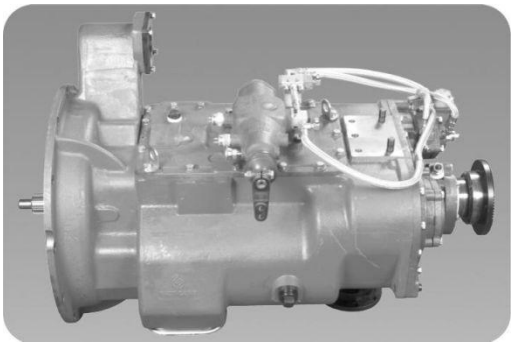
The seventh section fast dis assembly and assembly of 12JS series gearbox

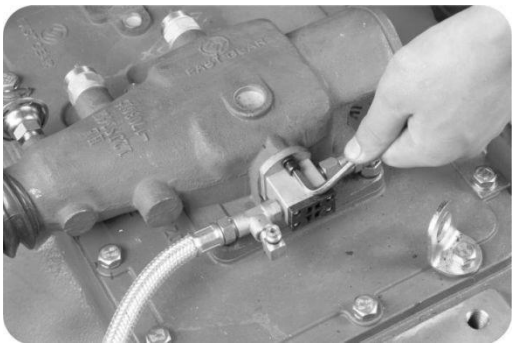
Due to the 12JS series gearbox and 9 gear series gearbox structure is slightly different, so it is also a slightly different dis assembly process. Below we take the 12JS200T gearbox as an example, detailed introduction of the 12JS series gearbox dis assembly procedure.

A, 12JS series gearbox removal

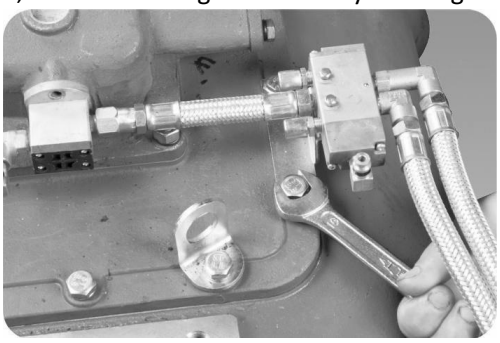
(a) shift mechanism (single H mechanism)



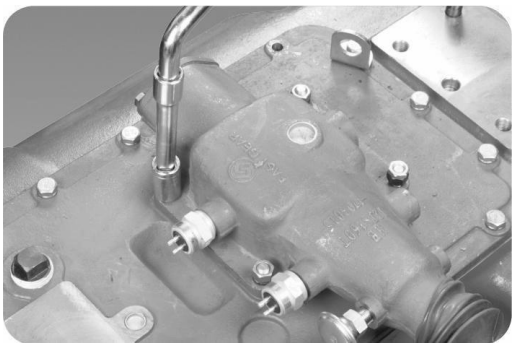
1, one shot left control of the twelve gear transmission.



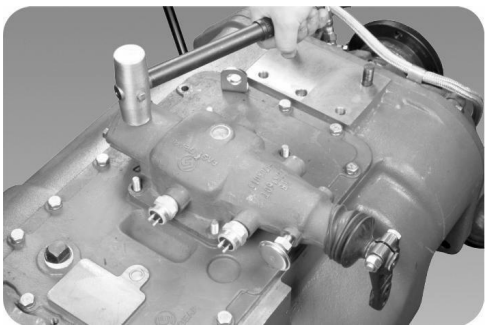
2, remove the single H assembly on the gas control valve of the fixed screw.



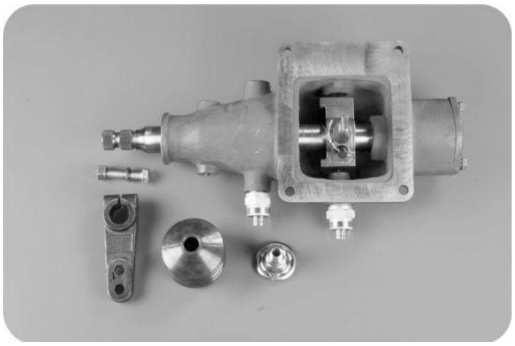
3, remove the cover on the right side of a single H valve bracket bolts.



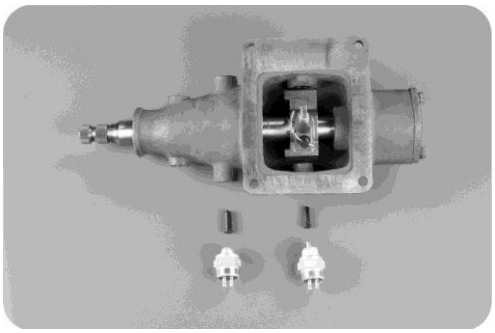
4, remove the shift mechanism assembly four positioning nuts.



5, knock and remove the gear assembly.

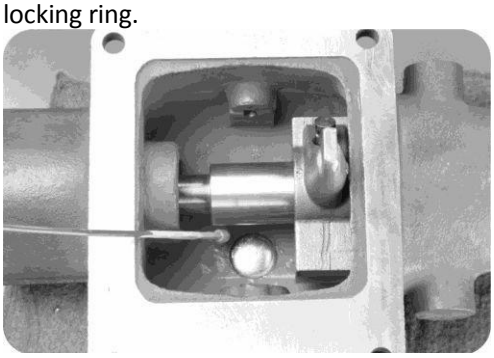


6, remove the rocker arm, dust cover, vent plug.

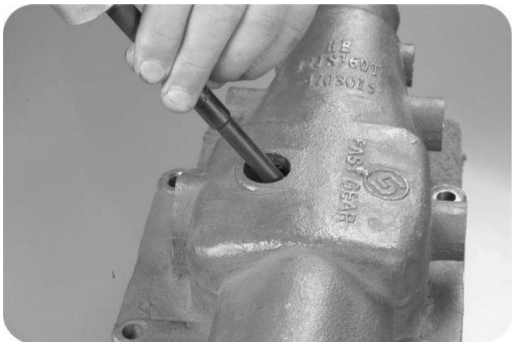


7, torn down, neutral switch and a pin.

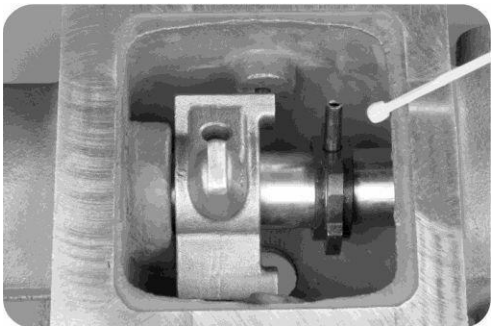
8, remove the gearshift assembly two bolts on the side plate, remove the limit sleeve, remove transverse shifting shaft locking ring.



9, turn gearshift shell, remove the bowl plug tablets and shifting the head of the wire.



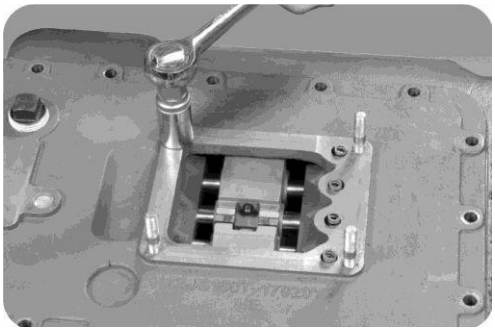
10, remove the park pin on the shift dial.



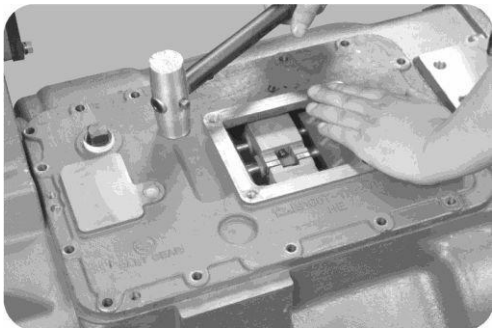
11, remove the elastic cylindrical pin on the reverse control block, taking transverse shift shaft.(two) the removal of the upper cover of the transmission box

(two) the removal of the upper cover of the transmission box

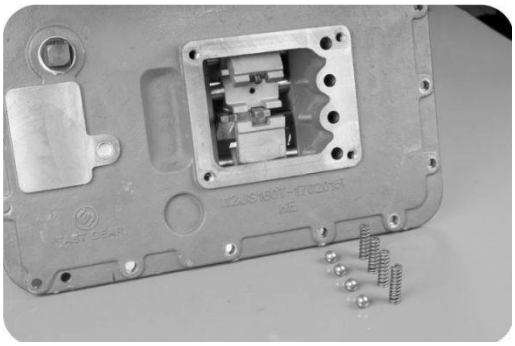
1, remove the upper cover housing bolts.



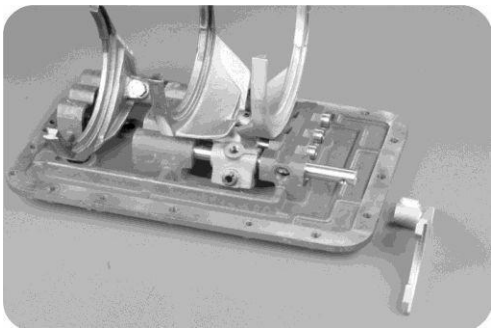
2, use the special tool to remove the cover on the shell of the four headed bolts.



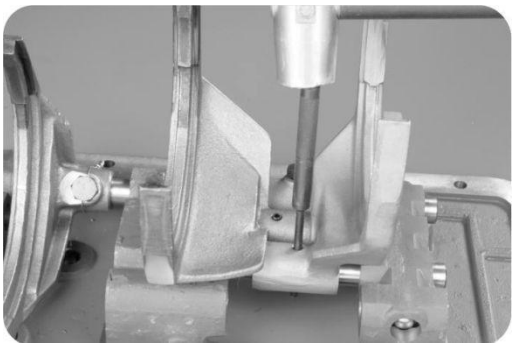
3, by knocking a copper rod cover, and the separation pad. Note: when struck by hand in the spring hole position,



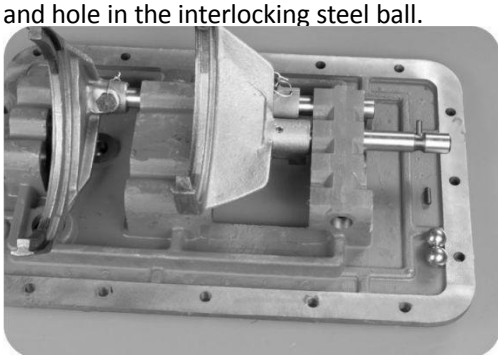
4, remove the cover assembly, remove the spring cover hole and the ball.



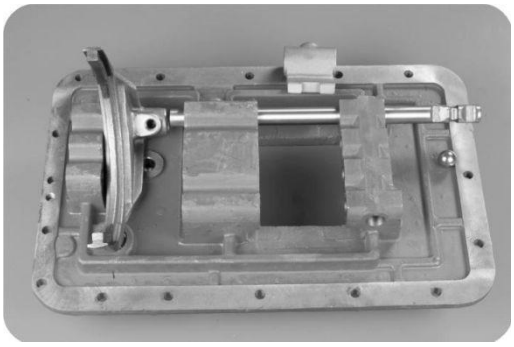
5, on the flip cover, remove the reverse gear shifting fork, reverse gear shifting fork shaft and the guide block.



6, removed 1 / 2 gear shifting fork on the elastic cylindrical pin, take 1 / 2 fork and fork shaft, remove shaft mutual lock pin and hole in the interlocking steel ball.

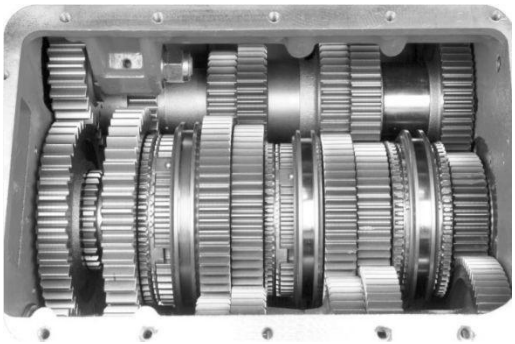


7, remove the 3/4 file dial the fork of the elastic garden column pin, remove the 3/4 file fork and shift fork shaft, remove the shaft on the fork shaft, remove the 5/6 file and the pilot block.

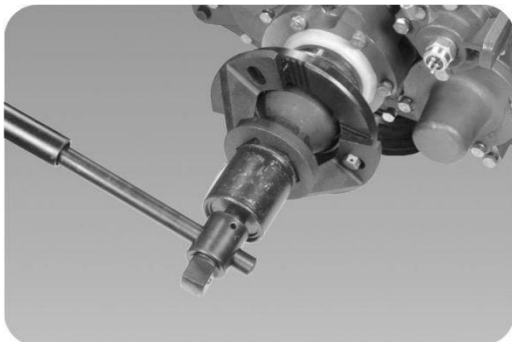


8, remove the 5/6 gear shifting fork shaft on the positioning bolt, taking the ball and interlocking interlocking pin hole.

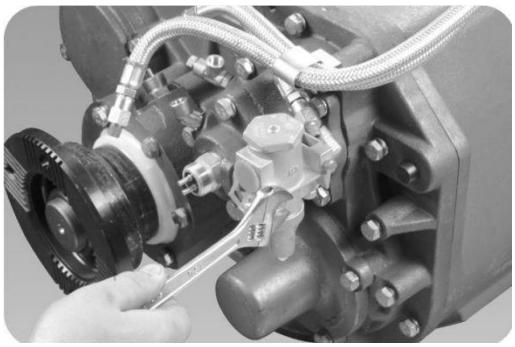
(three) removal of sub box assembly



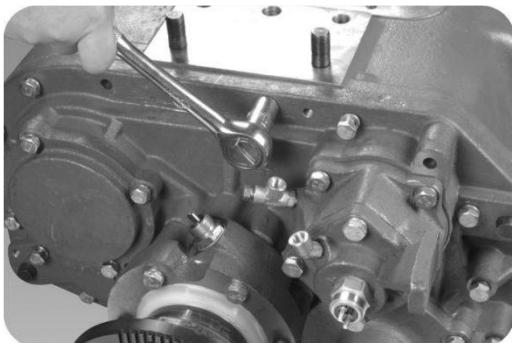
1, make the main box two synchronization gear meshing with the gear.



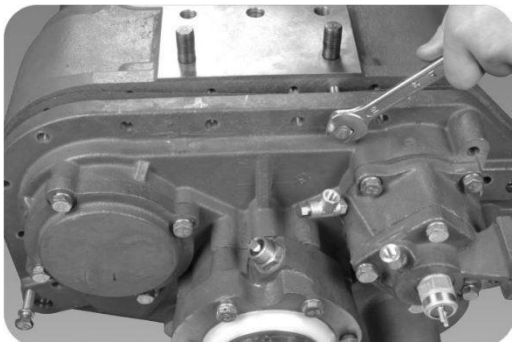
2, with a special pneumatic wrench loosen output shaft flange nut.



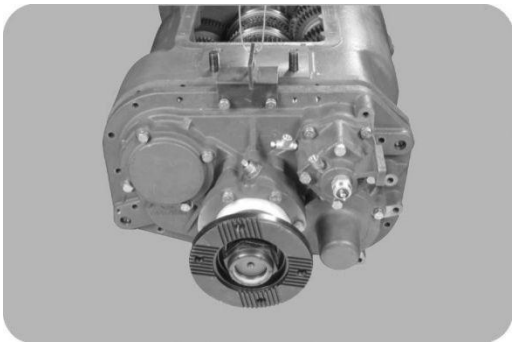
3.Two, remove the three pipe and air filter 3 bolts on the side of the cylinder.



