IAME

Parilla

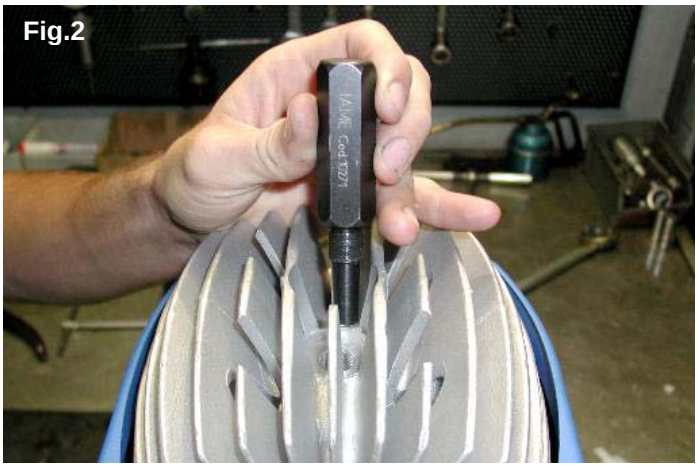
60cc BABY & MINI SWIFT - TaG

ENGINE OVERHAULING MANUAL

INDEX

ATTACHMENTS

1 – ENGINE DISASSEMBLY

	OPERATION	TOOLS REQUIRED
1.	**INSERT TWO SCREWS M8X60 ON THE CRANKCASE** TO POSITION MOTOR ON THE BENCH.	VICE ON BENCH (tool as per draw. S725/3)
2.	**REMOVE CLUTCH:** **-REMOVE CLUTCH COVER** 3 SCREWS M6 (See Fig.1). (5mm ALLEN T TYPE)	Fig.1 
	-**REMOVE SPARKPLUG** AND INSTALL SPECIAL PISTON FITTING SO THAT CRANKSHAFT DOES NOT ROTATE. (see Fig.2). (PISTON FITTING: P.N. 10271).	Fig.2 
	-**REMOVE THE FIXING NUT** (M10). (see Fig.3). -**REMOVE OUTER WASHER, CLUTCH DRUM WITH ROLLER CAGE AND INNER WASHER.** (12 POINT WRENCH - 17mm)	Fig.3 

- REMOVE PISTON FITTING AND USING CLUTCH WRENCH REMOVE THE FIXING NUT.
(see Fig.4)

(CLUTCH WRENCH: P.N. 10270)
(12 POINT WRENCH - 24mm)

ATTENTION:
TURN CLOCKWISE AS NUT HAS LEFT THREAD.

-REMOVE SAFETY WASHER.

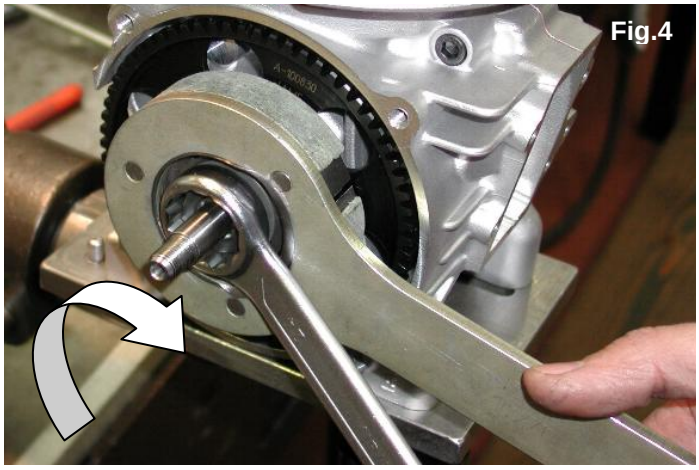


Fig.4

-REMOVE CLUTCH FROM THE CRANKSHAFT USING THE CLUTCH DISASSEMBLY TOOL
(see Fig.5).

(CLUTCH DISASSEMBLY TOOL :
P.N. B-55614-C)
(12 POINT WRENCH - 19mm)

-REMOVE KEY FROM SHAFT SEAT.


Fig.5

-REMOVE STARTER RING FROM CLUTCH.

3 SCREWS M6 (see Fig.6).

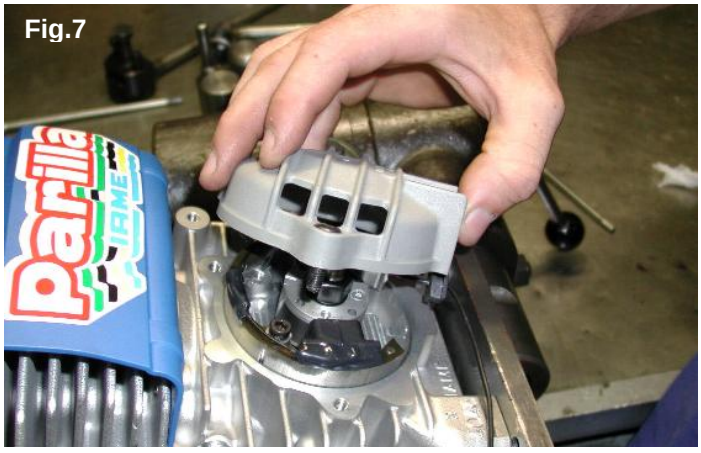
(12 POINT WRENCH - 10mm).


Fig.6

3. **REMOVE THE IGNITION:**

-**REMOVE THE IGNITION COVER**
3 SCREWS M6X18 (see Fig.7).

(4mm ALLEN T -TYPE)



4. **REMOVE THE IGNITION:**

-**REMOVE STATOR .**
2 SCREWS M5X25 (see Fig.8).

(5mm ALLEN T TYPE)

-INSTALL PISTON FITTING AND REMOVE NUT WITH WASHER.

(PISTON FITTING : P.N. 10271)
(12 POINT WRENCH - 17mm)

-**REMOVE ROTOR** (see Fig.9).

-REMOVE KEY FROM CRANKSHAFT SEAT.


Fig.8

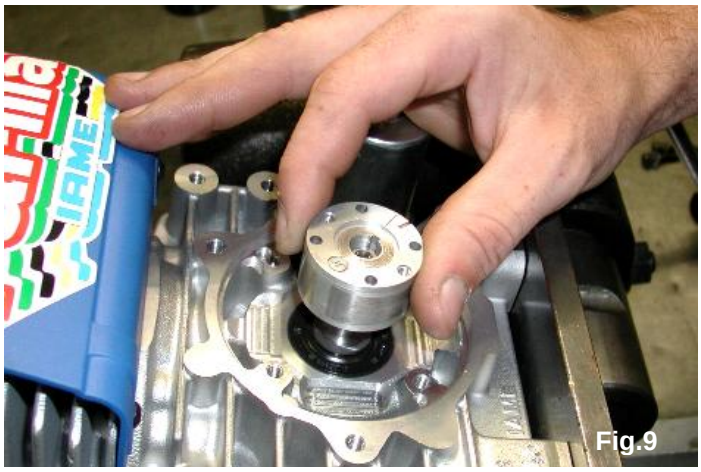


Fig.9

5. **REMOVE STARTER GROUP**
4 SCREWS M6X45 (see Fig.10).

(5mm ALLEN T TYPE)

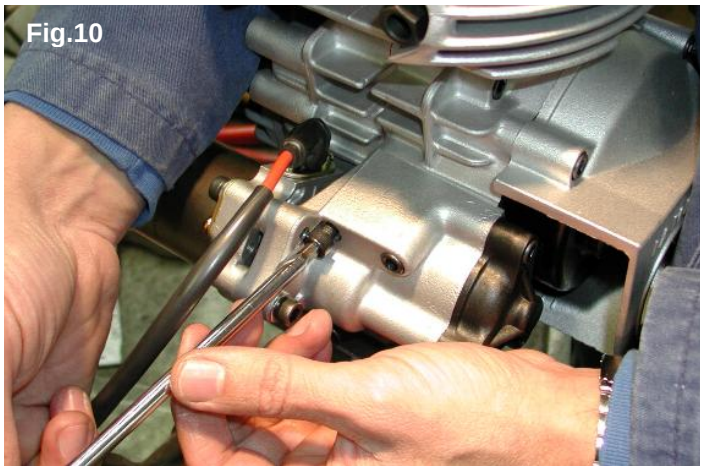


Fig.10

-**REMOVE STARTER** FROM SUPPORT.

