1969-73 COLLAPSIBLE STEERING COLUMNS

American Motors, All Models Type 1
Chrysler Corp. (Exc. Barracuda & Challenger) Type 1
Barracuda & Challenger Type 4
Ford Motor Co., All Models Type 2
General Motors, All Models Type 3

The four basic types of collapsible steering columns are as follows:

Type 1 – A steering column unit consisting of, a jacket with a collapsible mesh section.

Type 2 – A steering column unit consisting of, a jacket with a collapsible bellows (accordian) section.

Type 3 – A steering column unit comprising of, an outer jacket, comprised of two tubes of different diameters joined together by two rows of ball bearings, which are pressed into position.

Type 4 – A corrugated cylinder fastened to steering wheel between wheel and bearing housing.

DESCRIPTION

Under head-on collision conditions these steering columns are designed to telescope at a controlled rate. In addition, if the driver is thrown forward into steering wheel, the column can telescope further at the same controlled rate. Incorporated into any one of the above mentioned columns, is a two piece telescoping transmission gearshift tube interconnected by plastic inserts and shear pins. A two piece telescoping steering shaft with upper and lower sections connected by plastic collars and pins. A mounting bracket connecting steering column and instrument panel allows column to slide forward but blocks its rearward movement towards driver. On some models a collapsible corrugated cylinder or "can assembly" is placed between the steering wheel and the bearing housing to provide for impact absorbtion.

INSPECTION

An inspection is needed in all cases where damage is evident or whenever the vehicle is being repaired due to a front end collision. This is to determine if the column components are functioning as designed, or if repairs are required. Check the column support bracket. Damage in this area will be indicated by separation of the mounting capsules from the bracket. The bracket will have moved forward toward engine compartment and will usually result in collapsing of the mesh or telescoping section of the steering column. Inspect mesh and/or bellows section of column for bulged sections and/or bends. If steering gear flexible coupling is torn, has excessive anglularity or no pin engagement, it must be replaced and column aligned.

REMOVAL & INSTALLATION

American Motors – Disconnect battery cable. Remove the two flexible coupling to flange bolt nuts. Note the difference in size of bolt shanks and nuts to insure correct assembly. On Matador and Ambassador models, remove the snap ring from the lower steering shaft universal joint, and remove the lower shaft from the car.

2) Remove the bearing caps and retainer from the upper shaft. Disconnect shift linkage from shift lever. Press in locking clip on each end of wire connector and disconnect. Remove column to toe board parts. Remove lower instrument panel crash pad trim plate, bracket capsule stud nuts, or bolt at instrument panel. Remove bracket to column bolts and remove bracket. Set bracket aside to protect breakaway capsules. Remove column from car.

Chrysler Corp. – Disconnect battery cable. Disconnect linkage from lower end of steering column. Remove steering shaft lower coupling to wormshaft roll pin. Disconnect wiring connectors at column jacket. Remove center pad assembly. Disconnect horn wires, and remove horn switch (if applicable).

2) Remove steering wheel retaining nut and washer. Remove steering wheel with tool C-3428B, or equivalent. *Do not bump or hammer on steering shaft to remove wheel.* On Barracuda and Challenger models, remove three nuts fastening steering wheel to corrugated cylinder. Remove nut and washer from steering shaft and install tool C-3428B, or equivalent to pull cylinder from splines. Remove turn signal lever. Remove floor plate to floor pan attaching screws. Remove finish plate from under instrument panel to expose steering column bracket.

3) On Chrysler, Fury, Polara, and Monaco models, disconnect automatic shift indicator pointer from shift tube bracket. Remove nuts or bolts attaching steering column bracket to instrument panel support. If so equipped, save shim pack from between bracket forward leg and support for re-use during installation. Carefully pry lower coupling from steering gear wormshaft, then remove column assembly.

Ford Motor Co. (1967-71) – Disconnect battery, and transmission control lever rods. Remove nuts retaining the flex coupling to the steering shaft. Remove screws in toe plate. Disconnect all steering column electrical connections. Remove upper trim shrouds, if equipped. Remove bolts securing steering column to bracket, and remove steering column. To install, reverse removal procedure.

Ford Motor Co. Convoluted Type (1972-73) – *Applies to Maverick, Comet, Ford, Mercury, Meteor, Mustang, Cougar, Continental.* Disconnect battery cable. Disconnect transmission control rods. Disconnect flex coupling at steering shaft. Remove toe plate screws and toe plate. Disconnect all column quick couplers. Remove upper column trim shrouds (if applicable). On Ford, Mercury, Meteor, Continental, disconnect transmission selector dial cable, and loop from column. Remove nuts and bolts securing column to brackets and remove column.

