

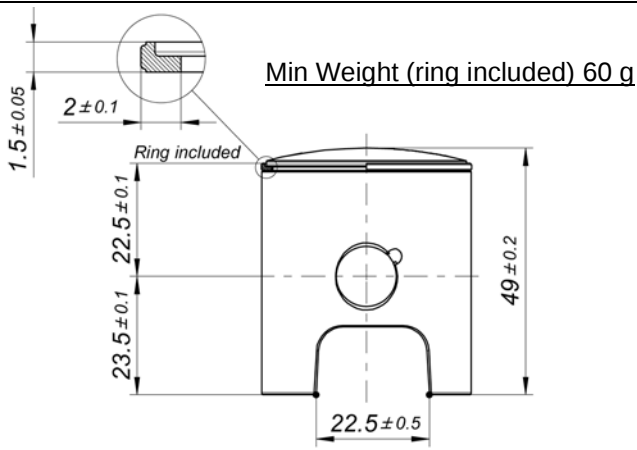
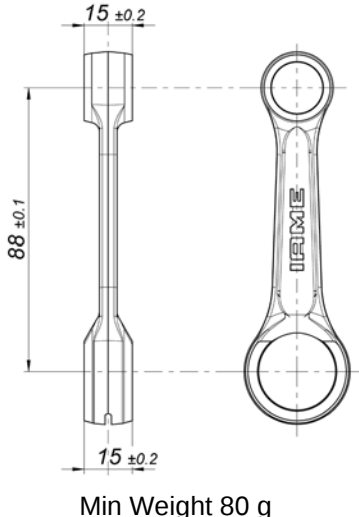
60CC MINI SWIFT USA - TAG



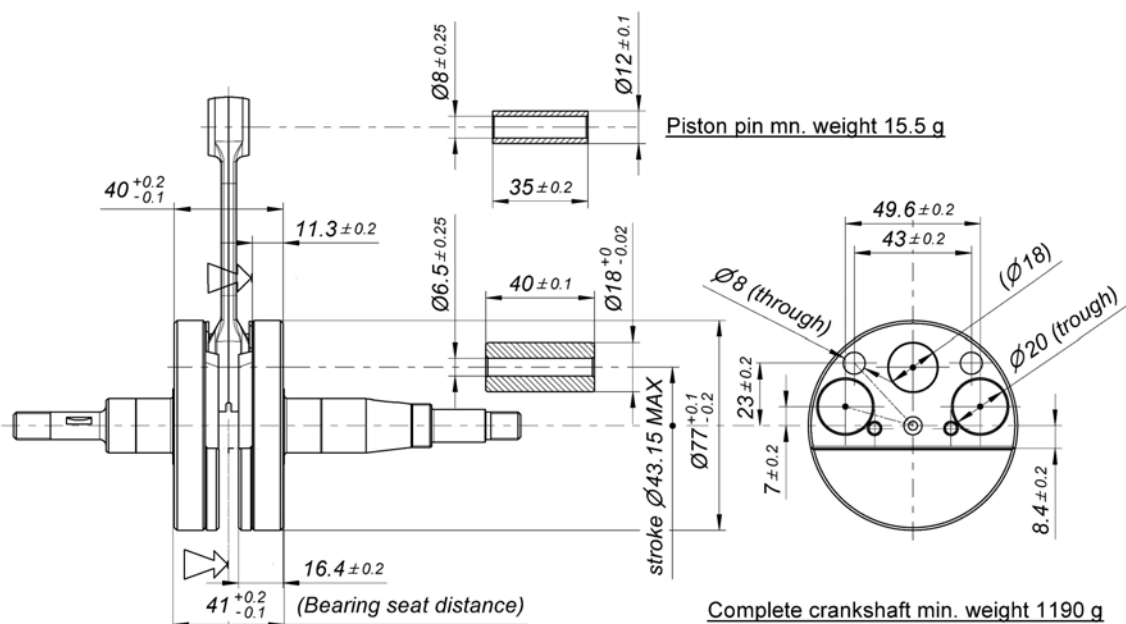
FEATURES

Cylinder Volume	60.00 cm ³ max
Bore	41.80 mm
Max. Bore	42.10 mm
Max. Stroke	43.15 mm
Cooling system	Air
Inlet system	Piston valve
Number of carbs	1

Tillotson Carburettor	HW-31A (Venturi Ø17mm)	Cylinder / crankcase transfers n°	2 / 2
Number of piston rings	1	Inlet / exhaust ports number	1 / 1
Big end conr. ball-bearing diam.	18x24x15	Combustion chamber shape	Spherical
Crankshaft ball-bearing diam.	20x47x14	Selettra ignition (adjustable)	Analogue 2 Poles
Small end conr. ball-bearing diam.	12x16x16	Distance between Conrod centers	88 mm

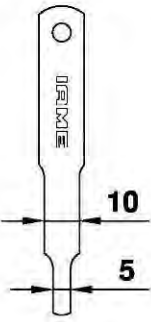
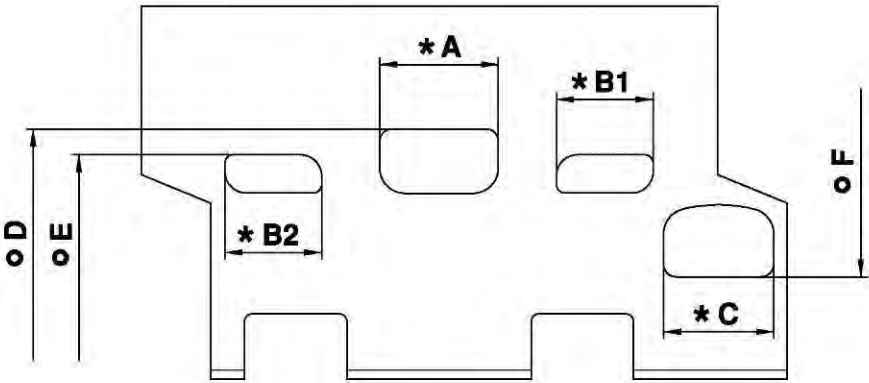
DESCRIPTION OF THE MATERIAL		PISTON
Conrod material	Steel	
Crankshaft material	Steel	
Head Material	Aluminum	
Cylinder Material	Aluminum	
Liner material	Cast Iron	
DISTANCE BETWEEN CONROD CENTERS		
Crankcase material	Aluminum	
Piston material	Aluminum	
Piston rings material	Cast Iron	
Exhaust muffler material	Sheet-steel	
Ball-bearings	6204 type	

CRANKSHAFT



CYLINDER DEVELOPMENT

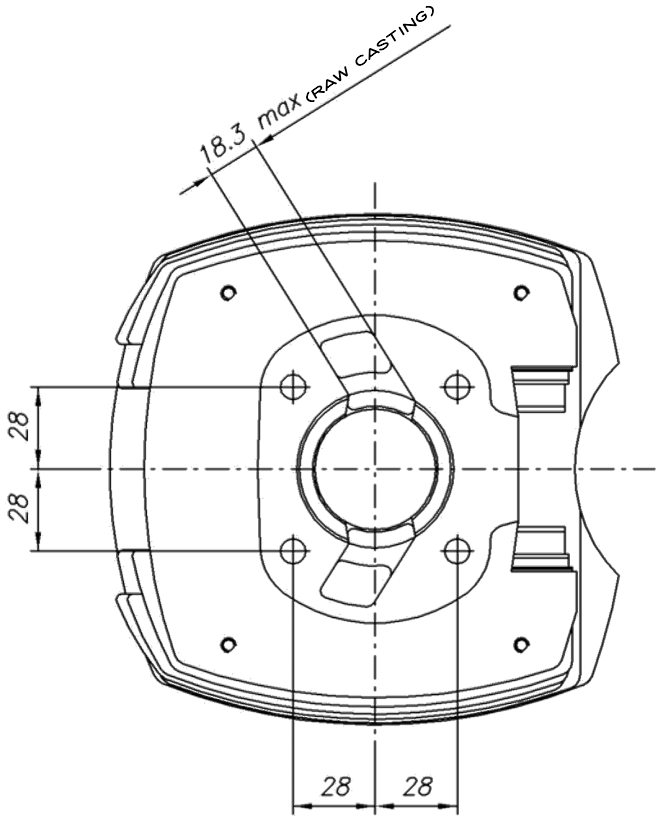
TOOL IAME Cod. 10194



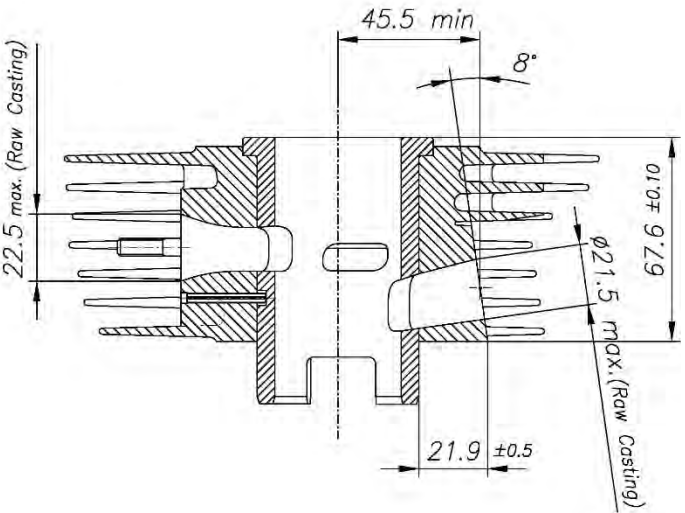
A	$\leq 28.5 \text{ mm}$
B1 = B2	$\leq 22.3 \text{ mm}$
C	$\leq 26.5 \text{ mm}$
D	$155.5^\circ \pm 2^\circ$
E	$115.5^\circ \pm 2^\circ$
F	$143.0^\circ \pm 2^\circ$