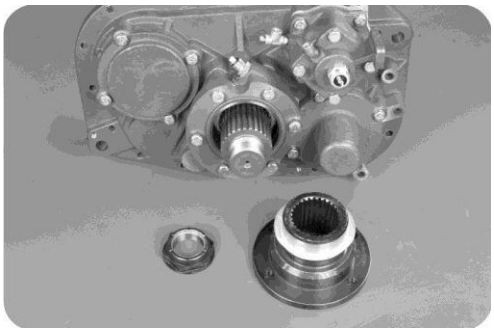
4, remove the rear lid housing and the main box of the connection bolt.



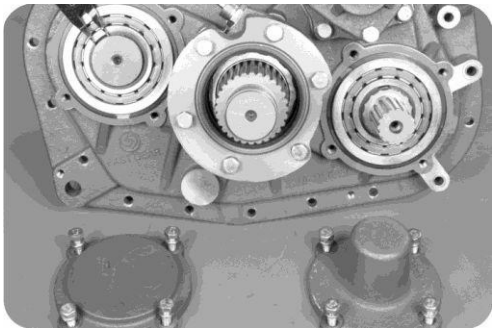
5, with three bolts will be vice - box assembly at the top of about 10 mm.



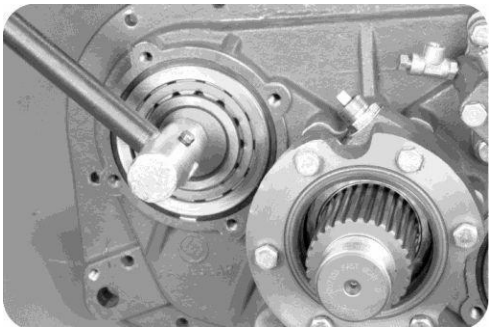
6, auxiliary box hanger lift side box assembly.



7, remove the collar nut and flange.

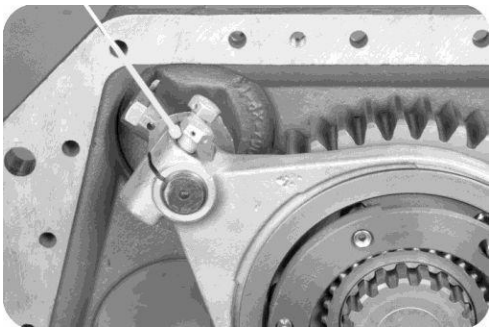


8, remove the two output bearing cover, the card ring clamp down on the counter shaft box side stop ring.

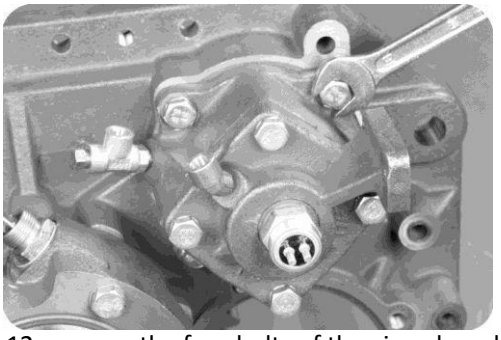


9, a backward output shaft, and the bearing separation, remove counter shaft bearing.

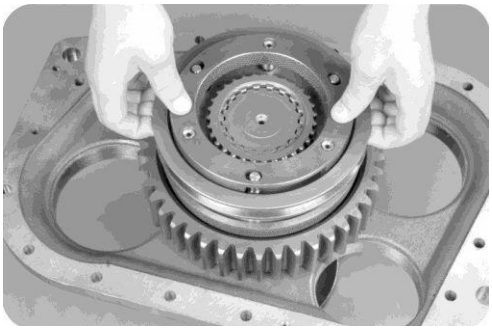
10, auxiliary box two counter shaft and bearing.



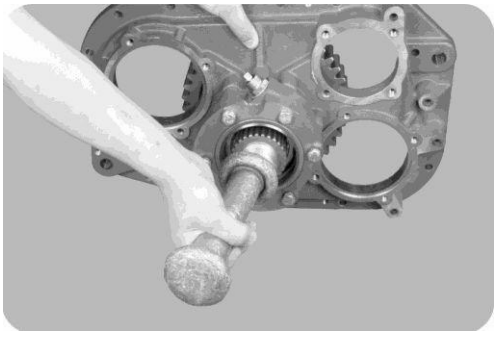
11, remove the auxiliary box shift cylinder and vice box shift fork of the connecting bolt.



12, remove the four bolts of the vice - box shift cylinder, take off the cylinder assembly.



13, take off the synchronization device from the output shaft.

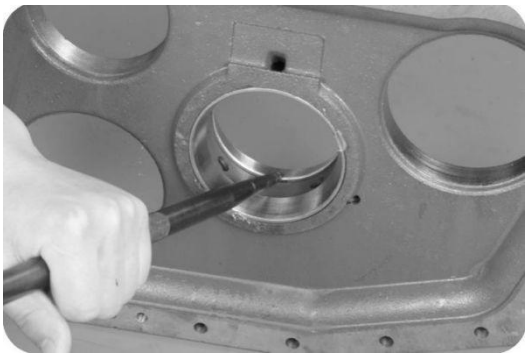


14, a backward output shaft, the bearing out from the hole.

15, the output shaft assembly cushion, knock and remove the bearing.

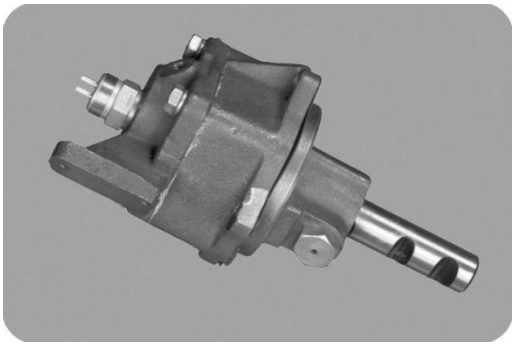
16, the output shaft assembly of the various components.

17, the output of the bearing cap bolts removed, remove the bearing cover, remove the speedometer and odometer joint, passive gear.

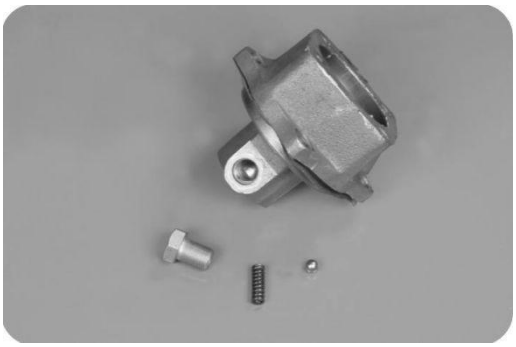


18, the outer ring of the combined bearing is taken out from the hole of the shell of the back cover.

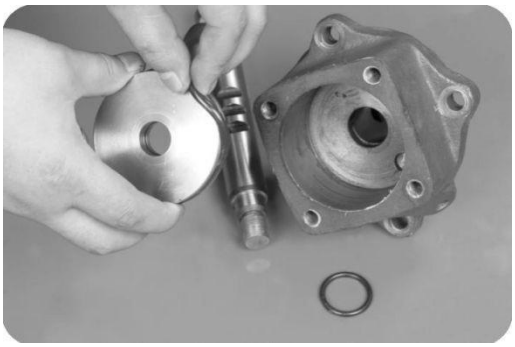
(four) the sub box shift cylinder



1, vice box shift cylinder.



2, remove the bolt on the side of the cylinder shell, remove the positioning spring and steel ball.



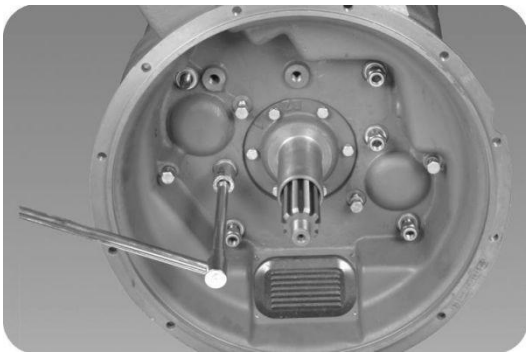
3, remove the self locking nut on the cylinder piston and remove the sealing ring from the piston.

4, shift the cylinder piston and sealing ring.

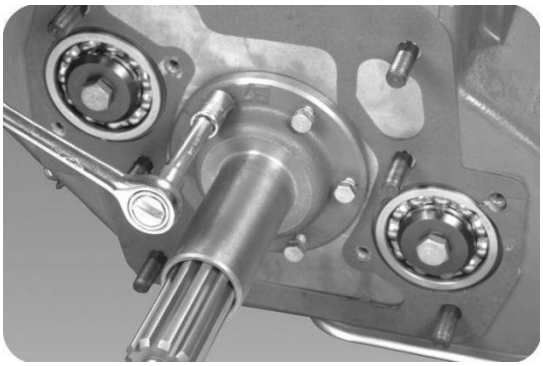
(five) decomposition accessory box synchronization device

1, vice box synchronization of the high, low cone ring, three springs and sliding sleeve.

(six) removal of a shaft assembly (this method can not remove the main box to replace a shaft)

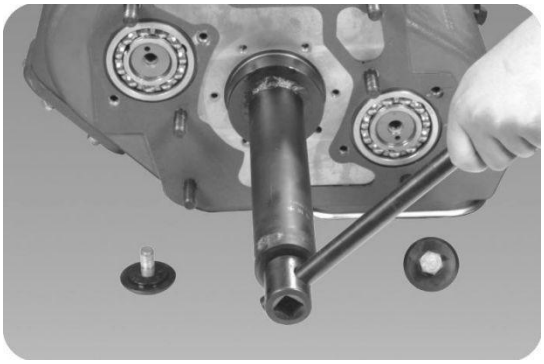


1, remove the clutch shell bolt, take off the clutch housing assembly.

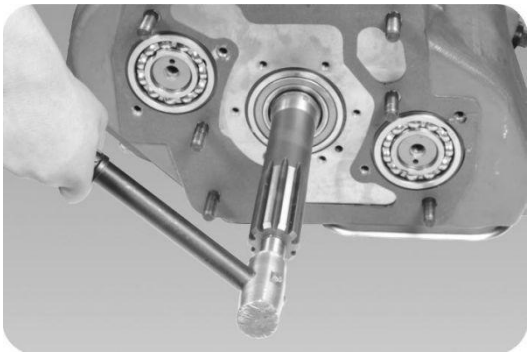


2, remove the bolt cap of a shaft, a shaft cover. Remove the tap

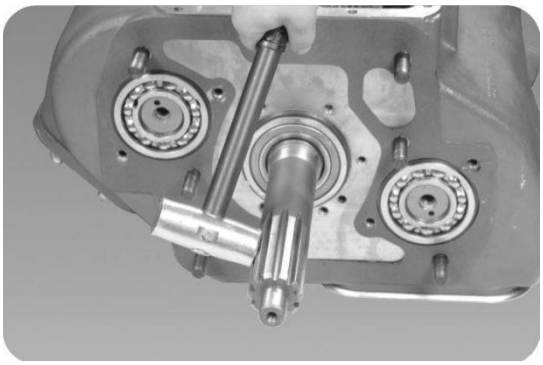
3, make the main box synchronization with two sets of gear meshing.



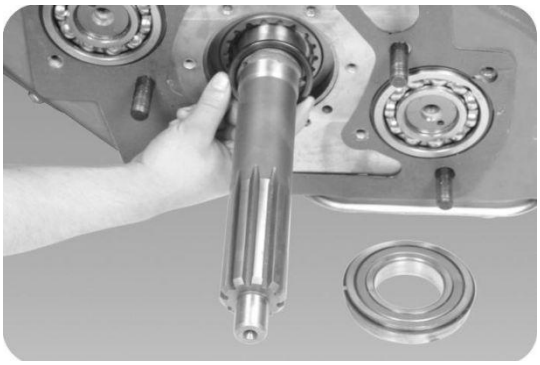
4, remove the two main bearing box counter shaft front end, with a special tool to tear down a shaft nut.



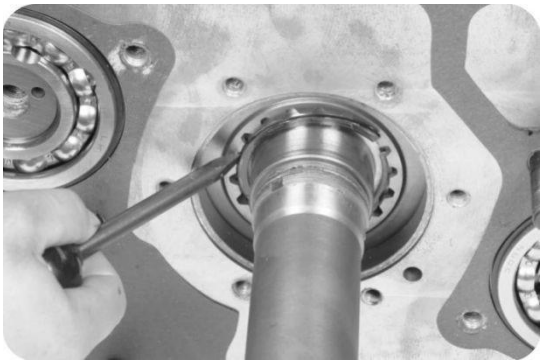
5, knock on one axis.



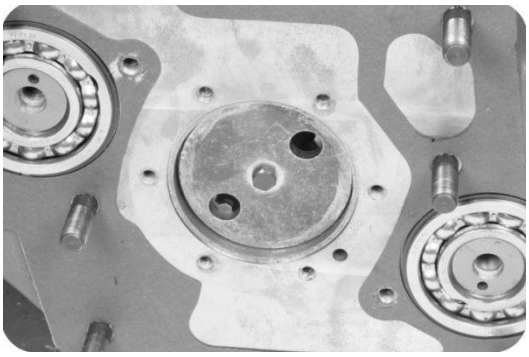
6, about to knock the shaft, the bearing shell out from the hole.



7, take off a shaft gear spacer.

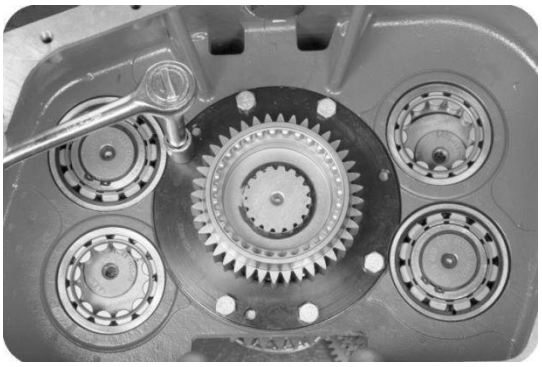


8, remove the retaining ring in a shaft gear. Take out a shaft.

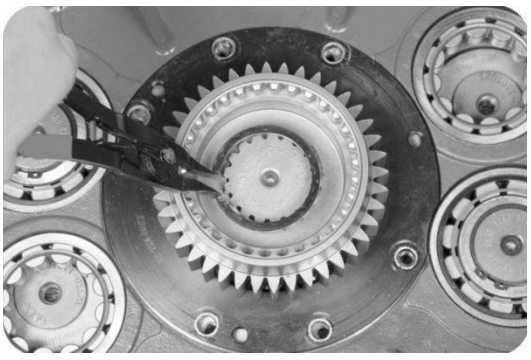


9, pressure plate and a bolt (M10 x 1) presses a shaft gear. In order to assembly, dis assembly and causes no damage to the 5 / 6 gear synchronizer, in the dis assembly and assembly of the second shaft assembly to with a pressure plate and a bolt will a shaft gear fixed on the second shaft assembly. The plate can also be home made according to the site.

(seven) the disassembly of the gear assembly driven by the auxiliary box



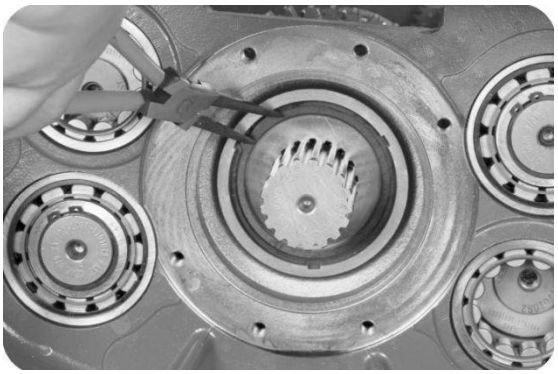
1, cut the locking wire drive gear assembly, remove the six bolts with hole.