Ford Motor Co. Extruded Type (1972-73) – *Applies to Torino, Montego, Thunderbird, Mark IV.* Disconnect battery cable. Remove bolts attaching flex coupling to flange. Disengage safety strap and bolt assembly from coupling. Remove turn signal wiring quick disconnect at base of column. On T-Bird and Mark IV, remove right shake brace attached to brake pedal support bracket. If equipped, remove back-up light switch wiring and vacuum hose connections. Remove trim shrouds. On T-Bird and Mark IV, disconnect the PRND21 wire cable.

2) Remove steering wheel. Remove screws holding instrument cluster panel to instrument panel, separate the panels. Disconnect the speedometer cable, wire harness connector and bowden wire cables to the heat/air panel. Remove the instrument cluster. Through the opening in the instrument panel, remove the two upper collar attaching bolts at brake support bracket and disconnect the ignition switch blade connectors.

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3) On Toring and Montego models, remove or rotate the two vibration braces attached to the upper collar attaching bolts and the cowl structure to obtain clearance. From under the instrument panel remove the two bolts attaching the lower collar to the brake support bracket. Remove rubber boot at dash panel. Remove the column through the opening in the instrument panel.

Ford Pinto Extruded Type (1972-73) – Disconnect battery cable. Disconnect quick disconnect connectors at base of column. Remove bolt attaching steering gear input shaft to flex coupling. Remove 1/4" locking screw in the flat face of flex coupling boss on steering side. Remove lower trim shroud from upper support bracket at instrument panel. Disengage lower column seal at dash. Remove nuts holding column support bracket to brake support bracket. Remove column from vehicle.

General Motors – Disconnect battery cable. Disconnect flexible coupling. Disconnect all shift linkage from shift tube lever at lower end of steering column. Remove screws securing toe pan cover to floor and remove cover. Remove trim cap from lower instrument panel, if so equipped. If equipped with automatic transmission remove shift indicator link.

2) Disconnect neutral start and back-up light switch wiring, and turn signal switch wiring at connector. Lower steering column until ignition switch wiring can be disconnected. If car is equipped with automatic parking brake release, disconnect vacuum hose. Remove steering column brackets, record number and exact location of shims used. Remove steering column.

OVERHAUL

NOTE – For tilt or tilt-telescoping columns, see "Movable Steering Columns" in this section.

Disassembly (Upper End)

NOTE – On all General Motors models it is necessary to remove the Anti-Theft Ignition Lock prior to overhauling the steering column (upper end). To remove this ignition switch, refer to ignition switches in the Electrical Section.

Upper end may be disassembled in car. With steering wheel removed, remove upper bearing preload spring, turn signal and shift levers. Remove hazard warning knob. Remove C-snap ring from upper steering shaft. Slide thrust washer and wave washer off upper steering shaft. Loosen turn signal attaching screws, rotate cover counterclockwise and remove.

Reassembly (Upper End)

Reverse removal procedure noting the following:

1) Make sure tangs on lock plate are aligned with slots in jacket, wiring must be pulled flat against jacket and wire protectors must be reinstalled without pinching wires.

2) Snap ring must be completely seated. Reinstall original size bolts and nuts or specified replacements. Follow tightening specifications exactly.

TIGHTENING SPECIFICATIONS

Tightening Specifications – American Motors

Bolt, Nut or Screws	Torque
Adapter Assembly Bolts	10 ft. lbs.
Turn Signal Attaching Screws	25 INCH lbs.
Turn Signal Lever	20 INCH lbs.
Hazard Warning Knob	2-5 INCH lbs.
Steering Bracket to Column	15 ft. lbs.
Spoke Horn Contact Assembly Screws	25 INCH lbs.
Steering Wheel Nut	20 ft. lbs.
U-Joint & Lower Shaft (Flexible Coupling)	20 ft. lbs.
Pinch Bolt (Flexible Coupling)	30 ft. lbs.
Mounting Bracket	10 ft. lbs.
Toe Plate to Panel	10 ft. lbs.

Tightening Specifications – Ford Motor Co.

Bolt, Nut or Screws	Torque
Steering Wheel Nut	30-40 ft. lbs.
Flexible Coupling to Steering Gear	24-37 ft. lbs.
Lincoln Continental & Thunderbird	25-35 ft. lbs.
Flexible Coupling to Steering Shaft	20-37 ft. lbs.
Toe Plate to Instrument Panel	
Ford, Mercury, Meteor	8-13 ft. lbs.
Fairlane, Falcon, Montego	8-13 ft. lbs.
Cougar, Mustang	5-15 ft. lbs.
Lincoln Continental & Thunderbird	5-15 ft. lbs.
Column Bracket to Instrument Panel	13-27 ft. lbs.
Upper Bracket to Lower Clamp	5-10 ft. lbs.

