IAME

Parilla

LEOPARD 125cc - RL - TaG

ENGINE OVERHAULING MANUAL

INDEX

1 – LEOPARD 125cc ENGINE DISASSEMBLY

	OPERATION	TOOLS REQUIRED
1.	**INSERT 2 SCREWS M8X60 ON BOTTOM OF CRANKCASE** TO POSITION MOTOR ON BENCH	-VICE ON BENCH (TOOL AS PER DRAW. S725/1)
2.	**REMOVE EXHAUST PIPE AND EXHAUST GASKET** (see Fig.1): -3 M6 EXHAUST NUTS -3 WASHERS	- 12 POINT WRENCH - 10mm **Fig.1** 
3.	**REMOVE CLUTCH:** **-REMOVE CLUTCH COVER** 3 SCREWS M6 (see Fig.2). **REPLACE SPARKPLUG WITH SPECIAL PISTON FITTING** (see Fig.3). ROTATE CRANKSHAFT UP TO TDC SO THAT CRANKSHAFT DOES NOT ROTATE WHEN REMOVING THE 1Omm NUT.	- 5mm ALLEN - PISTON FITTING: P.N. 10271 - 12 POINT WRENCH 17mm - CLUTCH WRENCH: P.N. 10270 - 12 POINT 24mm - 12 POINT WRENCH 19mm - CLUTCH PULLER: P.N. B-55614-C - 12 POINT WRENCH 10mm **Fig.2**  **Fig.3** 

-**REMOVE 10mm NUT**
(see Fig.4)

-**REMOVE OUTER WASHER , ROLLER CAGE, CLUTCH DRUM AND INNER WASHER.**


Fig.4

-**REMOVE THE PISTON FITTING AND USING THE CLUTCH WRENCH, REMOVE THE CLUTCH FIXING NUT** (see fig.5).

ATTENTION:
TURN CLOCKWISE AS NUT HAS LEFT THREAD.

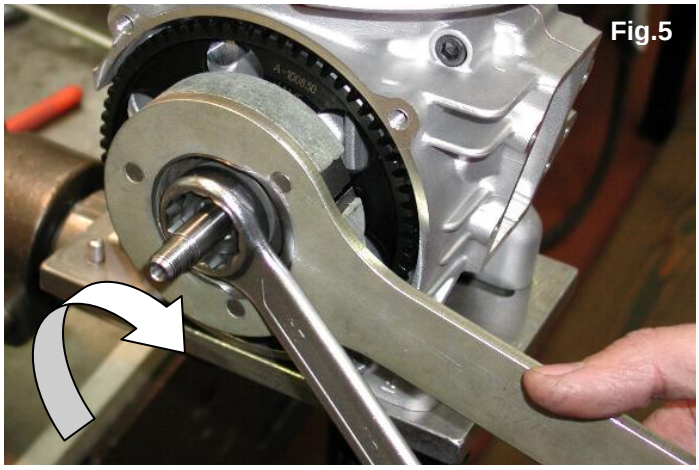


Fig.5

-**REMOVE SAFETY WASHER**

APPLY CLUTCH PULLER ON CLUTCH AND REMOVE CLUTCH WITH 19mm SOCKET (see Fig 6).

REMOVE KEY FROM SHAFT SEAT.

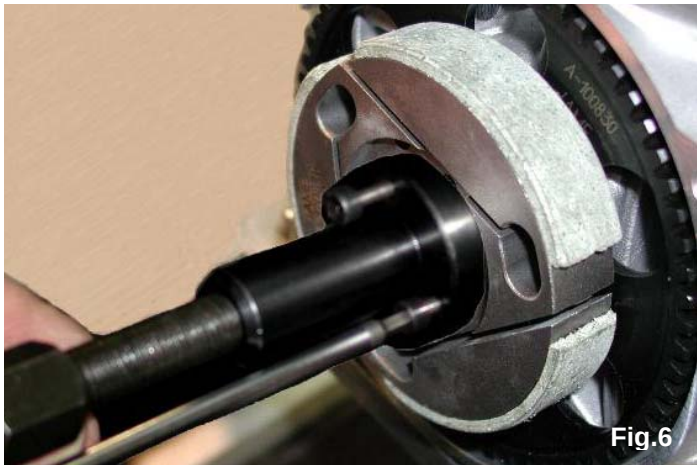


Fig.6

-**REMOVE THE START RING FROM THE CLUTCH**
3 SCREWS M6 (see Fig.7).


Fig.7

4.

- **REMOVE THE CARB MANIFOLD**
  4 SCREWS M6X25
  4 WASHERS (see fig. 8)

REMOVE THE REED PACK GASKET - OUTER.

- 4mm ALLEN

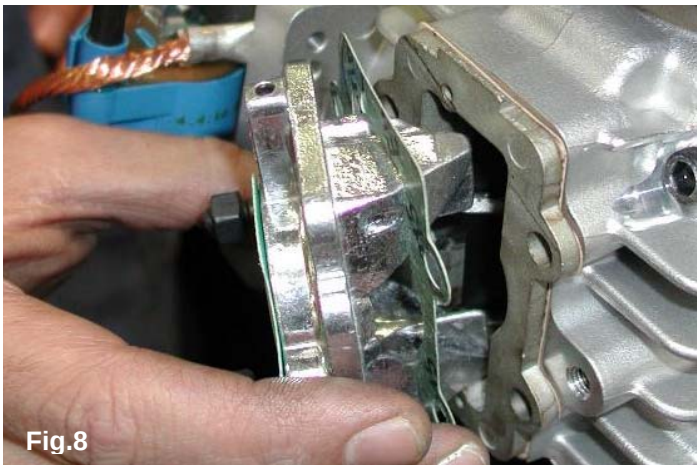


Fig.8

-**REMOVE THE REED PACK**
(see Fig. 9)

-**REMOVE THE REED PACK GASKET - INNER**

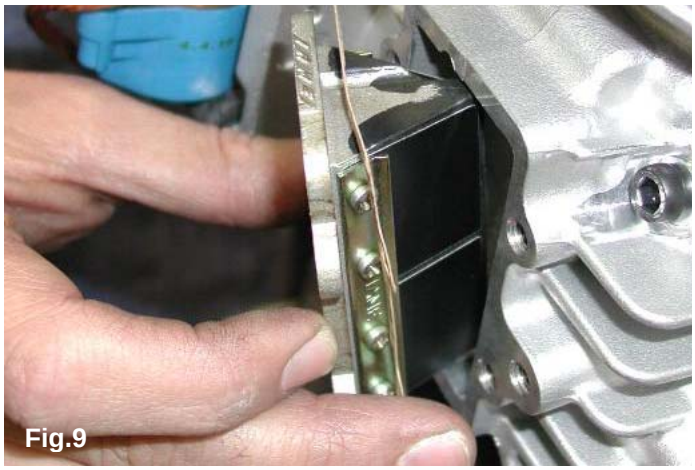


Fig.9

5.

REMOVE THE IGNITION:

- 4mm ALLEN
- 5mm ALLEN
- 13mm HEXAGON RING WRENCH
-PISTON FITTING: P.N. 10271

-**REMOVE THE IGNITION COVER**
3 SCREWS M6X18 (see Fig.10)


Fig.10

-**REMOVE STATOR**
4 SCREWS M5X25 (see Fig.11).

-**INSTALL THE PISTON FITTING** AND **REMOVE SELF LOCKING NUT** M8 WITH KNURLED WASHER.

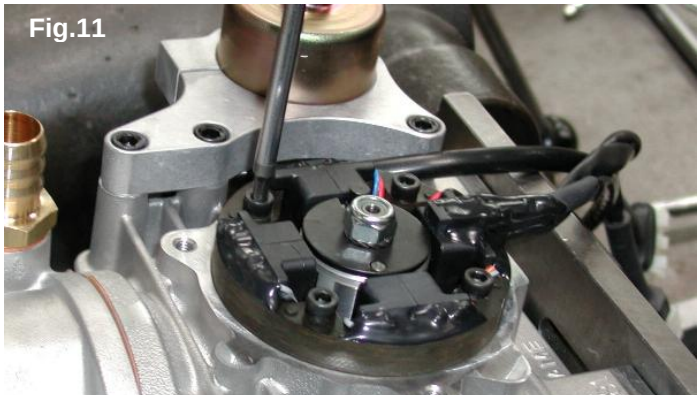
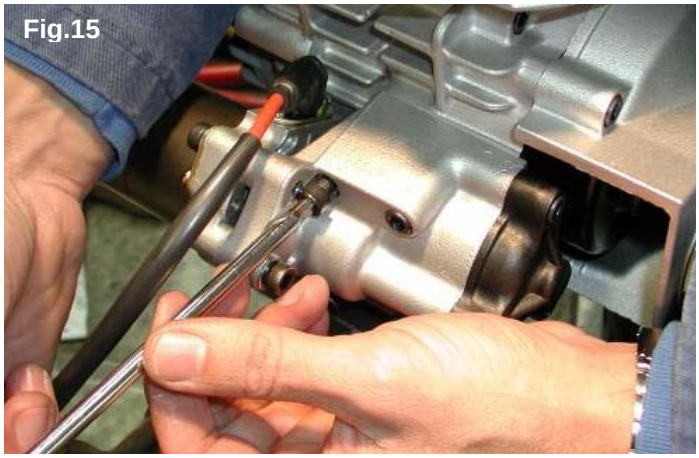


Fig.11

	-**REMOVE ROTOR** (see Fig.12)	Fig.12 
6.	-**UNLOOSE THE SCREW M6X30 ON THE STARTER SUPPORT** (see Fig.13) - **REMOVE THE STARTER SUPPORT** 3 SCREWS M6X25 (see Fig.14).	- 5mm ALLEN Fig.13  Fig.14 
7.	**- REMOVE THE STARTER ASSEMBLY** 4 SCREWS M6X45 (see Fig.15).	- 5mm ALLEN Fig.15 

-**REMOVE STARTER FROM SUPPORT**
3 SCREWS M6X35 (see Fig.16/17).

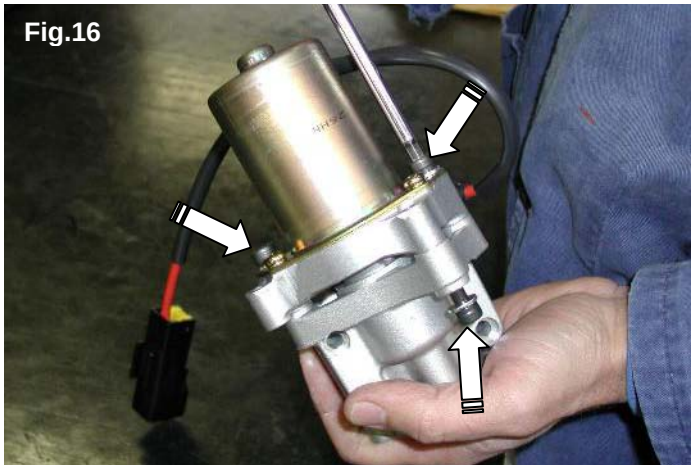


Fig.16


Fig.17

- **REMOVE THE COUNTERSHAFT SUPPORT COVER**
3 SCREWS M6X25 (see Fig.18).