- * CHORDAL READING
- o ANGULAR READING BY INSERT A 0.2x5 mm GAUGE
USING IAME TOOL Cod. 10194

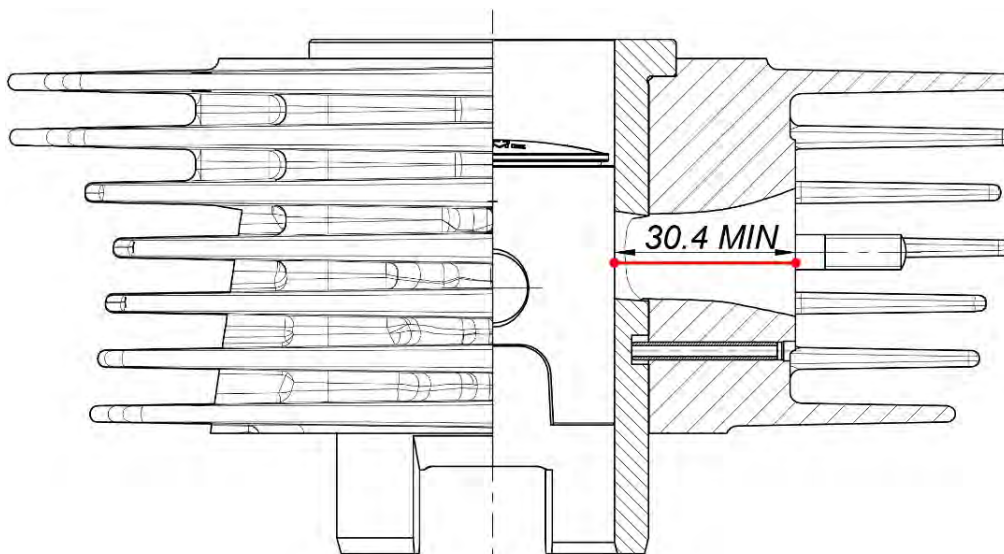
CYLINDER BASE VIEW



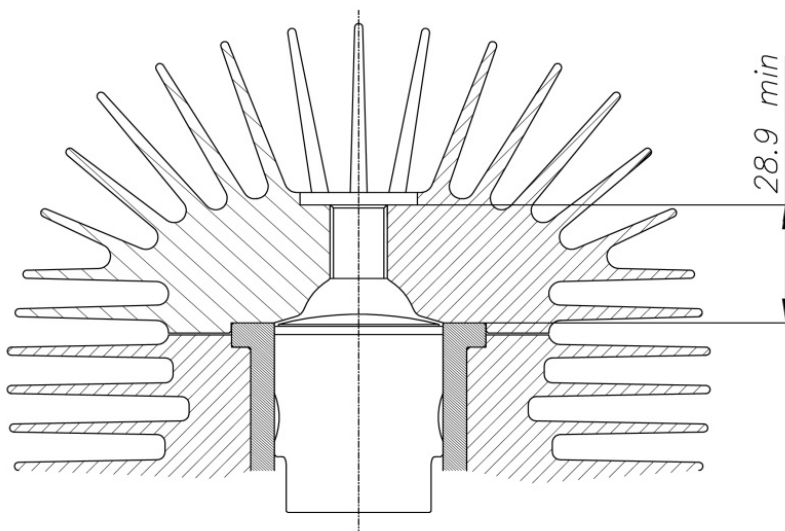
CYLINDER SECTION VIEW



DISTANCE FROM EXHAUST FLANGE TO PISTON

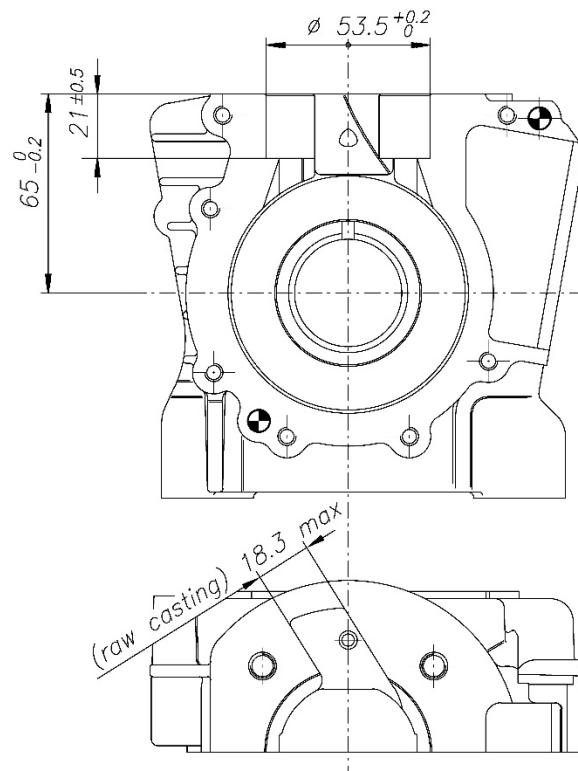


COMBUSTION CHAMBER VIEW



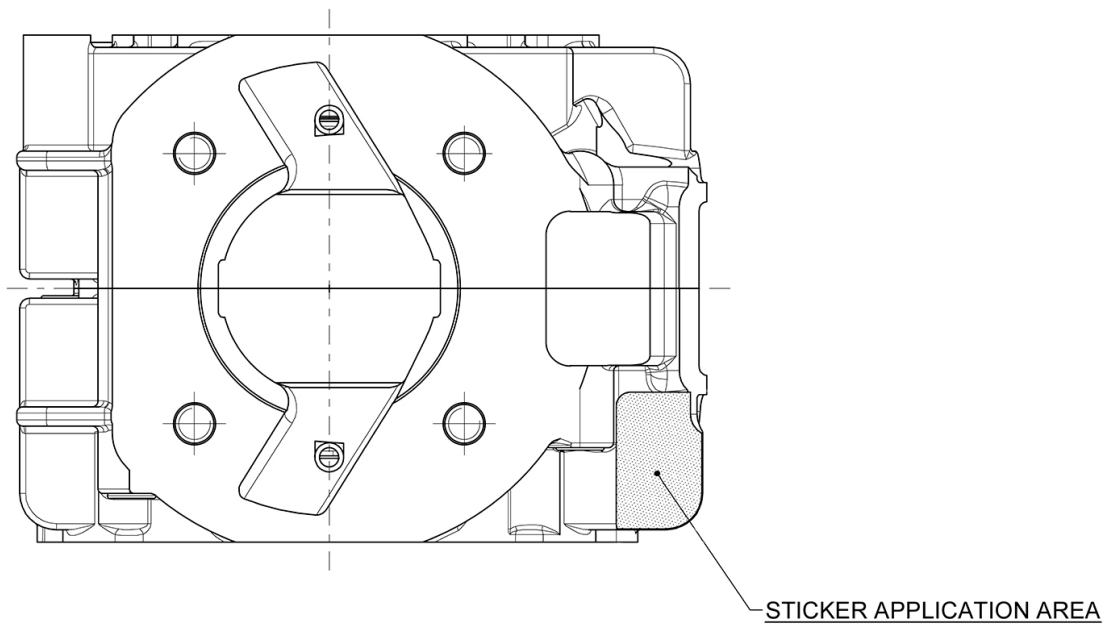
SQUISH MIN.= 0.025" (0.635 mm)
(measured with 0.0625" (1/16") / Ø1.6mm solder)

CRANKCASE INSIDE VIEW

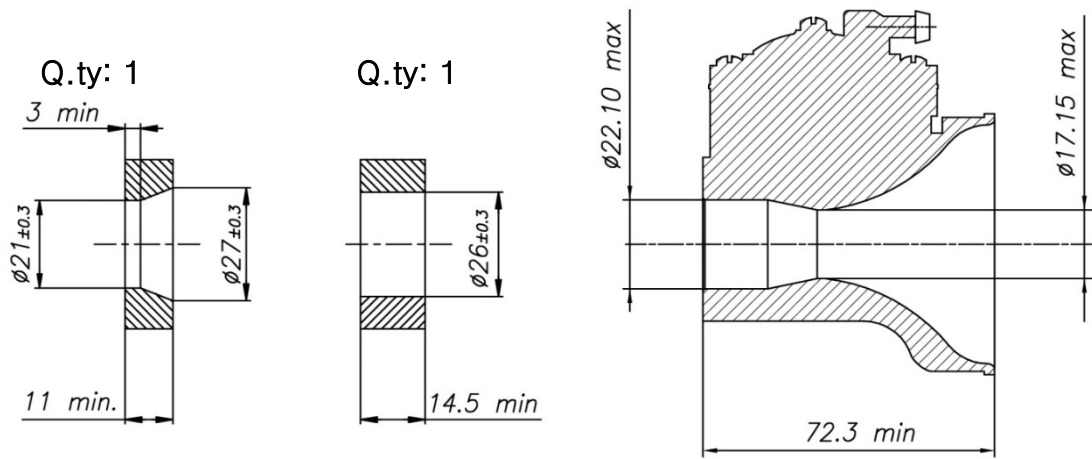


FROM 2026 ON

CRANKCASE UPPER VIEW – STICKER APPLICATION AREA



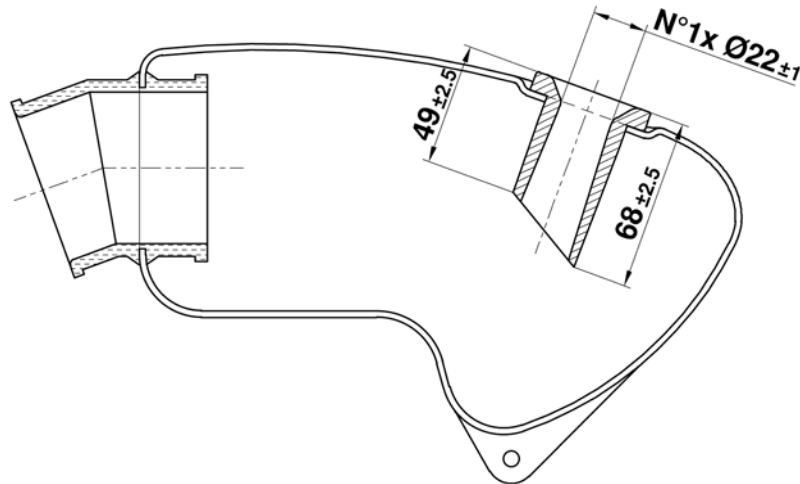
VENTURI CARB. DIMENSIONS and THERMAL SPACERS



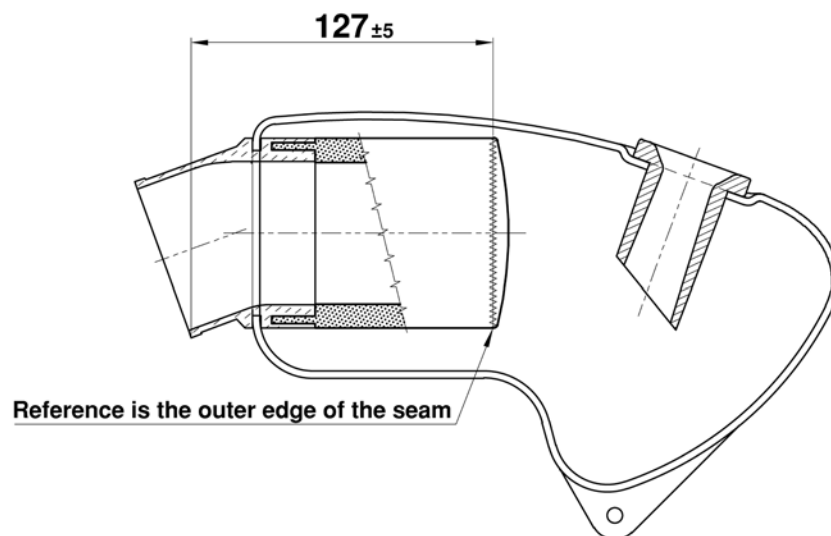
TILLOTSON MOD. HW-31A

INLET SILENCER

(CSAI OMOLOGATION N° 01/SA/14)



