

REAR SUSPENSION

CONTENTS

GENERAL INFORMATION	1	SPECIFICATIONS	5
TROUBLE SHOOTING	2	TIGHTENING TORQUE	5
SERVICE PROCEDURES	3		

GENERAL INFORMATION

REAR

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CONTENTS

GENERAL INFORMATION	1
TROUBLE SHOOTING	2
SERVICE PROCEDURES	3
SPECIFICATIONS	2
TIGHTENING TORQUE	2



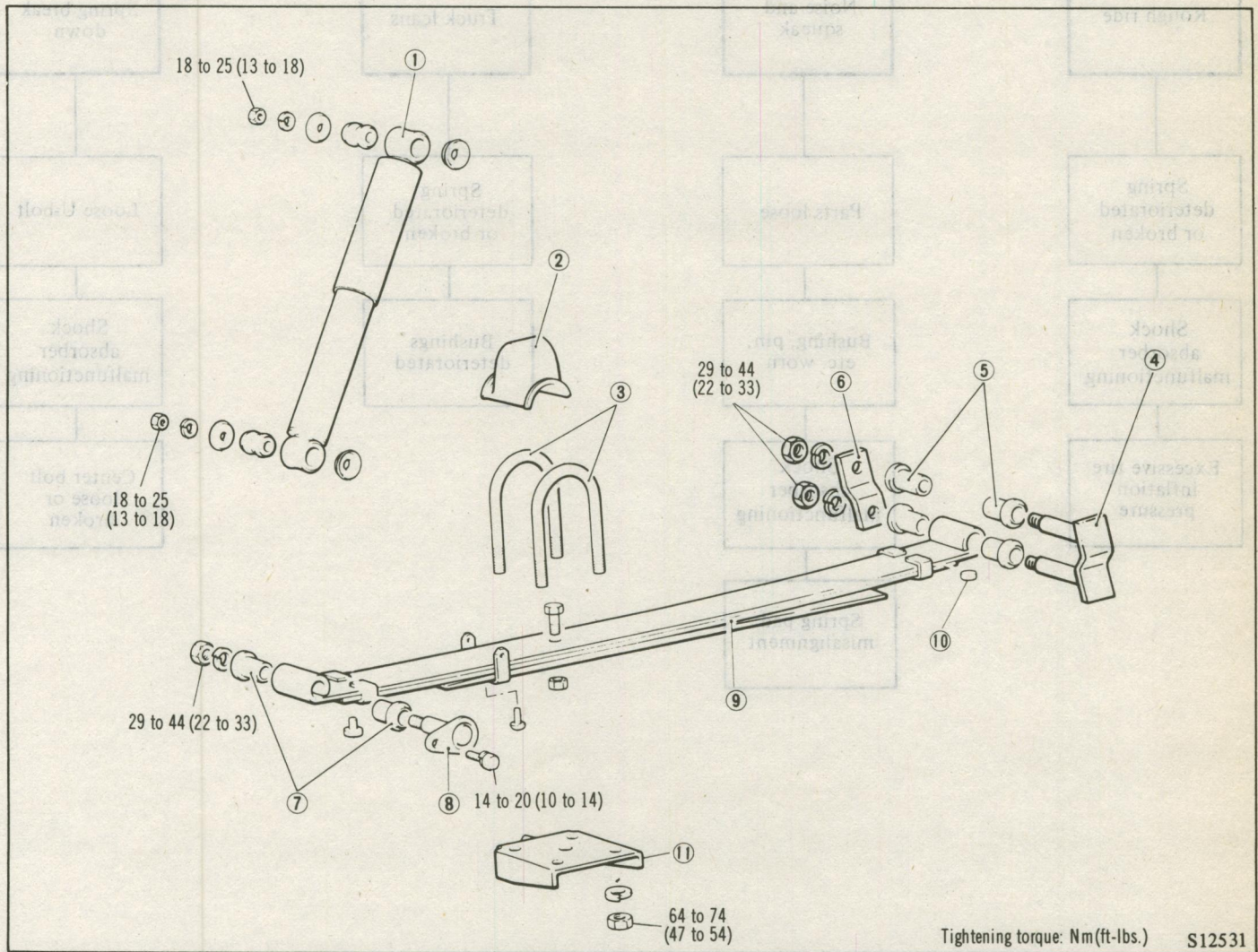
5081 Pasadena Ave.
Sacramento, CA 95841

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GENERAL INFORMATION

To reduce pitching movements produced at the differential carrier, shock absorbers have been placed

with bias counter against the rear axle housing.



Tightening torque: Nm(ft.-lbs.)

