

SATURN OVERDRIVES

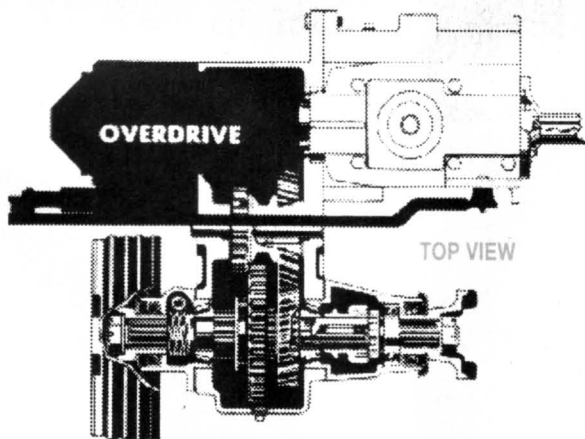
Saturn All-Range Overdrives are made to fit all 4WD pre-1972 Jeeps and 1961-65 IH Scouts without cutting or modifying the drive train. For these vehicles, the overdrive reduces engine RPM's and permits higher cruising speeds without over-revving. The drive train will last longer too. The overdrive also improves operating efficiency in both 2WD and 4WD. In this day of high gas prices, it is easy to see why so many Jeep and Scout owners want to install a Saturn Overdrive in their rig.

INSTALLATION INFORMATION

The Saturn All-Range Overdrive installs directly on the transfer case. No cutting or modification of the drive train is required. No relays and electrical connections required.

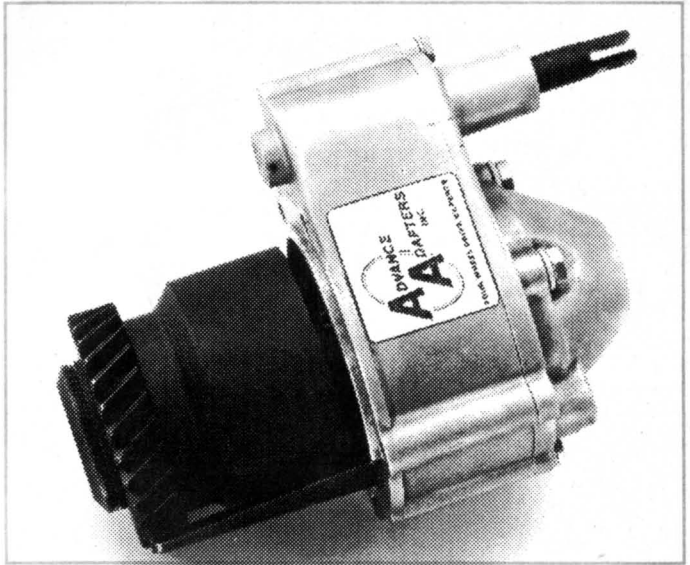
ALL-RANGE OVERDRIVE

- * Increases engine and drive train life.
- * Reduces engine and transmission RPM's by 25%.
- * Provides six forward speeds and two reverse for a 3-speed gearbox (8 forward for a 4-speed gearbox).
- * Improves gas mileage.
- * Reduces transfer case whine.
- * Fully synchronized—*shift up or down at any speed.*
- * Operates as overdrive or direct drive in any gear.
- * Not a conversion kit—*an all new unit.*
- * Installs easily without cutting drive line.
- * Weighs only 25lbs.
- * One year (1) limited warranty.



Easy to install, easy to use.

Installs between transmission and transfer case. No cutting or modification of drive train required. Comes complete with shift kit.



APPLICATION INFORMATION

To select the proper Overdrive model, find vehicle model and transmission type in the table below. Saturn Overdrives are not adaptable to Jeeps or Scouts with the Dana Spicer Model 20 transfer case. Saturn All-Range Overdrives will only fit vehicles listed.

PART NO. 915670 (6 Spline)

Replaces 26 tooth transfer case main drive gear.

Fits these Jeeps:

M-38
M-38-A1
CJ-2A
CJ-3A
CJ-3B to Serial No. 54-12506
4-63 4X4
4-73 4X4

Fits these Scouts:

Model 80, 61-65 inclusive

PART NO. 915672 (6 Spline)

Replaces 29 tooth t/c main drive gear.

Fits these Jeeps with V-6 225:

Dauntless Engine:

CJ-5
CJ-5A
CJ-6
CJ-6A
4-74 4X4
CJ-38 to Serial No. 54-12506
6-226
6-230

PART NO. 915674 (10 Spline)