1 SCREW M6X16
1 SCREW M6X20 (see Fig.11/12).

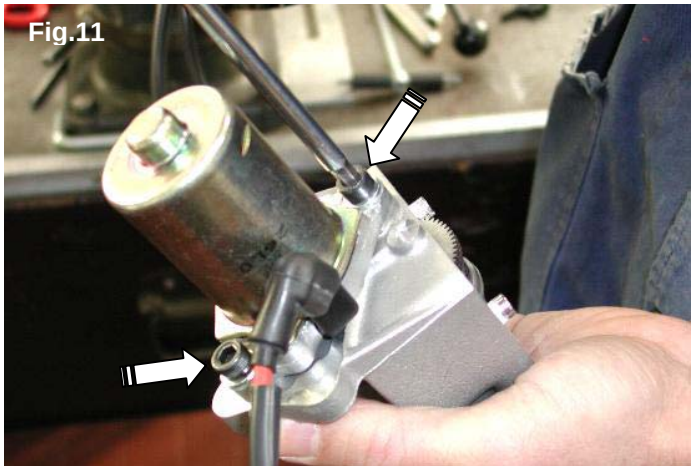
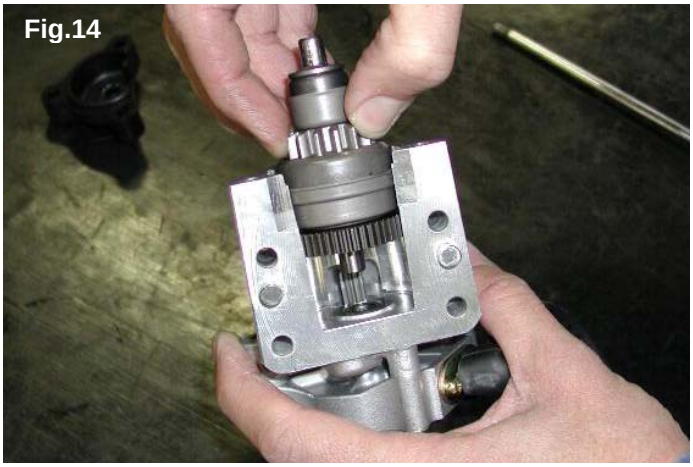
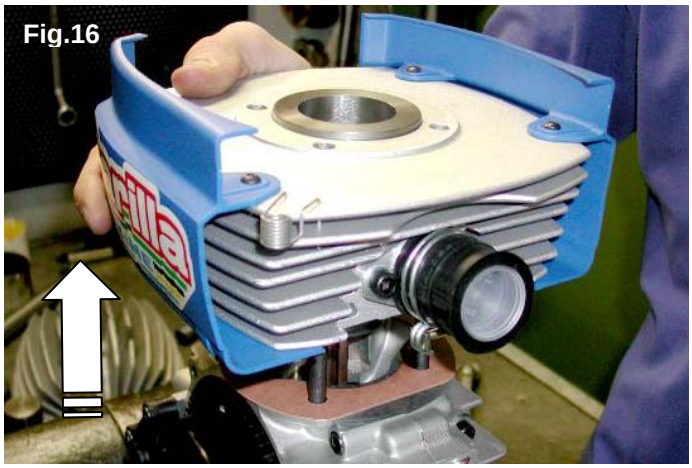
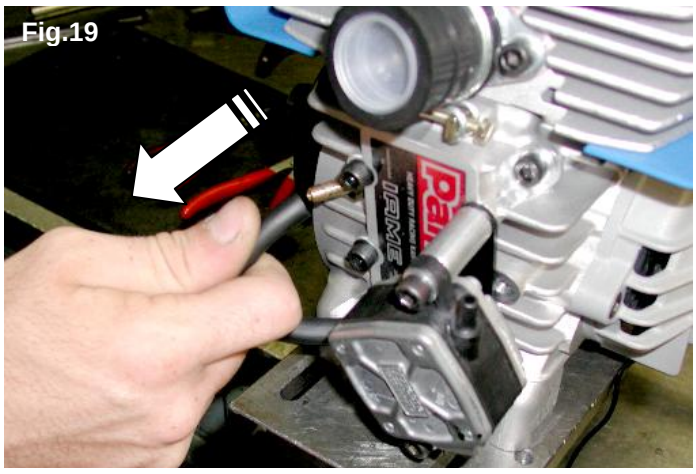


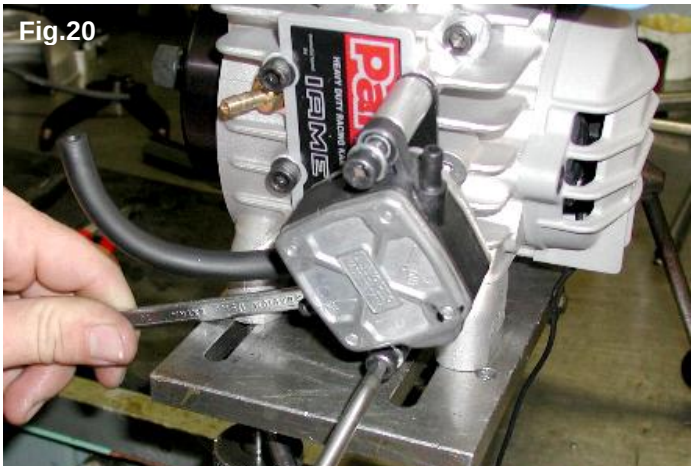
Fig.11

	-**REMOVE THE COUNTERSHAFT SUPPORT COVER .** 3 SCREWS M6X20 (see Fig.13). -**EXTRACT THE COUNTERSHAFT FROM THE SUPPORT**. (see Fig.14).	 **Fig.12**  **Fig.13**  **Fig.14**
6.	**<u>REMOVE THE HEAD :</u>** -**LOOSEN NUTS BY ½ TURN (CROSS PATTERN DISASSEMBLY) AND THEN REMOVE** (see Fig.15). 4 NUTS M8 4 WASHERS (13mm SOCKET T- TYPE)	 **Fig.15**

7.	**<u>REMOVE CYLINDER</u>** (see Fig.16). REMOVE CYLINDER GASKET.	 Fig.16
8.	**<u>REMOVE CIRCLIPS FROM PISTON</u>** (see Fig.17) (SCREWDRIVER WITH ROUND EDGES) ***<u>ATTENTION:</u>*** ***<u>DO NOT SCRATCH PISTON OR CIRCLIP SEATS.</u>***	 Fig.17
9.	**REMOVE PISTON PIN, PISTON AND ROLLER CAGE** USING THE PISTON PIN PUNCH (see Fig.18). (PISTON PIN PUNCH: P.N. 10202)	 Fig.18
10.	**<u>REMOVE THE FUEL PUMP</u>** DISCONNECT THE INTAKE PIPE FROM THE THE CRANKCASE FITTING (see Fig.19).	 Fig.19

REMOVE THE PUMP FIXING SCREWS
(see Fig.20).
2 SCREWS M6X45
1 NUT M6

(5mm ALLEN T TYPE)
(6 POINT WRENCH - 10mm)



11. **<u>OPENING THE CRANKCASE:</u>**

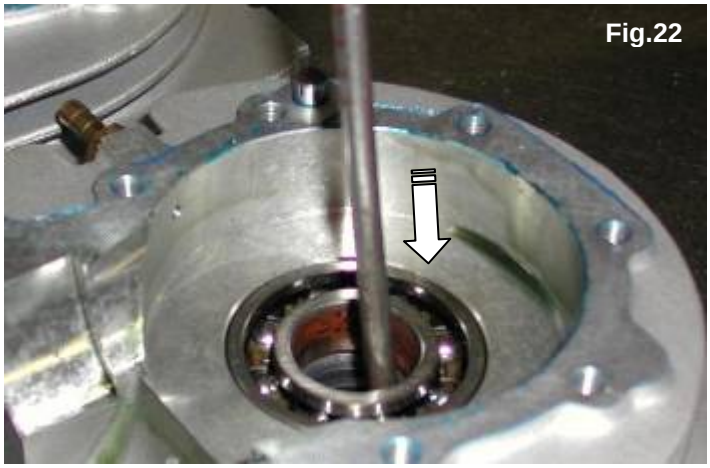
-**REMOVE 7 FIXING SCREWS**
(see Fig.21).
4 SCREWS M6X40
3 SCREWS M6X50

(5mm ALLEN T TYPE)
(PLASTIC MALLET)

-**OPEN THE CRANKCASE** (USING A PLASTIC MALLET).

