

# LOCKING HUBS

1993 Mitsubishi Montero

1993 Drive Axles - Locking Hubs

Ram-50, Montero & Pickup

## DESCRIPTION

Montero is equipped with an automatic locking clutch. Locking clutch engages, providing full time AWD operation, when 4WD (4H) is selected at transfer case, at speeds up to 62 MPH. Selecting center differential lock position (4HLc or 4HLLc), while in AWD at 4 MPH or less, provides 4WD operation. Center differential lock disengages when 4H or 2H are selected. Locking clutch disengages when 2H is selected.

On Pickup and Ram-50, automatic locking hubs are engaged by rotational force of axle shaft when 4WD is selected at transfer case. Locking hubs disengage when 2WD is selected or vehicle is driven in Reverse. Cams, brakes and springs are used to lock or unlock locking hubs.

Engagement is accomplished through gears and spring actions within hub. When hub is locked, hub brake engages inner hub, which is connected to axle shaft by inner splines of hub. Hub brake is connected to hub body by outer splines.

## REMOVAL & INSTALLATION

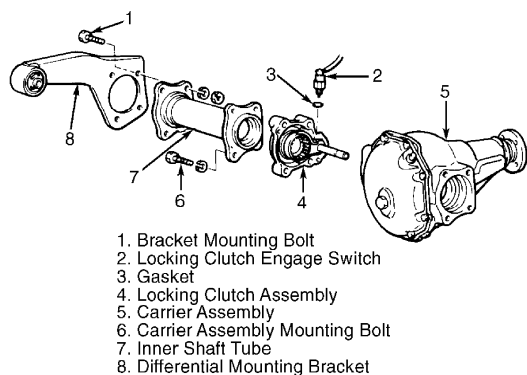
### AUTOMATIC LOCKING HUBS

Removal & Installation (Montero)

1) Remove right side inner shaft for automatic locking clutch removal. See INNER SHAFT & BEARING in DIFFERENTIALS & AXLE SHAFTS - FRONT article. With inner shaft removed, remove locking clutch engage switch. See Fig. 1.

2) Remove 4 inner shaft tube-to-differential mounting bracket bolts. Pivot differential mounting bracket. Remove 4 inner shaft tube-to-differential carrier assembly mounting bolts. Pull inner shaft tube and automatic locking clutch out of differential carrier assembly.

3) To install, reverse removal procedure. Tighten inner shaft tube bolts to 65 ft. lbs. (90 N.m) and locking clutch engage switch to 26 ft. lbs. (36 N.m).



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Fig. 1: Removing Automatic Locking Clutch (Montero)  
Courtesy of Mitsubishi Motor Sales of America.

Removal (Pickup & Ram-50)

1) Hub must be unlocked. To unlock hub, place transfer case

lever in 2H position, and move vehicle in Reverse approximately 4-6 feet.

2) Remove cover from locking hub. If hub cover cannot be loosened by hand, wrap shop towel around cover, and use an oil filter wrench to loosen cover.

3) Raise and support vehicle. Remove wheel assembly. Using snap ring pliers, remove snap ring and shim from end of axle. Remove locking hub retaining bolts. Remove locking hub.

#### Installation (Pickup & Ram-50)

1) To install, reverse removal procedure. Apply sealant to contact areas between locking hub assembly and rotor assembly. DO NOT apply sealant on outer areas of rotor assembly, toward brake contact areas.

2) Align locking hub assembly key with steering knuckle key way. Loosely install locking hub assembly on rotor assembly. Ensure locking hub assembly fully contacts rotor assembly.

3) Install locking hub retaining bolts and tighten to 36-43 ft. lbs. (49-58 N.m). Using spring scale attached to wheel stud, measure turning resistance required to rotate hub assembly.

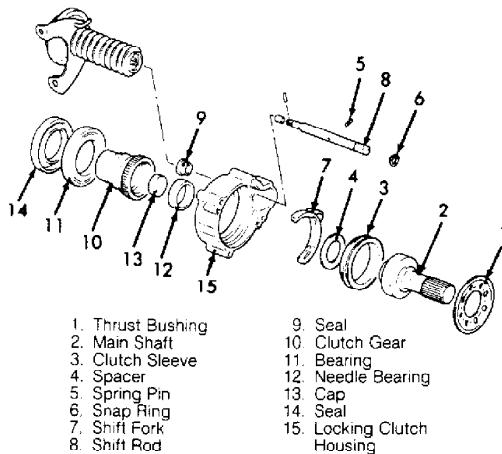
4) Turning resistance should not exceed 3.1 lbs. (1.4 kg). If turning resistance exceeds specification, check for incorrect installation of locking hub assembly or components.

