



FEATURE ARTICLE from Hemmings Motor News

SAGINAW STEERING BOXES

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Reducing arm fatigue for over 40 years

Few mechanical parts have enjoyed a production life longer than the Saginaw power steering gearbox. First introduced in the early Sixties on full-size Oldsmobiles, the Saginaw gearbox has gone through many internal updates; however, it remained virtually the same and was the basis for General Motors power steering systems until the advent of rack and pinion steering. In some GM trucks, this unit is still used today. Saginaw gearboxes were also used in AMCs, Jeeps, Internationals and several Ford models; however, the Ford units will not interchange with any of the other applications.

The Saginaw gearbox is a rotary-valve type unit using recirculating ball bearings. They are referred to as recirculated ball-type because they use the same ball bearings on both the worm gear and the sector gear to reduce friction within the housing. You will often see this gearbox referred to as an "800" or "605" unit. The only major difference between these two units is how the pitman shaft is held into the unit. An 800 unit has a four-bolt cover on the top of the unit (the end of the shaft opposite the pitman arm spline). The 605 units use a single snap ring that holds a round cover into the top of the housing. GM also used two gearboxes, depending on the weight and size of the model. Station wagons, full-size cars and large front-wheel-drive cars used a heavy-duty gearbox usually identified by GM part number 5687962. These units had a 3.5-inch piston diameter, and the pitman shaft will turn anywhere from 3.5 to four turns between fully locked left and fully locked right. These units were rated at a 17.5:1 steering ratio. Mid-size and smaller models used a steering box tagged 5691676, and these units used a 3-inch piston. The travel on the smaller-piston unit was three to 3.5 turns lock to lock. The mid-size gearboxes were rated at a 14.4:1 steering ratio. Both the 3.5-inch and the 3-inch-bore gearboxes have a .813-inch input shaft diameter, and most will have 31 splines on the input shaft. You can substitute between both of these units. Aside from the mounting bolt pattern (most are 4-bolt mount but there are two different three-bolt mounts, as well), these units are all interchangeable. The more responsive 14.4:1 ratio gearboxes replaced the earlier 17.5:1 ratio boxes in most models by 1973. This is a good thing to remember when you begin your search for a replacement.

You can locate one of the basic Saginaw "800" series power steering boxes in one of these vehicles:

1964-'76 AMC
1961-'76 Cadillac, including
1963-'76 Eldorado
1964-'76 Buick and Pontiac full-size cars and Riviera
1973-'76 Regal
1975-'76 Skyhawk, Seville, Monza and Starfire
1965-'76 Chevrolet full-size cars
1967-'76 Camaro and 1968-'76 Nova
1964-'76 Chevelle, Cutlass, GTO, Grand Prix, Lemans, Ventura and Tempest
1971-'76 Vega and 1975 Pontiac Astre
1960-'76 Oldsmobile full-size cars including 1966-'76 Tornado
1971-'76 Jeep Cherokee, Wagoneer, Gladiator and J-series pickups
1972-'75 International Scout and Traveler

Many enthusiasts have also found that an easy way to upgrade the handling on your car is to convert to a Saginaw quick-ratio power-steering box. These were original equipment on some mid-size models, and they can be transplanted into most other GM vehicles, if you can locate one from your local pick-a-part. These gearboxes will improve the steering and handling for your car with a more responsive lower gear ratio and also reduce the steering wheel travel to 2.25 to three turns.

The 1969-'76 Camaros as well as 1964-'76 Chevelles, Malibus and Monte Carlos also used an optional quick ratio 12.7:1 unit, which will interchange with the higher ratio gearboxes. These are very popular units because they are an easy bolt-in performance conversion. The 1982-'96 S-10 pickups used a 14.0:1 ratio "605" series gearbox, which will interchange into earlier vehicles with some modification. Another option is to use late-model G or F Body units. They were original equipment on 1983-'88 Monte Carlo, 1983-'84 Hurst Olds, 1985-'87 Olds 442, and 1984-'87 Buick Grand National or T-Type. They are also 12.7:1 units and a little more difficult to find, but can be identified by a "YA" marking on the end cap (opposite where the steering column attaches) or by searching for cars with the F41 or Z65 suspension package. All of the Monte Carlo SS cars had these options. These units will reduce steering wheel revolutions from lock to lock down to 2.25 to 2.75 turns.

An important thing to remember when interchanging Saginaw gearboxes is to use your original pitman arm and idler arm if possible, to maintain the proper steering geometry. Different body styles have different length idler and pitman arms; for example, the F body arms are longer than those in an A or G body and could cause alignment and front-end clearance problems if used in different body styles. When interchanging between earlier and later GM gearboxes, you will notice the power steering hose fittings are not the same. Later fittings are metric and incorporate an O-ring, whereas all Sixties and most early Seventies units used the standard inverted-flare fittings. Auto parts stores sell standard thread to metric thread adapters in several different sizes that allow you to use your original hoses with the later-design metric gearboxes. The rag joint or steering gear coupler may also have to be changed. These can be obtained with the gearbox when being pulled from the donor car, or new ones are still available from the GM dealerships. The coupler off a 1977-and-up Chevy pickup (GM part number 7826542) works just fine to adapt the early-style steering shaft to the

later model gearbox. Rag joints are also available from Lares Corporation, which can assist you with interchangeability questions and the purchase of freshly remanufactured power steering components as well.

Lares Corporation 1-800-334-5749

Finding a replacement gearbox for your General Motors car can be very easy because of the abundance of original units available that will readily interchange. Completing an upgrade to a quick ratio steering gearbox can also give your ride some additional handling and make a classic drive like a newer model.

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