

1.2.4 GEAR

The Figure 1-41 shows the Fünfgangge- together with the gear-Schaltmecha- mechanism, the primary drive, clutch and to the kick-starter in the built was a cut-away model.

that the motorcycle at the standard Secondary transmission of 17 to 33 and the standard tires in the first Cycle at the rated speed of the engine of 7000 r / min, a speed of about 66 km / h, as in the Transition diagram in Figure 1-42 to see. The jump to second gear

1.2.5 TRANSLATIONS

The following table shows the transla- gene in each of the transmission gears, the gene again. The numbers are with identification deposited colors, in the following Description of the gear carried be used starting. The first course is translated with 1:2,462 quite long, so

First Response: 2.462
Second Response: 1.588
Third Response: 1.300
4th Response: 1.095
5th Response: 0.957

(1:1,588), which at the rated speed the engine over 100 km / h who- the, in comparison to the distance between between the second and third

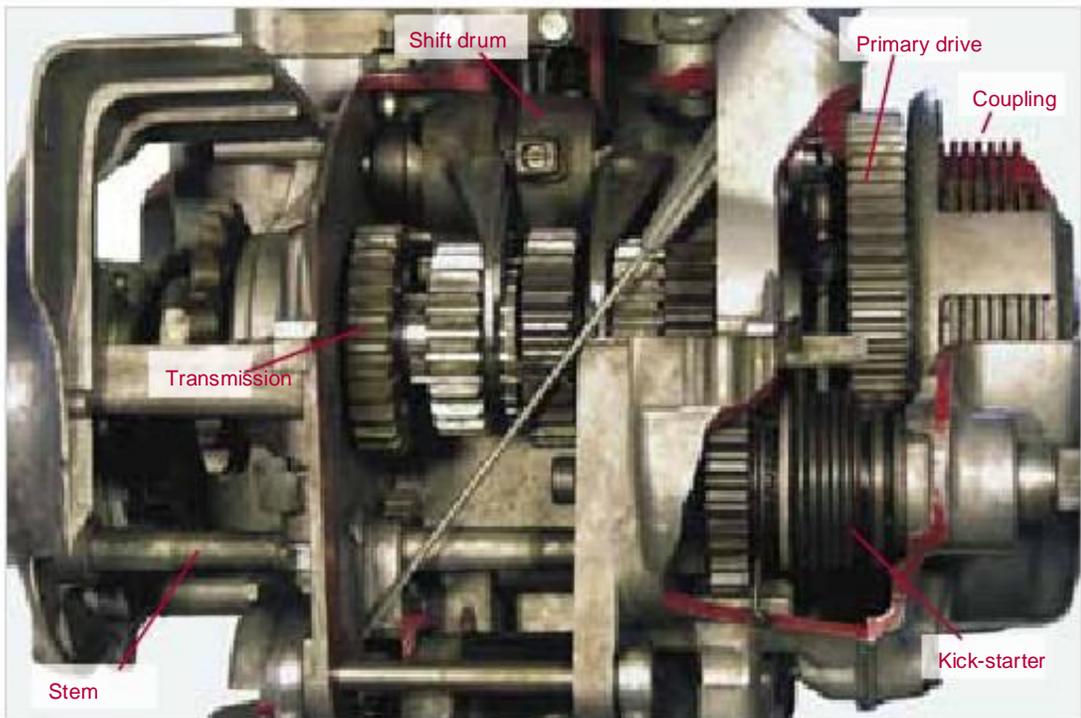


Figure 1-41: Transmission with shift drum and shift forks

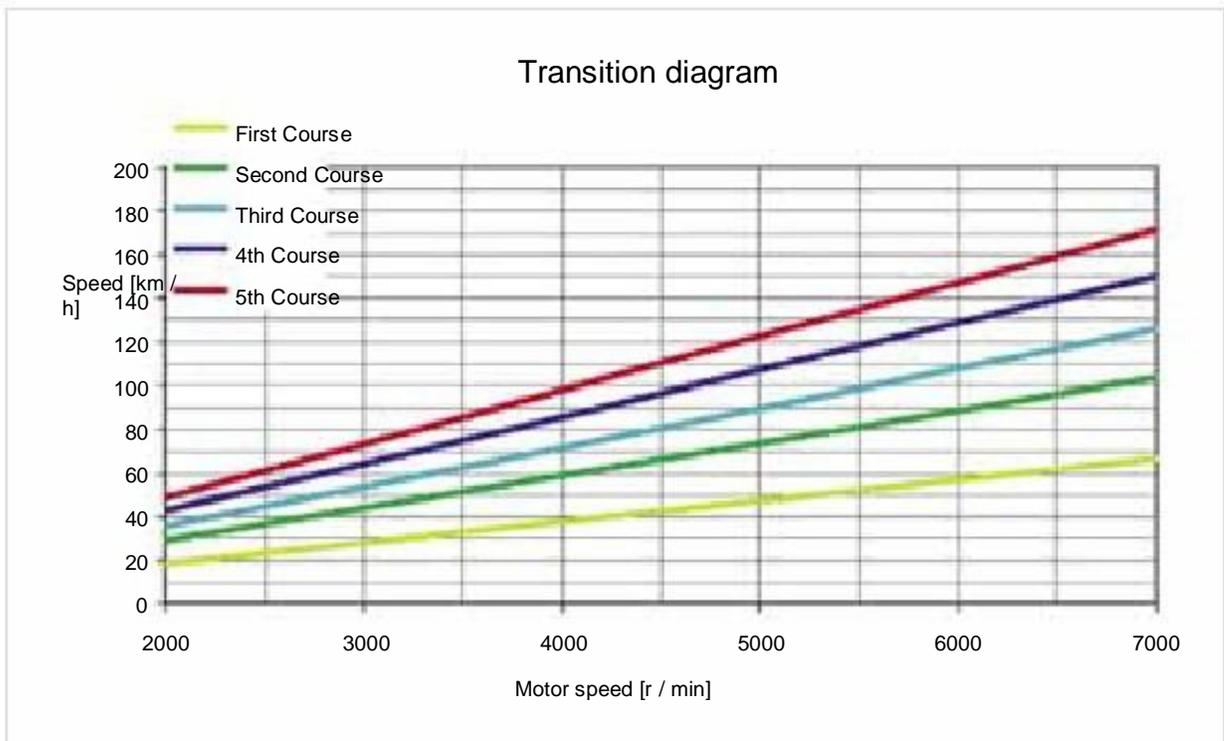


Figure 1-42: Transition diagram

Course and between the other gears, the relatively large gene.

Figure 1-43 shows the comparison the transition diagrams of older German Motorbikes.

The left diagram in Figure shows the gradation of Gangübersetzungene of a BMW R 25 / 3 from the 50 years ren. Here is the distance between the transla-tween the different courses of Four-speed gearbox nearly constant,