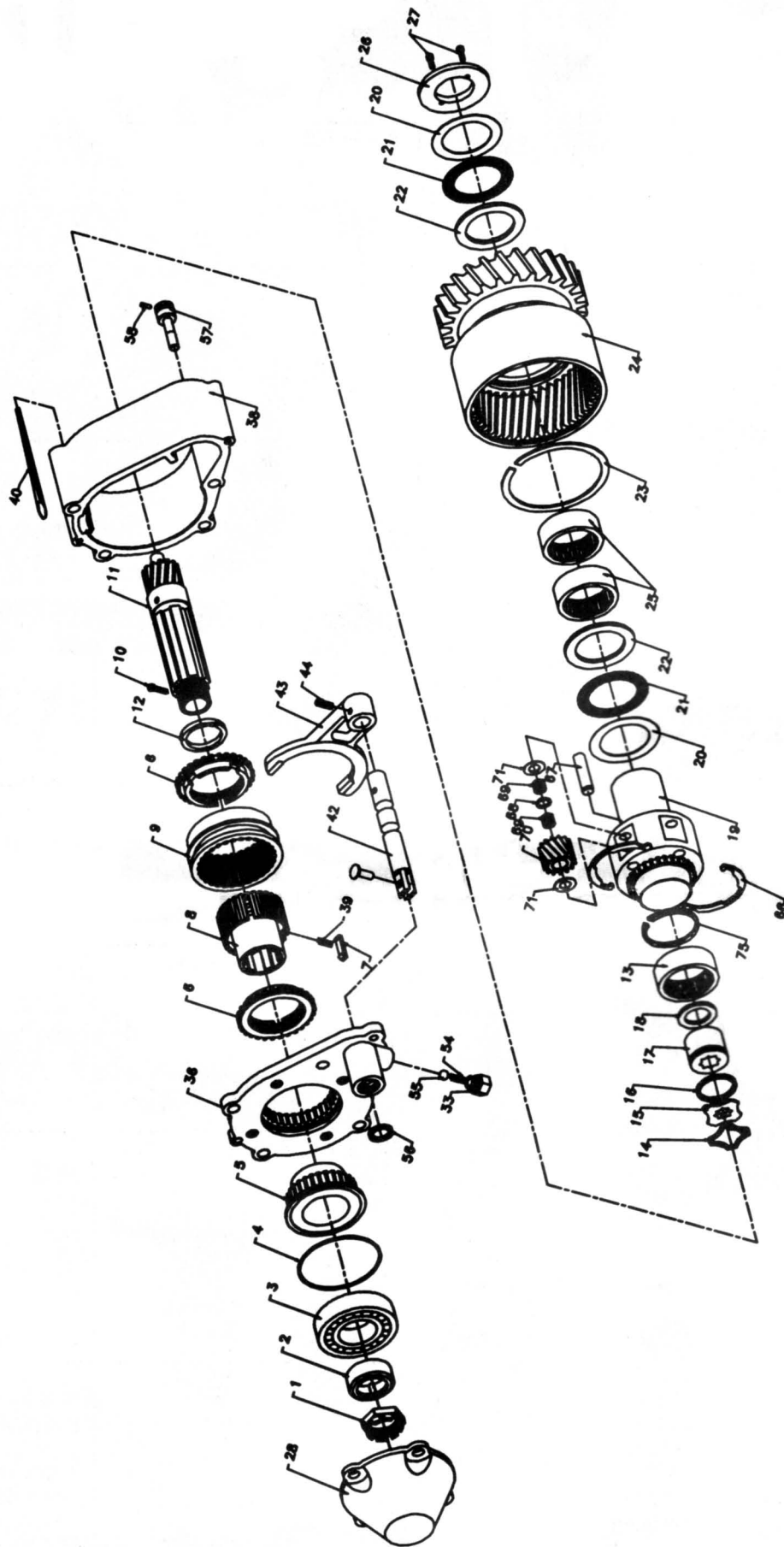
Replaces 29 tooth transfer case main drive gear.

Fits these Jeeps with V-6 engine & Warner T14 3-speed syncromesh transmission 1969-71 that use 10 spline transmission output shafts. Saturn is equipped with a 10 tooth internal spline:

CJ-5
CJ-5A
CJ-6
CJ-6A

NOTE: ALL OVERDRIVE UNITS ARE SOLD WITHOUT SHIFTERS. SEE SHIFTER SELECTION FOR MORE INFORMATION.

ADVANCE ADAPTER'S INC. **Saturn All-Range Overdrive** *Installation Instructions*



Saturn Overdrive Replacement Parts

ITEM	PART #	QTY	DESCRIPTION	PRICE
1	911043	1	HEX NUT	\$ 11.47
2	911334	1	SPACER WASHER	\$ 2.21
3	911313	1	BALL BEARING	\$ 22.28
4	911838	1	RETAINER RING	\$ 1.65
5	911337	1	STATIONARY MEMBER	\$ 116.03
6	911067	2	SYNCHRO RING (\$/Ea.)	\$ 12.14
7	911069	3	SHIFTING DOG (\$/Ea.)	\$ 1.25
8	911346	1	DRIVE MEMBER	\$ 54.15
9	911078	1	SHIFT RING	\$ 28.48
10	915312	1	COTTER PIN	\$ 0.13
11	911330	1	SHAFT	\$ 139.92
12	911147	1	RETAINER RING	\$ 0.83
13	911143	1	NEEDLE BEARING	\$ 15.18
14	911236	1	SPECIAL SNAP RING	\$ 4.29
15	911806	1	LOCKWASHER	\$ 3.30
16	911137	1	O-RING	\$ 0.50
17	911731	1	DRIVE NUT	\$ 24.95
18	911095	1	THRUST WASHER	\$ 2.34
19	914232	1	PLANET HUB ONLY-6SPL	\$ 284.00
19	914384	1	PLANET HUB ONLY-10SPL	\$ 284.00
20	911100	2	THRUST WASHER (\$ Ea.)	\$ 2.15
21	911099	2	NEEDLE BEARING (\$ Ea.)	\$ 2.57
22	911094	2	THRUST RACE (\$ Ea.)	\$ 2.28
23	919869	1	RETAINING RING	\$ 6.60
24	911092	1	26-TOOTH GEAR	\$ 412.50
24	911093	1	29-TOOTH GEAR	\$ 412.50
25	911091	2	NEEDLE BEARING (Ea.)	\$ 14.16
26	911109	1	SPACER WASHER	\$ 11.95
27	914231	2	SCREWS (\$ Ea.)	\$ 0.36
28	911326	1	BEARING CAP	\$ 31.42
30	911157	5	SEAL WASHERS (\$ Ea.)	\$ 0.86
33	914862	1	CAP SCREW	\$ 2.77
35	911336	1	GASKET CAP	\$ 0.36
36	911328	1	CASE COVER	\$ 52.73
37	911130	1	GASKET CASE	\$ 0.83
38	915204	1	CASE	\$ 58.18
39	911071	3	SPINGS/DOG (\$ Ea.)	\$ 1.16
40	911133	1	OIL SCOOP	\$ 7.43
41	911131	1	GASKET BODY	\$ 1.65
42	913296	1	SHIFTER SHAFT	\$ 13.20
43	911103	1	SHIFTER FORK	\$ 39.60
44	912388	1	ROLL PIN	\$ 0.83
54	911105	1	SPRING	\$ 1.65
55	911106	1	BALL	\$ 0.80
56	911107	1	SEAL	\$ 0.00
56	911108	1	O-RING SEAL	\$ 0.30
57	913297	1	GUIDE PIN	\$ 6.60
58	911002	1	ROLL PIN	\$ 0.10
66	919866	1	RETAINING RING	\$ 4.95
67	911090	4	PIN, PLANETARY GEAR	\$ 6.60
68	911316	4	THRUST WASHER	\$ 4.13
69	911342	8	NEEDLE BEARING KIT	\$ 1.49
70	911338	4	14-TOOTH GEAR	\$ 73.56
71	911341	8	THRUST WASHER	\$ 0.89
72	911144	8	3/8"-16 x 3-1/2" H.H.C.S.	\$ 0.33
73	722530	2	1/4"-20 x 3/4" H.H.C.S.	\$ 0.10
74	723721	4	3/8"-16 x 1 H.H.C.S.	\$ 0.10