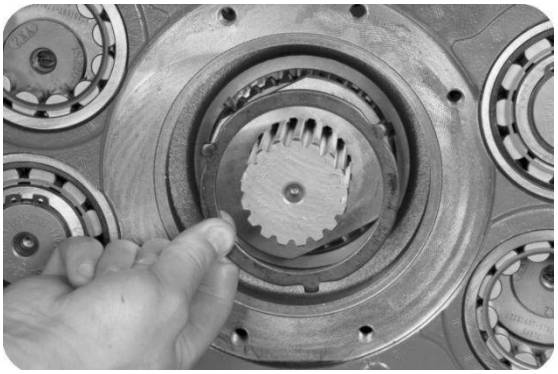
2, remove the snap ring in the inner hole of the drive gear, remove the drive gear and the positioning disc.

3, tap the bearing seat from the main box to remove the drive gear bearing.

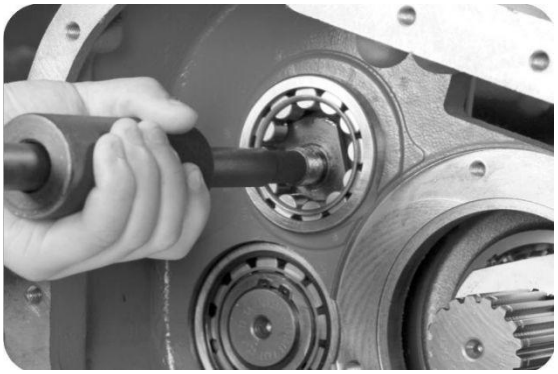
(eight) on the side of reverse idler gear removal



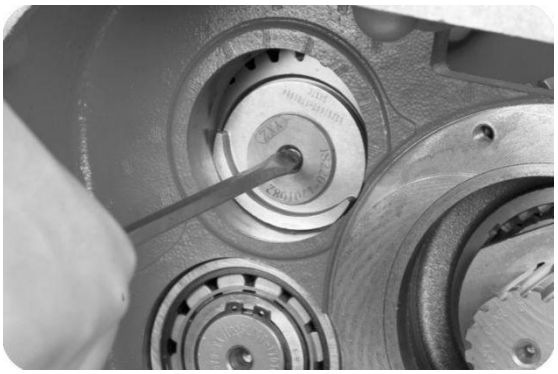
1, remove the snap ring two axis in reverse gear.



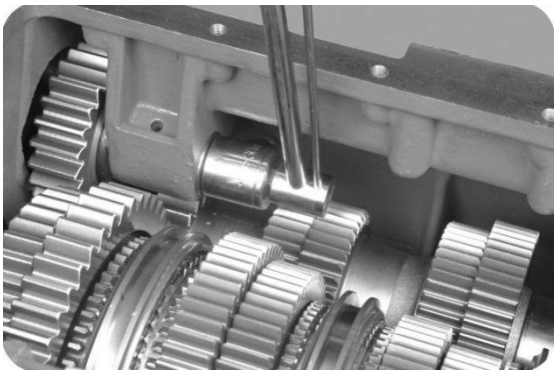
2, remove the two axle shaft gear washer in reverse gear.



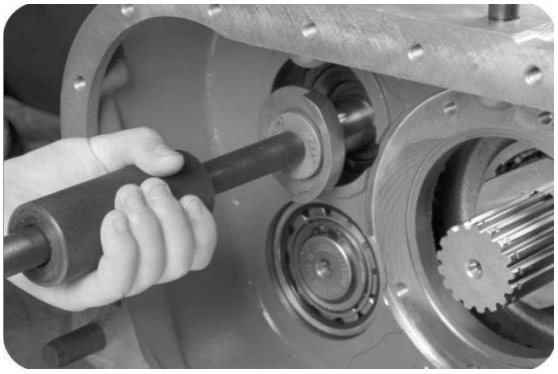
3, remove the auxiliary box counter shaft front bearing with special tools.



4, with a screwdriver remove the plug in the intermediate shaft reverse gear.



5, loosen locking nuts on intermediate shaft reverse.

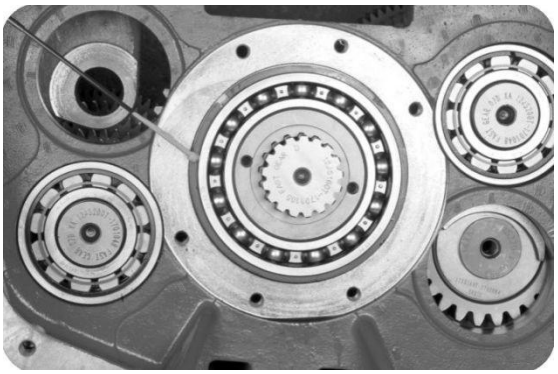


6, with the axle puller for intermediate shaft reverse gear down.

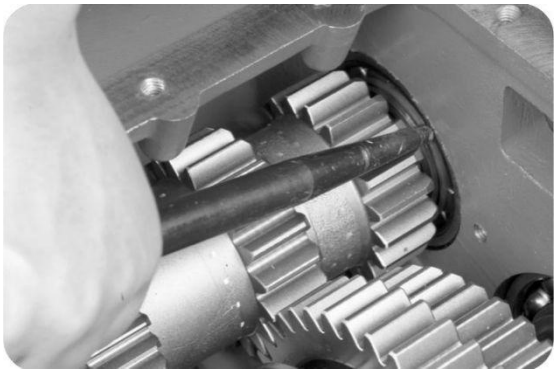
7, reverse wheel assembly components.

(nine) the removal of the main box

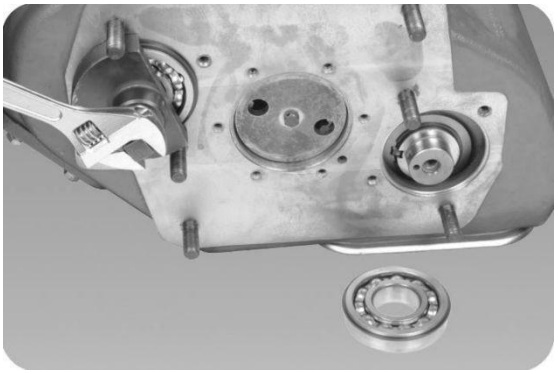
1, remove the main box after the counter shaft bearing collar.



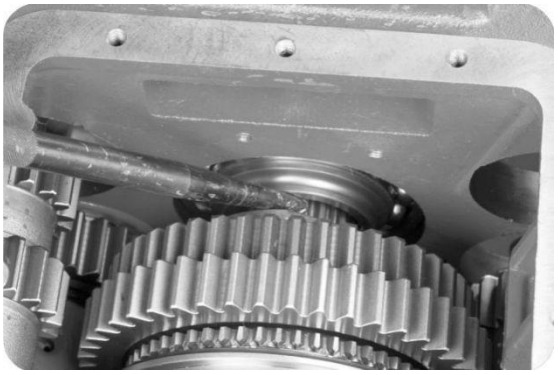
2, install the drive gear bearing to position the rear end of the two shaft.



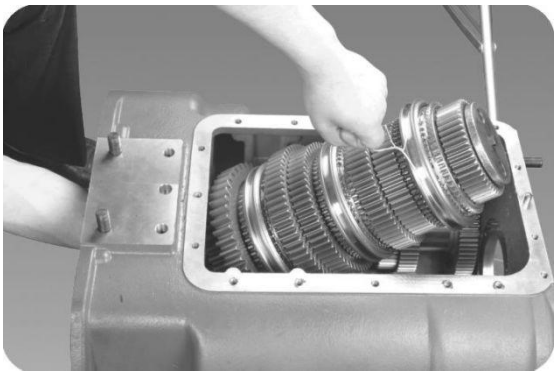
3, down two after the counter shaft bearing.



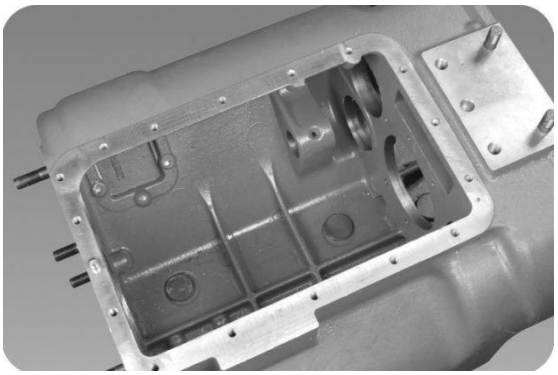
4, by knocking the back bar counter shaft shift is about 10 mm, down two counter shaft front bearing with special tools.



5, remove the drive gear bearing.



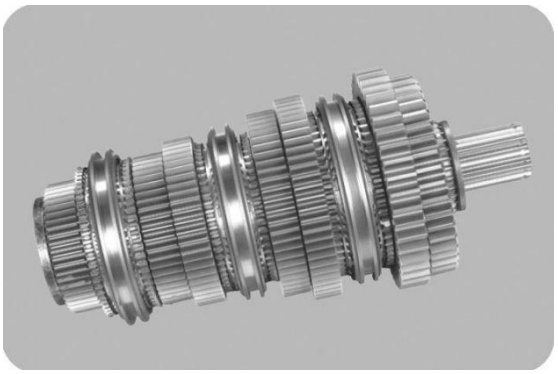
6, remove the two shaft assembly from the main box.



7, take two counter shaft assembly from the main tank, remove the reverse wheel assembly.

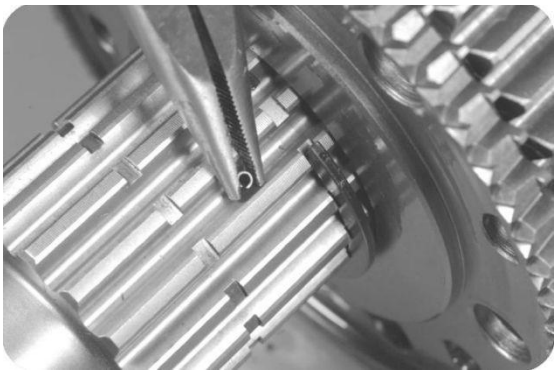
(ten) decomposition of the two axis assembly

Note: 12 gear box two shaft gear of the axial clearance of the processing accuracy is guaranteed, so there is no axial gap adjustment gasket.



1, remove the front end of the two axis of the baffle, take the next axis gear and 5/6 gear synchronous side components.

2, remove the two axis fixed 5/6 file synchronization card ring, remove the 5/6 file synchronization.



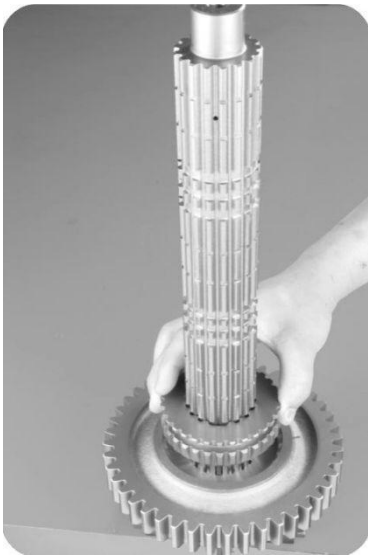
3, pull out the elastic pin on the two axis, take out the long key to remove the two shaft gear and the gasket in turn.

Two, 12JS series gearbox assembly

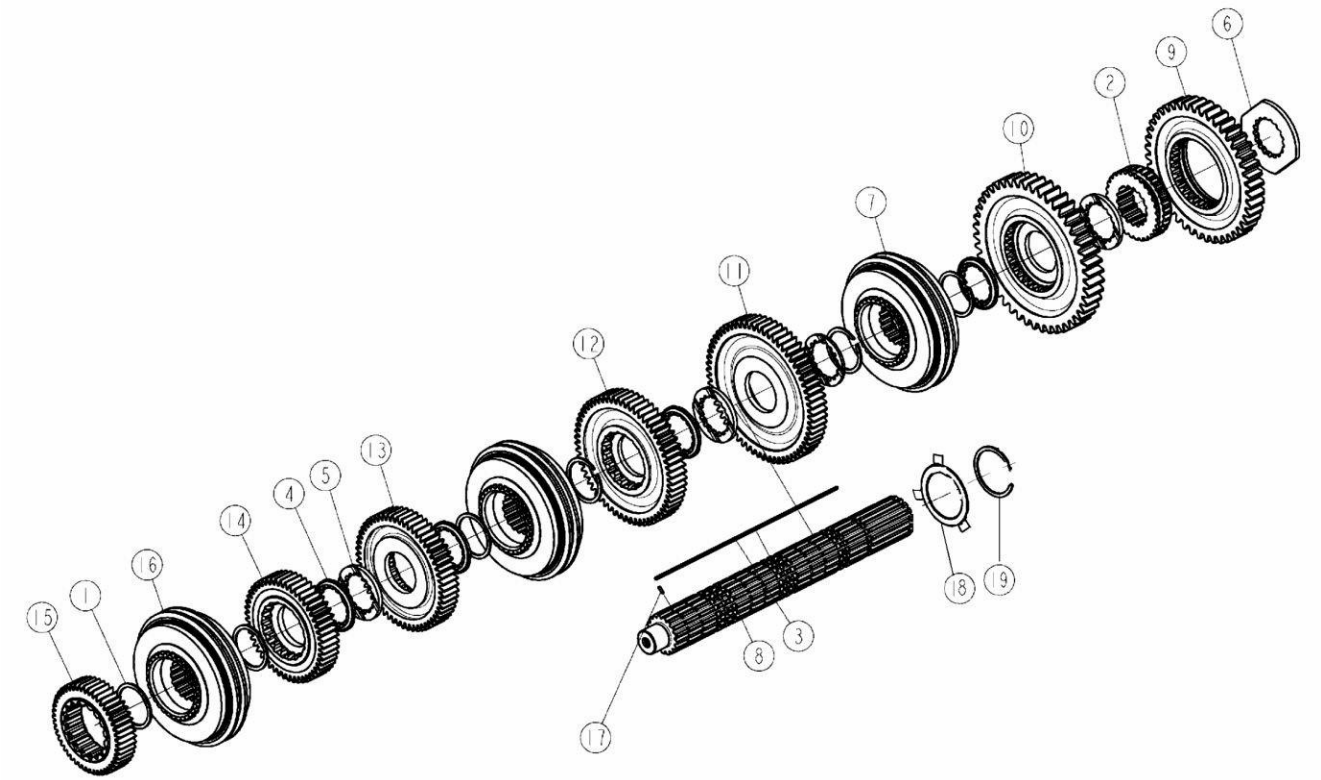
(a) assembly of the two shaft assembly

12JS series gearbox two shaft parts breakdown diagram see figure 7-1.

1, two axis small end vertical placed on the table, a two shaft reverse gear gasket, turned a tooth inserted into the long distance Key.



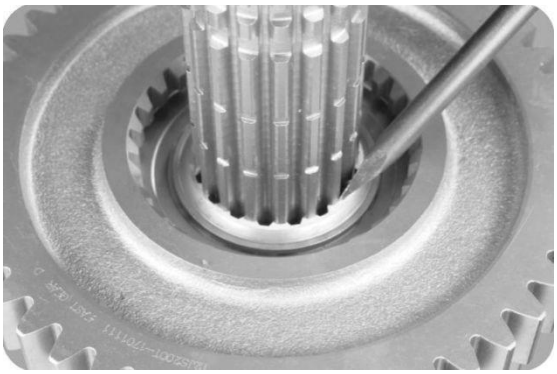
2, the assembly of the two axis reverse sliding sleeve, the tooth defect alignment hole two on the shaft groove, short tooth side up.