INLET SILENCER WITH ALTERNATIVE MANIFOLD SPONGE FILTER

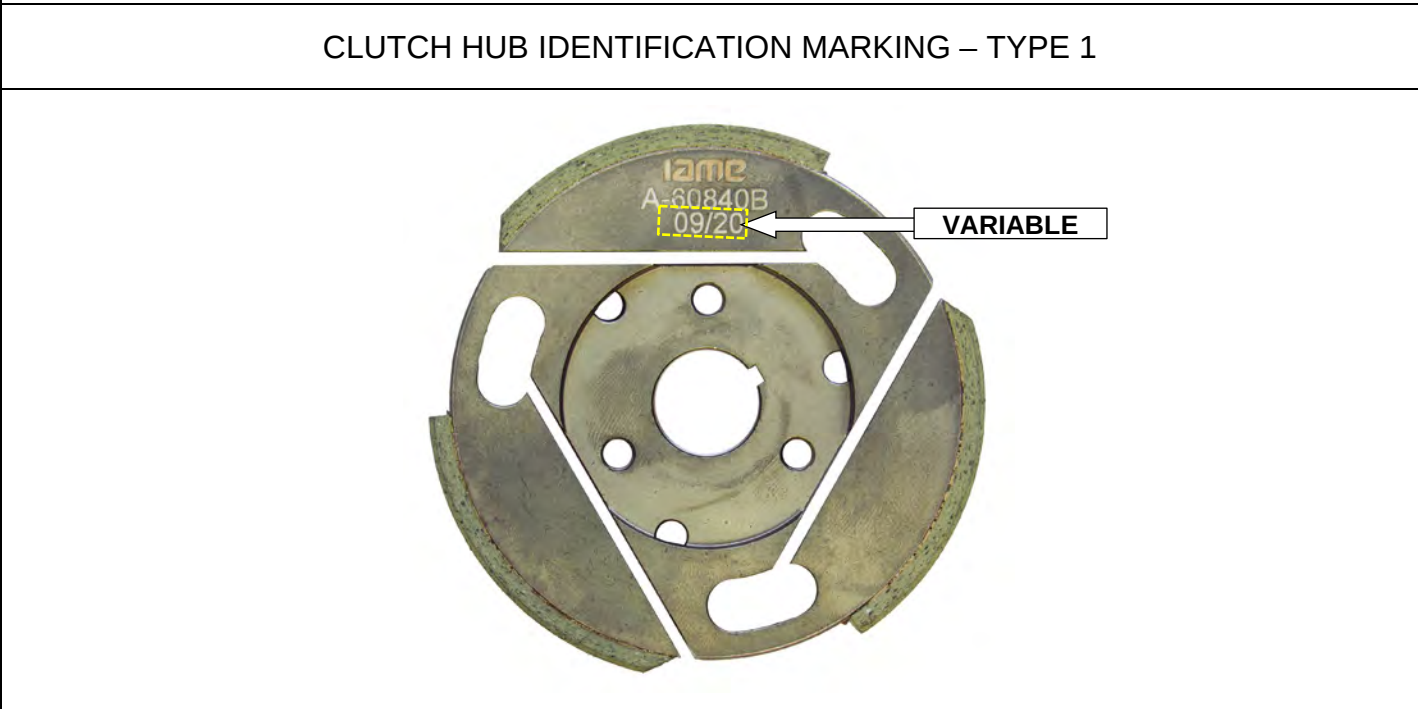


Use only Z9, Z10 and Z11 sprocket

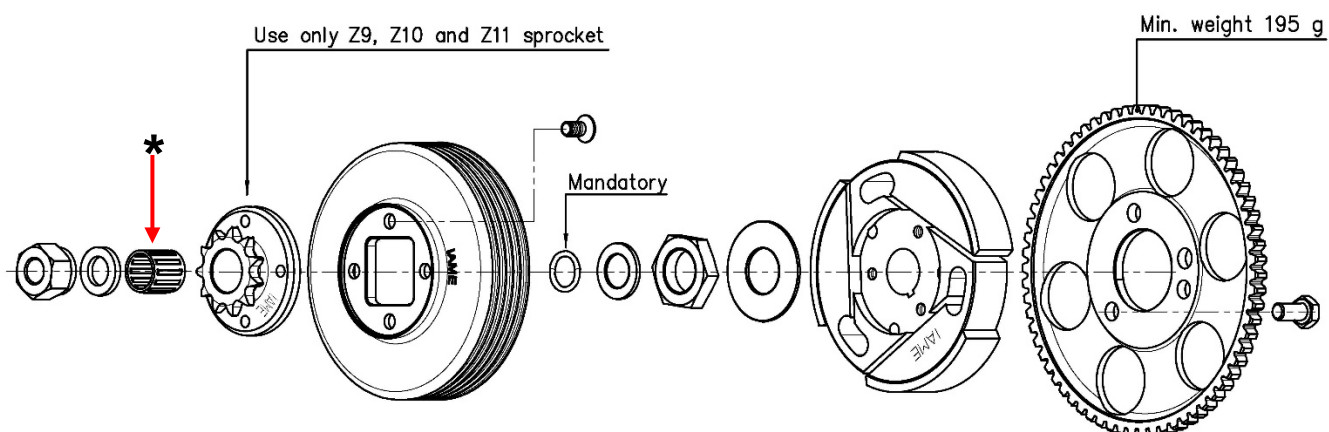
Mandatory

Min. weight 195 g

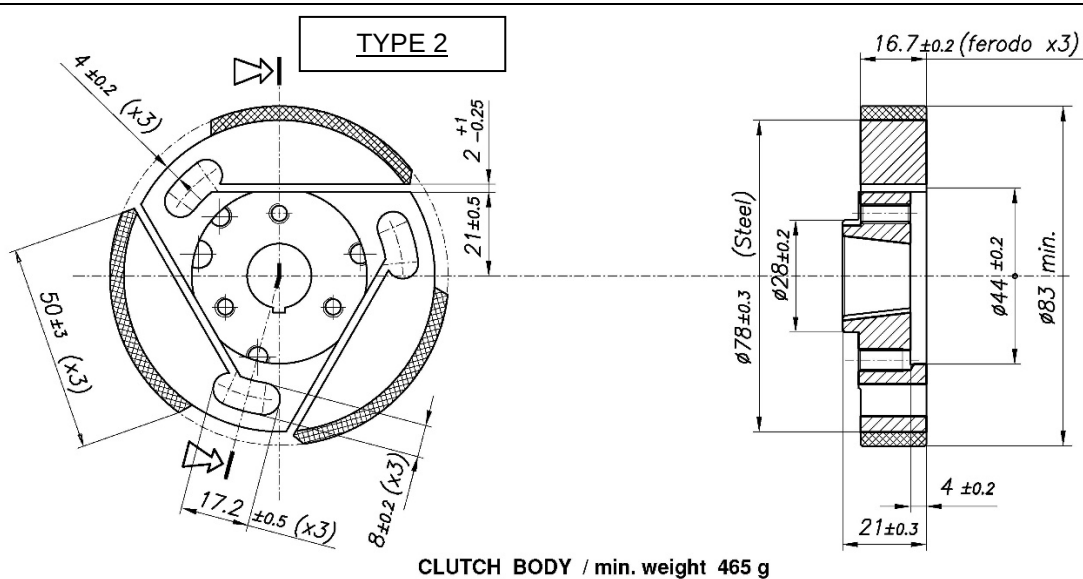
* When using the Z9, the roller cage is replaced by a bronze bushing, pressed into the sprocket



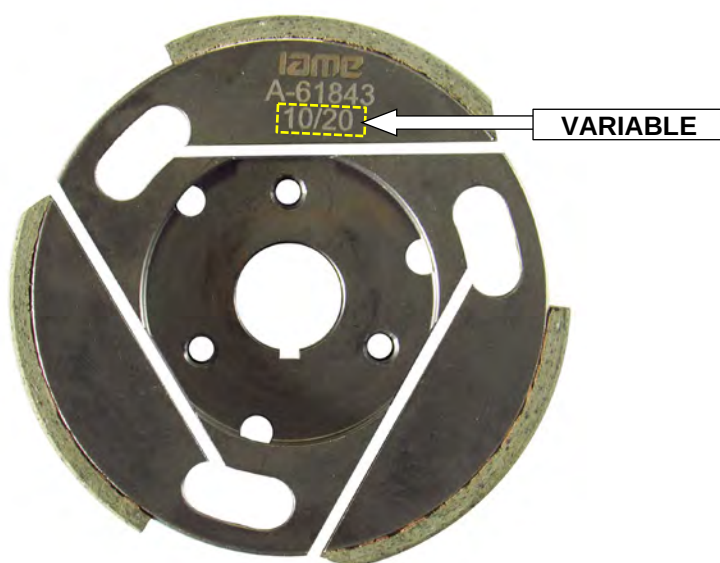
DESCRIPTION OF THE ALTERNATIVE CLUTCH – TYPE 2



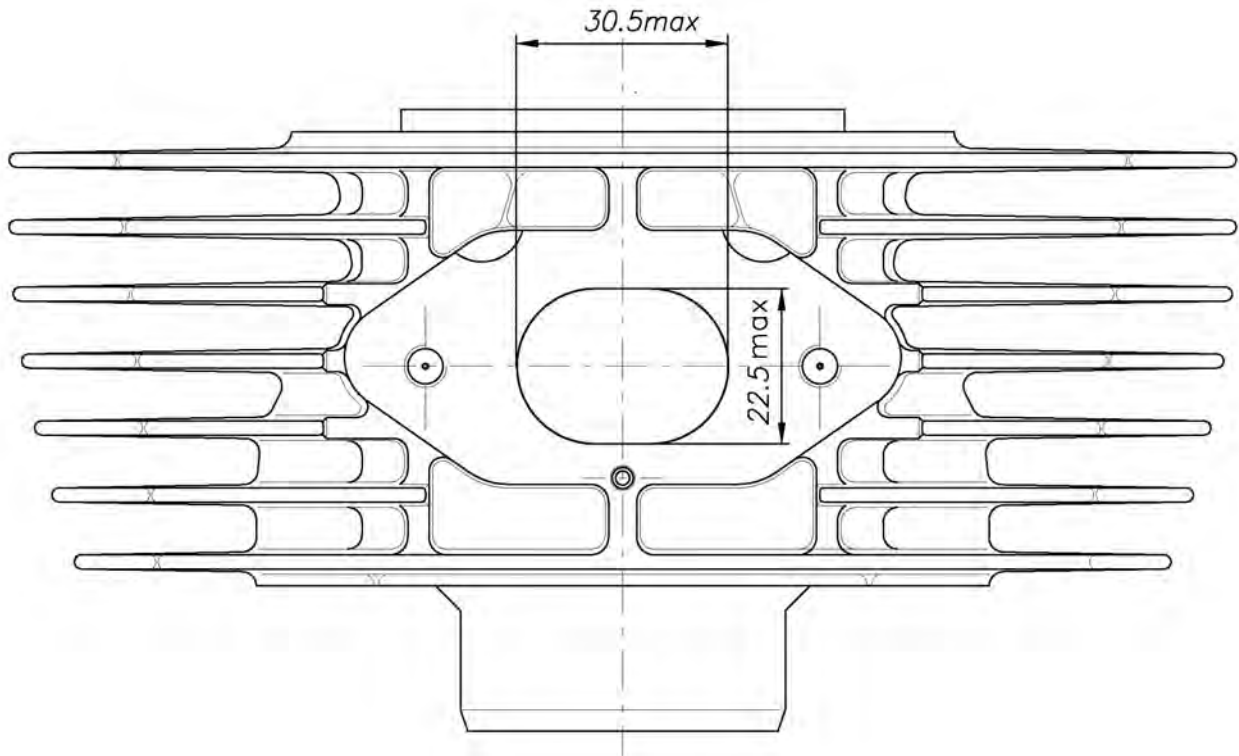
* When using the Z9, the roller cage is replaced by a bronze bushing, pressed into the sprocket



ALTERNATIVE CLUTCH HUB IDENTIFICATION MARKING – TYPE 2

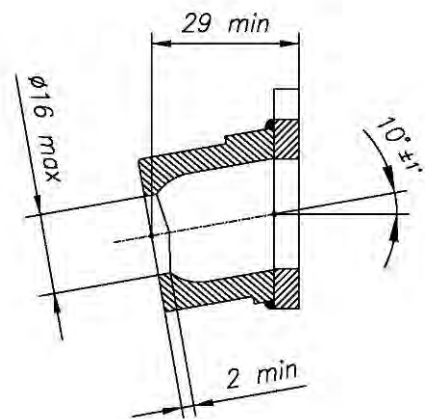
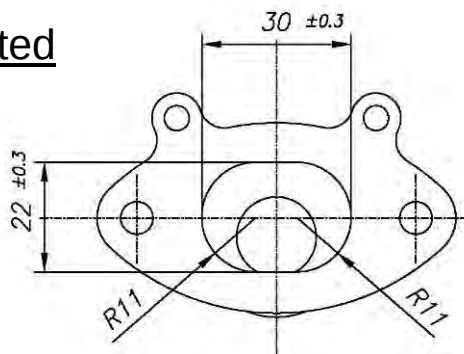


EXHAUST EXIT VIEW AND DIMENSION

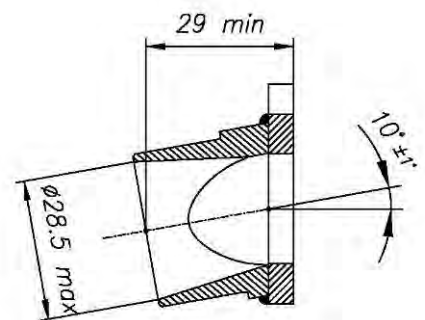
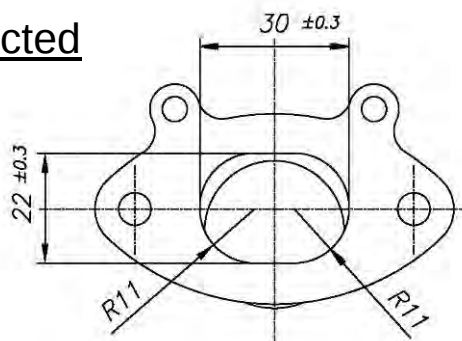


