



ČZ 125 488.3
ČZ 180 487.3



WORKSHOP MANUAL

EDITION 1991

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WORKSHOP MANUAL

**for motorcycle SPORT ČZ 125 - 488.3
SPORT ČZ 1 180 - 487.3**

EDITION 1991

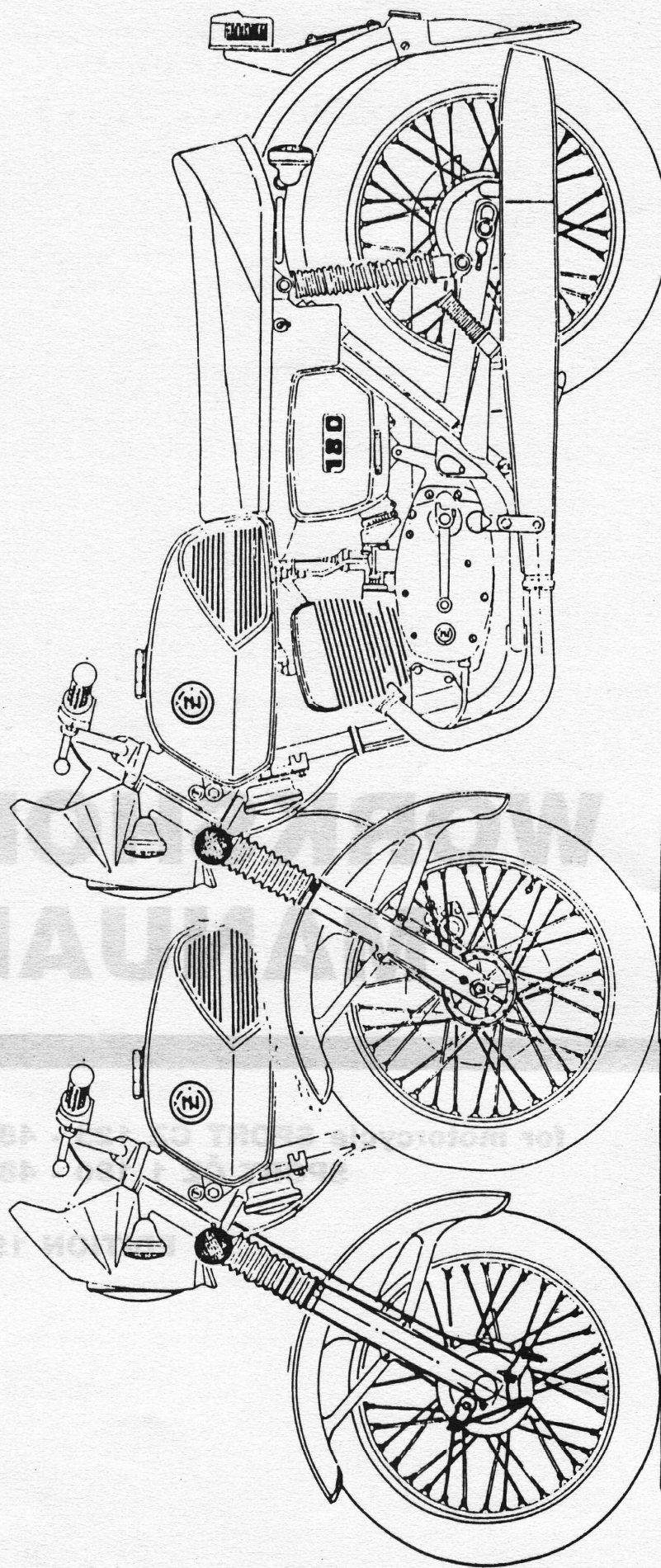


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1. Model	500
2. Displacement (cc)	500
3. Bore (mm)	52
4. Stroke (mm)	58
5. Compression ratio	12.5:1
6. Max. power (kW/rpm)	1.8/5000
7. Max. torque (kgm/rpm)	0.8/3500
8. Fuel system	Carburetor
9. Ignition system	CDI
10. Lubrication system	Wet sump
11. Cooling system	Air cooled
12. Exhaust system	2 into 1
13. Transmission	5-speed
14. Final drive	Chain
15. Wheelbase (mm)	1100
16. Overall length (mm)	1850
17. Overall width (mm)	650
18. Overall height (mm)	1050
19. Ground clearance (mm)	150
20. Dry weight (kg)	110
21. Max. weight (kg)	150

ENGINE

CHASSIS

I. TECHNICAL DATA

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Motor cycle model

488.3

487.3

A. ENGINE

air cooled two-stroke

Number of cylinders	1	1
Bore - mm	52	58,75
Stroke - mm	58	65
Swept volume - c. c.	123.1	176.2
Compression ratio	1 : 8,6	1 : 8,6
Engine power output	6,6 kW/5500 ot/s	9,5 kW/5500 ot/s
1. Carburettor, model JIKOV	2924 SBD	2926 SBD
Choke tube diameter - mm	24	26
Main jet - SOLEX	88	93
Idling jet - SOLEX	50	50
a) throttle needle adjustment		
notch from top - for running-in	IV	IV
- after run-in	II-III	II-III
b) fast-idling screw turns from		
- complete closing - for running-in	1/2	1/2
- after run-in	3/4 - 1 1/4	3/4 - 1 1/4
2. Ignition		
a) spark plug		
head range value		battery ignition
air gap - mm		PAL SUPER 14 - NR 15
threaded pin - mm		240 - 270
b) breaker point gap - mm		0,6
c) advance - mm	3,2	M 14 x 1,25
		0,4
		2,9
3. Transmission		
a) primary transmission by sleeve chain		3,8" x 3,8"
number of links	54	54
transmission ratio		40/21
b) secondary transmission by roller chain		1/2" x 5/16"
number of links	130	130
c) multiplate friction clutch in oil bath		
number of metal plates		5
number of cork plates		5
clutch release		manual and semi-automatic
d) gearbox		
number of speed gears		4
neutral between the 1st and 2nd, the 3rd and 4th gear		
gear ratios: 1st gear		25/12 x 23/14 = 3,42
2nd gear		19/17 x 23/14 = 1,84
3rd gear		16/21 x 23/14 = 1,25
4th gear		přímý záběr = 1
e) overall transmission ratio: 1st gear	1 : 24,25	1 : 21,17
2nd gear	1 : 12,89	1 : 11,38
3rd gear	1 : 8,9	1 : 7,75
4th gear	1 : 7,09	1 : 6,19
f) starting mechanism ratio		1 : 3,04
g) speedometer ratio	16/5	14/5

B. FUEL

Petrol
Oil

BA 90 (oktanové číslo 90)
OA M 2T 1:33
OA M 2T super 1:40

C. CHASSIS

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1. Frame	tubular
2. Wheel dimensions	
a) wheel rim - front	1,85 x 18"
wheel rim - rear	1,85B x 18"
b) tyre - front	2,75 x 18" M9
tyre rear	3,00 x 18" M9
c) tyre inflation pressure for one person	
front tyre	0,113 MPa
rear tyre	0,157 MPa
tyre inflation pressure for two persons	
front tyre	0,123 MPa
rear tyre	0,280 MPa
3. Brakes	
Brake drum diameter	rear shoe-type + front disk
Shoe lining width	160 mm (ø 265 mm)
Front brake control	35 mm
Rear brake control	bowden cable
4. Suspension	tie rod
a) front fork	telescopic with oscilation damper
front fork stroke - mm	160
b) rear swinging fork	with 2 telescopic shock-absorbers
rear swinging fork stroke - mm	86

D. ELECTRIC EQUIPMENT

1. Dynamo	6 V
Nominal output	W 75
2. Storage battery	6 V
Capacity	Ah 11
Electrolyte density	1,28 (32Bé)
Earthing	- pole
3. Headlamp	
Main bulb	6 V 35/35 W
Parking light bulb	6 V 4 W
Bulbs of warning lights and instruments illumination	6 V 2 W
4. Tail/stop light	
Bulb of tail-light	6 V 5 W
Bulb of stop-light	6 V 15 W
5. Fuse	15 A

E. LUBRICATION - OILS

1. Gearbox-clutch-primary transmission	SAE 80
Oil brand	1000 c. c.
Gearbox filling capacity	
2. Front fork	damper oil (SAE 10/30 W)
Oil brand	200 c. c.
One arm filling capacity	
3. Rear suspension	damper oil
Oil brand	
Filling capacity of one telescopic shock-absorber	75 c. c.

F. OTHER DATA

1. Dry weight of motor cycle	120 kg (i. e. 247 lb)	122 kg
2. Permissible motor cycle loading	160 kg (i. e. 352 lb)	160 kg
3. Peak speed		
a) driver sitting upright	90 km/hod. (i. e. 56 mph)	95 km/hod. (i. e. 58 mph)
b) driver bent forward	100 km/hod. (i. e. 62 mph)	105 km/hod. (i. e. 65 mph)

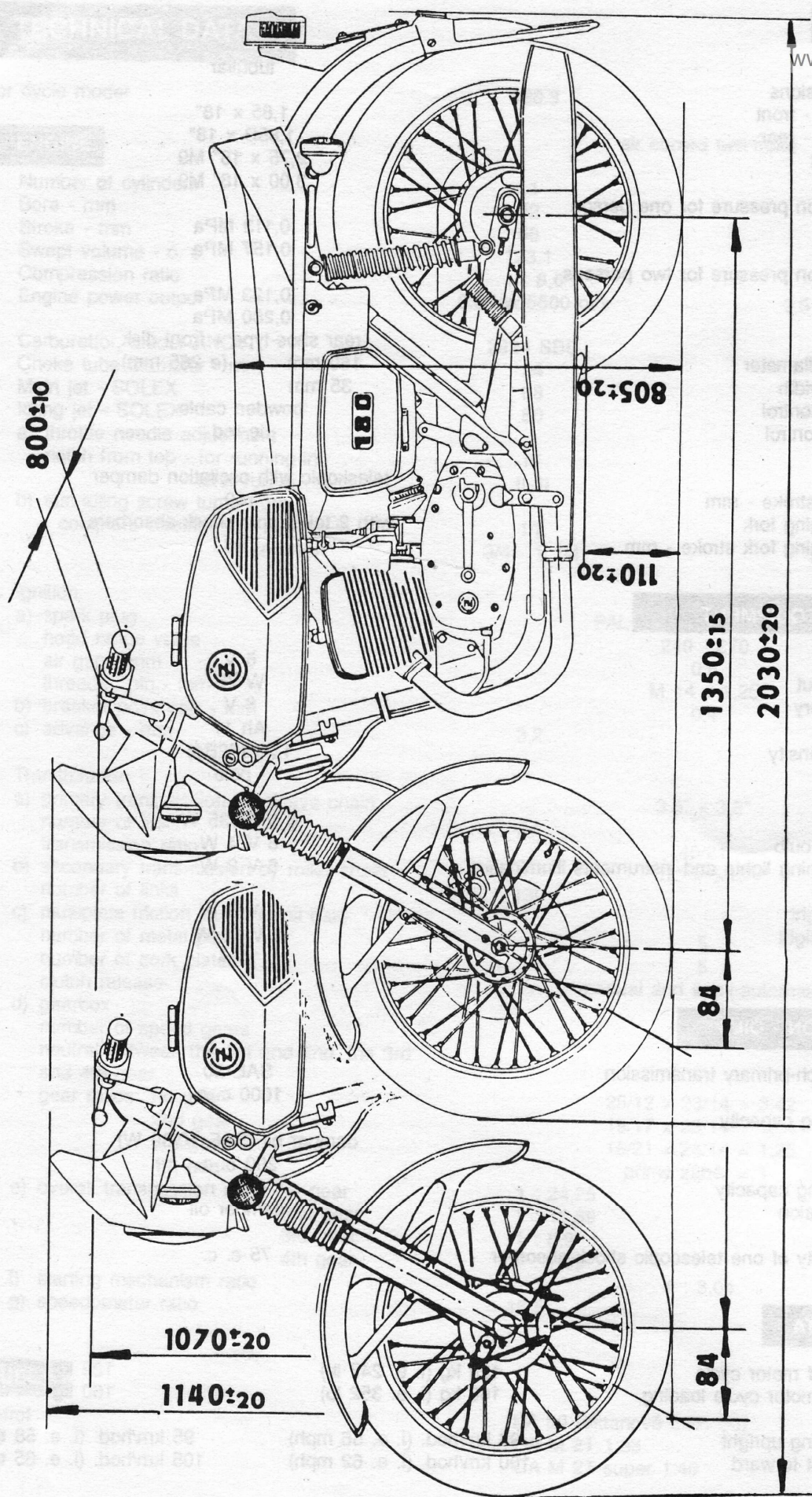


Fig. 2 - Dimensional drawing of motorcycle

II. ACCEPTANCE OF THE MOTORCYCLE

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The motor-cycle are dispatched from the factory in partially disassembled condition. The sales organization makes the motor-cycle service-ready after its unpacking, assembly, and overall inspection. The customer takes over a complete and service-ready motor-cycle. Defects which occur in the warranty period during the motor cycle operation are repaired by the respective warranty repair shop.