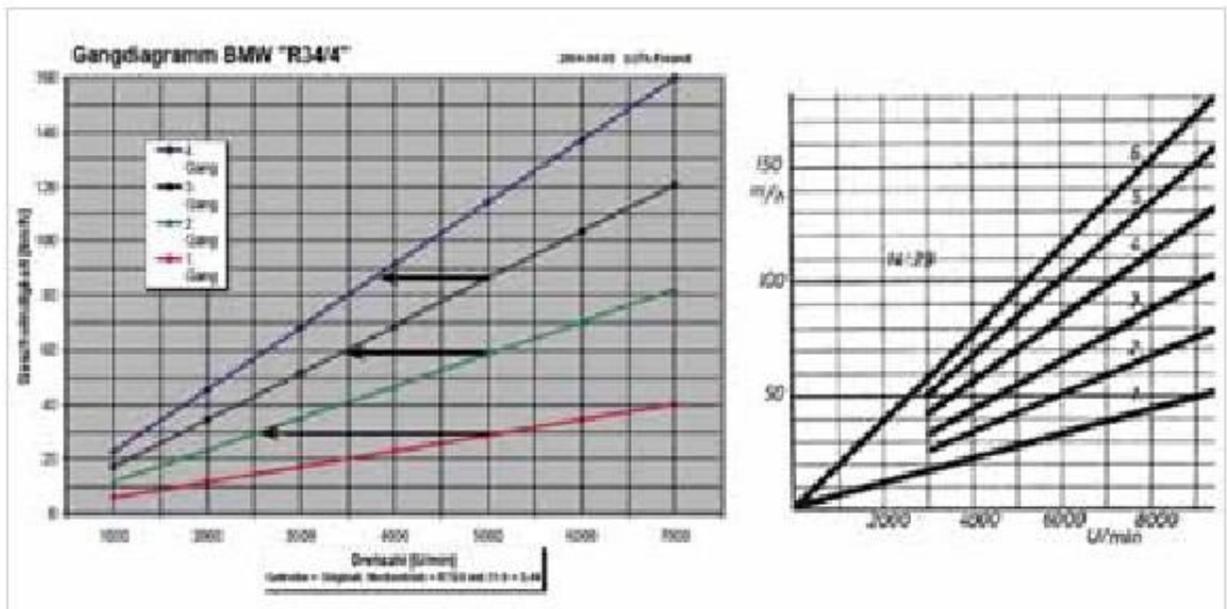


Figure 1-43: Comparison resonse elderly German motorcycles

What especially when driving in city transport is an advantage. In the right Transition diagram of Figure 1-43 on (Maico MD 250), the gradation of Transitions as in the transmission of the XS 650 close up, what kind of sporty Driving at higher speed limits is advantageous enough.

on the side surface mounted Zap Fen in the recesses of a gear of switched passage intervenes.

Are the four outside on the transmission input and output shaft positioned teeth wheels of the first and second gear are in the axial direction is not displaceable Lich.

1.2.6 CONSTRUCTION

The Figure 1-44 shows the schematic diagram of the five-speed gearbox. Of the gear pairs of single-NEN gears, each gear is on the Transmission input or Ausgangswelle pivoted so that it is free to the shaft can rotate. The power circuit is produced by the gear-anges another gear in the longitudinal direction moved on the shaft and

Are on the transmission input shaft, two Gears, the gear for the 4th Course (Blue color code) and for the fifth Response (red color code) rotatably mounted. Are on the transmission output shaft three Gears, the gear for the second Course (Green color code), the third for the Course (Turquoise color code) and the Gear for the first Response (yellow-Kennfarbe) rotatably mounted.

