

# **SUSPENSION - FRONT**

## **1986 Isuzu Trooper II**

1986 SUSPENSION  
Isuzu - Suspension - Front

P'UP & Trooper II

### **DESCRIPTION**

P'UP and Trooper II models are equipped with an unequal length control arm independent front suspension. The front suspension consists of torsion bars, upper and lower control arms, strut bars, steering knuckle assemblies and a stabilizer bar. The forward end of the torsion bar is attached to the lower control arm. The back end is attached to the height control arm.

The short upper control arm pivots on a shaft mounted to frame. The long lower control arm pivots on a bolt (shaft on 4WD) mounted to crossmember. Ball joints connect the steering knuckle assembly to upper and lower control arms. A stabilizer bar is used between lower control arm and frame. The strut bar controls forward and backward movement of front suspension.

### **ADJUSTMENT & INSPECTION**

#### **WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES**

See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES in WHEEL ALIGNMENT section.

#### **WHEEL BEARING**

1) Raise and support vehicle. Remove wheel assembly. Remove hub cap, grease cup, cotter pin and nut retainer on 2WD models. Remove locking hub assembly and lock washer on 4WD models. See LOCKING HUB PROCEDURES in the LOCKING HUBS article.

2) Rotate wheel and tighten (hub) spindle nut to 22 ft. lbs. (30 N.m). Rotate wheel 2 to 3 turns and loosen (hub) spindle nut. Tighten nut finger tight until hub has no free play.

3) Make sure that brake pads are not in contact with brake rotor. Attach a spring scale and measure starting torque. Tighten spindle nut until spring scale reads 2.2 lbs. (1.0 kg) on 2WD models.

4) Tighten hub nut until spring scale reads 3.3 lbs. (1.5 kg) on 4WD models. On all models, perform procedure to both front wheels. Install remaining hardware to complete wheel bearing adjustment.

NOTE: If bolt holes on lock washer and hub nut do not align, reverse lock washer. If holes still do not align, turn nut slightly to align holes.

#### **BALL JOINT CHECKING**

Replace lower control arm ball joint if play exceeds 0.06" (1.5 mm). Remove upper control arm, if upper ball joint play exceeds 0.06" (1.5 mm).

### **REMOVAL & INSTALLATION**

#### **WHEEL BEARING**

#### Removal (2WD)

1) Raise and support vehicle. Remove wheel assembly. Remove brake caliper assembly and hang out of the way. Remove grease cup and cotter pin. Remove nut retainer, spindle nut and washer.

2) Remove hub/rotor assembly. Remove outer wheel bearing. Remove shaft seal and inner bearing. Remove bearing races (if necessary).

#### Removal (4WD)

1) Place transfer lever in "2H" position and move vehicle back and forth for 3 feet or more. Raise and support vehicle. Remove wheel assembly and locking hub assembly bolts.

2) Remove driven clutch assembly and housing. Remove spacer, snap ring and shims. Remove drive clutch assembly and inner cam. Remove brake caliper assembly and hang out of the way.

3) Remove lock washer and hub nut using Hub Nut Wrench (J-29020-A). Remove hub/rotor assembly. Remove outer wheel bearing. Remove retaining ring, shaft seal, and inner wheel bearing. Remove bearing races (if necessary).

#### Installation

To install, reverse removal procedure. Adjust wheel bearings. See WHEEL BEARING ADJUSTMENT in this article.