When taking over your motor-cycle check the engine and frame Nos. for agreement with the papers. For starting the storage battery operation follow the manufacturer's instructions.

1. CLUTCH ADJUSTMENT

it is necessary to maintain a permanent minimum free play of the clutch lever of about 3 mm (0.12"). Adjust it by means of a screw on the handlebar.

The semi-automatic clutch release is accessible for adjustment after the right-hand crankcase cover has been removed.

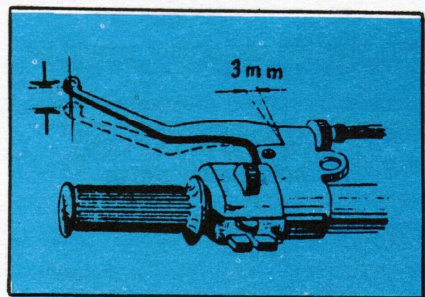


Fig. 3 - Clutch lever free play adjustment

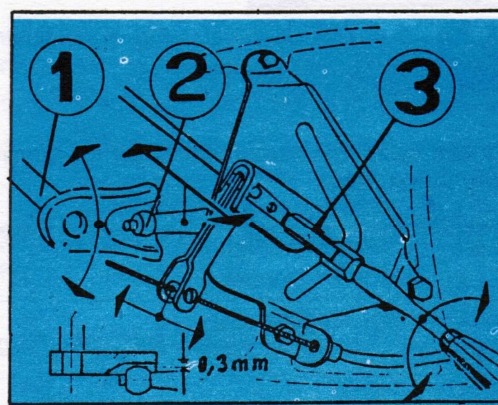


Fig. 4 - Semi-automatic clutch release adjustment

- Release the hand control of the clutch by screwing in the adjusting screw on the handlebar;
- Ascertain the clearance between the roller 2 of the semi-automatic release and the cam on the shifter shaft 1;
- Adjust the play according to the illustration by tightening or loosening the screw 3. The roller should be free to rotate after adjustment;
- If the clutch cable is stretched, shorten it on the semi-automatic release lever;
- Adjust the specified play on the handlebars;

2. CHAIN

After having covered approximately 500 km (300 miles), check the chain sag on the motor-cycle hitched on its stand. the correct chain sag should be 10-15 mm (1/2"-3/4"), if it is greater, tension the chain.

- Loosen the shaft nut 22 (on the l. h. side) and the transmission gear nut 27 (on the r. h. side);
- Loosen the rear nuts of the tensioners 14 and tighten the rear nuts on each side uniformly while checking the chain sag;
- Check the rear wheel track and retighten the rear nuts of the tensioners together with the nuts 27 and 22;
- Finally adjust the rear brake and the stop-light switch.

3. STOP-LIGHT SWITCH

If the stop light does not glow after the brake pedal has been depressed (assuming the fuse or the bulb are not blown), adjust the stop-light switch.

- Loosen the fixing screw of the stop-light switch body with a screwdriver;
- Depress the brake pedal and move the switch body 1 to the left until the stop light starts glowing;
- In this position of the switch body retighten its fixing screw.

The stop-light must go out as soon as the brake is released.

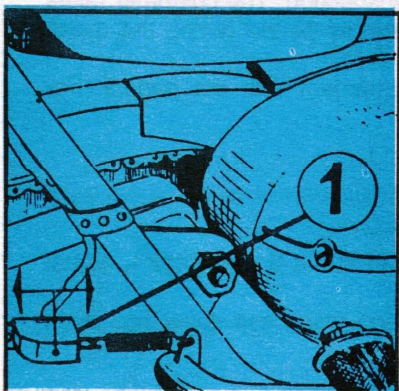


Fig. 5 - Adjustment of the stop-light switch.

4. CARBURETTOR

On a new motor-cycle, the carburettor is set for running-in. For a run-in motor-cycle the carburettor should be set according to the Table.

Motor-cycle model	Carburettor model	Needle position after run-in	Loosening of fast-idling screw after run-in
488	2924 SBD	II - III	3/4 - 1 1/4
487	2926 SBD	II - III	3/4 - 1 1/4

- The fast-idling screw B control the mixture up to 1/3 of the engine speed (atomizer opened to 1/3 of its diameter). Rich mixture is obtained by tightening, lean mixture by loosening the screw. Setting according to the Table is effected by tightening the screw sensitively to full stop (forcible tightening can cause distortion of the needle valve seat) and then by backing off to the recommended values.

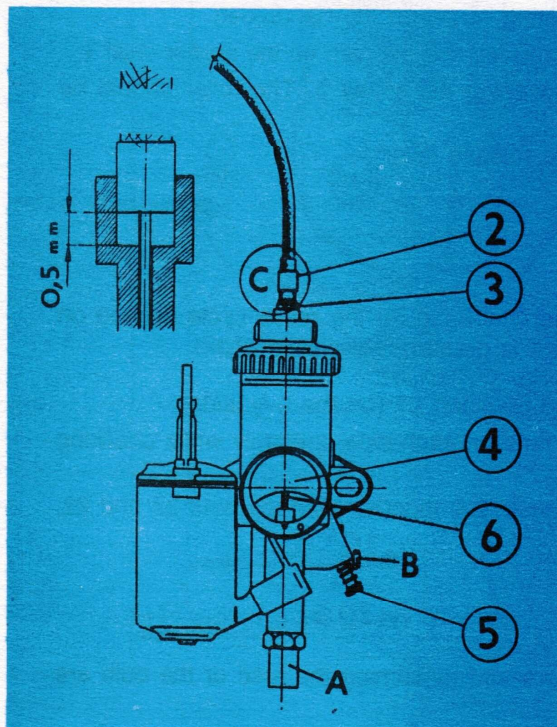


Fig. 6 - Adjusting elements of the carburettor

- The position of the needle 6 is indicated above. The needle 6 controls the mixture from about 1/3 up to 2/3 of engine speed. By resetting the needle from the 4th to the 3rd notch a leaner mixture is obtained.
- From 2/3 of the atomizer opening the mixture is controlled by the main jet.

5. IDLING ADJUSTMENT

The advance is correctly set, according to the table adjust the idling on a warmed up engine as follows.

- Tighten the adjust. screw 3 of the bowden cable so that a play is obtained between the screw and the bowden cable.
- Set a higher engine speed by tightening the throttle stop screw 5 to prevent the engine stalling..
- Start the engine and loosen the stop screw 5 to reduce the engine speed until the engine run becomes smooth (regulator)
- Adjust the play on the bowden cable to approx. 0.5 mm (0.2"). The idling should not be adjusted by means of the screw 3 on the throttle bowden cable.

6. IGNITION

Set the spark plug gap to 0,6 mm (0.028") after having covered approximately 3,000 km (2,000 miles). Clean the electrodes with a steel brush before their gap adjustment. If the engine is correctly tuned, the spark plug insulator should have a brick-red colouration.

7. CONTACT BREAKER ADJUSTMENT

The breaker point gap should also be adjusted after 3,000 km (2,000 miles) have been covered.

- After removal of the right-hand engine cover thoroughly clean the breaker contacts of face them with a needle file;
- Remove the spark plug and set the piston TDC;
- Check the breaker point gap with the aid of feeler gauges - correct gap should be 0.4 mm (0.016")
- If the gap is narrower (or wider), loosen the screw 2 fixing the fixed contact 3 to the endplate and adjust the gap.

8. ADVANCE ADJUSTMENT

After having handled the dynamo or after a major resetting of the breaker point gap (replacement of the breaker contacts), check the advance and adjust it as follows.

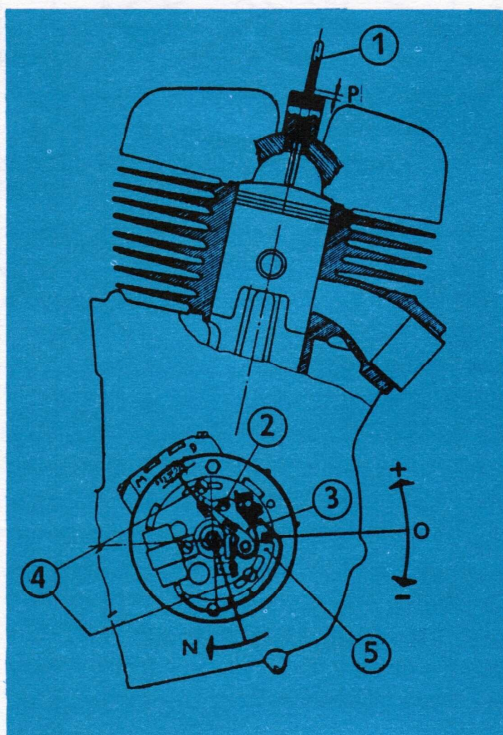


Fig. 7 - Advance adjustment

- 1 - Feeler gauge
- 2 - Contact breaker screw
- 3 - Contact breaker
- 4 - Armature end-plate screw
- 5 - Armature end-plate
- N - sense of engine rotation

- With the aid the screw 10 fixing the cam to the rotor turn the crank mechanism anticlockwise (against the sense of engine rotation) until the piston descends from its TDC by $P = 3.2 \text{ mm (0.126")}$ in case of the 125 c. c. motor cycle, and by $P = 2.9 \text{ mm (0.114")}$ in case of the 175 c. c. model. At this point the contacts must close.

The closing of the contacts can be ascertained, at switched-on ignition, by a weak spark between the contact breaker points or by means of a bulb connected between the earthing and the contact breaker.

- Should the contacts close sooner (small advance) or later (excessive advance), loosen two screws 4 fixing the base plate 5. To the dynamo and, by slightly tapping the screwdriver, turn to base plate 5. When turning it clockwise (in the sense of engine rotation), the advance decreases, by turning it anti-clockwise (against the sense of engine rotation) the advance is increased.
- After having set the specified advance, retighten the screws 4 of the base-plate 5 and check the advance values. In case of a distorted plate 5, the advance values change after the screws 4 have been tightened.

III. GENERAL MOTOR CYCLE

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1. WASHING AND CLEANING OF THE MOTOR CYCLE

- a) First, flush the finished and chromium-plated parts with a fine water spray to remove coarse impurities. Assist the washing with a sponge, rinsing it frequently to rid it of all hard dirt particles. When using detergents (shampoos), follow the manufacturers' instructions. Take care that water does not penetrate into the brake drums, the carburettor, etc.
After washing, wipe the motor-cycle dry with chamois leather, if desired, polish the finished and chromium-plated parts with a soft flannel rag. Do not wash your motor-cycle in hot sun since quick cooling down can produce cracks in the finish. Moreover, quickly evaporating water leaves permanent stains.
- b) Use a brush to clean the engine with petrol and wipe it dry with a clean rag.
- c) The motor-cycle are finished in baked synthetic enamel. Polish the finished parts with polishing preparations according to the instructions of the respective manufacturer. The polishes usually remove various stains and fill up scratches and cracks in the finish thus serving two purposes - they clean and protects the motor-cycle at the same time. We recommend protecting the chromium-plated parts with special wax for weather-proofing.