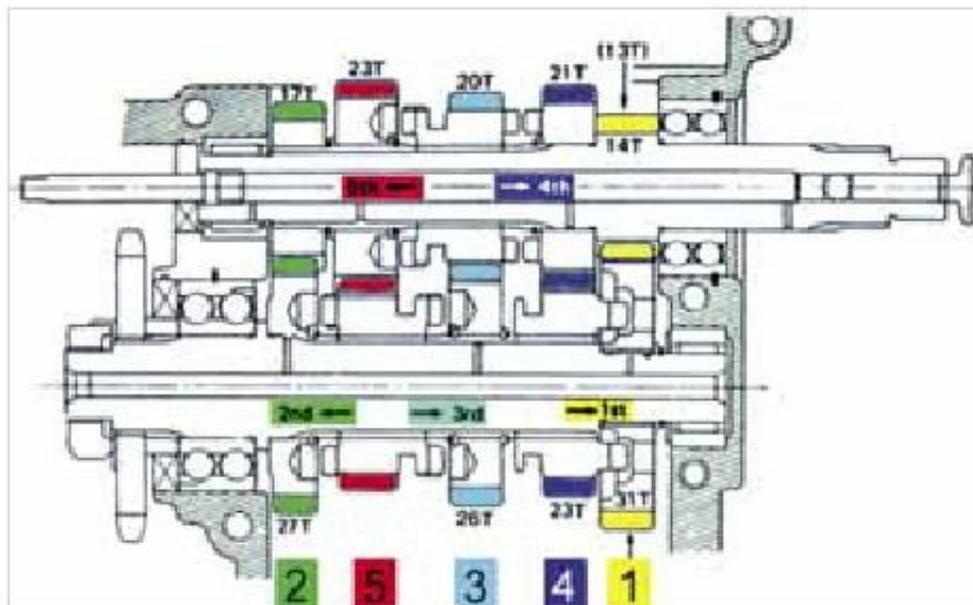


Figure 1-44: Assignment of transitions to the gear pairs, switching operations, schematic representation

1.2.7 POWER FLOW

Basically, the power flow thus produced provides that one of the on one of the at- the rotatable shaft of the gear loaded siege gears with the help of a on the same shaft arranged next Gear of another gear, wel- Che's movable but not rotatable mounted on this shaft, form- sig is connected.

Gears of the fourth and 5 On the Ganges Transmission input shaft intervene and a shift fork, which revolves in one Groove of the gear of the third On the Ganges Gearbox output shaft intervenes. The Shifter forks move the gears in the axial direction of the respective Waves represent and, by this in the Shift dogs (cones) of the shifted- NEN gear wheel in the appropriate training recesses of a gear wheel to switching gear, push the power- her conclusion.

In particular, the transitions as follows switched:

First Response: The gear of the fourth Ganges on the transmission output shaft is in the direction the yellow arrow in Figure 45 moves and engages with its no-bridges in the grooves of the gear for the first Transitional one.

Second Response: The gear of the fifth Ganges on the transmission output shaft is in the direction the green arrow on Figure 45 and moved with his snaps Cam grooves in the gear for the second Transitional one.

Third Response: The gear of the fifth Ganges on the transmission output shaft is in the direction the turquoise arrow on Figure 45 and engages with the move- sen cam grooves in the gear for the third Transitional one.

4th Response: The gear of the third Ganges on the transmission input shaft in the dir the blue arrow on Figure 45 shifted so that the cams of the Gear of the fourth Passage into the grooves of the gear of the third Ganges into place.

5th Response: The gear of the third Ganges on the transmission input shaft in the dir the red arrow on Figure 45 shifted so that the cams of the Gear of the third Passage into the grooves of the gear of the 5th Ganges into p

In this manner, rotating charged siege to a shaft by gears not rotatable but movable on the same Chen shaft mounted gears reversion fixed connected to the shaft.

Are in Figs 1-46 and 1-47 the Shift forks in a position to Transmission shafts (Figure 1-46) and inserted in- whether or not incorporating state in the upper housing half of the motor housing to be seen. The Arrows illustrate the shift forks the movement direction of the shift forks had the characteristic colors of the arrows to the

To change gears, be a total together with three shift forks needed by de- , within two in the circumferential grooves of the

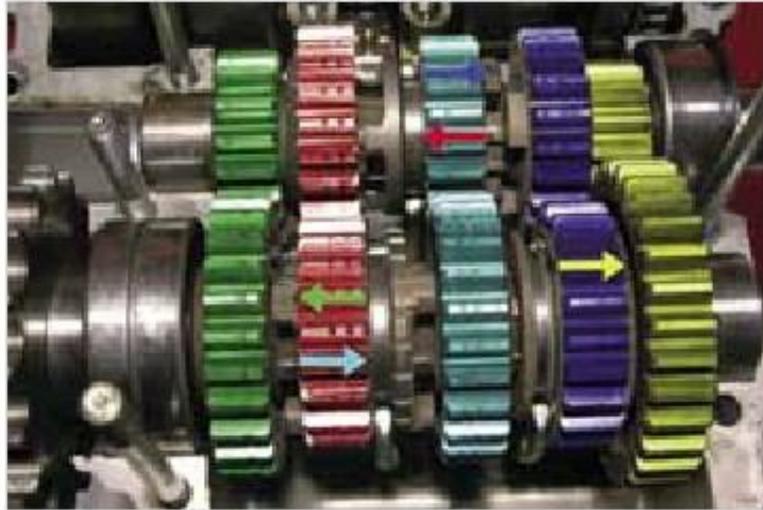


Figure 1-45: Assignment of transitions to the gear pairs, switching operations

induced switching of gears, the individual GE.

Figure 1-48 is on the tooth wheel of the first Ganges, on the rotation of the Output shaft is mounted with grooves and the gear of the fourth Ganges, the

movable but not rotatable on The output shaft is supported, with no-bridges in the transmission output shaft the neutral position shown.

Figure 1-49 shows the gear of the First Ganges in the switched state with latched switching claw.

