1968-72 CHRYSLER CORP. (ROSS) INTEGRAL POWER STEERING

Dodge – Motor Home Chassis (1968-72)

NOTE – Some models use other units. See Chrysler Corp. (Saginaw) Power Steering in this Section.

DESCRIPTION

Integral type power steering gear consists of a gearbox containing a hydraulic control valve, a power cylinder, and a mechanical means of steering control. Rotation of the input shaft causes movement of piston within power cylinder, through interaction of ball bearings spaced between an external groove on input shaft and internal groove in piston. Hydraulic control valve is actuated when rotational force of input shaft exceeds combined force of centering springs and "hydraulic reaction" of control valve.

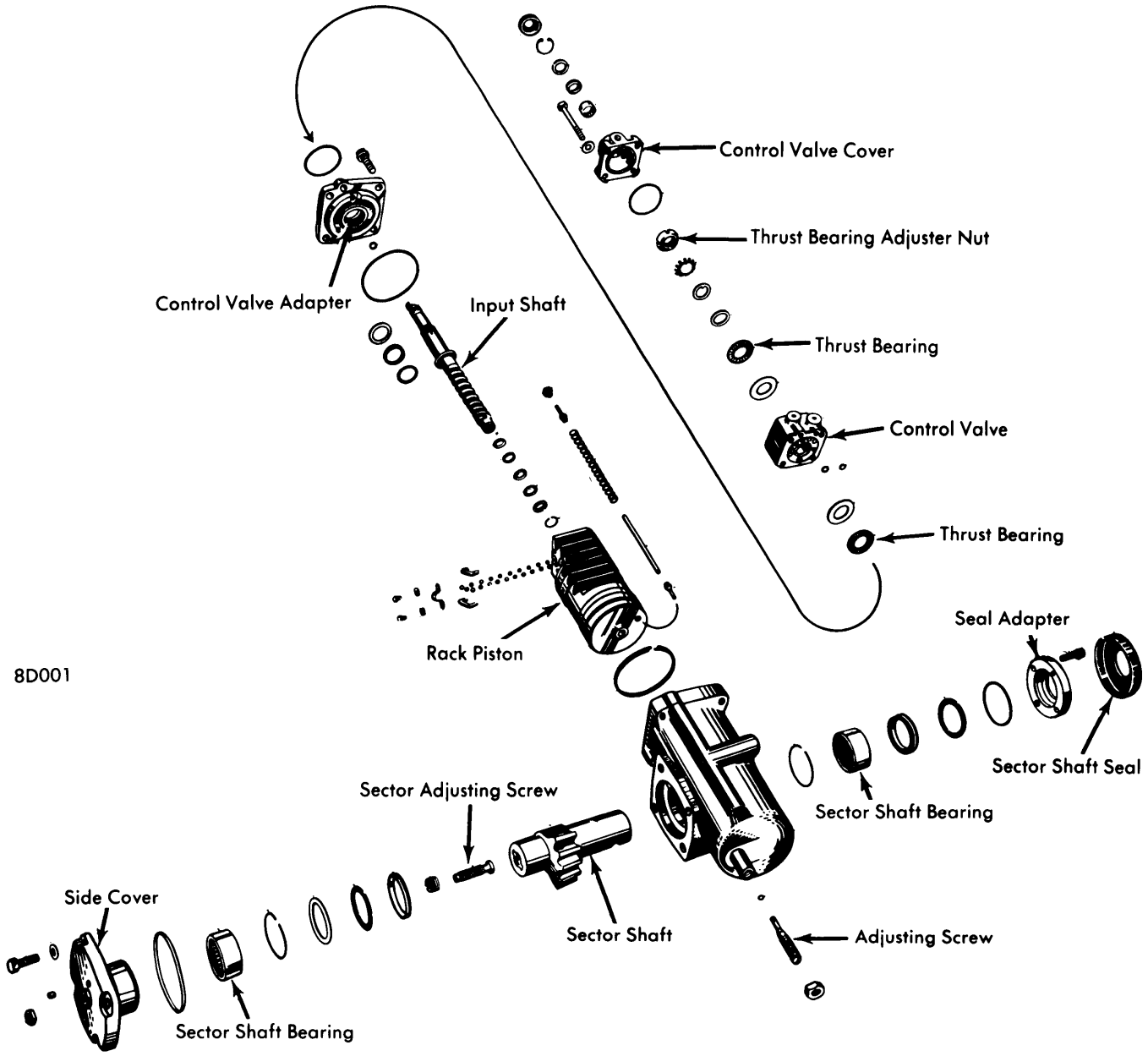
LUBRICATION

Check fluid level in power steering pump every oil change. Steering gear and fluid must be at normal operating temperature. If necessary, add Power Steering Fluid only to bring fluid to proper level in pump reservoir.

ADJUSTMENT

VALVE THRUST BEARING

Remove steering gearbox from vehicle and disassemble into major subassemblies. Clamp worm shaft and piston assembly into soft-jawed vise, with threaded and serrated end of shaft



STEERING GEAR ASSEMBLY

1968-72 CHRYSLER CORP. (ROSS) INTEGRAL POWER STEERING (CONT.)

pointing up. Remove control valve cover, then unstake adjustment nut lock washer. Tighten adjustment nut until all components are snug and solid. Back nut off approximately 20°, and bend tang of lock washer into slot in nut. Check that rotational torque does not exceed 3 INCH lbs. Reassemble and reinstall gearbox.

PRESSURE RELIEF VALVE SCREW (OFF VEHICLE)

Loosen lock nut and remove adjusting screw from lower housing. Replace adjusting screw "O" ring, and install adjusting screw into housing until ⅞" of threads are exposed. Install lock nut and tighten securely while holding adjusting screw.

PRESSURE RELIEF VALVE SCREW (ON VEHICLE)