2. LUBRICATION CHART

After 500 km covered (300mls)	1 swinging for pin Δ 2 brake pedal pin Δ 3 leverage pins (brake, clutch) ○ 4 gearbox - oil change □ 5 front fork - oil change ●
3000 km (1,800mls)	6 breker arm pin ○ 7 breaker felt lip ○ 8 twist-grip Δ○ 9 speedometer drive ○ 10 semi-automatic clutch release Δ 4 gearbox - oil change □
5000 km (3,100mls)	11 brake cams Δ 12 bowden cables ○ 5 front fork ●
8000 km (5,000 mls)	13 steering balls Δ 14 wheel bearings ∇ 4 gearbox - oil change □ 15 rear suspension ●

∇ = AV2 - Castrolase LH2

Δ = A00 - Castrolase grease CL

□ = PP7 (SAE 80) - Castrol SAE 50

○ = M2T (SAE 40-50) - Castrol SAE 40-50

● = damper oil - Castrol shock oil

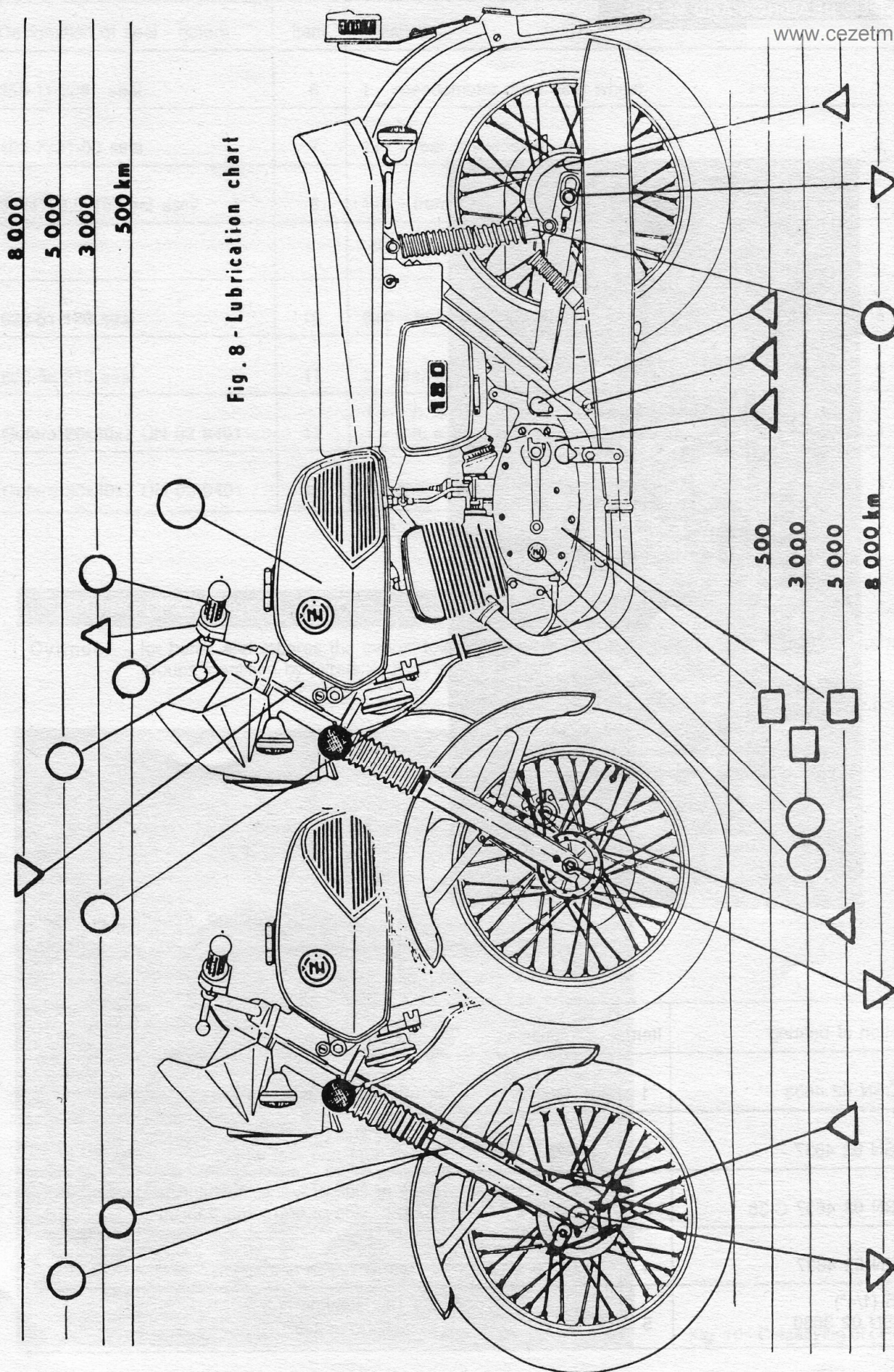
- BP LS2 - Shell ALVANIA

- BP Energlease FG1 MUTILUS - Shell

- BP GEAR OIL 90 EP - Shell SPIRAX 90 EP

- BP TWO STROKE - Shell 2 T

- BP Damper oil - Shell DONAX A 1



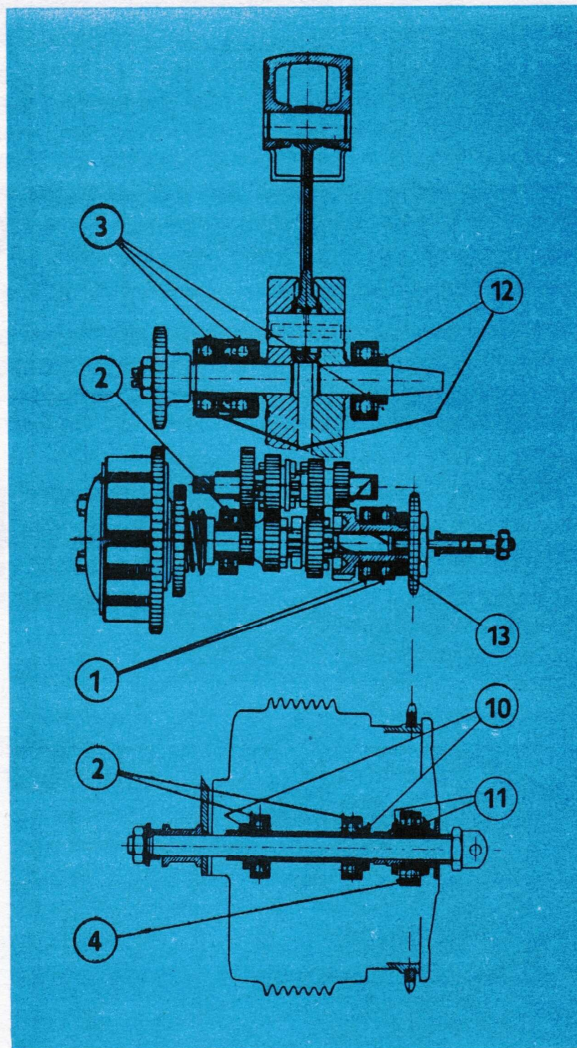


Fig. 9 - Designation of bearings and seals

Designation of bearing	Item	Dimensions	Location	Total
60005 ČSN 02 4633	1	ø 47/25 x 12	2 - wheel with hub	2
6302 ČSN 02 4637	2	ø 42/15 x 13	1 - mainshaft 2 + 2 front and rear wheel	5
6304 ČSN 02 4637 C-36	3	ø 52/20 x 14	2 - i. h. side of crank mechanism 1 - r. h. side of crank mechanism	3
6304 ČSN 02 4637	4	ø 52/20 x 14	1 - transmission gear	1
Ball 6,35 (1/4") (1/4") ČSN 02 3680	5		2 x 19 - steering hub 1 - clutch release	40

Designation of seal - gufero	Item	Location	Total
355-11-208 seal	6	1 - speedometer drive gear wheel	1
403-7731-00 seal	7	1+1 - rear suspension	2
36x47x6,5x10 seal assy	8	1+1 - front fork plunger	2
620-51-126 seal	10	2+2 - front and rear wheel	4
620-56-215 seal	11	2 - rear wheel transmission gear	2
Gufero 20x30x7 ÚN 02 9401	12	1 - r. h. side of crank mechanism 1 - l. h. side of crank mechanism	1
Gufero 30x40x7 ÚN 02 9401	13	1 - chain sprocket	1

4. GRADING OF CYLINDERS, PISTONS, GUDGEON PINS, AND PISTON RINGS

Cylinder - for bores and rebores the overall tolerance limit is 0.03 mm. Further classification is into three groups identified by letters A, B, C on the bottom mating face.

0.4-0.8 (0.016"-0.32")

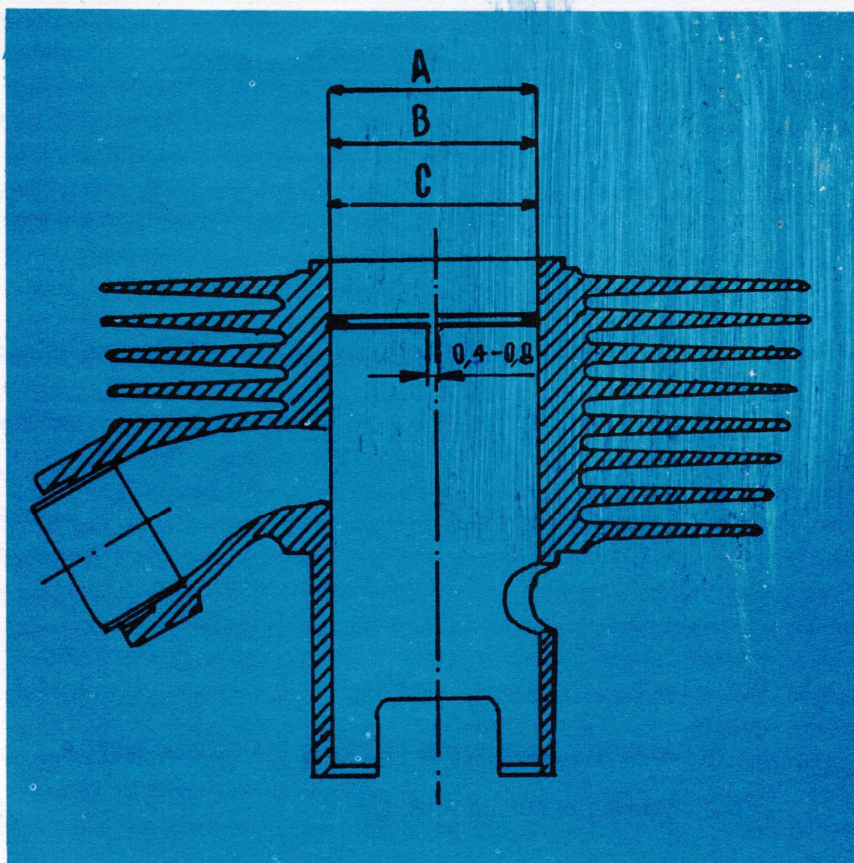


Fig. 10 - Classifying of cylinders

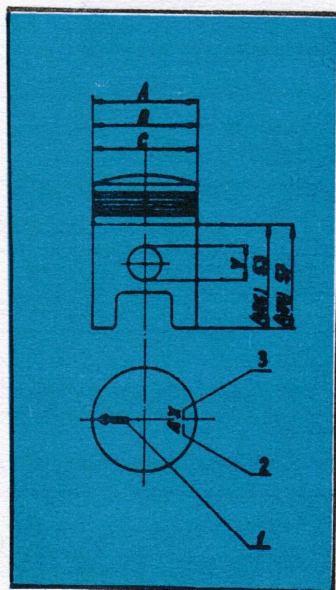
Dimension	Overall tolerance limit	Group A	Group B	Group C
Normal	$\varnothing 52^{+0,03}$	$52^{+0,01}$	$52,01^{+0,01}$	$52,02^{+0,01}$
Rebore I.	$\varnothing 52,25^{+0,03}$	$52,25^{+0,01}$	$52,26^{+0,01}$	$52,27^{+0,01}$
Rebore II	$\varnothing 52,50^{+0,03}$	$52,50^{+0,01}$	$52,51^{+0,01}$	$52,52^{+0,01}$
Rebore III	$\varnothing 52,75^{+0,03}$	$52,75^{+0,01}$	$52,76^{+0,01}$	$52,77^{+0,01}$
Rebore IV	$\varnothing 53^{+0,03}$	$53^{+0,01}$	$53,01^{+0,01}$	$53,02^{+0,01}$

Grading of cylinders for model 487.3

Dimension	Overall tolerance limit	Group A	Group B	Group C
Normal	$\varnothing 58,75^{+0,03}$	$58,75^{+0,01}$	$58,76^{+0,01}$	$58,77^{+0,01}$
Rebore I.	$\varnothing 59,00^{+0,03}$	$59,00^{+0,01}$	$59,01^{+0,01}$	$59,02^{+0,01}$
Rebore II	$\varnothing 59,25^{+0,03}$	$59,25^{+0,01}$	$59,26^{+0,01}$	$59,27^{+0,01}$
Rebore II	$\varnothing 52,50^{+0,03}$	$59,50^{+0,01}$	$59,51^{+0,01}$	$59,52^{+0,01}$

Pistons are graded according to the grading diameter into three groups A, B, C. The hole for the gudgeon pin is classified into two groups.