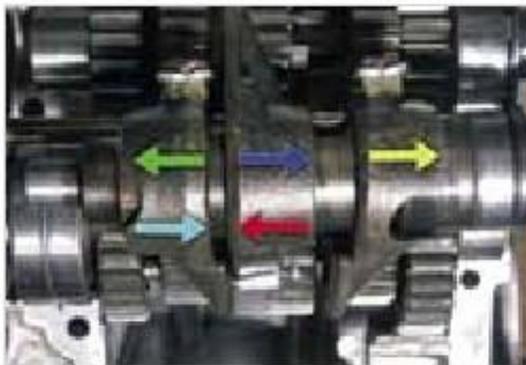


Figure 1-46: Assignment of the shift forks to the switching operations



Figure 1-47: Assignment of the shift forks to the switching operations



Figure 1-48: Grooves of the gear First Ganges Cams of the gear 4th Ganges



Figure 1-49: 1 Course switched

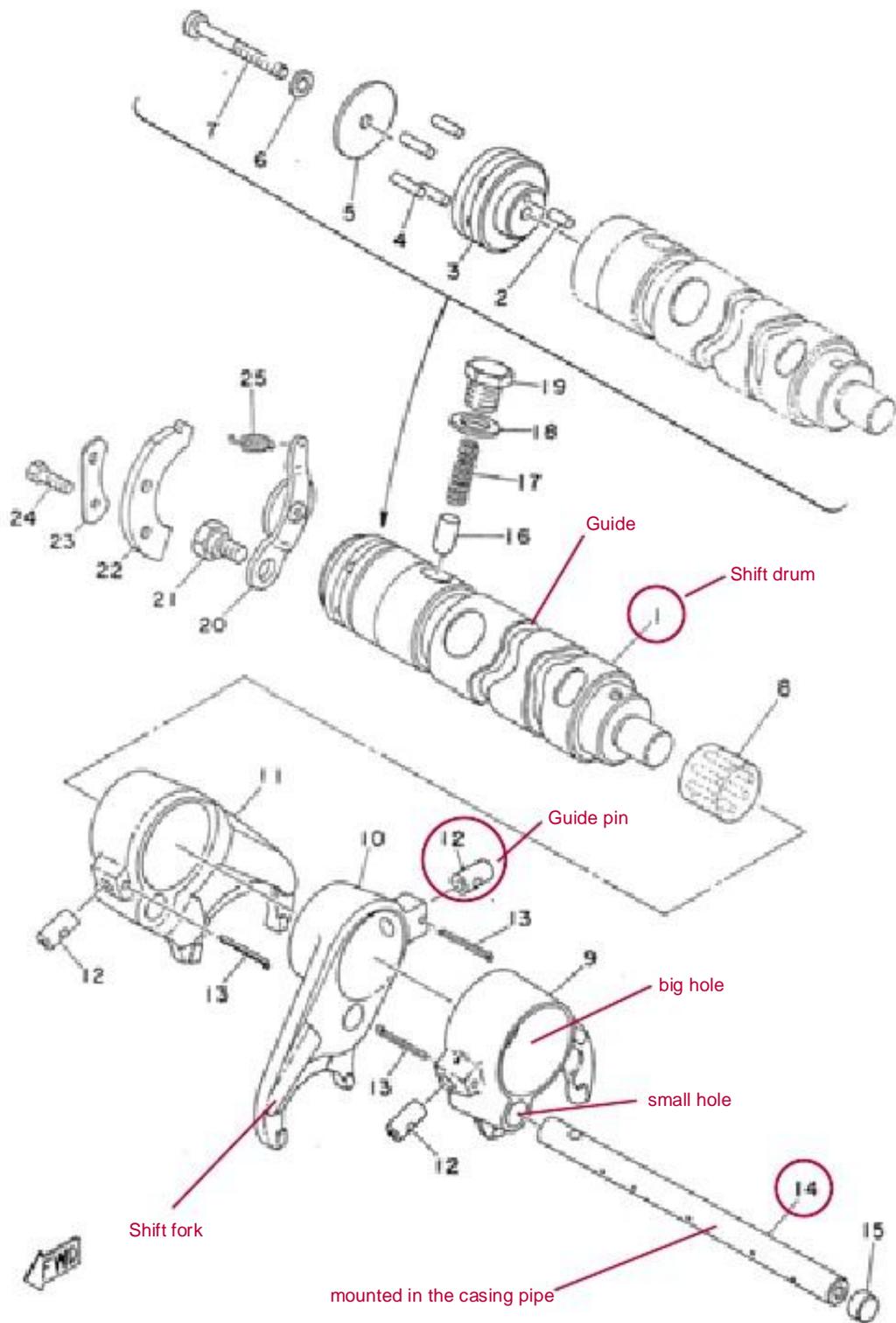


Figure 1-50: Shift drum

1.2.8 SWITCHING MECHANISM

On the Figure 1-50, the components the switching mechanism - the Schaltwalze - From an exploded view the spare parts list to see.

The switching mechanism is used, the On-and-down movement of the Fußschalthebels in the sliding movements of Schaltgabeln implement.

The shift forks are at their upper End of a large and a small bore tion. The small hole slides over an- NEM both sides in the case stored Tube (item 14 on the Figure 1-50). Inner- half of the large-bore is the actual chemical shift drum (item 1 on the Figure 1-50) out. Located on the shift drum the guiding grooves, the at certain points on the circumference the shift drum run arc (Arrow markings on the figure 1-51).