Fig.18

- **EXTRACT THE COUNTERSHAFT FROM THE SUPPORT**
(see Fig.19).

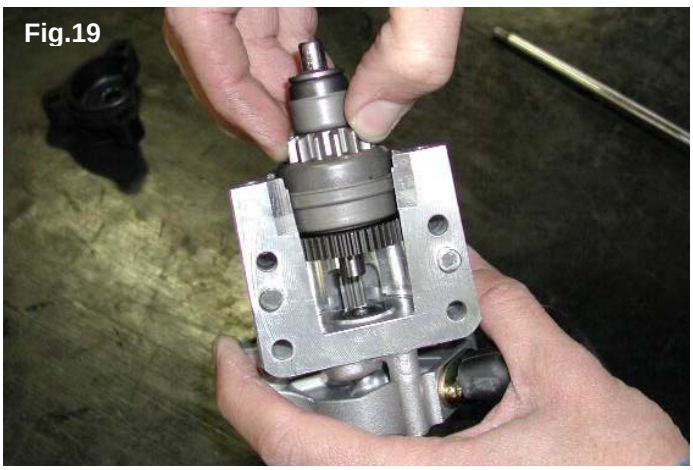
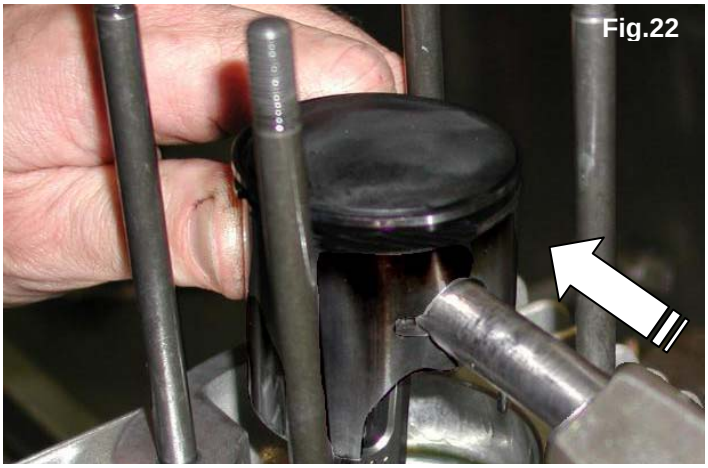


Fig.19

8.	**REMOVE THE HEAD:** -LOOSEN NUTS BY ½ TURN (CROSS PATTERN DISASSEMBLY) AND THEN REMOVE: 4 NUTS M8 4 WASHERS 4 O-RINGS Ø7.65mm ON STUDS 1 O-RING Ø60mm HEAD INTERNAL DIAM. 1 O-RING Ø123.5mm HEAD EXTERNAL DIAM	- 13mm SOCKET T TYPE
9.	**REMOVE CYLINDER** (see Fig.20).	 **Fig.20**
10.	**REMOVE CYLINDER GASKET**.	
11.	**REMOVE CIRCLIPS FROM PISTON** (see Fig.21) ***ATTENTION:*** ***DO NOT SCRATCH PISTON OR CIRCLIP SEATS.***	-SCREWDRIVER WITH ROUNDED EDGES  **Fig.21**
12.	**REMOVE PISTON PIN, PISTON AND CAGE** USING THE PISTON PIN PUNCH (see Fig. 22).	PISTON PIN PUNCH P.N. 10200  **Fig.22**

13.

OPENING THE CRANKCASE:

-**REMOVE 7 FIXING SCREWS**
(see Fig.23)
4 SCREWS M6X40
3 SCREWS M6X50

-**OPEN THE CRANKCASE** (USING A PLASTIC MALLET)
AVOID CRANKSHAFT FROM FALLING.

- 5mm ALLEN
- PLASTIC MALLET

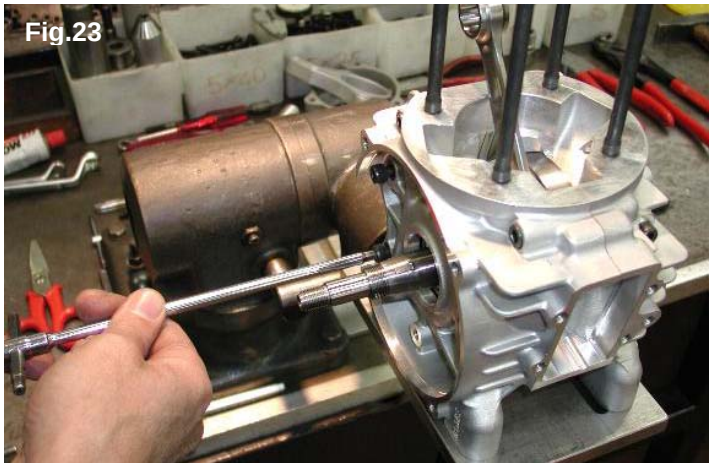


Fig.23

- **REMOVE OIL SEALS**, USE A SCREWDRIVER (see Fig.24)

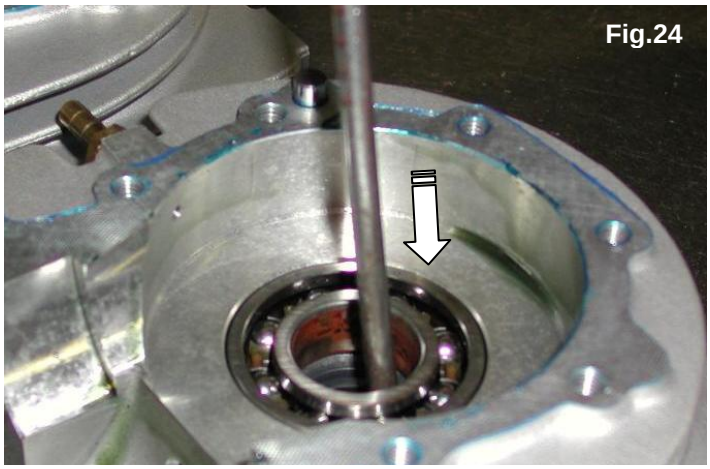


Fig.24

-**REMOVE BEARINGS** (if necessary)
HEAT HALFCRANKCASES AT 70°
OR USE PRESS AND SPECIAL PUSHER AS PER DRAW. S725/1 (see Fig.25).

-**REMOVE SHIMS.**

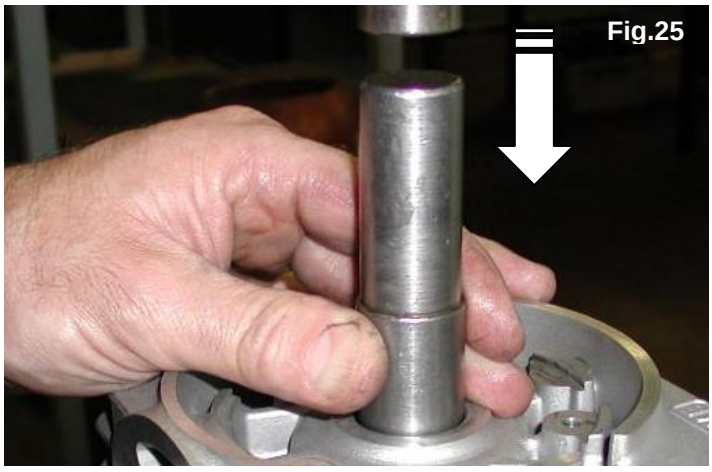


Fig.25

14.

OPEN CRANKSHAFT ONLY WITH SPECIAL TOOL.

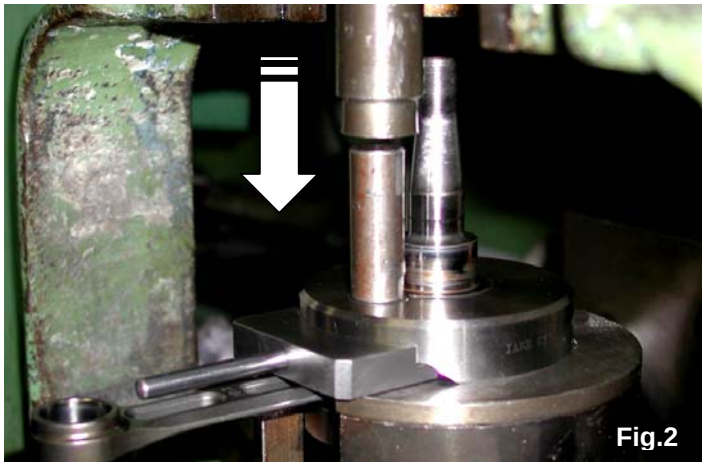
ATTENTION:
THIS OPERATION CAN BE PERFORMED ONLY BY AN AUTHORIZED SERVICE CENTER.

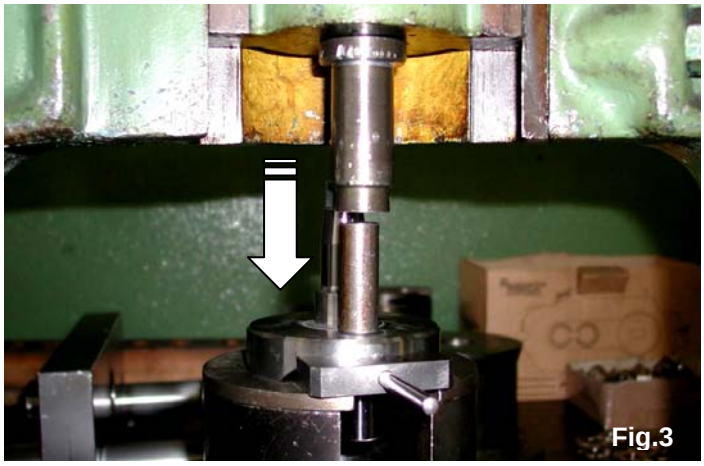
2 – ENGINE CRANKSHAFT DISASSEMBLY/ASSEMBLY

ATTENTION:
THE DISASSEMBLY/ASSEMBLY OPERATIONS ON THE ENGINE CRANKSHAFT, MUST BE PERFORMED ONLY BY AN AUTHORIZED SERVICE CENTER USING THE SPECIALLY DESIGNED TOOLS. USE OF UNFITTED TOOLS OR OPERATIONS PERFORMED BY UNSKILLED PERSONNEL MAY DAMAGE THE CRANKSHAFT BEYOND REPAIR.