Fig. 11 - Piston dimensions marking



1 - Assembly arrow points always to the exhaust port

2 - Marking of groups A, B, C

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Dimension	Group A	Group B	Group C
Normal	51,84 ^{-0,01}	51,85 ^{-0,01}	51,86 ^{-0,01}
Rebore I	52,09 ^{-0,01}	52,10 ^{-0,01}	52,11 ^{-0,01}
Rebore II	52,34 ^{-0,01}	52,35 ^{-0,01}	52,36 ^{-0,01}
Rebore III	52,59 ^{-0,01}	52,60 ^{-0,01}	52,61 ^{-0,01}
Rebore IV	52,84 ^{-0,01}	52,85 ^{-0,01}	52,86 ^{-0,01}

ČZ 175 model 487.3

Dimension	Group A	Group B	Group C
Normal	58,59 ^{-0,01}	58,60 ^{-0,01}	58,61 ^{-0,01}
Rebore I	58,84 ^{-0,01}	58,85 ^{-0,01}	58,86 ^{-0,01}
Rebore II	59,09 ^{-0,01}	59,10 ^{-0,01}	59,11 ^{-0,01}
Rebore III	59,34 ^{-0,01}	59,35 ^{-0,01}	59,36 ^{-0,01}

The gudgeon pin is classified into two groups red and blue, marked on the piston head

Classification of piston and gudgeon pin

Piston marking	Gudgeon pin marking	Dimension of hole in piston	Gudgeon pin dimension
X	blue	$\varnothing 16$ $+0,0010$ $-0,0015$	$\varnothing 15,997^{-0,003}$
Y	red	$\varnothing 16$ $+0,0035$ $-0,0010$	$16,000^{-0,003}$

Piston rings are made with the same diameter and thickness of 2 mm for all the three A, B, C.

Marking	Diameter for model 488.3	Diameter for model 487.3
Normal	52	58,75
Rebore I	52,25	59,00
Rebore II	52,50	59,25
Rebore III	52,75	59,50
Rebore IV	53,00	

IV. DISASSEMBLY PROCEDURE ENGINE FROM FRAME

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A. Engine:

1. Remove right cover
2. Disconnect clutch cable
3. Disconnect chain
4. Remove chain guard extension
5. Disconnect throttle cable
7. Disconnect speedometer drive
8. Remove exhaust pipe from cylinder

B. Frame:

1. Remove seat
2. Remove right-hand box
3. Disconnect + cable from storage battery
4. Remove fuel tank
5. Remove horn
6. Remove ignition coil
7. Disconnects connectors
8. Remove micromesh filter
9. Remove right-hand and left-hand cowling (4 bolts)
10. Remove intake silencer (2 bolts intake silencer) frame, 2 bolts intake silencer (rear mudwing, 1 bolt intake silencer/engine.
Remove the silencer to the left
11. Loosen bolts engine/frame
12. Remove engine from rear mountings to the left

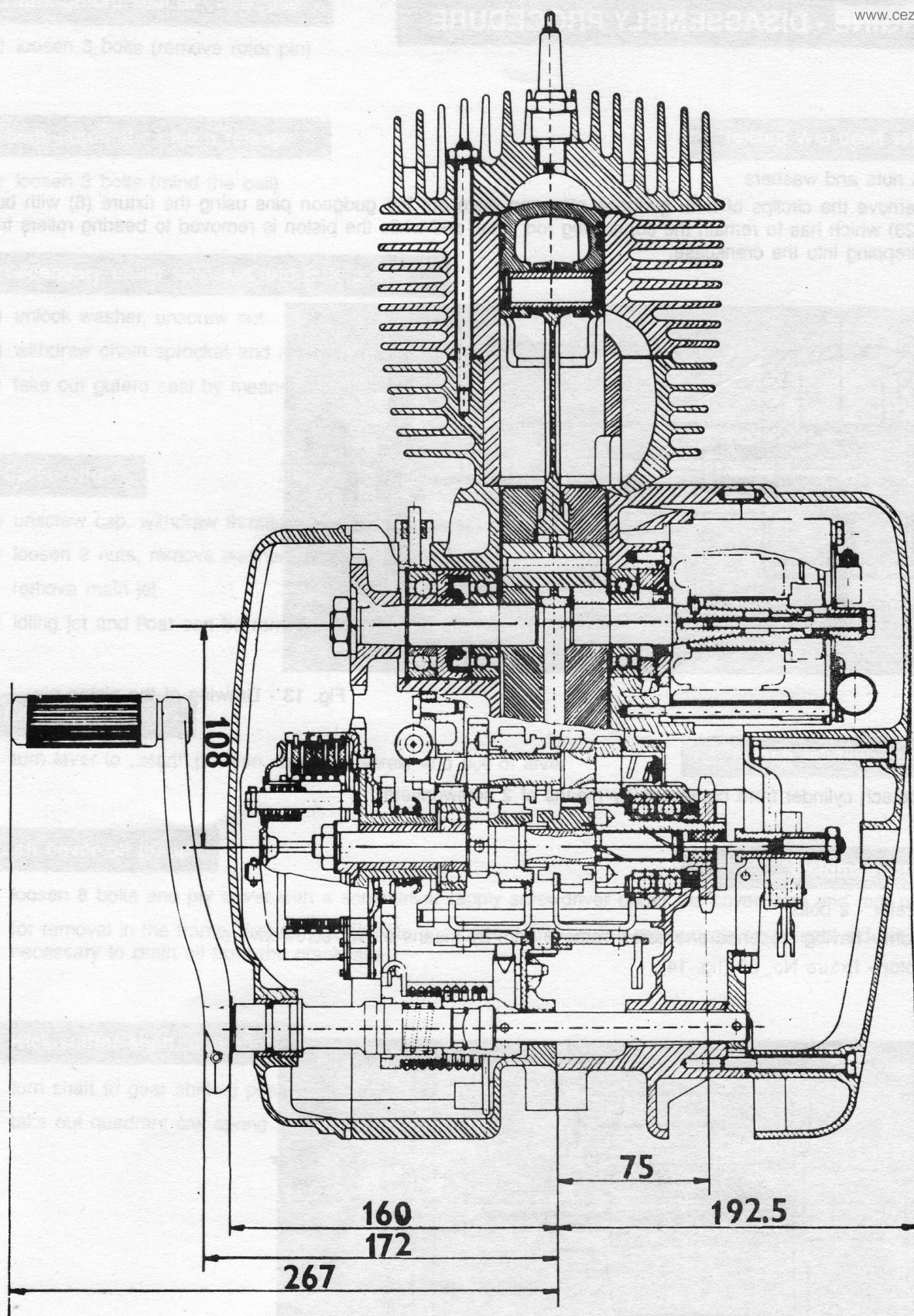


Fig. 12 - Cross section view of engine and transmission

A. ENGINE - DISASSEMBLY PROCEDURE

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1. Cylinder head c/w gasket^x

- a) 4 nuts and washers
- b) remove the circlips of both gudgeon pins and drive out the gudgeon pins using the fixture (6) with bush (23) which has to remain the connecting rod small end while the piston is removed to bearing rollers from dropping into the crankcase.

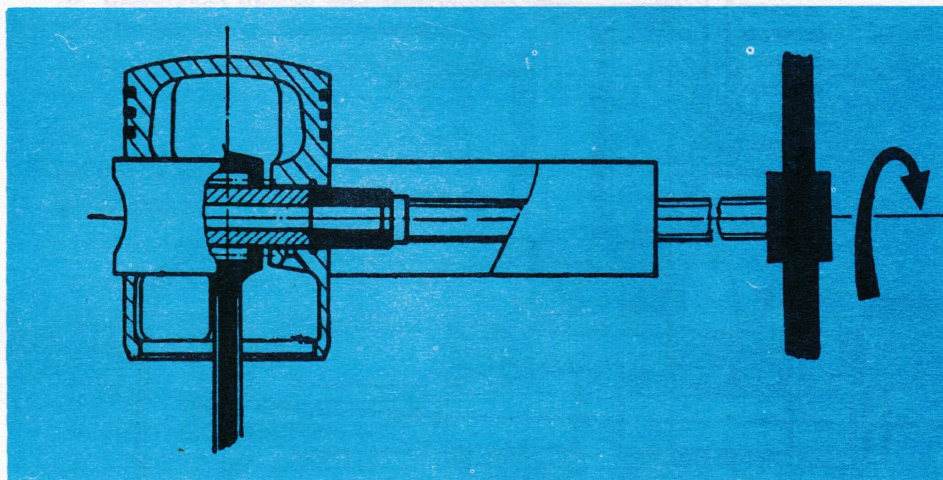


Fig. 13 - Drawing of the piston pin

2. Cylinder, cylinder gasket^x

- a) detach cylinder from crankcase by means of 2 screwdrivers

3. Dynamo, complete^x

- a) stator - 2 bolts
- b) cam - having loosened one screw remove cam by means of two screwdrivers
- c) rotor - fixture No. 09 (fig. 14)

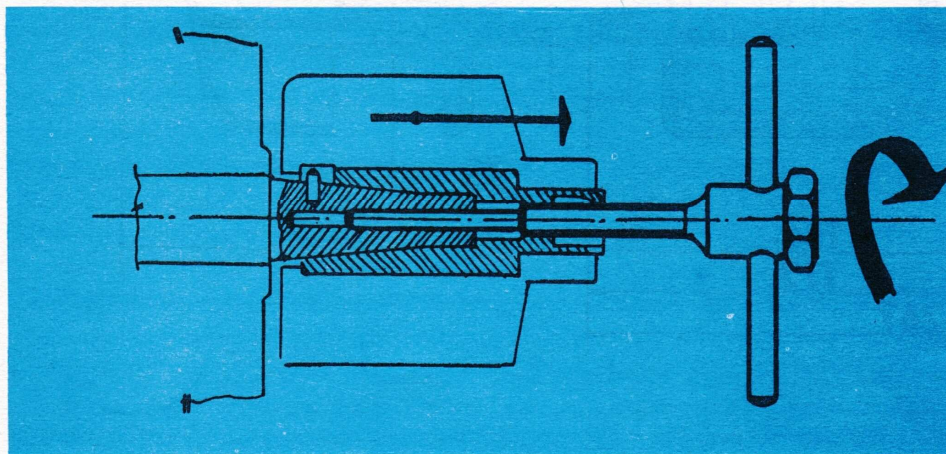


Fig. 14 - Extraction of general rotor

4. Right gufero seal of crankcase^x

- a) loosen 3 bolts (remove rotor pin)

5. Semi-automatic clutch release^x

- a) loosen 3 bolts (mind the ball)

6. Secondary chain sprocket and gufero seal^x

- a) unlock washer, unscrew nut
- b) withdraw chain sprocket and remove spacer
- c) take out gufero seal by means of a screwdriver

7. Carburettor^x

- a) unscrew cap, withdraw throttle valve and disconnect bowden cable
- b) loosen 2 nuts, remove washers and seals
- c) remove main jet
- d) idling jet and float can be removed without the aforementioned task

8. Kick-started lever^x

- a) turn lever to „start“ position, loosen 1 screw and pull of lever

9. Left cover oil pump^x

- a) loosen 8 bolts and pry cover with a screwdriver (apply screwdriver under the cover front and rear part),
- b) for removal in the frame, first remove the storage battery and lay the motor-cycle on its right side (it is not necessary to drain oil from the crankcase)

10. Kick-starter shaft, quadrant^x

- a) turn shaft to gear shifting position and withdraw it
- b) take out quadrant c/w spring

11. Clutch^x

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- a) compress clutch springs with fixture No. 11 and without 3 pins (fig. 15).