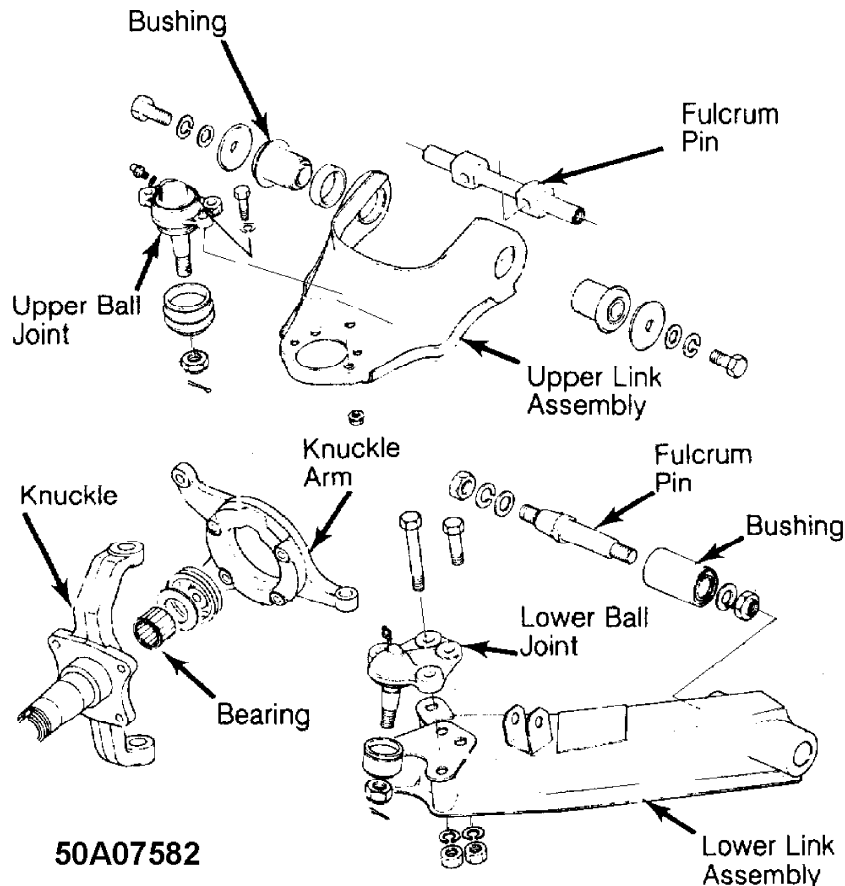


Fig. 1: Exploded View of 4WD Locking Hub Assembly  
Courtesy of Isuzu Motor Co.

#### AXLE SHAFT BEARING

#### Removal (4WD)

Remove steering knuckle. See STEERING KNUCKLE in this article. Pry off steering knuckle oil seal. Remove axle shaft bearing using Axle Shaft Bearing Puller (J-23907).

#### Installation

Install bearing using Handle (J-8092) and Axle Shaft Bearing Installer (J-29019). Install oil seal using handle and Oil Seal Installer (J-33161).

### BALL JOINT

#### Removal (2WD)

Raise and support vehicle. Remove wheel assembly. Remove cotter pin and castle nut. Disconnect ball joint from steering knuckle assembly. Remove bolts attaching ball joint to lower control arm and remove ball joint.

#### Removal (4WD)

1) Raise and support vehicle. Remove wheel assembly. Loosen torsion bar adjustment bolts. Disconnect stabilizer bar from lower control arm. Disconnect tie rod ends.

2) Remove cotter pin and castle nut. Disconnect ball joint from steering knuckle. Remove bolts attaching ball joint to lower control arm. Remove lower shock absorber bolt.

3) Remove locking hub assembly. Slide off steering knuckle assembly from drive axle and support steering knuckle. Remove lower ball joint.

#### Installation

Install ball joint to lower control arm. Tighten bolts attaching ball joint to lower control arm. Reverse removal procedure to complete installation. Lubricate ball joint.

### UPPER CONTROL ARM

#### Removal

1) Raise and support vehicle. Remove wheel assembly. Remove shock absorber dust cover on 2WD models. Remove upper ball joint cotter pin and castle nut.

2) Support lower control arm and steering knuckle. Disconnect upper control arm ball joint from steering knuckle. Note number and placement of shims between upper control arm pivot shaft and frame.

3) Remove bolts from pivot shaft. Remove shock absorber upper retaining nut, retainer and rubber grommet on 2WD models. Compress shock absorber on 2WD models. Remove upper control arm.

#### Inspection

Check upper control arm and pivot shaft for cracks, distortion or thread damage. Check pivot shaft bushings for wear or damage, replace bushings (if necessary). Replace upper ball joint if play exceeds 0.06" (1.5 mm).