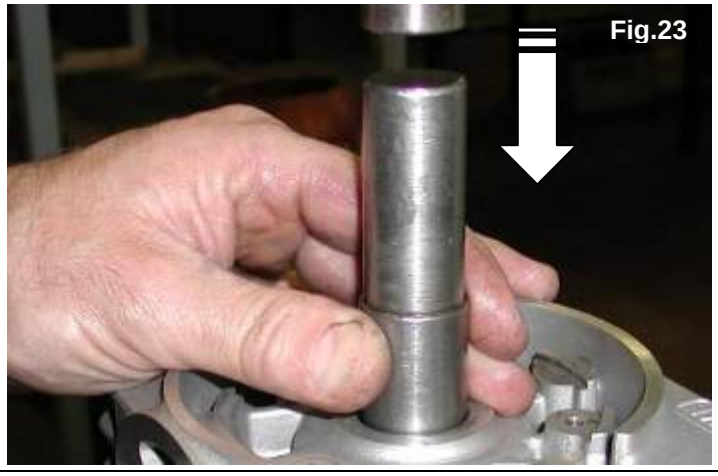
(AVOID CRANKSHAFT FROM FALLING).

-**REMOVE OIL SEALS**
USING A SCREWDRIVER (see Fig.22).



- REMOVE BEARINGS (IF NECESSARY)
HEAT HALFCRANKCASES AT 70°C
(see Fig. 23).
USE TOOL AS PER DRAW. S725/3.

-**REMOVE SHIMS.**



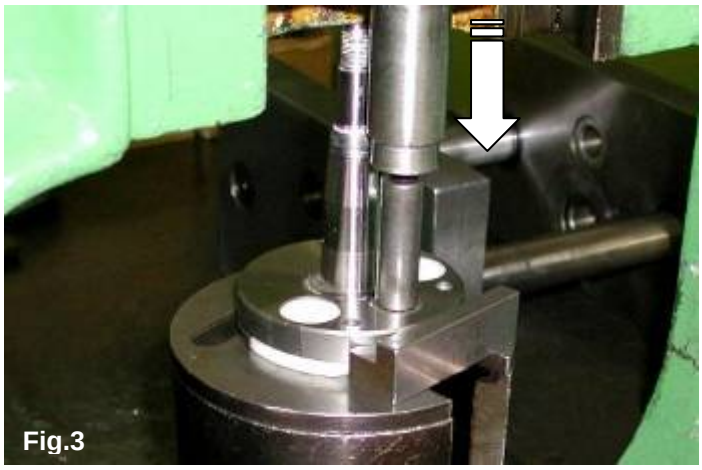
2 – CRANKSHAFT ASSEMBLY/DISASSEMBLY

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

TOOLS DESCRIPTION	P.N.
CRANKSHAFT ASSEMBLY KIT	10110-C
CRANKPIN BUSH (IN 10110-C)	10150
CRANKSHAFT DISASSEMBLY KIT:	10100-C3
CRANKSHAFT SUPPORT	10100
CRANKSHAFT PLATE (60cc)	10103
CRANKSHAFT INSERT (60cc)	10108
CRANKPIN PUSHER	10107

2.1 – CRANKSHAFT DISASSEMBLY

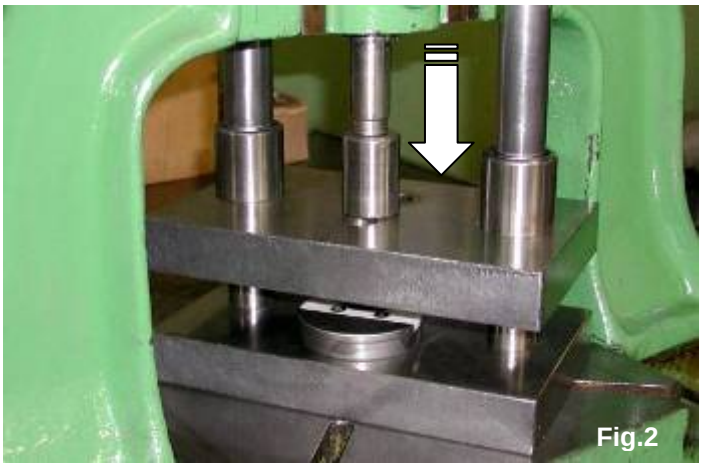
	OPERATIONS	TOOLS
1.	**PLACE THE DISASSEMBLY TOOL** (P.N. 10100-C3) UNDER THE PRESS.	- 5 MeT PRESS - CRANKSHAFT DISASSEMBLY KIT
2.	**PLACE THE CRANKSHAFT IN THE TOOL** INSERTING THE CRANKSHAFT PLATE (P.N. 10103) BETWEEN THE CRANKSHAFT HALVES (see Fig.1).	 Fig.1
3.	**INSERT THE CRANKSHAFT INSERT 60cc** (P.N. 10108) AND USING THE CRANKPIN PUSHER (P.N. 10107) PRESS THE CRANKPIN OUT (see Fig.2).	 Fig.2

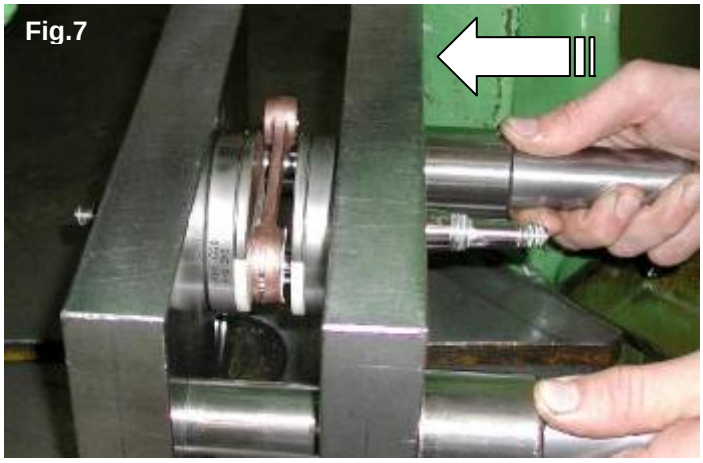
4.	**DISASSEMBLE THE CON-ROD WITH WASHERS.** REPEAT THE OPERATIONS TO EXTRACT THE CRANKPIN FROM THE OTHER HALF CRANKSHAFT (see Fig.3).	 **Fig.3**