EXHAUST FITTING

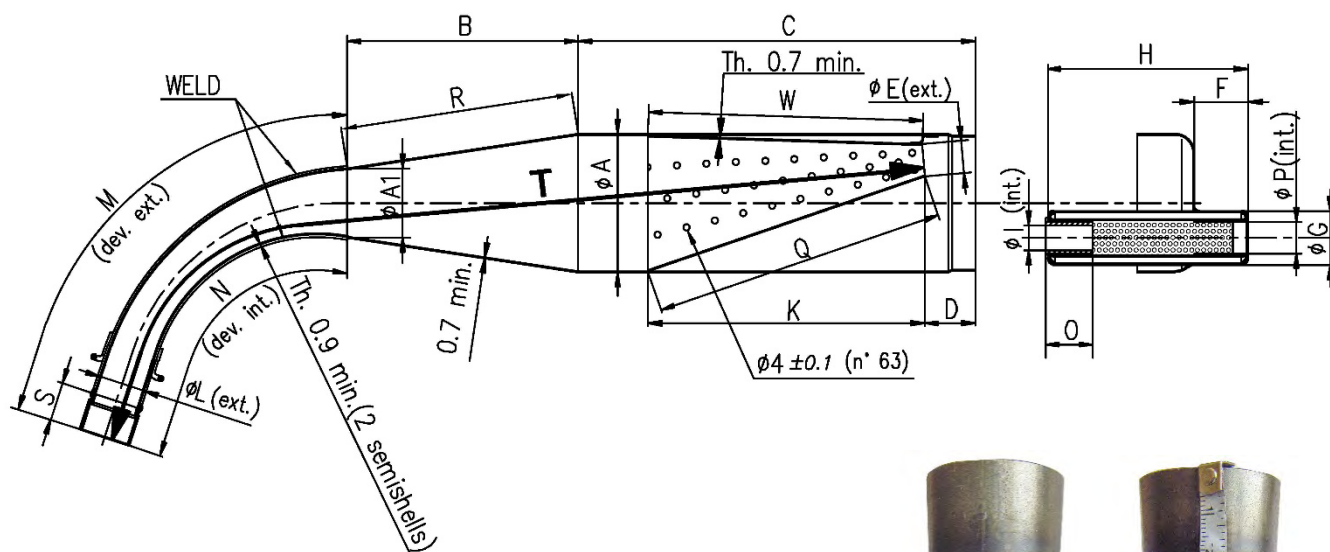
Restricted



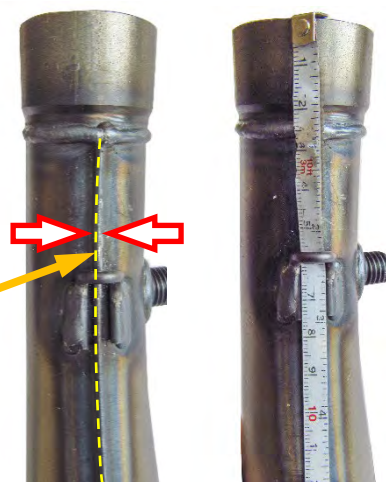
Unrestricted



EXHAUST VIEW AND DIMENSIONS (with and without embossed logo)



The tape must follow the centerline of the weld at all points



Min. weight 1.250 g

ØA: <u>90 ±1.5 Øext.</u>	D: <u>30 ±2</u>	H: <u>132 ±2</u>	M: <u>265 ±3</u>	R: <u>152 ±3</u>	T: <u>601 ±3</u>
ØA1: <u>45 ±1 Øext.</u>	ØE: <u>20 ±1 Øext.</u>	ØI: <u>17 max Øint.</u>	N: <u>215 ±3</u>	S: <u>25 ±1</u>	
B: <u>150 ±3</u>	F: <u>35 ±2</u>	K: <u>181 ±3</u>	O: <u>30 min.</u>	Q: <u>192 ±3</u>	
C: <u>260 ±3</u>	ØG: <u>35 ±1 Øext.</u>	ØL: <u>31 ±1.5 Øext.</u>	ØP: <u>21 ±1 Øint.</u>	W: <u>181 ±3</u>	

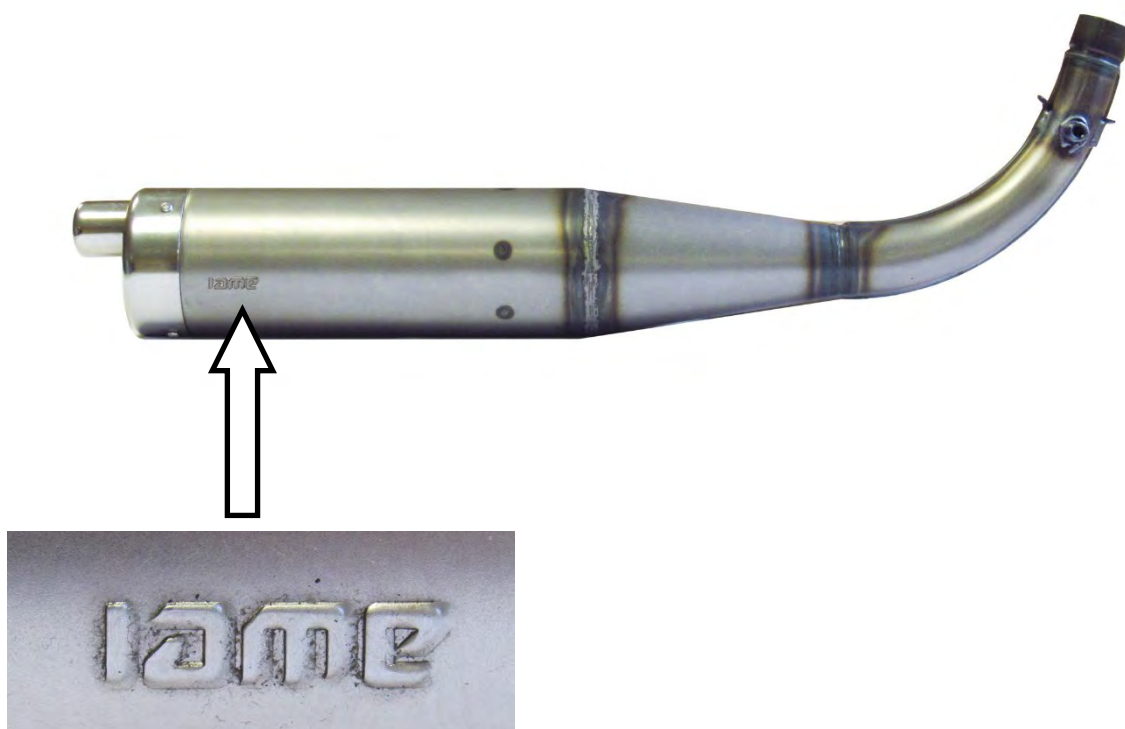
WARNING:

The dimensions "**M**", "**N**" and "**T**" must be taken by steel tape measure 6mm wide.

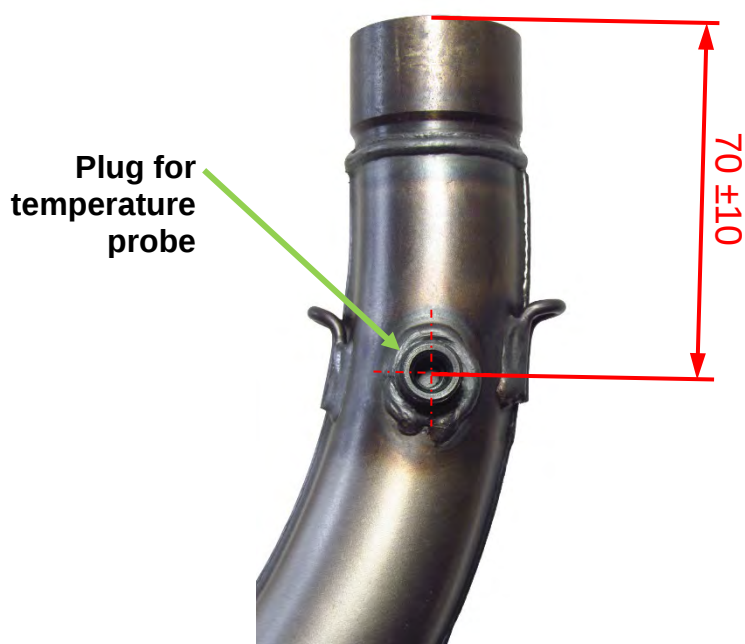
The dimensions "**M**" and "**N**" must be taken on the weld centerline.