5) Install shim and snap ring on drive axle. Rotate drive axle until maximum end play is obtained. Using a dial indicator, check drive axle end play.

6) Drive axle end play should be .008-.020" (.20-.51 mm). If axle end play is not within specification, adjust end play by changing axle shaft shim. Install hub cover. Tighten hub cover bolts to 13-25 ft. lbs. (18-34 N.m).

## OVERHAUL

NOTE: Locking clutch overhaul procedure for Montero is not available from manufacturer. See Fig. 2 for exploded view of locking clutch.



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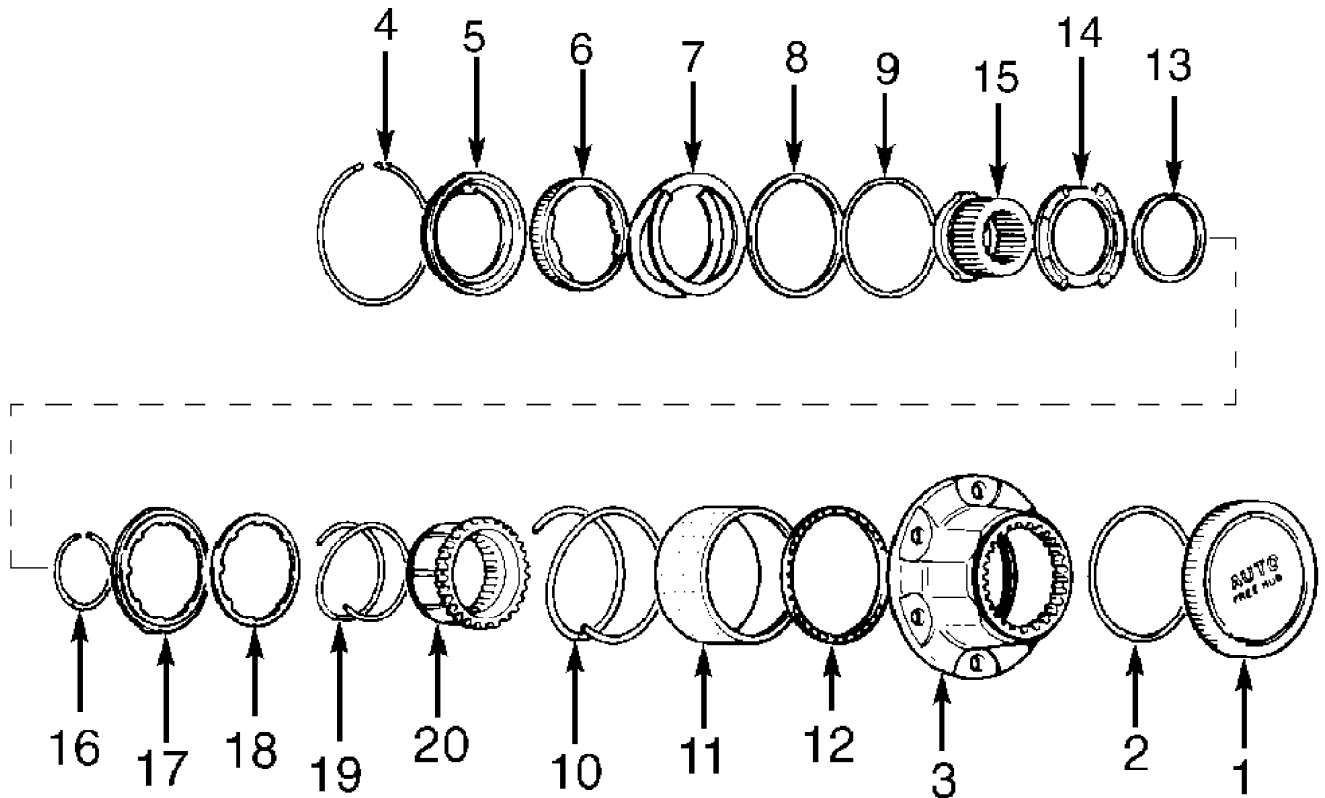
Fig. 2: Exploded View Of Locking Clutch (Montero)  
Courtesy of Mitsubishi Motor Sales of America.