Figure 1-51: Shift drum

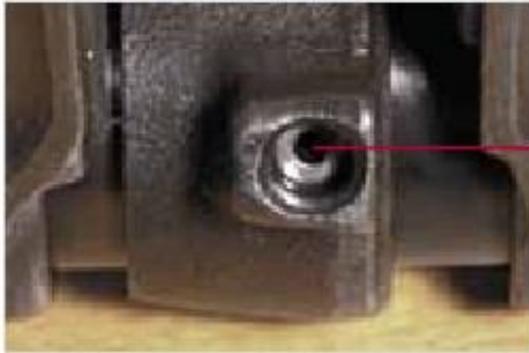


Figure 1-52: A shift fork guide pin

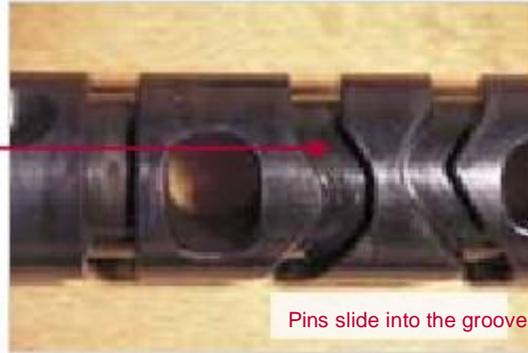


Figure 1-53: Guide to the shift drum

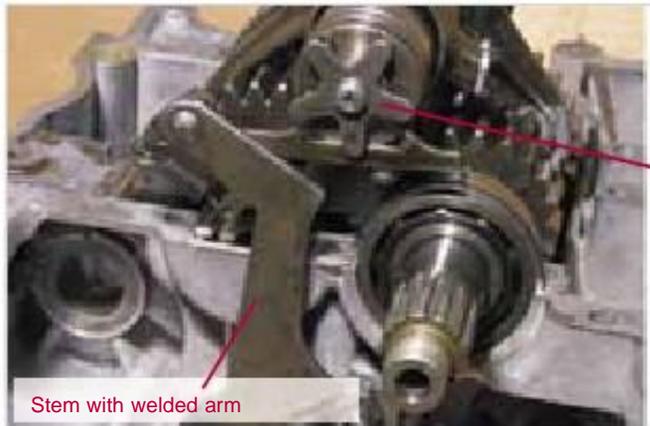
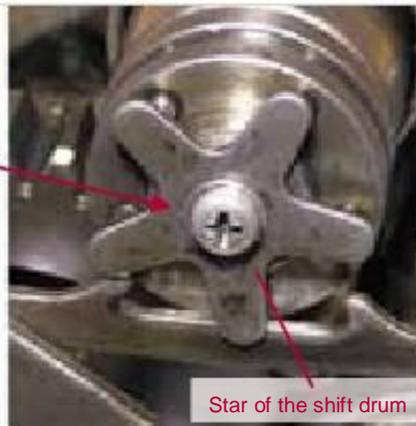


Figure 1-54: Stem



Reach into the guide grooves guiding pins (item 12 on the Figure 1-50), which with one end in the grooves of Shift drum and the other end holes provided in the

Shift forks are, like the ex-1-52 and 1-53 formations played. A shift fork is in the axial direction processing and thus a delayed response switched when a guide pin



Figure 1-55: Upshift



Figure 1-56: Downshift



Figure 1-57: Setting the selector shaft

within the arc-shaped course the guide grooves on the shift drum is located.

On the Figure 1-54 is the Stem welded arm, with the the upper fork in the Star of the Shift drum intervenes in a total View and reproduced in detail. Figure 1-41 is on the Schaltwalze from the back of the engine in one-assembled state to see.

The Stem serves the construction and Down movement of the pedal in Rotational movements of the Shift drum re-set (see also page 39, Figure 1-54).

By operating the Fußschalthebels, the selector shaft is connected with the Welded arm is pivoted so that the at its upper end attached to Gabel the shift drum on the star wheel for high-and downshifting (as on Figures 1-55 and 1-56 shown) twisted.

The welded with the shift drum Arm by a spring in Central held position, so that the high-and Turn down the same path of the switching fork available.

By Figure 1-57 on the one Arrow showed up with a set screw Eccentric is used to set the co-center position of the selector shaft is connected Arms welded.

1.2.8.1 IDLE POSITION

At the top of the upper housing partly located on the left side an electric switch that a on the shift drum mounted Zap Fen is closed (Figure 1-60). On the left side of Figure 1-59 is A spring-loaded pin, the one in Recess of the shift drum intervenes, if they are in the idle position is located. Figure 1-58 is on the switch-

