

Introduction

This article will attempt to list some of the differences I have observed between different W5X gearboxes. This information is not beyond repute it is simply information that I (with the help of others such as Norbie) have collected first hand.

There is a large amount of what I believe to be misinformation in circulation regarding 'late model' steel plate W58's (such as found in non turbo 2JZ-GE engine JZA80's).

Some of the rumours in regard to late model W58's that I have heard include:

- Bigger input bearing
- Double Synchromesh on 2nd and 3rd gears
- Synchromesh on reverse gear
- Improved shifter mechanism

I believe the following to be flat out incorrect:

- Synchromesh on reverse gear: The engagement of reverse gear is via an idle gear. It does not have synchromesh.

I believe the following to be slightly correct:

- Bigger input bearing: The front bearings (Input bearing and layshaft) are thicker.
- Improved shifter mechanism: Later model W58's (such as JZA80) have a shifter mechanism that 'hangs' off the rear of the box for a better description. It is also worth mentioning that the internal shift linkage that corresponds to this very rearward shifter setup is different to the conventional shifter linkage where the shifter is mounted to the gearbox (not hanging off the rear).

The internal shifter arrangement does appear to be slightly different; however I am unable to comment on if the steel plate W58 design is better or worse. Steel plate W58's are also equipped with roller bearings where the shift linkage that runs in the extension housing is supported, this is opposed to a bush in alloy plate gearboxes, and this is an improvement in my opinion.

I cannot confirm:

- Double Synchromesh on 2nd/3rd gears: Due to my lack of gearbox expertise at this point in time, I am unable to offer an opinion on whether this is fact or fiction.

Summary of Difference between W58 (steel plate) and W57 (alloy plate)

- The 5th Gear Ratio is of course different however this is not the focus of this article
- Larger fillet on input shaft (W58)
- Thicker input bearing (W58)
- Thicker forward layshaft bearing (W58)
- Thicker 5th and Reverse gears (W58)
- Thinner 5th gear shift fork hub (W58)
- Slightly different synchromesh design (double synchromesh?)
- Slightly different 5th gear synchromesh
- Roller bearings in rear extension housing for shift linkage as opposed to bushes (W58)
- Different rear bearings / cages
- Oil sling under forward 4 gears (W58)
- A magnet on each side of the sandwich plate (W58)

There may also be other differences that I have not observed.

Other Information:

I suspect that it is strongly possible that all steel plate W58's are the same, and that the 'late model steel plate W58' is no different from any other steel plate W58. However I have not yet been able to confirm this hunch first hand.

Alloy plate W58's do exist, and were available in (AUS delivered) MA61's, RA65's and (early) MA70's at least to my first hand knowledge. The Toyota EPC lists a model change in 11-89 (the pictures suggest; with the addition of magnets that attach to the sandwich plate, that this is when the steel plate W58 was introduced, however I believe that it was before this in actuality).

Notes:

- In this article W5X refers to W55, W57 and W58 gearboxes (and not W50 gearboxes).
- Measurements have NOT been carried out with laboratory precision.
- I am unsure of the origin of my steel plate W58, there were some very slight differences in regards to synchromesh in comparison to Norbie's known JZA80 steel plate W58 gearbox (with damaged 3rd gear), however the bearing and gear thicknesses appeared to be the same (the synchromesh differences may be due to a past rebuild?). However it may also be that all steel plate W58's are very similar and my steel plate W58 may be ex MA70 non turbo.
- I am not a gearbox rebuilder, nor am I a mechanic I am simply an enthusiast attempting to provide some information to those that may find it useful. However if I have made mistakes throughout this document I do apologise.

Detailed Comparison Photographs

(Steel Plate W58 vs. Alloy Plate W57)



Figure 1: W57 with Extension Housings & other parts (shift linkage etc)

Figure 1 shows an alloy sandwich plate W57 gearbox with the front and rear extension housings and the internal shifter linkage that sits in the rear extension housing removed.

This gearbox is damaged, the input shaft gear and corresponding layshaft gear have been stripped of all their teeth (this can be seen on the far left of Figure 1 and will be shown in more detail in later pictures).