TOOLS DESCRIPTION	LEOPARD 125cc P.N.
CRANKSHAFT ASSEMBLY KIT	10110-C
CRANKPIN BUSH (INCLUDED IN 10110-C)	10150
CRANKSHAFT DISASSEMBLY KIT INCLUDES	10100-C2
- CRANKSHAFT SUPPORT/ DISASSEMBLY TOOL	10100
- CRANKSHAFT PLATE / DISASSEMBLY TOOL	10104
- CRANKSHAFT INSERT	10106
- CRANKPIN PUSHER	10107

2.1 – CRANKSHAFT DISASSEMBLY OPERATIONS

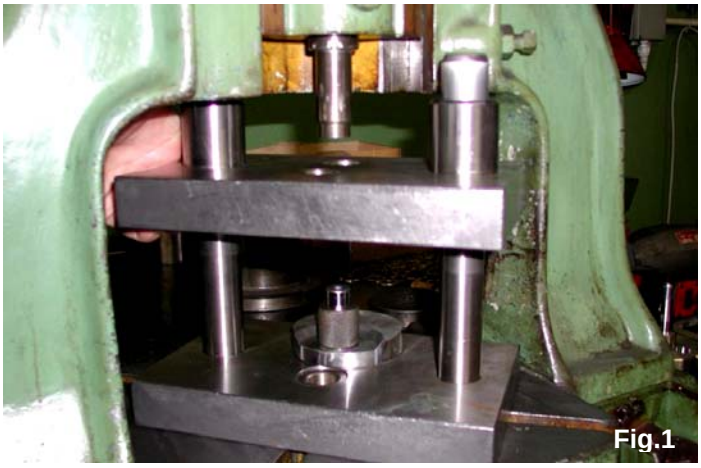
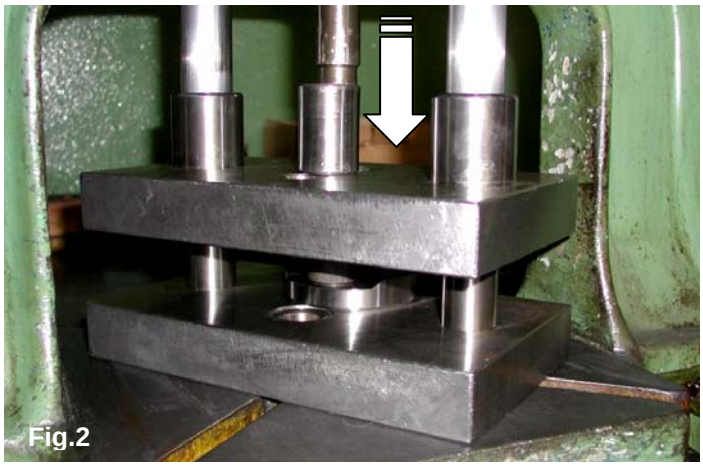
	OPERATIONS	TOOLS REQUIRED
1.	**PLACE THE DISASSEMBLY TOOL UNDER THE PRESS.**	- 5 MeT PRESS DISASSEMBLY KIT P.N. 10100-C2
2.	**PLACE THE CRANKSHAFT IN THE TOOL** INSERTING THE CRANKSHAFT PLATE (P.N. 10104) BETWEEN THE CRANKSHAFT HALVES (see Fig.1).	 **Fig.1**
3.	**INSERT THE CRANKSHAFT INSERT** (P.N. 10106) AND USING THE CRANKPIN PUSHER (P.N.10107) PRESS THE CRANKPIN OUT (see Fig.2).	 **Fig.2**

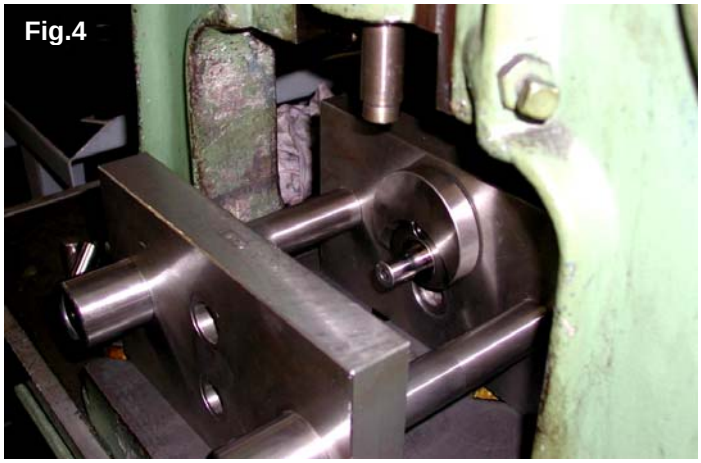
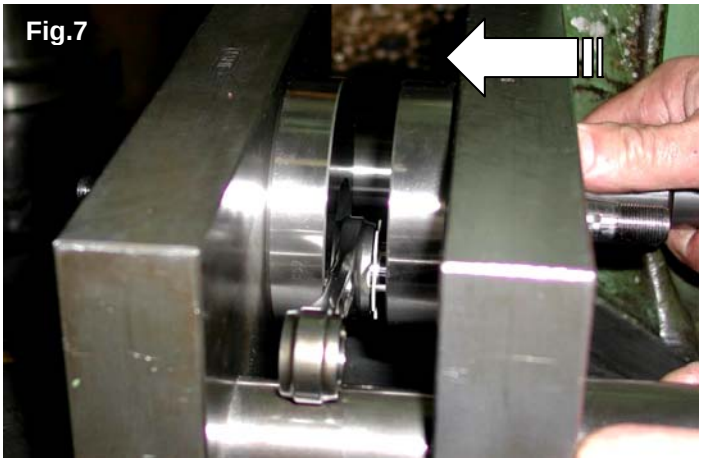
4.	**DISASSEMBLE THE COMPLETE CONROD WITH WASHERS.** REPEAT THE OPERATIONS TO EXTRACT THE CRANKPIN FROM THE OTHER HALF CRANKSHAFT (see Fig.3).	 **Fig.3**

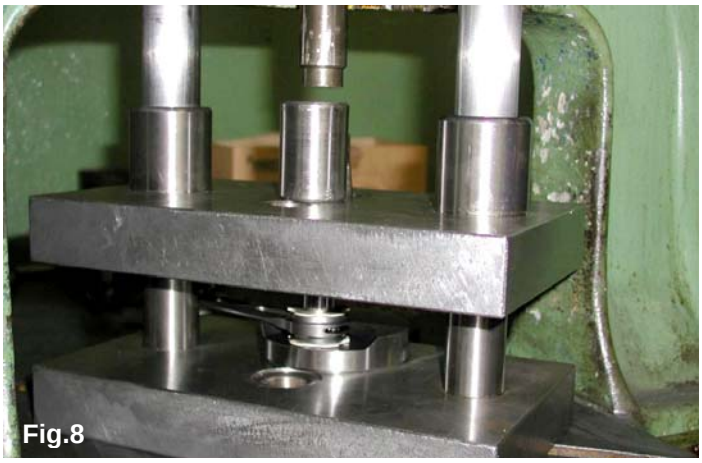
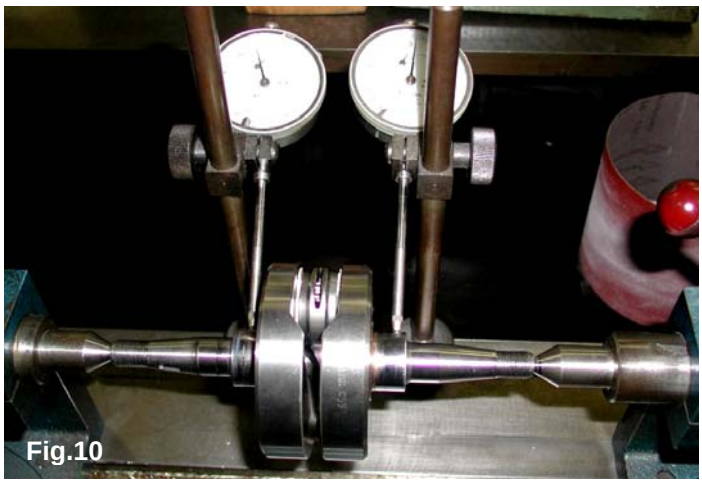
BEFORE REASSEMBLING, WASH ALL PARTS WITH KEROSENE

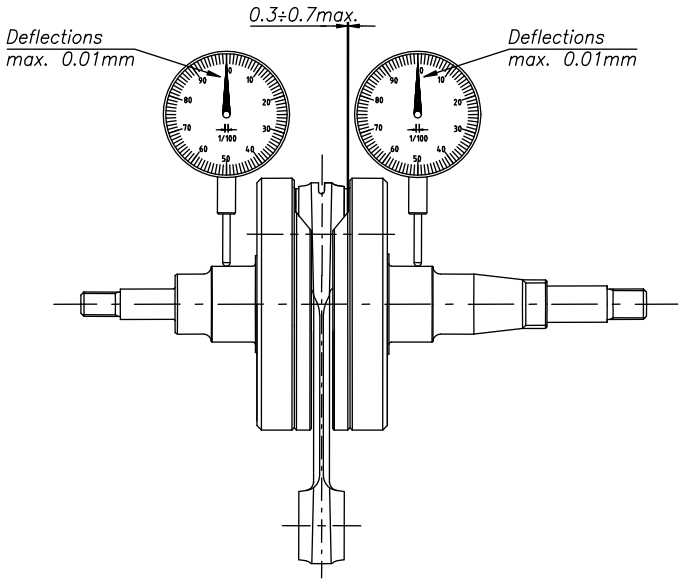
	a) CHECK STATUS OF CONROD-TOP AND BOTTOM . **IF OVALIZATION EXCEEDS 0.01mm. REPLACE CONROD**	-0.01 CENTESIMAL MICROMETER (21/50) -0.001 BORE GAUGE WITH CHECK RING Ø 24 AND Ø18 DIAM.
	b) CHECK STATUS OF CRANKPIN VISUAL CHECK – <u>REPLACE IF NECESSARY BUT ALWAYS AFTER MAX. 4 WORKING HRS.</u>	
	c) CHECK STATUS OF ROLLER CAGE (BIG END) VISUAL CHECK – <u>REPLACE IF NECESSARY BUT ALWAYS AFTER MAX 4 WORKING HRS.</u>	
	d) CHECK STATUS OF CRANKSHAFT HALVES. **<u>REPLACE IF BEARING SEAT IS BELOW 0.030 VS. NEW.</u>**	
	e) CHECK STATUS OF SILVER WASHERS VISUAL CHECK – <u>REPLACE IF NECESSARY.</u>	
	FOLLOW ATTACHED TABLE FOR MAX. MATCHING PLAY FOR CON-ROD, CRANKPIN, CAGE	