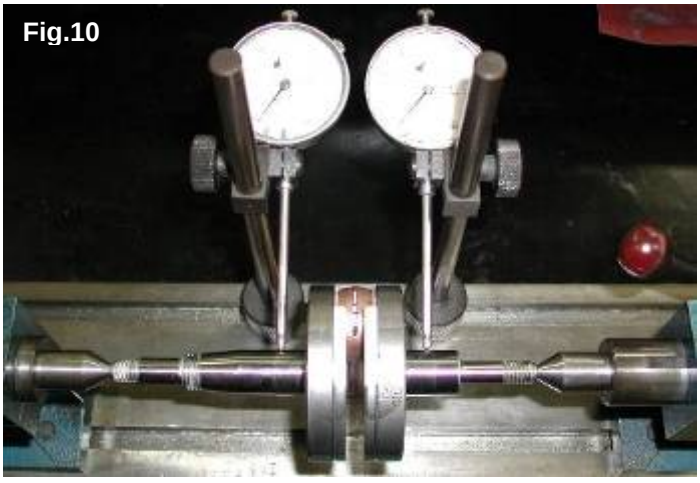
BEFORE REASSEMBLING, WASH ALL PARTS WITH KEROSENE

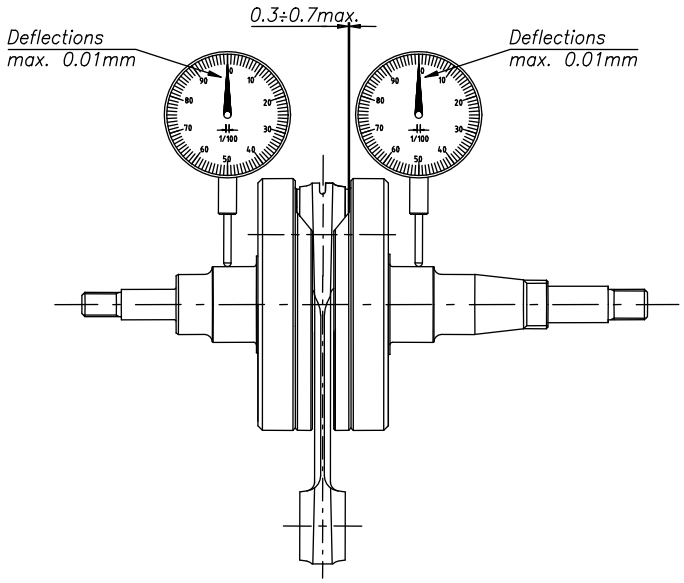
	a) CHECK STATUS OF CON-ROD (TOP AND BOTTOM) . **IF OVALIZATION EXCEEDS 0.01mm, REPLACE CON-ROD.**	**-CENTESIMAL MICROMETER (21/50)** **-BORE GAUGE WITH CHECK RING Ø24 and Ø16**
	b) CHECK STATUS OF CRANKPIN. **VISUAL CHECK – <u>REPLACE IF NECESSARY BUT ALWAYS AFTER MAX. 8 HRS WORKING .</u>**	
	c) CHECK STATUS OF ROLLER CAGE (BIG END) VISUAL CHECK – <u>REPLACE IF NECESSARY BUT ALWAYS AFTER MAX. 8 HRS WORKING.</u>	
	d) CHECK STATUS OF CRANKSHAFT HALVES. **<u>REPLACE IF BEARING SEAT IS BELOW 0.03mm VS NEW.</u>**	
	FOLLOW ATTACHED TABLE FOR MATCHING PLAYS	

2.2 – CRANKSHAFT ASSEMBLY

	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 CRANPKIN (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):** -CONROD WITH ROLLER CAGE AND WASHERS (see Fig.5). ***ATTENTION:*** ***ROLLERS ARE FREE IN THE CAGE.*** ***PREVENT ROLLERS FROM FALLING,*** ***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 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 VIBRATIONS, HARD STARTING OR POOR ACCELERATION WILL RESULT.	
a.	**PLACE CRANKSHAFT BETWEEN THE CENTERS**, WITH DIAL INDICATORS READING ON FRONT AND REAR BEARING JOURNALS. (see Fig.10).	-CENTERS WITH CENTESIMAL DIAL GAUGES -COPPER HAMMER FOR ALIGNMENT  Fig.10

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

3 – ENGINE ASSEMBLING

BEFORE REASSEMBLING, WASH ALL THE PARTS WITH KEROSENE

	OPERATION	TOOLS REQUIRED
1.	**CRANKCASE REASSEMBLY:**	
	a) CHECK STATUS OF CRANKCASE BEARING. VISUAL CHECK. **REPLACE AFTER 6 HRS MAX.**	 Fig.1
	b) PLACE CRANKCASE HALVES UNDER THE PRESS (OR HEAT CRANKCASE HALF AT 70°C).	
	c) INSERT BEARING SHIMS (see Fig.1).	

d) **INSERT BALL-BEARINGS** TO BE ON UPPER SIDE AND OIL WHEN ASSEMBLING .
USE TOOL AS PER DRAWING S725/3 (see Fig.2/3).

-SPECIAL TOOL AS PER DRAW. S725/3


Fig.2

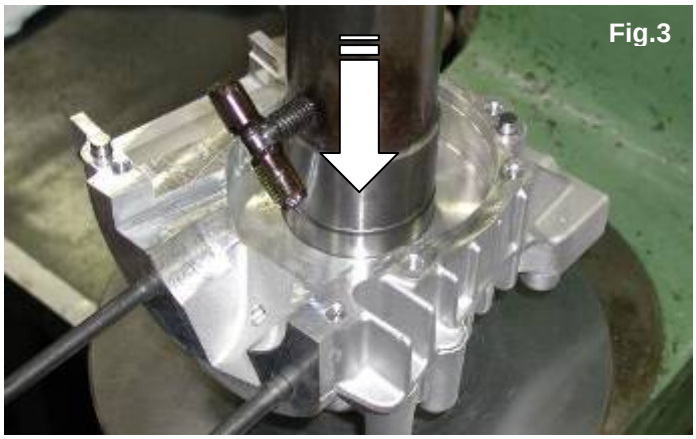


Fig.3

e) **INSERT CRANKSHAFT** AFTER OILING CRANKSHAFT SEAT IN CRANKCASE.

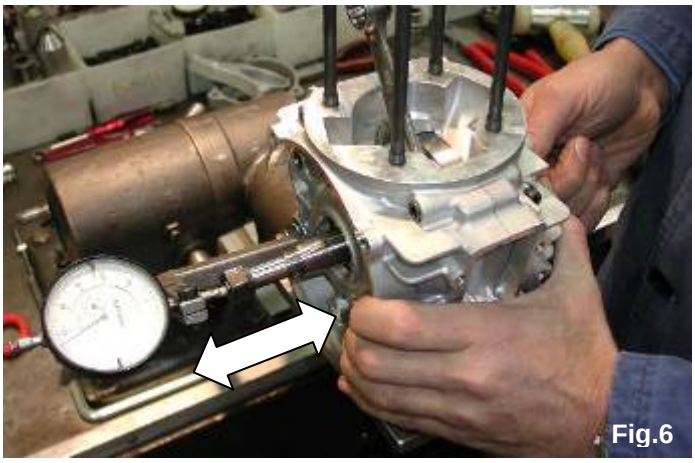
CRANKSHAFT MUST BE IN SAME POSITION AS IN ORIGINAL INSTALLATION (see Fig.4).


Fig.4

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

- 5mm ALLEN T TYPE –CROSS PATTERN (SEE DRAWING)
TORQUE AT 10 Nm MAX. (90 in-lb)

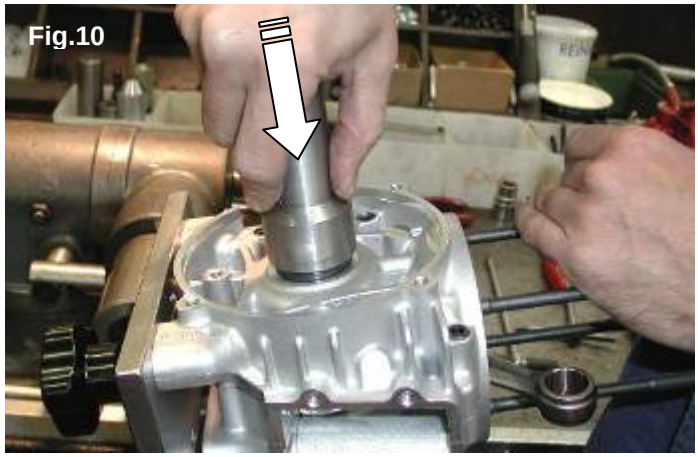

Fig.5

	ATTENTION: ***AS FIRST STEP, ASSEMBLE CRANKCASE WITH 4 SCREWS AND CHECK CRANKSHAFT AXIAL PLAY TO BE 0.20 ±0.05mm.*** ***IF LOWER OR HIGHER, DISASSEMBLE THE CRANKCASE, EXTRACT THE BEARINGS AND USE DIFFERENT SHIMS (0.10/0.15/0.20).*** ***TO RECOVER THE PLAY, SHIMS MUST BE EQUALLY POSITIONED*** ***(see Fig.6).*** BEFORE CLOSING DEFINITIVELY, APPLY FLUID GASKET (Motorseal or equivalent) ON CRANKCASE HALVES, AFTER CAREFULLY CLEANING THE SURFACE WITH DILUENT. CLEAN EVENTUAL EXCESS OF PRODUCT (see Fig.7). OIL CRANKSHAFT SEAT BEFORE ASSEMBLING (see Fig.8).	 Fig.6  Fig.7  Fig.8
2.	APPLY SPECIAL LUBRICANT ON OIL SEAL LIPS (see Fig.9).	-SPECIAL TOOL AS PER DRAWING S725/3  Fig.9

INSERT OIL SEALS .
USE TOOL AS PER DRAWING S725/3
(see Fig.10).
(MARK ON THE OIL SEAL MUST BE TOWARDS THE EXTERNAL).

ATTENTION:
THE OIL SEAL MUST BE REPLACED AFTER MAX. WORKING 6 HRS AND ALWAYS WHEN REMOVED.

Fig.10



3.