The dimensions "**Q**" and "**W**" must be taken by steel tape measure 12mm wide

ALTERNATIVE EXHAUST with embossed logo



MARKING



WIRING DIAGRAM

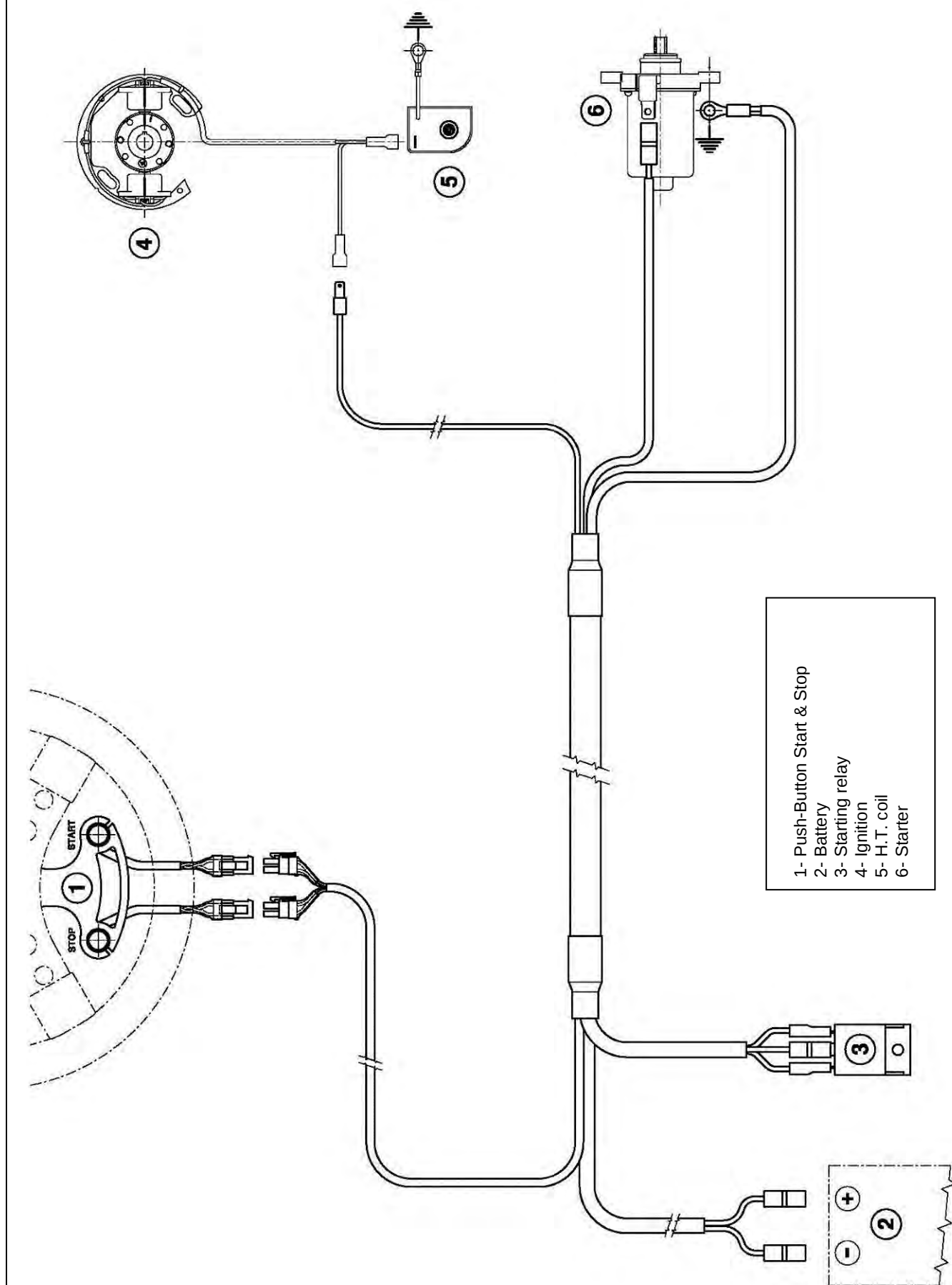


PHOTO COMPLETE WIRING

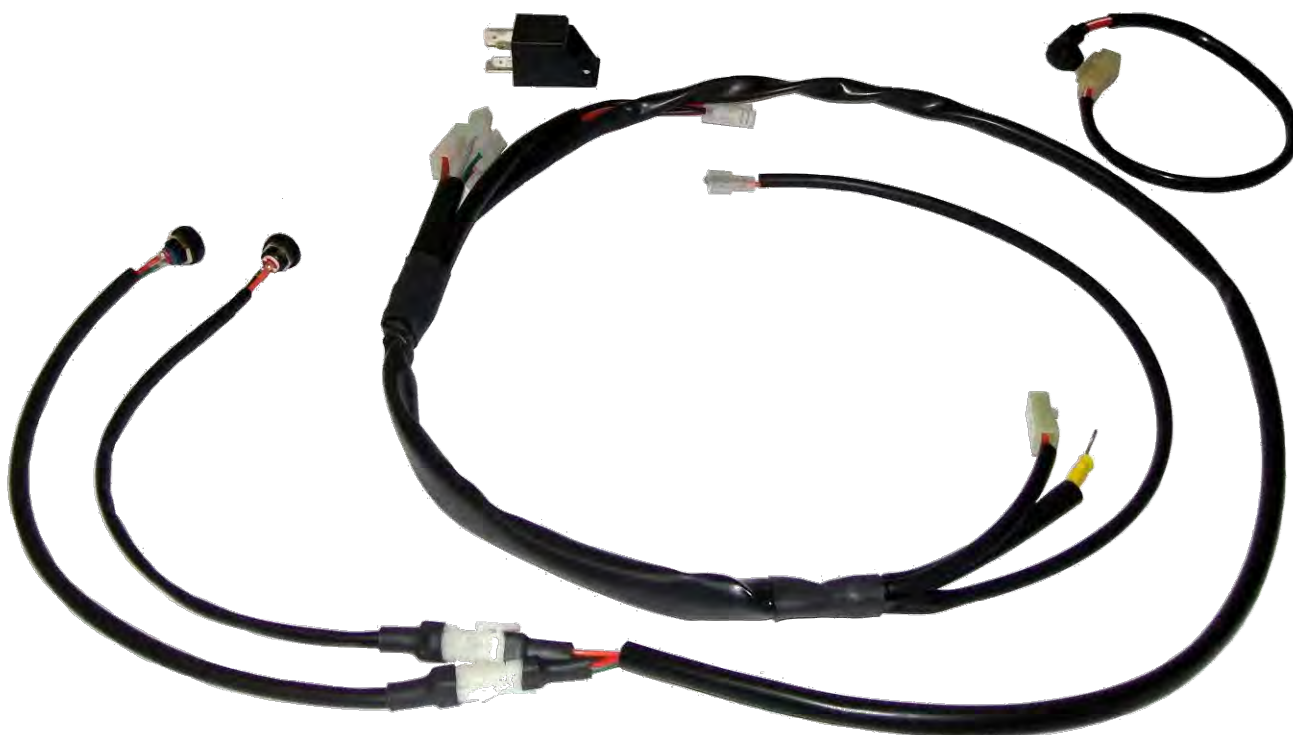
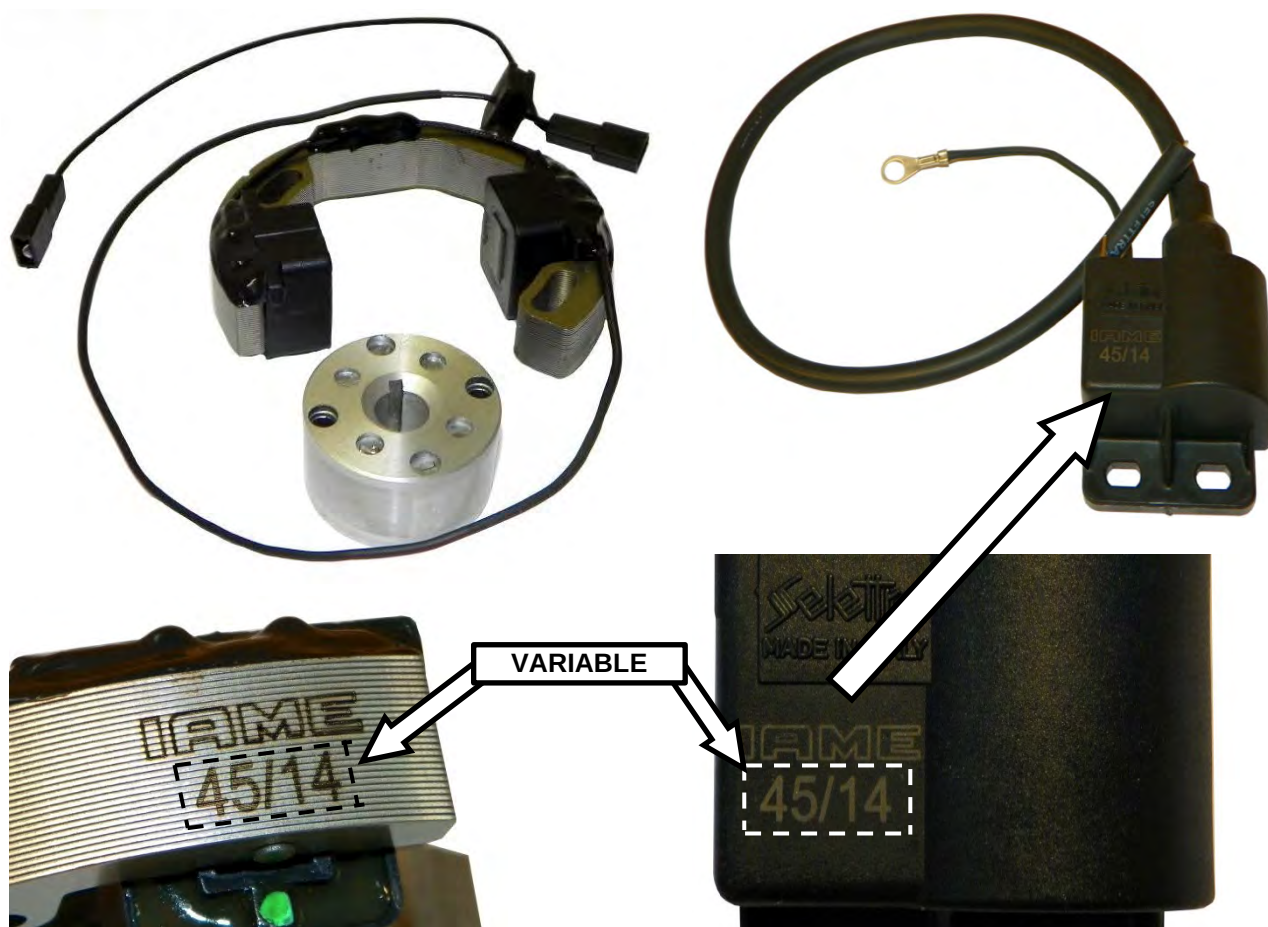


PHOTO OF IGNITION / PHOTO OF H.T. COIL (SELETTRA ANALOGUE 2 POLES)