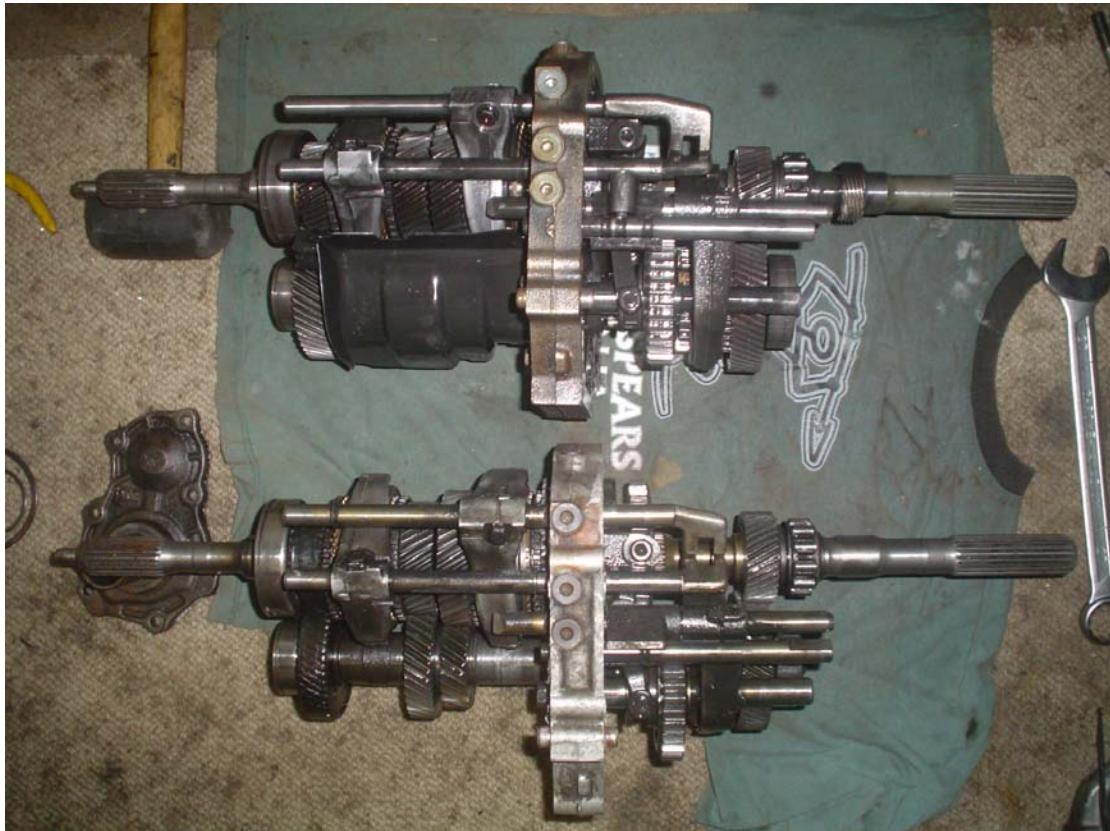


Figure 2: W58 Top, W57 Bottom

Figure 2 shows a steel sandwich plate W58 above the aforementioned alloy plate W57. A few differences are noticeable.

Figure 2 also shows that the steel plate W58 is equipped with an oil sling under the forward 4 gears.

I have identified some other differences with pictures in the following pages:

The input shafts posses a slightly different design:



Figure 3: W58 Input shaft (steel plate)



Figure 4: W57 Input shaft (alloy plate)

It can be seen that the steel plate W58 has the same major and minor diameters, however the 'fillet' on the W58 is longer and not concave as can be seen on the W57 input shaft.

The input bearing on the steel plate W58 is thicker:



Figure 5: W58 Input bearing (steel plate)



Figure 6: W57 Input Bearing (alloy plate)

It can be seen that the steel plate W58 has an input bearing with a thickness of ~23mm. The thickness of the W57 input bearing is ~ 21mm. The difference is ~2mm.

The forward layshaft bearing is also thicker on the steel plate W58:



Figure 7: W58 Forward Layshaft Bearing (steel plate)



Figure 8: W57 Forward Layshaft Bearing (alloy plate)

It can be seen that the steel plate W58 has a forward layshaft bearing with a thickness of ~20mm. The thickness of the W57 forward layshaft bearing is ~ 18mm. The difference is ~2mm.

5th gear is thicker on the steel plate W58:



Figure 9: W58 5th Gear (steel plate)



Figure 10: W57 5th Gear (alloy plate)

It can be seen that the steel plate W58 gear is ~1.7mm thicker than the W57 5th gear.