2.2 – CRANKSHAFT ASSEMBLY OPERATIONS

	OPERATION	TOOLS REQUIRED
1.	**PLACE THE CRANKSHAFT ASSEMBLY TOOL (**P.N. 10110-C) **UNDER THE PRESS**, **VERTICALLY.**	- 5 MeT PRESS -CRANKSHAFT ASSEMBLY KIT (P.N. 10110-C)
2.	**PLACE THE CRANKSHAFT HALF INTO THE ASSEMBLY TOOL.**	
3.	**OIL CRANKPIN AND CRANKPIN HOLE ON CRANKSHAFT HALF.**	
4.	**PLACE CRANKPIN WITH CRANKPIN BUSH** (P.N. 10150) **ON CRANKSHAFT HALF** (see Fig.1).	 **Fig.1**
5.	**BRING UPPER PLATE OF TOOL IN CONTACT WITH CRANKPIN** (see Fig.2).	 **Fig.2**
6.	**PROGRESSIVELY PRESS UNTIL CRANKPIN IS COMPLETELY DRIVEN IN** (see Fig.3).	 **Fig.3**

7.	**EXTRACT BUSH FROM CRANKPIN AND PUT TOOL IN HORIZONTAL POSITION** (see.Fig.4).	 **Fig.4**
8.	**INSERT ON CRANKPIN:** **(OIL CRANKPIN)** -SILVER WASHER -CON-ROD WITH ROLLER CAGE -SILVER WASHER (see Fig.5) ***ATTENTION:*** ***ROLLERS ARE FREE IN THE CAGE.*** ***PREVENT ROLLERS FROM FALLING FROM THE CAGE WHEN INSERTING ON CRANKPIN.***	 **Fig.5**
9.	**PLACE SECOND CRANKSHAFT HALF IN THE SEAT OF THE COUNTERPLATE** (see Fig.6).	 **Fig.6**
10.	**BRING THE TWO PLATES CLOSE UNTIL THE TOOL IS HAND PRESSED** (see Fig.7).	 **Fig.7**

11.	**OIL CRANKPIN AND CRANKPIN HOLE ON CRANKSHAFT HALF.**	
12.	**PUT TOOL IN VERTICAL POSITION** (see Fig. 8).	 **Fig.8**
13.	**PROGRESSIVELY PRESS THE TWO CRANKSHAFT HALVES TOGETHER.**	
14.	**OPEN THE TOOL. PUT IT IN HORIZONTAL POSITION AND EXTRACT THE CRANKSHAFT.**	
15.	**CHECK THE AXIAL PLAY** OF THE CONROD (see Fig.9). IT MUST BE MIN.**. 0.3mm / MAX. 0.7mm.** **IF PLAY IS HIGHER OR LOWER, REBUILD THE CRANKSHAFT.**	 **Fig.9**
	AFTER ASSEMBLING THE CRANKSHAFT, IT MUST BE ALIGNED. IF NOT, EXCESSIVE VIBRATION, HARD STARTING OR POOR ACCELERATION WILL RESULT.	
a.	**PLACE THE CRANKSHAFT BETWEEN THE CENTERS WITH DIAL INDICATORS READING ON FRONT AND REAR BEARING JOURNALS** (see Fig.10).	- CENTERS WITH DIAL GAUGES - COPPER HAMMER  **Fig.10**

b.	**ROTATE CRANKSHAFT AND LOOK AT DEFLECTION OF GAUGE NEEDLES. THE DEFLECTION MUST BE, AFTER CENTERING, MAX. 0.01mm** (see drawing).	
c.	**ADJUST ALIGNMENT WITH COPPER HAMMER**, **IF NECESSARY** (see Fig.11).	

3 – LEOPARD 125cc ENGINE ASSEMBLY

BEFORE REASSEMBLING, WASH ALL PARTS WITH KEROSENE

	OPERATIONS	REQUIRED TOOLS
1.	**CRANKCASE REASSEMBLY:**	
	a) CHECK STATUS OF CRANKCASE BEARINGS. VISUAL CHECK. **REPLACE AFTER 5 HRS MAX.**	
	b) PLACE CRANKSHAFT HALVES UNDER PRESS (OR HEAT CRANKCASE HALF AT 70°C).	
	c) INSERT BEARING SHIMS (see Fig.1).	

d) **INSERT BEARINGS –** BALLS TO BE ON UPPER SIDE AND VISIBLE DURING THE ASSEMBLY .
USE TOOL AS PER DRAWING S725/1 (see Fig.2/3).

-SPECIAL TOOL AS PER DRAWING S725/1

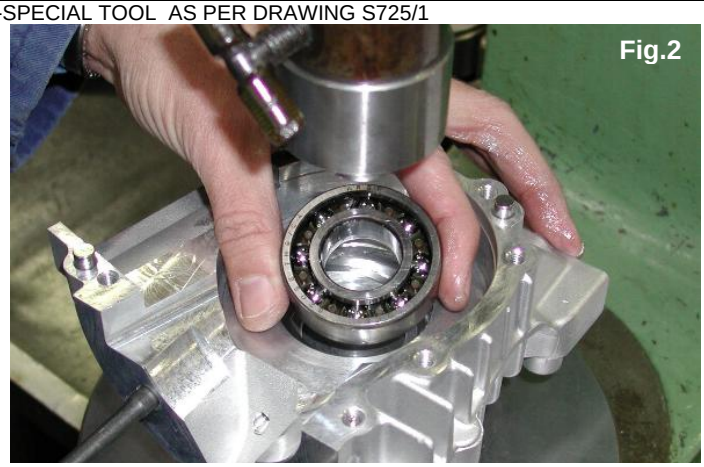


Fig.2

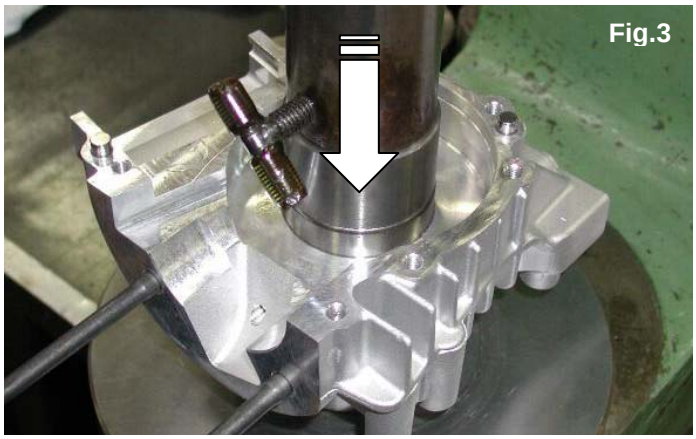


Fig.3

e) **INSERT CRANKSHAFT** AFTER OILING THE CRANKSHAFT SEAT IN THE CRANKCASE – CRANKSHAFT MUST BE IN SAME POSITION AS IN ORIGINAL INSTALLATION (see Fig.4)

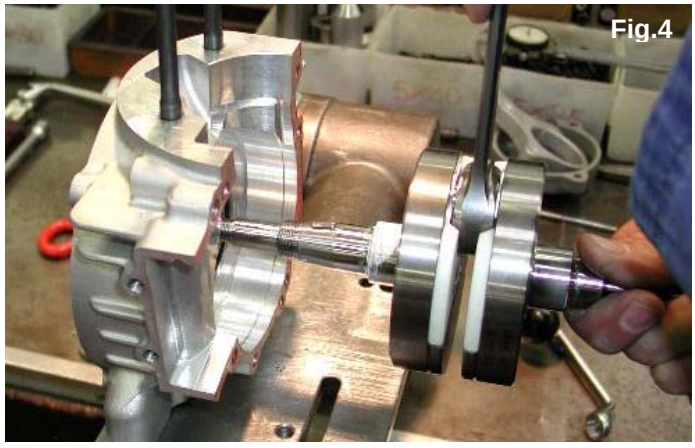


Fig.4

f) **ASSEMBLE CRANKCASE** (see Fig.5).
-n°4 SCREWS M6X40
-n°3 SCREWS M6X50

CROSS PATTERN ASSEMBLY
TORQUE AT 10 Nm MAX.

- 5mm ALLEN – (SEE DRAWING)

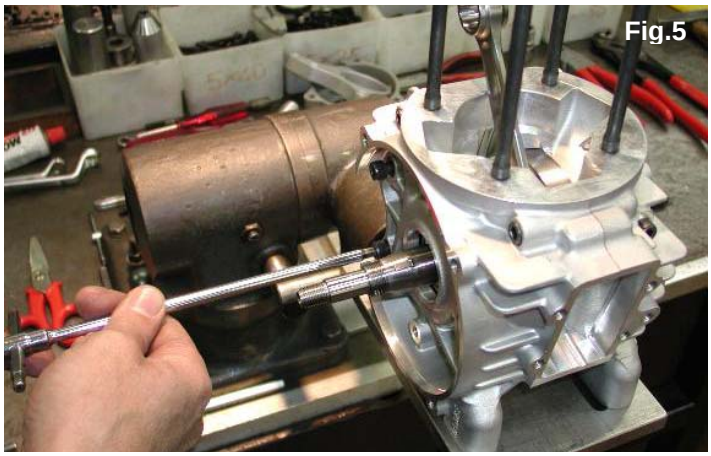


Fig.5

ATTENTION:
AS FIRST STEP ASSEMBLE CRANKCASE WITH 4 SCREWS ONLY AND CHECK CRANKSHAFT AXIAL PLAY (see Fig.6) TO BE 0.20 ±0.05mm. IF LOWER OR HIGHER DISASSEMBLE THE CRANKCASE, EXTRACT THE BEARINGS AND USE DIFFERENT STEEL SHIMS (0.10/0.15/0.20) TO RECOVER PLAY. SHIMS MUST BE EQUALLY POSITIONED.

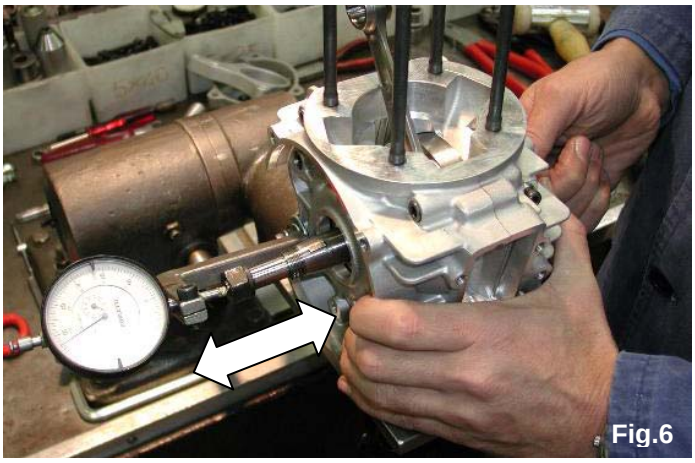


Fig.6

ONCE THE CORRECT PLAY IS ACHIEVED, **DISASSEMBLE THE CRANKCASE AND APPLY FLUID GASKET** (Motorseal or equivalent) ON CRANKCASE HALVES AFTER CAREFULLY CLEANING THE SURFACES WITH DILUENT. BE CAREFUL TO CLEAN EVENTUAL EXCESS OF PRODUCT (see Fig.7).