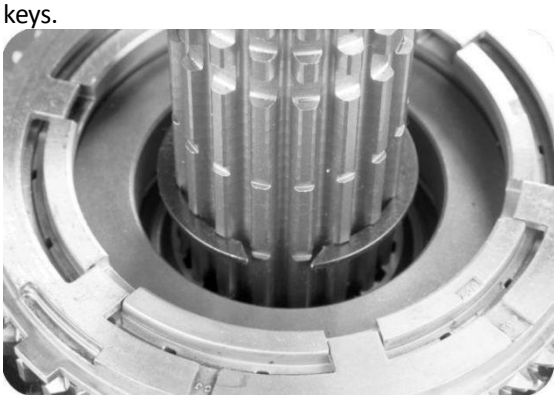
1 clasp 2 meshing sleeve 3 two axis angle of six through two axis gear spline 4 key pad 5 two shaft gear spacer 6 reverse gear gasket 7.1/2.18. The main shaft gear gasket 17. Elastic cylindrical pin of assembly of gear synchronizer. Second shaft 9. The second shaft reverse gear. The second shaft first gear 11. The second shaft second gear 12. The second shaft gear box 13. Two axis fourth gear gear 14. Two axis fifth gear 15. A shaft gear 16.3/4 gear synchronizer.19 reverse gear ring

Figure 12JS 7-1 series transmission two shaft assembly parts break down

3, assembly two shaft gear spacer, turned a tooth pitch after the long wear long keys.



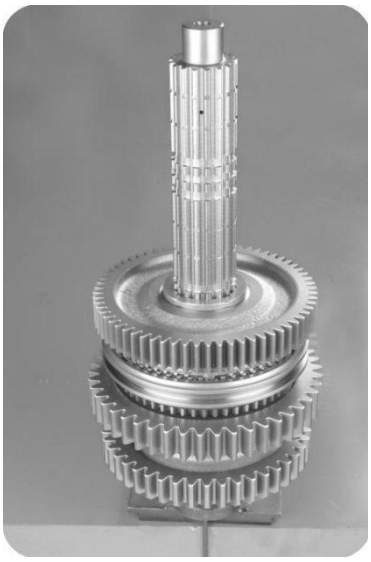
4, two axis combined tooth upwards into first gear two axis, convex upward into the spline pad, turned a pitch to wear long keys.



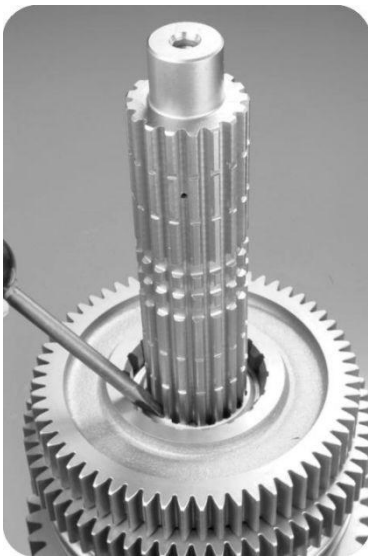
5, put the 1/2 file synchronization device side of the component, into a snap ring, the ring opening toward the two axis hole slot.

6, into the 1/2 File Synchronizer hub, into a snap ring, snap ring opening towards the two axis hole of the groove.

7, the other side into the components of the 1/2 file synchronization, down into two convex shaft spline pad, turned a pitch to wear long.Key.



8, two axis gear with gear down into two axis, two axis gear loading pad, turned a pitch to Wear long keys.



9, two axis third gear up into two combined tooth shaft, convex upward into the spline pad, turned a pitch to Wear long keys.

10, put the 3/4 file synchronization device side of the component, into a snap ring, the ring opening toward the two axis hole slot.

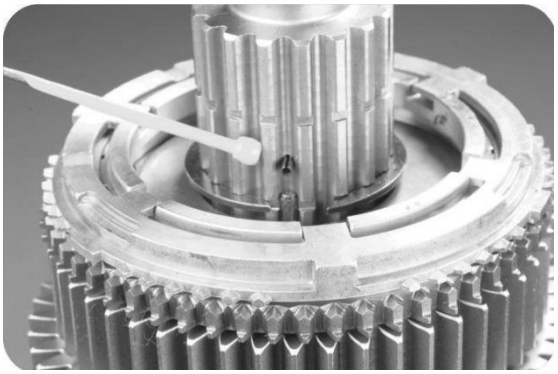
11, into the 3/4 File Synchronizer hub, into a snap ring, snap ring opening towards the two axis hole of the groove.

12, the other side into the components of the 3/4 file synchronization, down into two convex shaft spline pad, turned a pitch to wear long keys.

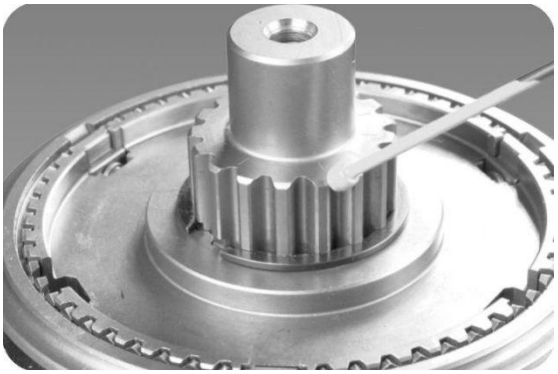
13, the two shaft four gear with teeth down into the two shaft, into the two shaft gear spacer, turned a pitch Wear long keys.

14, two axis gear tooth with five in the two axis, convex upward into the spline pad, turned a pitch to wear long keys.

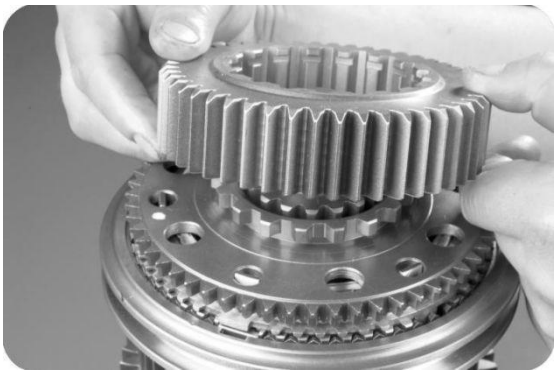
15, put the 5/6 file synchronization device side of the component, into a snap ring, the ring opening toward the two axis hole slot.



16, the installation of the elastic pin on the two axis, the long keys will be put in place.



17, into the 5/6 File Synchronizer hub, into a ring, ring opening to stagger the two shaft hole of the groove.

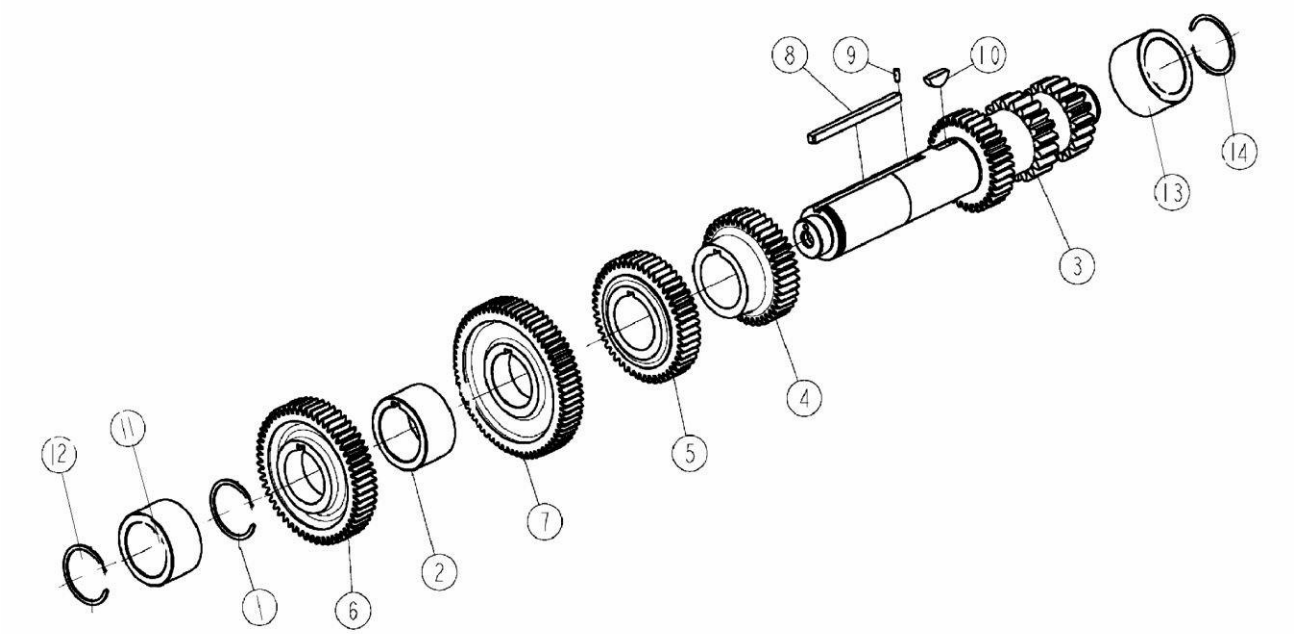


18, into the 5/6 gear of the other side of the gear components, mounted on a shaft gear, in the axis of the axis of symmetry of the two pairs of teeth on the gear to make two pairs of teeth installed mark.

19, with press plate will a shaft gear fixed on the second shaft. (2) the main box counter shaft assembly assembly if auxiliary shaft of a gear needs to be replaced, counters haft gears of each stage in the press were under pressure, and will replace the gear in Figure 7-2 installation sequence of the press were pressed into the counter shaft. In two counter shaft

assembly key way opposite teeth on the tooth marks.

The main box counter shaft assembly parts decomposition is shown in figure 7-2.

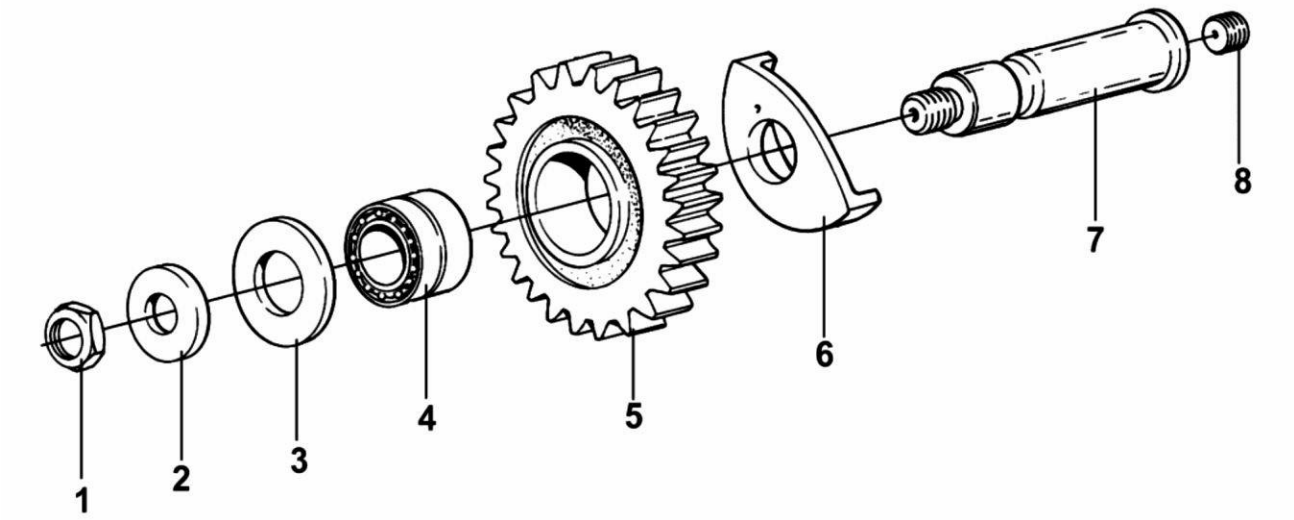


1. Clasp. Spacer sleeve 3. The counter shaft. Counter shaft gear box (for 8JS100TA-B and 8JS130TA-B the gear wheel is is 6. Overdrive gear. The counter shaft fourth gear shaft driven gear 7. Counter shaft fifth gear. Counter shaft Quartet bond. Elastic cylindrical Shaw. Wood ruff key.11 short cylindrical roller bearings 12 snap ring 13 short cylindrical roller bearings 14 snap ring

Figure 7-2 12JS series gearbox main box counter shaft assembly parts diagram

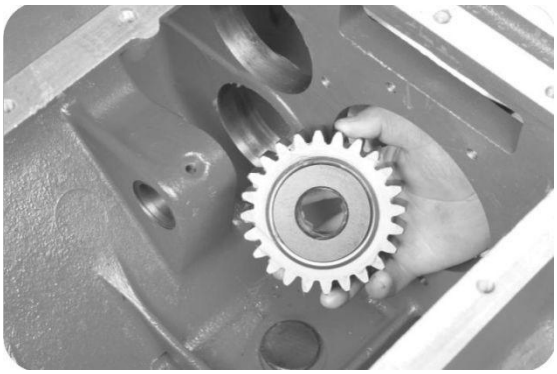
(three) install side reverse idler gear assembly

Reverse shaft assembly parts decomposition is shown in figure 7-3.

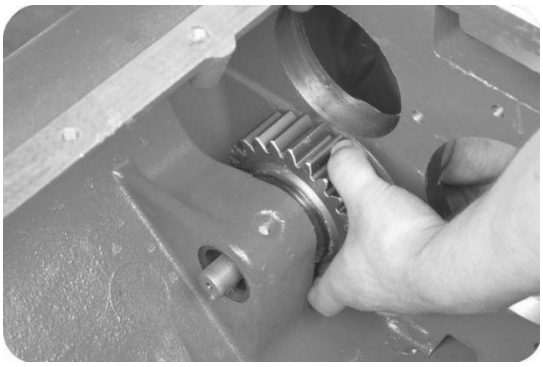


1 reverse shaft washer 3 nut 2 reverse gear thrust washer 4 roller bearing 5 reverse gear 6 reverse shaft eccentric support plate.7 reverse shaft.

Figure 7-3 reverse idler gear assembly parts diagram



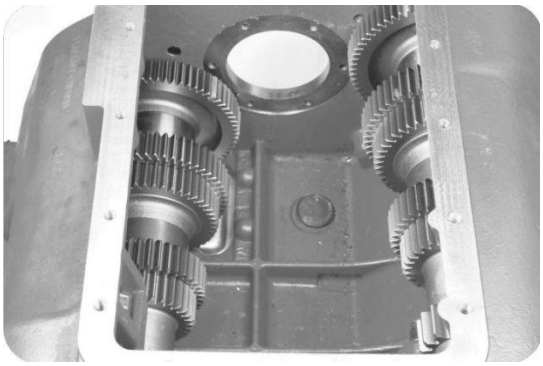
1, reverse gear wheel assembly, convex toward the front.



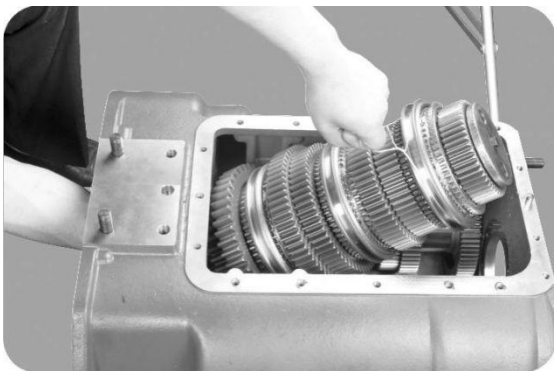
2, intermediate shaft reverse gear assembly, and tighten the lock nut.