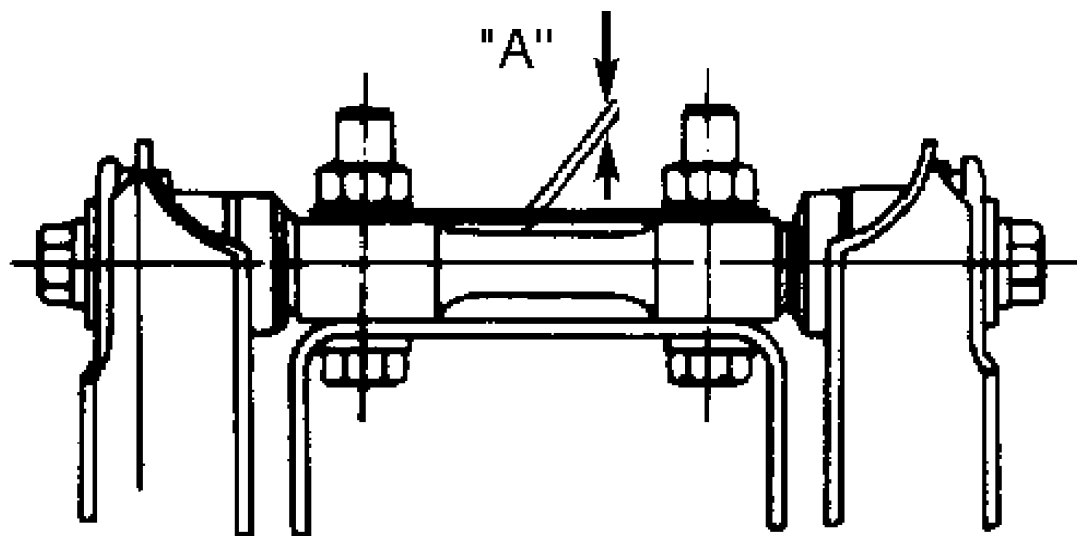
#### Bushing Replacement

Remove bolts from ends of pivot shaft. Remove lock washer, flat washer and plate. Using Bushing Remover/Installer (J-29755), press out pivot shaft and bushings. Reverse removal procedure to install bushings.

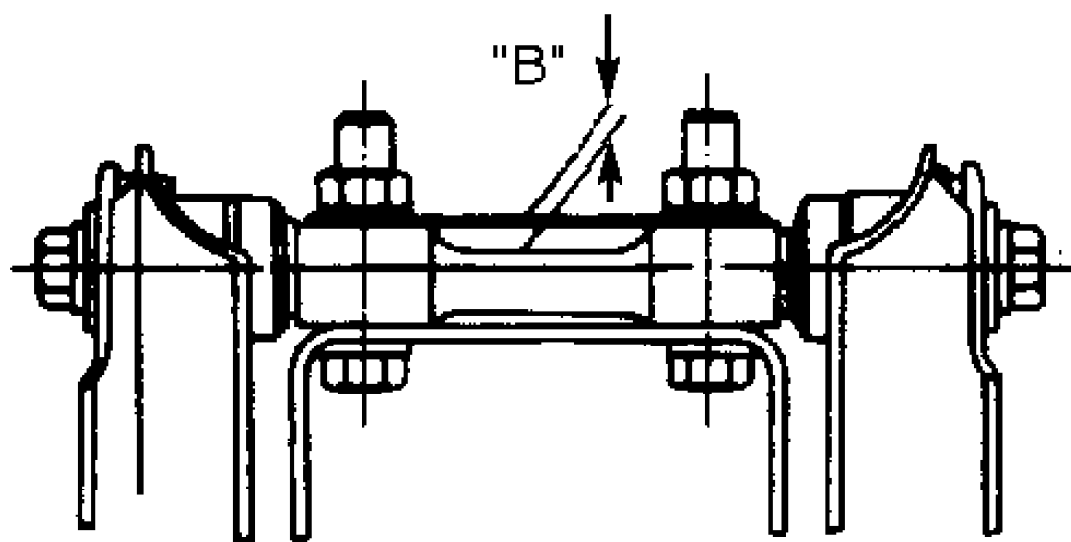
#### Installation

Install pivot shaft with smaller clearance (A) toward center of vehicle on 2WD. Install pivot shaft with larger clearance (B)

toward center of vehicle on 4WD. See Fig. 2. Reverse removal procedure to complete installation.