ALTERNATIVE WIRING LOOM DIAGRAM

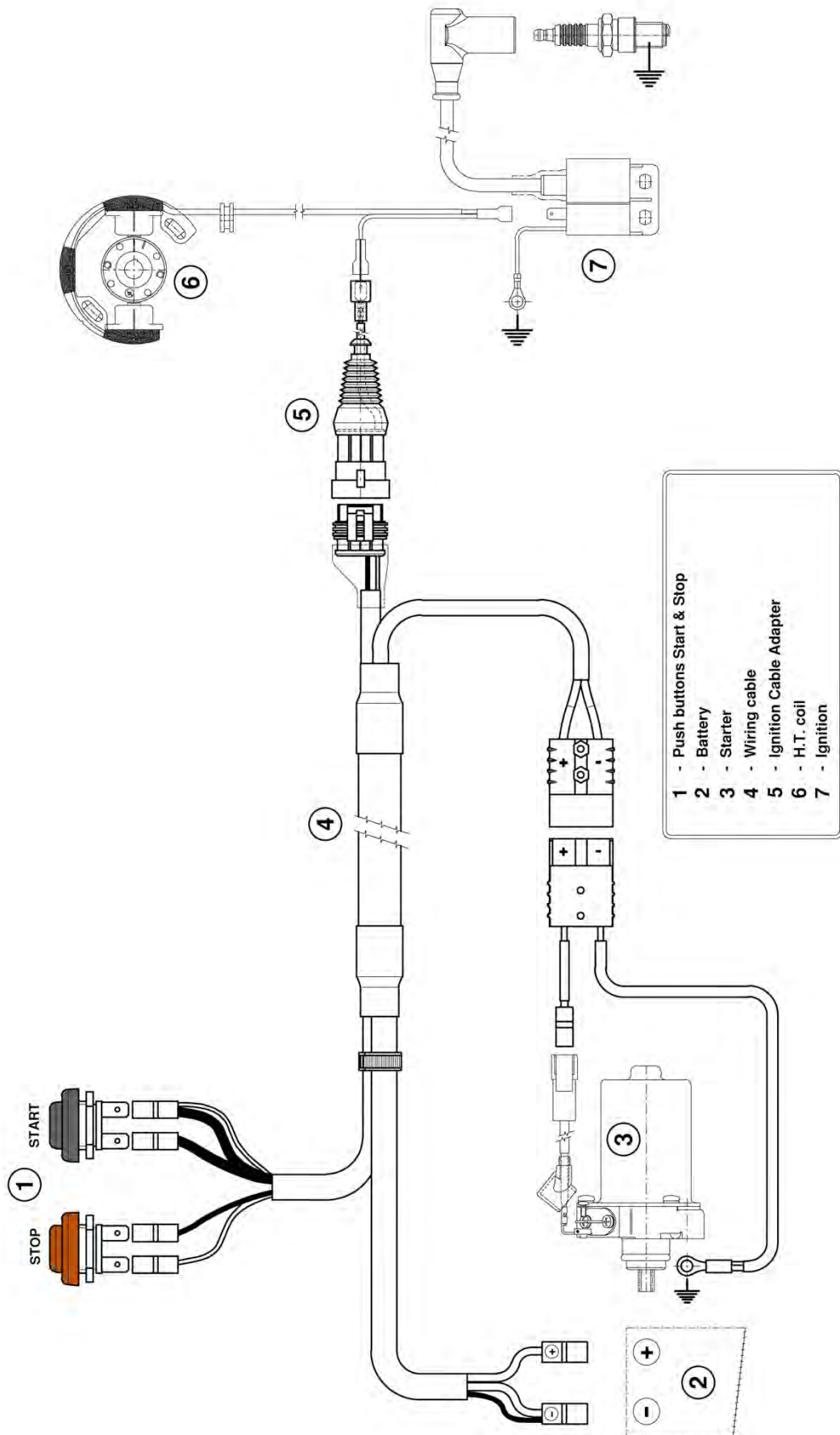
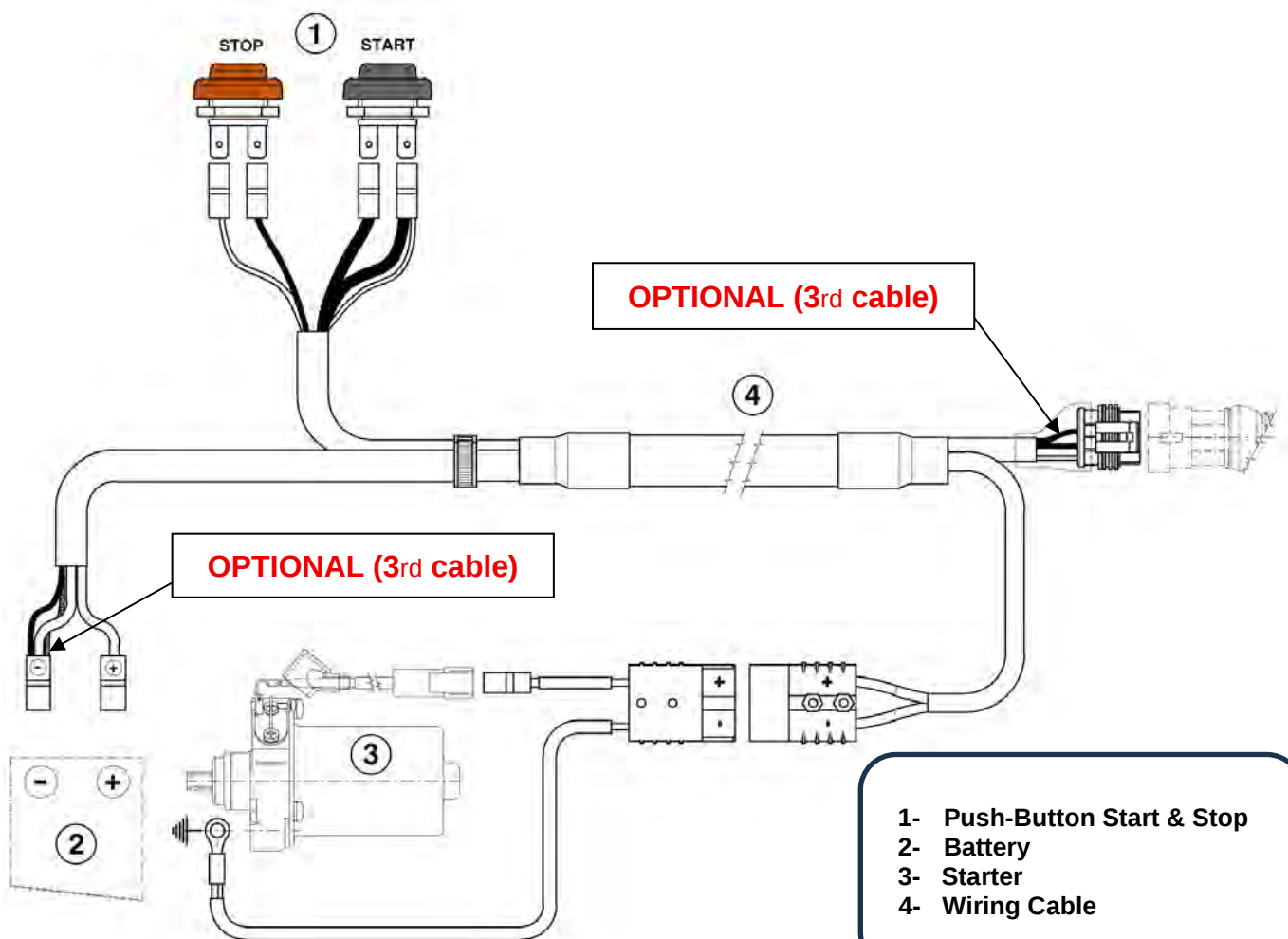
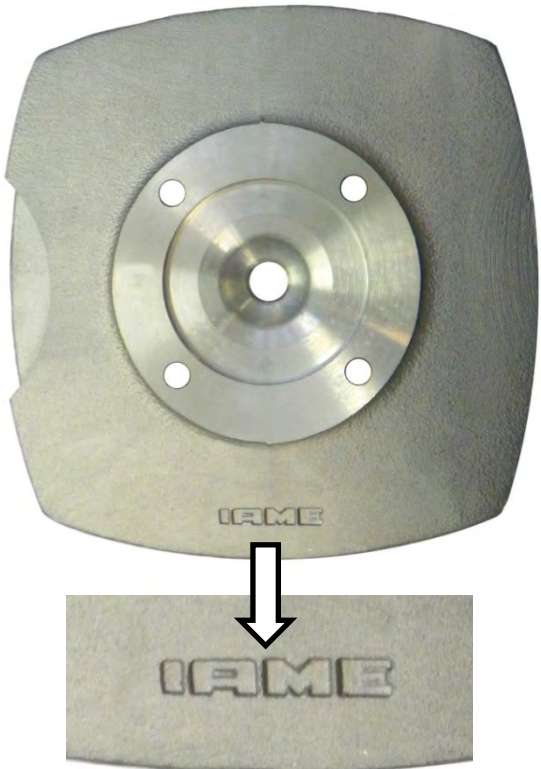
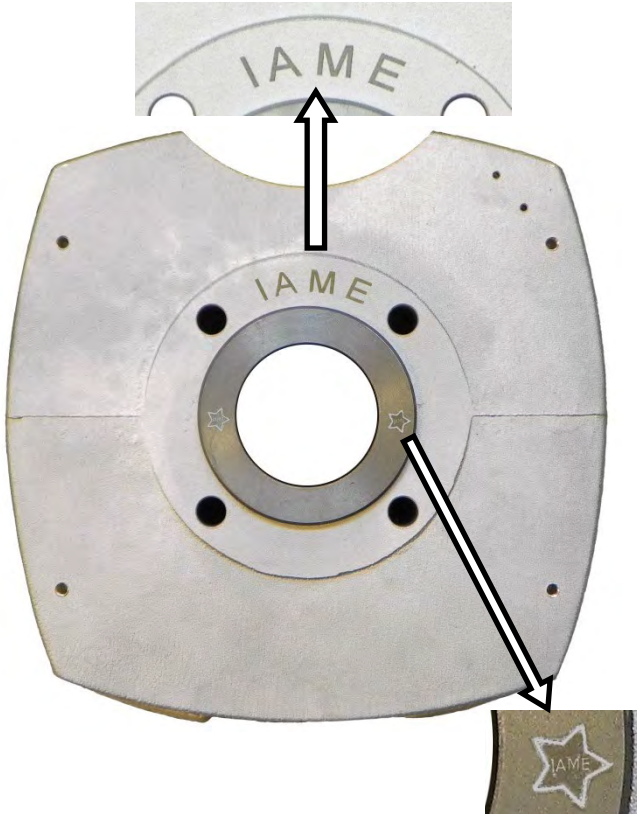
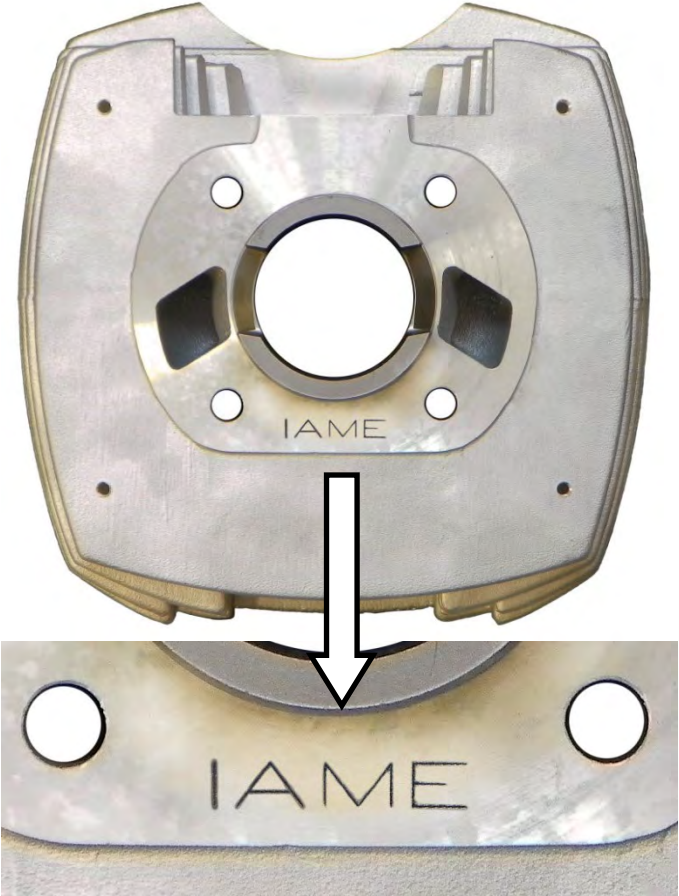


PHOTO OF ALTERNATIVE COMPLETE WIRING LOOM

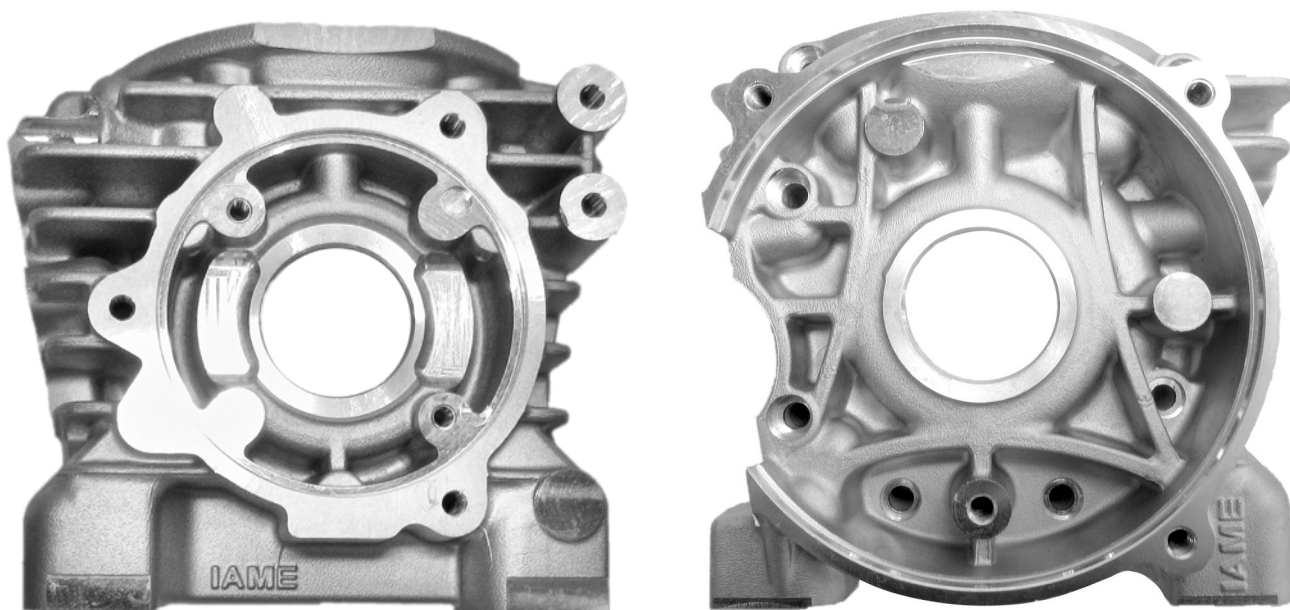


ALTERNATIVE WIRING LOOM DIAGRAM



HEAD IDENTIFICATION MARKING	CYLINDER IDENTIFICATION UPPER MARKING
	
ENGINE STICKER "USA"	CYLINDER IDENTIFICATION LOWER MARKING
	

SEMICARTER IGNITION SIDE AND TRANSMISSION SIDE IDENTIFICATION MARKING



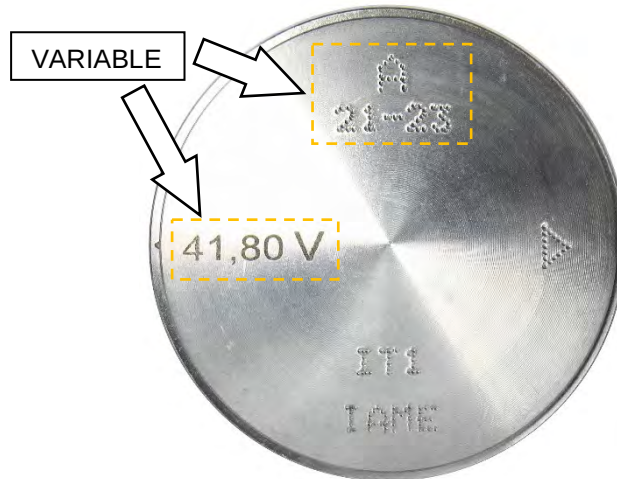
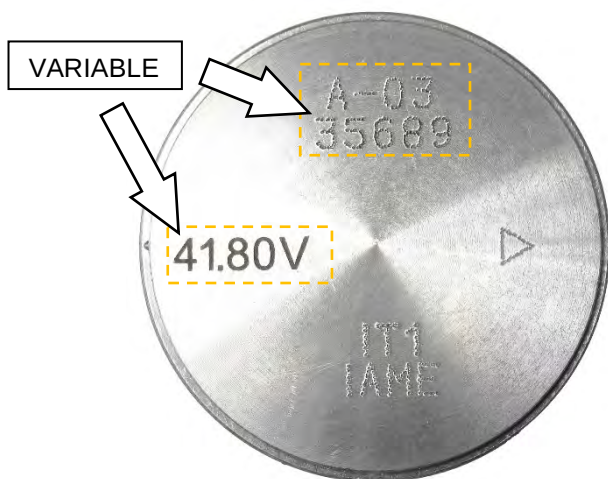
STARTER RING IDENTIFICATION MARKING