(four) the assembly of the main box

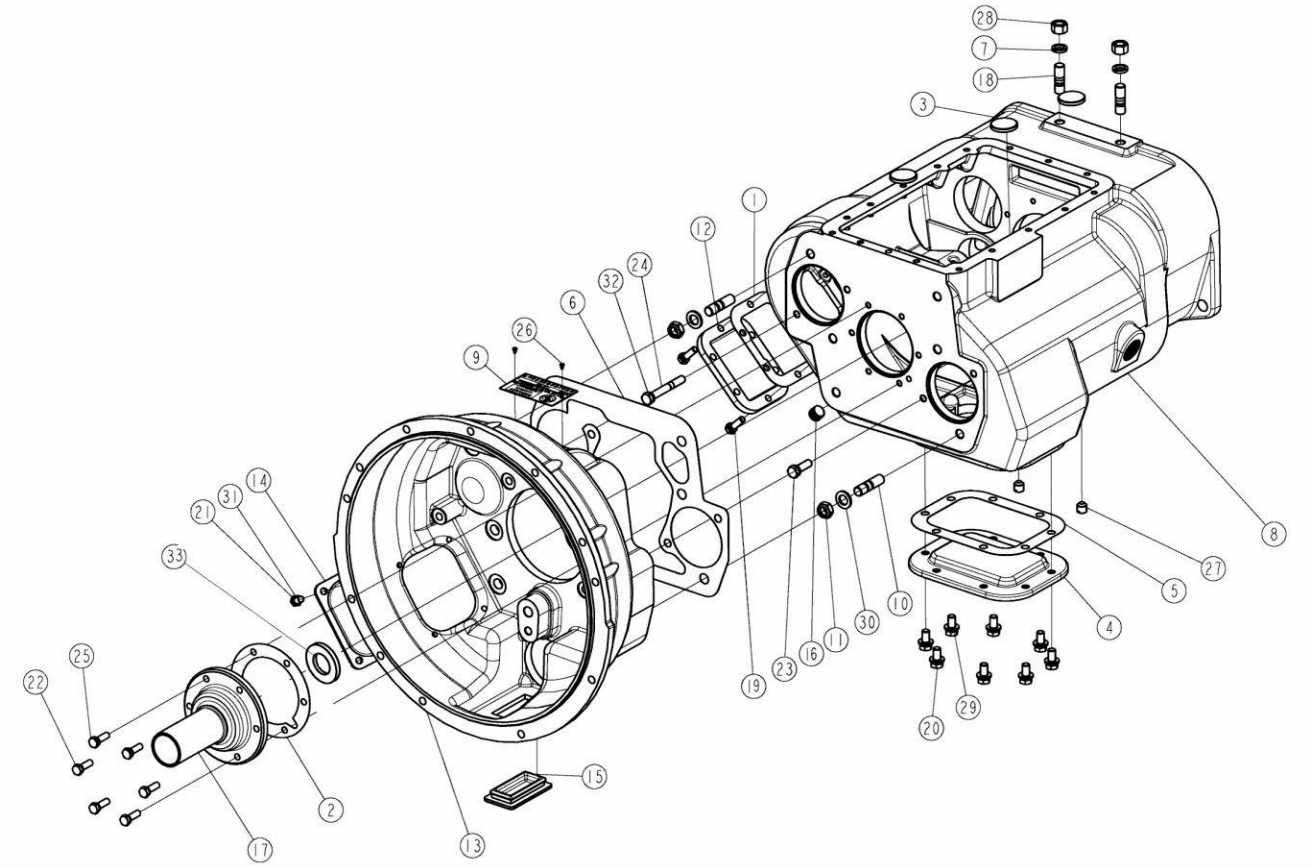
Transmission main box shell parts breakdown diagram see figure 7-4.



1, the two main shaft box into the main case.

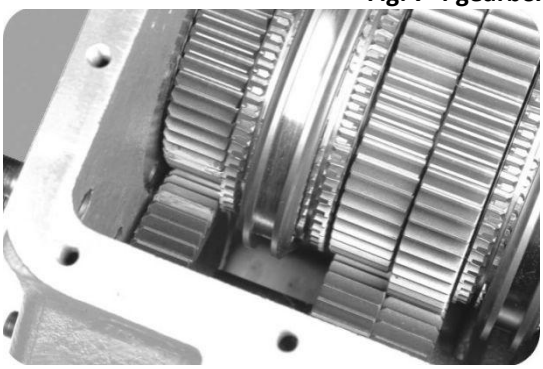


2, in a shaft gear adjacent to 180 degrees in the direction of each selected a set of teeth on the gear mark, the two axis assembly into the main box, and mounted on the drive gear bearings will be the two axis back end positioning.

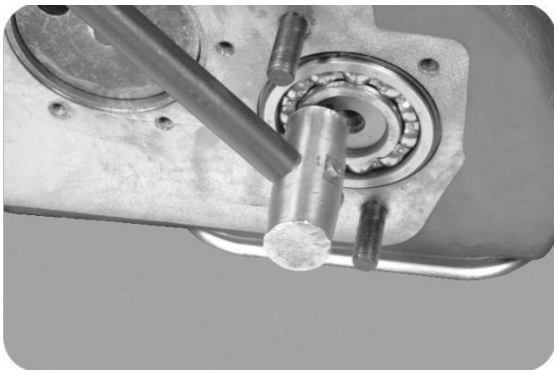


1 side force taking window gasket 2 a shaft bearing cover gasket 3 round magnet 4 bottom force window cover 5 cushion 6 clutch shell liner 7 bullet.18. Stud 19.20.21.22.23.24. bolt 25. Bolts with hole 26. Self tapping screw spring washer 8. Gearbox shell. Signs. Studs 11. Lock nut 12. Side power window cover 13. The clutch shell 14.15. Hand hole cover 16. Plug 17. A shaft bearing cap.18. Stud. 19.20.21.22.23.24. bolt 25. Bolts with hole 26. Self tapping screw spring washer 8. Gearbox shell. Signs. Studs 11. Lock nut 12. Side power window cover 13. The clutch shell 14.15. Hand hole cover 16. Plug 17. A shaft bearing cap.27 screw 28 nut 29.30. plain washer 31.32. spring washer 33 axle oil

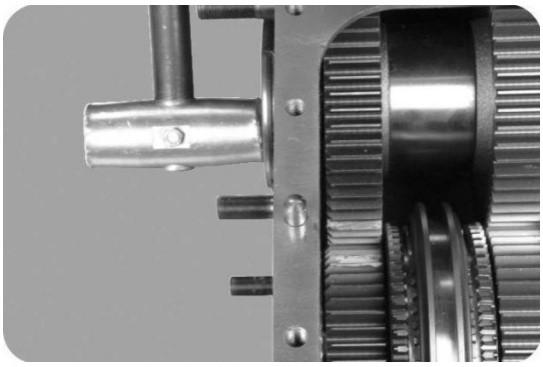
Fig. 7-4 gearbox casing parts decomposition diagram



3, the lower side auxiliary marked tooth inserting a marker on the two shaft gear tooth, assembly bearing side counter shaft.



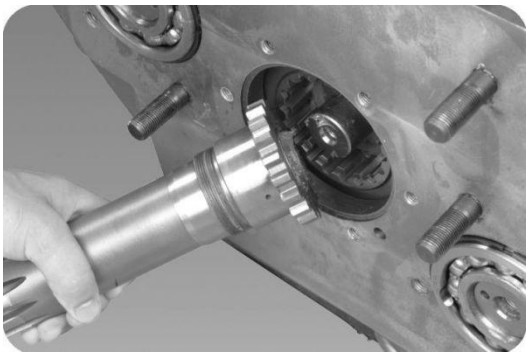
4, assembly side counter shaft front bearing.



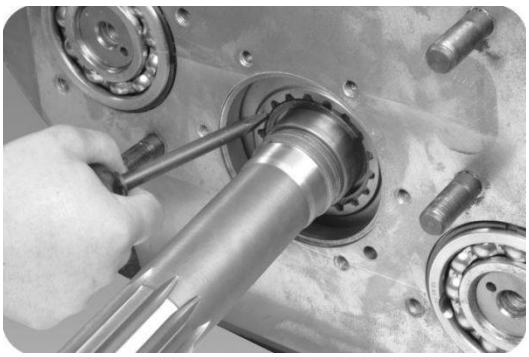
5, the same method of gear assembly on the side of the shaft, the front bearing.

(five) assembly of a shaft assembly

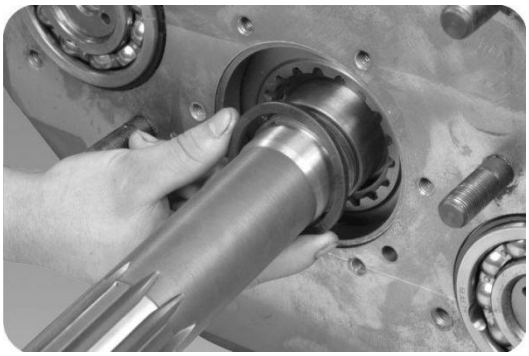
A shaft assembly part breakdown diagram is shown in figure 7-5.



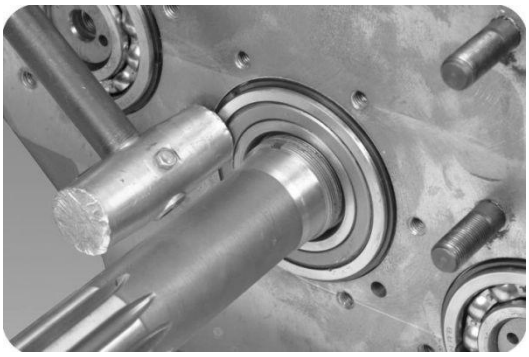
1, remove the front of a shaft gear of the pressure plate, in a shaft hole in the grease, the shaft into a shaft gear spline.



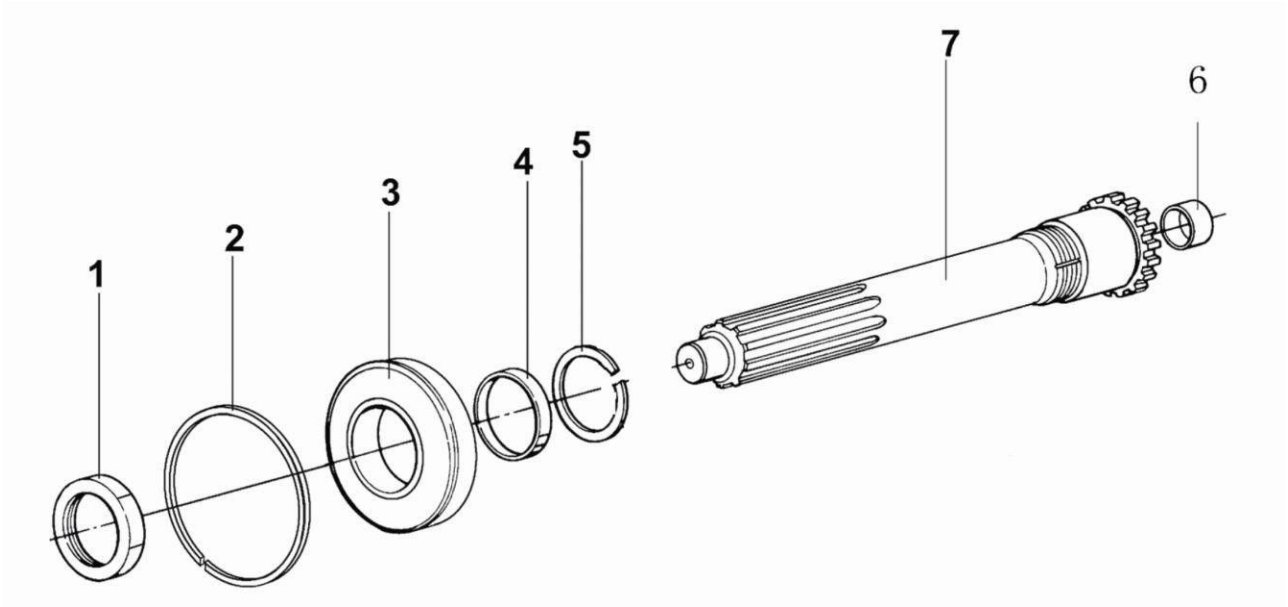
2, the assembly of a shaft gear ring.



3, the assembly of a shaft gear spacer.

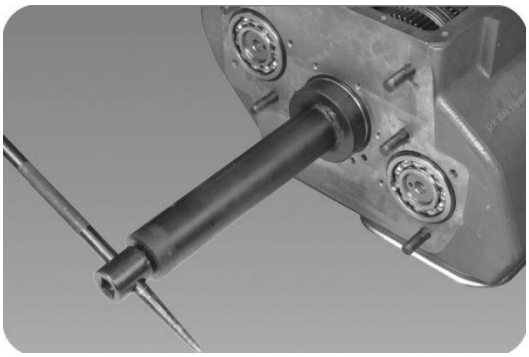


4, assembly of a shaft bearing.



1 a shaft nut 2 ring 3 a shaft bearing 4 spacer ring 5 ring 6 two shaft guide sleeve 7 one shaft

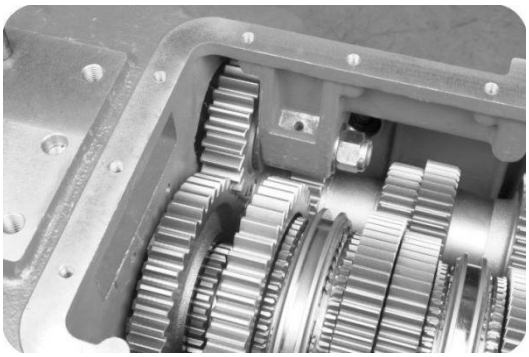
Figure 7-5 a shaft part breakdown diagram



5, apply sealant on one shaft nut and screw nut with special tool.

6, a shaft nut on the threaded shaft with groove riveting die.

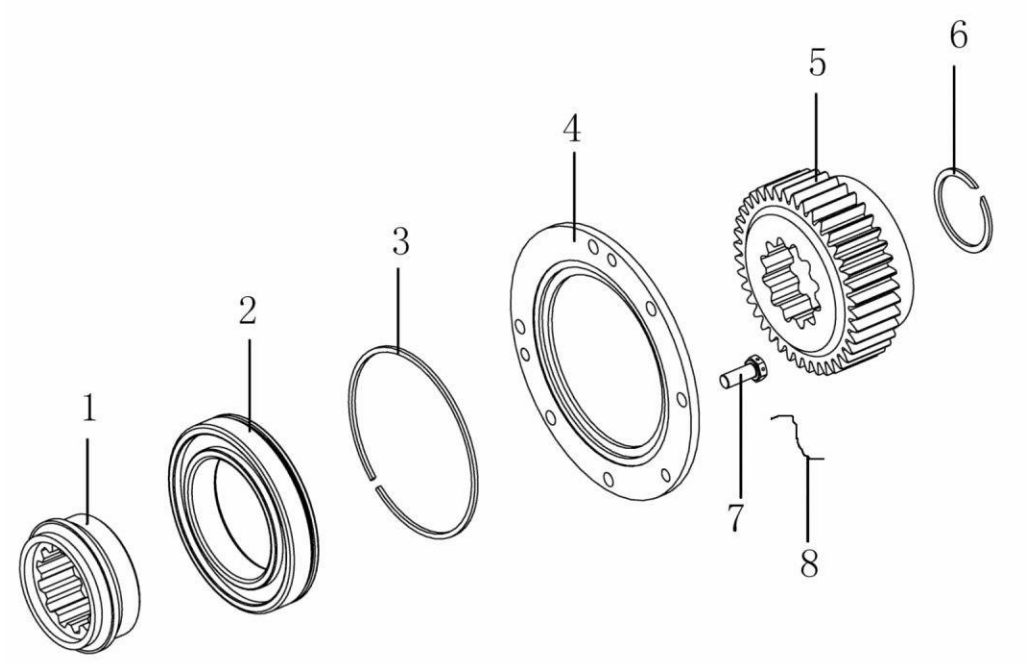
7, the front plate assembly two counter shaft assembly, a shaft cover.