Carefully comparison of the previous two pictures will also show that the rear bearing cage is of different construction between the two gearboxes, however I don't believe that this is particularly important (they may have been replaced in the past).

Reverse gear is thicker on a steel plate W58:

Figure 11: W58 Reverse Gear (steel plate)



Figure 12: W57 Reverse Gear (alloy plate)

It can be seen that the steel plate W58 has a reverse gear thickness of ~16mm. The thickness of the W57 reverse gear is ~ 14mm. The difference is ~2mm.

The 5th gear hub where the shift fork is located is thinner on the steel plate W58:

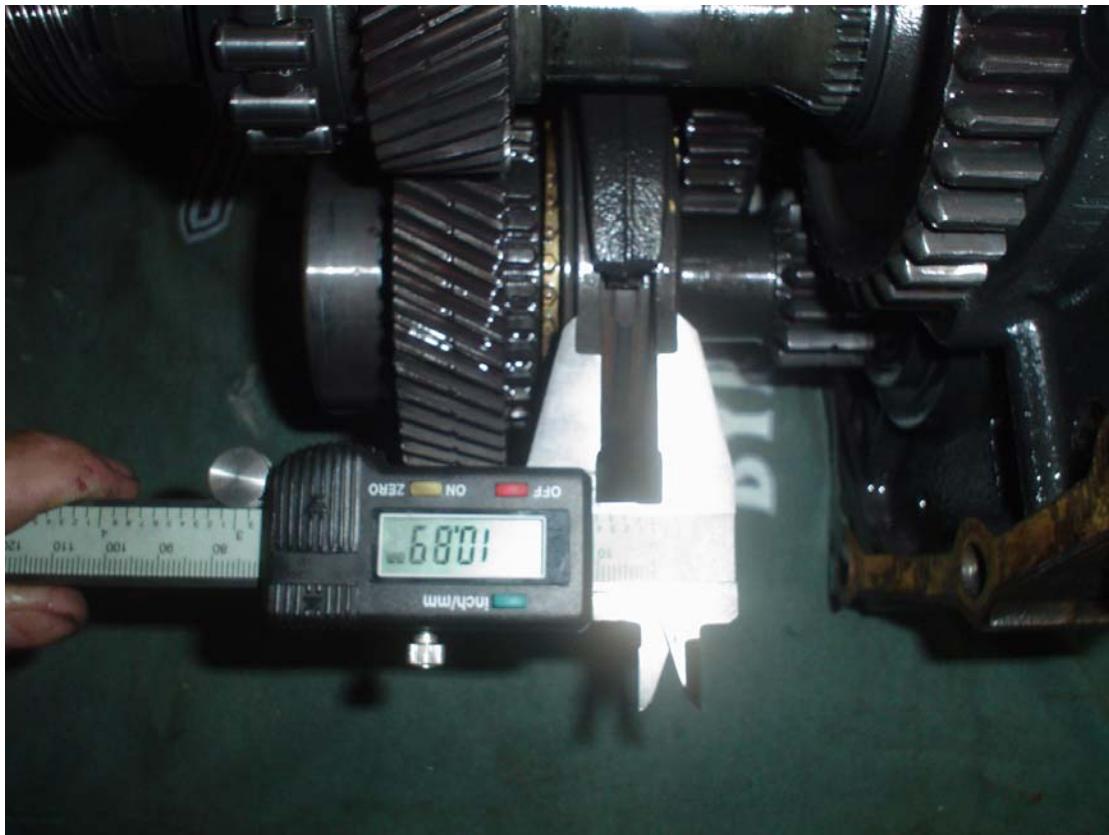


Figure 13 W58 5th Gear Hub (steel plate)

