Opel GT:
Conversion to 5-Speed-Getrag-Transmission

Translated from the original article by Albert Heinel, Journal Nr. 4 und 5

(modified 07/2000 by Uwe Klippert and David McCollam)

Part I:

From the start one thing was certain; I didn't want a show car, but a GT to drive on a daily basis. Even if you had to do some modification more reliable and trouble-free technology should be integrated. The 2-liter
Injection engine was already a successful step in this direction. In addition to the increase in efficiency, modern electronics will be noticed in each situation. Absolutely trouble-free cold start, chop-free,
best acceleration, quiet, and better fuel economy, approximately 10.5 liters/100 km or 22.4 mpg fully loaded.

Weak-points emerged; however, in the combination with the original GT - 4-speed-transmission: frequent shifting in the city, too short 1st gear and wheel spin. The 2 liter FI engines rev up quickly on the highway in the GT. With the one look at the tachometer I was frightened to see the effects of 6200 revs/minute on the effort and the expenses of an engine change. These sound effects with can be endured only with a grim expression over a long period of time. For sure the engine could have been revved even higher. I also would like to drive faster, but anyone hearing the tack-tack-tack announcing a failure of the rod bearings, can live without it for the next 2 or 3 years.

Speeds beyond 180 km/h (110 mph) are a bit nerve-racking and should only be endured for a short time. But you can live with a reasonable noise level and engine rpm's at 160 to 170kph (100-105mph.

Finally, to the subject of this document:

The 5-speed transmission with final overdrive gear appears to be the optimal solution. The rear axle ratio remains as is and acceleration will remains as is. You can shift into an addition gear and glide quietly and virtually without noise. Those were my thoughts, theoretically.

Practically it looked different. I ignored the original optional Opel/ZF-transmission because of its high noise level. I concentrated my search on one, the Getrag 240, with the fifth gear .803 final drive ratio. Like many of you know, it's not easy to find this type.