9 & 26 TOOTH HOUSING ASSEMBLY: \$447.52

P/N: 911224 (29 Tooth)
P/N: 911223 (26 Tooth)
INCLUDES:

1-Item No. 23 (Ring)
1-Item No. 24 (Gear)
2-Item No. 25 (Brg)

SEAL & GASKET SET: \$ 9.75

P/N: 911349 INCLUDES:
1-Item No. 16 (O-Ring)
5-Item No. 30 (Seal Washers)
1-Item No. 35 (Gasket)

1-Item No. 37 (Gasket)
1-Item No. 41 (Gasket)
1-Item No. 56 (O-Ring)

THRUST BEARING KIT: \$ 8.94

P/N: 912821 INCLUDES:
1-Item No. 20 (Washer)
2-REQUIRED/ASSY

1-Item No. 21 (Bearing)
1-Item No. 22 (Washer)

SYNCHRO BLOCK ASSEMBLY: \$116.84

P/N: 911318 INCLUDES:
2-Item No. 6 (Ring)
3-Item No. 7 (Dog)
1-Item No. 8 (Hub)

1-Item No. 9 (Ring)
3-Item No. 39 (Dog Spring)

SYNCHRO KIT: \$ 31.51

P/N: 911317 INCLUDES:

2-Item No. 6 (Ring)
3-Item No. 7 (Dog)
3-Item No. 39 (Dog Spring)

SPLINE SHAFT ASSEMBLY: \$167.71

P/N: 911362 INCLUDES:
1-Item No. 1 (Nut)
1-Item No. 10 (Pin)
1-Item No. 11 (Shaft)

1-Item No. 12 (Ring)
1-Item No. 13 (Bearing)

SPIDER ASSEMBLY - 6 TOOTH: \$677.89

P/N: 911837 INCLUDES:
1-Item No. 19 (Spider Planetary)
2-Item No. 66 (Ret. Ring-Plan/Pin)
4-Item No. 67 (Pin-Planetary Gear)
1-Item No. 18 (Thrust Washer)
1-Item No. 16 ("O"-Ring Seal)

4-Item No. 68 (Thrust Washer)
4-Item No. 70 (Gear-Planetary 14T)
8-Item No. 71 (Thrust Washer)
8-Item No. 69 (Needle Brg. Strip Kit)
1-Item No. 17 (Nut Drive)

PLANETARY GEAR ASSEMBLY: \$356.20

P/N: 918963 INCLUDES:
4-REQUIRED/ASSY

8-Item No. 71 (Thrust Washer)
8-Item No. 69 (Needle Brg. Strip Kit)
4-Item No. 68 (Thrust Washer)
4-Item No. 67 (Pin, Planetary Gear)
4-Item No. 70 (Gear Planetary-14T)

P.T.O. KIT - KOENING - P/N 911233: \$301.95
P.T.O. KIT - RAMSEY - P/N 911234: \$301.95

Saturn All-Range OVERDRIVE

CAUTION: Drain and flush transfer case before starting with installation. Replace with a good grade of gear oil as recommended by vehicle manufacturer. **DO NOT USE ADDITIVES IN GEAR OIL. FAILURE TO COMPLY WITH ALL INSTALLATION INSTRUCTIONS WILL VOID YOUR WARRANTY. OIL LEVEL IN TRANSFER CASE MUST BE MAINTAINED AT PROPER LEVEL TO ASSURE MAXIMUM OVERDRIVE DURABILITY. FOLLOW THE OIL FILL RECOMMENDATIONS CAREFULLY.**

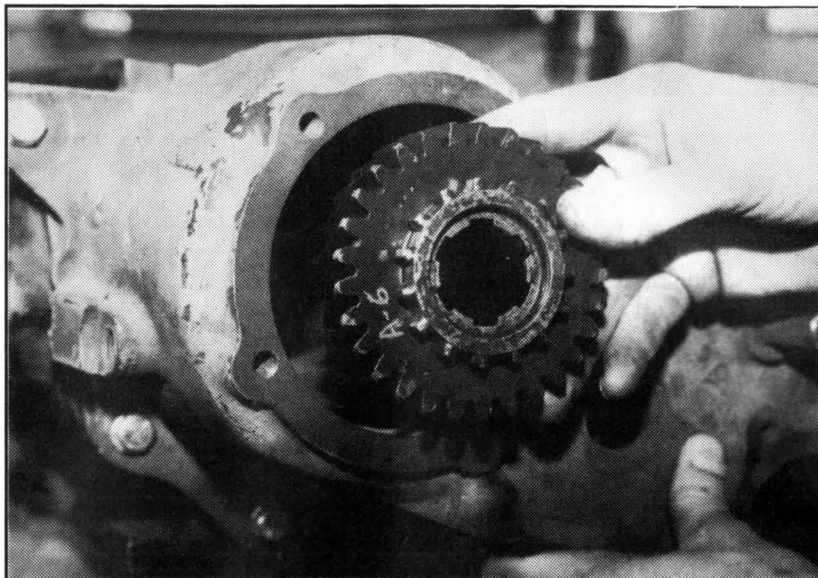


Fig 1- Remove Drive Gear

- STEP 1:** Put transmission into reverse gear and set hand brake. Remove shift knob, floormat and transmission floor plate. Using retainer plate in kit for pattern, mark and cut the new lever opening in the transmission floor plate.
- STEP 2:** Clean transfer case and P.T.O. unit if installed. Remove cover plate or P.T.O. unit and clean all surfaces of gasket material and burrs. Remove main drive gear (**Fig 1**) and make sure the gear unit to be installed has the same number of teeth. Check the transmission main shaft for end play and intermediate gear and bearings for wear. Replace them if necessary. Clean any foreign material from face of main bearing. If installing a Model No. 915674, be certain that the spacer between the transmission bearing and the main drive gear is not removed. This spacer is only on T14 3-speed transmission.

- STEP 3:** Install planetary unit onto transmission main shaft (**Fig 2**). Tighten DRIVE NUT to 100-120 ft/lbs. torque. **DO NOT USE IMPACT WRENCH.** Install special lockwasher as follows: One of the eight points on the drive nut must line up with the center of one of the four (A,B,C or D) recesses in the planetary spider. If one of the points will not line up in the center of one of the recesses, then the drive nut will have to be tightened (preferably), or loosened until it does line up. Refer to illustration on Page 24.

The special lockwasher will then slide into the nut and the lug will go into the recess. Install special snap ring as follows (shown on Page 24).