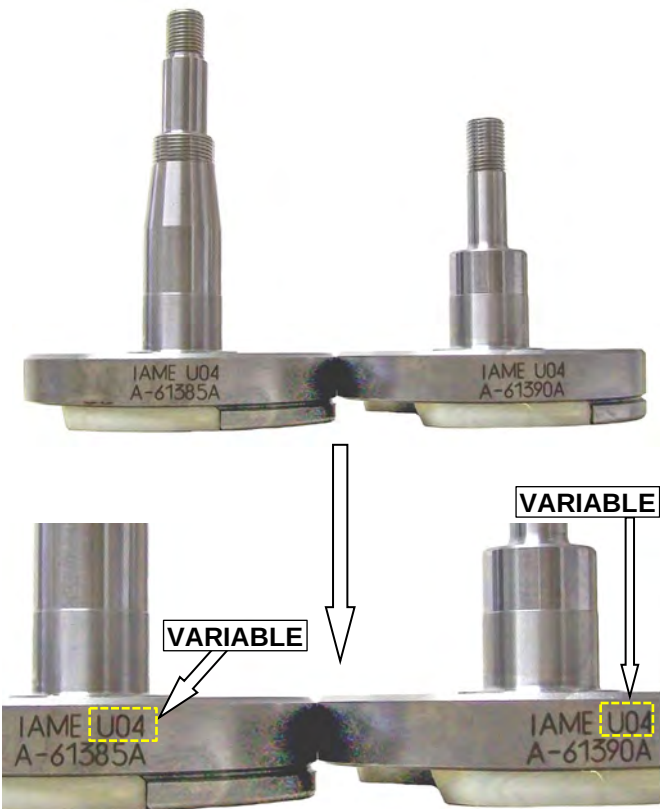
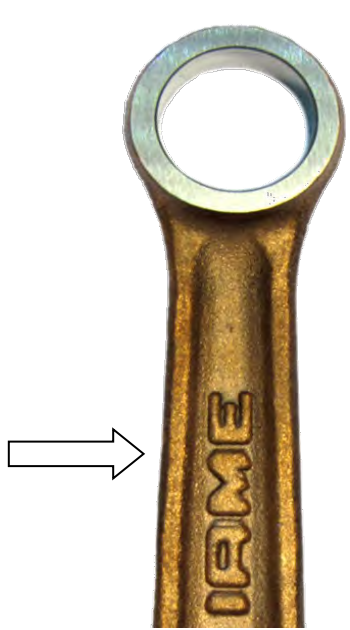
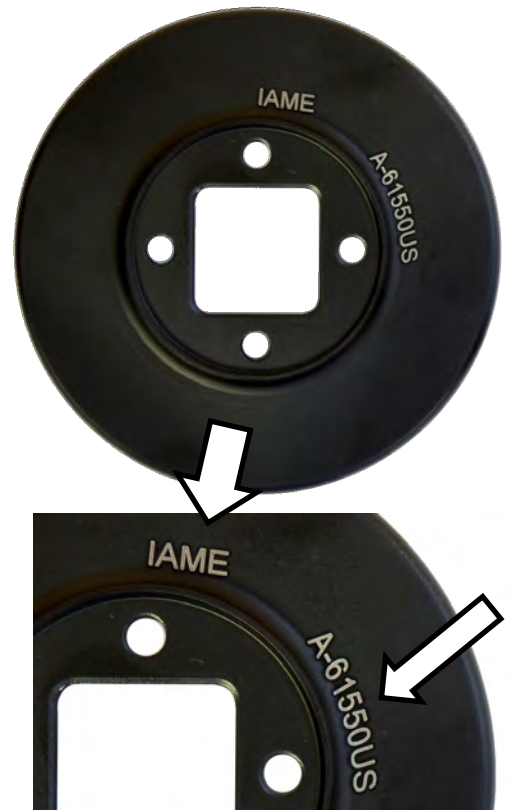


IDENTIFICATION OF PISTON IT1 TYPES
(dimensions and weight are the same for both types)

CURRENT

ALTERNATIVE



CRANKSHAFT IDENTIFICATION MARKINGS	CONROD IDENTIFICATION MARKING
	
CLUTCH HUB IDENTIFICATION MARKING TYPE 1	CLUTCH DRUM IDENTIFICATION MARKING
	

CRANKSHAFT PHOTOS

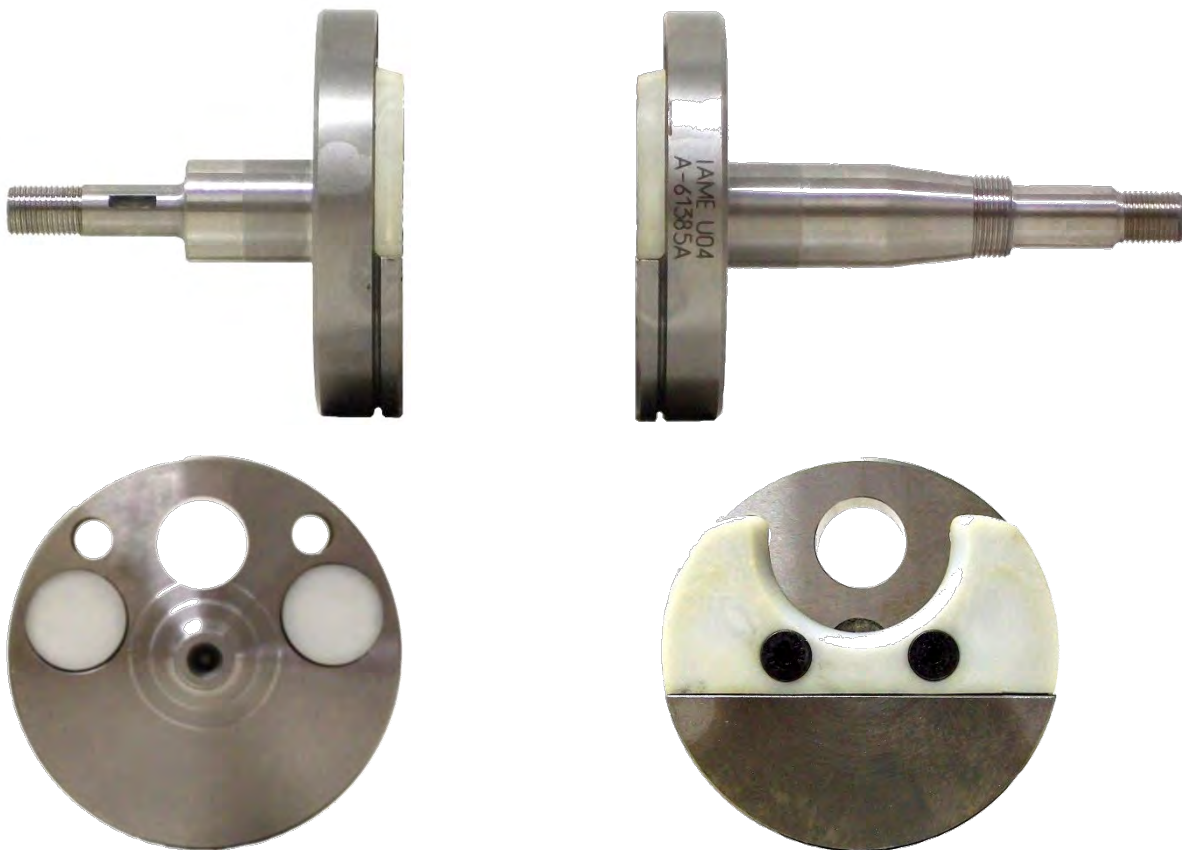
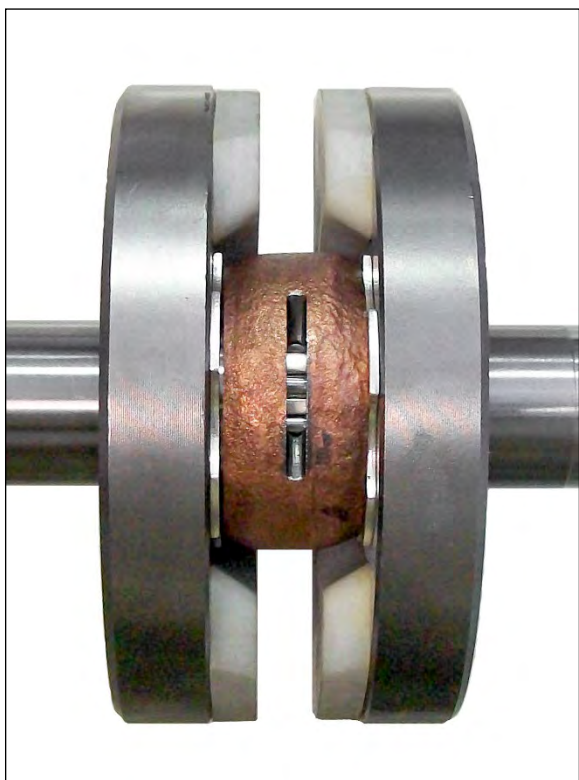


PHOTO OF COMPLETE CRANKSHAFT

EXHAUST without embossed logo



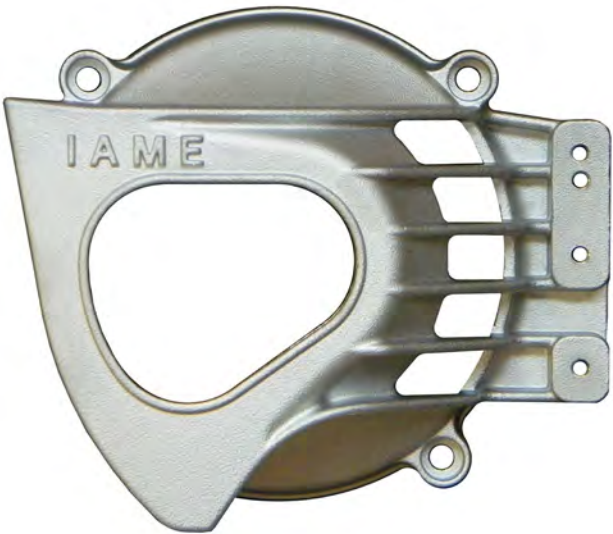
IGNITION COVER IDENTIFICATION MARKING	CLUTCH COVER IDENTIFICATION MARKING
 A grey, semi-circular plastic ignition cover with a ribbed design. The word "IAME" is embossed in the center. It features three mounting holes: one on the left, one on the top right, and one on the bottom right.	 A silver-colored metal clutch cover with a complex, angular shape. The word "IAME" is embossed on the upper left. It has several mounting holes and a large central opening.
INLET FILTER IDENTIFICATION MARKING	
 A blue, curved plastic inlet filter housing. The word "IAME" is embossed in a large font, followed by a smaller "01SAFE" marking.	