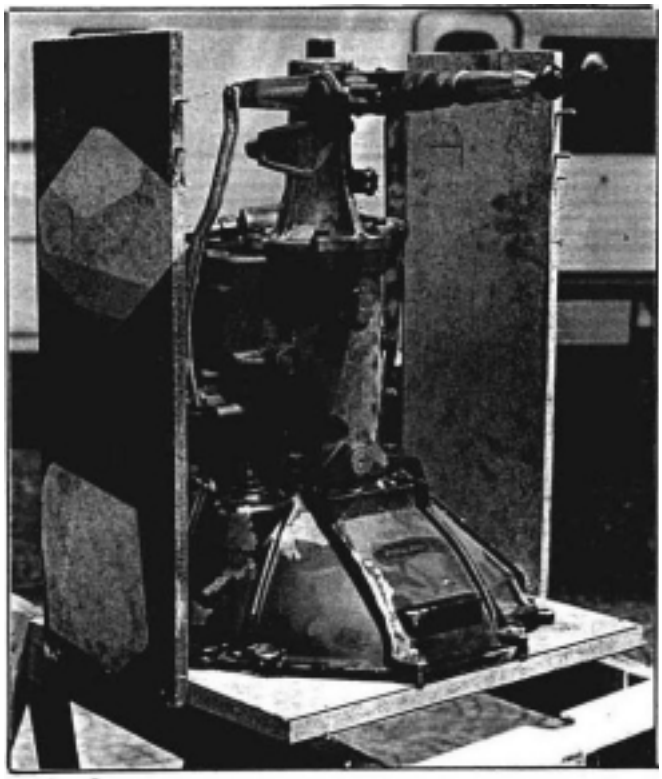


Abb. 1

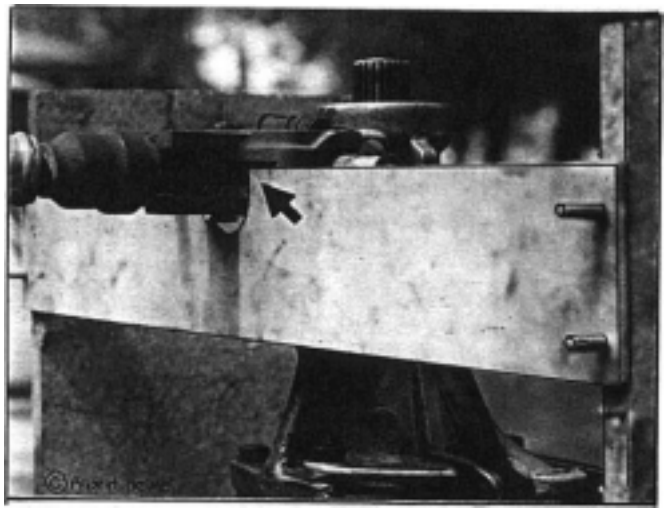


Fig. 2

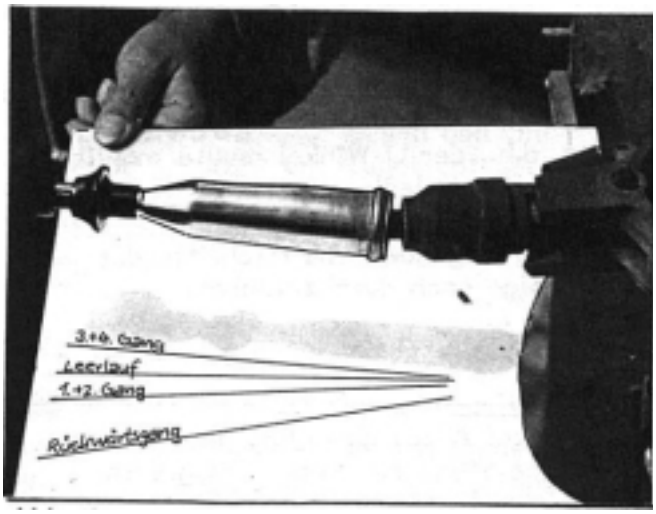
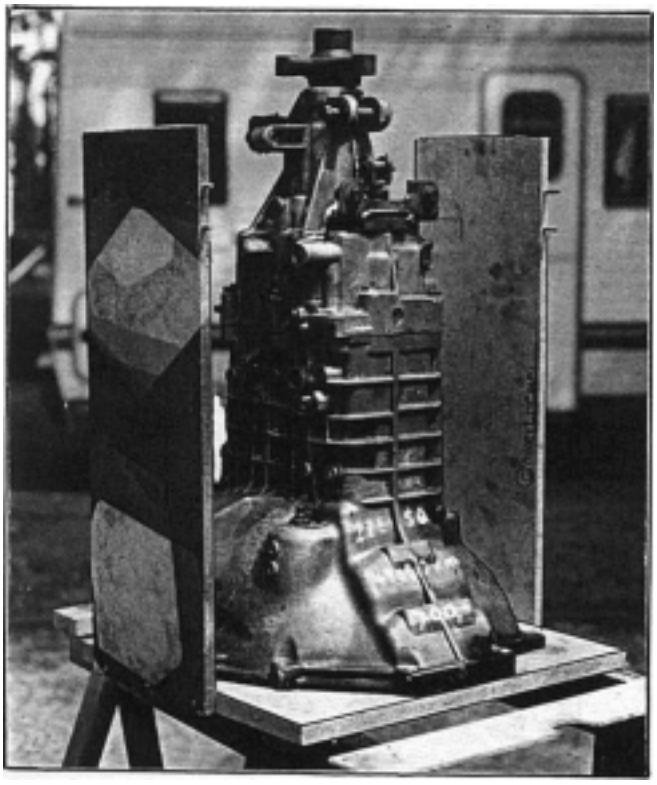


Fig. 3

After some searching, I was lucky to buy a Getrag 240 from a Record E with 47,000 km (29,000 miles) for 700, - DM.($325 USD). The tranny looked rather huge, like it wouldn't fit in the GT transmission tunnel.

I did some research and concluded that, without question, the gearshift extension would have to be shortened. Additionally, I would have to bend the gearshift to fit exactly. I built a mock-up of the original to test fit. See Fig. 1

I built a wooden plate and inserted 4 dowels to mate to the bellhousing. The pivot point of the shifter plate is also simulated with plywood and dowels. Abb.2. A piece of cardboard is also used to estimate the location of the shifter while in the neutral position of the shift pattern. (Fig. 3). In addition, it establishes the length of the travel for the 5-speed mechanism. The Getrag mechanism 5-speed mechanism is different from the original 4-speed shifter principle. It only has one cross-connecting link that leads from the front to the back of the body of the mechanism. The gearshift lever is attached to the shift plate with a ball-joint and connected with the shift linkage. This construction already leaves the possibility of a precise shift pattern suspect.