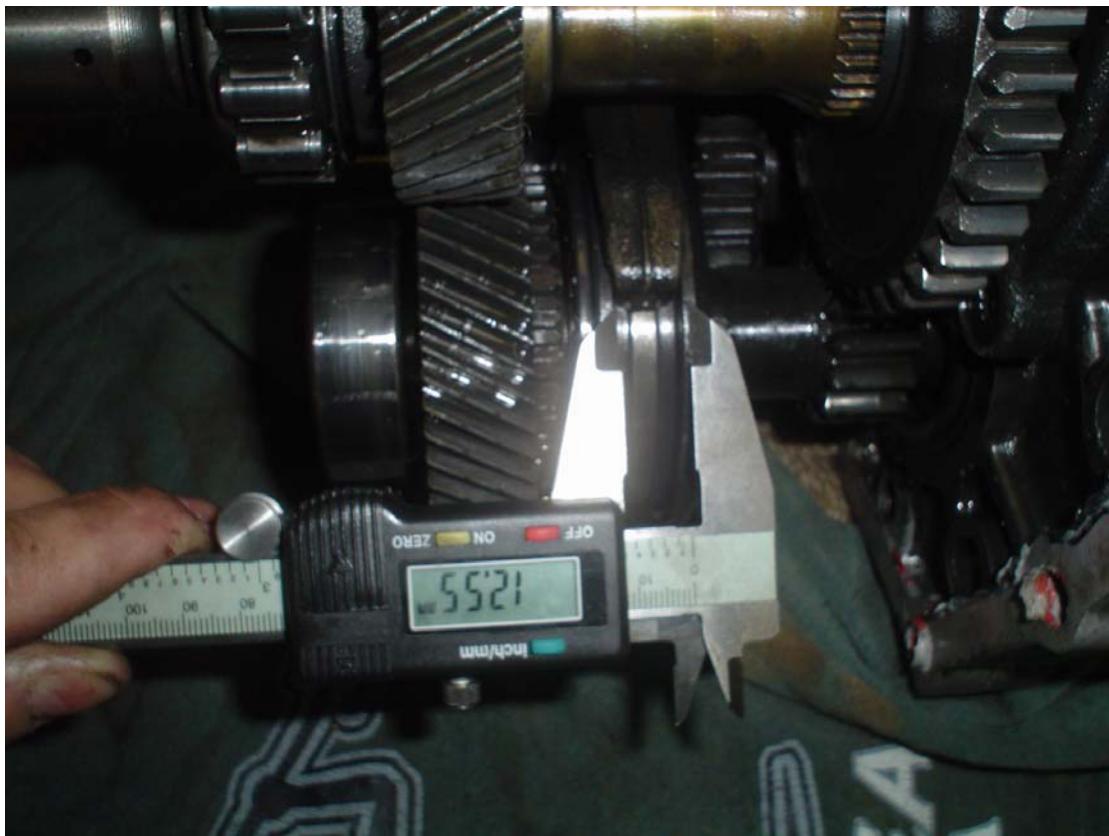


Figure 14: W57 5th Gear Hub (alloy plate)

It can be seen that the steel plate W58 has thickness of ~11mm where the shift fork runs. The corresponding thickness on the W57 gear box is ~ 12.5mm. The difference is ~1.5mm. I suspect this dimension is smaller on the steel plate W58 due to the increase of the thickness of the 5th gear.

There are slight differences in the reverse and 5th gear shifter arrangement:



Figure 15: W58 5th / Reverse Gear Arrangement (steel plate)



Figure 16: W57 5th / Reverse Gear Arrangement (alloy plate)

Differences are noticeable however I am not knowledgeable enough as to explain them or comment on which is better.

The 5th gear synchromesh appears to differ in design between the steel plate W58 and the alloy plate W57:

