam strips are reinstalled.
11. When reinstalling gas lines, be sure to check for gas leaks. Be careful not to get dirt into line when inserting through floor area.
12. Water check when connections are completed.

Main & Auxiliary Waste Tank (Rear Bath)

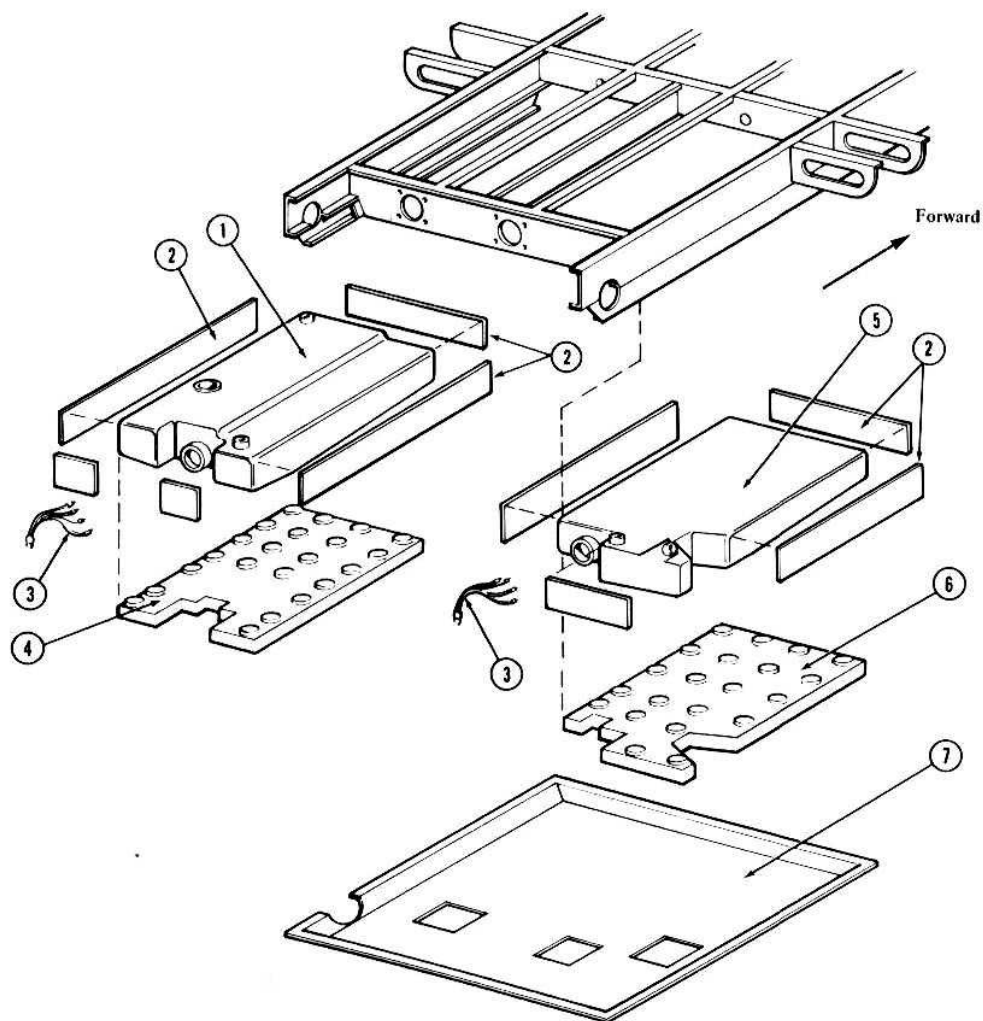


Fig. 6

No.	Part No.	Description
	942049	Waste tank installation (Excella)
1	600494	Holding tank, main
2	200151	Styrofoam 1/2" x 6"
3	500443	Probe harness (Excella)
	500509	Probe harness (Airstream)
4	200282	Slope pad, main tank
5	600495	Holding tank auxiliary
6	200283	Slope pad, auxiliary tank
7	600572	Pan holding tank

Main & Auxiliary Holding Tank Removal and Replacement (Full Bath)

1. Empty both tanks. If tanks are not completely emptied they may be damaged during the removal procedure.
2. Remove bumper and hose carrier liner.
3. Remove vents and drain lines from tank being removed. Remove toilet if main holding tank is being replaced. Unplug the fluid level wires from tank.
4. Remove 4 screws securing slide valve to tank being removed. Access gained through rear service compartment.
5. Support tank pan with floor jack.
6. Remove bolts securing tank support pan to chassis.
7. Lower support pan and tank(s) assemblies.
8. Replace the pad material if sewage has come in contact with it.
9. Transfer termination valve to new tank.
10. Apply adequate sealant between support pan flanges and chassis to insure a proper seal.
11. Replace by reversing above procedures.

NOTE: Check replacement tank for leaks by filling with water before and after installation.

Main & Auxiliary Waste Tank (Center Bath)

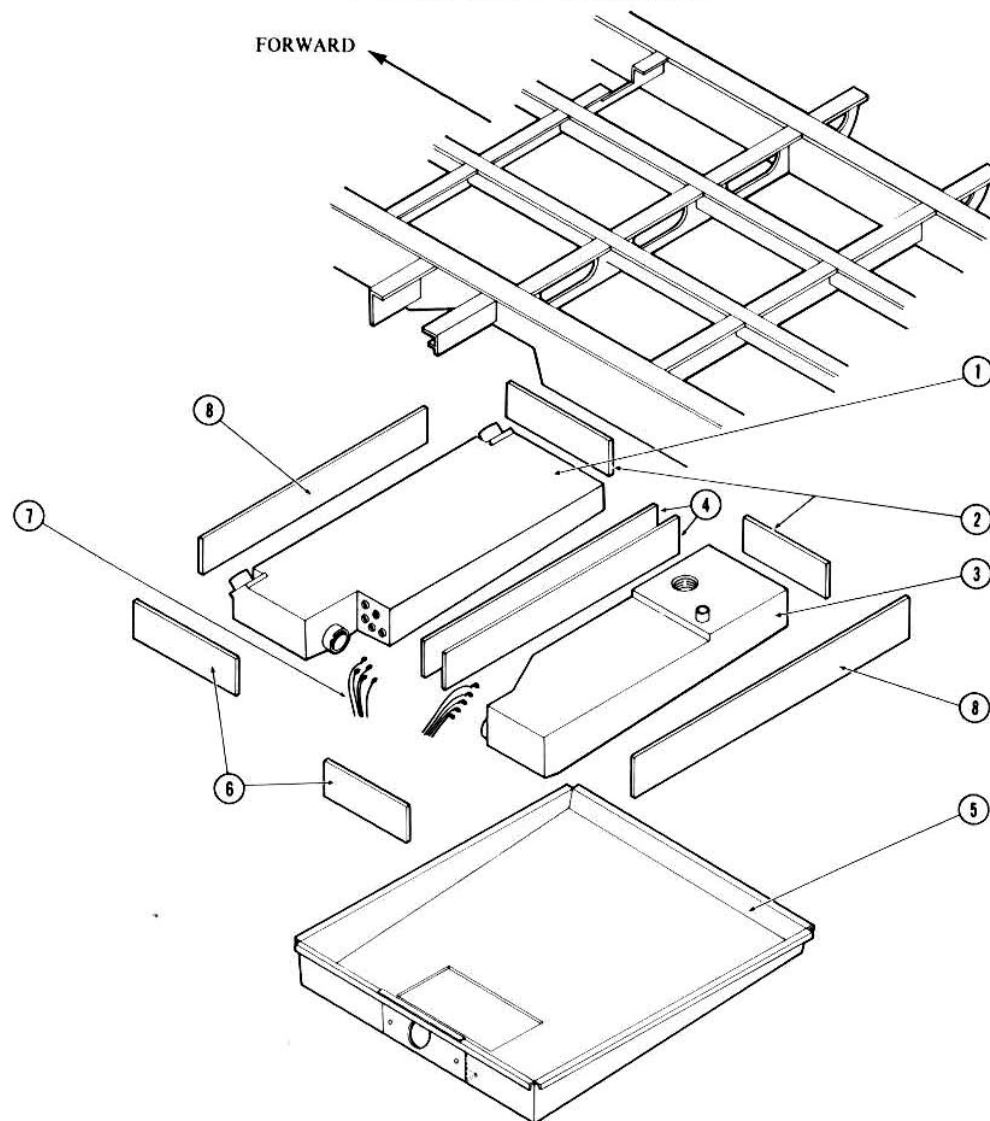


Fig. 7

No.	Part No.	Description
	942080	Waste tank installation
1	600844	Holding tank, auxiliary
2	200501	Styrofoam 1/2" x 9" x 15"
3	600843	Holding tank, main
4	200500	Styrofoam 1/2"
5	600849	Holding tank, pan
6	200502	Styrofoam 1/2" x 6 1/2" x 22"
7	500443	Probe harness (Excella)
	500509	Probe harness (Airstream)
8	200503	Styrofoam 1/2"