1. Use "snap ring" or "needle nose" pliers to install.
2. Compress ring until the 2 ears touch. (If compressed beyond this point, the ring will collapse and will not be suitable for use).
3. After installing, **DOUBLE CHECK** and make sure the retaining ring is **PROPERLY SEATED IN ITS GROOVE**.

NOTE: IF THE SNAP RING IS NOT PROPERLY SEATED IN ITS GROOVE, THE PLANETARY UNIT WILL EVENTUALLY WORK LOOSE ON MAIN SHAFT AND CAUSE SEVERE DAMAGE TO THE OVERDRIVE UNIT.

- STEP 4:** Elevate both rear wheels off floor. Put transmission into neutral, transfer case in gear and release hand brake. Turn drive line by hand to check for free rotation and run out. If rotation is not free, recheck Step 3. Run out can be eliminated by removing any foreign matter between the transmission bearing and the planetary spider assembly.

- STEP 5:** Align gasket & guide oil tube, shift link and overdrive case into position. Be sure oil pickup tube is in place. Removal of this tube will cause the overdrive to fail. A slight rotation of unit may be necessary to mesh gears. Install bolts with lockwashers and tighten to 30 ft/lbs. torque. Make certain the seal washer is installed as shown in (**Fig 4**). Turn drive line by hand to check for free rotation. **NOTE:** If a P.T.O. unit is to be installed behind the overdrive, see General Instruction on opposite page.

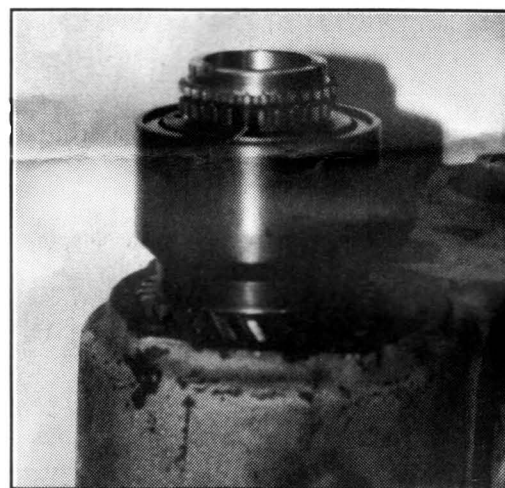


Fig 2- Planetary Unit

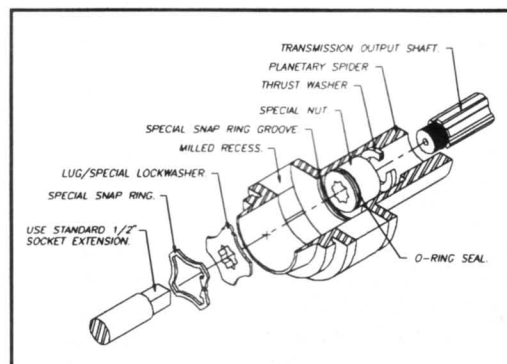


Fig 3- Planetary Locking

- STEP 6:** CAUTION: The 3 steel keys must interlock with brass synchro rings. If keys do not line up properly, you will find a 1/4" gap between transfer case & overdrive housing. Advance Adapters has packed grease underneath synchro ring to prevent it from falling out of position during assembly.
- STEP 7:** Bolt shift bracket pivot to transmission. Connect shift lever to shift linkage rod. Install shift lever bracket using the original bolts. Provide clearance between overdrive case and vehicle body to assure quiet operation. Attach linkage rod to overdrive housing.
- STEP 8:** Replace transmission floor plate, and install shift lever boot.
- STEP 9:** Put transfer case in neutral, transmission in high gear and overdrive in gear. Run engine at fast idle for 5 to 10 minutes so oil will circulate through overdrive. Stop engine and re-check "oil level" in transfer case, refill if necessary.
- STEP 10:** About 100 miles after installation of the overdrive, check and retighten the five bolts that hold the overdrive unit to the transfer case to 30 ft./lbs torque. Recheck oil level.

GENERAL INSTRUCTIONS FOR INSTALLING A P.T.O. UNIT ON A SATURN OVERDRIVE

1. Put vehicle in overdrive gear. (This will permit easy removal of overdrive parts).
2. Remove bearing cap, cotter pin, nut and spacer from the back of the overdrive unit.
3. Replace spacer with P.T.O. drive flange and install washer, nut (tighten to 100-120 ft./lbs. torque), and install cotter pin.
4. Install P.T.O. adapter gasket & adapter housing, tightening bolts to 35ft./lbs. torque.
5. Locate, mark and cut a 2" square opening in the floorboard for the P.T.O. shift lever to stick up through. (In some installations it may be necessary to bend the lever so that it clears the seat cushion).
6. Koenig P.T.O. unit only -- Install the 2 lower pipe plugs in the P.T.O. unit and fill P.T.O. unit with oil until oil runs out of the center (right side) pipe plug hole. (This is correct oil level check). Install the other 3 (2 on top, 1 - center) pipe plug.
7. Install P.T.O. drive shaft.
8. Put transfer case in neutral, transmission in high gear and overdrive in gear. Run engine at fast idle for 5 to 10 minutes so oil will circulate through the overdrive. Stop engine and recheck oil level in transfer case, refill if necessary. Recheck oil level at 100 miles.

NOTE: Refer back to **STEPS 7 & 9** if installing a Saturn Overdrive at this time. The Saturn Overdrive unit must be in the rear (conventional drive) position to use the P.T.O. unit.

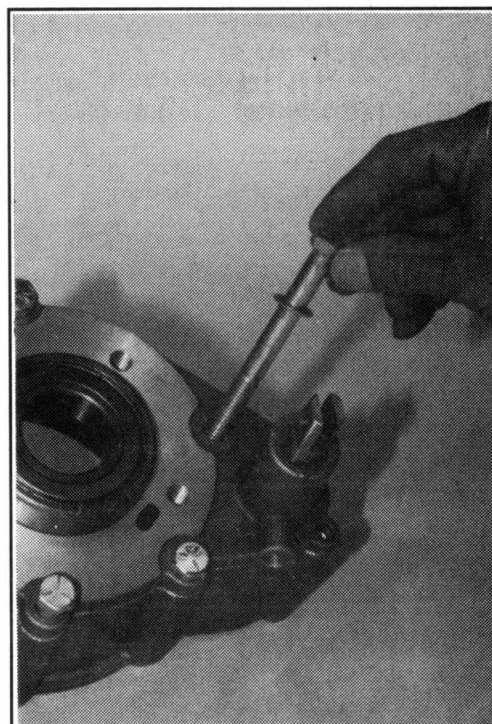


Fig 4 - Seal Washer

OPERATION AND USE: Leave shift handle in forward position for overdrive. Shifting the overdrive is done in the same manner as with a standard transmission, that is, release the throttle, depress the clutch pedal and shift. The **SATURN ALL-RANGE OVERDRIVE** may be used at any time, in any gear, high or low range, two or four wheel drive, forward or reverse. The synchro-mesh action permits shifting up or down at any speed.