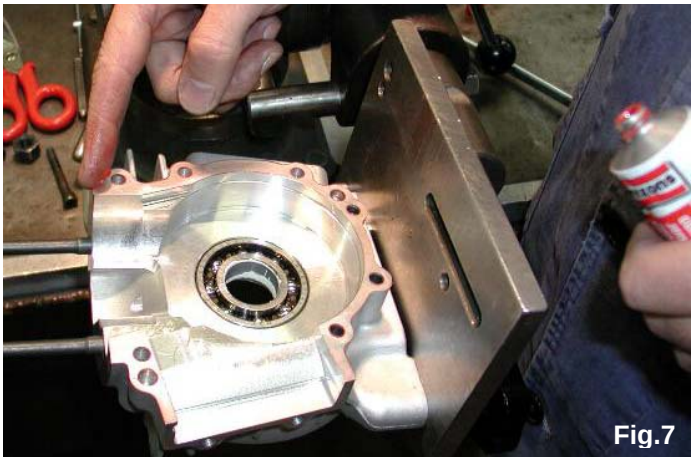


Fig.7

OIL CRANKSHAFT SEAT BEFORE INSERTION (see Fig.8).

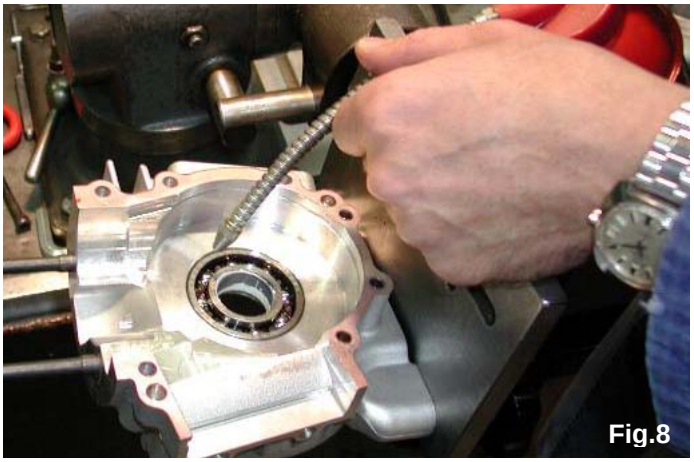


Fig.8

2. **APPLY SPECIAL LUBRICANT ON OIL SEAL LIPS AND INSERT OIL SEALS** (MARK ON SEAL TO BE OUTSIDE) (see Fig. 9).

-SPECIAL TOOL AS PER DRAWING S725/1


Fig.9

INSTALL THE OIL SEALS BY MEANS OF THE TOOL – DRAW S725/1 (see Fig.10).

ATTENTION:
THE OIL SEAL MUST BE REPLACED AFTER MAX. 4 HRS AND ALWAYS WHEN DISASSEMBLED.

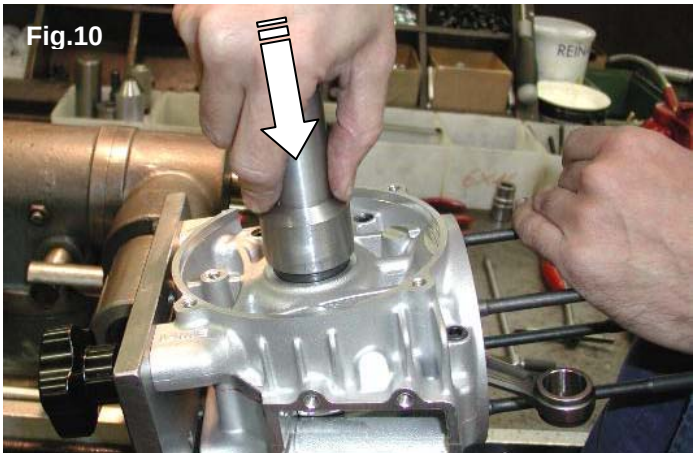


Fig.10

3. **INSTALL PISTON**

a) **CHECK STATUS OF ROLLER CAGE.** CAGE MUST BE REPLACED EVERY 4 HRS.

b) **CHECK STATUS OF PISTON PIN**. PISTON PIN MUST BE REPLACED WHEN REPLACING PISTON.
SEE ATTACHMENT ON MATCHING SELECTIONS.


Fig.11

c) **INSTALL RING ON THE PISTON.**

ATTENTION:
CHECK FIRST THE PISTON RING END GAP USING A THICKNESS GAUGE.
MEASURE THE END GAP OF THE PISTON RING WHEN INSERTED IN THE CYLINDER GAP SHOULD BE 0.25 ÷ 0.30mm (see Fig.12) .
REPLACE THE PISTON RING IF THE END GAP EXCEEDS 0.4mm.


Fig.12

d) **INSTALL PISTON.**

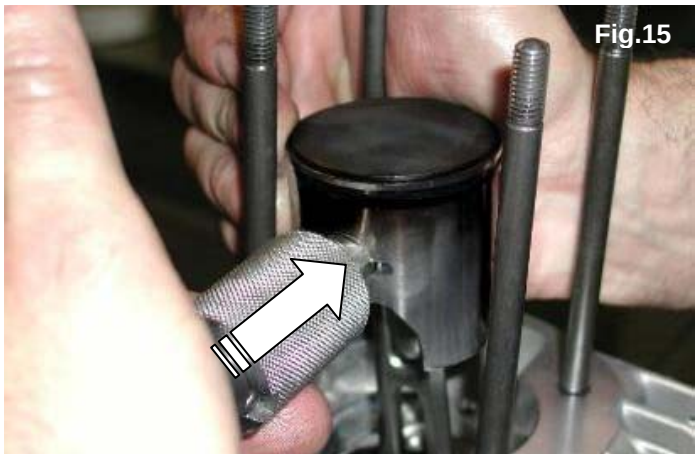
ATTENTION:
PLAY BETWEEN PISTON AND LINER MUST BE 0.11 / 0.12mm.
IF PLAY IS HIGHER THAN 0.14mm REPLACE PISTON.

FOLLOW ATTACHED INSTRUCTIONS FOR CORRECT MATCHING,
PISTONS ARE MEASURED AT 17.5mm FROM THE BOTTOM OF THE PISTON (see attachment).
ALWAYS REPLACE PISTON COMPLETE WITH RING.


Fig.13

e) **MATCH PISTON, WRISTPIN, CAGE FOLLOWING THE PLAYS SHOWN ON THE ATTACHMENT AND INSERT PIN AND CAGE ON PISTON.**

MAKE SURE THAT ARROW ON TOP OF PISTON IS TOWARDS EXHAUST.
AS A GENERAL RULE WRISTPIN MUST BE FORCED IN HOLE. IF WRISTPIN IS LOOSE , REPLACE IT WITH A HIGHER DIAMETER PIN.

	f) **POSITION CIRCLIP ON TOOL**. GREASE TOOL TO KEEP CIRCLIP IN PLACE (see fig,14). g) **INSERT CIRCLIP** (see Fig.15). CHECK THAT CIRCLIPS ARE IN SEAT.	- SPECIAL TOOL P.N. 10120  Fig.14  Fig.15
4.	**INSTALL A NEW CYLINDER GASKET.**	
5.	**INSTALL CYLINDER.** HAVE FIRST A VISUAL CHECK (see Fig.16). OIL CYLINDER AND PISTON.	 Fig.16
6.	**CHECK STATUS OF CYLINDER HEAD, CLEAN FROM DEPOSITS**. **DO NOT SCRATCH COMBUSTION CHAMBER**.	
7.	**INSTALL HEAD:** 4 O-RINGS Ø7.65mm ON STUDS 1 O-RING Ø60mm HEAD INTERNAL DIAM. 1 O-RING Ø123.5mm HEAD EXTERNAL DIAM. 4 NUTS M8 WITH WASHERS CROSS PATTERN ASSEMBLY TORQUE AT 18 Nm	- 13mm SOCKET T TYPE

BEFORE ASSEMBLING THE CLUTCH, WASH WITH DILUENT THE SHAFT TAPER, THE CONNECTING HOLE ON THE CLUTCH BODY. THE CLUTCH DRUM AND STARTER RING.

8.

INSTALL THE CLUTCH

a) **INSTALL THE STARTER RING ON THE CLUTCH BODY** BY MATCHING THE 3 HOLES AND THE DRAGGING PIN (3 SCREWS M6).
TORQUE AT 10 Nm AND APPLY LOCTITE ON THREADS (see Fig.17/18).

ATTENTION:
MAKE SURE TO ALWAYS INSTALL THE Ø 7 DRAGGING PIN , AS OTHERWISE, THE EVENTUAL KICKBACKS COULD BREAK THE SCREWS.

- 10mm SOCKET-DYNAMOMETRIC


Fig.17


Fig.18

b) **INSERT KEY ON SHAFT** (see Fig.19).


Fig.19

c) **INSTALL THE CLUTCH BODY AND CONE SAFETY WASHER** (see Fig.20).

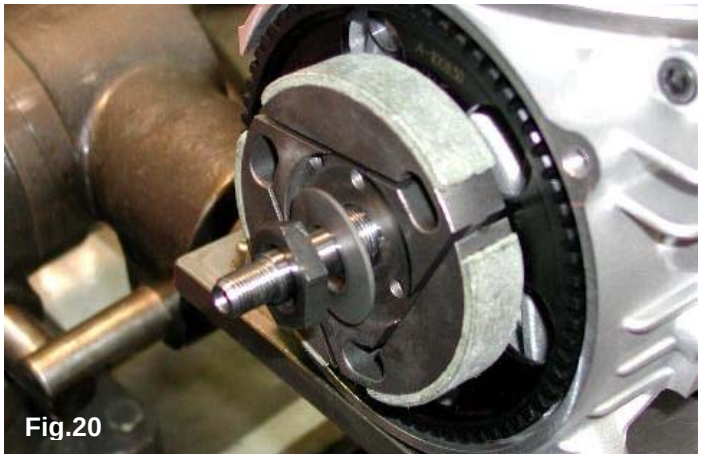


Fig.20

d) **INSTALL THE 16x1 NUT** USING THE CLUTCH WRENCH (see Fig.21). TORQUE AT 40÷50 Nm.

ATTENTION:
TURN COUNTERCLOCKWISE AS NUT HAS LEFT THREAD.