Main & Auxiliary Waste Tank Removal and Replacement (Center Bath)

1. Empty tank completely. If tank is not completely emptied it may be damaged during this removal procedure.
2. Remove drain lines.
3. Unplug liquid level wires.
4. From under trailer remove waste tank access panel.
5. Support tank pan with floor jack.
6. Remove bolts which secure tank pan to chassis, remove pan.
7. Remove drain outlet from drain pipe. It is not necessary to remove slide valve.
8. Lower tank.
9. Replace by reversing above procedures, apply adequate sealant between support pan flanges and chassis to insure a proper seal.

NOTE: Check replacement tank for leaks by filling with water before and after installation.

Axle & Running Gear Assembly

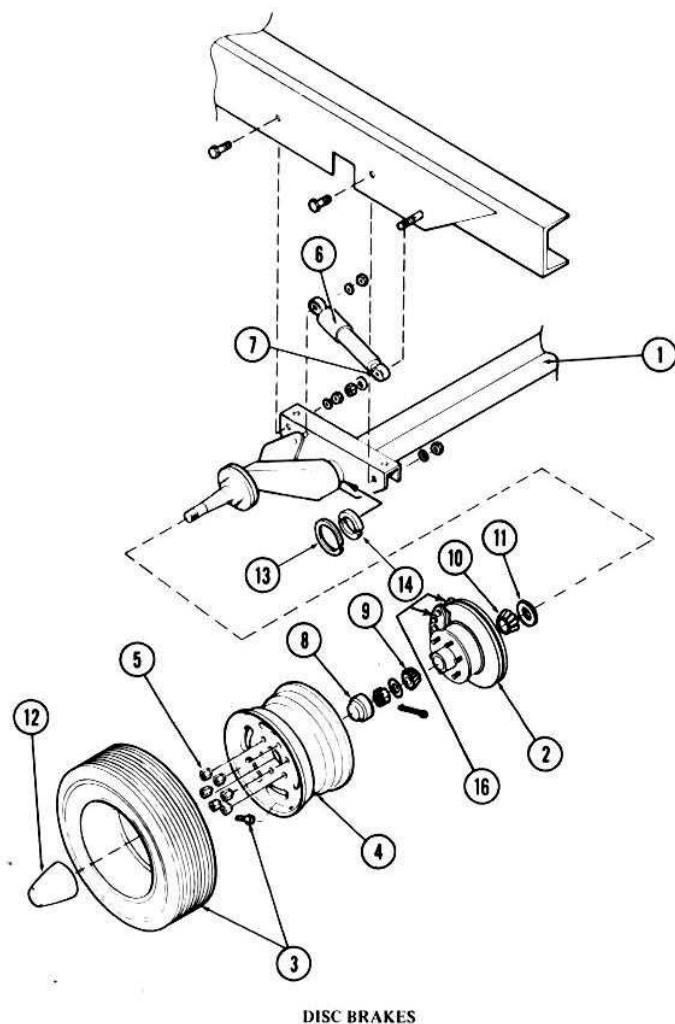


Fig. 9

Running Gear Assembly - Tandem

No.	Part No.	Description
1	410126	Axle assembly (23", 25T & D) 2600 lbs.
	410128	Axle assembly (28" and 31") 3200 lbs.
	410193	Axle assembly (Excella) 4000 lbs.
2	400197	Hub and rotor
3	400038	Tire, black wall (load range C)
	400037	Tire, white wall (load range C)
	410007	Michelin tire and tube, (alum. wheel only) (load range C)
	410318	Tire and wheel assembly, 8 ply Michelin
	410009	Valve stem
4	410067	Wheel - steel
	410012	Wheel - forged aluminum
5	400201	Lug nuts
	410250	Lug bolt
6	400008	(Delco) shock absorber
7	400040	(Delco) shock absorber bushing (8 per axle)
8	450661	Dust cover
	400198	Dust cover (Excella)
9	450658	Outer bearing
10	450659	Inner bearing
11	450660	Grease seal
12	410011	Spindle cover (aluminum wheel only)(Excella)
13	410071	Retainer ring
14	410070	Nylon bushing
15	360079	Grease, wheel bearing (MIC 75-B)
16	400183	Disc brake caliper and mounting - curbside
	400184	Disc brake caliper and mounting - roadside
17	400086	Unicast hub and drum (Kelsey-Hayes 85451)
18	400089	Brake set (Pair)

Axle Removal and Replacement

1. Jack trailer at marked jack pads behind axle on main frame. Raise trailer until wheels clear by at least 1".
2. Remove wheel and tire assembly.
3. Disconnect brake wires or hydraulic lines.
4. Remove upper attachments of shocks.
5. Support axle at center with floor jack.
6. Remove 2 attachment bolts at each end of axle.
7. Lower axle with floor jack.
8. Check shocks for leakage or other visual damage - replace if necessary.
9. To replace, reverse procedure.

Axle Nylon Bearing Replacement

1. Jack up trailer to remove all weight from the wheels.
2. Take a $\frac{1}{8}$ " rod and flatten one end. Bend rod $\frac{1}{2}$ " from flat end at approximately 45 degree angle.
3. Insert flat end of tool under end of bearing retainer ring and pry ring out of torsion arm cup.
4. Using a wire with a $\frac{1}{8}$ " hook on one end, insert into joint between the two bearing halves and work out one-half bearing at a time. It is helpful to blow compressed air into this joint which will build up pressure behind the bearing and help in its removal. In some cases it may be necessary to break the bearing with a chisel and remove it in small sections.
5. Clean bearing cup of all dirt and chips.
6. Lubricate new bearings with a good quality wheel bearing grease and insert top bearing into cup with rounded edge going first. Repeat with lower bearing.
7. Replace steel retainer ring, making sure it has seated into the ring groove.

Inspecting Shock Mountings

If noisy and/or loose shock mountings are suspected, place vehicle on hoist that supports wheels and check all mountings for the following conditions:

1. Worn or defective grommets
2. Loose mounting nuts
3. Possible interference condition

If no apparent defects are noted in this step but noise condition still exists when vehicle is bounced up and down, proceed.

Inspecting Shocks for Possible Loss Of Hydraulic Fluid

1. Disconnect each shock lower mounting as required and pull down on the shock until it is fully extended.
2. Inspect shocks for leaks in seal cover area. Shock fluid is a very thin hydraulic fluid and has a characteristic odor and dark brown tint.

Certain precautions should be observed when inspecting shocks for leaks:

- a. Shocks may have glossy paint on them. Do not confuse this paint with a leak condition.
- b. A slight trace of shock fluid around the seal cover area is not cause for replacement. The shock seal is engineered to permit a slight seepage to lubricate the rod. The shock absorber has reserve fluid to compensate for the slight seepage.
- c. Shocks are sometimes incorrectly diagnosed as leakers due to oil spray originating from some other source. If in doubt, wipe the wet area and manually operate shock. Fluid will reappear if shock is leaking.

Shock Replacement

1. Remove upper attachment of shock.
2. Remove lower attachment of shock and slide off of stud. Because of minimum clearance between the stud and axle mounting plate, the shock may have to be slightly twisted or rotated to remove.
3. To replace reverse procedure.