INSTALL PISTON :

a) **CHECK STATUS OF THE ROLLER CAGE.**
IT MUST BE REPLACED AFTER MAX. 4 WORKING HRS.

b) **CHECK STATUS OF PISTON PIN**
REPLACE THE PISTON PIN WHEN REPLACING PISTON.
(SEE ATTACHMENT ON MATCHING SELECTIONS BETWEEN CONROD / PISTON PIN / ROLLER CAGE).

c) INSTALL RING ON THE PISTON
(see Fig.11).

ATTENTION:
CHECK PLAY ON PISTON RING END GAPS TO BE BETWEEN 0.10 AND 0.15mm.
PLAY MUST BE CHECKED USING A THICKNESS GAUGE AND INSERTING THE PISTON RING IN THE CYLINDER (see Fig.12)

d) INSTALL PISTON

ATTENTION:
PLAY BETWEEN PISTON AND LINER MUST BE 0.08mm.
IF PLAY IS HIGHER THAN 0.10mm, REPLACE PISTON.

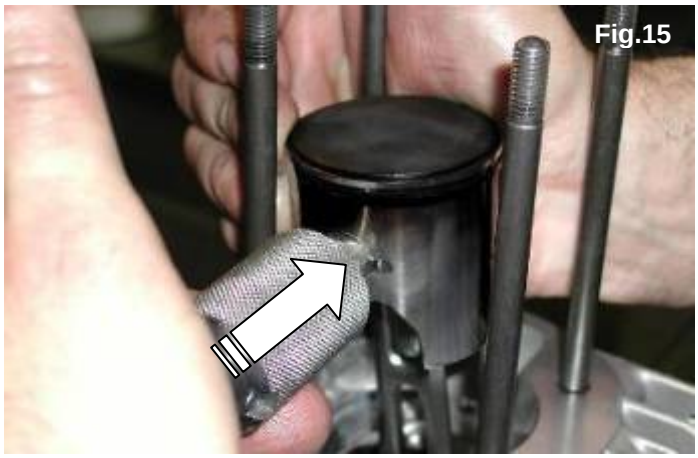
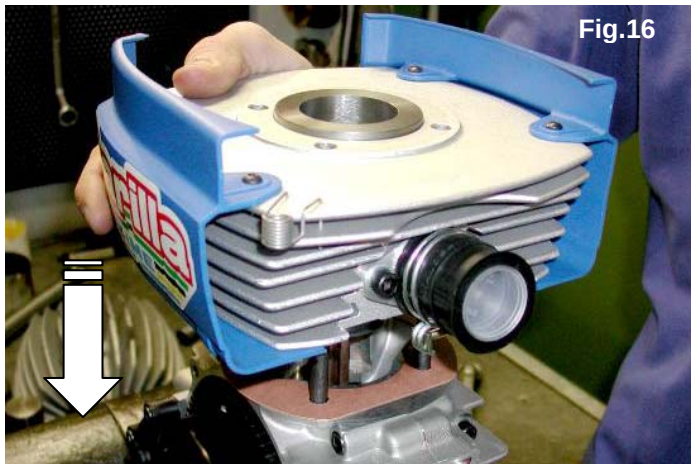
FOLLOW ATTACHED INSTRUCTIONS FOR CORRECT MATCHING.
PISTONS ARE MEASURED AT 15mm FROM THE BOTTOM (see attachment).
ALWAYS CHANGE PISTON COMPLETE WITH RINGS.

e) IINSERT PISTON PIN AND ROLLER CAGE IN THE PISTON (see Fig.13).
MAKE SURE THAT ARROW ON TOP OF PISTON IS TOWARDS EXHAUST.
AS A GENERAL RULE, PISTON PIN MUST BE FORCED IN HOLE. IF PISTON PIN IS LOOSE IN SEAT, REPLACE IT WITH A HIGHER DIAMETER PIN.

Fig.11

Fig.12

Fig.13

	f) PLACE CIRCLIP ON TOOL GREASE TOOL, TO KEEP CIRCLIP IN PLACE. (see Fig.14).	-SPECIAL TOOL: P.N. 10121  Fig.14
	g) **INSERT CIRCLIP** (see Fig.15). CHECK THAT CIRCLIPS ARE IN SEAT.	 Fig.15
4.	**INSTALL A NEW CYLINDER GASKET .**	
5.	**INSTALL CYLINDER** (see Fig.16). VISUAL CHECK. OIL CYLINDER AND PISTON.	 Fig.16
6.	**CHECK STATUS OF CYLINDER HEAD,** CLEAN COMBUSTION CHAMBER FROM DEPOSITS. DO NOT SCRATCH COMBUSTION CHAMBER.	
7.	**INSTALL HEAD** 4 NUTS M8 WITH WASHERS. CROSS TORQUE. TORQUE AT 18 Nm (160 in-lb).	-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 (90 in-lb) AND APPLY LOCTITE ON THREADS. (Loctite) (see Fig.17/18).

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

- 10mm SOCKET T TYPE


Fig.17


Fig.18

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


Fig.19

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


Fig.20

d) **INSTALL THE CLUTCH BODY FIXING NUT** USING THE CLUTCH WRENCH (see Fig.21).
TORQUE AT 40÷50 Nm (350÷440 in-lb).

ATTENTION:
TORQUE COUNTERCLOCKWISE AS NUT HAS LEFT THREAD.

- CLUTCH WRENCH: P.N. 10270
- 24m ALLEN WRENCH

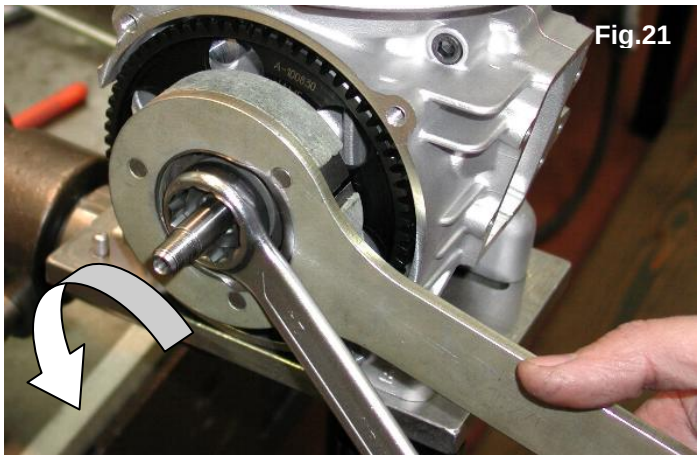


Fig.21

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

ATTENTION:
INSTALL WASHER WITH BEVEL TOWARDS SHAFT.

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


Fig.22


Fig.23

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

ATTENTION:
INSTALL WASHER WITH BEVEL TOWARDS SHAFT .


Fig.24

g) **INSTALL THE PISTON FITTING** SO THAT THE SHAFT DOES NOT ROTATE (see Fig.25) AND TORQUE THE M1O NUT ON THE DRUM.

(M10 NUT) (see Fig.26).
TORQUE AT 30÷40 Nm (265÷350 lb-in).

- PISTON FITTING: P.N. 10271
- 12 POINT WRENCH - 17mm

Fig.25

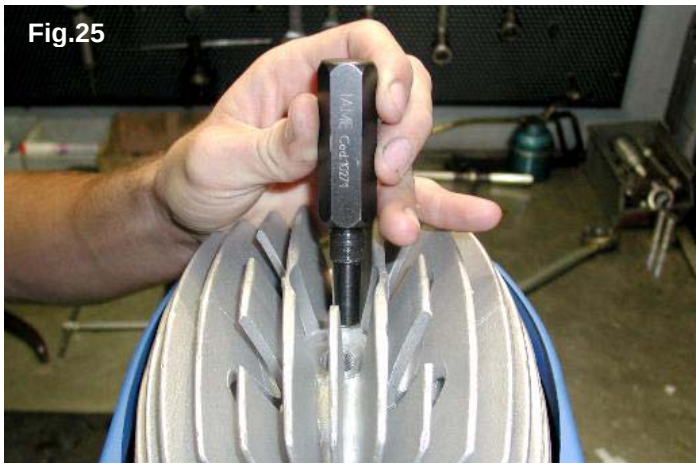


Fig.26

h) **REINSTALL CLUTCH COVER**
3 SCREWS M6 (see Fig.27).
TORQUE AT 8÷10 Nm (70 ÷ 90).

- 5mm ALLEN T TYPE

Fig.27

9.