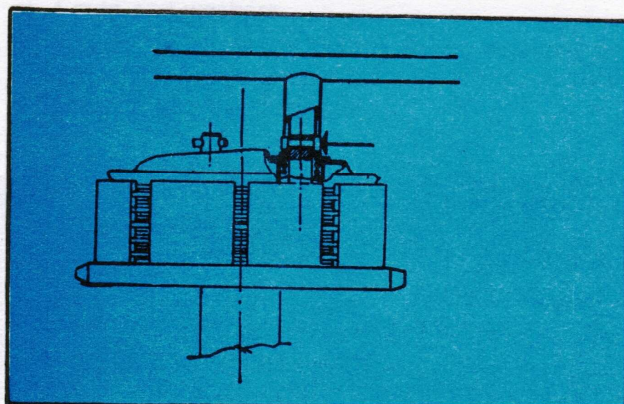


Fig. 15 - Compressing of the clutch spring

- b) remove pressure plate, plates and clutch release rod
c) unlock nut on mainshaft
d) lock inner driver in position against turning with the aid of fixture No. 12 (fig. 16) and unscrew nut

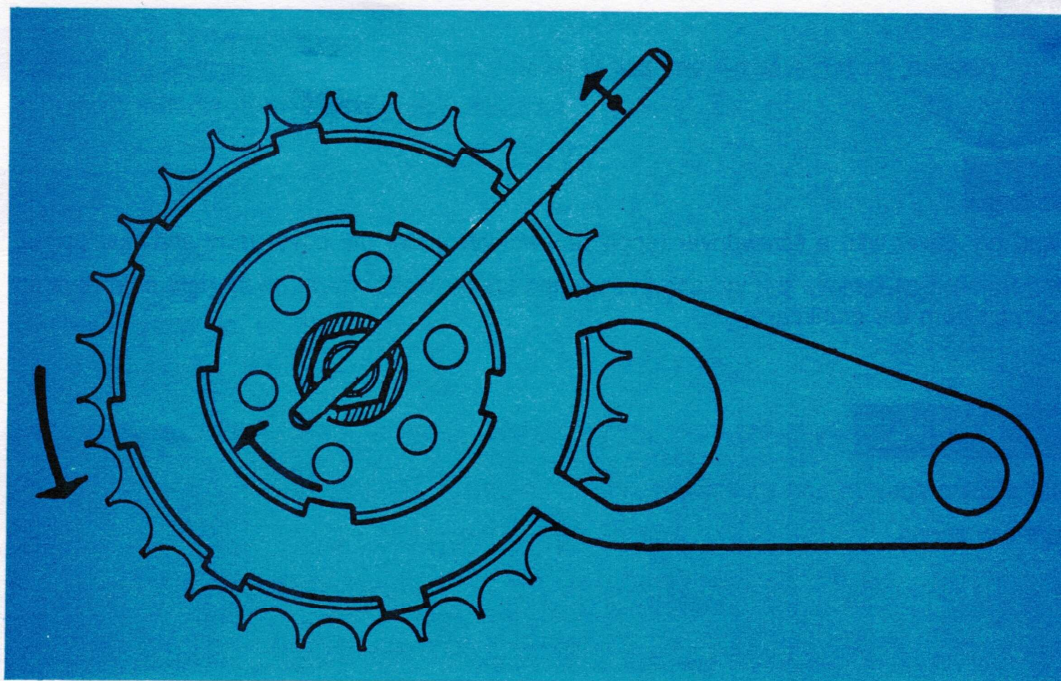


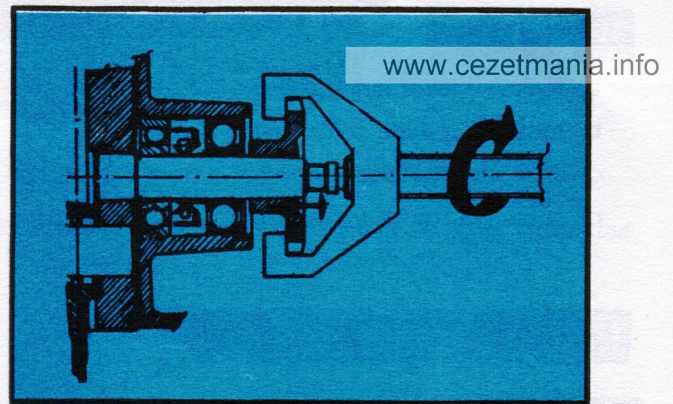
Fig. 16 - Holding of the clutch drum

- e) pull inner plate off the mainshaft by means of 2 screwdrivers
f) remove spacer sleeve (disengage from the chain sprocket by means of a small screwdriver)
g) remove sprocket c/w primary chain

12. Primary chain sprocket^x

- simultaneously with operation per 11d) loosen the crankshaft nut
- pull off chain sprocket with the aid of fixture No. 02 (fig. 17) having tightened the fixture, loosen the sprocket from the cone by a sharp tap on the bolt

Fig. 17 - Removing the primary chain gear

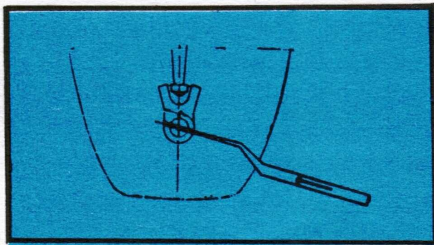


13. Speedometer drive^x

loosen 2 screw and pull the flexible shaft out of the crankcase

14. Shaft c/w driver^x

- drive out the pin by means of fixture No. 10 (fig. 18) and pull off cam
- secure catches against disengagement and withdraw the shaft from the lefthand side (fig. 19)



Obr. 18 - Drawing out of the semiautomatic clutch cam pin

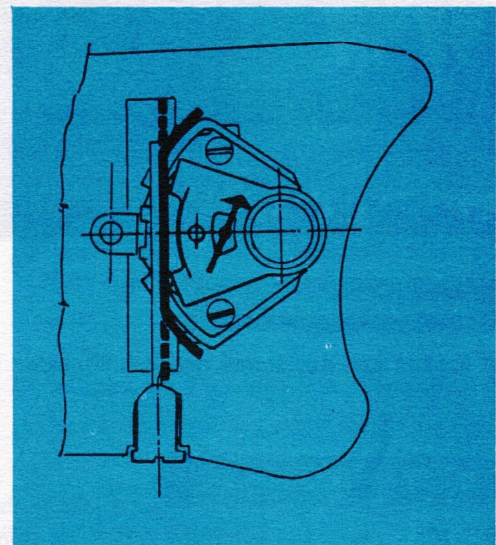
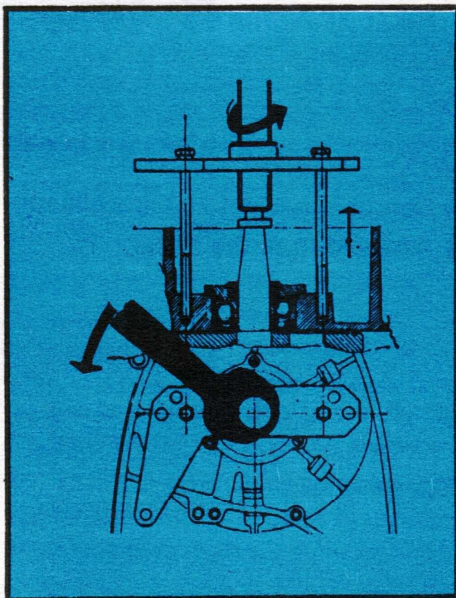


Fig. 19 - Securing the pawls at fitting the shifting shaft



15. Disconnecting of crankcase^x

- loosen 1 bolt c/w nut of the centrig sleeve
- drive out 2 centrig sleeves
- loosen 12 bolts
- disconnect crankcase halves with the aid of fixture No. 01 (fig. 20)

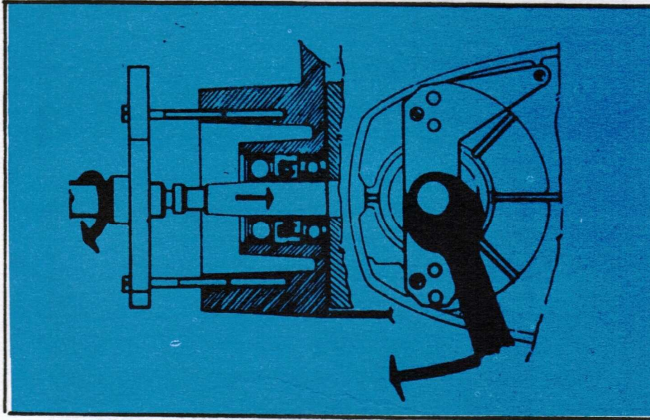
Fig. 20 - Parting of the crankcase

16. Gearbox

- a) remove shifter fork guides
- b) remove layshaft, shifter forks, gears
- c) drive out mainshaft with gear II from the left half
- d) press out the gear c/w hub from the right half

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17. Crank mechanism - l. h. half



press out crank mechanism with the aid of fixture No. 01 (fig. 21 from the left half

Fig. 21 - Pressing out crankshaft mechanism

18. Gear-shift Interlock

- a) loosen arrester screw and 4 bolts fixing the interlock to the left half of crankcase

19. Bearings, gufero seals

- a) 6304 - press together with gufero seal in the direction of the crakcase parting
- b) 6302 - in the direction of the parting plane
- c) 6005 - unlock, press out

20. Bolts^x

- a) unscrew from the crankcase with the aid of 2 nuts

Operations marked ^x can be carried out without the engine being removed from the frame.

1. Cylinder head

- check the thread for the spark plug for condition (do not rectify a stripped thread with an insert - impaired heat transfer)
- check the gasket for damage or burning

2. Cylinder

- when cylinder wear attains 0.3-0.4 % of the cylinder bore (0.3 % of 58 mm = 0.174 mm) the engine power output drops. Rectify by replacing the cylinder c/w piston or by reboring the cylinder.
- rebores:
 - measure the maximum wear along the entire bore and determine the respective rebores by adding approx. 0.2 mm (bore, honing)
 - up to 0.2 mm wear the rebores is made by honing
 - perform the reboring with a larger number of cylinders for an overall tolerance limit of +0.03 mm. Classify the cylinders according to the Table and match with their resp. pistons.
- at minor seizing of the piston (in the cylinder), aluminium should be removed from the cylinder (by scraping or with a fine whetstone)

3. Piston

- check for general wear (outer surface)
- check whether gudgeon pin ports are not pitted
- slightly seized piston below the piston rings - clean with a whetstone, or with a fine file.
If the seized surface reaches over the piston rings, replace the piston by a new one.

4. Gudgeon pin

- check for wear and surface smoothness (refrain from reconditioning).

Notice!

Install the gudgeon pin in a warmed up piston. Replace distorted snap rings.

0.4-0.8 (0.016"-0.032")

5. Piston rings

- the basic piston ring gap is 0.4 mm; if the gap is smaller, file off the locks
- when the gap increases to 0.8 mm, replace the piston rings

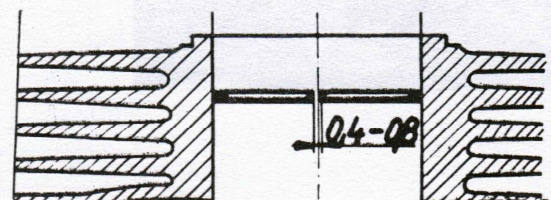


Fig. 22 - Clearance of piston rings ends cylinder

NOTICE:

When re-installing the old piston rings observe their original sequence and do not turn them upside down (the bright surface must be always turned downwards)

6. Crankshaft

- b) check the connecting rod alignment with the fixture No. 06 (fig. 25)

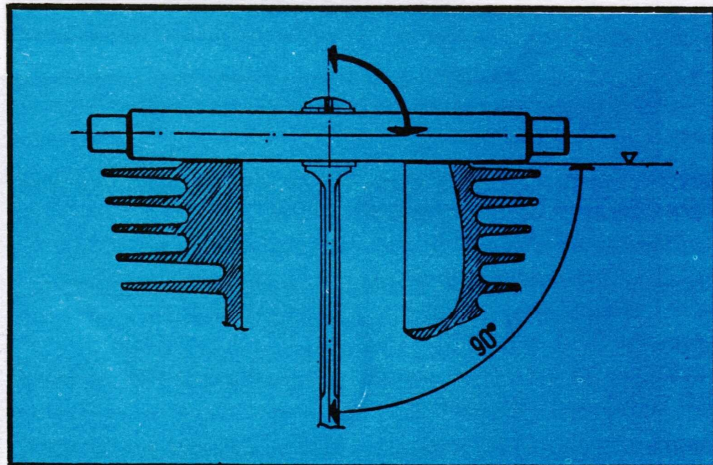


Fig 25 - Alignment of the connecting rod

- c) if the big end bearing is excessively worn, replace the connecting rod, the pin, and the needle roller as follows:

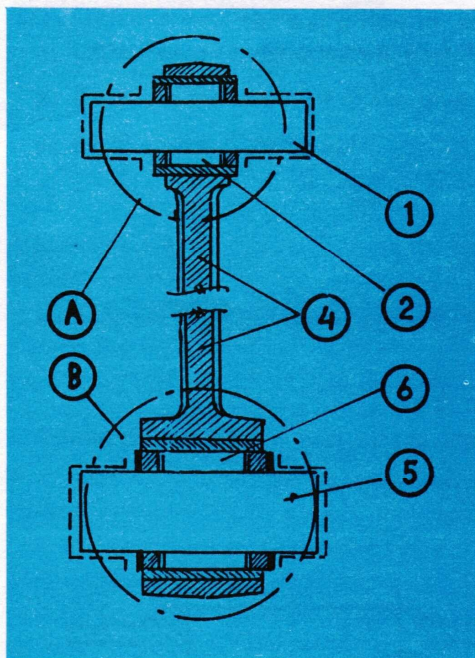


Fig. 23 - Connecting rod (set)

Table A - Classification small end connecting rod, gudgeon pin, bearing needle

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		4 Connecting rod - small end			
		red	blue	white	yellow
1 gudgeon pin	red -0,003 16,000		white -4 : -6 6 : 17	blue -2 : 4 6 : 17	red 0 : -2 6 : 17
	blue -0,003 15,997	white -4 : 6 5 : 16	blue -2 : 4 6 : 17	red 0 : -2 5 : 16	

Needle INA 2 x 13,8-1
Dimension

Table B - Classification big end connecting rod, crank pin, needle-roller INA KZK 22x29x16 CCU

		4 Connecting rod - big end			
		red	blue	white	yellow
crank pin	red -0,003 22,000		white -4 : 6 12 : 23	blue -2 : -4 12 : 23	red 0 : -2 12 : 23
	blue -0,003 21,997	white -4 : -6 11 : 22	blue -2 : -4 11 : 22	red 0 : -2 11 : 22	
5	white -0,004 21,994	blue -2 : -4 10 : 22	red 0 : -20 10 : 22		

Needle-roller
Dimension

INA KZK 22x29x16
Dimension

PRESSING APART

- draw an index line on the opposite side of the crank pin over both the webs with the aid of a square
- insert fixture No 05 (fig. 26) between the webs (padding the fixture under the press) and press the pin out of the right-hand web
- turn the crankshaft and press the pin clear off the left-hand web.