Tightening Specifications – Chrysler Corp.

Bolt, Nut or Screws	Torque
Bearing Housing Retaining Bolts	50 INCH lbs.
Bracket Assembly to Steering Column	120 INCH lbs.
Upper Bracket Nuts	110 INCH lbs.
Hanger to Instrument Panel	200 INCH lbs.
Steering Wheel Nut	60 ft. lbs.
Bushing to Jacket	30 INCH lbs.
Cover to Lock Plate	30-40 INCH lbs.
Turn Signal Switch Lever	30 INCH lbs.

Tightening Specifications – General Motors Corp.

Bolt, Nut or Screws	Torque
Flexible Coupling Pinch Bolt	30 ft. lbs.
Toe Plate (Cover to Cover)	30-45 INCH lbs.
Toe Plate to Panel	30-45 INCH lbs.
Steering Column Retaining Nuts	20 ft. lbs.
Steering Column to Instrument Panel	20 ft. lbs.
Steering Wheel Nut (Exc. Buick & Oldsmobile)	30 ft. lbs.
Buick & Oldsmobile	35 ft. lbs.
Steering Coupling Nuts	18 ft. lbs.
Steering Coupling Clamp Bolts	30 ft. lbs.
Steering Wheel to Hub (Chevrolet Simulated Wood)	25 INCH lbs.
Floor Pan Cover Screws	35 INCH lbs.
Dash Panel Bracket to Column	15 ft. lbs.
Dash Panel Bracket to Dash Nuts	20 ft. lbs.

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3) Place corrugated cylinder (Barracuda & Challenger) on steering shaft with master splines aligned. Install retaining nut and washer, tighten to specifications exactly.

Disassembly (Lower End)

Steering wheel, cover, lock plate snap ring, spring cancelling cam and flat washer must be removed before disassembly of lower end.

1) With upper end disassembled, mount column in vise. Use a suitable holding tool or clamp one tapping plate. *CAUTION – Do not clamp column without special holding tool.*

2) Remove back-up and neutral start light switch. Remove steering shaft assembly from column. On automatic transmission cars, remove bearing adapter, bearing, shift tube spring and washer.

3) On synchro-mesh models, remove adapter assembly, bearing and spacers from lower end. Remove shift tube assembly and lower bowl bearing, using a suitable tool.

Reassembly (Lower End)

Reverse removal procedure noting the following:

1) On synchro-mesh cars, place a .005" shim on each side of steering shaft between levers and spacer to prevent cocking lever. Rotate lower bearing adapter assembly clockwise (viewed from bottom) until levers are bottomed out. Tighten bolts and remove .005" shim.

2) On automatic transmission cars with floor shift install back-up and neutral start switch loosely to jacket assembly (tighten during assembly to car after aligning lower levers). *NOTE – On Pontiac models, screws attaching switch must not be longer than ¼" or damage to shift tube will occur.*

ALIGNMENT

Loosen, but do not remove all column attaching screws and bolts. Column will align when screws are loose. Check flexible coupling for alignment and tighten column bracket-to-instrument panel bolts to specifications. Insert wedge shim in far enough to fill gap and tighten. *NOTE – do not force. Tighten all other bolts to specifications.*

► *JACKET TUBE, STEERING SHAFT ASSEMBLY, BEARING ADAPTER AND BEARING HOUSING REPLACEMENT*

NOTE: If the jacket tube, steering shaft assembly, bearing adapter and bearing housing are replaced, clearances at lower end of column will be changed. Install a service kit adjuster assembly. Installation procedures are included in the kit.