INSTALL THE IGNITION:

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 SCREW AND NUT M10.
TORQUE AT 20÷26 Nm (175 ÷ 230 in-lb).

-12 POINT WRENCH 13mm


Fig.29

d) INSTALL STATOR
2 SCREWS M5X25 (see Fig.30).

- 4mm ALLEN T TYPE


Fig.30

e) INSTALL IGNITION COVER
3 SCREWS M6X18 (see Fig.32).

- 5mm ALLEN T TYPE


Fig.31

10.

INSTALL THE STARTING ASSEMBLY:

a) **INSTALL STARTER COUNTERSHAFT** IN THE STARTER SUPPORT (see Fig.32).

- 5mm ALLEN T TYPE

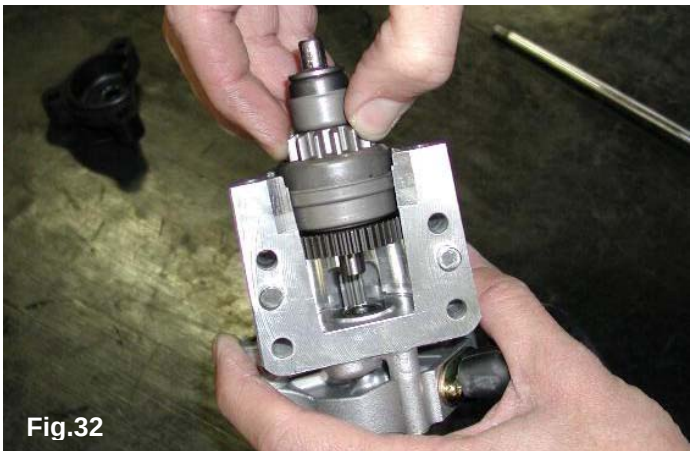


Fig.32

b) **INSTALL COUNTERSHAFT SUPPORT COVER.**
3 SCREWS M6X20 (see Fig.33).


Fig.33

c) INSTALL STARTER.
OIL' "OR" AND PRESS STARTER IN SEAT, MAKE SURE THAT GEARS ENGAGE.
1 SCREW M6X16
1 SCREW M6X20 (see Fig.34).


Fig.34

d) **INSTALL STARTER SUPPORT ON ENGINE.**
4 SCREWS M6X45 (see Fig.35).

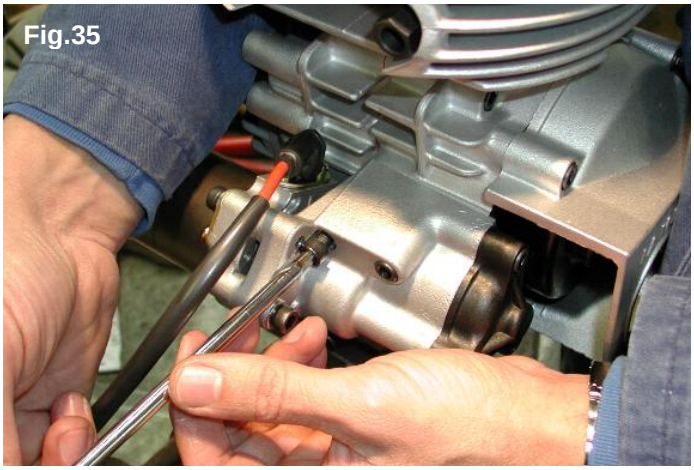


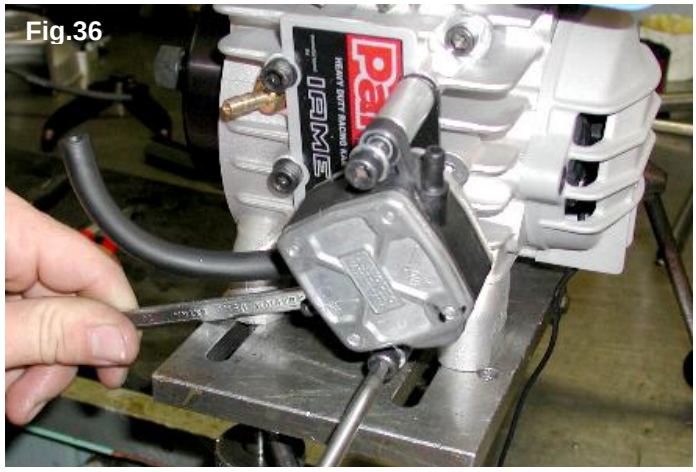
Fig.35

11. **INSTALL FUEL PUMP**
(see Fig.36)

2 SCREWS M6X45
1 NUT M6.

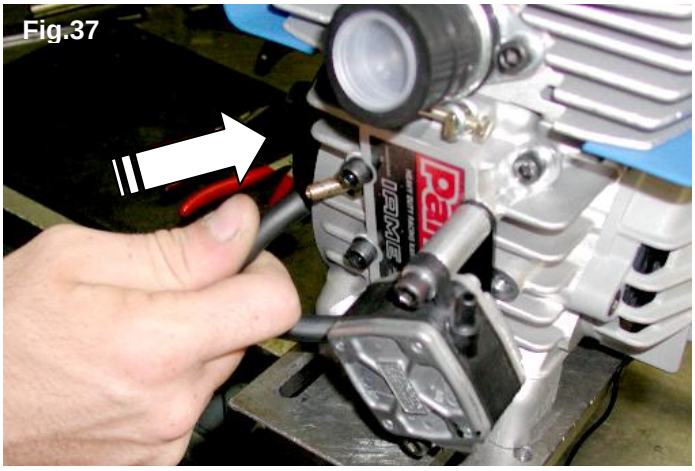
(5mm ALLEN T TYPE)
(12 POINT WRENCH - 10mm)

Fig.36



CONNECT PUMP INTAKE PRESSURE TO THE CRANKCASE FITTING (see Fig. 37).

Fig.37

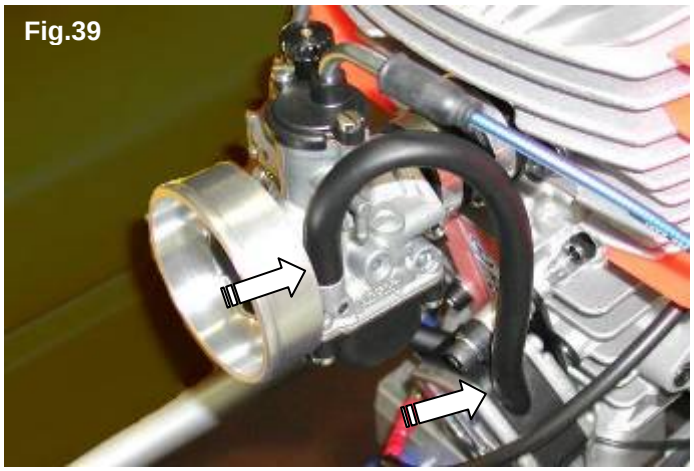


INSTALL THE CARB. AND SECURE IT TO THE FITTING, BY MEANS OF THE STEEL CLAMP (see Fig. 38).

Fig.38

CONNECT THE CARB. FUEL FITTING TO THE PUMP FITTING DELIVERY (see Fig.39).