SATURN OVERDRIVE ONE YEAR LIMITED WARRANTY

Advance Adapters warrants each new Saturn Overdrive against factory defects in material and workmanship for one year after date of purchase. The owner will be responsible for removing from the vehicle and returning any defective item(s), transportation costs prepaid to Advance Adapters will without charge, repair or replace, at its option, overdrives or overdrive part(s) which its inspection determines to be defective. Such item(s) will be returned with transportation costs prepaid from the factory point. A copy of the purchaser's receipt must be returned with the defective item(s) in order to qualify from warranty coverage. Exclusions from this warranty are the finish and any condition(s) determined by Advance Adapters to have been caused by abnormal use or service. Excessive wear or damage caused by incorrect or contaminated lubricant will not be covered under the warranty. This warranty does not apply to any Saturn Overdrive which has been improperly installed. There are no warranties, expressed or implied (including any implied warranties of merchantability and fitness) which extend beyond this warranty period. The loss of use of vehicle, loss of time, inconvenience, commercial loss or consequential damages are not covered. Advance Adapter's reserves the right to change the design of any product without assuming any obligation to modify any product previously manufactured. This warranty gives you specific legal rights. You may also have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts. Some states do not allow the exclusion or limitation of incidental or consequential damages. Therefore, the above limitation(s) or exclusion(s) may not apply to you.

BREAKDOWN AND ASSEMBLY INSTRUCTIONS FOR OVERDRIVES

MODEL 33-29, 33-26, 33-V6 AND 33-14

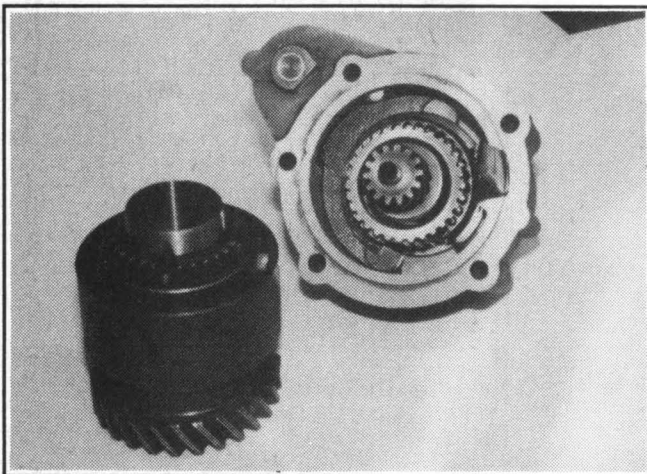


Fig. 1- PLANETARY ASSEMBLY

The overdrive has two basic parts – the planetary assembly on the left and synchro case assembly on the right.

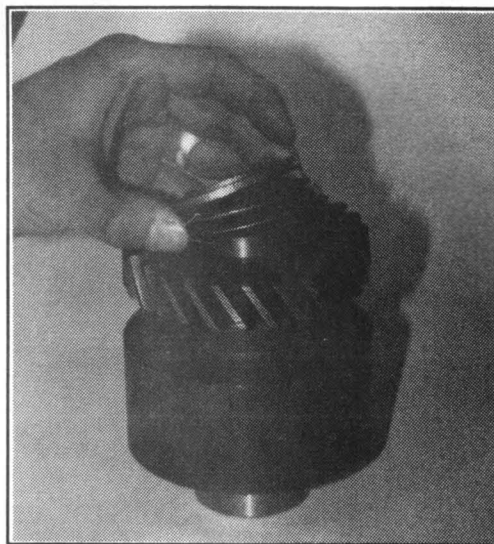


Fig. 4 - Remove the thrust bearing set. Notice the thick race is next to the gear housing.



Fig. 2 - Use a small screwdriver to remove the spirolock ring from the gear housing.

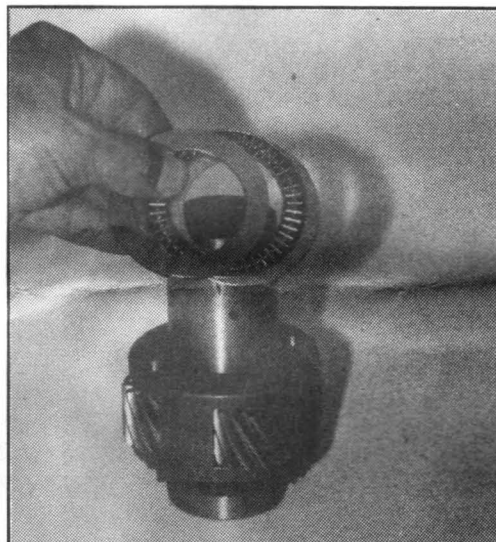


Fig. 5 - Lift off the gear housing & remove the inner thrust bearing set. Notice the thin race is next to the spider assembly.

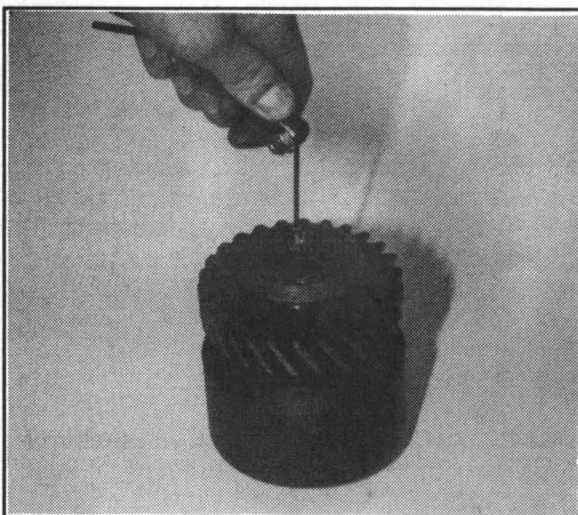


Fig. 3 - Remove the socket head screws holding the beveled spacer & remove it.