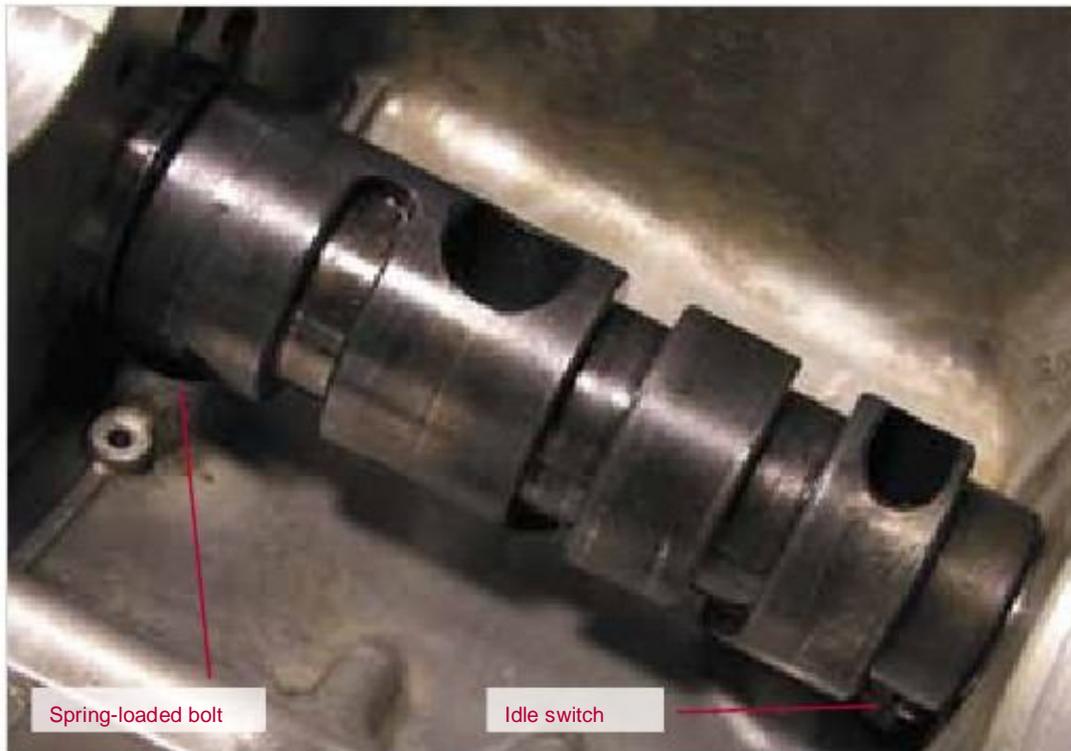


Figure 1-58: Stem in neutral



Figure 1-59: Neutral switch and Leerlaufarretierung



Figure 1-60: Cam switch with actuation for idle switch for deepening and bolts for Leerlaufarretierung

roll in the neutral position with actuated system idle switch and eingerastetem spring-loaded pin to see. Figure 1-59 shows the idle switch and the spring-loaded pin-out for builds control roll. Figure 1-60 shows the operation of the Leerlaufschalterzapfens on the shift shaft and the recess-determination, in which the spring-loaded bolt engages in idle.

is running is not round, but semi-round, with the flat side of the disc touches of the pen, as shown on the Figure 1-61. When switching from a walk to the next "rolls" the Washer over the round pins - in no-running "stands" on these flattened Side of the semi-circular pin.

Behind the star wheel of the shift drum are cylindrical pins (arrows on the Figure 1-61 and Figure 1-62), between where a spring be-overloaded with gear wheel snaps into place, like on the picture to 1-62 . see If the idle switch, is the disc on a pen. The pin on the disc inserted in the blank

If the idle insert is poorly leaves, i.e. if the idle circuit when th is skipped in the state, the To cause a slight bias the spring-loaded bolt to empty laufarretierung. Is the bias of the Spring washers in the latched Relationship between the holding pens to low, there is a risk that the gears, the ge - in particular, already worn out-th shift forks - jump out.



Figure 1-61: Neutral

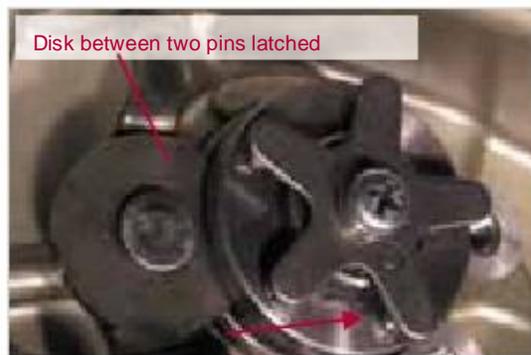


Figure 1-62: Gear is engaged

1.2.9 KICK STARTER

On the Figure 1-63, the components Kick starter mechanism on the basis of an exploded parts list.

The kick starter mechanism consists of the kick starter shaft, which in the lower part of the Motor housing and motor-side in the left tendeckel is stored. On the shaft there is a coiled spring (key 7 on Figure 1-63), the Kickstarterhel-back to its original position