Fig. 26 - Marking of flywheels the crankshaft before dissassembling

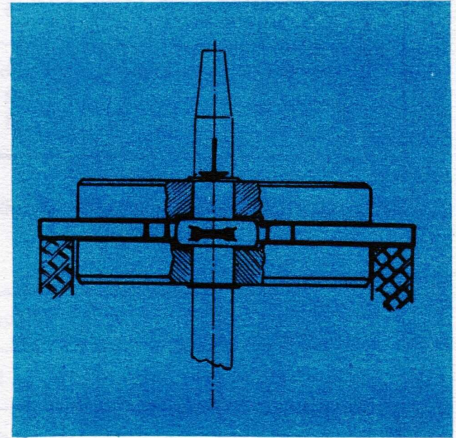
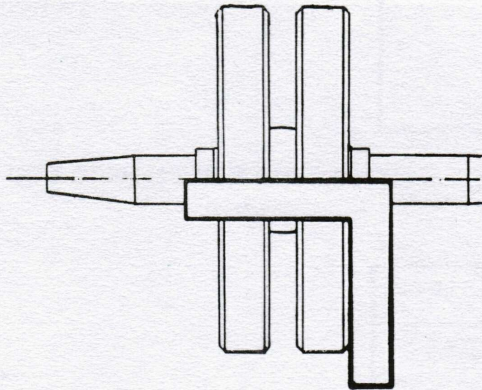


Fig. 26 - Parting of the crankshaft

PRESSING TOGETHER

- having cleaned the parts, press a new crank pin c/w the connecting rod and rollers in the left-hand web. The pin oilway must point to the web outer circumference.
- Align the other half of the web according to the index lines and press to the specified dimensions.

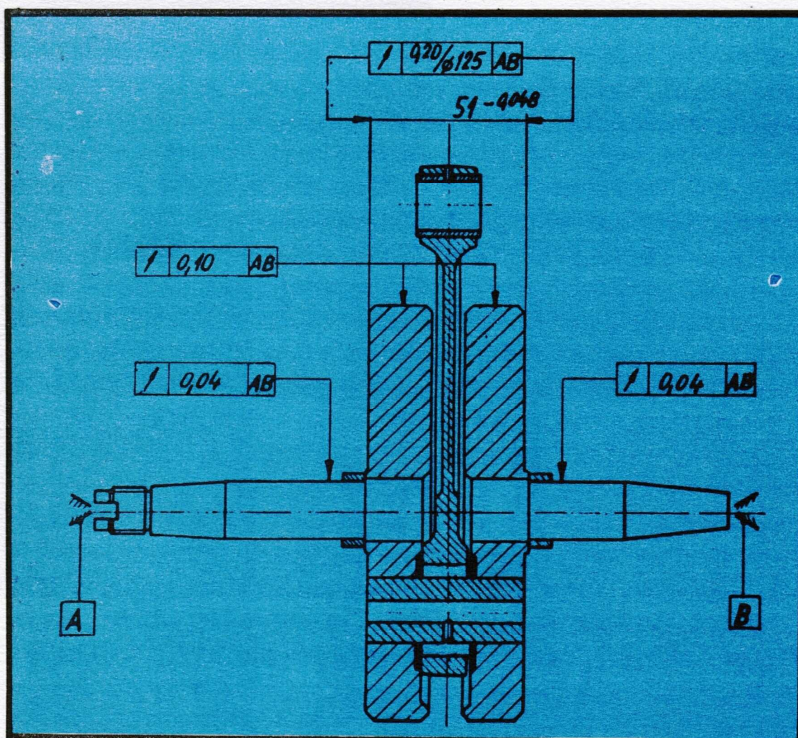


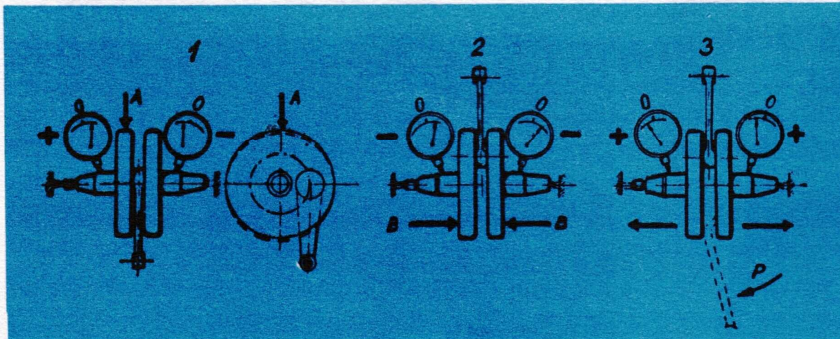
Fig. 28 - Control dimensions of crankshaft and eccentricity of flywheels and main journals

CENTRING

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- a) Clamp the crankshaft between the measuring points so that the crank pin is aligned with the side pins (vertical in respect to the dial indicator).
Set the dial to zero and turn the crankshaft through 180° .
If the values differ on the left-hand and right-hand pin, tap the crankshaft half with a copper mallet where the pin shows a + deviation (by tapping the flywheel is turned on the crank pin).

- b) Turn the crank pin to vertical position in respect to the side pins (aligned with the dial indicator centre line).
If both side pins show a higher value towards +, set apart the flywheels on the opposite sides.
If the value deviates towards -, press together the flywheels on the opposite side.



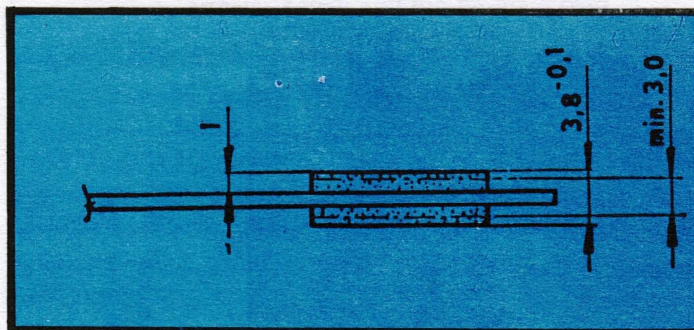
Obr. 29a, b, c - Flywheel adjustment (turning), setting apart and pressing together of the flywheels.

7. Primary transmission

- a) check the chain sprocket teeth for condition
- b) check the sleeves and stretching of the primary chain

8. Clutch

- a) check the clutch plate cork facing (replace plates with burnt and worn out facing by new ones)
- b) check whether the inner and outer clutch drivers are not pitted by the plates (dress or replace them if necessary)



Obr. 30 - Friction plate thickness

9. Gearbox

- a) inspect the teeth surfaces and spur gears,
- b) if a tooth is chipped, replace both gears of the respective speed gear,
- c) check the mainshaft and the layshaft for untrue run.

10. Gear shifting

- a) check the shifter forks for wear and alignment,
- b) check the interlock pin for excessive end play and radial clearance. Reduce the end play by clinching the pin,
- c) replace fatigued springs,
- d) replace worn dogs,
- e) check the shifter dog on the kick-starter shaft and the groove for the shifter dog on the shaft with the driver.

11. Bearings

- a) check for radial and axial play. A washed bearing, dipped in oil, should not bind.

12. Gufero seals

- a) the lip of the gufero seal should be sharp,
- b) the spring should not be slack but firmly retained in the recess.

13. Crankcase halves

- a) carry out the colour check of the mating faces of the crankcase halves (max. out-of-true 0.05 mm). If necessary, grind in with the aid of grinding paste on a plate.

14. Carburettor

- a) check the carburettor seating flange and true up, if necessary,
- b) check the needle and its seat (fuel inlet) for condition,
- c) replace the throttle valve if worn, replace the float if cracked.

1. Warm up the crankcase halves to 90-100°C.

2. In the crankcase right-hand half:

- press in: 2 abearings 6005 ($37,7^{+0,23}$)
1 bearing 6304 ($34,4^{+0,3}$)
- lock the bearing 6005 in position with circlips and press on the gear with hub
- install a spacer ring on the gear with hub, drive in the gufero seal, dia.30 x 40 x 7, the chain sprocket, and secure with a circlip and nut.

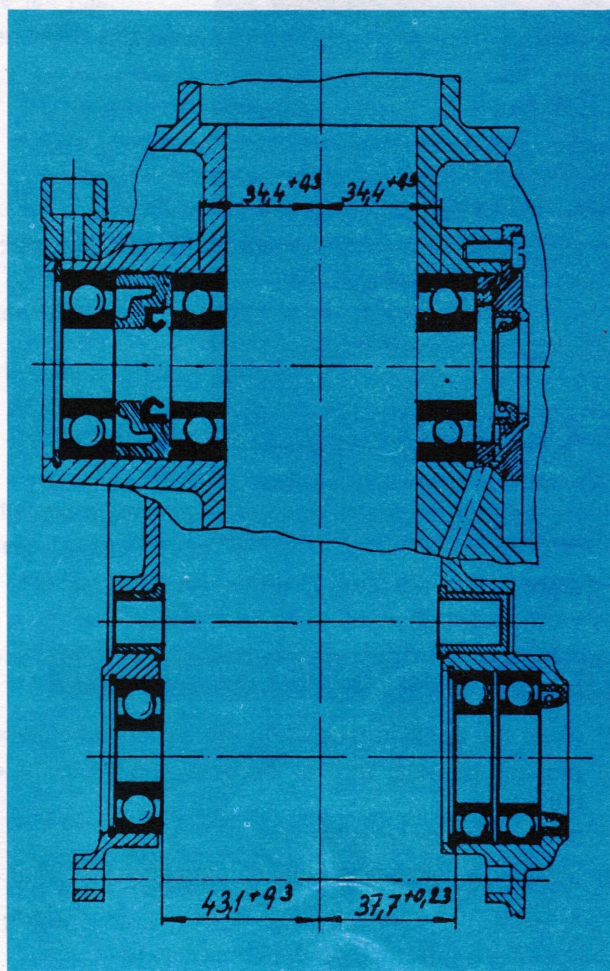
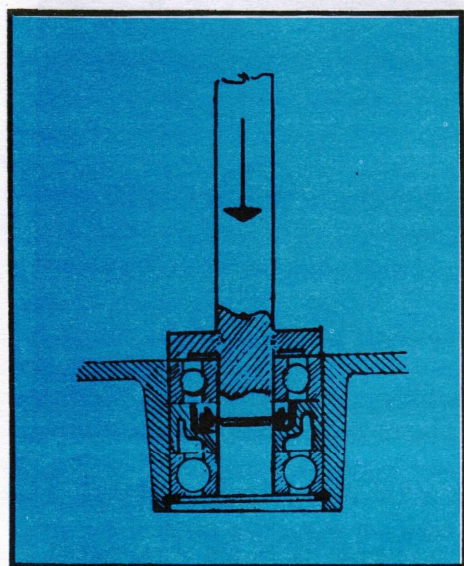


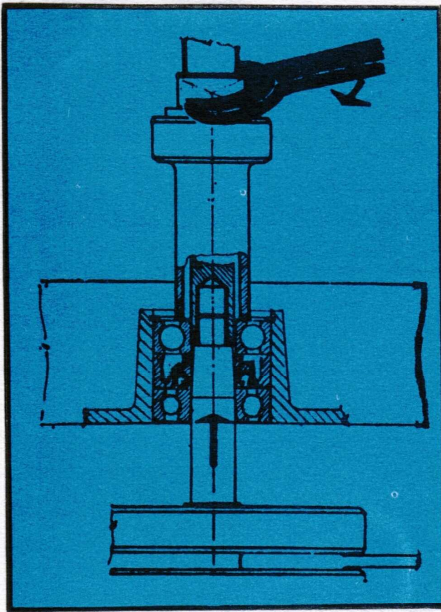
Fig. 31 - Dimensions for press-fitting of bearings in crankcase

3. In the crankcase left-hand half:



- press in:
2 bearings 6304 with spacer ($+34,4^{+0,3}$)
1 bearing 6302 ($+43,1^{+0,3}$)
1 gufero seal, dia 20x30x7
Lock the bearings in position with circlips
- bolt on the complete bracket by means of 4 bolts. Set the neutral position and tighten the arrester screw and the oil drain plug
- install the crank mechanism in the crankcase left-hand with the aid of fixture no. 04, (fig. 33). If the fixture is not available, preheat the inner races of the bearings

Fig. 32 - Reinstalling of bearing



- d) press the mainshaft c/w the 11nd speed gear in the bearing 6302 www.cezetmania.info
- e) install the layshaft gears I and II with the shifter fork as well as the layshaft in the crankcase left hand
- f) install the main gear III with the shifter fork on the mainshaft
- g) arrange the forks, slip on the shifter fork guides together with the remaining 2 layshaft gears
- h) try the engagement of the 1st, 11st and 111rd speed gear

Fig. 33 - fitting the crankshaft in the L. H. part of crankcase

4. Crankcase left-hand and right-hand halves

- a) clean the partition faces with the aid of a whetstone and apply sealing cement,
- b) preheat the inner race of the bearing 6304 in the crankcase right-hand half and assemble both crankcase halves,
- c) drive in the centring sleeves,
- d) tighten 13 connecting bolts starting from the centre of the crankcase and proceeding towards its both ends.