8, on the reverse side of the wheel assembly assembly, remove the drive gear bearing, and the two shaft reverse gear after pulling, and reverse wheel meshing.

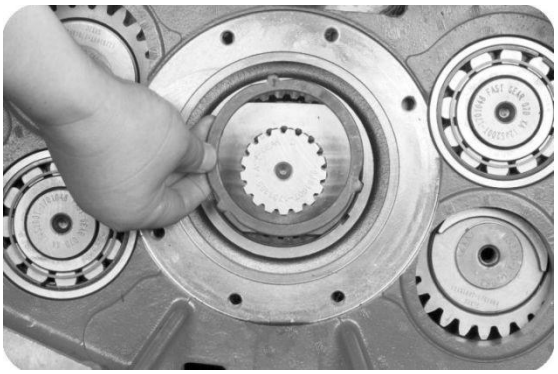
(six) the assembly of the driving gear of the main and auxiliary box

Sub box drive gear parts decomposition diagram see figure 7-6.

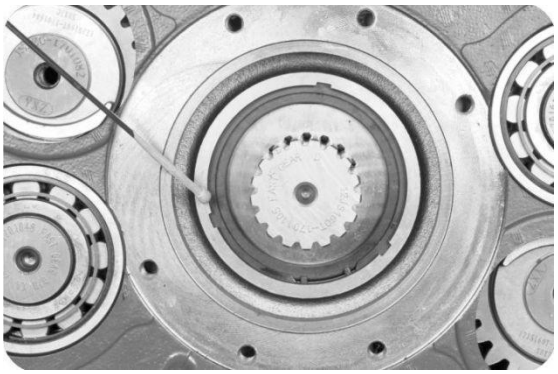


1 bearing support 2 bearing ring 4 ring 3 vice box bearing positioning plate 5 vice box drive gear 6 card ring 7 bolt 8 iron wire

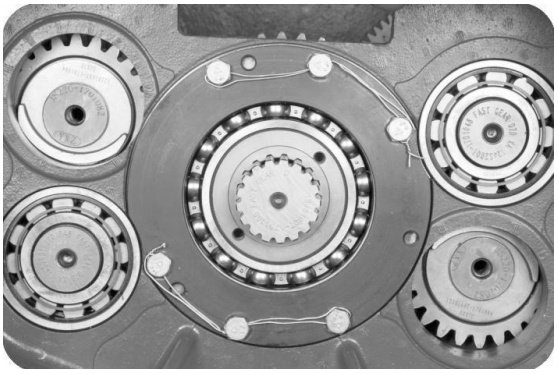
Figure 7-6 sub box drive gear parts decomposition



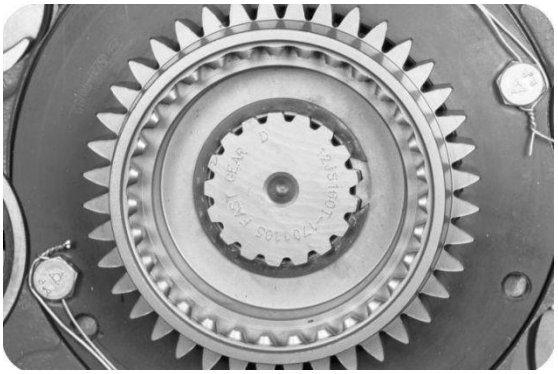
1, the main shaft gear shaft washer assembly two in reverse gear.



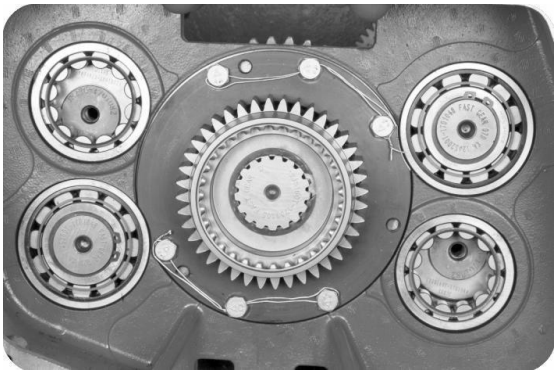
2, the snap ring assembly two shaft in reverse gear.



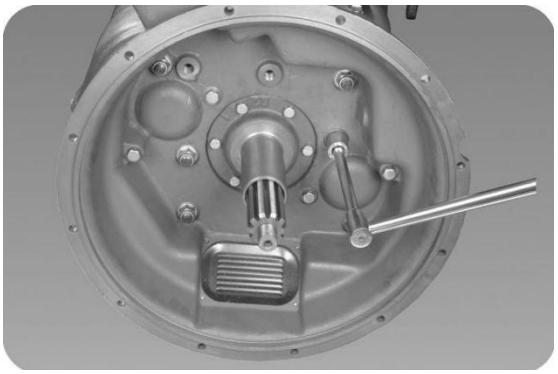
3, assembly drive gear bearing, assembly drive gear wheel, and tighten the bolt, fasten the wire.



4, the accessory box drive gear, the rear end of the clamping ring.



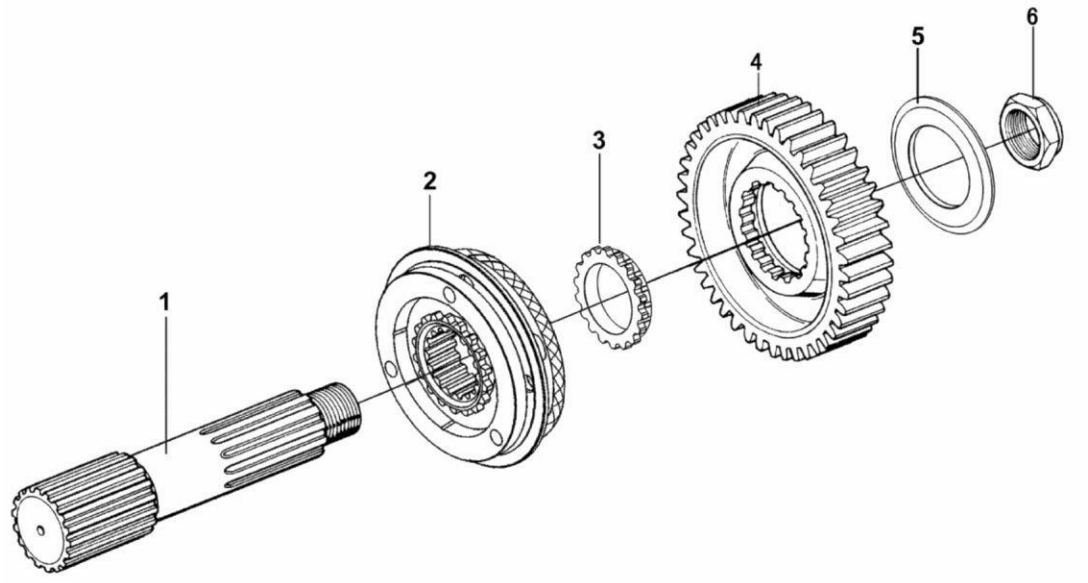
5, the assembly of the two counter shaft front bearing cir clip assembly two main box counter shaft back-end.



6, the assembly of the clutch housing assembly.

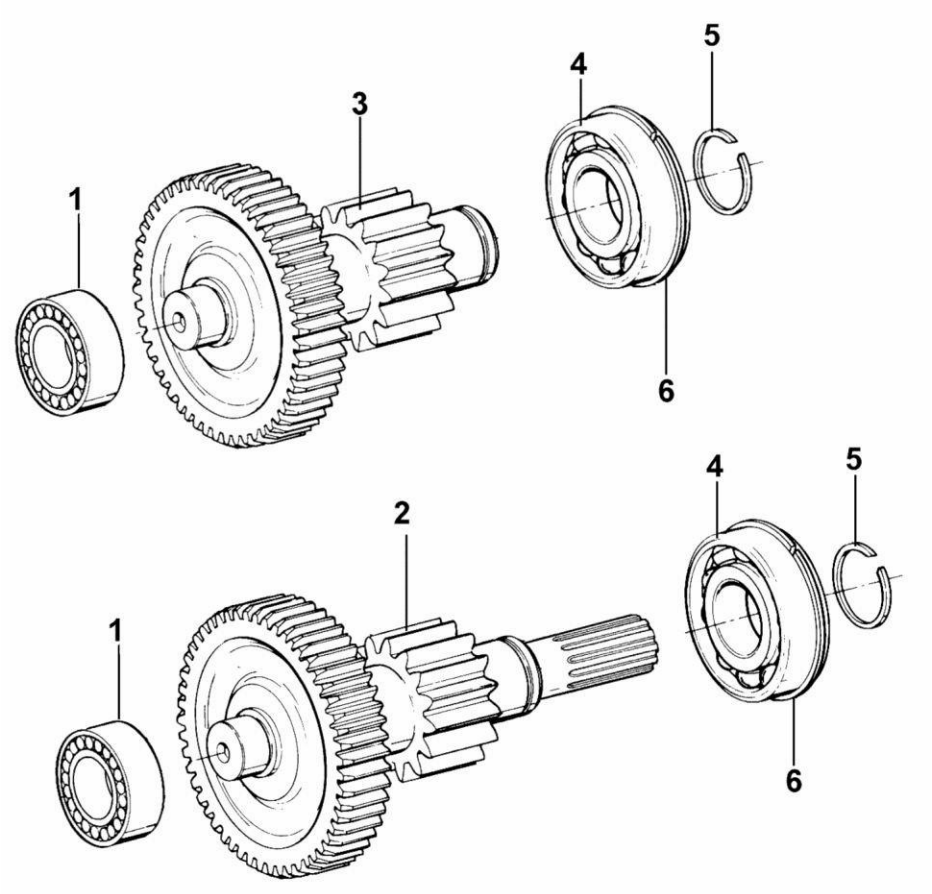
(seven) assembly of sub box assembly

The auxiliary box spindle assembly, auxiliary box counter shaft assembly and the auxiliary box cover assembly parts decomposition is shown in Figure 7-7 to 7-9. shift cylinder.Parts decomposition diagram see figure 7-10.



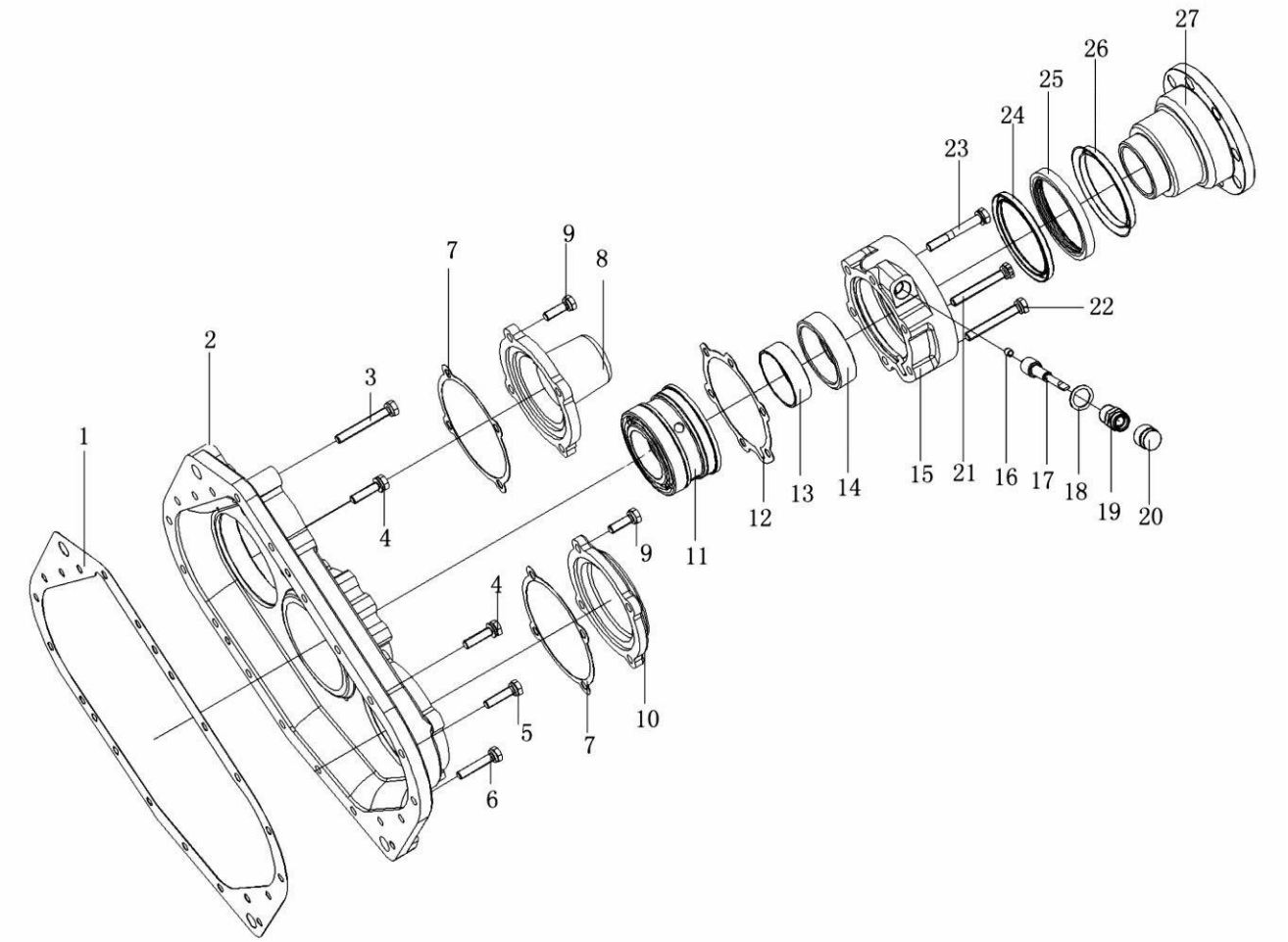
1 vice box main shaft 2 high, low gear assembly 3 spindle spline.4 vice case main shaft reduction gear 5 gear shift plate 6 flange nut

Figure 7-7 sub box parts of the decomposition of the main parts



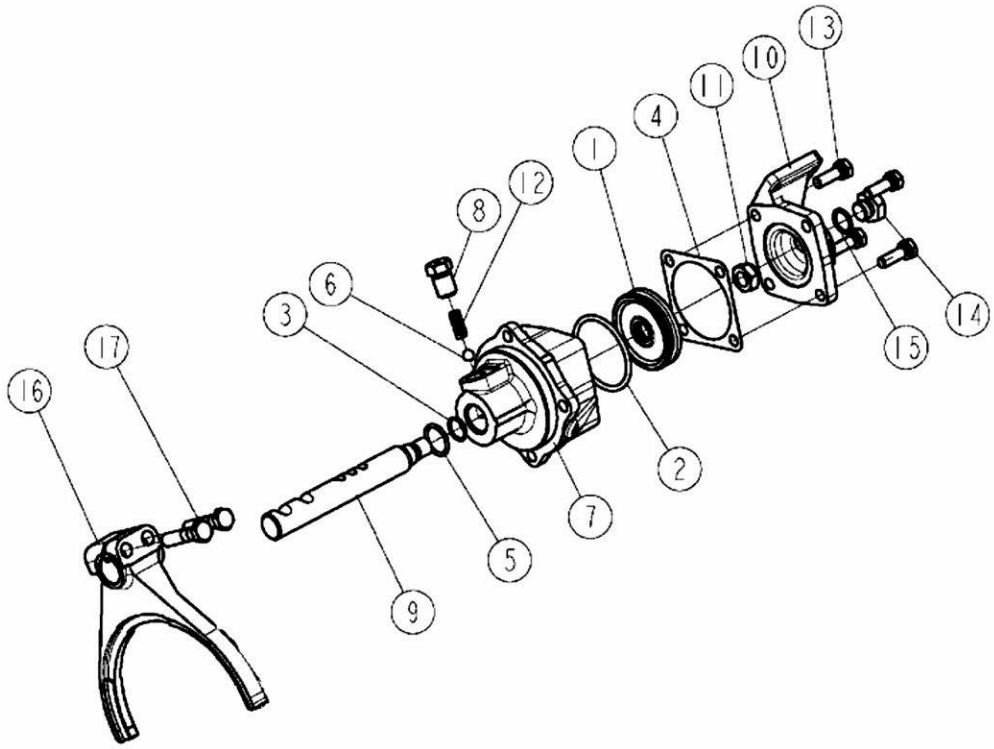
1. Vice box counter shaft front bearing 2. Vice box lengthened shaft welding assembly. Vice box counter shaft assembly. Vice box counter shaft bearing. The snap ring 6. Bearing cir clip

Figure 7-8 side box counter shaft parts breakdown of



1 2 3.4.5.6. box cover cover gasket bolt 7 counter shaft cover gasket 8 lengthened rear cover 9 bolt 10 counter shaft counter shaft rear cover.11 combination bearing 12 rear bearing end cover 13 liner bushing 14 odometer slide bar and the 15 bearing seat 16 sleeve 17 odometer pulley.18 19 20 joint gasket odometer protective sleeve 21 bolt 22.23. bolt 24 spindle seal after 25 oil seal dust cover 26.27 output flange

Figure 7-9 Deputy box cover assembly parts breakdown



1 cylinder piston type 2.3.O sealing ring 4 cylinder liner 5.O ring 6 ball 7 high, 8 low shift cylinder plug 9.Fork shaft 10 cylinder head 11 nut 12 positioning spring 13 bolt 14 high, low-grade indicator light switch 15 copper washer 16 shift fork 17 bolt with hole

Figure 7-10 sub box gear cylinder parts decomposition

1, the synchronizer ring for a low pin on flat, set into the synchronizer sleeve.