S12531

- (1) Shock absorber
- (2) Bump stop
- (3) Spring U-bolt
- (4) Spring shackle assembly

- (5) Rear eye bushing
- (6) Shackle plate
- (7) Front eye bushing
- (8) Spring pin assembly

- (9) Leaf spring assembly
- (10) Silencer
- (11) U-bolt seat

Fig. 1 Exploded View of Rear Suspension

TROUBLE SHOOTING

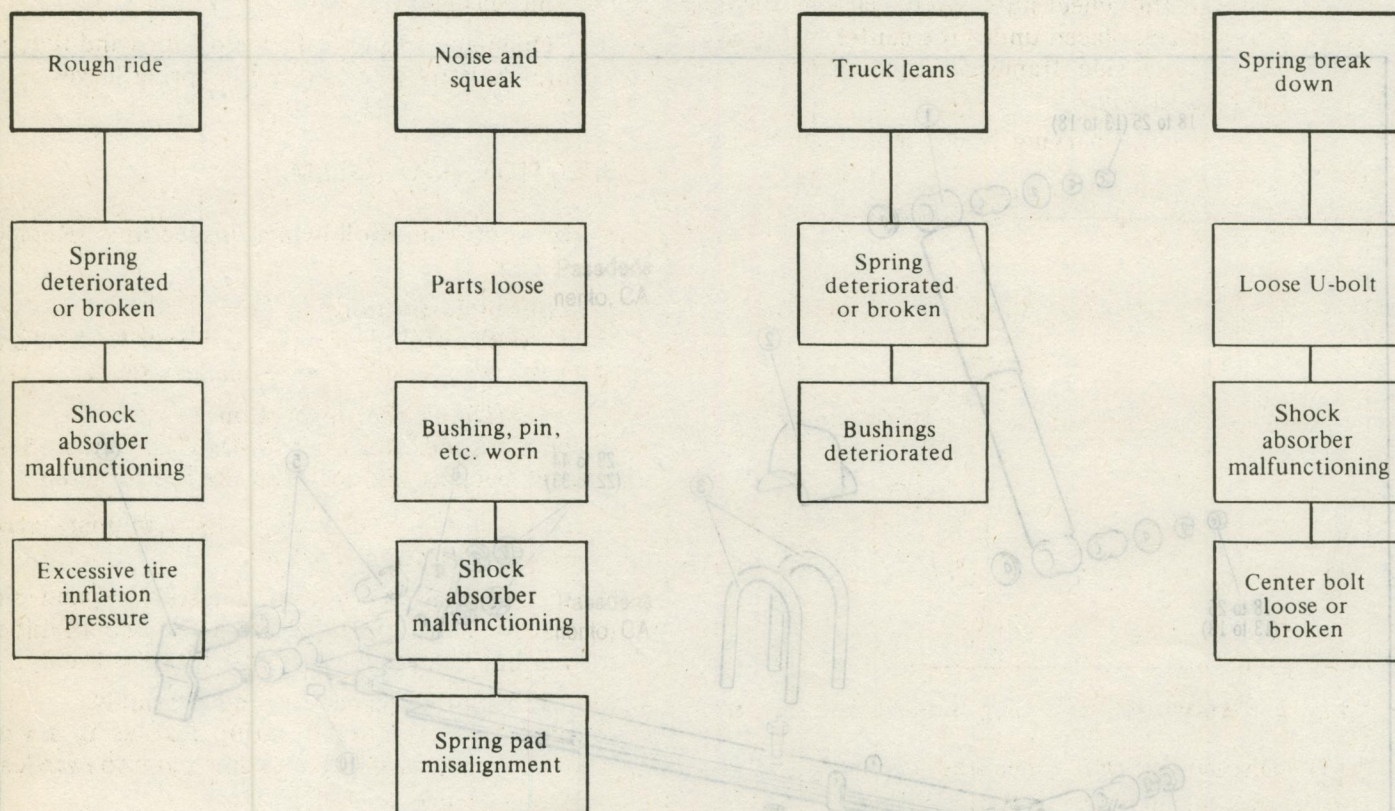


Fig. 1 Exploded View of Rear Suspension

- (1) Shock absorber
- (2) Bump stop
- (3) Spring U-bolt
- (4) Spring shackle assembly

- (5) Rear eye bushing
- (6) Shackle plate
- (7) Front eye bushing
- (8) Spring pin assembly

- (9) Leaf spring assembly
- (10) Silencer
- (11) U-bolt seat

SERVICE PROCEDURES

REMOVAL

(1) Loosen the wheel nuts. After jacking up the truck with the jack placed under the center of the rear axle, support the side frame on rigid stands, then lower the jack slowly.

(2) Remove the parking break cable clamp from the leaf spring.