-LOCK WRENCH: P.N. 10270
-HEXAGON RING WRENCH 24mm

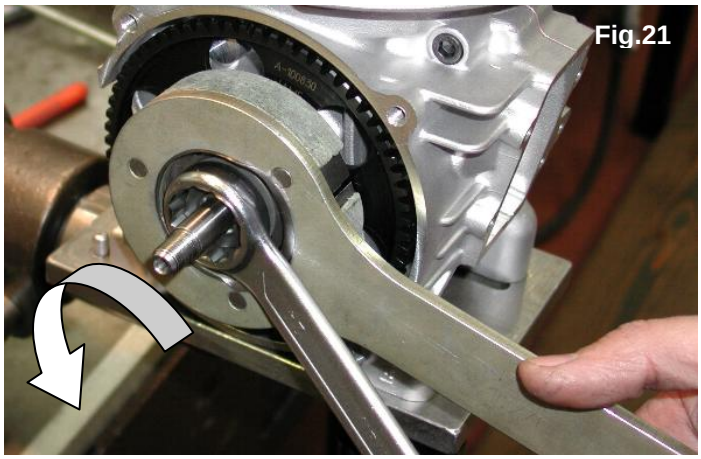


Fig.21

e) **INSTALL THE INNER WASHER** (see Fig.22).

ATTENTION:
INSTALL WASHER WITH BEVEL TOWARDS INTERNAL PART OF ENGINE.

CLEAN ROLLER CAGE AND GREASE IT BEFORE INSTALLING ON THE CRANKSHAFT (see Fig.23).


Fig.22


Fig.23

f) **INSTALL THE CLUTCH DRUM AND EXTERNAL WASHER**. (see Fig.24).

ATTENTION:
INSTALL WASHER WITH BEVEL TOWARDS SHAFT.


Fig.24

g) **INSTALL THE PISTON FITTING**
ROTATE CRANKSHAFT UP TO TDC SO THAT CRANKSHAFT DOES NOT ROTATE.

INSTALL 1Omm NUT (see Fig.26).
TORQUE AT 30 ÷ 40 Nm.

- PISTON FITTING: P.N. 10271
- 17mm SOCKET

h) **INSTALL CLUTCH COVER**
3 SCREWS M6 (see Fig.27).
TORQUE AT 8÷10 Nm,

- 5mm ALLEN

9.

<u>INSTALL THE IGNITION:</u>

a) INSTALL PISTON FITTING ON HEAD.

- PISTON FITTING: P.N. 10271

b) INSERT KEY ON SHAFT
(see Fig.28).


Fig.28

c) INSTALL IGNITION ROTOR ON SHAFT
(WITH TIMING PLATE TOWARDS THE EXTERNAL) (see Fig.29).

INSTALL THE KNURLED WASHER AND THE SELF LOCKING NUT M8.
(see Fig.30).
TORQUE AT 18÷22 Nm.

- 13mm SOCKET


Fig.29


Fig.30

d) INSTALL STATOR
4 SCREWS M5X25 (see Fig.31).

- 4mm ALLEN

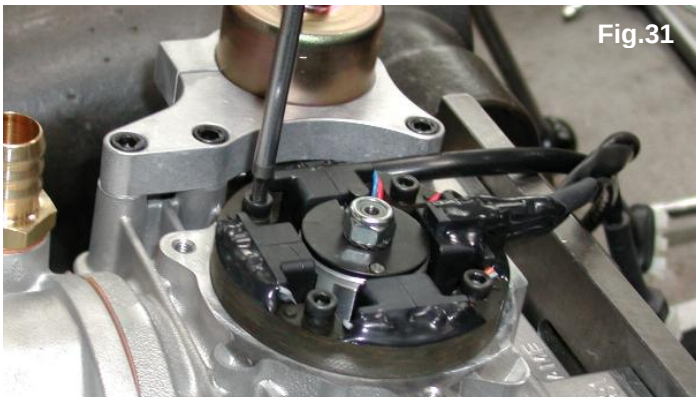
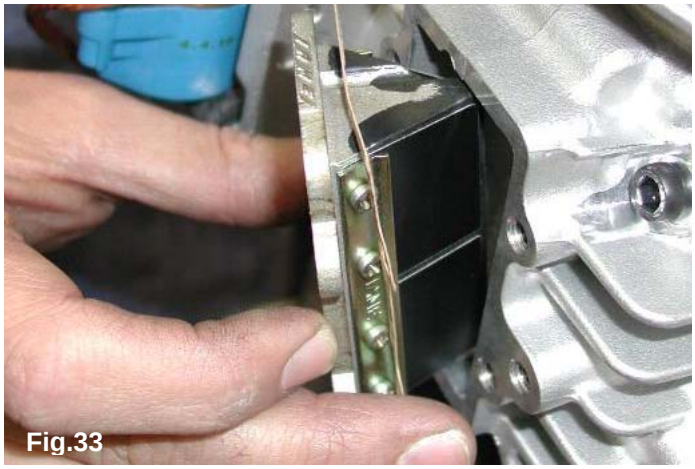
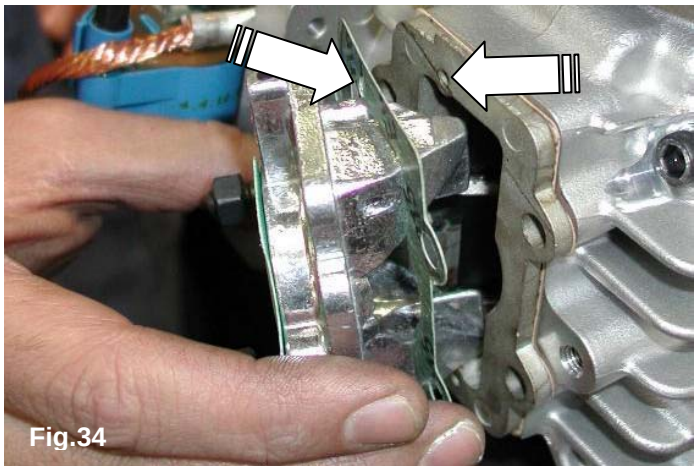
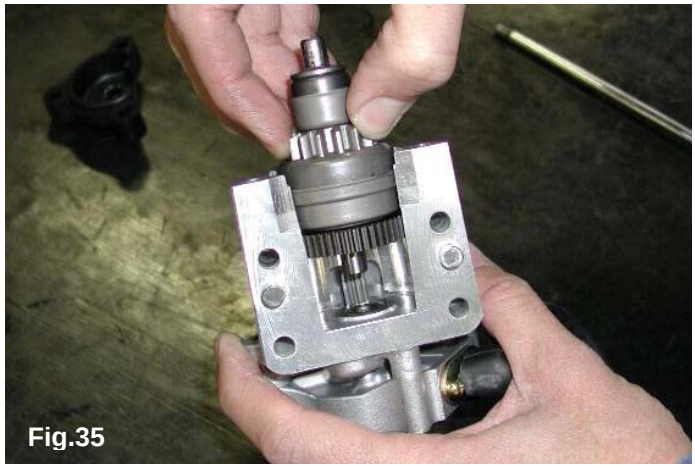


Fig.31

	e) **INSTALL IGNITION COVER** 3 SCREWS M6X18 (see Fig.32).	- 5mm ALLEN  Fig.32
10.	**INSTALL THE REED PACK:** **a)** **INSTALL THE INNER GASKET.** **b)** **INSTALL REED PACK** (WITH "IAME" ON THE TOP) (see Fig.33). ***ATTENTION:*** ***FIRST CHECK STATUS OF REED PETALS. REPLACE IF PETALS ARE CRACKED OR, IF LOOKING WITH BACK LIGHT, THE PETALS DO NOT SHUT PERFECTLY, LOOSEN THE 8 SCREWS AND INSERT PETALS WITH BOTTOM CUT TOWARDS RIGHT).***	 Fig.33
	c) **INSTALL OUTER GASKET** .MAKE SURE THAT HOLE ON GASKET MATCHES WITH CARBURETOR PRESSURE HOLE ON REED PACK. **d)** **INSTALL CARB. MANIFOLD** 4 SCREWS M6X25 WITH WASHERS (see Fig.34).	- 4mm ALLEN  Fig.34
11.	**INSTALL THE STARTER ASSEMBLY:** **a)** **INSTALL STARTER COUNTERSHAFT** IN THE STARTER SUPPORT. (see Fig.35).	 Fig.35

- 5mm ALLEN

b) INSTALL THE COUNTERSHAFT SUPPORT
3 SCREWS M6X25 (see Fig.36).


Fig.36

c) **INSTALL STARTER**. OIL THE “OR” AND PRESS THE STARTER IN SEAT. MAKE SURE THAT GEARS ENGAGE.
3 SCREWS M6X35 (see Fig.37).


Fig.37

d) INSTALL THE STARTER ASSEMBLY ON ENGINE.
4 SCREWS M6X45 (see Fig.38).

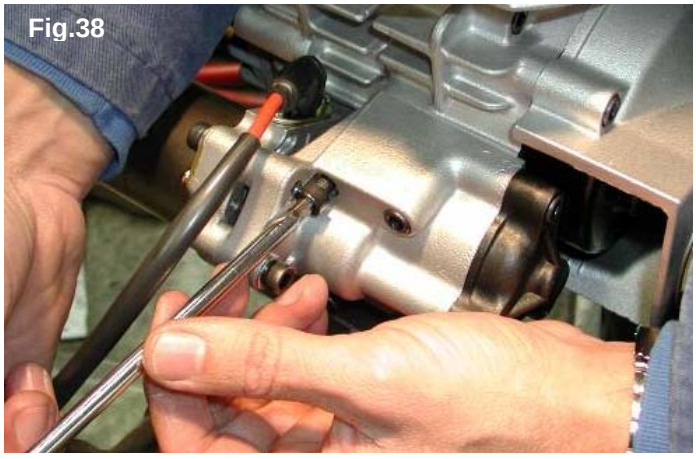


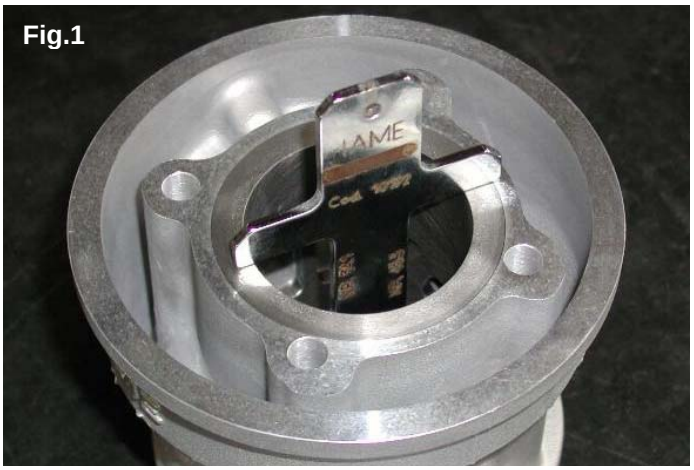
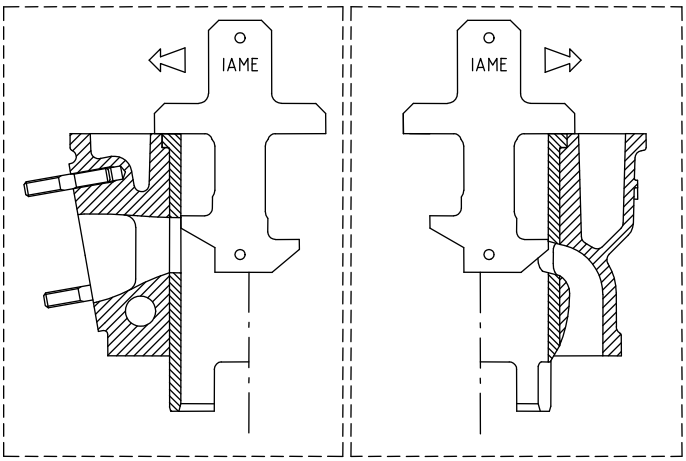
Fig.38

