



1. GENERAL

The Eagle coach is fitted with a torsilastic suspension unit at each wheel. The torsilastic unit uses a special compounded rubber as a springing medium. Each rubber spring is housed in a steel tube with a splined steel tube acting as the center core. The rubber is bonded to the center core and to the steel tube outer shell. Suspension loads are taken to the rubber through both the outer shell and the center tube. The center tube is splined to carry suspension loads from the unsprung weight of the tire and brake, while the steel shell housing is mounted to the chassis. This arrangement allows independent suspension on both the front and bogie wheels.

Adjustable arms are used to "pre-load" the suspension at installation or when adjustment for trim height or weight is needed. Each of the coach axles use the same basis suspension, but each axle is different in mounting and arrangement.

2. MAINTENANCE AND REPAIR

Normal maintenance requires a complete lubrication at each 6,000 mile interval. At that time the suspension parts should be inspected for cracks in the torsilastic housing and fixing arms. Also the adjusting arms, mounting shackles and all mounting hardware should be checked for tightness. At the 36,000 mile interval the trim height should be checked, and if required, the weight of each wheel be checked as outlined in Paragraphs 12 and 13. Repair of worn or cracked torsilastic units can only be done by pressing out the rubber

unit and pressing a new one into the housing. This requires the use of a large hydraulic press and cannot be done at the usual field maintenance shop. The exchange of a worn or broken torsilastic unit for a rebuilt or new is the only practical repair.

FRONT SUSPENSION

3. DESCRIPTION

Figure 12-1 shows the components of the front suspension unit. The torsilastic housing is also the lower control arm of the front axle. The spring fixing and adjusting lever is attached to the rear splined end of the central tube. An adjustment arm is arranged between this lever and a chassis bracket. The mounting brackets at each end and the center serve to properly locate the torsilastic unit to the chassis, while the center bearing also serves to prevent axial twisting of the entire unit.

4. REMOVAL

To remove the front suspension unit for the coach, refer to Figure 12-1 and proceed as follows:

- Block the coach by some means other than air brakes.
- Jack or lift the front of the coach and remove the tire and wheel, brake drum and related parts from the torsilastic unit.
- Remove the steering knuckle per instructions in SECTION 1.