Wheel Bearing Maintenance (Hydraulic Disc Brakes)

1. Jack trailer at marked jack location pad under trailer behind axle on main frame.
2. Index marks should be added to wheel and rotor. Realign these marks when replacing wheel thus eliminating the need for wheel rotor rebalance.
3. Remove hub cap or spindle cover, wheel and tire.
4. Remove dust cap.
5. Remove brake linings as described in section "Brake Lining Replacement". This requires removal of clevis pins and clip pins.
6. Remove four (4) brake assembly bolts, brake lining, backing plate and two (2) spacers.
7. Remove cotter pin.
8. Remove spindle nut and washer.
9. Remove outer wheel bearing cone and roller assembly from hub.
10. Remove hub and rotor assembly from spindle. (Fig. 9)
11. If dust shield or mounting bracket needs to be replaced, see section on replacing rotor splash and mounting bracket.
12. Lay rotor down on a clean surface with inside grease seal down. Knock out inner bearing and grease seal, using wood or plastic dowel and hammer.
13. Clean all parts thoroughly with kerosene.
14. Check all bearings and races for chips or roughness of any kind. Any damaged components must be replaced.
15. Pack bearings with a good grease (No. 2 grade - 265 ASTM penetration or equivalent).
16. Install inner bearing.
17. Install new grease seal in rotor using wooden or rawhide mallet.
18. Slide hub and rotor assembly on spindle, with wheel mounting studs facing out.
19. Install outer bearing, thrust washer, and spindle nut.
20. While rotating the wheel, tighten the spindle nut with a 12 inch wrench until there is a slight tension. Then back off one notch and install cotter pin. There should now be from .001" to .010" end play in the hub. If not, back off one more notch. If it is necessary to check rotor run out, do according to steps 21, 22, 23. If run out is determined to be OK, skip the next 3 steps and proceed to step 24.
21. Install a dial indicator and check the run out of the rotor on both sides. The run out must not exceed .020 inches.
22. Important: after checking rotor run out to specification, readjust wheel bearing clearance.
23. If rotor run out exceeds specifications, discard and replace hub and rotor assembly, if new bearings do not correct run out.
24. Clean grease dust cap, coating the inside with wheel grease (do not fill) and install the cap.
25. Reinstall brake lining backing plate and brake linings by reversing the removal procedures.
26. Install the dust cap.
27. Install the tire and wheel, making sure all wheel bolts are properly torqued to specifications. (See item No. 2 for indexing.)
28. Advise customer to check and retighten the lug bolts if necessary, every 50 miles for the first 200 miles of travel. They should be tightened to a torque of 90-95 ft. lbs. on the standard steel wheel and on the optional forged aluminum wheel.
29. Care should be taken at all times when handling the forged aluminum wheel because of possible damage to its appearance.

Axle Alignment

To better understand trailer axle alignment, it is helpful to know some of the cases of excessive tire wear. In the following paragraphs and photographs, we will describe some of the possible causes and their remedies.

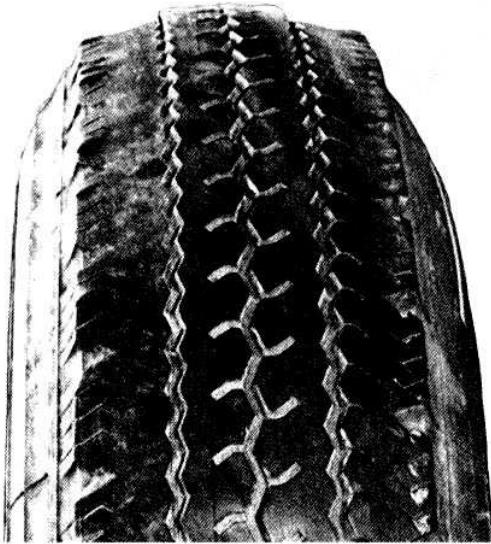


Fig. 10

UNDER INFLATION is probably the greatest cause of excessive tire wear. (See Fig. 10). Unlike the wear of a passenger car tire, the under inflated trailer tire will usually wear on the outer edges only. This is due to the high profile of the trailer which will rock from side to side on soft tires. The curbside tires usually wear faster than the roadside. The reason for this being that on crowned roads, the trailer leans slightly to the curbside, causing the outer edge of the tire to roll under.

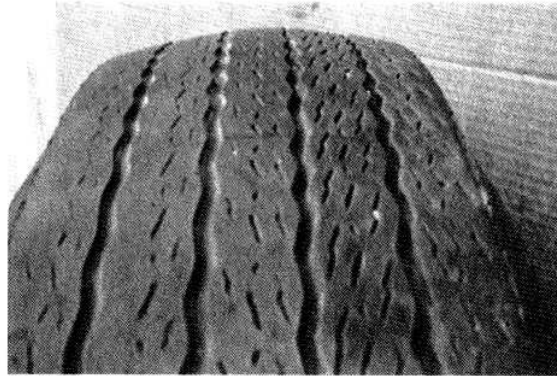


Fig. 11

IMPROPER TOE IN would be the second most common cause of excessive tire wear. A tire which has an excessive amount of toe in or toe out will cause the tire to side slip as it is traveling down the highway. This type of misalignment will wear the tread with a sharp edge on one side and a rounded edge on the other side. For instance, a tire with too much toe in (See Fig. 11), will wear the outer edge of the tire in much the same manner as an under inflated tire, except that the grooves of the tread will have a sharp edge on the inward side of the tire. A tire with toe out will wear the inner edge of the tire with the sharp edges of the tread grooves being on the outer edge.

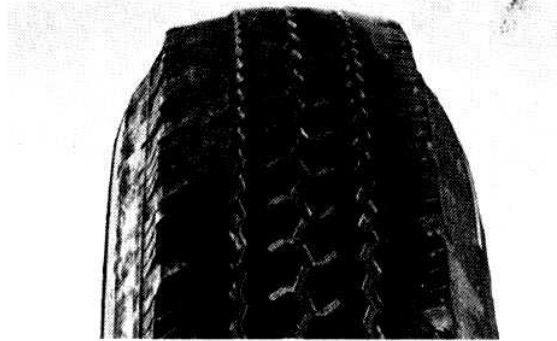


Fig. 12

CAMBER is the smallest offender of alignment problems since it has to be extremely out of tolerance before any great tire wear is noticed. A wheel with too much positive camber will wear the outer half of the tire, while a wheel with negative camber will wear the inner half of the tire. In each case, the tread will wear evenly around the tire. (See Fig. 12) not in spots as seen with improper toe in (See Fig. 11).

Alignment Procedure

1. Jack trailer at marked jack location pad behind axle on main frame and check for any loose wheel bearings. This should have from .001 in. end play. See bearing adjustment, page 1-14.
2. With the trailer jacked up, check for bent wheels and run out in the tires by holding a piece of chalk on a steady rest, spinning the wheel and moving the chalk in against the spinning wheel side wall just far enough to mark the point of greatest run out. Any wheel with more than one eighth inch run out should be replaced if maximum tire life is to be expected.

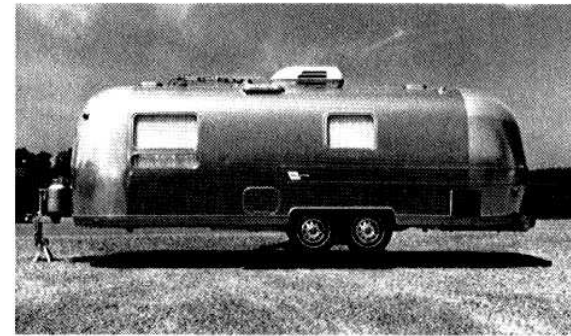
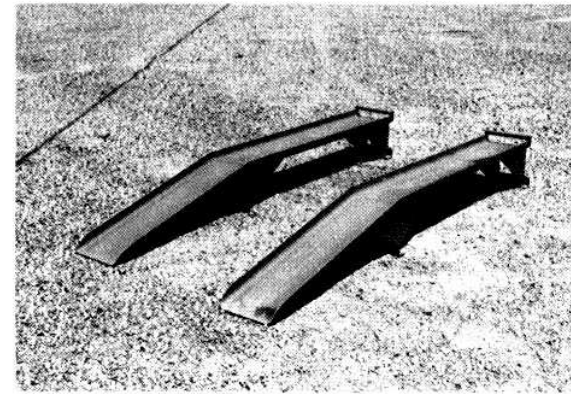


Fig. 13

3. Remove jacks and pull trailer up on a pair of eight inch ramps to provide room to work under the trailer. Raise front of trailer until trailer is level (See Fig. 13).