Getrag 240 in the mock-up

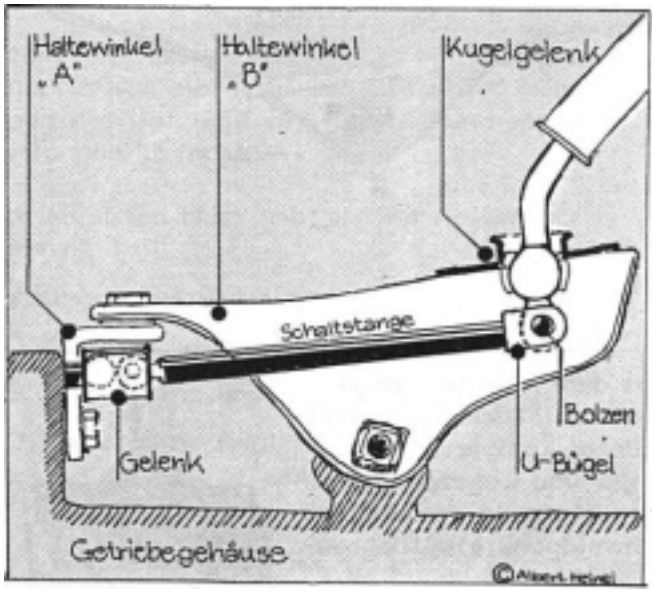
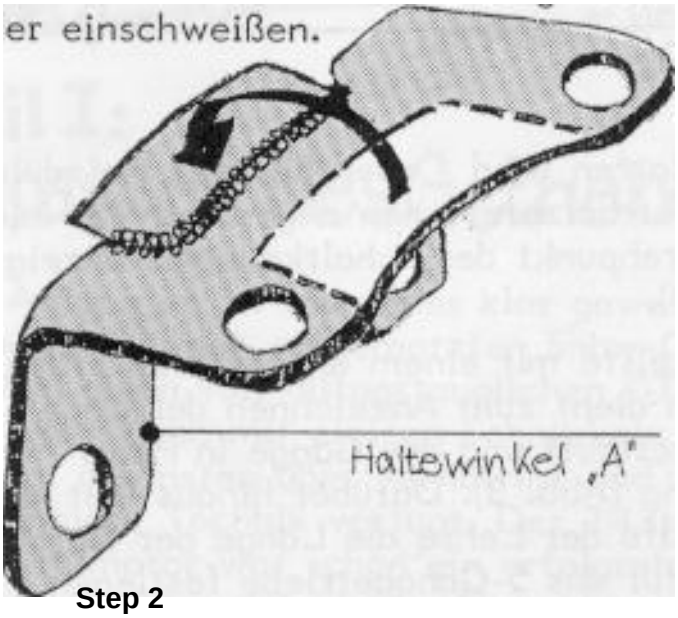


Fig. 4

Based on the original position 5-speed, the illustration is clear that the shift linkage had to be shortened, i.e., the U-ends of the linkage had to be cut off and rejoined. The following steps are presented in sequence:

