The Principle of Power Steering Gear

Power steering gear is one kind of hydraulic unit which using the power of engine to change the car direction . The engine drives the oil pump to create hydraulic pressure , then the hydraulic pressure affects on the power cylinder piston , making the pinion produce auxiliary force to the rack . The auxiliary force is concerned with the piston pressure . Therefore , if more steering power is needed , the pressure should be increased . The hydraulic pressure is controlled by the control valve linked to the steering shaft .

The Function of Power Steering Gear

When turning , the steering gear reduces the operation strength on the steering wheel ; controls the returning speed of the steering wheel . When turning in place , it can provide essential force . It is sensitive to steering , convenient to operate , and needs little power on the steering wheel so as to reduce the labor intensity of the driver . Provide the fast driving cars with stable steering ability . When the steering device expires , it can maintain the mechanical steering system work effectively . It can absorb the shock to the front wheel which come from the road , and reduce the impact to the steering wheel .( The power steering system consists of steering tank , steering pump , steering column and steering gear .)

The rotary valve structure power steering gear

It generally operates with the ceaselessly working steering oil pump . The pump absorbs oil from the oil tank and supplies it to the power steering gear control valve . When the gear is still , the control valve is often in the middle position . And the oil goes right through the control valves back to the oil tank .

The Traits of the Rack and Pinion Steering Gear

Rack and pinion steering gear has a simple structure , easy desion procedure , high Iransmission efficiency . It is produced by the completely sealed devices , so it is reliable . in fareign countries , il is widely used many years ago . But due to the low transmission ratio , the use of this steering gear is restricted . Al present it is more used in mini cars , In the rack and pinion steering gear , there is a cylindrical gear in the end of steering shaft . It meshes with the rack in hull which is fixed in the car frame . The rack is linked by two ball joints and two tia rods . It directly drives the tie rods to move to make the car rotate .

If the parts in the rack and pinion steering gear wear and the gap appears , the force of the spring will push it to the platen , so as to keep it mesh with the rack , so that the steering wheel is in an appropriate space and raise the manipulation of sensitivity

The Advantages of Rack and Pinion Steering Gear

Rack and pinion steering gear , with no pitman arm axis and rocker unit etc , is simple , easy to decorate , convenient to produce , reliable and has long operating life . Therefore , it is widely used in light , miniature cars .

Installation Instruction

The use of steering oil pump :

Choose the right oil pump according to the vehicle performance requirements and power steering gear basic parameters .

The use of oil :

The steering system should be filled with steering fluid according to the criterion . The gear oil which is 26mm2/S viscosity ( temperature 50℃) and freezing point less than -351 is recommended . And the recommended criterion will be Dexron or Mercon - M . The oil temperature in power steering gear should between -40C and 1200

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When installing the power steering gear , there is no use to adjust it .

Announcements

· The oil pipe should be installed correctly . Do not mix up the inlet with the outlet ; atherwise the power steering gear will be damaged .

- Always keep the inside of power steering gear clean .

· The power steering gear is operated by the car engine which drives the oil pump , so the car must not slide when flameout , otherwise it will cause steering problem

· The driver cannot turn the power steering gear to the limit for more than 5 seconds . Please turn it a little back when you turn it to the limit , otherwise the oil pump may be damaged .

· The spool has been adjusted to its best state and other parts should not be dismantled .

· The oil seal and the junk ring which dismantled when repairing should not be used again .

· The oil refueled should be the same as the original one .

+ If the hydraulic system breaks down and cannot work , the driver should increase strength so as to rotate the car temporarily .

· The power steering gear is usually brought back to our service center to be repaired

When you assemble and dismantle the power steering system , please don ' t strike or hit the parts strongly , and please keep it clean , any foreign material in the steering system is forbidden .

Care and Maintenance

1.For hew power steering kits , please change the automatic gear oil after first running 2500km. Afterwards please change the oil and clean the oil tank for each 50000km running or each year .

2.Please check the oil lever and oil quality each month and fill the oil to the right lever . If you find the oil with many dirties , please change it .

3Aways check and maintain the tire pressure be in accordance with the provisions .

4. The procedure of changing oil or refueling

(1) Put up the epipodium .

(2) Open the lid ; unscrew the bolt on the oil outlet and discharge the bottom oil ( in idling state ). And turn the steering wheel to the limit in both directions for several times until no oil left in the oiler .

(3) Tighten up the bolt on the oil outlet ( to keep it clean and in case of dirties ).

(4) Refuel in the oiler .

(5) When the car in idling , turn the steering wheel to the limit in both directions for several

times until the oil level is stable and no bubble produced .

(6) Refuel until it reaches the mark .

(7) Tighten the oiler lid .

Problem Cause Solution

The tire pressure is insufficient , To charge the tire and adjust the engine

engine works unstably

The caster is too large Check the wheel alignment

Cardan joint wear Change the cardan joint

Ball - and - socket joint wear Change the joint

The steering column gets stuck Check the steering column

The piston wear and the rotary Repair the steering gear

valve gets stuck

Too low oil pressure Change the oil pump

Overloading Load shedding

Steering pump Check the steering pump control valve and clean the entire steering system or change the oil cup in necessary .

Problem of rotating