

ISUZU P'UP & LUV

LUV P'UP

DESCRIPTION

Independent type suspension, using torsion bars. Upper control arms are mounted to bracket which is part of shock tower. Lower control arm is mounted to crossmember. Ball joints attach both upper and lower control arms to steering knuckles, which are part of the front wheel spindle. Torsion bars are connected in front to lower control arm and at rear to frame crossmember. Back and forth movement of front suspension is regulated by a strut bar connecting lower control arm to frame, by means of a rubber bumper at frame end of strut. A stabilizer bar is attached to lower control arms and frame.

ADJUSTMENT

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See *Wheel Alignment Specifications & Procedures* in *WHEEL ALIGNMENT Section*.

WHEEL BEARING ADJUSTMENT

1) Raise and support vehicle. On 4 wheel drive (4WD) models, place transfer shift lever in "2H" position and free wheeling hub in "FREE" position. Remove hub cover, then remove snap ring and shims from end of spindle. Remove free wheeling hub body and lock washer.

2) On 2 wheel drive (2WD) models, remove grease cap, cotter pin and nut retainer from spindle.

3) Rotate wheel and tighten spindle nut (hub nut) to 22 ft. lbs. (30 N•m) on 2WD and until hub locks on 4WD models. Turn hub 2 or 3 times to settle bearings. Loosen nut. Retighten nut finger tight and check that hub has no free play.

4) Attach a spring scale and measure starting force. Tighten spindle nut until a reading of 1.8-2.6 lbs. (8.0-11.6 N) is obtained. Make sure that the brake pads are not in contact with the rotor during this procedure.

5) On 2WD models, reassemble components in opposite order of removal. On 4WD models, install lock washer and free wheeling hub body and measure the clearance between free wheeling hub body and snap ring while pushing out on the axle shaft.

6) Select new spacer shims so that this clearance is less than .001" (.3 mm). Replacement shims are available in sizes .008, .01, .02 and .04" (0.2, 0.3, 0.5 and 1.0 mm). Install remaining components in reverse order of removal.

BALL JOINT CHECKING

With vehicle raised and supported under lower control arm, grasp wheel at top and bottom and try to move wheel. If movement exceeds .06" (1.5 mm), replace lower ball joint or upper control arm and ball joint assembly. New ball joints should have no visible play when checked.

REMOVAL & INSTALLATION

UPPER CONTROL ARM & BALL JOINT

Removal — **1)** Raise and support vehicle with safety stands under lower control arms. Remove tire and wheel. Remove

shock absorber dust cover. Remove upper ball joint cotter pin and nut.

2) Separate ball joint from steering knuckle and wire the knuckle and brake caliper assembly out of way. Do not allow assembly to hang from brake hose. Note number and placement of shims at upper control arm bracket.

3) Remove 2 bolts from upper pivot shaft. Remove upper stem retaining nut, retainer and rubber grommet. Depress shock absorber. Remove control arm from bracket.

4) If replacing pivot shaft and bushings, remove bolts from each end of pivot shaft. Remove lock washer, flat washer and plate. Press out pivot shaft and bushings.

Inspection — Check control arm and pivot shaft for cracks or distortion. Replace both pivot shaft and bushings if either is found defective. Replace ball joint and control arm as an assembly if either is defective.

Installation — **1)** If pivot shaft and bushings have been removed, install pivot shaft and bushings on control arm using installer tool (J-29755). Install bolt with plate, washer and lock washer on each side of pivot shaft and tighten.

2) Install ball joint stud through knuckle. Install castle nut. Tighten to specifications, plus just enough more to install cotter pin. Mount control arm to chassis and install shims in equal thickness to those removed during disassembly.

3) Tighten bolt at thin shim pack first, then bolt at thicker shim pack. Install shock absorber dust cover, wheel and tire. Lower vehicle to ground.

LOWER CONTROL ARM & BALL JOINT

Removal — **1)** Raise and support vehicle. Remove wheel and tire. Remove strut bar, torsion bar and stabilizer bar.