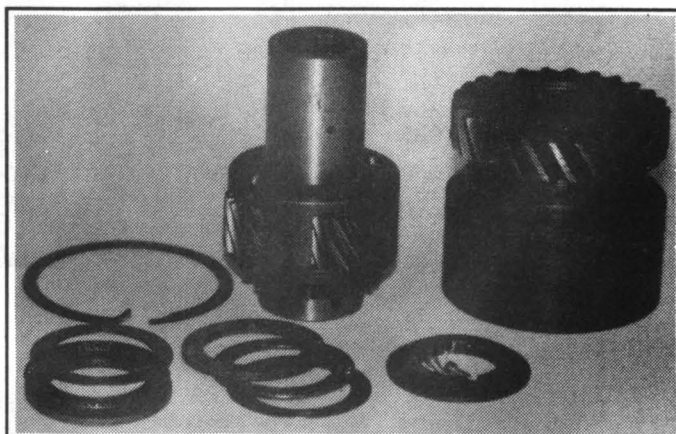


Fig. 6 - Thoroughly clean and inspect all parts. Replace as necessary.

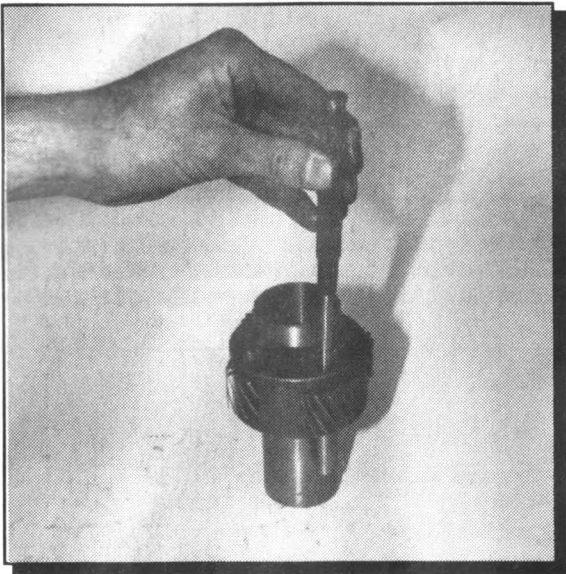


Fig 7 - Planetary gears & bearings may be replaced by driving out the pins. It is not necessary to remove the roll pins locking them in place. They will shear as the pins are driven out. New replacement units do not use the split pin design. To keep pins in position, we use a 2-piece retainer ring that fits underneath syncro teeth. (See Fig 7A below).

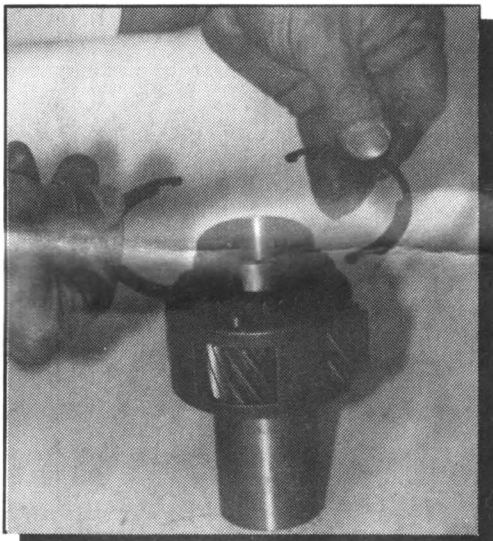


Fig 7A

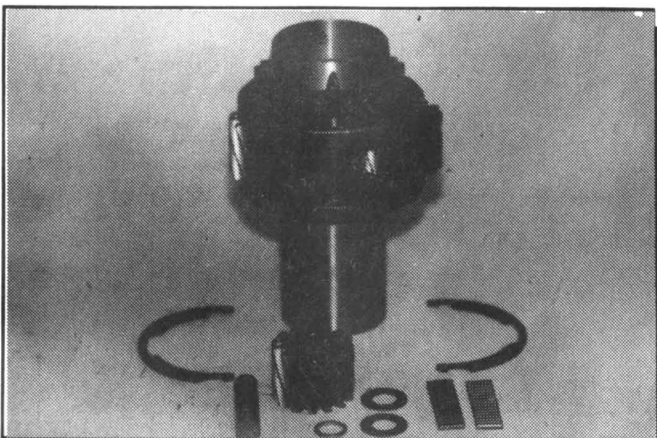


Fig 8 - The needle rollers, spacer & thrust washers are assembled as shown. Assemble the planetary assembly in reverse order of disassembly. Lubricate the internal parts liberally with SAE 90 gear oil.

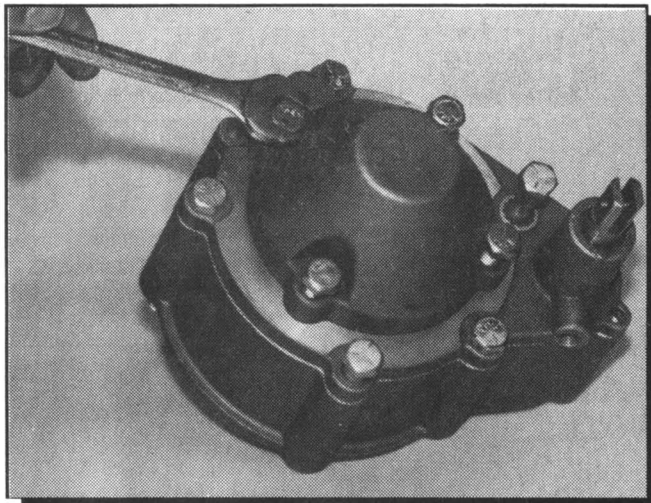


Fig 9 - Remove the four cap screws holding the bearing cap.

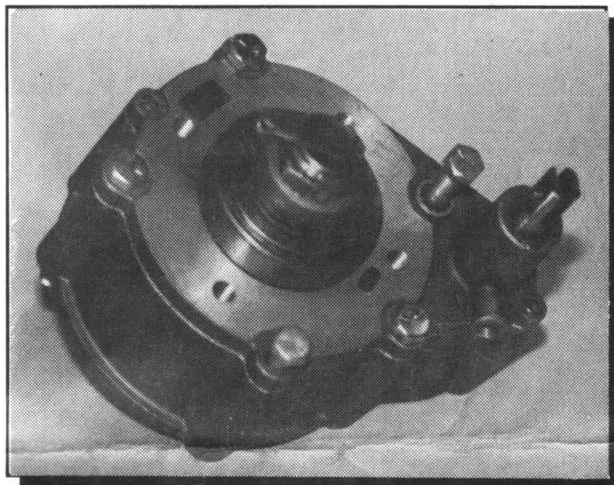


Fig 10 - Remove the cotter pin locking the nut to the spline shaft.