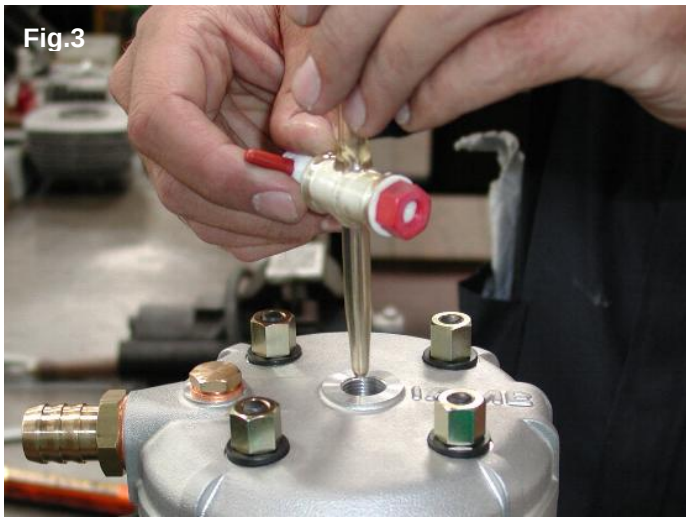
e) INSTALL THE STARTER SUPPORT
3 SCREWS M6X25 (see Fig.39).


Fig.39

	f) **TORQUE THE FIXING SCREW** 1 SCREW M6X30 (seeFig.40).	- 5mm ALLEN **Fig.40** 

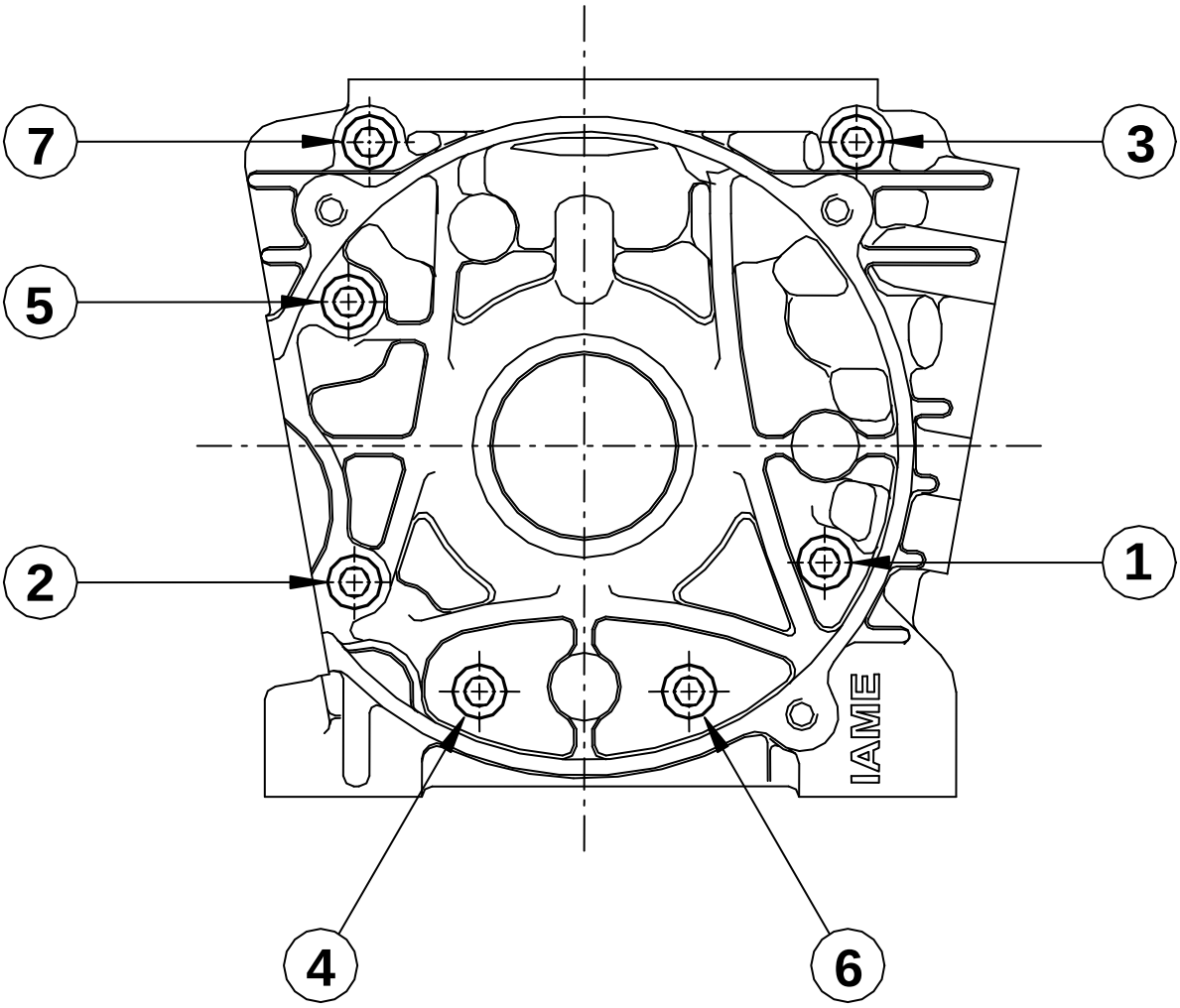
4 – CHECK CYLINDER TIMING AND COMBUSTION CHAMBER VOLUME

1.	**CHECK THE TIMING:** **REMOVE HEAD** CLEAN THE CYLINDER.	- SPECIAL TOOL : P.N. 10192 **Fig.1** 
2.	**INSERT SPECIFIC TOOL** (P.N.10192) FROM TOP. (see Fig.1).	
3.	**THE GAUGE IS "NO GO " BOTH ON THE EXHAUST AND ON THE INLET SIDE.** (see drawing).	
1.	**CHECK THE COMBUSTION CHAMBER VOLUME** **REMOVE THE HEAD** AND CLEAN THE COMBUSTION CHAMBER FROM OIL DEPOSITS WITHOUT SCRATCHING IT.	-GRADUATED BURET -VOLUMETER P.N. 10277

2.	**PLACE HEAD** ON SPECIFIC TOOL (P.N. 10277) INSERT WASHERS AND NUTS M8. TORQUE NUTS BY HAND (see Fig.2).	 Fig.2
3.	**PLACE THE GRADUATED BURET** FILLED WITH GASOLINE (60% GASOLINE / 40% OIL).	
4.	**FILL THE COMBUSTION CHAMBER** UP TO UPPER EDGE OF SPARKPLUG HOLE (see Fig.3).	 Fig.3
5.	**READ GRADUATED BURET.**	

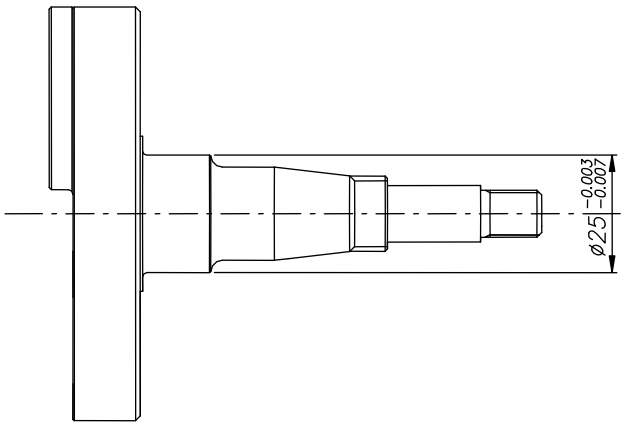
FASTENER TORQUE VALUES (LEOPARD 125cc ENGINE)					
NOMINAL SIZE	Q.TY	FASTENER NAME	WRENCH	VALUES(Nm)	VALUES(in•lb)
M14 x 1.25	1	Spark plug	Hex.20.8	20 – 26	175 – 230
M8 x 1.25	4	Head and cylinder nut	Hex. 13	18 – 22	160 – 190
M6 x 1	3	Exhaust nut	Hex. 10	9 – 11	80 – 100
M6 x 1	4	Reed group screw	Allen 5	8 – 10	70 – 90
M6 x 1	2	Carburetor attach. nut	Hex. 10	6 – 10	50 – 90
M5 x 0.8	2	Air filter screw	Allen 4	5 – 6	45 – 50
M5 x 0.8	2	Coil attach. screw	Allen 4	5 – 6	45 – 50
M6 x 1	3	Ignition cover screw	Allen 5	8 – 10	70 – 90
M5 x 0.8	4	Ignition stator fixing screw	Allen 4	5 – 6	45 – 50
M8 x 1.25	1	Ignition rotor fixing nut	Hex. 13	18 – 22	160 – 190
M6 x 1	4	Starter support fixing screw	Allen 5	8 – 10	70 – 90
M6 x 1	3	Counter shaft support screw	Allen 5	6 – 8	50 – 70
M6 x 1	3	Starter attach. screw	Allen 5	8 – 10	70 – 90
M6 x 1	3	Clutch cover attach. screw	Allen 5	8 – 10	70 – 90
M10 x 1	1	Clutch drum holding nut	Hex. 17	30 – 40	265 – 350
M16 x 1	1	Clutch fixing nut	Hex. 24	40 – 50	350 – 440
M5 x 0.8	3	Engine sprocket fixing screw	Allen 3	6 – 8	50 – 70
M6 x 1	3	Starter ring fixing screw	Hex. 10	9 – 11	80 – 100
M6 x 1	7	Crankcase fixing screw	Allen 5	8 – 10	70 – 90
M6 x 1	3	Add. starter supp. fix. screw	Allen 5	8 – 10	70 – 90
M6 x 1	1	Additional supp. locking screw	Allen 5	8 – 10	70 – 90

CROSS PATTERN LOCKING ORDER ON CRANKCASE



MAIN PRESCRIPTIONS

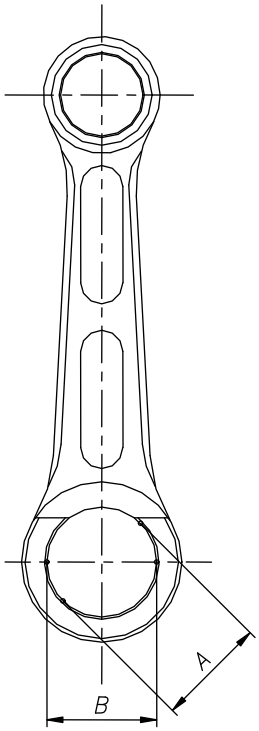
ENGINE CRANKSHAFT



- bearing seat diameter on new engine

replace when size is lower than 0.03mm vs. original.