5. Left-hand side

- a) screw down the speedometer drive,
 - b) install the shaft with the driver
- Lock the dogs in position with the aid of fixture No. 13.

6. Right-hand side

- a) install adjusting shims on the shaft with the driver, drive in the cam and lock in position with a locating pin,
- b) slip the cap c/w seal over the right-hand pin of the crank mechanism and bolt on so that the recess in the cap connects with the lubrication port in the crankcase,
- c) support the right-hand pin and drive in the rotor locating pin,
- d) check the right-hand pin for out-of-true (± 0.02).

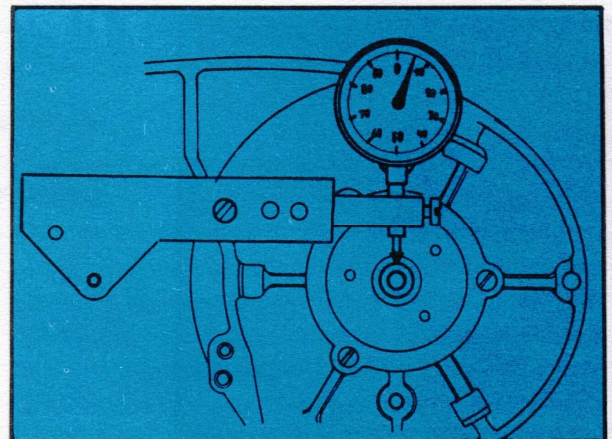


Fig. 34 - Control measurement of eccentricity R. H. pin of crankshaft

7. Starting mechanism

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- a) install the quadrant with the spring in the crankcase left half,
- b) insert the starter shaft c/w spring in the quadrant and turn to position „start“.

8. Primary transmission

- a) install the ground washer on the mainshaft,
- b) install the primary transmission (primary chain sprocket, chain, chain sprocket with the starter) on the crank pin and the main shaft,
- c) insert an oiled spacer in the sprocket with the starter.

9. Clutch

- a) install the inner clutch driver on the mainshaft,
- b) lock the clutch in position by means of fixture no. 12 and tighten both nuts (M 16 x 1,5, M 12 x 1,25),
- c) lock the nut on the mainshaft by bending the washer,
- d) install alternately 5 cork and 5 metal friction plates (the first plate should be of cork, the last of metal),
- e) install the oiled clutch release rod in the mainshaft,
- f) lock the clutch pressure plate (3 bushes, springs, washers) in position by means of 3 locatin pins - fixture No. 11.

10. Piston

- a) warm up the piston to 40-50°C,
- b) set the piston with the aid of the fixture No. 06,
- c) dip the gudgeon pin in oil before inserting it in the piston,
- d) lock it in position with circlips,
- e) install the piston ring on the piston, setting the ring locks opposite the pins.

11. Cylinder, cylinder head

- a) install the cyllinder gasket,
- b) screw in the bolts,
- c) install the cylinder,
- d) glue the gasket in the cylinder head with mineral jelly and tighten the head crosswise.

12. Dynamo assembly

- a) install the rotor c/w cam on the right-hand pin and tighten while retaining the nut on the left-hand side of the crank mechanism with a spanner,
- b) withdraw the brushes from the stator and reinstall them after having mounted the stator,
- c) adjust the breaker gap and the advance.

13. Semi-automatic clutch release

- a) install the clutch release rod in the mainshaft,
- b) screw down and adjust the semi-automatic cluch release (the clearance between the cam and the roller is 0.4).

14. Left-hand cover

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- a) clean the mating faces of the left-hand cover and the crankcase,
- b) drive 2 centring bushes into the crankcase,
- c) glue the gasket to the crankcase with mineral jelly and bolt on the cover.

15. Carburettor

- a) screw in 2 stud bolts fixing the carburettor,
- b) install the seal and screw down the carburettor.

B. FRAME

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1. FRONT FORK

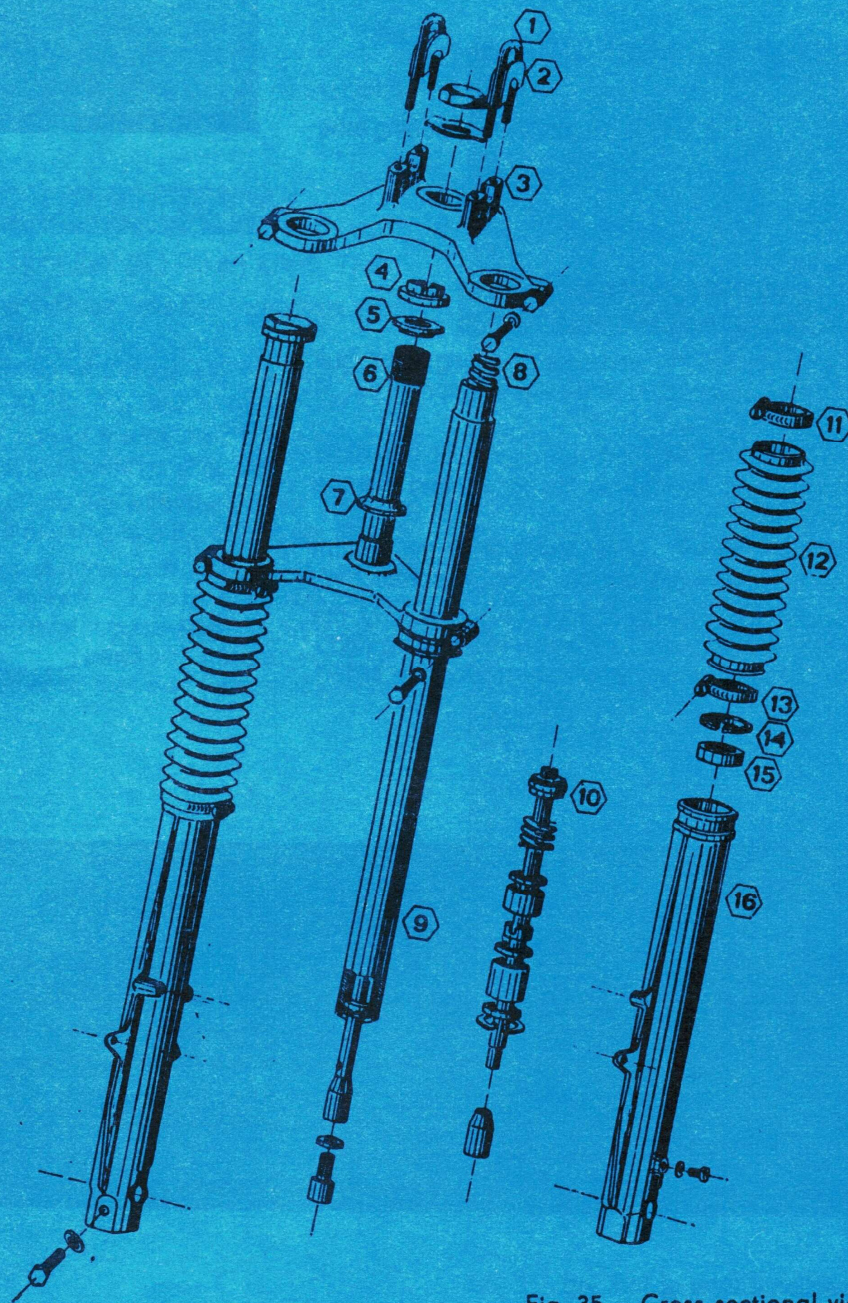


Fig. 35 – Cross sectional view of front suspension

A - Removing Front Fork Legs

- a) remove the front wheel (detach the brake cable, remove the wheel spindle nut, loosen the M 10 x 45 screw),
- b) remove the front wing (four M 6 x 16 screws, four M 8 x 18 screws),
- c) remove the top plugs of front fork legs,
- d) loosen the M 8 x 40 screws of the bottom lug and the M 8 x 35 screws of the top lug,
- e) disconnect venting hoses from the dust boots of leg cover tubes,
- f) drive the tubes out of the top lug using the new jig No. 13.

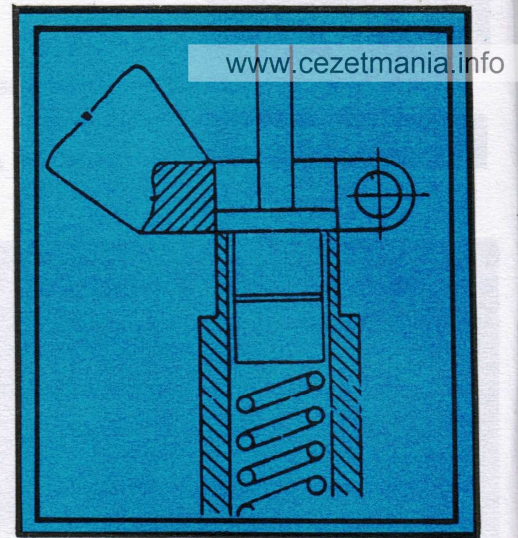


Fig. 36 - Driving of the supporting tube

B - Removing Shock Absorber from Leg Tube

- a) use a screwdriver to loosen the dust-boot fastening strips, pull the dust boot off the cover tube, and take the spring out of the tube,
- b) remove the M 10 x 25 screw from the bottom of the slider using the spanner No. 8 for internal hexagons, and pull the slider off the cover tube,
- c) remove the clip retaining the shock absorber in the bottom end of the cover tube, and pull out the shock absorber,
- d) remove the retainer the sealing ring in the top part of the slider and use two screwdrivers to remove the sealing ring - never reuse the old sealing ring when reinstalling the slider!

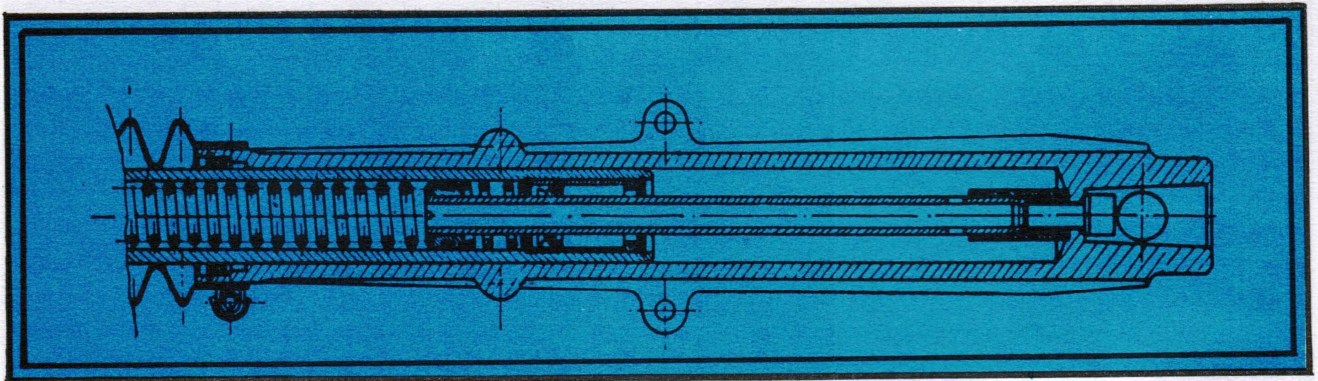


Fig. 38 - Cross sectional view of fork leg.

C - Inspecting Parts before Reassembly

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- cover tube - the surface of the tube must not be worn in places where it touches the slider and the sealing ring; check whether the tube is not bent should the motor cycle be brought in after a road accident (crash or collision); a slight deflection which does not affect the functional surfaces can be straightened in a press; renew the tube if it is heavily distorted - the material structure is probably damaged,
- slider - check the inside diameter (bore) for wear,
- shock absorber - the plastic (silon) sealing ring of the piston must not be distorted or otherwise damaged,
- sealing ring of the slider - its sealing lip must not be damaged,
- packing rings of the drain screw and filling screw plug.