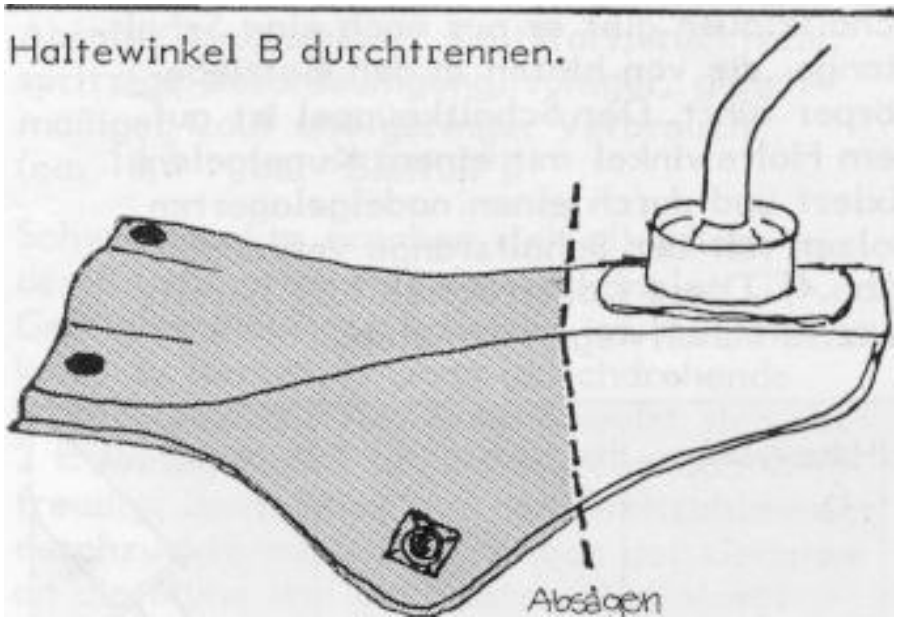
Step 1

Cut out rear tab piece and reattach to reinforce the front of the shifter attachment bracket.



Step 2

Cut center section from forward portion of shifter mounting plate as illustrated in the drawing.