Install suitable pressure gauge between power steering pump and pressure port of control valve. Start engine and turn steering wheel to steering stop. Adjust pressure relief valve screw to obtain pressure reading of 500-600 psi. Tighten adjusting screw lock nut. *CAUTION — Never hold steering wheel at stop for more than 15 seconds while making adjustments.*

OVERCENTER POSITION

Turn adjusting screw in side cover to engage sector shaft gear teeth and rack-piston teeth in no-lash, no-bind condition. Turn input shaft through a minimum of five cycles, using pitman arm, and recheck lash.

SECTOR SHAFT

Remove steering gearbox from vehicle and disassemble into major subassemblies. Lubricate end of sector shaft adjusting screw and insert into end of sector shaft. Install adjusting screw retainer into shaft, and adjust screw to obtain end play of 0-.002".

TESTING

HYDRAULIC PRESSURE

With fluid at proper level in pump reservoir, belt tension properly adjusted, and power steering fluid at normal operating temperature, install suitable gauge and valve assembly between pump and high pressure hose. With engine idling at 600-800 RPM, and gauge valve open, note pressure reading while turning wheels from steering stop to steering stop. If maximum pressure reading is below relief valve setting, temporarily close gauge valve and note maximum pressure reading obtained. If this reading is below valve setting, power steering pump is faulty. If reading is within maximum, steering gear is faulty.

Relief Valve Setting

Application	PSI
With Saginaw Pump	1350-1450
With Thompson Pump	900-1000

REMOVAL & INSTALLATION

STEERING GEAR

Removal & Installation — Remove pitman arm from sector shaft, and disconnect hydraulic lines at steering gear. Remove steering gear-to-steering shaft clamp bolts. Remove gearbox attaching bolts, and remove gearbox assembly from vehicle. To install, reverse removal procedure, and bleed system. See *POWER STEERING PUMPS in this Section.*

OVERHAUL

NOTE — If complete assembly is not to be overhauled, remove subassembly to be repaired, and proceed to disassembly and reassembly of that unit.