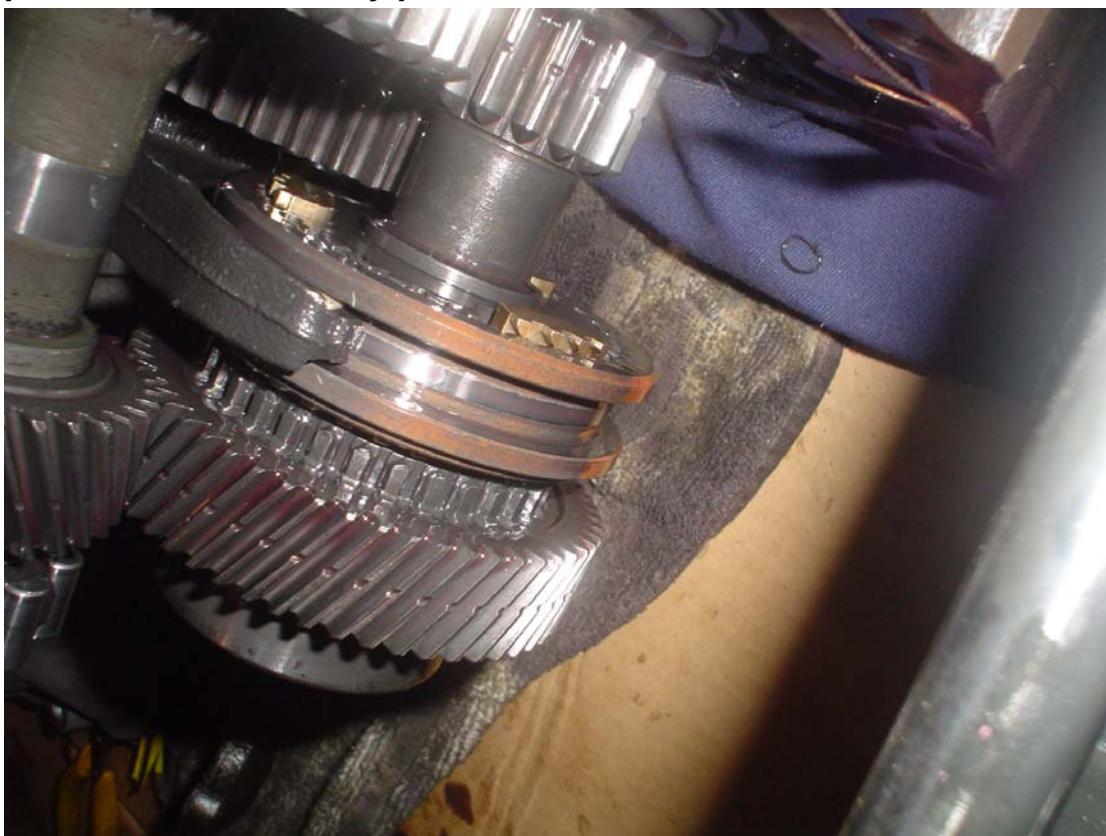


Figure 17: W58 5th gear synchromesh (steel plate)



Figure 18: W57 5th gear synchromesh (alloy plate)

The exact description of the difference in design is difficult; the steel plate W58 synchromesh appears to have gaps on the rear side of it, where as the W57 synchromesh appears to be a solid unit.

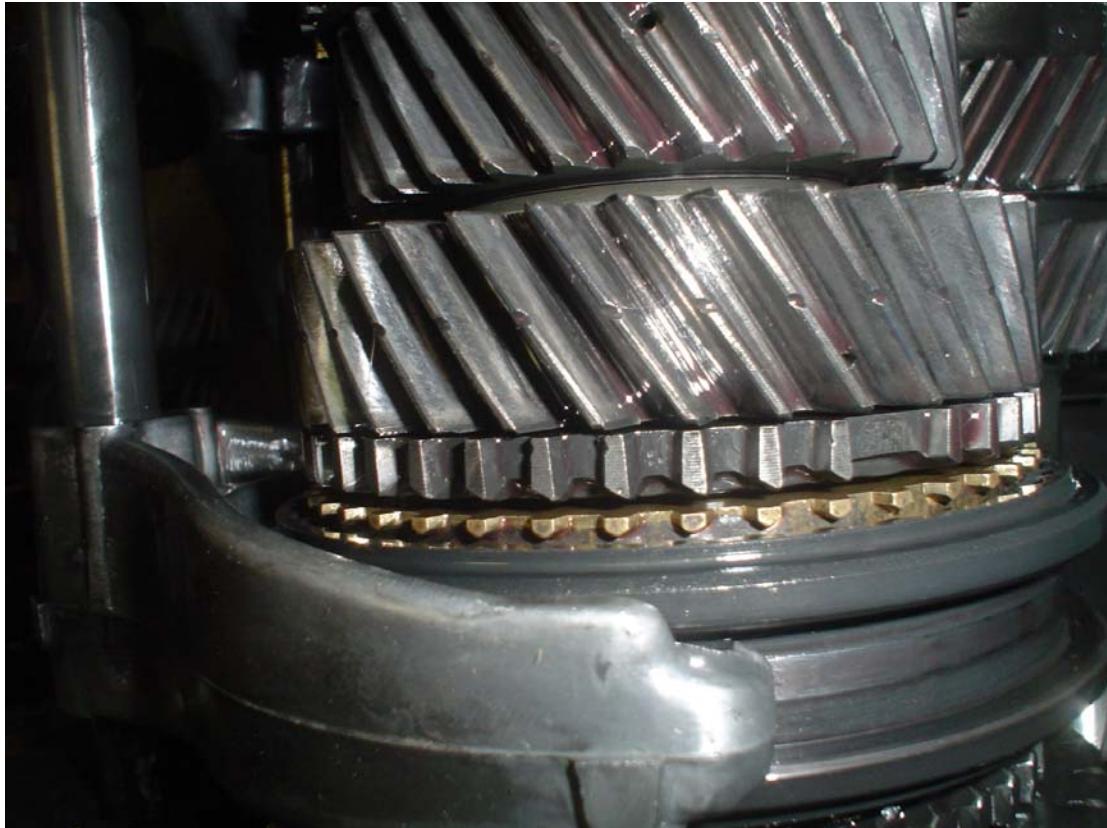
Synchromesh Comparison:

Figure 19: W58 2nd Gear Synchromesh Arrangement (steel plate)

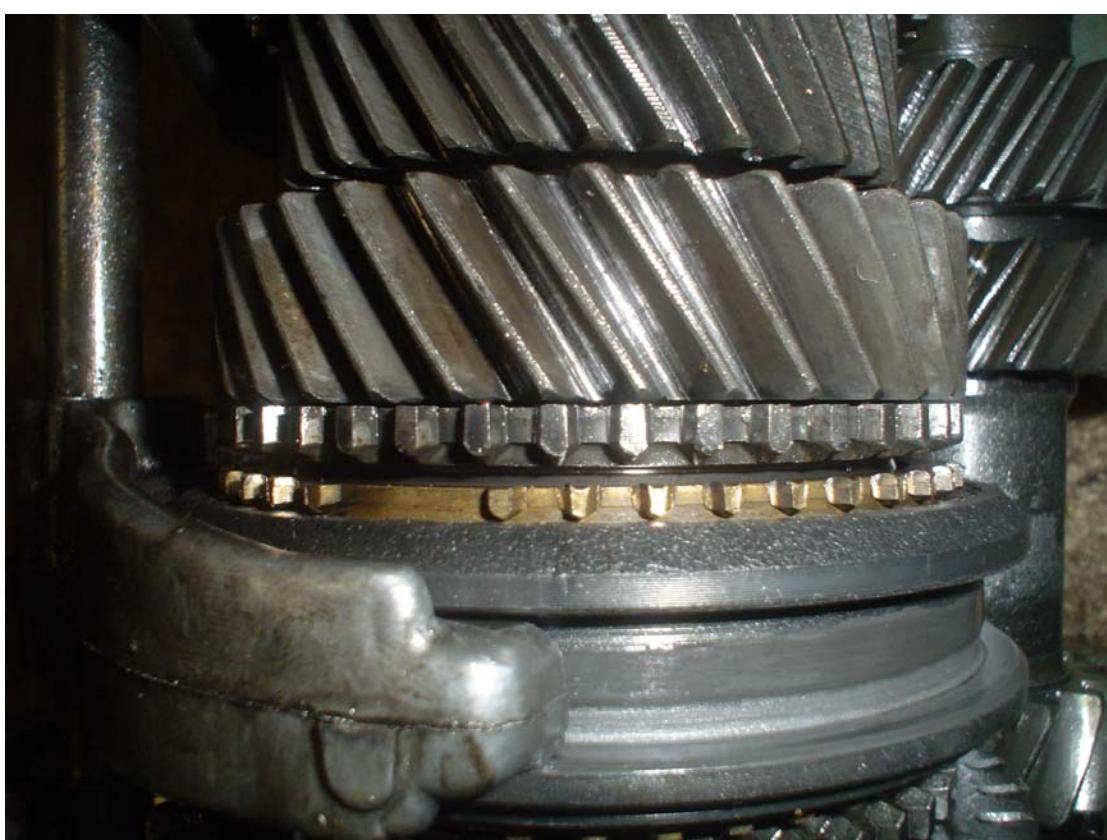


Figure 20: W57 2nd Gear Synchromesh Arrangement (alloy plate)



Figure 21: W58 with 4th gear engaged (steel plate; NOTE: this is Norbie's gearbox Ex JZA80 with 3rd gear damage)



Figure 22: W57 with 3rd gear engaged (alloy plate)

I am not highly enough educated in this area to voice an opinion on the synchromesh differences between the steel plate W58 and the alloy plate W57.