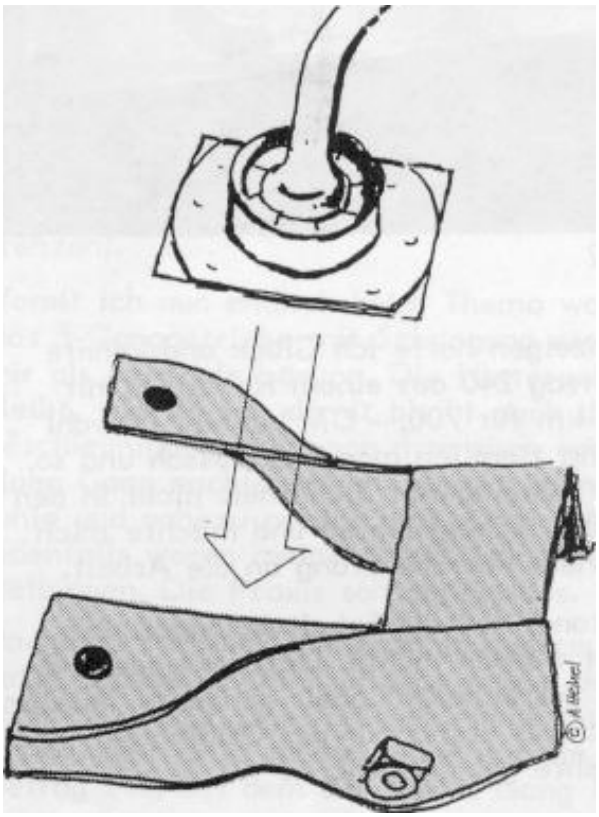


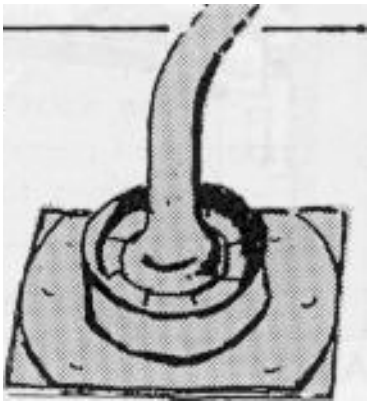
Step 3

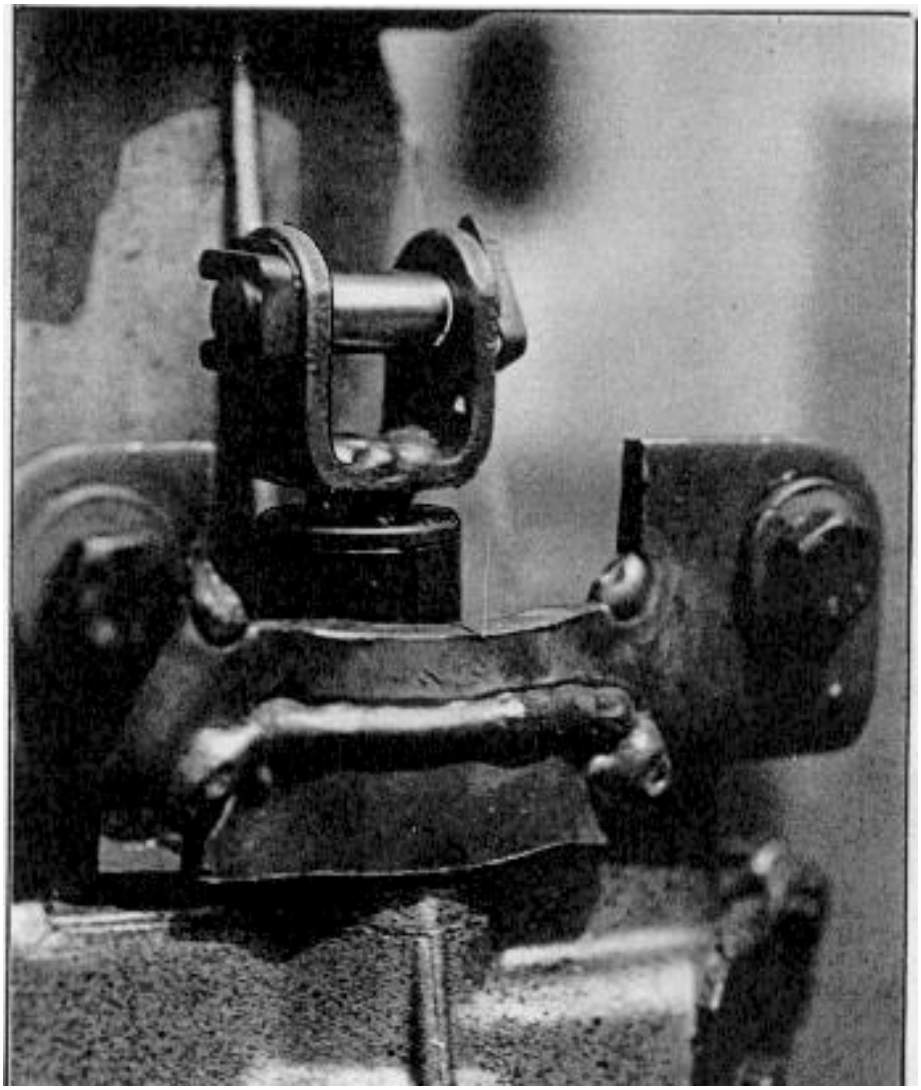
Cut shifter mechanism from rear of bracket along line illustrated in drawing. Trim the side pieces from the shifter mechanism and leave a rectangle approximately the size of the center section of the shifter mounting plate, see illustration.
From the separated piece cut out the baseplate with the nylon bushing and shifter assembly. Do not drill the spot welded points.

Step 4

Cut out an opening to fit in the baseplate. Do not weld yet.



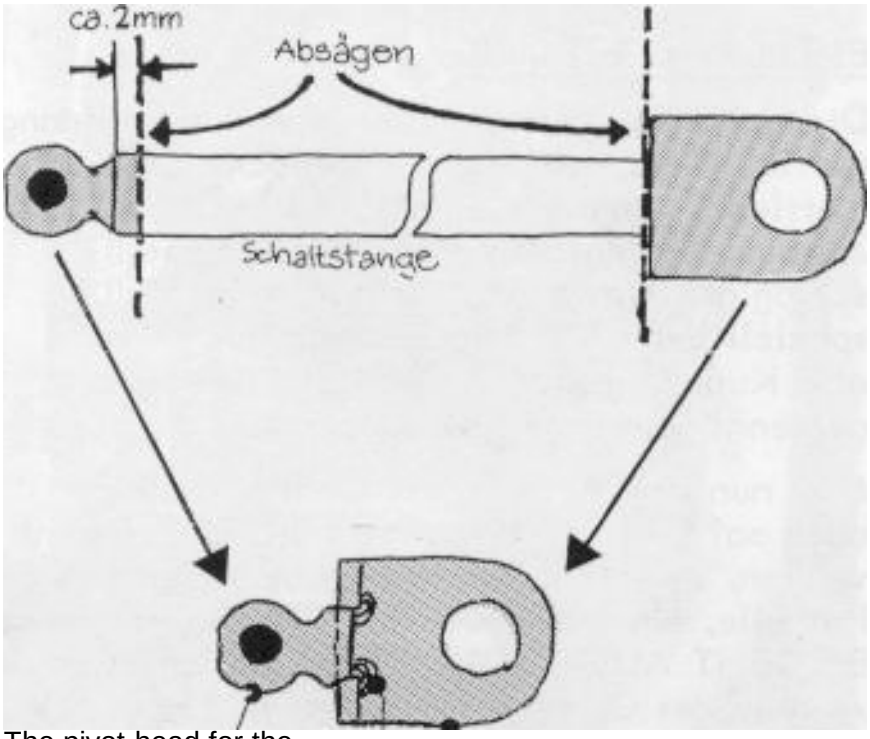




Baseplate “A”, u-joint and bolt already installed

Step 5

Cut the pull-rod and drill a hole in the base of the u-joint to have the parts welded easily.