#### Disassembly (Pickup & Ram-50)

1) Remove locking hub. AUTOMATIC LOCKING HUBS under REMOVAL &

INSTALLATION. Push brake "B" in hub housing, and remove housing "C" ring. See Fig. 3. Using Adapter (MB990811-01), lightly press drive gear assembly, and remove "C" ring from retainer "B". Slowly release drive gear assembly.

2) Remove drive gear assembly, slide gear assembly and return spring. Remove slide gear "C" ring. Remove shift spring.



- |                              |                          |
|------------------------------|--------------------------|
| 1. Hub Cover                 | 11. Retainer "B"         |
| 2. "O" Ring                  | 12. Retainer Bearing     |
| 3. Housing                   | 13. Drive Gear Snap Ring |
| 4. Housing "C" Ring          | 14. Retainer "A"         |
| 5. Brake "B"                 | 15. Drive Gear           |
| 6. Brake "A"                 | 16. Slide Gear "C" Ring  |
| 7. Brake Spring              | 17. Cam                  |
| 8. Housing Snap Ring         | 18. Spring Holder        |
| 9. "C" Ring For Retainer "B" | 19. Shift Spring         |
| 10. Return Spring            | 20. Slide Gear           |

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Fig. 3: Exploded View Of Locking Hub  
 Courtesy of Mitsubishi Motor Sales of America.

Inspection (Pickup & Ram-50)

1) Check drive gear and slide gear splines for damage. Check

cam portion of retainer "A" for wear or damage. Check cam for wear and damage. Check slide gear and housing tooth surfaces for damage. Check retainer "B" and housing contact surfaces for wear and damage.

2) Check brake assembly thickness. See Fig. 4. Assemble brake "A" and brake "B". Using slide calipers, measure thickness of assembled brake at both brake "A" lugs.

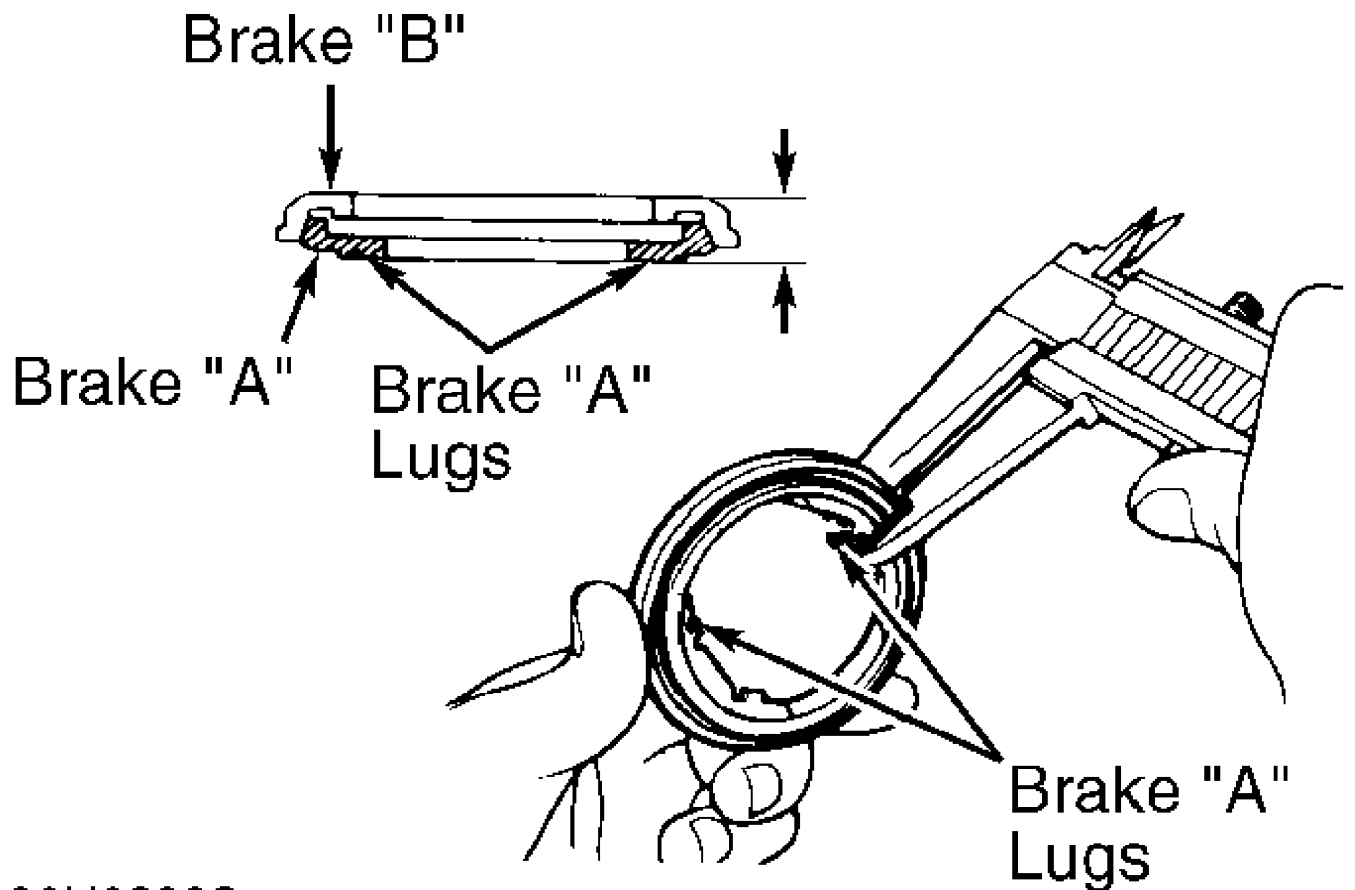
3) Standard thickness is .413" (10.49 mm). Minimum thickness is .378" (9.60 mm). If measured thickness is less than minimum thickness, replace brake "A" and brake "B".