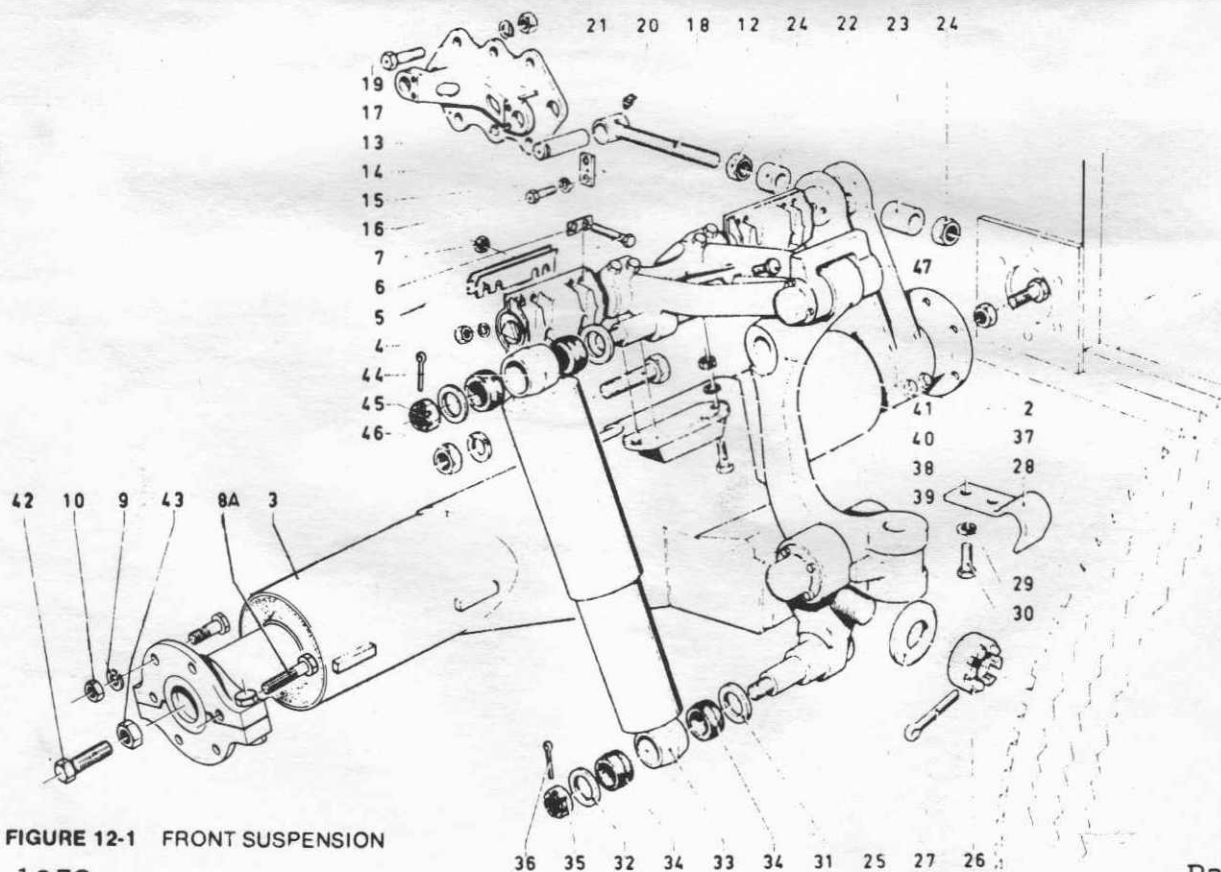


FIGURE 12-1 FRONT SUSPENSION



- I. Remove the shock absorber and its mounting parts (31 to 36).
- E. Remove the dust covers, cotter pin and large nut mounting the king pin arm (2) to the upper suspension A-arm.
- F. Drive out the upper mounting stud using a bronze drift.
- G. Remove cotter pin (27) and large nut (26) retaining the king pin arm to the lower suspension arm, and take off the king pin arm.
- H. Disconnect the torsilastic adjusting arm (12) from the torsilastic unit by removing the two nuts (24) and spacers (22 & 23).
- I. Remove the bolts and nuts retaining the center bearing to chassis.
- J. Remove the adjusting bolt (42) and locknut (43) from each end of the torsilastic unit.
- K. While supporting the unit with a roller jack, remove the mounting flange bolts (8), nuts (10) and washers (9) at each end of unit.
- L. Roll the torsilastic unit away from the coach.
- M. Remove the bolts (4) and nuts (7) mounting the upper control A-arm to the chassis and remove it from the coach. Wire together and keep the shims (5) for use at reassembly.

INSTALLATION

- A. Install upper control arm to chassis using shims (5) removed at disassembly and tighten all bolts (4) securely.
- B. Locate the torsilastic unit using a roller jack or stand. Install the end flange mounting bolts (8) and nuts (10) loosely.
- C. Install the center bearing bracket to the chassis and tighten all mounting bolts firmly.
- D. Install the adjusting bolts (42) and locknut (43) into the center of the mounting flange and tighten the locknut.
- E. Install adjusting arm to the spring rate lever with spacer and nut in place.
- F. Mount the king pin arm to lower suspension arm.
- G. Install mounting stud in upper control arm and king pin arm, using new bushings and O-rings. Tighten nut securely with new cotter pin. Install the dust covers using new gaskets.
- H. Install shock absorber unit to lugs of upper and lower suspension unit arms.
- I. Reinstall the steering knuckle per Section 1, **FRONT AXLE**.
- J. Reinstall the brake unit per section 4, **BRAKES**.
- K. Reinstall the wheel, tire and brake drum.
- L. Adjust the torsilastic suspension unit per paragraphs 12 and 13 of this section.