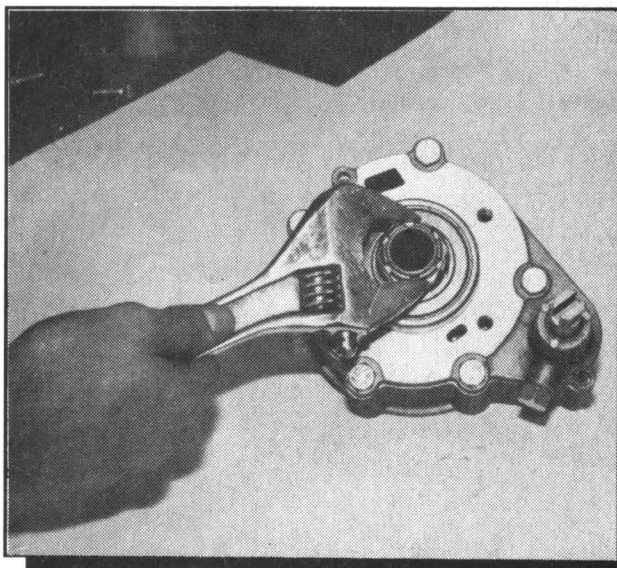


Fig 11 - Remove the spline shaft nut. The shift fork must be at the rear of the case, locking the unit in the overdrive position before the nut can be removed.

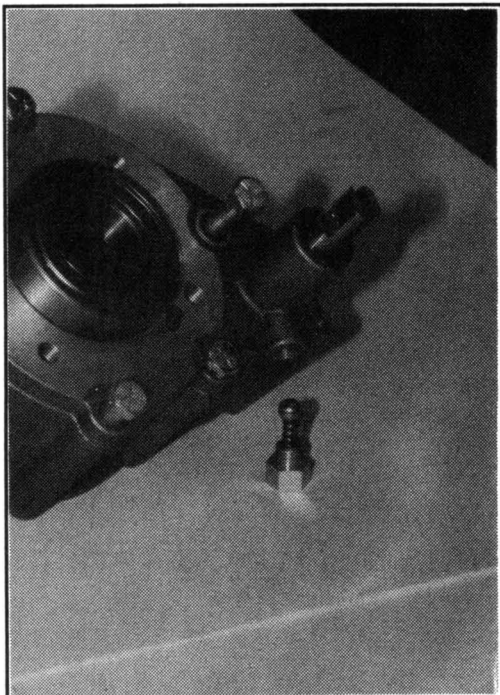


Fig 12 - Remove the shift detent screw.

Fig 15

Thoroughly clean and inspect all parts. Replace if necessary. Assemble the synchro case assembly in reverse order of disassembly. If the main bearing is shielded, face the open side to the bearing cap.

Fig 16

Be certain that the notches in the rear synchro rings are aligned with the shift dogs when assembled to the cover. To be assured of proper alignment, we recommend using a quality grease to hold synchro ring in position for assembly alignment. Lubricate the internal parts liberally with SAE 90 gear oil. Remember to replace the oil feed tube. The 3/8" cap screw should be torqued to 19 ft./lbs. The 1/4" cap screws should be torqued to 6 ft./lbs.