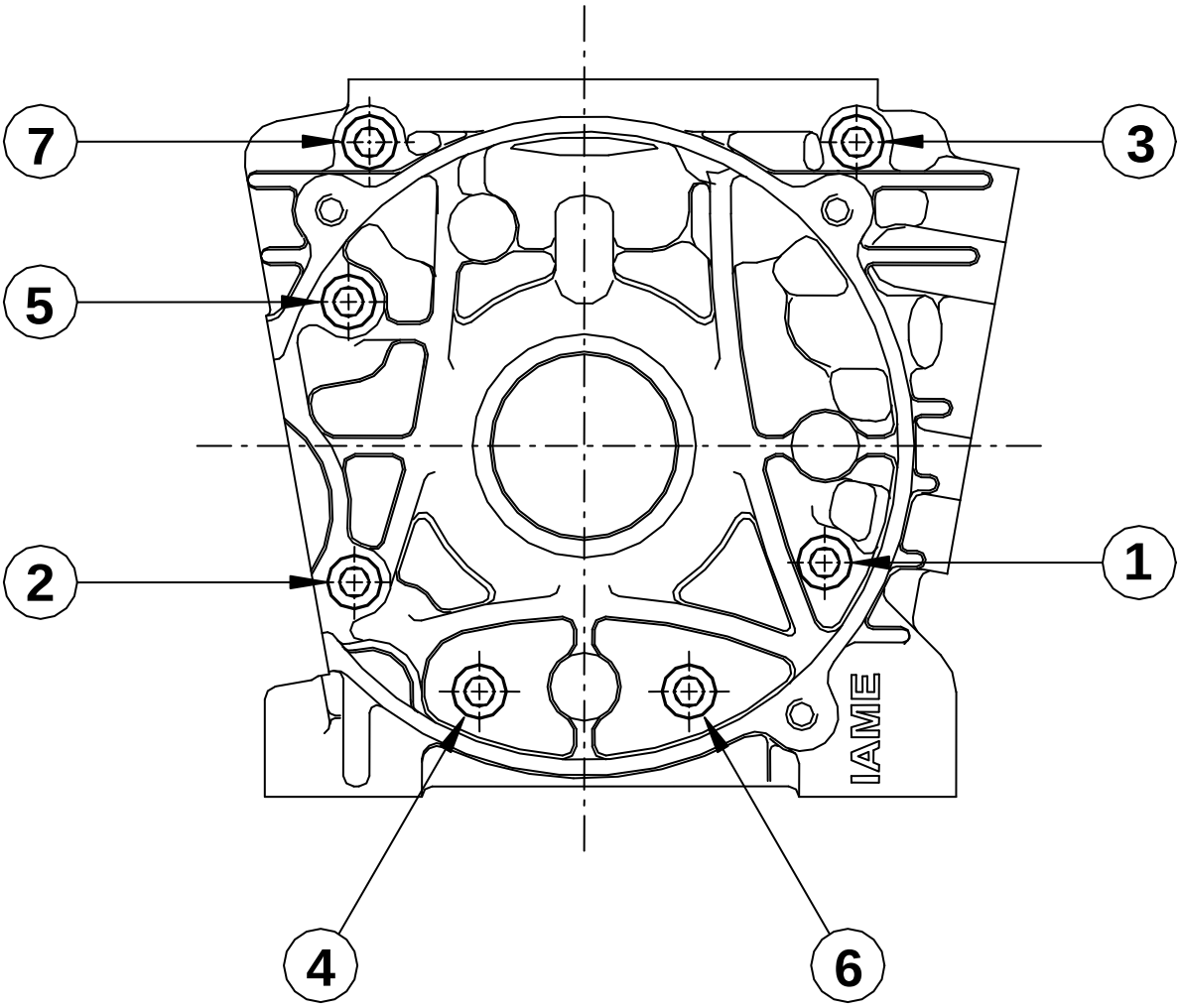
Fig.39



FASTENER TORQUE VALUES

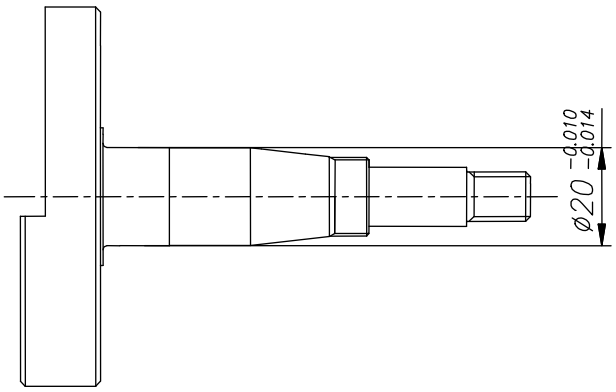
NOMINAL SIZE	Q.TY	FASTENER NAME	WRENCH	VALUES(Nm)	VALUES(in•lb)
M14 x 1.25	1	Spark plug	Hex.20.8	20 – 26	175 – 230
M8 x 1.25	4	Head and cylinder nut	Hex. 13	18 – 22	160 – 190
M6 x 1	2	Exhaust nut	Hex. 10	9 – 11	80 – 100
M6 x 1	2	Carb. fitting fixing screw	Allen 5	8 – 10	70 – 90
M6 x 1	2	Fuel pump fixing screw	Allen 5	8 – 10	70 – 90
M5 x 0.8	3	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	2	Ignition stator fixing screw	Allen 4	5 – 6	45 – 50
M10 x 1	1	Ignition rotor fixing nut	Hex. 17	20 – 26	175 – 230
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	2	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 fixing nut	Hex. 17	30 – 40	265 – 350
M16 x 1	1	Clutch fixing nut	Hex. 24	40 – 50	350 – 440
M5 x 0.8	4	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	4	Engine tag fixing screw	Allen 5	5 – 6	45 – 50
M6 x 1	7	Crankcase fixing screw	Allen 5	8 – 10	70 – 90
M8 x 1	1	Pressure fitting on crankcase	Hex. 11	10 – 13	90 – 120

CROSS PATTERN LOCKING ORDER ON CRANKCASE



MAIN PRESCRIPTIONS

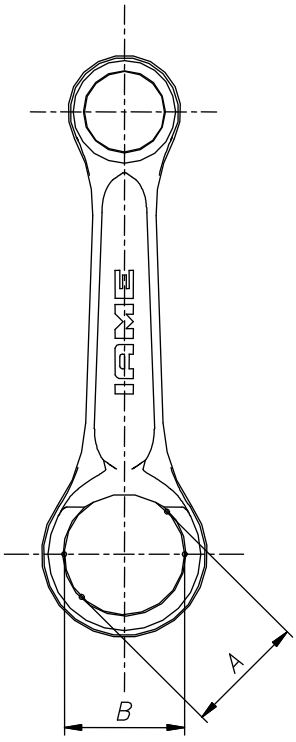
CRANKSHAFT



- Bearing seat diameter on the new engine

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

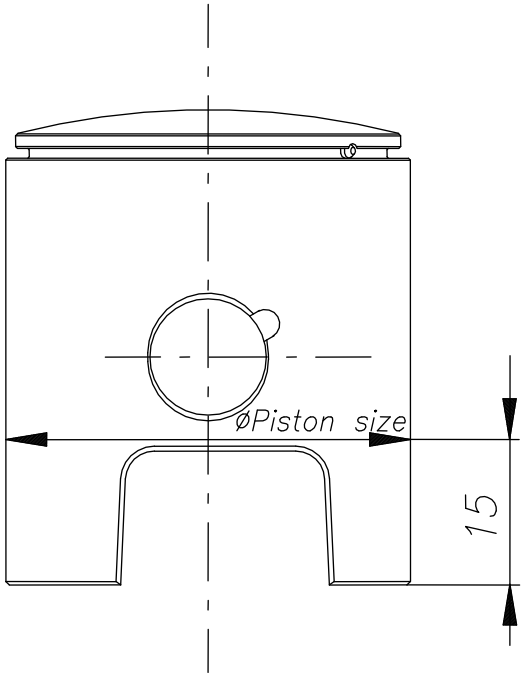
MAX. ALLOWED OVALIZATION ON CONROD



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 beween piston and liner must be: 0.08mm. If play is higher than 0.10mm, replace piston.

Piston is measured at 15mm 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 or R.

If the size on piston top is marked with:

-**a green dot or with letter V**: the size marked on the piston matches with liner.

-**a red dot or with letter R**: add 0.01mm 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	
			MIN.	MAX.
$16^{+0.006}_{+0.012}$	$12^{-0.002}_{-0.005}$	$2^{0}_{-0.002}$	0.008	0.021

OVERHAUL TOOL LIST

SPECIFIC TOOLS AVAILABLE AT IAME

DESCRIPTION	P.N.
• PISTON FITTING	10271
• CLUTCH LOCKING WRENCH	10270
• CLUTCH DISASSEMBLY TOOL	B-55614-C
• PISTON PIN FITTING	10202
• CIRCLIP ASSEMBLY TOOL	10121
• CRANKSHAFT ASSEMBLY KIT	10110-c
it includes:	
- crankpin bush	10150
• CRANKSHAFT DISASSEMBLY KIT	10100-C3
it includes:	
- *crankshaft plate*	10103
- *crankshaft support*	10100
- *crankpin pusher*	10107
- *crankshaft insert*	10108

SPECIFIC TOOLS- DRAWINGS ONLY – Draw. S725/3

- 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 ROUND EDGES	
• PLASTIC MALLET	
• SOCKET T TYPE-DYNAMOMETRIC	13mm/10mm

- 5 MeT PRESS

USE OF THE BATTERY CHARGER

ATTENTION
The electrical system of the PARILLA 60cc MINI SWIFT and BABY SWIFT engines does not charge the battery.