2, into the high-end ring, plus a rotating force will be high-grade ring assembly in place.

3, the synchronizer ring low to put in a 50 mm high block, inserted into the output shaft.

4, into the sub - box of the main shaft washer, with a stop on the side down.

5, the gear box of the gear box is set to the output shaft, and put in the auxiliary box main shaft gear box.

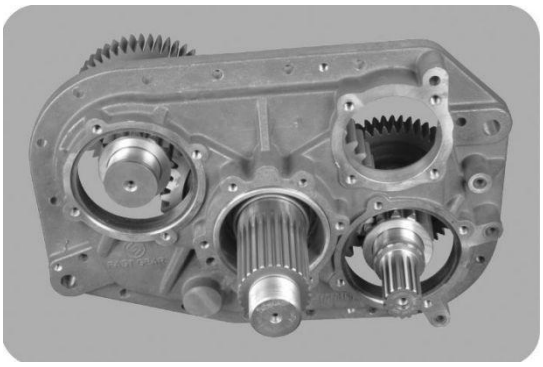
Note: the auxiliary box main shaft gear pressure plate is coated with grease.

6, the combined bearing side of the load into the output shaft, the gear box in the sub box 180 degrees to the direction of the gear mark.

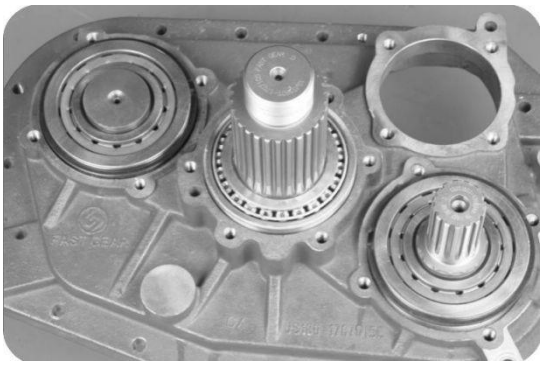
7, as has been removed the auxiliary box counter shaft bearing inner ring, the inner ring of the bearing load of two counter shaft.

In 8, the auxiliary box marked the top gear shaft of the tooth marks.

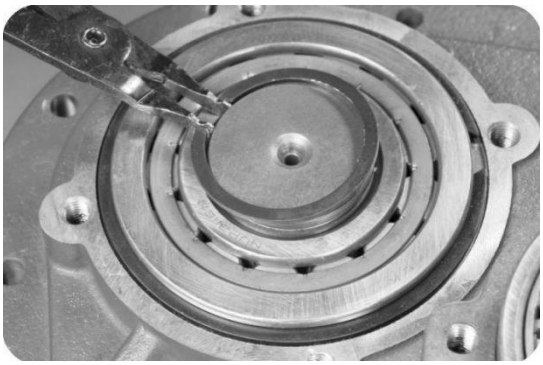
9, two and two markers on cog ging counter shaft teeth are respectively inserted into the spindle mark.



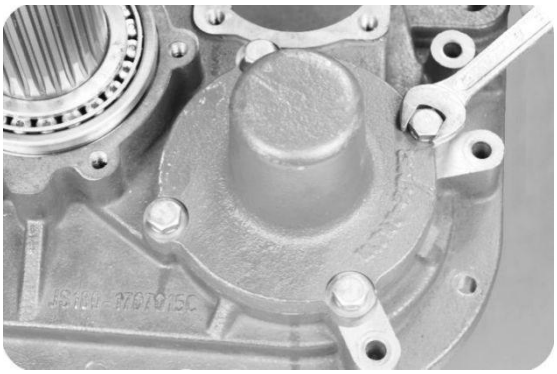
In 10, the rear cover, note: extended counter shaft power take-off installed should be installed in the lower right corner of the rear cover.



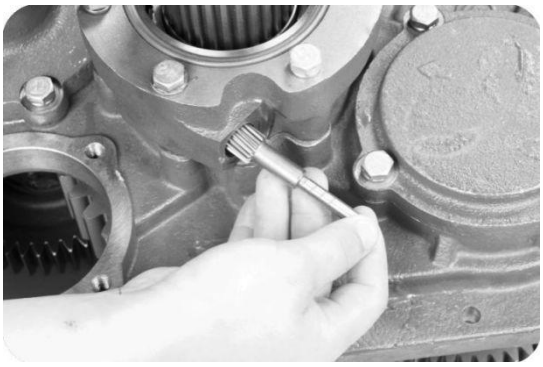
11, the installation of the bearing cover and two shaft output shaft of the outer bearing.



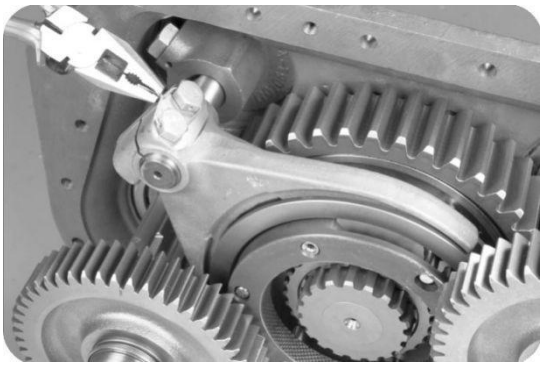
12, the assembly auxiliary box counter shaft bearing on the stop ring.



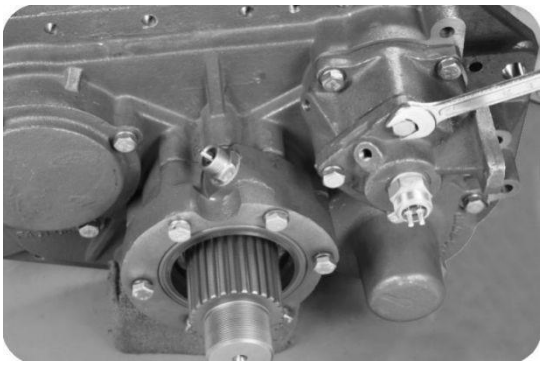
13, the installation of two shaft end cover.



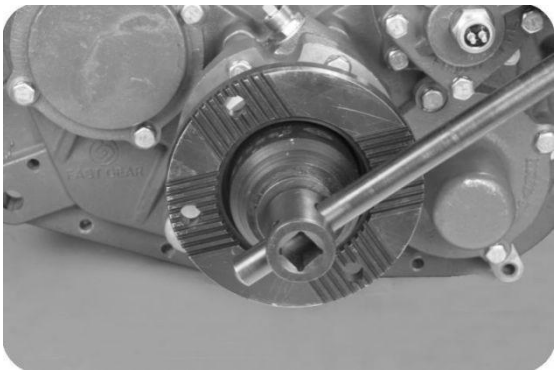
14, the output assembly bearing cover, a main gear and odometer, passive joints.



15, the Deputy box shift fork out of the plane out of the sync slider, install the fork and shift fork shaft coupling bolt, with wire lock.

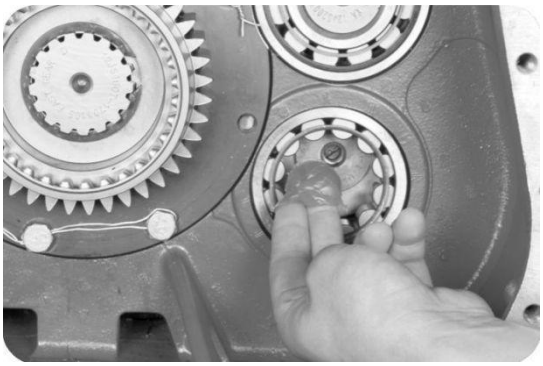


16, assembly vice box shift cylinder.

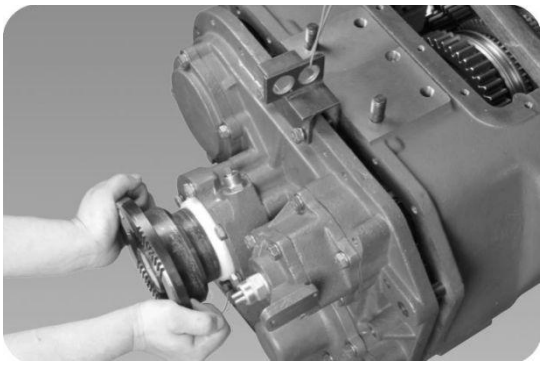


17, fasten the collar nut with a special sleeve.

18, the sub box synchronization device in the low area.



19, the grease evenly coated on the rear main box two counter shaft front bearing hole in (this step is very important).

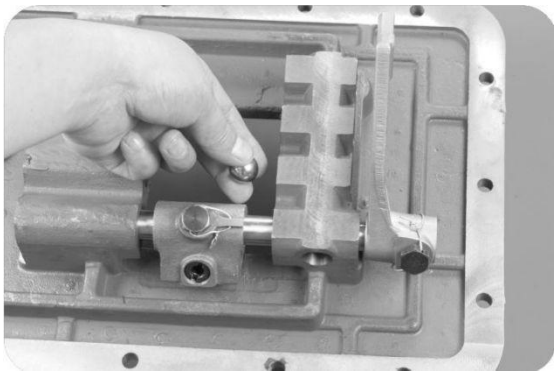


20, with a special sling assembly vice box assembly.

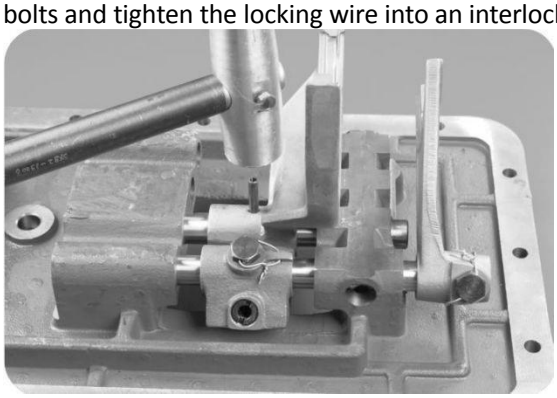
21, tighten the rear lid and the main box housing bolts.

(eight) assembly of transmission case

Transmission cover assembly parts breakdown diagram see figure 7-11.

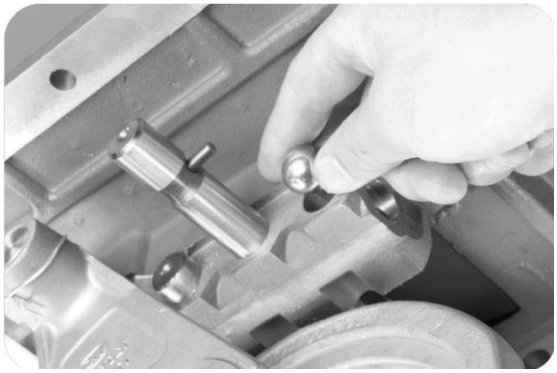


1, will low reverse guide block and a fork followed by penetrating into the reverse gear shifting fork shaft, with conical bolts and tighten the locking wire into an interlocking steel ball.

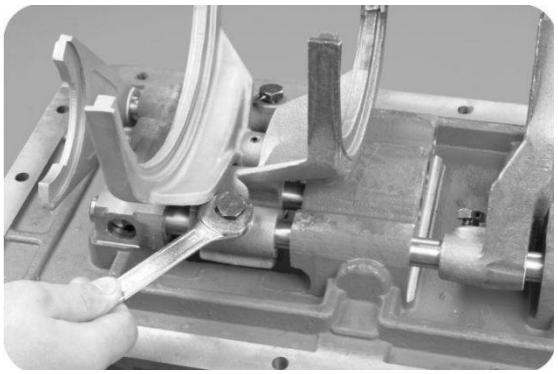


2, the assembly of the 1/2 gear shifting fork shaft, elastic cylindrical pin arranged a fork. Note: 1/2 gear shifting fork shaft interlocking pin not missing.

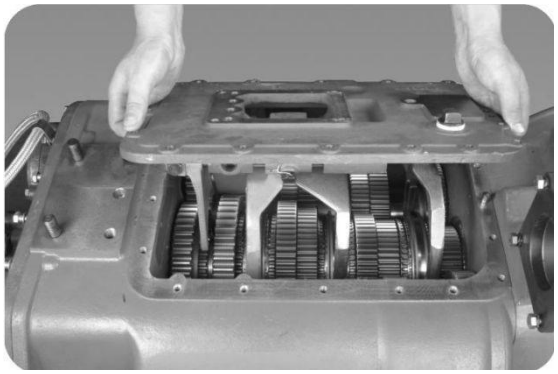
3, into an interlocking steel ball.



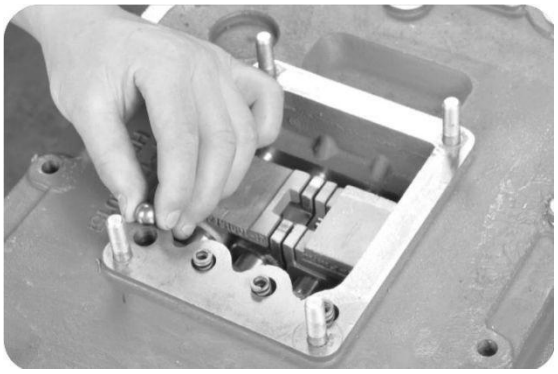
4, the assembly of the 3/4 gear shifting fork shaft, elastic cylindrical pin mounted dial fork, install the interlocking pin and interlock ball.