BOGIE AXLE SUSPENSION**3. DESCRIPTION**

Figure 12-2 is a breakdown of the bogie axle suspension unit. At the bogie axle, the torsilastic unit is installed cross-

wise at the chassis, the road wheel is then mounted on a lever arm splined to the torsilastic center tube and operating at right angles to it. The shock stabilizer bar is located on the lower side of the torsilastic main housing and is anchored to a bracket at the drive axle shackle. The housing of the torsilastic unit is keyed to the mounting bracket to prevent any axle twisting during operation.

7. REMOVAL

Refer to Figure 12-2 and remove the bogie axle suspension unit as follows:

- A. Block the coach by some means other than air brakes.
- B. Lift coach at Bogie Jacking pad.
- C. Remove the bogie wheel, tire and brake drum as specified in Section 15 of this manual.
- D. Remove the brake assembly per Section 4 of this manual.
- E. Remove the shock absorber (32) from the lever arm and mounting bracket.
- F. Remove the clamp bolts (23), nuts (25) and washers (24) retaining the lever arm to the center tube of the torsilastic unit, and then remove the lever arm by pulling it off the splines.

NOTE

Mark with a punch both the lever arm and the center tube for proper alignment at reassembly.

- A. Remove the bolts (41) and nuts (42) retaining the stabilizer rod (32) to the torsilastic housing anchor bracket and to the drive axle bracket. Remove the bar.
- B. Open the bottom access panel to gain access to the torsilastic unit mounting bolts.
- C. Remove the nuts (22) and bolts (20) retaining the torsilastic unit flange (16 & 17) to the chassis mounting brackets.
- D. Using the roller stand or jack, remove the unit outboard. It may be necessary to use a hammer to break the unit loose from its mounting.

8. INSTALLATION

- A. Using a roller stand or jack, position the torsilastic unit in the chassis in its mounting position.
- B. Install and tighten firmly the flange bolts (16 & 17) and housing bolts (20) and nuts (22) to the chassis mounting bracket.
- C. Install the stabilizer bar (37) between the bogie unit and the drive axle using new rubber bushings (38).
- D. Reinstall the shock absorber (31-36) using new rubber bushings.
- E. Install axle lever arm to the splined center tube of the torsilastic unit. Realign the reference punch marks. Install clamping bolts (23) and tighten nuts (26) firmly.
- F. Install the brake unit as outlined in Section 4 of this manual.
- G. Install the brake drum, wheel and tire per Section 15.
- H. Adjust the torsilastic unit as outlined in paragraphs 12 and 13 of this manual.