2WD



4WD

◆ CENTER OF VEHICLE

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Fig. 2: Upper Control Arm Installation  
Courtesy of Isuzu Motor Co.

LOWER CONTROL ARM

#### Removal

1) Raise and support vehicle. Remove wheel assembly. Remove strut bar. See STRUT BAR in this article. Disconnect stabilizer bar from lower control arm. Remove torsion bar. See TORSION BAR in this article.

2) Disconnect shock absorber from lower control arm. Remove bolts attaching ball joint to lower control arm. Remove nuts from lower control arm pivot bolt (shaft on 4WD) and remove control arm.

#### Inspection

Check lower control arm and pivot bolt (shaft on 4WD) for cracks, distortion or thread damage. Check pivot bushing for wear or damage. Replace bushing (if necessary).

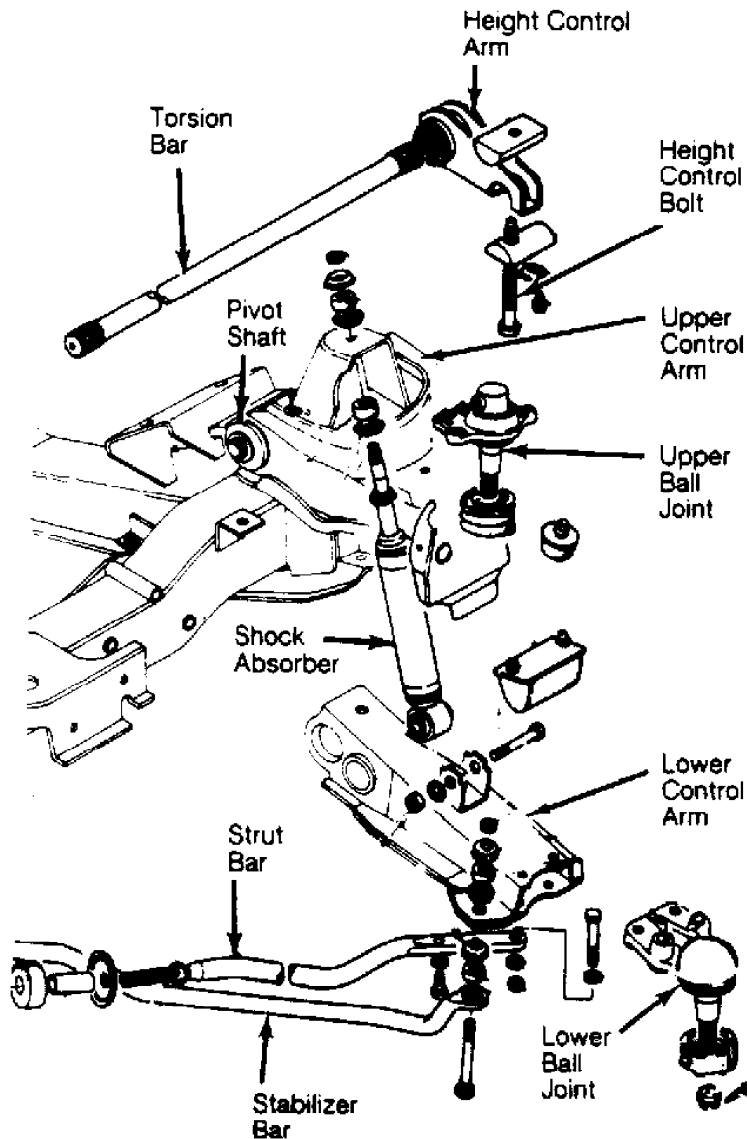


Fig. 3: Exploded View of 2WD Front Suspension  
Courtesy of Isuzu Motor Co.