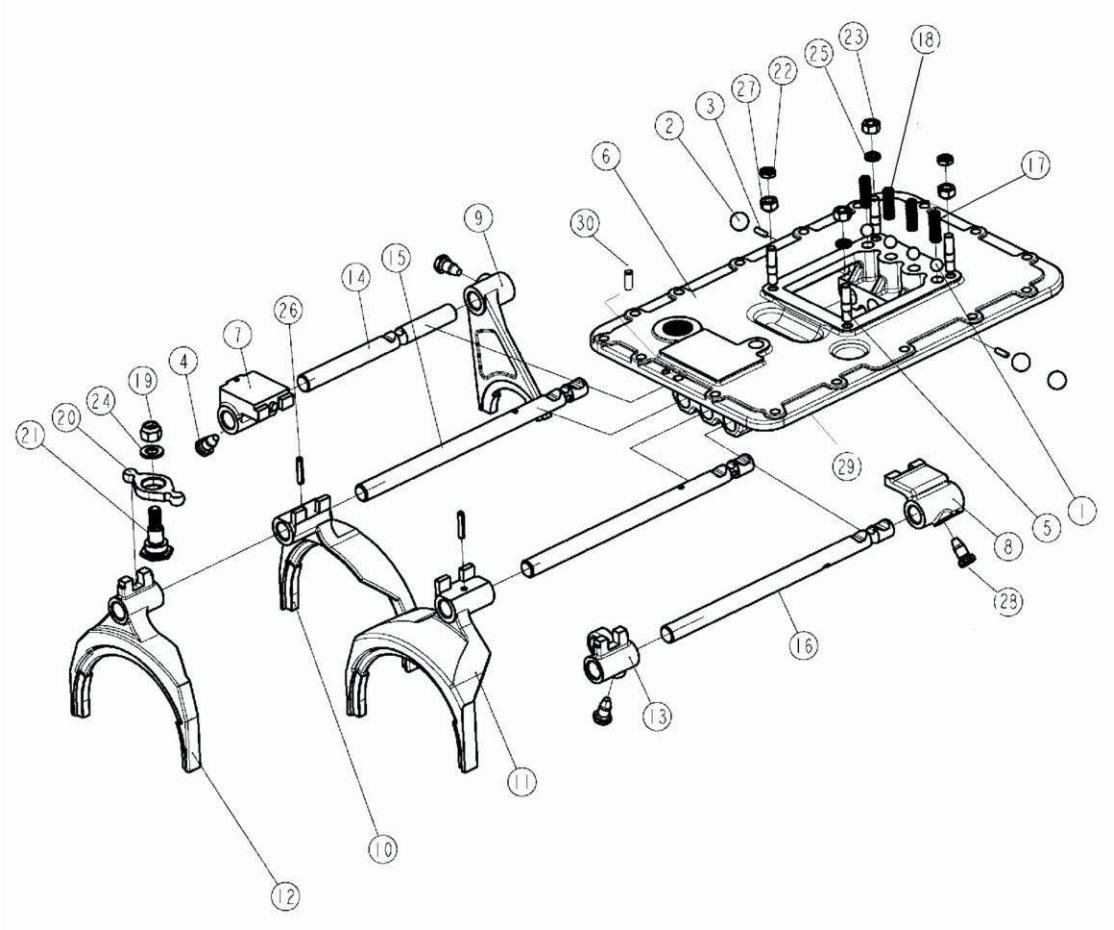
5, assembly 5/6 shift fork shaft, in turn, the assembly of the 5/6 block and the shift fork, tighten the bolt fastening screws.



6, the top cover assembly into the white box.



7, the assembly on the cover of the four headed bolts and positioning spring, steel ball. Note: 5/6 shift fork shaft hole inner spring is thicker.

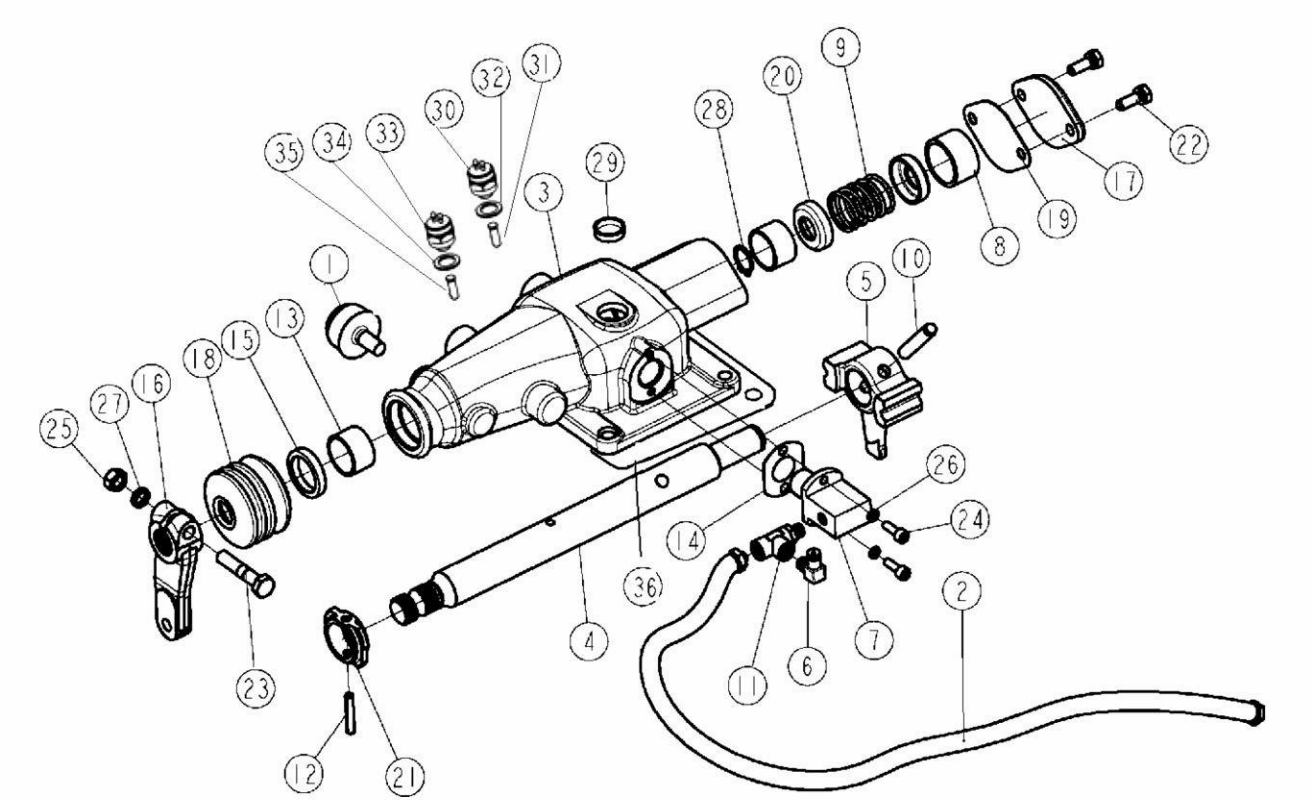


1.2. Ball. Shifting fork shaft interlocking Shaw. Dial fork lock stop screws 5. Stud. Cover 7. Reverse guide block 8.5/6 file guide block 9. Reverse fork 10.1/2 gear shifting fork 11.3/4 file fork 12.5/6 gear shifting fork 13.5/6 shift guide block 14. Reverse shift fork shaft.15.1/2.3/4. shift fork shaft 16.5/6 shift fork shaft 17 compression spring 18 compression spring 19 nut 20 swing dial head.21 supporting shaft 22 nut.23 nut.24. flat washer.25. spring washer.26. elastic cylinder pin.28..27. lock screw.29. upper cover gasket.30. cylinder pin

Figure 7-11 top cover assembly parts breakdown

(nine) assembly of shift mechanism assembly

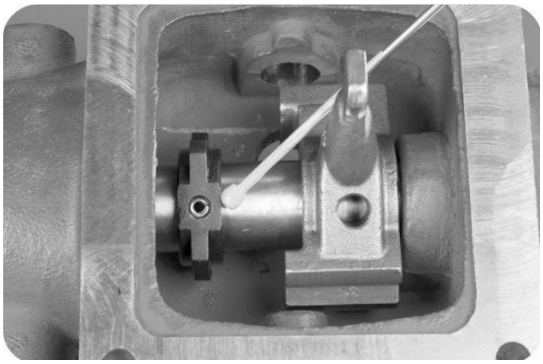
Shift mechanism assembly parts decomposition diagram see figure 7-12.



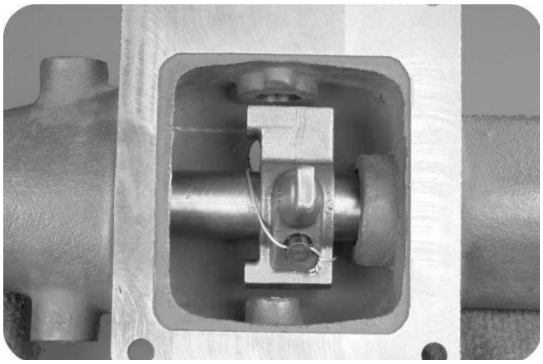
1 vent plug 2 air pipe assembly 3 shift mechanism housing 4 shift shaft 5 dial head 6 air pipe elbow 7 gas path control valve 8 limit set.9 compression spring 10 pin 11 pin three pin pin 12 pin 13 pin shift shaft bushing 14 control valve gasket 15 oil seal.The 16 shift arm 17 end cap 18 dust cover 19 cover lining board 20 spring seat 21 low reverse cam 22 bolt 23 bolt 24 Cylinder head screw type 25.1 26.27. nut spring washer 28 shaft spring retainer ring 29 bowl plug 30 neutral switch pin 31 stroke.32 washer 33 reversing light switch 34 washer 35 stroke top pin 36 window gasket

Figure 7-12 gear shift mechanism parts decomposition

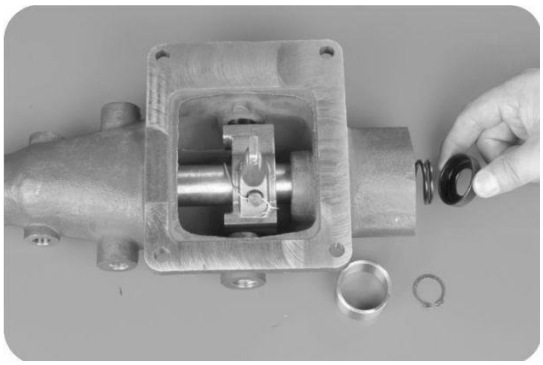
1, if the removal of the oil seal, the gear assembly will be a vertical upward, into the oil seal.



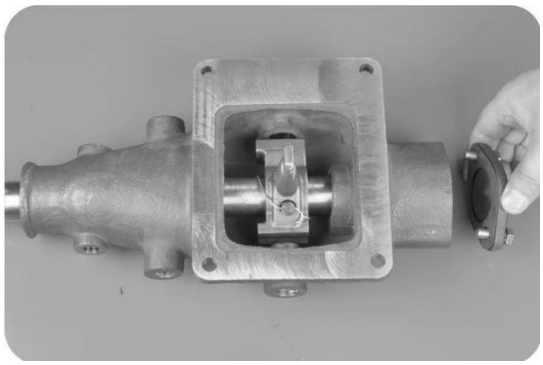
2, a horizontal shift shaft assembly, reverse control block of the elastic cylindrical pin head side.



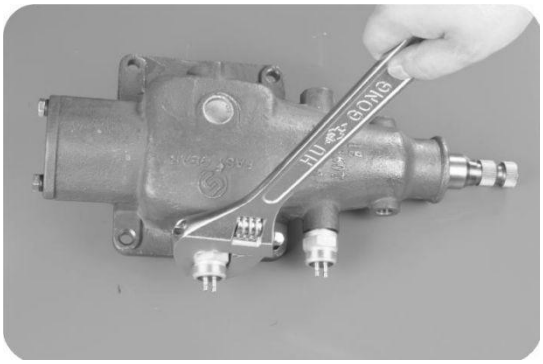
3, load shift dial head of the park pin, with wire binding.



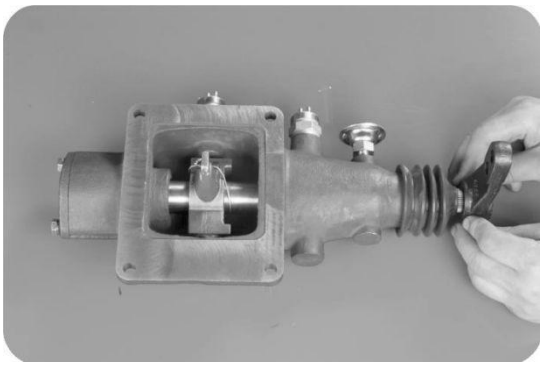
4, assembly spring, spring seat and stop ring.



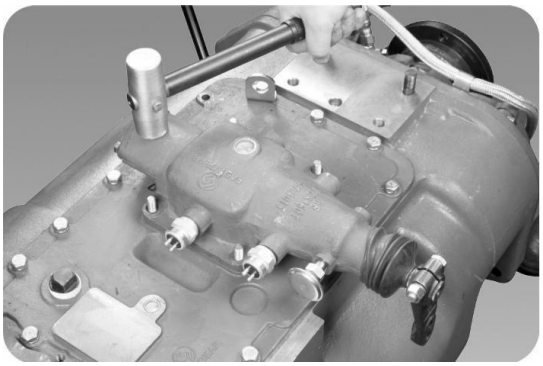
5, a spacing sleeve mounted side.



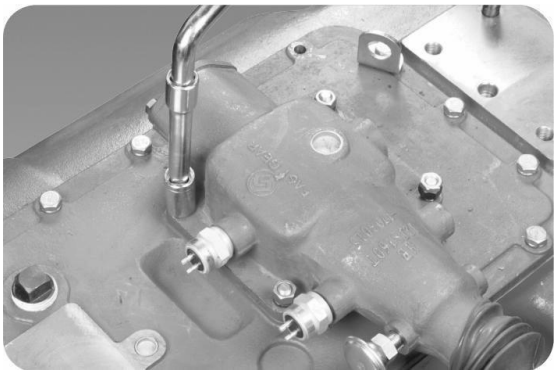
The 6 assembly, reversing light switch and neutral switch.



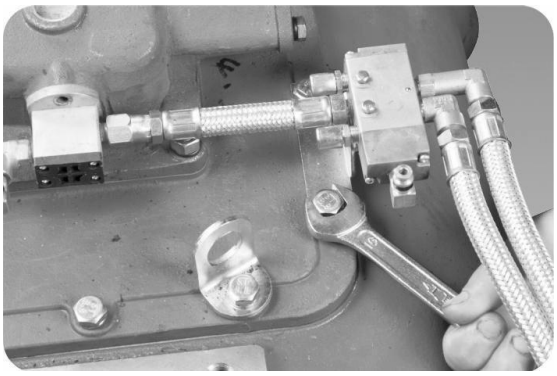
7, install the dust cover and shift the rocker arm to ensure that the rocker arm and dial head in a straight line.



8 the shift mechanism is fitted to the top cover.



Four tighten the 9 bolts.



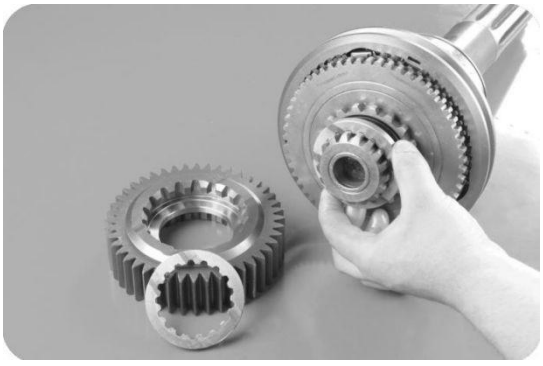
10 installation of pneumatic valve and pneumatic control valve and air pipe line.

At this point, all the gearbox assembly is completed.

The above dis assembly process can also be used for 8JS130TA-B, 8JS130T-B, 8JS100TA-B, 8JS100T-B, 9JS119T-B,9JS150T-B, 9JS135T-B type gearbox, its structure and 12JS series gearbox slightly different, should be paid attention to in the dis assembly.

1,16 gear transmission shaft gear assembly.

2, remove the stop ring in the inner hole of the shaft gear.



3, take off a shaft gear and its two side spline pad.