4) Measure length "A" of return spring. See Fig. 5. Ensure length "A" is 1.38" (35.1 mm). If length "A" is not as specified, replace return spring.

5) Measure length "B" of shift spring. See Fig. 5. Ensure length "B" is 1.18" (30.0 mm). If length "B" is not as specified, replace shift spring.

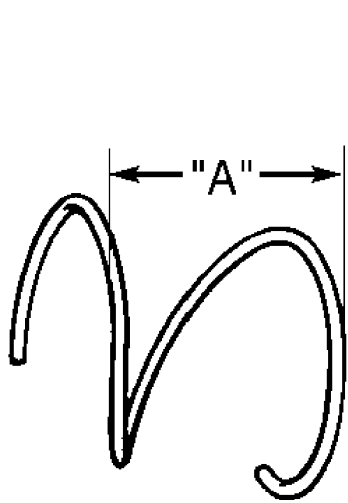
Reassembly (Pickup & Ram-50)

Pack grooves of retainer "B" with multipurpose grease, and apply grease to attaching surfaces of all components. To complete assembly, reverse disassembly procedure.

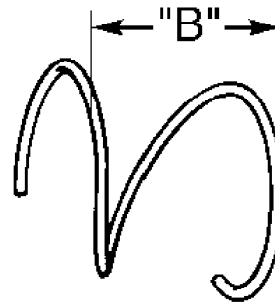
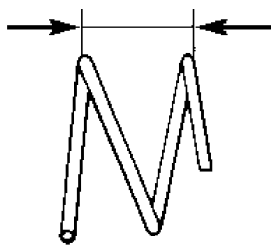


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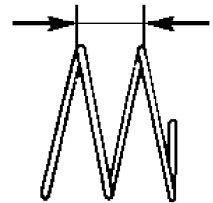
Fig. 4: Measuring Brake Assembly Thickness  
Courtesy of Mitsubishi Motor Sales of America.



RETURN SPRING



SHIFT SPRING



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Fig. 5: Measuring Lengths Of Return Spring & Shift Spring  
 Courtesy of Mitsubishi Motor Sales of America.

**TORQUE SPECIFICATIONS**

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Hub Cover .....	13-25 (18-34)
Locking Hub Bolts .....	36-43 (49-58)