2) Detach lower end of shock absorber. Remove ball joint-to-control arm retaining bolts and separate ball joint from control arm. Remove control arm retaining nuts and bolts and remove control arm from vehicle.

Ball Joint Replacement (2WD Models) — Remove cotter pin and ball joint stud nut. Separate ball joint from knuckle. Remove bolts attaching ball joint to control arm (if still installed) and remove ball joint.

Ball Joint Replacement (4WD Models) — Follow Control Arm Removal procedures through separation of ball joint from control arm. Remove tie rod ends from knuckle. Remove cotter pin and ball joint stud nut. Separate ball joint from steering knuckle. Remove hub and knuckle assembly from axle shaft (do not allow assembly to hang by brake line). Remove ball joint.

Inspection — Check all parts for distortion, cracking or excessive wear. Replace all worn parts.

ISUZU P'UP & LUV (Cont.)

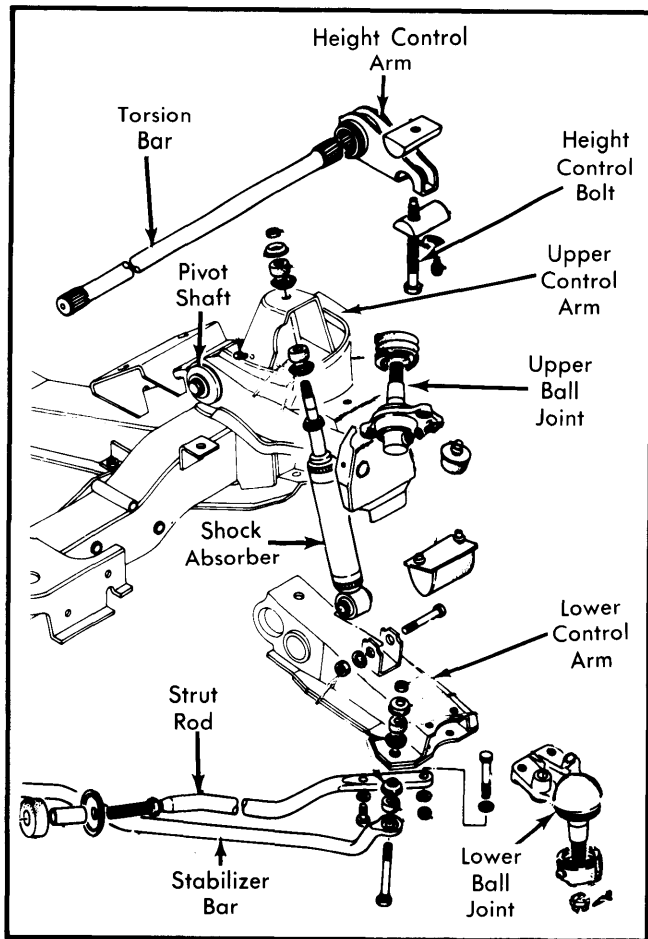


Fig. 1 Exploded View of Front Suspension (2WD Shown, 4WD Similar)

Installation (All Models) — Installation procedures are the opposite of removal except that the ball joint must be attached to the control arm before control arm installation.

SHOCK ABSORBER

Removal — Raise vehicle and support on safety stands. Remove shock absorber dust cover. Hold shock absorber upper stem with a wrench and remove retaining nut, retainer and rubber grommet. Remove shock absorber lower pivot bolt from lower control arm and remove shock absorber.

Installation — Check shock absorber and replace if necessary. Fully extend shock absorber, place lower retainer and grommet on stem and slide shock absorber into position. Install upper grommet and retainer on stem and tighten nut. Slide bolt through lower shock absorber mount and shock absorber. Install shock absorber dust cover, tighten mounting bolt and lower vehicle.

WHEEL BEARINGS

Removal (2WD) — 1) Raise and support vehicle. Remove wheel and tire. Remove brake caliper and support, and wire out of way. Remove grease cap, cotter pin, spindle nut retainer and spindle nut. Remove hub and rotor.

2) Remove outer bearing, pry out inner grease seal and remove inner bearing. Drive out bearing races as needed.