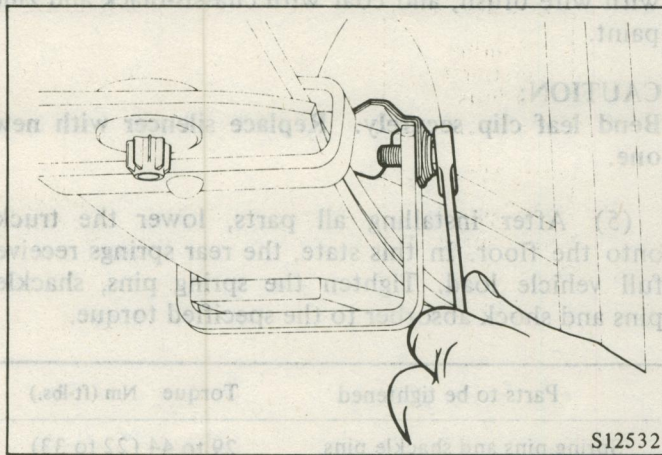


Fig. 2 Removing the Parking Brake Cable Clamp

(3) Disconnect the upper end of the shock absorber and the lower end at the spring U-bolt seat.

If it is not necessary to remove the shock absorber, leave the lower end on the spring U-bolt seat.

(4) Loosen the U-bolt nuts and jack up the rear axle housing until the axle housing clears of the spring seat. Then remove the spring seat.

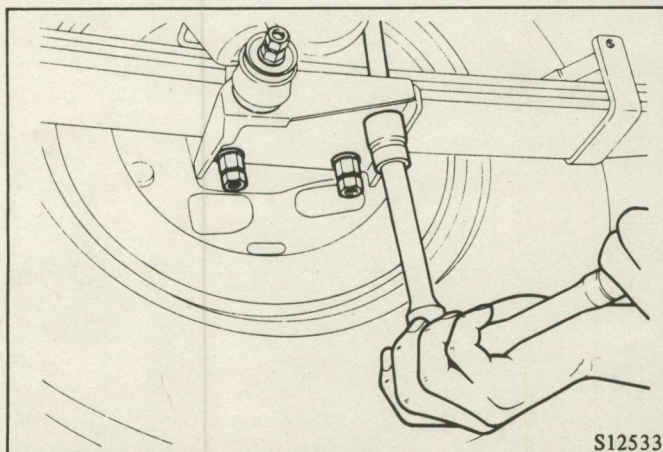


Fig. 3 Removing the Spring U-Bolt Nuts

(5) Remove the spring assembly after removing the spring pin at the front end and the spring shackle pin at the rear end.

(6) Open the spring leaf clamp bands and remove the center bolt to disassemble the spring leaves.

INSPECTION AND ASSEMBLY

Carry out the following inspection. Replace defective parts.

(1) Spring Inspection

Check each spring leaf, clamp, rubber bushing and silencer for wear, cracks and permanent set.

(2) Shock Absorber Inspection

Check the shock absorber for fluid leaks caused by a damaged packing and seal, and the rod for bend.

Use a tester for checking the damping force. (Refer to Specification chart.)

When checking it without a tester, expand and compress the shock absorber from the upper limit to the lower limit and make sure that it resists evenly.

(3) Leaf Spring Inspection and Assembly

Remove rust from each spring leaf using a wire brush. Apply chassis-black and zinc paint to each leaf. Replace the silencer with new one.

(4) Check bump stop for spalling, cracks and permanent strain.

INSTALLATION

During installation, observe the following items:

(1) Install the spring front eye bushings from both sides of the eye with bushing flanges facing outside. Insert the spring pin assembly from outside of truck body and secure to the hanger (bracket) with the bolt. Temporarily tighten the spring pin nut.

Parts to be tightened	Torque Nm (ft-lbs.)
Spring pin assembly bracket mounting bolts	14 to 20 (10 to 14)

(2) Install the rear eye bushing to the spring and the spring bracket in a manner similar to step (1). Press the shackle assembly in from outside of the truck body, and then temporarily install nuts through the shackle plate from inside.

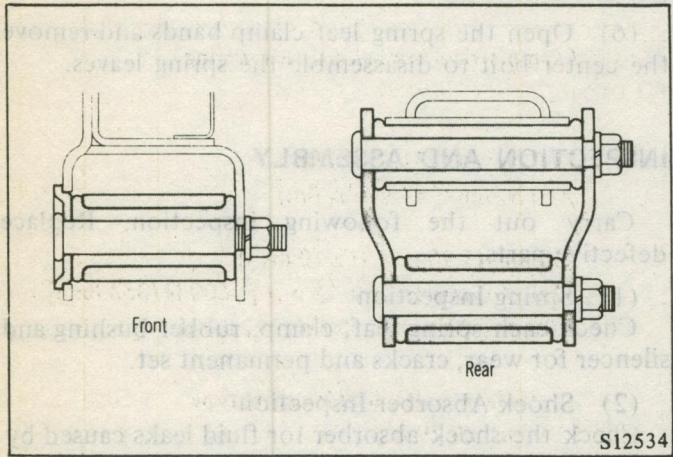


Fig. 4 Assembling the Spring Front and Rear Eye Bushings

(3) Align center of U-bolt seat with spring center bolt hole. Mount the bump stopper. Tighten U-bolts to the specified torque.