STEERING GEAR

Disassembly — Rotate input shaft until index mark on end of sector shaft is at right angles to gear centerline. Remove side cover attaching screws, and tap lightly on end of sector shaft with a soft-faced hammer to loosen side cover. Remove side cover and sector shaft assembly from gearbox. Remove sector shaft seal adapter, then remove control valve attaching screws. Remove upper cover, control valve, control valve adapter, input shaft, and piston from gearbox.

Reassembly — Clamp gearbox housing, control valve end up, in a soft-jawed vise. Install new control valve adapter seal and cylinder port seals in adapter housing. Insert piston into housing, such that piston teeth are visible through side cover opening. Install control valve adapter housing, and install attaching bolts. Lubricate worm shaft, then install control valve cover. Align rack-piston tooth space with center tooth of sector gear as side cover and sector shaft assembly is installed into housing. Install side cover attaching, then adjust sector shaft adjusting screw. See *Overcenter Position Adjustment.* Install sector shaft seal adapter on housing, and install sector shaft water seal.

SIDE COVER & SECTOR SHAFT

Disassembly — Remove sector shaft adjusting screw lock nut. Remove side cover by turning adjusting screw clockwise. Remove sector shaft seal and back-up washers from side cover. Remove bearing from side cover if excessive wear is evident.

Reassembly — Clamp sector shaft in a soft-jawed vise, with adjuting screw end pointing up. Lubricate expanded end of adjusting screw with wheel bearing grease, and install in end of shaft. Install new screw retainer into shaft, and adjust screw. See *Sector Shaft Adjustment.* Install new sector shaft bearing, then install new seal and back-up washers. Coat sector shaft with wheel bearing grease, and insert shaft into side cover until sector shaft adjusting screw just contacts inner recess if cover. Turn adjusting screw counterclockwise until threads engage, then carefully turn screw until a firm stop is reached.

RACK-PISTON

Disassembly — Remove two poppets, spring, and poppet rod from piston. Place piston on clean surface, with ball return guides up, and remove ball guide attaching screws. Carefully remove guide clamp, then remove ball guides and all balls from piston assembly. Twist input shaft to ensure all balls are removed. Withdraw worm shaft from piston, and clamp shaft in a soft-jawed vise. Cut and remove worm shaft seal. Remove worm retaining ring, and remove worm.