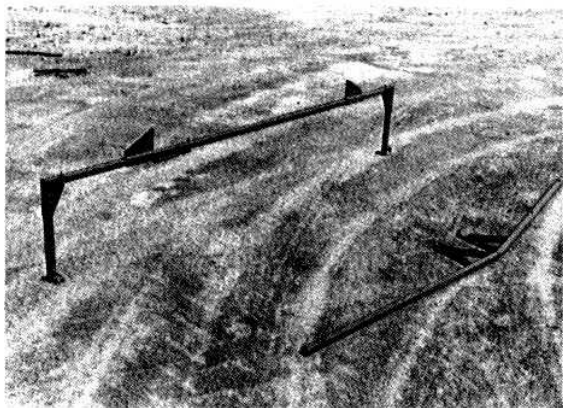


Fig. 14

4. Checking toe-in requires a special toe gauge. (See Fig. 14)

5. Install the rear position of the alignment gauge under the trailer (See Fig. 15) and behind the rear wheels. The gauge cross bar should be up against the underside of the main frame members, and just touching the rear wheel tires. The fixed upright flange on the gauge cross bar should be against the outer surface of the roadside main frame member, and the moveable flange adjusted to come up against the corresponding surface on the curbside frame member. Adjust the height of the gauge support legs as necessary to keep the gauge in position. (See Fig. 16).

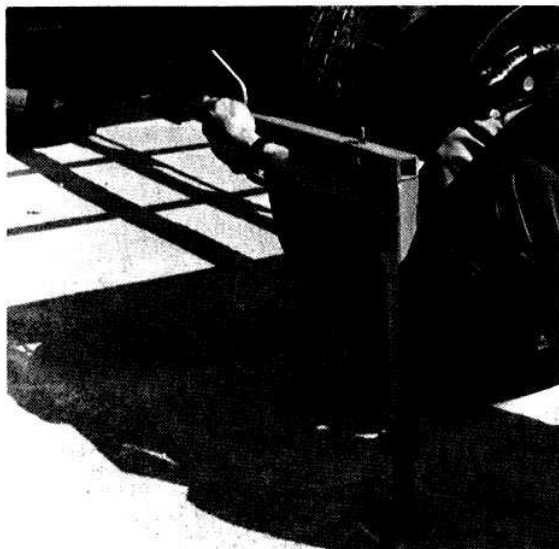


Fig. 15

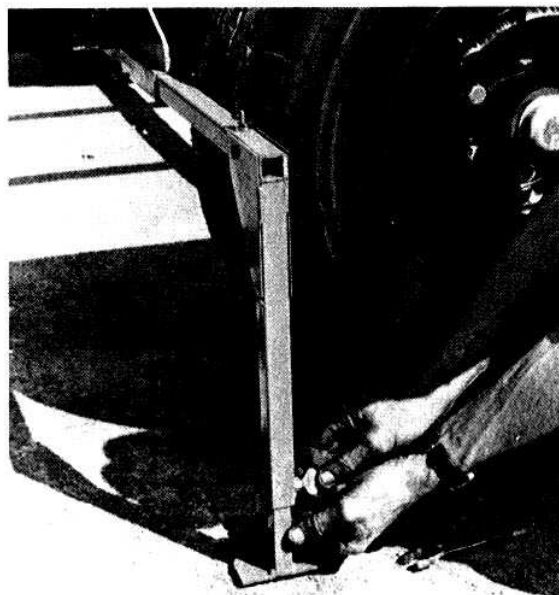


Fig. 16

6. Set the front portion of the gauge on the trailer "A" frame so that the "V" shaped flanges in the center, span the front of the "A" frame and the center mark of the "V" is pointing to the center of the hitch coupler. (See Fig. 17).

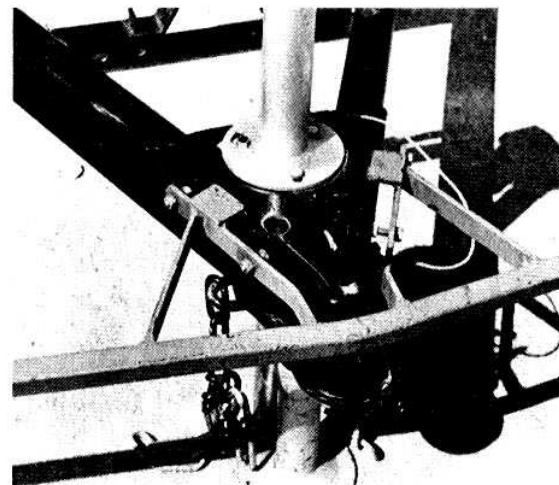


Fig. 17

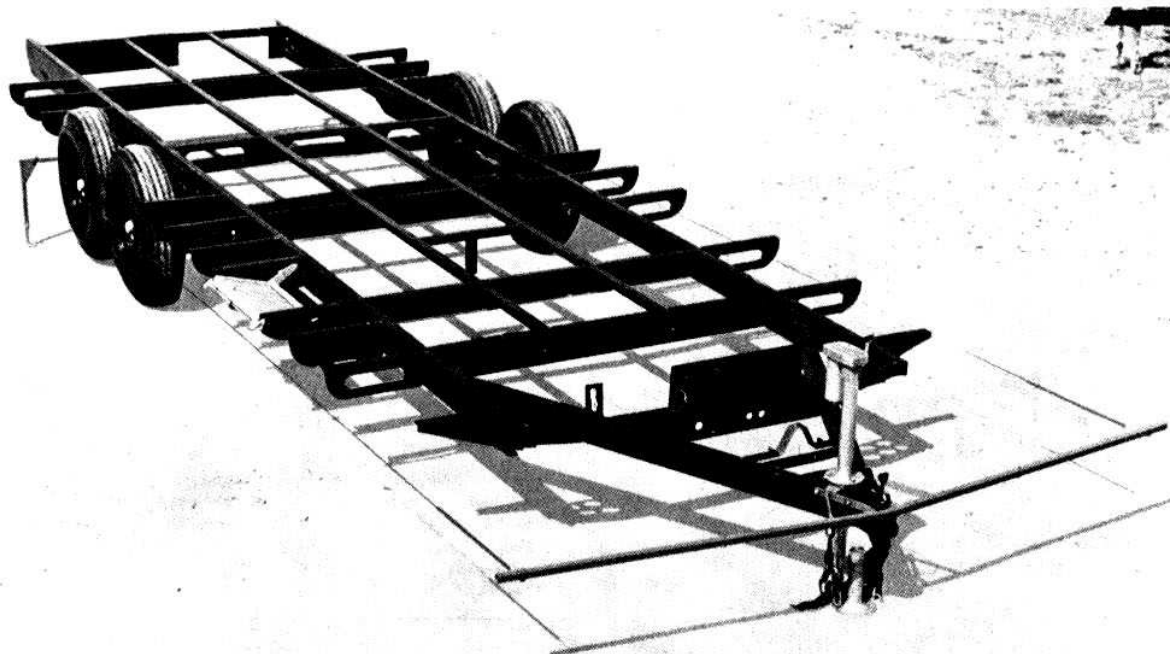


Fig. 18

7. Attach the spring ends of the left and right gauge cables to the pins on the underside of the front gauge member. Attach the other ends of the cables to the corresponding pins on the rear gauge member.

8. Adjust the length of the cables alternately until there is sufficient spring tension on each to keep them taut and straight. (See Fig. 18).

9. Toe in is determined by comparing the distance the forward portion of the tire side wall is away from the gauge cable with the comparable distance for the rear portion of the sidewall. If a chalk mark occurred in step 2, it should be at the top or bottom before toe in checking. (See Fig. 19). If the two areas measured are equal, you have "0" toe in. The acceptable tolerances are shown on page 1-16. If correction is necessary, bend axle tube with a hydraulic bender (See Fig. 21). The proper use of the bender is described on page 1-16.

CAUTION: DO NOT APPLY HEAT TO AXLE TUBE. THE ELASTOMERS INSIDE THIS TUBE WILL BE DESTROYED IF HEAT IS APPLIED.