#### Installation

Attach ball joint to lower control arm before lower control

arm attached to frame. Reverse procedure to complete installation. Adjust riding height. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES in WHEEL ALIGNMENT section.

## SHOCK ABSORBER

### Removal

Raise and support vehicle. Remove shock absorber dust cover on 2WD models. Remove shock absorber retainer nut, retainer and rubber grommet. Disconnect shock absorber from lower control arm and remove shock absorber.

### Installation

Slide shock absorber into position. Reverse removal procedure to complete installation.

## STABILIZER BAR

### Removal

Raise and support vehicle. Disconnect stabilizer bar from lower control arm. Remove stabilizer bar brackets and remove bar.

### Installation

Inspect grommets and bushings for wear or damage. Replace grommets or bushings (if necessary). Reverse removal procedure to complete installation.

## TORSION BAR

### Removal

- 1) Raise and support vehicle. Remove stopper plate on 2WD models. Mark position and remove adjusting bolt from height control arm.
- 2) Mark position and remove height control arm from torsion bar and bracket frame. Mark position and remove torsion bar from lower control arm.

### Installation

- 1) Grease serrated portions of torsion bar. Raise lower control arm to position rubber bumpers in contact with lower control arm. Insert front end of torsion bar into control arm. Grease portion of height control arm which fits into frame.
- 2) Install height control arm so its end reaches height control arm adjustment bolt. Turn height control adjustment bolt to position marked during removal. Check riding height. See the WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES in WHEEL ALIGNMENT section. Install stopper plate on 2WD models.

## STRUT BAR

**NOTE:** Correct caster angle can be maintained by marking position of frame nuts on threaded part of strut bar.

### Removal

Raise and support vehicle. Remove nuts, washers and rubber bushing from front side of strut bar. Remove bolts attaching strut bar to lower control arm. Remove strut bar.

### Installation

- 1) Install washers and bushing on back side of strut bar. Insert strut bar through frame bracket. Install bushing and washers on front side of strut bar. Install one frame nut, but do not tighten.

2) Install strut bar to lower control arm and tighten attaching bolts. Lower vehicle and tighten frame nut. Install second frame nut and tighten.

## STEERING KNUCKLE

### Removal (2WD)

1) Raise and support vehicle. Remove wheel assembly. Remove brake caliper and hang out of the way. Remove grease cup, cotter pin, nut retainer and spindle nut. Remove hub/rotor assembly. Remove tie rod end link attaching bolts and move aside.

2) Remove bolts attaching dust shield and adapter. Remove cotter pin and castle nut from upper and lower ball joints. Disconnect steering knuckle from ball joints and remove steering knuckle.

### Removal (4WD)

1) Raise and support vehicle. Remove locking hub assembly. See LOCKING HUB PROCEDURES in the LOCKING HUBS article. Remove bolts attaching steering knuckle, dust shield and adapter.

2) Remove cotter pin and castle nut from upper and lower ball joints. Disconnect steering knuckle from ball joints and remove steering knuckle.

### Installation

To install, reverse removal procedure. Adjust wheel bearings.

## TORQUE SPECIFICATIONS

### TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Ball Joint Castle Nuts .....	75 (102)
Ball Joint-to-Lower Control Arm Bolts .....	51 (69)
Ball Joint-to-Upper Control Arm Bolts .....	19 (26)
Lower Control Arm-to-Crossmember Nuts (2WD) .....	90 (122)
Lower Control Arm-to-Frame Bracket Nuts (4WD) ...	97 (132)
Rotor-to-Hub Bolts .....	36 (49)
Shock Absorber (Lower End) Bolts .....	45 (61)
Shock Absorber (Upper End) Nuts .....	14 (19)
Stabilizer Bar-to-Frame (Clamp Bolts) .....	13 (18)
Stabilizer Bar-to-Lower Control Arm Bolts .....	15 (20)
Strut Bar-to-Lower Control Arm Bolts .....	51 (69)
Strut Bar-to-Frame Nuts .....	58-72 (78-98)
Upper Control Arm Pivot Shaft Bushings Bolts ....	87 (118)
Upper Control Arm Pivot Shaft-to-Frame Bolts ....	75 (102)