Installation — Reverse removal procedures to install. Always use new races with new bearings, always use new grease seals.

Removal (4WD) — 1) Raise and support vehicle. Remove wheel and tire. With transfer case shift lever in "2H" position and free wheeling hub in "FREE" position, remove hub cover retaining bolts (6) and remove hub cover assembly.

2) Remove snap ring and shims from end of spindle. Remove free wheeling hub body from hub assembly.

3) Remove brake caliper and support and wire out of way. Remove lock washer. Remove hub nut with wrench. Remove hub and rotor. Remove outer bearing from hub. Drive out inner grease seal and retaining ring (inner bearing will be removed in this process). Drive out bearing races as needed.

Installation — Reverse removal procedures to install. Adjust wheel bearings.

STABILIZER BAR

Removal — Raise vehicle and disconnect stabilizer bar from lower control arm. Remove brackets holding bar to frame and remove bar. Remove link bolt, spacers and rubber grommets from lower control arm or stabilizer bar. Inspect all parts for wear or damage and replace if necessary.

Installation — Bolt brackets to frame over rubber bushings installed over stabilizer bar but do not tighten. Connect link bolts to lower control arm, making sure washers are installed in correct position. Connect link bolts to stabilizer, and tighten to specifications. Tighten bracket bolts to specifications.

TORSION BAR

Removal — Raise vehicle and place safety stands under front of vehicle. Remove stopper plate (2WD only) and height control arm adjusting bolt. Mark position and remove height control arm from torsion bar and third crossmember (2WD), or torsion bar and bracket (4WD). Mark position and remove torsion bar from control arm.

Installation — 1) Thoroughly grease serrated portions at both ends of torsion bar. Raise lower control arm with jack to position rubber bumpers in contact with lower control arm. Install front end of torsion bar into control arm.

2) Install height control arm into position so its end reaches height control bolt (grease portion of height control arm which fits into frame).

3) Turn height control adjusting bolt to position marked during removal. Check riding height. See appropriate article in *WHEEL ALIGNMENT* section. Install stopper plate.

LOWER CONTROL ARM STRUT BAR

NOTE — Correct caster angle can be maintained by marking positions of strut rod nuts for reassembly reference.

Front Suspension

ISUZU P'UP & LUV (Cont.)

Removal — Raise vehicle and remove nuts, washers and rubber bushings from front side of strut bar. Remove 2 bolts holding strut bar to lower control arm and remove strut bar.

Installation — Place washer and bushing on strut bar and slide rod through frame bracket. Place second set of washers and bushings on end through bracket, then start on washer and one nut, but do not tighten. Bolt other end of strut to lower control arm and tighten to specifications. Lower vehicle and tighten bracket nut, install second nut and tighten to specifications.

STEERING KNUCKLE

Removal — **1)** Raise vehicle and place safety stands under front of vehicle. Remove brake caliper assembly without disconnecting line and support out of way.

2) Remove hub and rotor assembly as outlined in Wheel Bearing Removal. Remove 4 retaining bolts around spindle and, on 2WD models, remove tie rod link, dust shield and adapter.

3) Remove cotter pins and castle nuts from upper and lower ball joints and separate ball joints from knuckle. Remove knuckle.

Installation — To install, reverse removal procedures. Adjust wheel bearings.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N•m)
Stabilizer Bar-to-Bracket	55 (75)
Stabilizer Bar-to-Lower Control Arm	84 INCH Lbs. (10)
Strut Bar-to-Lower Control Arm	45 (61)
Strut Bar-to-Frame	
2WD	90 (122)
4WD	50 (68)
Upper Control Arm Pivot Shaft Bushings	87 (118)
Upper Control Arm Pivot Shaft-to-Frame	75 (102)
Lower Control Arm-to-Crossmember (2WD)	90 (122)
Lower Control Arm-to-Frame Bracket (4WD)	97 (132)
Ball Joint-to-Lower Control Arm	45 (61)
Ball Joint Stud Nuts	75 (102)
Shock Absorber (Upper)	14 (19)
Shock Absorber (Lower)	45 (61)
Rotor-to-Hub	36 (49)