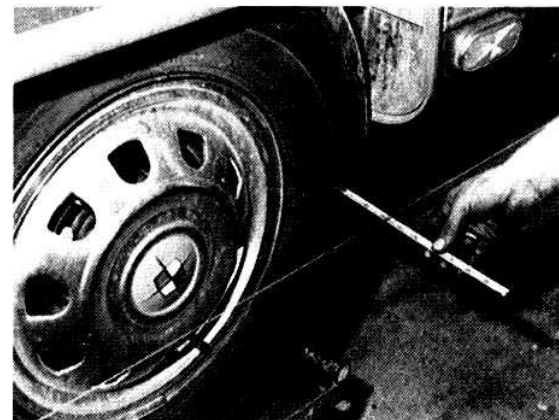


Fig. 19



Fig. 20

10. Checking camber: If chalk mark occurred in Step 2, it should be at front or rear. Any standard automotive type camber gauge may be used to check camber. Ammco Model 7825 shown. (Fig. 20) Follow instructions furnished with gauge.

Duo-Torque Axle Alignment Specifications

Toe In Each Side 1/16"	Tolerance 1/16" plus or minus
Camber Each Side 3/4 Degree Pos.	Tolerance 3/4 Degree plus or minus

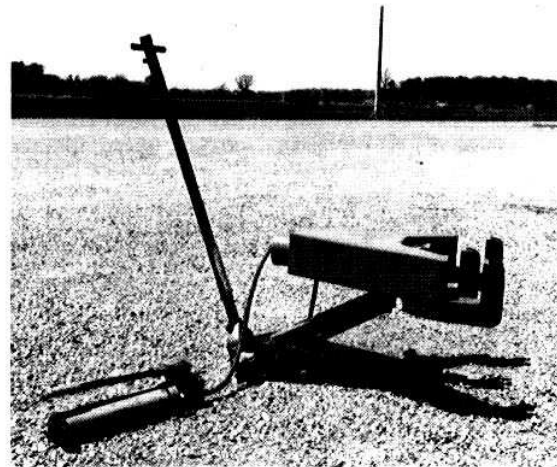


Fig. 21

Use of the Hydraulic Axle Straightener (Model 3410001)

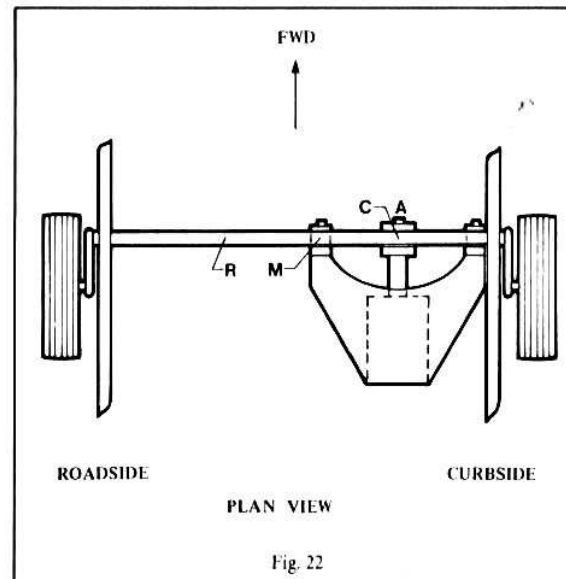


Fig. 22

In order to make the following axle adjustments, it will be necessary to first remove the water tank. See page 1-7 for removal procedures.

1. Attach straightener to any standard floor jack. (See Fig. 21)
2. Place cylinder jaw (A) at position (C) to correct curbside wheel. (See Fig. 22)
3. Place cylinder jaw (A) at position (R) to correct roadside wheel.
4. Place cylinder jaw (A) at position (M) only when both wheels need to be bent equal amounts in the same direction.
5. Cylinder jaw (A) is moved toward front of the trailer to decrease the amount of toe in.
6. Cylinder jaw (A) is moved toward rear of the trailer to increase the amount of toe in.
7. To determine the amount axle has been bent, place a mark on the underbelly of trailer along axle tube. Hold pencil along tube while bending and place a second mark on underbelly after bending. The distance between these two marks represents approximate movement of the wheel.
8. For use of a straightener to correct camber, remove from the jack and swing into a vertical position (hanging on the axle tube). Use in the same manner as for toe-in, except that moving cylinder jaw up increases camber and moving it down decreases camber. This may require cutting of underbelly for clearance.

ALIGNMENT EQUIPMENT REQUIRED

AMMCO CAMBER GAUGE Model No. 7825 (Part #0290022) (Fig. 20)

HIENSCHEN TOE GAUGE (Part #3410007) (Fig. 18)

HYDRAULIC AXLE STRAIGHTENER (Part #3410001) (less floor jack) (Fig. 22)

FLOOR JACK (1 1/2 ton)

RAMPS (8" high) (Part #3290010) (Fig. 13)

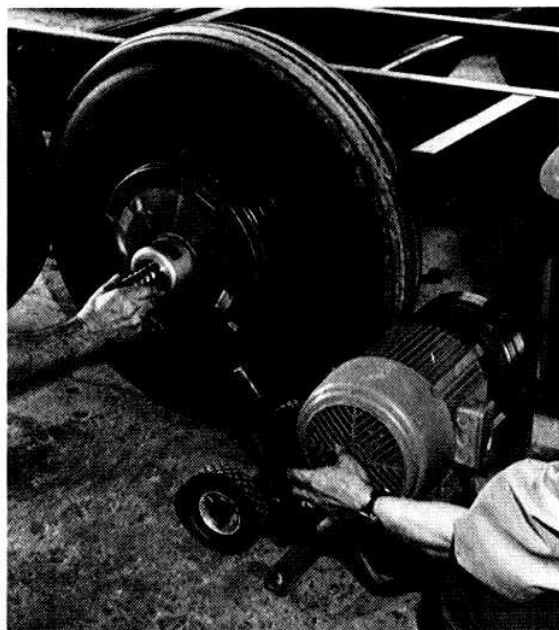


Fig. 23

Wheel & Tire Maintenance

1. Air Pressure

Air pressure is important and should be checked often and only when tires are cool. (At running temperature pressure increases and should not be bled.) See chart for correct p.s.i.

2. Balancing

Proper balance of wheel and tire assemblies is very important. Out-of-balance can set extreme vibration that could eventually cause structural damage to the trailer and its interior components.

Balance within the first 1000 miles. If a tire is repaired, it should be rebalanced.

Several methods of balancing are available, with bubble balancing and spin balancing two common methods.

Be sure to rebalance the tire, wheel hub/rotor assemblies each time a tire is changed.

3. Changing Tires

Jack trailer at jack location pad behind axle on main frame. A flat tire may be changed without the aid of a jack on tandem trailers by pulling onto a ramp until the wheel to be removed spins free.

4. Repaired Tires

Use tire removal/Installation equipment as shown in Fig. 23; remove tire from rim.

5. Troubles and Remedies

TROUBLE	REMEDY
WHEEL SHIMMY	
A. Loose wheel bolts.	A. Tighten up 90-95 ft.-lbs. torque on steel wheel and aluminum wheel.
B. Loose or broken wheel bearing.	B. Tighten spindle nut or replace bearing and adjust. See p. 1-12.
C. Bent Wheel.	C. Replace.
D. Improper axle alignment.	D. Align axle. See p. 1-13 thru 1-16.
E. Wheel out-of-balance.	E. Balance wheel. See para. 2.

IMPROPER TIRE WEAR

A. Improper air pressures.	A. Inflate tires to correct pressures.
B. Improperly acting brake.	B. Correct as required. See Brakes, Sec. 2.
C. Improper axle alignment.	C. Align axle. See pgs. 1-13 thru 1-16.

Tubeless Tires

These tires have an inner liner which, if punctured, tends to cling to the penetrating object forming a partial seal until the object is removed from the tire. It is essential to conduct a periodic pressure check according to the tire inflation tables on the following pages plus a visual tire inspection to detect imbedded objects which might otherwise go unnoticed and cause serious casing damage.

Tread Wear

When the depth of tread becomes $\frac{1}{16}$ -inch or less, there is a significant decrease in traction and anti-skid properties, also, the majority of tire troubles will occur in the last 10% of tire life.

Tire Inflation Pressure (PSI) Cold Inflation

Model	7.00 x 15 Load Range C	7.00 x 15 XC Steel Radial tires
23, 25 FT. TANDEM AXLE	35 PSI	35 PSI
28, 31 FT. TANDEM AXLE	40 PSI	45 PSI

Tire Load and Inflation Pressure Notes

1. Tire inflation pressure may increase as much as 6 pounds per square inch (PSI) when hot.
2. Cold tire inflation pressure: after vehicle has been inoperative for 3 hours or more, or driven less than 1 mile. Hot tire inflation pressure: after vehicle has been driven 10 miles or at speeds of more than 60 miles per hour.