CAUTION:
Tighten all nuts for the U-bolts until the threads protrude evenly.

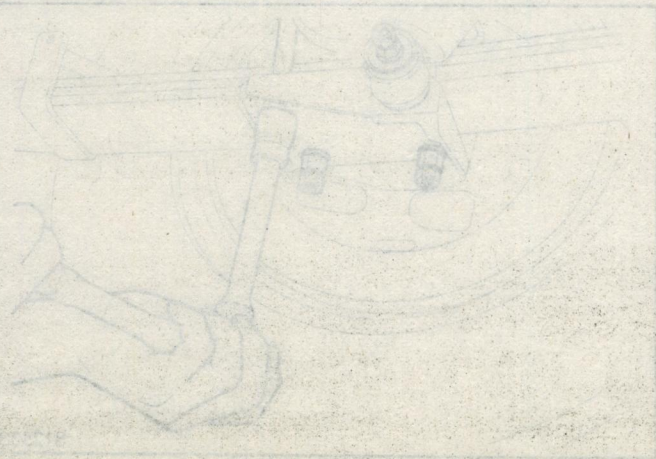
Part to be tightened	Torque Nm (ft-lbs.)
Spring U-bolt	64 to 74 (47 to 54)

(4) On disassembly of leaf spring, clean each leaf with wire brush, and coat with chassis-black and zinc paint.

CAUTION:
Bend leaf clip securely. Replace silencer with new one.

(5) After installing all parts, lower the truck onto the floor. In this state, the rear springs receive full vehicle load. Tighten the spring pins, shackle pins and shock absorber to the specified torque.

Parts to be tightened	Torque Nm (ft-lbs.)
Spring pins and shackle pins	29 to 44 (22 to 33)
Shock absorber upper and lower mounting nut	18 to 25 (13 to 18)



SPECIFICATIONS

Description	Specifications
Suspension system	Asymmetrical semi-elliptic leaf spring
Leaf spring	
Spring constant — as installed	
Loaded	23.0 N/mm (131.01 lbs./in.)
Unloaded	50.0 N/mm (284.97 lbs./in.)
Camber	
In free state [load]	150 mm (5.90 in.) [0 N (0 lbs.)]
Under dead load [load]	82.0 ±4.0 mm (3.23 ±.16 in.) [1,600 N (353 lbs.)]
Under standard load [load]	2.0 mm (.08 in.) [4,500 N (992 lbs.)]
Shock absorber	
Type	Hydraulic tubular double acting type
Max. length	528 mm (20.79 in.)
Min. length	318 mm (12.52 in.)
Stroke	210 mm (8.27 in.)
Damping force [at 0.3 m/sec. (.984 ft/sec.)]	
Expansion	1,176 ±176 N (264.6 ±39.7 lbs.)
Compression	539 ±108 N (121.3 ±24.3 lbs.)

TIGHTENING TORQUE

Description	Torque Nm (ft-lbs.)
Spring pin to hanger bracket tightening	14 to 20 (10 to 14)
Spring U-bolt tightening	64 to 74 (47 to 54)
Shock absorber tightening	18 to 25 (13 to 18)
Spring pin and shackle pin tightening	29 to 44 (22 to 33)

SPECIFICATIONS

REAR SHOCK AND SPRING

Specification	Description
Asymmetrical coil spring	Suspension system
	Leaf spring
	Spring constant as installed
	Loaded
	Unloaded
	Coilover
	In use state (load)
	Under-damped (load)
	Over-damped (load)
	Shock absorber
	Type
	Max. length
	Min. length
	Stroke
	Damping force (at 0.3 m/sec. (0.84 ft/sec.))
	Frequency
	Compression
25.0 N/mm (131.01 lbs/in.)	
80.0 N/mm (264.93 lbs/in.)	
150 mm (2.90 in.) [0 N (0 lbs.)]	
82.0 mm (3.23 in.) [1,500 N (335 lbs.)]	
20 mm (0.8 in.) [1,500 N (335 lbs.)]	
Hydraulic cylinder double acting type	
5.5 mm (0.22 in.)	
31.5 mm (1.24 in.)	
21.0 mm (0.83 in.)	
1,100 ± 10 N (248 ± 2.2 lbs.)	
250 ± 10 N (57 ± 2.2 lbs.)	



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Torque (Nm/lbs-ft)	Description
14 to 20 (10 to 14)	
6 to 14 (4 to 10)	
18 to 25 (13 to 18)	
22 to 44 (16 to 32)	