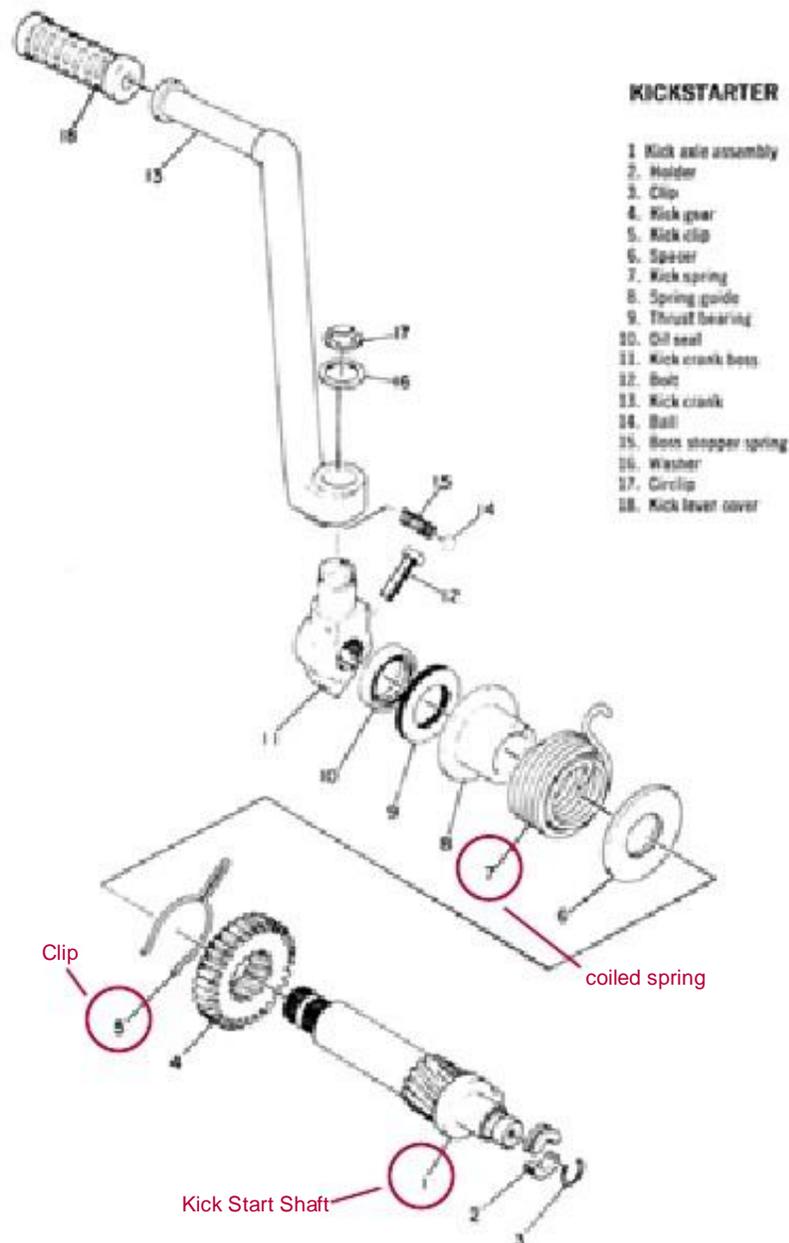


Figure 1-63: Kick-starter



Figure 1-64: Kick-starter

brings. On the kick starter shaft (item 1 on Figure 1-63) is a tooth-rad, which through with the kick starter shaft helical teeth - or a "Ge-thread with a very large pitch" - is connected. If the kick starter shaft rotated so the gear is shifted in the axial direction on the kick starter wave. For this purpose, the gear by an-NEN clip (item 5 on the Figure 1-63) on rotation with the kick starter shaft unless prevented from so it is on the

Helical gears in the axial direction the wave in the direction of the gear first gear is moved until the Gear into the teeth of the gear wheels of the first gear on the transmission-input shaft from engaging.

The Figure 1-64 shows the Kick Starter mechanism when installed a cutaway model.

Figure 1-65 shows the clip (yellow Arrow mark on the figure and item 5 1-63)



Figure 1-65: Kick-starter



1.3 Oil CIRCUIT

The XS 650 is a motor-Druckum continuous lubrication with an oil pump in the right side engine cover fitted driven by the crankshaft is. Engine and transmission are in a common household oil. The Oil Pump (item 3 on the Figure 1-66) sucks the engine oil in through a filter which is at the lowest point of the Montorgehäuses below the crankshaft is located. In flow direction behind the oil pump is another Screen filter (position 1 in figure 1-66) which is equipped with a bypass (item 2). Figure 1-67 shows the location of the Oil filter at the lowest point of the motor-housing below the crankshaft. On Figure 1-68 is the oil filter with

the engine oil through oil passages in the upper Part of the motor housing and separate Lines the points of lubrication fed to in detail below are described.

Since no hydrodynamic sliding storage are available, builds in No pressure on the oil circuit, with the an-NEM commercial oil pressure gauge would be measurable.

1.3.1 OIL FILTER

Figure 1-67 shows the location of the Oil filter at the lowest point of the motor-housing below the crankshaft. On Figure 1-68 is the oil filter with

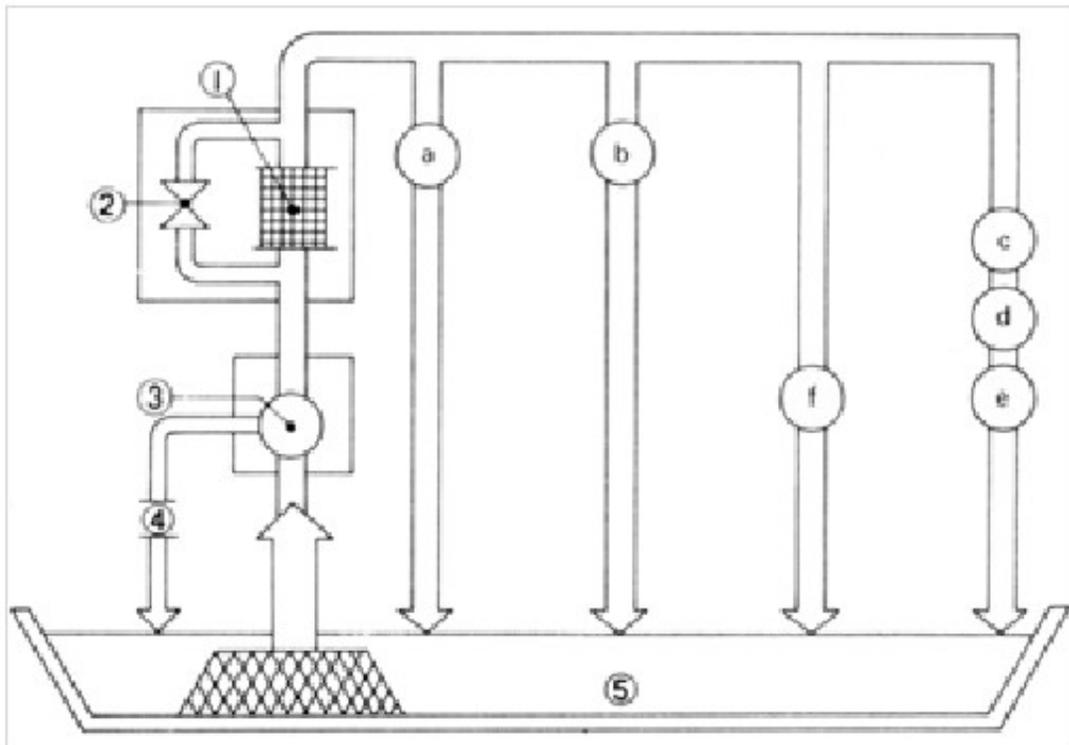


Figure 1-66: Schematic representation of the oil circuit from the original workshop manual



Figure 1-67: Installation of oil filter



Figure 1-68: Oil filter bolted to the baseplate

a typical damage - a eingeringenem strainer - screw-in
To see state on the base plate.