D - Reassembly

Reverse the procedure of removal and disassembly.

E - Top and Bottom Front Fork Lugs

First remove the front fork (leg cover) tubes. Then

- remove the handlebars and the instrument panel - four M 6 nuts,
- unlock the washer of the top lug nut, remove the nut using the jig No. 16, and lift off the top lug,
- use the other side of the jig. No. 1 to remove the nut of the steering bearings (Fig. 38),
- remove the bottom lug with stem (take care that the balls of the steering bearing do not get spilled).

After the inspection of parts and/or renewal of defective parts reinstall the front fork lugs by reversing the procedure of their removal. Do not forget to lubricate the bearings of the steering head with mineral jelly. Clamp the bearings together so that they rotate freely without any clearance.

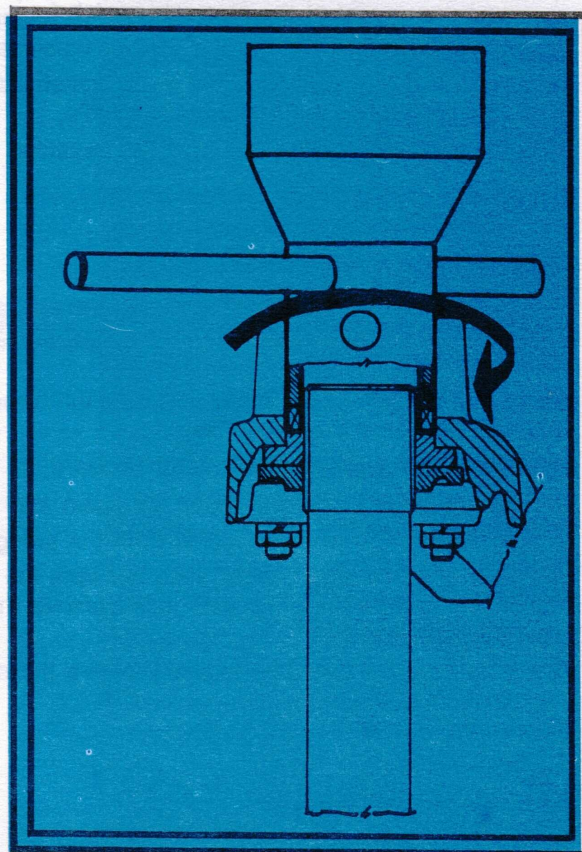


Fig. 38 - Tighting of steering head.

2. STAND AND FOOT-RESTS - REMOVAL

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The foot-rests and the stand are bolted to the frame by a single through-bolt.

- a) screw off the nut of the right-hand foot-rest,
- b) swing down the stand and withdraw the left-hand foot-rest together with the through-bolt,

3. FOOT-OPERATED BRAKE CONTROLS - DISMANTLING

- a) detach the spring of the stop-light switch from the right-hand side of the brake pedal lever,
- b) remove the cotter pin and the washer from the left-hand side of the brake pedal (shaft) spindle,
- c) remove two M 6 screws of the brake transmission (relay) lever together with the lock washer and pin from the centre part of the brake lever spindle,
- d) pull the brake (pedal) lever from the fastening brackets in the frame.

4. REAR SWINGING FORK - REMOVAL

- a) remove the rear wheel (after removing the wheel spindle nut, disconnecting the brake tie-rod, removing the wheel spacer and reaction stop),
- b) separate the two halves of the chainguard,
- c) disconnect the chain and lift off the chain and the two halves of the chainguard,
- d) remove the rear-wheel sprocket from the swinging fork (nut M 32),
- e) detach the telescopic shock absorber from the swinging fork,
- f) proceeding from the right-hand side, remove the nut of the swinging fork hinge pin, and drive the pin out to the left-hand side.

Before refitting the swinging fork pin, centre the swinging fork bush with the frame and the distance tube of the rear engine bracket.

5. REAR TELESCOPIC SHOCK ABSORBER - DISMANTLING

The shock absorbers used for the springing of the rear swinging fork have progressively acting springs and they allow an adjustment of the springing hardness in four positions. These shock absorbers have been taken over from the previous motorcycle models 04. It is not necessary to use the jig No. 17 for the actual dismantling of the shock absorbers.

- a) clamp the shock absorber in a vice with the top lug held between the jaws,
- b) remove the spring cap using the book spanner included in the motor cycle tool kit,
- c) after having taken out the support spring, clamp the shock absorber in the vice by its bottom fastening lug and remove the M 30 x 1 nut of the outer cylinder using the open-ended spanner No. 22,
- d) by pulling the piston rod work free the working cylinder,,
- e) clamp the top lug in the vice and lift off the working cylinder,
- f) using the spanner No. 10 crew off the M 6 nut from the piston rod - the nut was secured by a dot,
- g) after having removed the nut, pull the piston with the top and bottom valve, support, guide, spring, washers and nut with packing ring from the piston rod.

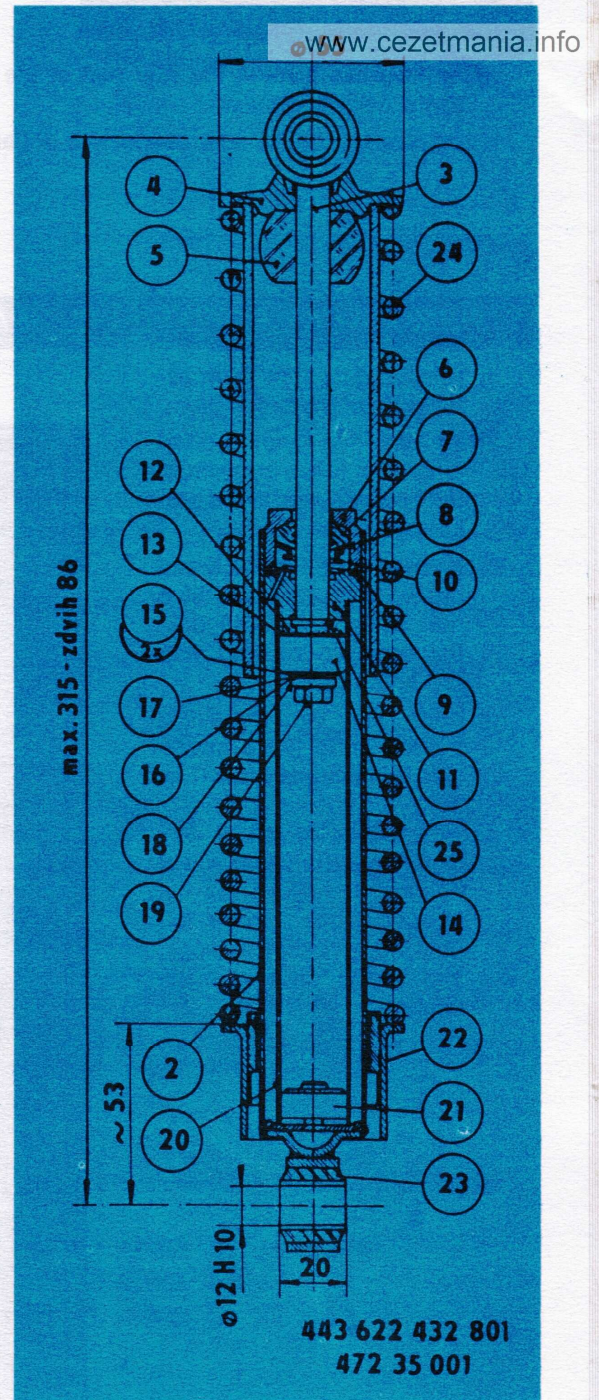
Note: When dismantling and reassembling the shock absorber, proceed very carefully to preclude damage of the piston rod and working cylinder.

Check before reassembly:

- a) the surface of the piston rod for any roughness,
- b) the sealing ring for condition,
- c) the valves for correct position.

Oil Change

After having completed the dismantling operations a) through e), pour 40 c.c. of ON 65 6890 oil into the working cylinder and further 35 c.c. into the outer cylinder. Reinstall and tighten the M 30 x 1 nut, compress and release several times the shock absorber to pump the oil into the working cylinder. Test the function of the shock absorber without the spring. At a quick compression you must feel a slight resistance (damping). A correctly filled shock absorber can be extended at the same speed by the application of force three times as great as the force required for its compression.



6. REAR WING - REMOVAL

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- remove two bolts in the rear part of the frame, one bolt under the seat, and two bolts fastening the wing to the intake silencer,
- disconnect the tail-light connectors under the seat and remove the wing.

7. REMOVAL OF ROAD WHEEL BEARINGS AND CHAIN WHEEL

- remove dust cups from either side of the brake drum,
- lift away the bearing retaining ring (snap ring) from the opposite side to the brake drum,
- proceeding from the brake drum side press or drive out, using a suitable drift, the opposite bearing with the spacing tube,
- drive out the remaining bearing from the opposite side to the brake drum (Fig. 40).

Proceed in the same way to remove the chain wheel bearing, i. e. drive out the spacing tube, remove the dust cups, retaining rings, and finally drive out the bearing.

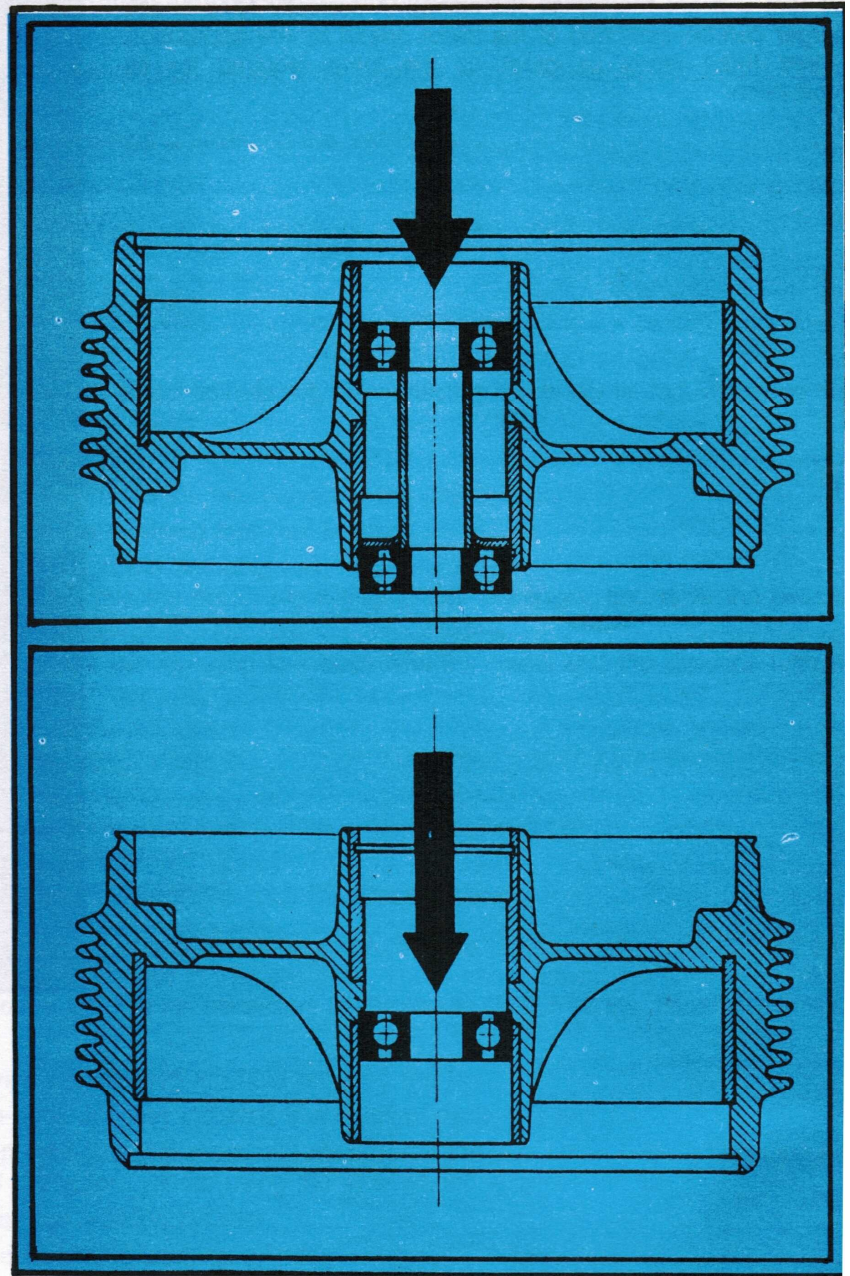


Fig. 40

ELECTRICAL

EQUIPMENT