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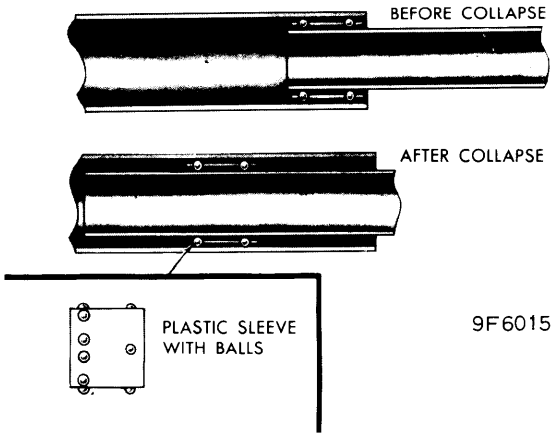
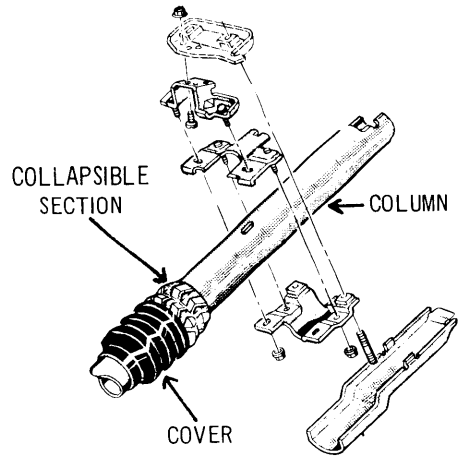
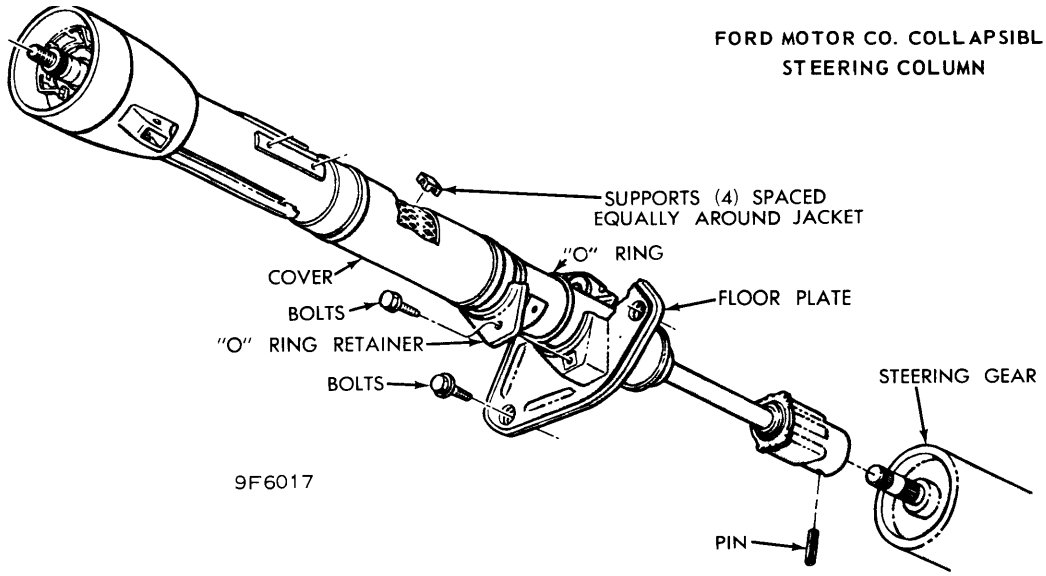


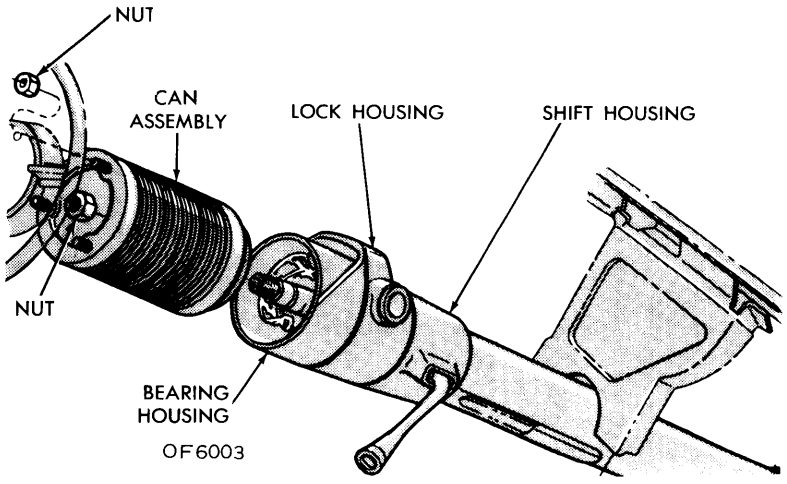
GENERAL MOTORS COLLAPSIBLE STEERING COLUMN



FORD MOTOR CO. COLLAPSIBLE STEERING COLUMN



AMERICAN MOTORS & CHRYSLER CORP. COLLAPSIBLE STEERING COLUMN (TYPICAL)



CHALLENGER & BARRACUDA IMPACT ABSORBING CANNISTER