The pivot-head for the shift linkage fits in the socket.

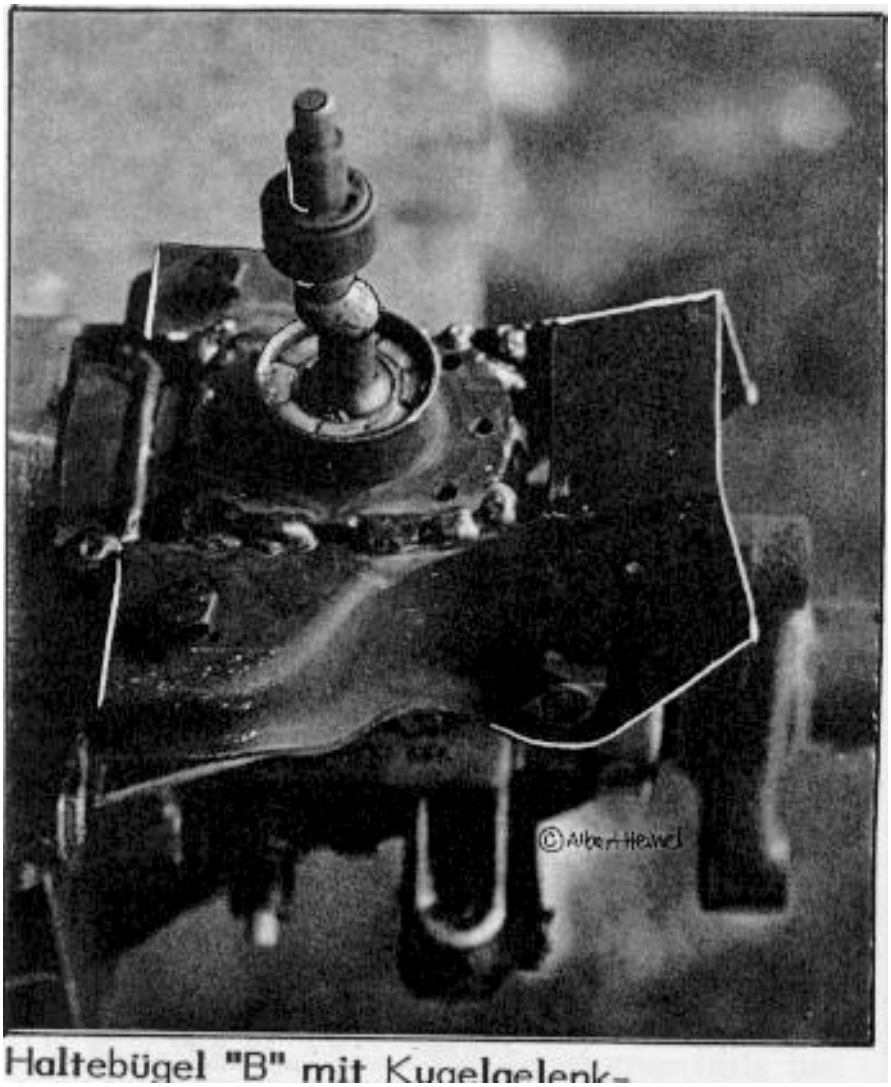
Step 6

The socket has to be rotates approximately 10 - 15° counter-clockwise on the axis of the transmission at the linkage weld point. This places the shifter in line with the GT engine tilt.

Step 7

Cut out the bend in the gearshift lever (approximately 2 cm) and weld the lever together again by placing it 6 mm in driving direction.

Important: when welding several times in the same place, water quench the part to prevent the lose of tensile strength at the welded joint



Mounting brackets " B " with ball-joint - Hold-plate welded

Step 8

The shift plate is temporarily assembled to test the operation of all parts. If necessary, you can correct the angle of the linkage. The final position of the linkage is based on this observation. Check all the shifter parts for function and clearance. If everything is properly positioned at the right position and the mechanism shifts without problems everything can be welded solidly.

The linkage rebuild is complete. It is somewhat more simple to understand everything, if you have the transmission in front of you at the time.

In the next issue: Installing the Five-speed gearbox in the GT.