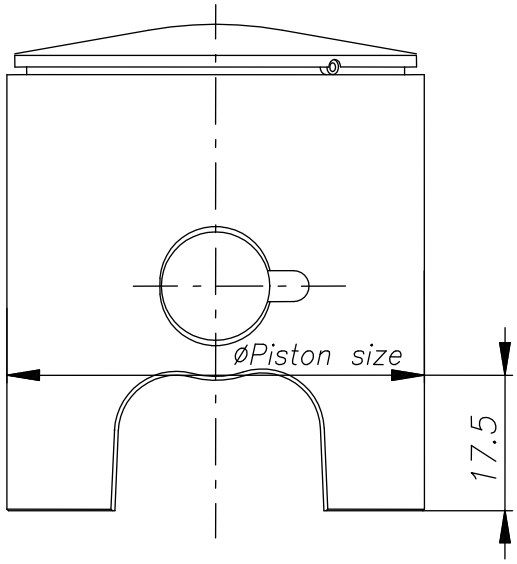
MAX ALLOWED OVALIZATION ON CONROD



Max. allowed ovalization between A and B on new conrod: 0.002mm

Max. allowed ovalization between A and B on used conrod: 0.01mm

MATCHING THE PISTON



ATTENTION:
play between piston and liner must be: 0.11 / 0.12mm.

If play is higher than 0.14mm. Replace piston.

Pistons are measured at 17.5mm from bottom.

Size of the liner to be matched with piston is marked on top of piston with a green or red dot or with letter V (green) or R (red).

If the size on piston top is marked with :

-**a green dot or with letter V**: add 0.01mm to size marked on the piston to match the liner size .

-**a red dot or with letter R**: add 0.02mm to size marked on the piston to match the liner size.

BIG END CONROD BEARING MATCHING PLAY

CONROD HOLE	ø CRANKPIN	ø ROLLERS	PLAY	
			MIN.	MAX.
$24^{+0.014}_{+0.018}$	$18^{-0.004}_{-0.008}$	$3^{-0.004}_{-0.006}$	0.026	0.038

SMALL END CONROD BEARING MATCHING PLAY

CONROD HOLE	ø PISTON PIN			ø ROLLERS	PLAY	
	RED	WHITE	YELLOW		MIN.	MAX.
$18^{+0.014}_{+0.018}$	$14^{+0.002}_{0}$			$2^{0}_{-0.002}$	0.012	0.022
		$14^{0}_{-0.002}$			0.014	0.024
			$14^{-0.002}_{-0.004}$		0.016	0.026

OVERHAUL TOOL LIST

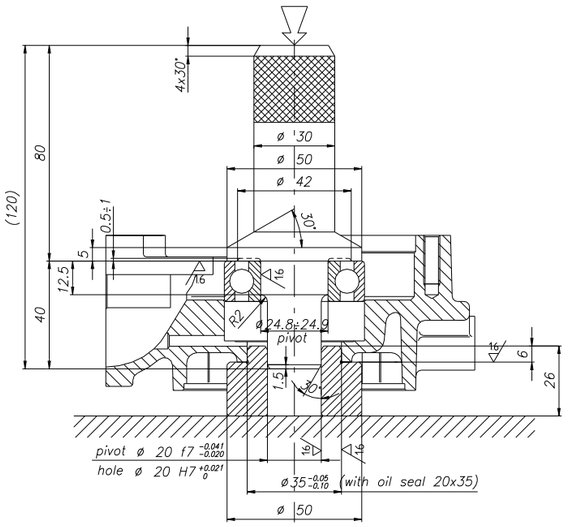
SPECIFIC TOOLS AVAILABLE AT IAME

DESCRIPTION	P.N.
• PISTON FITTING	10271
• CLUTCH LOCKING WRENCH	10270
• CLUTCH DISSASSEMBLY TOOL	B-55614-C
• PISTON PIN FITTING	10200
• PISTON CIRCLIP ASSEMBLY TOOL	10120
• CRANKSHAFT ASSEMBLY KIT	10110-C
it includes:	
- crankpin bush	10150
• KIT CRANKSHAFT DISASSEMBLY KIT	10100-C2
it includes:	
- *Crankshaft plate*	10104
- *Crankshaft support*	10100
- *Crankpin pusher*	10107
- *crankshaft insert*	10106
• TIMING CHECK TOOL	10192
• VOLUMETER	10277

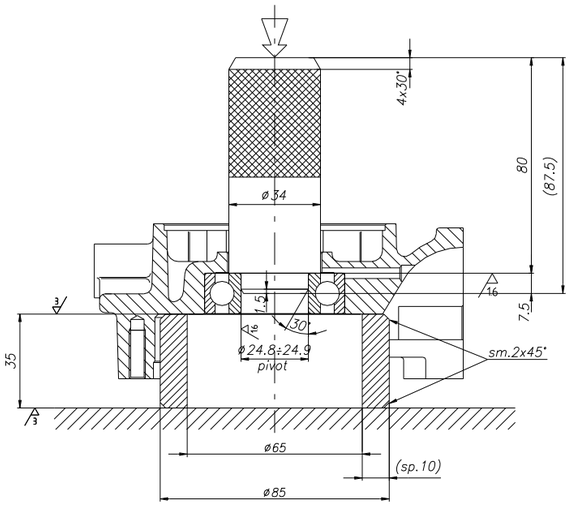
SPECIFIC TOOLS – DRAWINGS ONLY – Draw. S725/1

- ENGINE FIXING TOOL
- BEARING DISASSEMBLY TOOL
- BEARING ASSEMBLY TOOL
- CIRCLIP ASSEMBLY TOOL

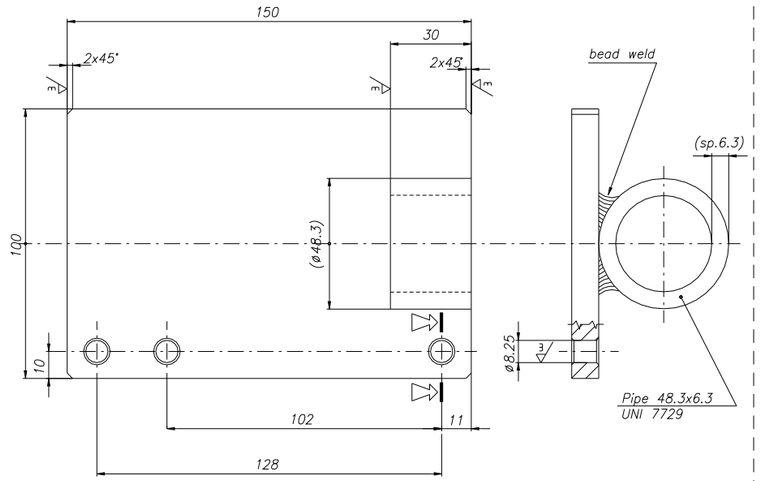
STANDARD TOOLS	
• ALLEN WRENCH	4mm
• ALLEN WRENCH	5mm
• HEXAGON RING WRENCH	13mm
• 12 POINT WRENCH	10mm
• 12 POINT WRENCH	13mm
• 12 POINT WRENCH	17mm
• 12 POINT WRENCH	19mm
• HEXAGON RING WRENCH	24mm
• SPARKPLUG WRENCH	20.8mm
• SCREWDRIVER WITH ROUNDED EDGES	
• PLASTIC MALLET	
• SOCKET TYPE-DYNAMOMETRIC	13mm/10mm
- 5 MeT PRESS	

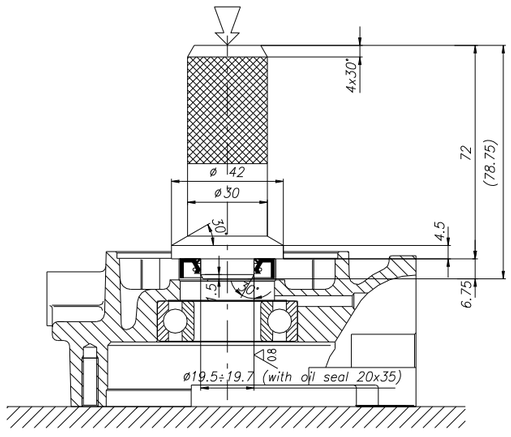


BEARING ASSEMBLY TOOL (Steel C16 cmt. tmp.)

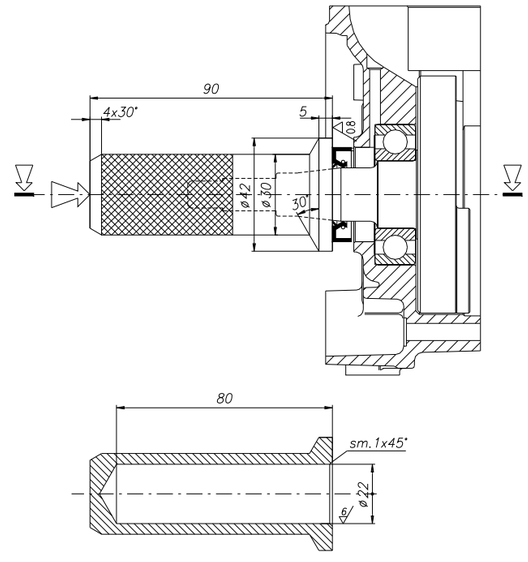


BEARING DISASSEMBLY TOOL (Steel C16 cmt. tmp.)

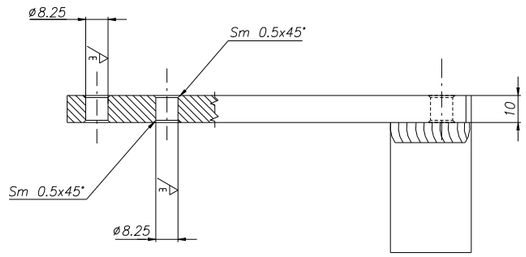




OIL SEAL ASSEMBLY TOOL WITH (Steel C16 UNI 5331)
DISASSEMBLED CRANKSHAFT



OIL SEAL ASSEMBLY TOOL WITH (Steel C16 UNI 5331)
INSTALLED CRANKSHAFT



ENGINE FIXING TOOL ON "VICE" (Steel Fe 50 UNI 5332)

Drawing **S725/1**