Wheel Nut Torques

On a new vehicle or after the wheel has been changed, the wheel nut torque must be checked at 100, 1,000 and 6,000 miles and every 6,000 miles thereafter. The proper torque is 90-95 ft. lbs.

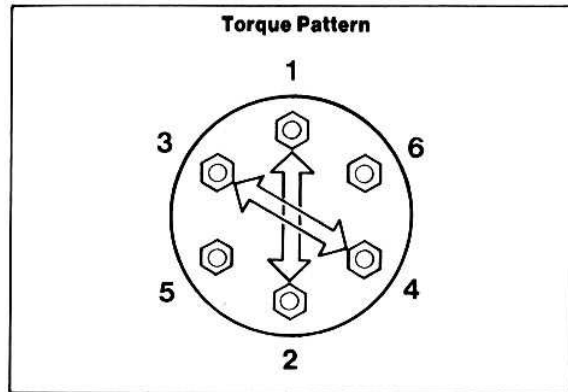


Fig. 24

Wheel and Tire Balancing

It is desirable from the standpoints of tire wear, vehicle ride and handling ease to maintain proper balance of wheel and tire assemblies on all models. This may be accomplished by either of the two types of balancing systems in current use which balance wheels either on the vehicle or off. The "on the vehicle" type, however, is the more desirable in that all rolling components (brake rotors, bearings, seals, etc.) are included in the balancing procedure and thereby have any existing unbalance corrected.

Static Balance

Static balance (sometimes called still balance) is the equal distribution of weight of the wheel and tire assembly about the axis of rotation in such a manner that the assembly has no tendency to rotate by itself, regardless of its position. Any wheel with a heavy side is statically out of balance. Static unbalance of a wheel causes a hopping or pounding action (up and down) which frequently leads to wheel "flutter" and quite often to wheel "tramp".

(CAUTION: A wheel with a chunk of dirt on the rim will always rotate by itself until the heavy or dirty side is at the bottom, so it is important to clean wheels before balancing.)

Dynamic Balance

Dynamic balance (sometimes called running balance) means that the wheel must be in static balance, and also run smoothly at all speeds.

To insure successful, accurate balancing, the following precautions must be observed:

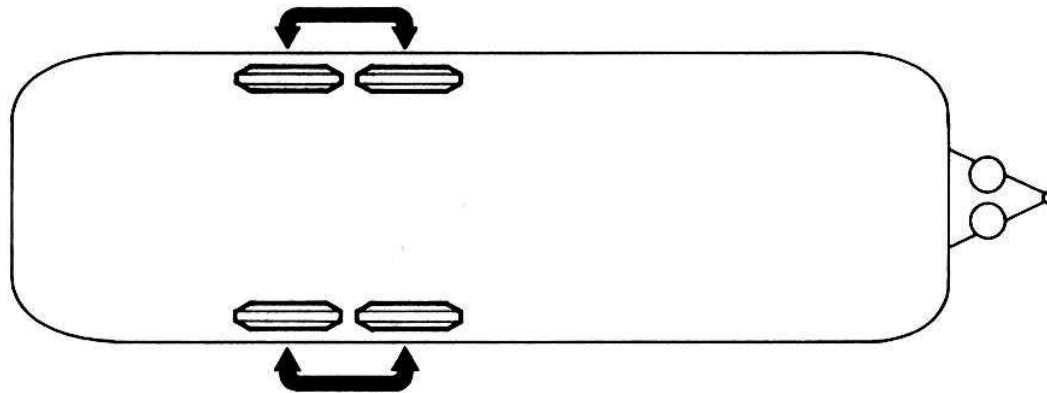
1. Wheel and tire must be clean and free from all foreign matter.
2. The tires should be in good condition and properly mounted with the balance mark on the tire, if any, lined up with the valve.
3. Bent wheels that have runout over $1/16$ " should be replaced. (Fig. 25)
4. Inspect tire and wheel assembly to determine if an eccentric or out-of-round condition exists. Note that this condition, if severe, cannot be "balanced out." An assembly which has an out-of-round condition exceeding $3/16$ " must be replaced.
5. When balancing wheels and tires, it is recommended that the instructions covering the operation of the wheel balancer being used be closely followed.