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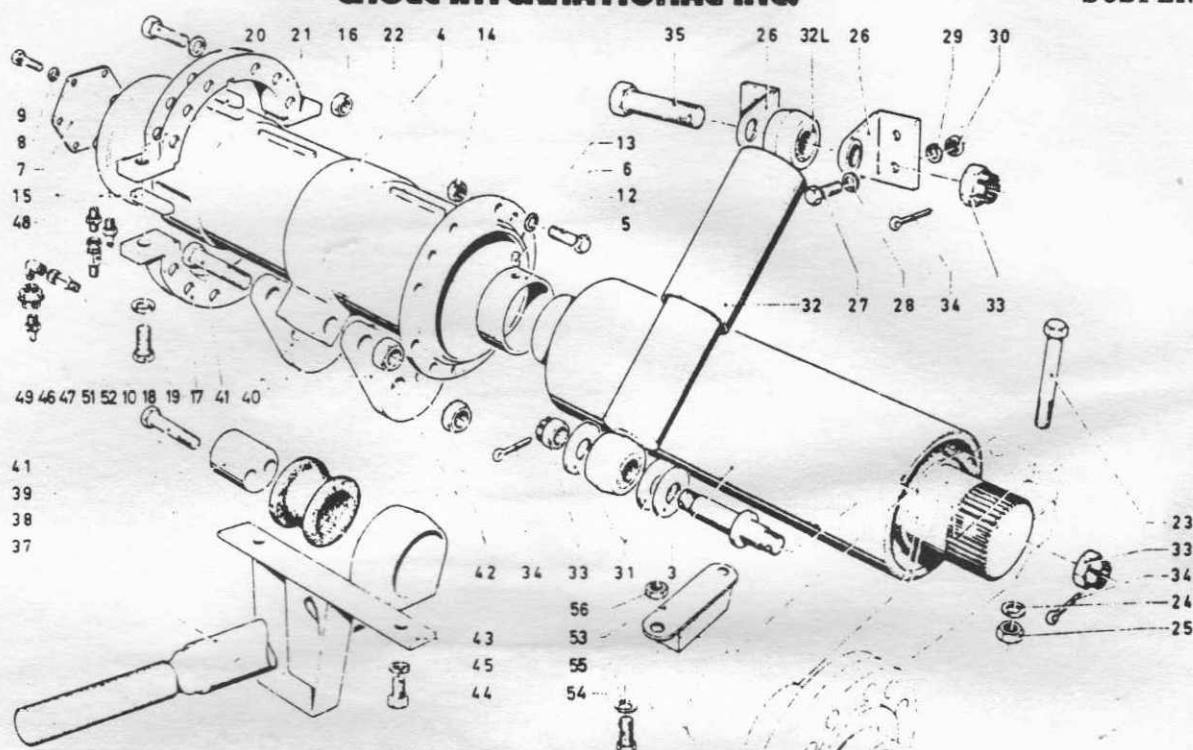


FIGURE 12-2 BOGIE AXLE SUSPENSION

DRIVE AXLE SUSPENSION

9. DESCRIPTION

The drive axle torsilastic unit is shown in Figure 12-3. The unit is center mounted to the drive axle housing with a lever arm at each end, which is shackle mounted to the chassis to allow for changes in length due to suspension articulation on a fixed axle. The spring rate adjustment arms are mounted on the lower side of the two lever arms, and include studs for shock absorbers mounting. The axle housing mounting bracket includes anchors for the bogie axle stabilizer bar.

10. REMOVAL

Refer to Figure 12-3 and remove the drive axle torsilastic unit as follows:

- Block the coach by some means other than the air brakes.
- Jack or lift the coach and remove the wheel and tire per Section 15 of this manual.
- Support the axle housing with a jack stand and remove the shock absorbers.
- Remove the bolts and nuts retaining the bogie axle stabilizer bar, and remove the bar from the coach.
- Remove the bolts and nuts (48, 50, 53) attaching the fixing arm shackles to the chassis mounting brackets.
- Locate the roller jack under the torsilastic unit and remove the bolts that attach the center mounting bracket to the axle housing.
- Lower the drive axle on its stand and remove the torsilastic unit from the coach using the roller stand.

11. INSTALLATION

- Using a roller jack stand, maneuver the torsilastic unit into its position over the axle housing.
- Install the bolts and nuts to the center mounting bracket and tighten to 500 ft/lbs torque.

NOTE

If bolt replacement is necessary, be sure to use bolts specified as Grade 8 standard bolts.

- Install attaching bolts at mounting shackles and chassis bracket.
- Reinstall wheel and tire and remove jack stands on axle.
- Install shock absorbers using new rubber bushings.
- Adjust the torsilastic unit as specified in paragraphs 12 and 13 of this section.

ADJUSTMENTS

12. BOGIE WHEEL TOE-IN CHECK

The bogie axle may be checked for proper alignment while on the coach anytime its proper toe-in is suspected. The procedure is to check that the bogie wheel is parallel to the drive wheel.

With the coach in a straight ahead position, a straight bar should be placed across the centerline and in contact with the drive wheel, tire extending forward to the bogie tire. Figure 12 shows a fabricated bar and stand to be used for this check. Similar bars may be made up to suite this check, but they should be used across the centerline of the wheel and tire, and they must be perfectly straight.