Behind the oil filter, the oil flows through a channel in the base plate in a Opening on the underside of the lower Motor housing portion (arrows on Figure tions 1-69 and 1-70.

Due to the figure of 1-71 to channel is seeing oil from oil Oil pump in the right side engine cover sucked. From the outlet of the lower crankcase half (Figure 1-72), the oil flows into a Eintrittsöffnung in the right side engine cover (Ab-Figure 1-73).



Figure 1-69: Base plate with oil line

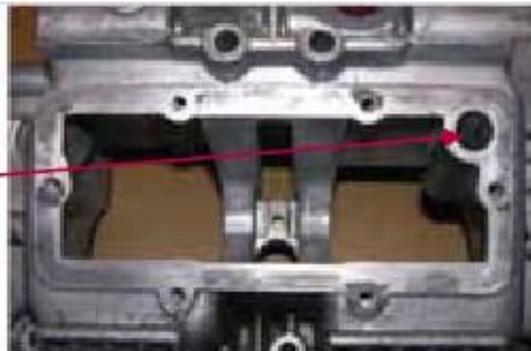


Figure 1-70: Oil inlet opening in the engine housing



Figure 1-71: Oil passage between the oil filter base plate and right side cover



Figure 1-72: Outlet in lower engine housing section



Figure 1-73: Inlet opening in the right side engine cover



Figure 1-74: Installation of oil pump and second Oil filter in the right side engine cover

Figures 1-73 and 1-74 show the oil passages and the oil pump in the right side engine cover.

Seen from the inside. On the Figure 1-79 is the drive shaft with Pass a wedge to connect with Seen driving gear.

1.3.2 OIL PUMP

The components of the oil pump, consisting from the housing, the outer and the inner rotor and the drive wave, the one on the inner rotor Pen drives are on the Figure 1 - See 75th Figures 1-76 to 1 - 79, the oil pump built-in show State a cut-away model and in an assembled state

On the inner and outer rotor There are arrows at the assembly must be reconciled.

The arrows on the Figure 1-78 show the path of oil through the oil pump and the second oil filter.

The oil pump is driven by Figures on the 1-80 and 1 - 81 gear shown that with a other gear on the crankshaft is engaged. Together with the

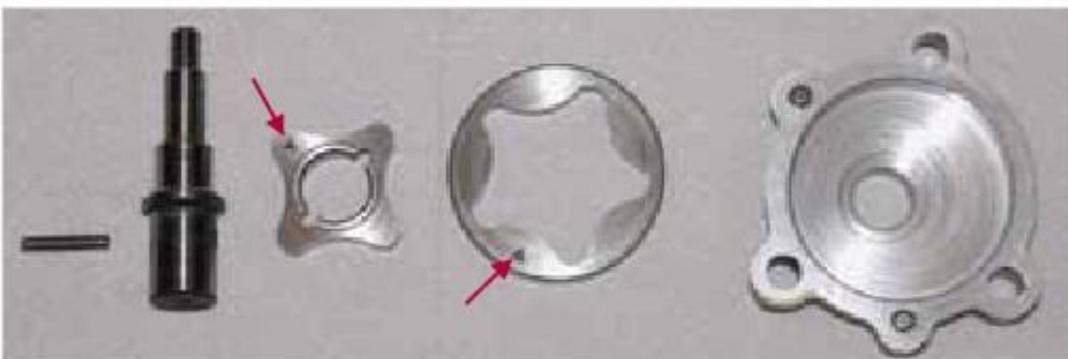


Figure 1-75: Components of the oil pump



Figure 1-76: View of the oil pump, outside



Figure 1-76: View of the oil pump, inside

Drive gear is located on the
The oil pump drive shaft and a
Snail, the tachometer to-
drives.

On the Figure 1-86, the second
To see behind the oil filter oil pump,
the hollow with a bolt in the
A bypass valve (Figure 1-87) lie
det, in the right side engine cover be-
is consolidating.

From the second oil filter from the oil flows
in the upper crankcase half, where it
to the individual lubrication points
distributed.

1.3.3 LUBRICATION POINTS THE ENGINE

Figure 1-88 is on the outlet
opening of the engine oil from the right
Engine side cover and on Figure 1 -
89, the inlet opening in the upper Mon-
torgehäusehälfte seen.

First, the engine oil flows into an
transversely-front of the engine housing
the oil channel (Figure 1-90), from which the
two middle and the left crank
shaft bearing (Fig. 1-91 and 1-92), and
The oil jets that lubricate the rod bearings
Ren will be supplied. In the middle of the



Figure 1-78: Oil pump and oil filter in
assembled condition



Figure 1-79: Oil pump drive shaft with wedge



Figure 1-80: The oil pump drive gear and Screw drive the tachometer



Figure 1-81: In the assembled condition



Figure 1-82: Tachometer drive



Figure 1-83: Oil filter in the right side engine cover



Figure 1-84: Right side engine cover with opening for the oil filter



Figure 1-85: Opening for the oil filter in detail