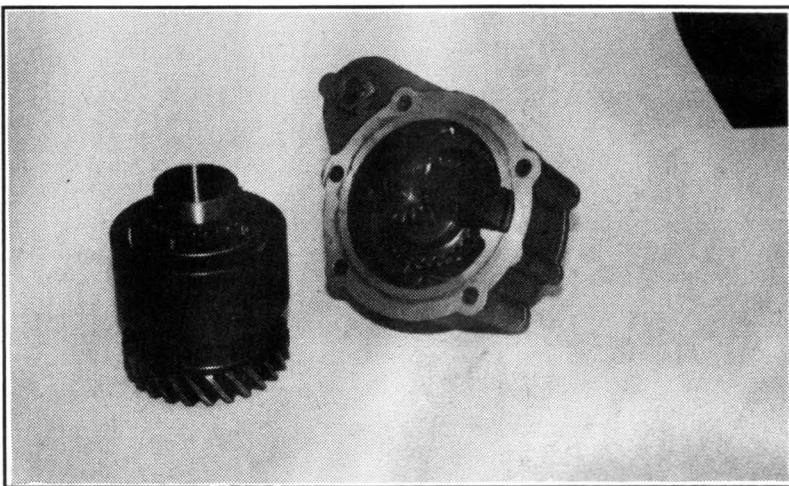
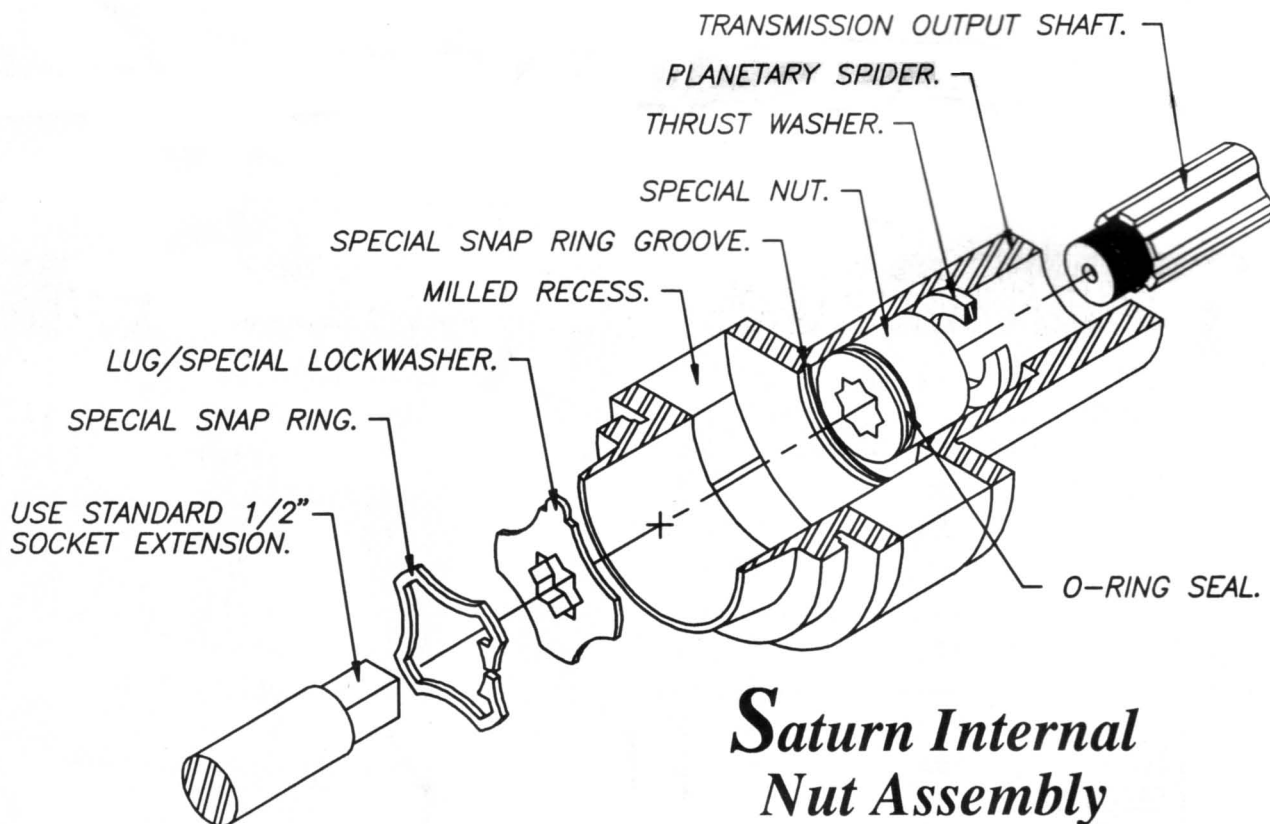
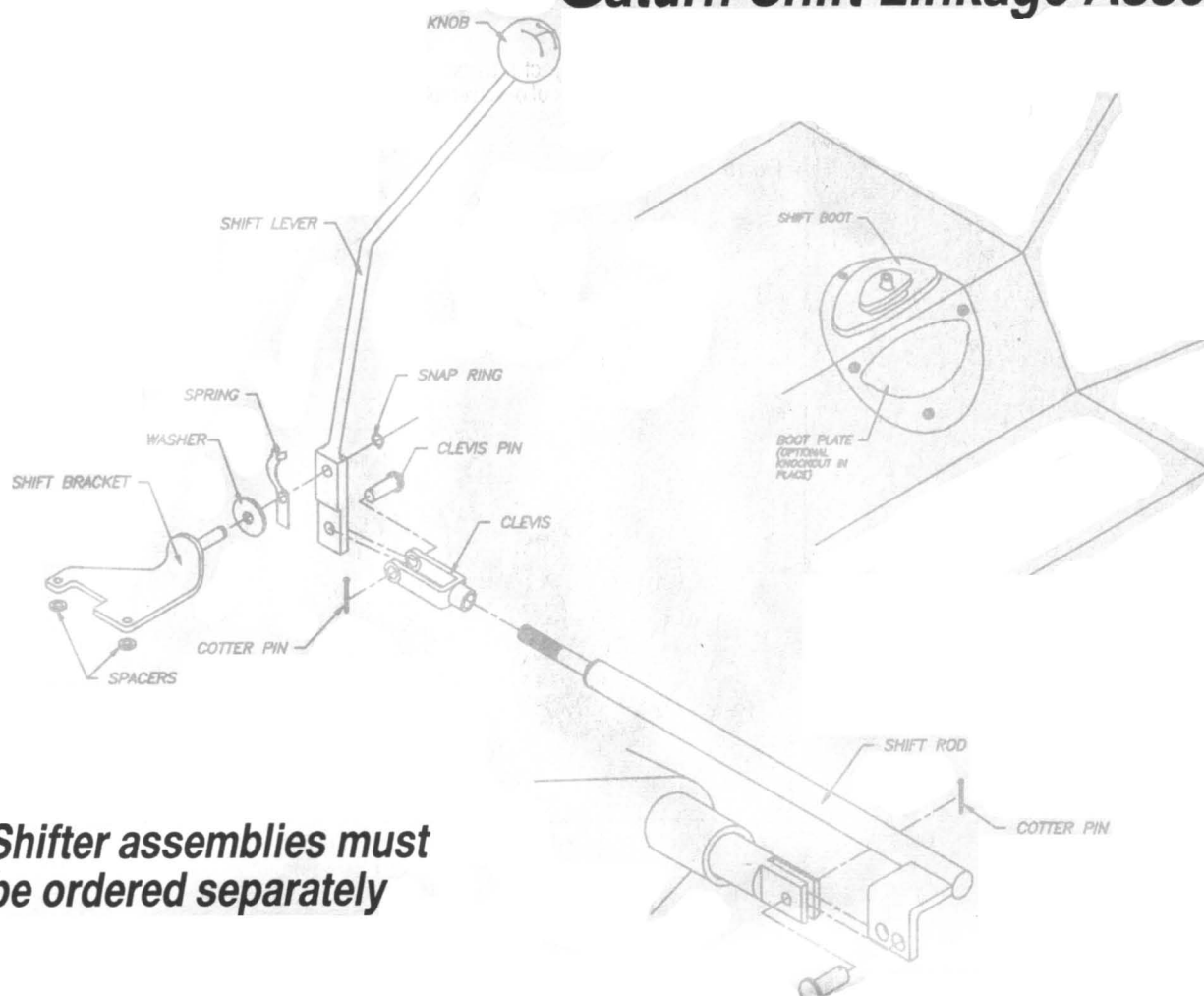


Fig 13 - Internal parts will now separate from the cover.



Saturn Internal Nut Assembly

Saturn Shift Linkage Assembly



Shifter assemblies must be ordered separately

PRICE \$79.50 - WEIGHT 6lbs

PART NO.	APPLICATION
920000	T90 3 Speed Dual Lever Transfer Case
920001	T90, T86, T14 3 Speed Single Lever Transfer Case
920002	T98 Jeep 4 Speed Dual or Single Lever
920003 920004 920005 920006	Ford T18 4 Speed Ford NP435 4 Speed GM SM420 4 Speed GM SM465 4 Speed

PART NO.	APPLICATION
920007	Muncie Car 4 Speed
920008	Warner T10 4 Speed
920009	Saginaw 3 & 4 Speed
920010 920011 920012	TH350 Automatic TH400 Automatic C4 Automatic