Therefore, to properly charge the battery, supplied with the engines, as above, we recommend **use of the battery charger, P.N. A-120910 (not included in the supply).**

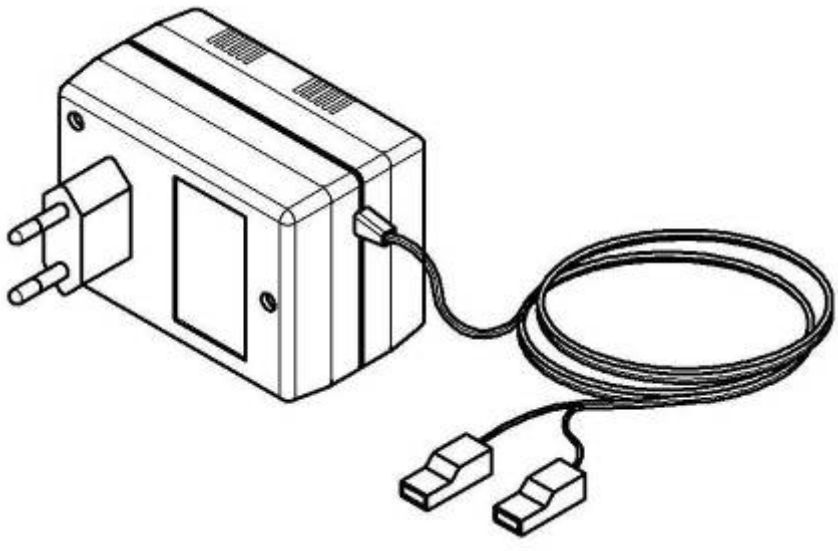
This battery charger, which has been expressly selected by IAME for its characteristics, operates at 220V, is easy to use, and, automatically switches off when the charging is over.

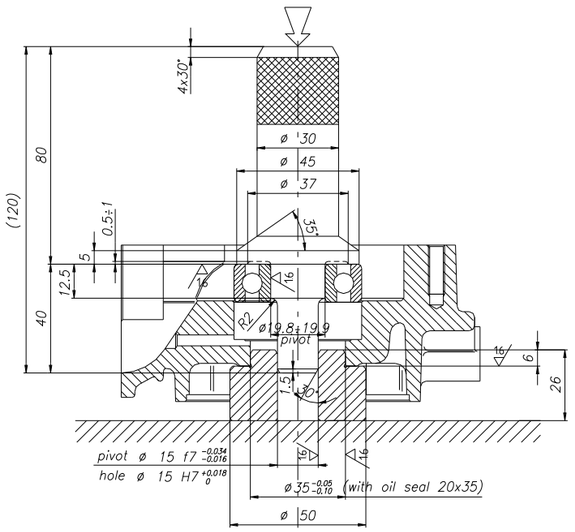
INSTRUCTIONS FOR THE PROPER USE OF THE BATTERY CHARGER

1. **Connect the red plug of the battery charger to the terminal " + "(red) of the battery and the blue plug to the terminal " – " (black).**
2. **plug-in the battery charger to a 220V-50 HZ current tap.**
3. **When charging, the red led of the battery charger is lightened. When the battery is fully charged, the red led is off.**
4. **Recharging time of a completely discharged battery: approx. 7÷8 hrs.**

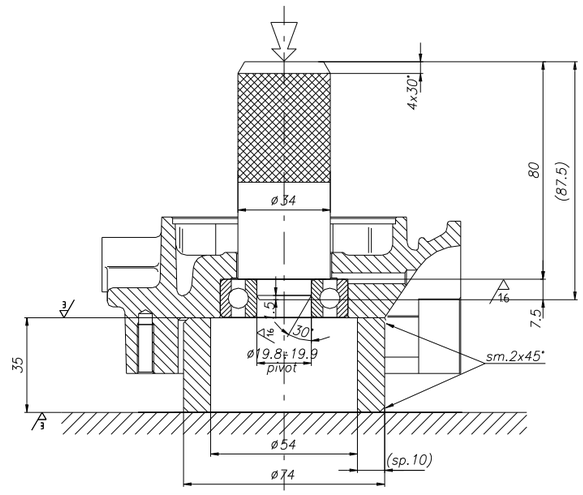
ATTENTION
Do not keep the battery charger connected for a long time after the led is off, to avoid overheating the charger.

ATTENTION
When connecting the battery charger, pay attention not to reverse the polarity of the connections, otherwise the battery charger and/or the battery might be damaged.

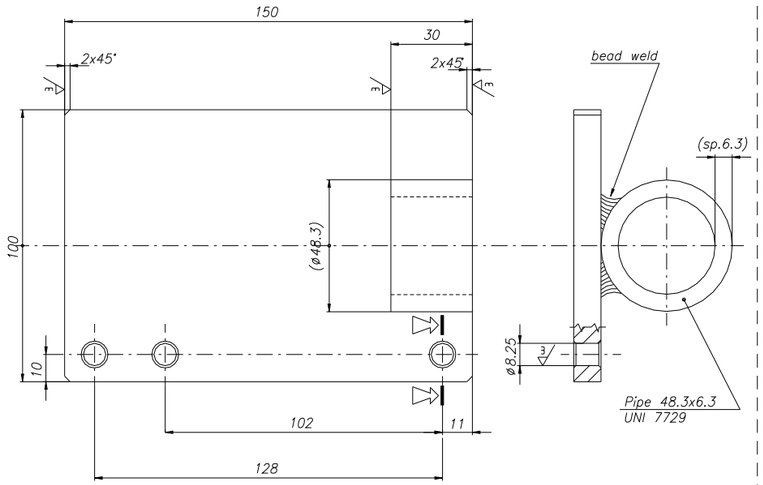


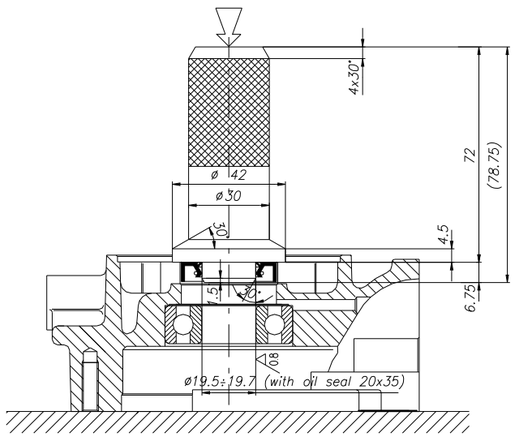


BEARING ASSEMBLY TOOL (Steel C16 cmt. tmp.)

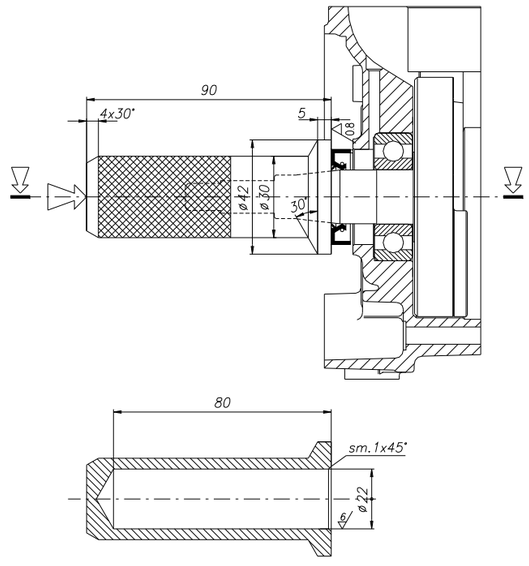


BEARING DISASSEMBLY TOOL (Steel C16 cmt. tmp.)

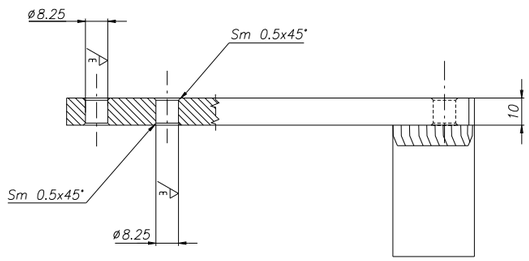




OIL SEAL ASSEMBLY TOOL WITH (Steel C16 UNI 5331)
DISASSEMBLED CRANKSHAFT



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



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

Disegno **S725/3**