OPEL

1900
Manta

DESCRIPTION

Independent front suspension with coil springs. Wheel is supported by steering knuckle mounted between upper and lower control arms by means of ball joints. Upper control arm pivots on shaft mounted to upper portion of suspension crossmember. Lower control arm pivots on shaft mounted to lower portion of suspension crossmember. Complete front suspension unit including crossmember is removable. Coil springs fit in pockets built into suspension crossmember at top and pockets built into lower control arms at bottom. Hydraulic shock absorbers mount between lower control arms and suspension crossmember and are inside coil springs. A stabilizer bar is mounted to arms bolted to suspension crossmember and connected at ends to lower control arms.

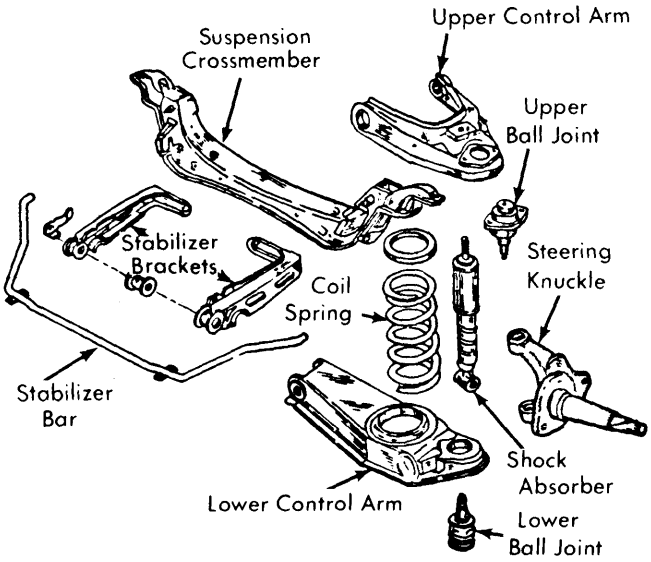

Fig. 1 Exploded View of Front Suspension Assembly

ADJUSTMENT

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See Wheel Alignment Specifications & Procedures in WHEEL ALIGNMENT Section.

WHEEL BEARING ADJUSTMENT

See Wheel Bearing Adjustment in WHEEL ALIGNMENT Section.

BALL JOINT CHECKING

See Ball Joint Checking in WHEEL ALIGNMENT Section.

REMOVAL & INSTALLATION

FRONT SUSPENSION ASSEMBLY

Removal – Set parking brake and place blocks under rear wheels. Install a suitable holding tool (J-23697) between upper portion of suspension crossmember and both coil springs. This assures proper loading ofsuspension components.Raise vehicle and place safety stands under front portion of frame. Remove wheels and tires. Remove guard plate from under front portion of vehicle. Disconnect brake lines from retainers on both sides. Remove brake calipers and suspend from fender panel to prevent damaging brake lines. Support engine from top using a suitable engine hoist. Remove bolt from lower steering shaft clamp at flange. Disconnect right and left front motor mounts. With jack still in place under crossmember, remove bolts securing crossmember to frame, lower jack and remove suspension assembly.

Installation – To install, reverse removal procedure. Tighten all nuts and bolts to specifications. Check wheel alignment.

UPPER CONTROL ARM & BALL JOINT

Removal – Raise vehicle and place safety stand under frame. Remove wheel and tire. Remove nut from upper control arm pivot shaft. Remove cotter pin and nut from upper ball joint stud. Using a suitable puller (J-21687) separate ball joint from steering knuckle. Support steering knuckle to prevent damage to brake line. Slide out pivot shaft and remove control arm from vehicle. Note number and position of wheel alignment shims when removing control arm for installation. Remove ball joint from control arm.

Installation – Install bushings in control arm with shoulder of bushing to rear. With shims in correct position, install control arm in vehicle and tighten pivot shaft nut to specification. When tightening nut, make sure control arm is in horizontal position. Install ball joint in control arm and tighten bolts to specifications. Place ball joint stud in steering knuckle, tighten nut to specification and install new cotter pin. Install wheel and tire and lower vehicle. Check wheel alignment.

LOWER CONTROL ARM, COIL SPRING & BALL JOINT

Removal – Install a suitable holding tool (J-23967) between upper portion of suspension crossmember and coil spring. Raise vehicle by jacking up under lower control arm, place safety stands under frame, and leave jack in place. Remove wheel and tire. Disconnect stabilizer mounting brackets from mounts. Pry stabilizer bar out of lower control arm. Remove shock absorber. Remove cotter pin and nut from lower ball joint stud. Using a suitable punch, remove ball joint stud from steering knuckle. Loosen lower control arm pivot shaft nut, lower jack, and remove coil spring. Remove pivot shaft nut and shaft, then remove lower control arm from vehicle. Using suitable tools (J-9519 and J-23755), press ball joint out of control arm. *NOTE – This operation can be performed with lower control arm still in vehicle.*

Installation – When pressing ball joint into arm, make sure notch in ball joint housing is in direct line with axis of lower arm (± 2°). Attach control arm to crossmember loosely. With coil spring in position, raise control arm with a jack and insert ball joint stud in steering knuckle. Tighten ball joint nut to specification and install new cotter pin. Tighten pivot shaft nut to specification. Install stabilizer bar and tighten to specification. Install shock absorber as previously outlined. Install wheel and tire and lower vehicle. Check wheel alignment.

OPEL (Cont.)

STEERING KNUCKLE

Removal – Raise vehicle and place safety stands under frame. Remove wheel and tire. Remove brake system components from steering knuckle. *NOTE - See appropriate story in BRAKE SYSTEMS Section for removal.* Remove cotter pins and nuts from upper and lower ball joint studs. Separate ball joint studs from steering knuckle and remove steering knuckle from vehicle.

Installation – To install, reverse removal procedure. Tighten all bolts and nuts to specifications. Check wheel alignment.

SHOCK ABSORBER

Removal – Raise vehicle and place safety stands underframe. Remove upper retaining nuts from shock absorber stem. Remove lower bolt securing shock absorber to lower control arm. Compress shock absorber and remove from vehicle.

Installation – To install, reverse removal procedure. Tighten lower mounting bolt to specification. Tighten upper nut until there is a distance of ½" (12.7 mm) between upper edge of nut and top of stem.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Suspension Crossmember-to-Frame	36 (5.0)
Steering Shaft Flange Bolt	22 (3.0)
Lower Control Arm-to-Shaft	40 (5.5)
Control Arm-to-Steering Knuckle	
Upper	40 (5.5)
Lower	54 (7.5)
Upper Ball Joint-to-Upper Control Arm	29 (4.0)
Control Arm-to-Crossmember	
Upper	40 (5.5)
Lower	43 (6.0)
Stabilizer Bar-to-Lower Control Arm	87 (12.0)
Brake Caliper-to-Steering Knuckle	72 (10.0)
Shock Absorber-to-Lower Control Arm	30 (4.2)