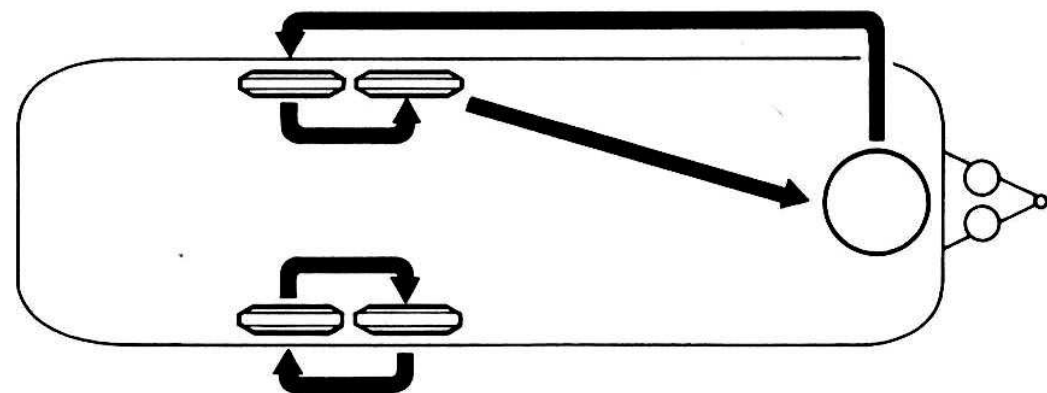
Fig. 25

Tire Rotation

7:00-15 LRD



Without Spare



With Spare

Fig. 26

Super Power Jack Assembly

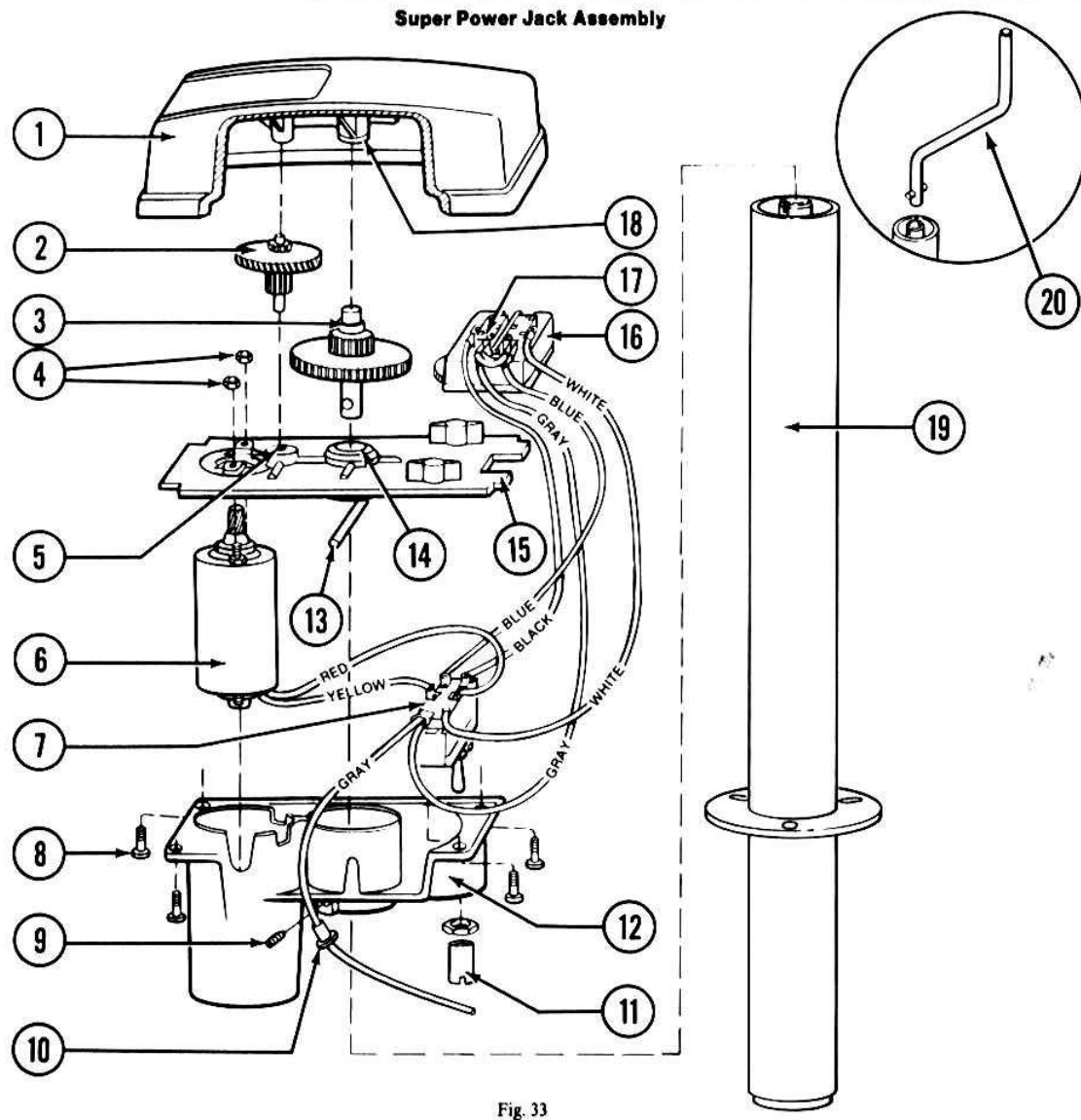


Fig. 33

Super Power Jack (Model 12250)

No.	Part No.	Description
	400457	Super power jack
	12251	Power head (less jack post)
1	12198	Cover
2	10051	2nd/3rd Gear assembly
3	11675	Drive gear assembly
4	80186	Lock nut, No. 10-24
5	80501	Bushing No. 3, 3/16"ID x 5/16" OD x 1/4"
6	12063	Motor assembly
7	81704	Toggle switch
8	81033	Screw No. 8 x 1/2", type 23, P.H. Phillips
9	81107	Set screw 1/4" - 20 x 5/16"
10	80504	Strain relief bushing
11	10069	Metal switch cover
12	12199	Motor and switch housing
13	80425	Groove type pin
14	80520	Bushing 7/16"ID x 5/8"OD x 5/8"
15	12200	Plate centering
16	12252	Limit switch assembly
17	81703	Micro switch
18	10055	Bushing No. 2, 5/16"ID x 7/16"OD x 3/8"
19	11631	Mechanical ball jack post (less power head)
20	10068	Emergency handle
	80600	Hex wrench (not shown)
21	400471	Power jack stand (not shown)

"Super Jack" Installation, Operation and Maintenance

Installation

1. Raise trailer front end and use blocks for support while removing your present jack.
2. The Super Jack requires a good ground contact. Scrape off paint where jack post flange contacts the trailer "A" frame. Tighten the three flange bolts securely.
3. Connect lead wire to 12 volt positive fused supply (20 amp minimum). Good electrical contact is essential and a soldered joint is recommended for maximum efficiency. Tape joint well.

Operation

1. Remove switch cover (Item No. 11). The switch is spring return with center "off" position.
2. When the post is fully extended or fully retracted internal limit switches (Item No. 17) automatically shut off the motor.
3. Should an electrical failure occur, remove the power head by loosening the two allen set screws (Item No. 9). The jack post may now be operated manually by inserting the emergency handle (Item No. 20) into the coupling on top of the post.

Important - Replacing Power Head

It is essential that the following procedure is used BEFORE power head is replaced on post.

1. With 12 volt (Grey) lead connected, ground the power head to trailer "A" frame. Operate main switch in the "post retracting" direction until the motor stops automatically.
2. Crank post clockwise by hand until fully retracted, then turn crank ONE TURN counter-clockwise.
3. Replace head on post and make sure that drive pin (Item No. 13) is engaged with post coupler. Tighten allen set screws (Item No. 9).

Maintenance

1. Once a year remove power head and apply a high melting point grease to the post coupler. **DO NOT pour oil into top of post** - this can cause brake failure and the warranty will be void. ALWAYS carry out the synchronise procedure when replacing the power head.
2. Every two years remove screws (Item No. 8) and cover (Item No. 1) and check grease condition. Use a HMP grease similar to Lubriplate 630 AA and spread on gear teeth. Grease is not required on the nylon timing gears. No internal lubrication of the post is required, but an occasional external application of a silicone or WD40 spray lubricant on the inner tube of the post when extended is permissible.
3. Before replacing the cover, ensure that the plate (Item No. 15) and limit switch unit (Item No. 16) are located correctly.
4. Apply a little sealing compound around the mating surface of the gear and cover and replace screws (Item No. 8) tightening them diagonally. Check synchronisation if power head has been removed from post.
5. A little penetrating oil on the allen set screws (Item 9) occasionally will help prevent corrosion and difficult removal.

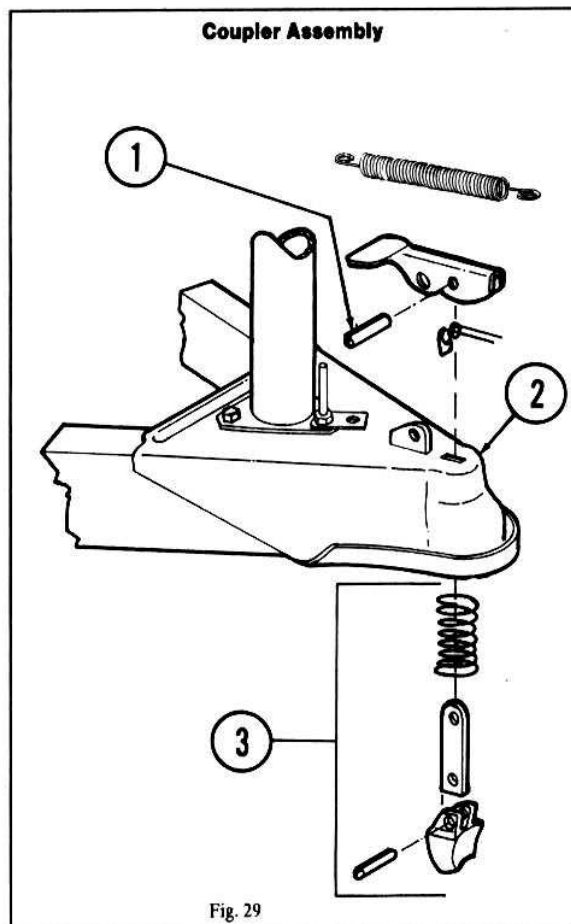
NOTES: Leave tow vehicle transmission in neutral when lifting both units together. Dolly wheels are not recommended. Always retract stabilising jacks before using your Super Jack under load.

Drive Gear Replacement

1. Loosen two Allen screws (Item No. 9) and lift head from post (Item No. 19). NOTE: Take care to ease the grey wire through the bottom part of the wire guard tube to avoid damage to wire insulation.
2. Remove four cover screws (Item No. 8) and lift off cover (Item No. 1). NOTE: Do not force cover off with screwdriver blade. A light tap on the side of the cover with a wooden mallet is sufficient.
3. Remove 2nd/3rd gear set (Item No. 2).
4. Turn drive gear (Item No. 3) until pin (Item No. 13) is opposite hole* in motor and switch housing (Item No. 12).
5. Punch pin (Item No. 13) out with pin punch and hammer — avoid heavy blows otherwise bushing (Item No. 14) will be damaged.
6. Remove defective drive gear and replace with new one. Use a new pin (Item No. 13).
7. Before refitting the cover (Item No. 1), clean the edges of the groove and tongue of the cover and housing (Item No. 12) castings so that they will mate correctly and provide a good seal. Apply a small quantity of Lubriplate 630-A to these edges and to the gear teeth and bushings. Re-assemble.
8. Lower head back on to post (Item No. 19) and engage pin (Item No. 13) with the adapter. Push down fully, then raise the head approximately 1/16" before tightening set screws (Item No. 9).

Jack Removal

1. Support front 'A' frame of trailer with blocks or stabilizing jacks.
2. Retract old jack.
3. Remove bolts that attach old jack to coupler.
4. Install new jack and attach using same bolts.