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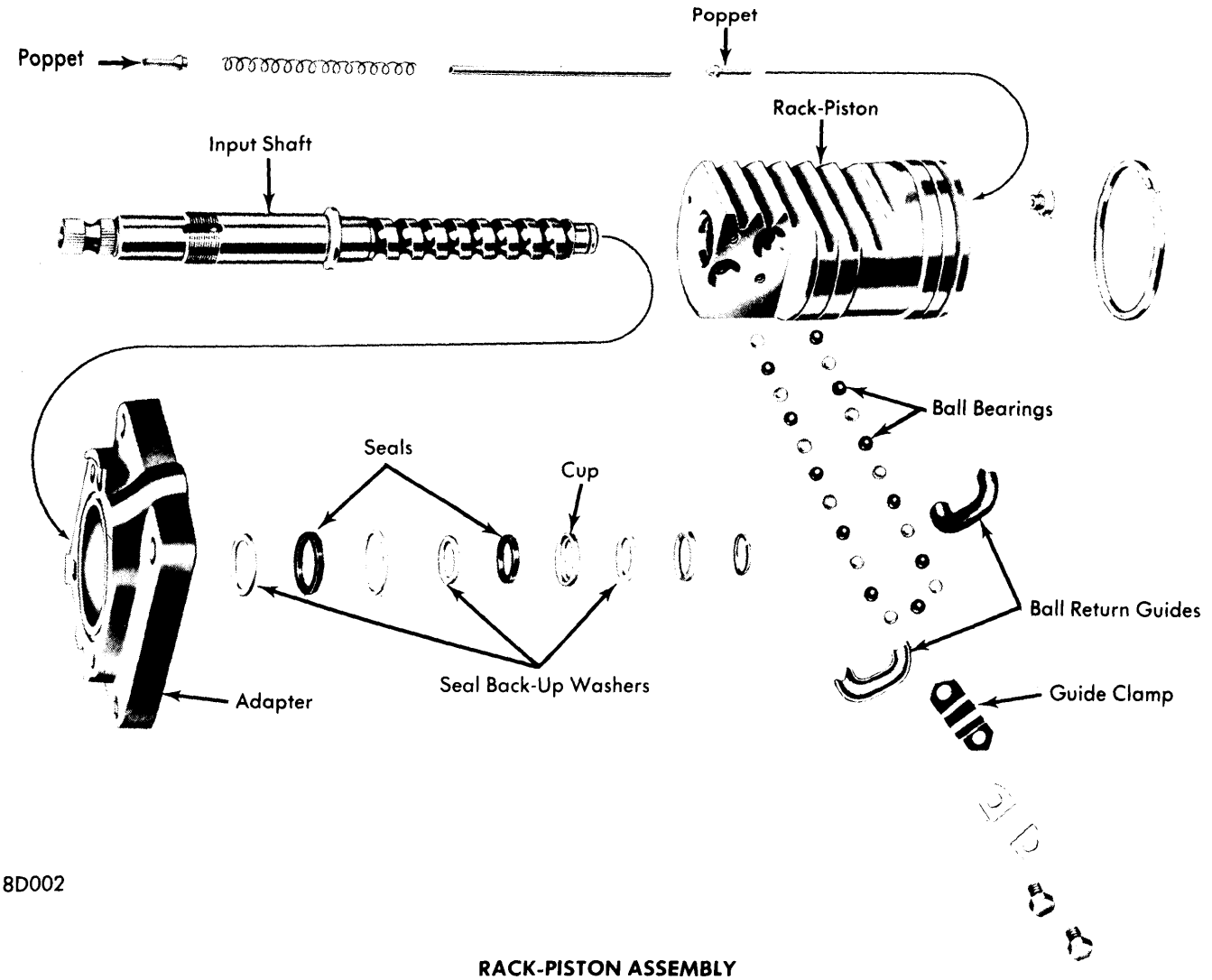

RACK-PISTON ASSEMBLY

Reassembly – Horizontally clamp piston in a soft-jawed vise, with ball guide holes facing up. Install piston ring in first ring groove. Install poppet rod, spring, poppets, and poppet seat into piston. Install cup seal into piston base. Install 16 ball bearings, alternating between light and dark colored balls, while slowly turning worm counterclockwise. Install remaining six balls in ball guide, alternating light and dark balls with those already in piston. Install ball guides in position in piston, and install ball guide clamp.

CONTROL VALVE

Disassembly – Remove upper cover from control valve. Unstake adjustment nut lock washer, then remove thrust bearing adjusting nut, washers, thrust washer, and bearing. Remove control valve assembly from worm shaft, using care to keep valve spool in position. Remove control valve adapter, and remove seals from bore of adapter.

Reassembly – Clamp worm shaft in a soft-jawed vise in such a manner to give free access to serrated end of shaft. Install needle bearing, thrust washer, control valve assembly, thrust washer, internal tanged washer, external tanged washer, and bearing adjusting nut over end of shaft in that order. Tighten adjusting nut until parts are snug, then back nut off approximately 20°. Bend tang of washer into slot in nut. Install back-up washers, seal, and snap ring in valve bore. Install control valve cover, then invert shaft in vise and install adapter and seals.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Sector Shaft Adjusting Screw Lock Nut	20-25
Side Cover Attaching Bolts	45-55
Relief Valve Adjusting Nut	15-20
Relief Valve Adjusting Nut Lock Nut	20-25
Poppet Seat	25-30
Worm Follower Lock Screw	30-35
Sector Shaft Seal Adapter Bolt	13-23