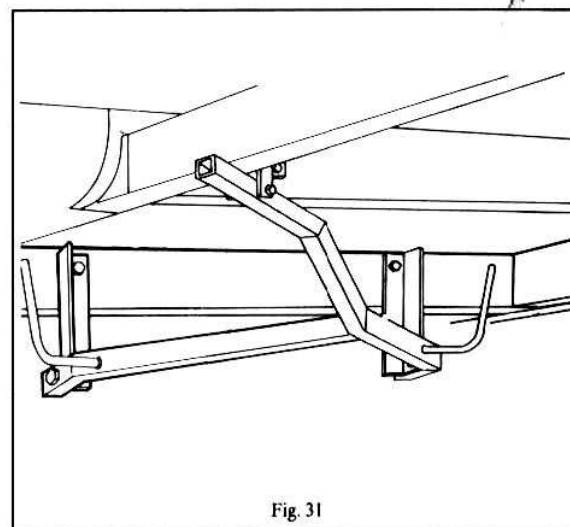
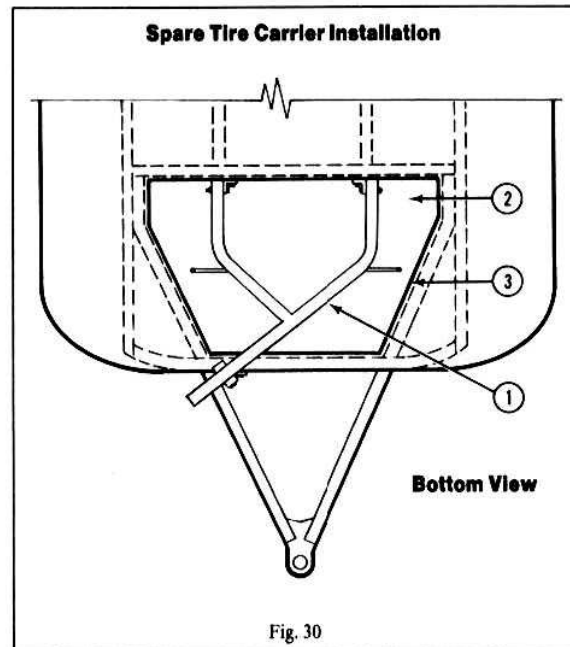


No. Part No. Description

- | | | |
|---|-------|-------------------------------------|
| 1 | — | Drive pin |
| 2 | MC883 | Coupler (2-5/16") complete assembly |
| 3 | MC557 | Coupler (2-5/16") latch assembly |

Remove Coupler Latch Assembly

1. Remove drive pin (Item No. 1) from handle.
2. All components (except handle and drive pin) will fall from coupler ball cavity.



Spare Tire Carrier Installation

1. With use of metal snips, cut underbelly from 1st section aft of front chassis crossmember. Cut to the inside perimeter of this section. See Fig. 30

CAUTION: DO NOT USE A SABER SAW OR ANY SIMILAR TOOL TO CUT THE ACCESS HOLE IN ORDER TO AVOID DAMAGING HYDRAULIC AND VACUUM LINES WHICH ARE ROUTED THROUGH THIS AREA.

2. Insert caulking material between underbelly and chassis frame member. Pop rivet (@ 4" centers) underbelly to chassis frame.
3. Cut a piece of metal the proper size and place against the underside of the plywood floor securing with screws. Caulk edges with vulkern to prevent moisture from reaching plywood.
4. Attach rear of tire carrier to 2nd crossmember through 1/2" nuts located in crossmember with 1/2" x 1" bolts. See Fig. 31
5. Locate front lock bracket centered on front crossmember and 1" from bottom. Drill two 3/8" holes to attach bracket to crossmember with 3/8" x 3/4" bolt and nuts. See Fig. 31
6. Attach front of carrier to front lock bracket. See Fig. 31

Spare Tire Carrier

No.	Part No.	Description
1	450414	Carrier - spare tire
2	101132	Aluminum - 61" x 50"
3	101132	Aluminum - 11" x 38"
	345030	Bolt, carriage - 5/16" x 1"
	345059	Screw, H.H 1/2"-13 x 1" C.P.
	300007	Washer, flat 1/4"
	300016	Washer, lock 1/2"
	330000	Rivet, AD 45 BS

B.A.L. Stabilizer Jack Assembly

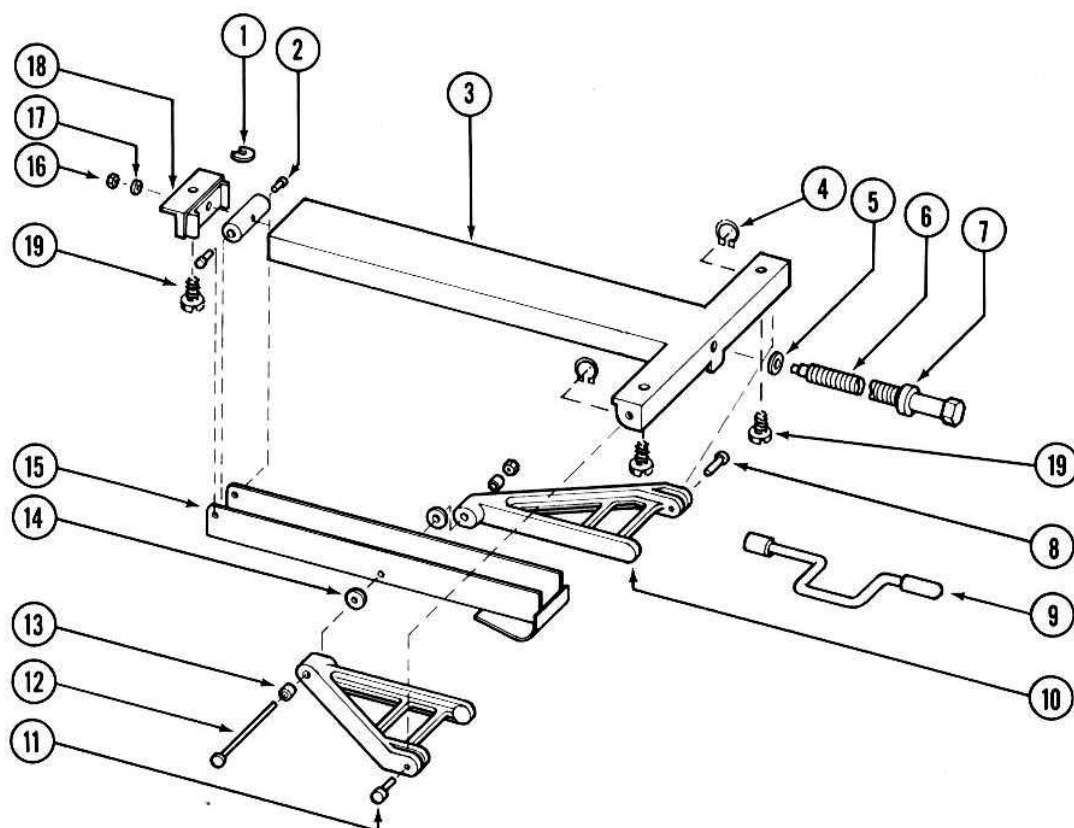


Fig. 32

B.A.L. Stabilizer Jack (Model Number 20-13-TAL)

No. Description

- 1 Plastic washer
- 2 Trunion pin(2)
- 3 Bedplate
- 4 Snap ring(2)
- 5 Thrust washer
- 6 Drive screw
- 7 Collar
- 8 Stay pin(2)
- 9 Crank - specify painted or chrome
- 10 Side stay
- 11 Stay pin
- 12 Leg bolt
- 13 Spacer washer(2)
- 14 Spacer washer(2)
- 15 Leg
- 16 Hex nut
- 17 Spacer washer
- 18 Rear mtg. plate
- 19 Self tapping screw

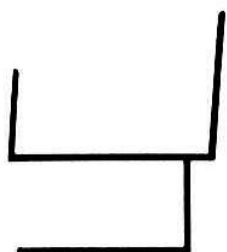
Removal

1. Remove nut (Item No. 17) from J-Bolt (Item No. 1).
2. Support jack assembly and remove 2 self-taping screws (Item No. 22).
3. Remove jack assembly.
4. To install, reverse removal procedures.

Extrusions - Chassis



100147 Mill 1976-1978



101056 Mill 1972-1978