PHOTO IDENTIFICATION OF CONROD – TYPES ALTERNATIVE

TYPE 1



TYPE 2



TYPE 3

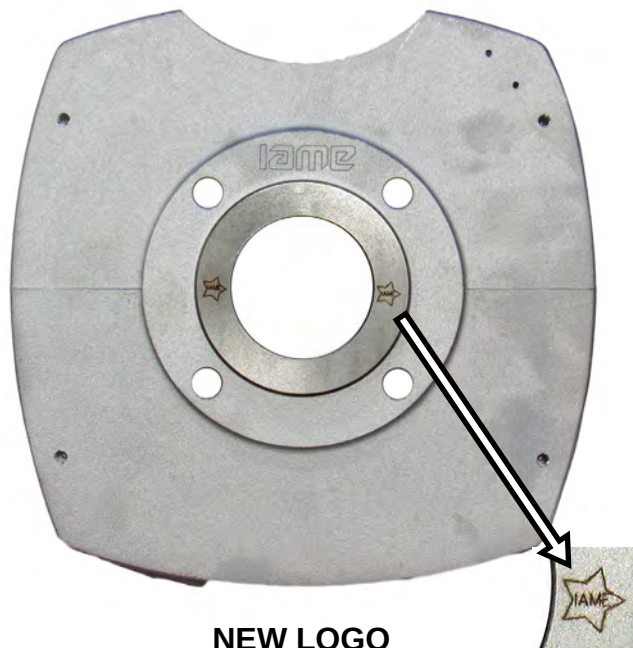


PARTICULARS WITH ALTERNATIVE NEW LOGO "IAME"

CYLINDER



NEW LOGO



NEW LOGO



CYLINDER HEAD



NEW LOGO



PARTICULARS WITH ALTERNATIVE NEW LOGO "IAME"

SEMICARTER IGNITION SIDE



NEW LOGO



FROM 2021 NO "USA" MARKING

SEMICARTER TRANSMISSION SIDE



NEW LOGO



PARTICULARS WITH ALTERNATIVE NEW LOGO “IAME”

CLUTCH HUB



NEW LOGO

VARIABLE



CLUTCH HUB – TYPE 1



NEW LOGO

VARIABLE



CLUTCH DRUM



NEW LOGO



PARTICULARS WITH ALTERNATIVE NEW LOGO “IAME”

IGNITION COVER



NEW LOGO



CLUTCH COVER



NEW LOGO



INLET FILTER



NEW LOGO



EXHAUST without embossed logo



NEW LOGO



THE OTHERS COMPONENTS OF ENGINE THAT ARE MARKED (LASER OR PUNCHING) UNTIL TODAY WITH LOGO OR WRITTEN "IAME"

IAME

or

IAME

NOW COULD BE MARKED WITH NEW LOGO "IAME"

IAME

or

IAME

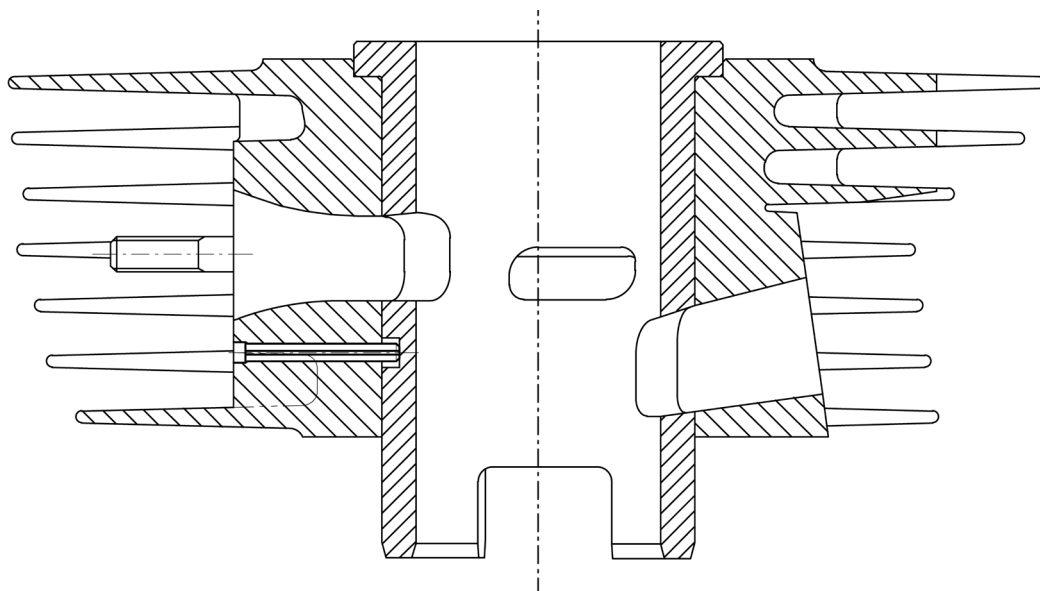
or



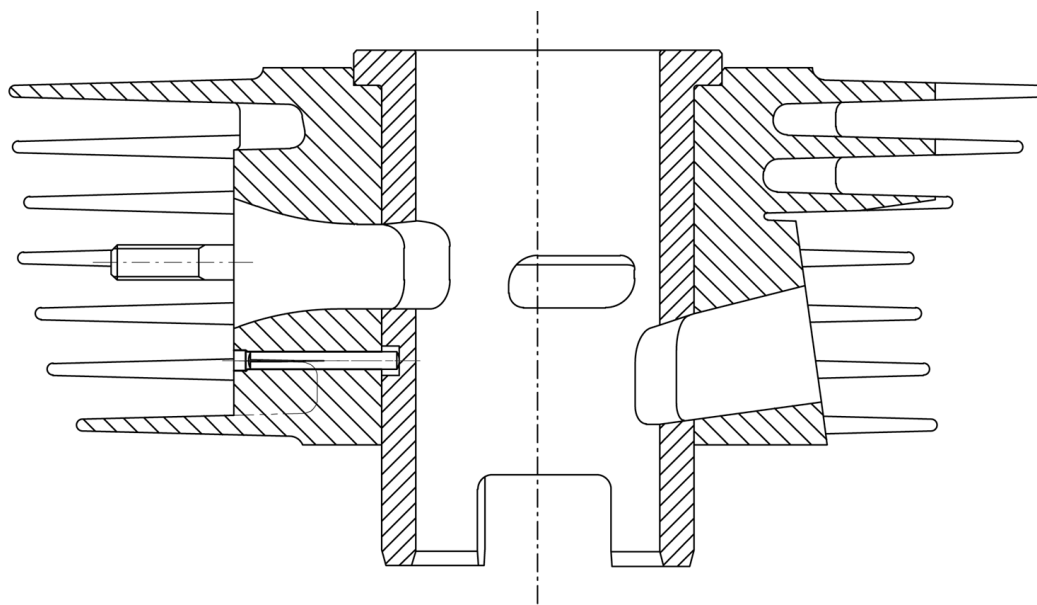
FROM 2025 ON

CYLINDER IDENTIFICATION – ALTERNATIVE CYLINDER LINER LOCK PIN

CURRENT PIN (SPRING PIN)



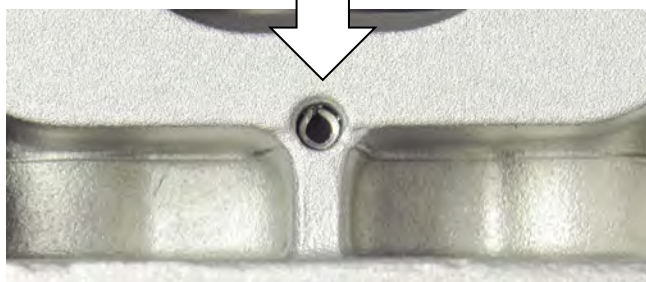
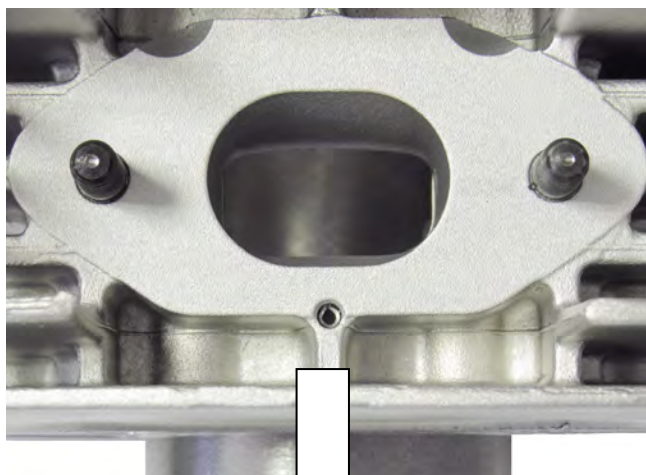
ALTERNATIVE PIN (GROOVED PIN)



FROM 2025 ON

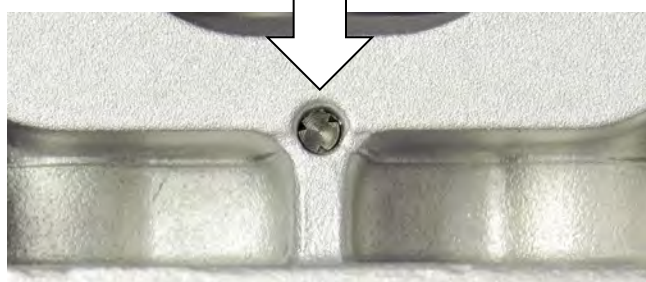
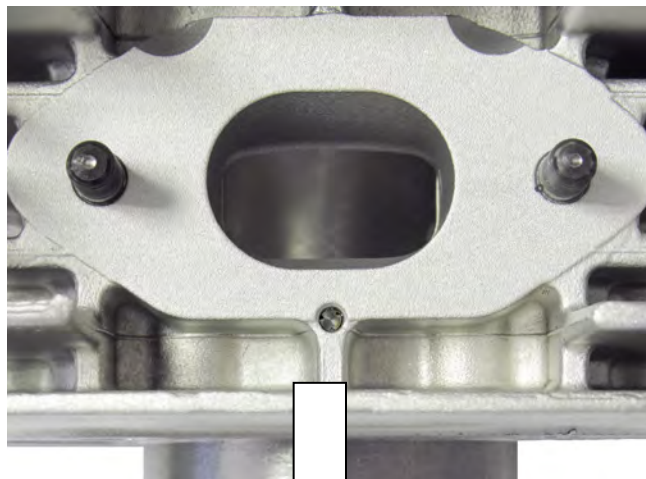
CYLINDER IDENTIFICATION – ALTERNATIVE CYLINDER LINER LOCK PIN

CURRENT PIN



SPRING PIN

ALTERNATIVE PIN



GROOVED PIN



CARBURETTOR Tillotson HW-31A



PHOTO OF ADJUSTING SIDE

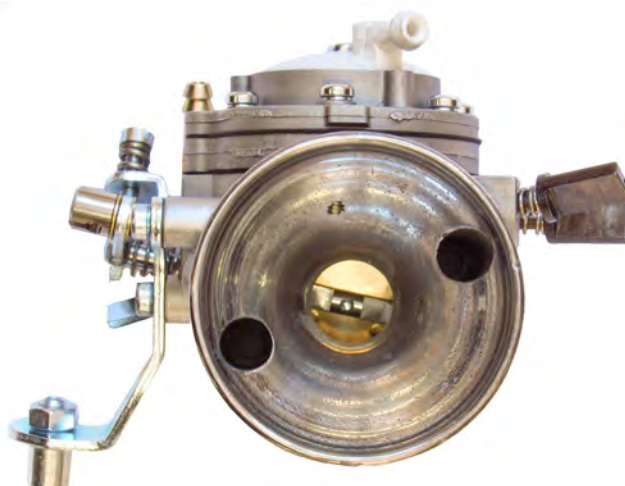
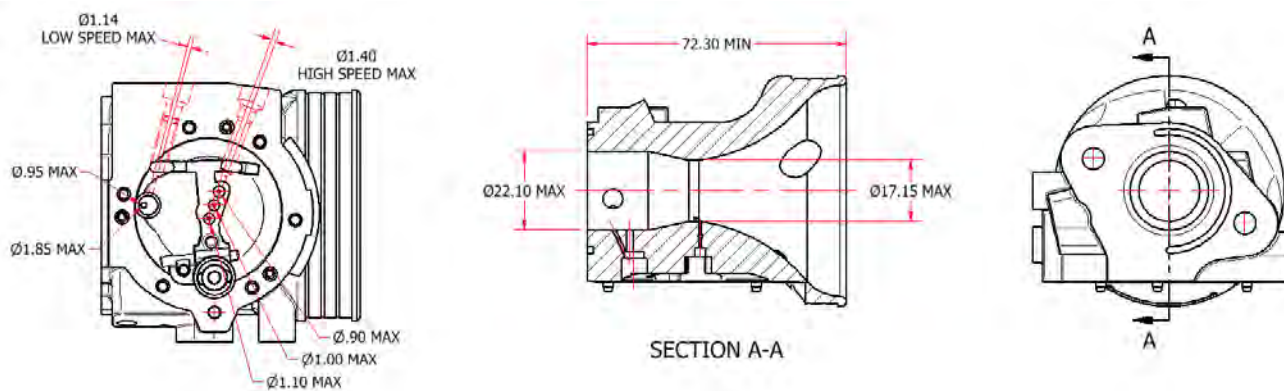


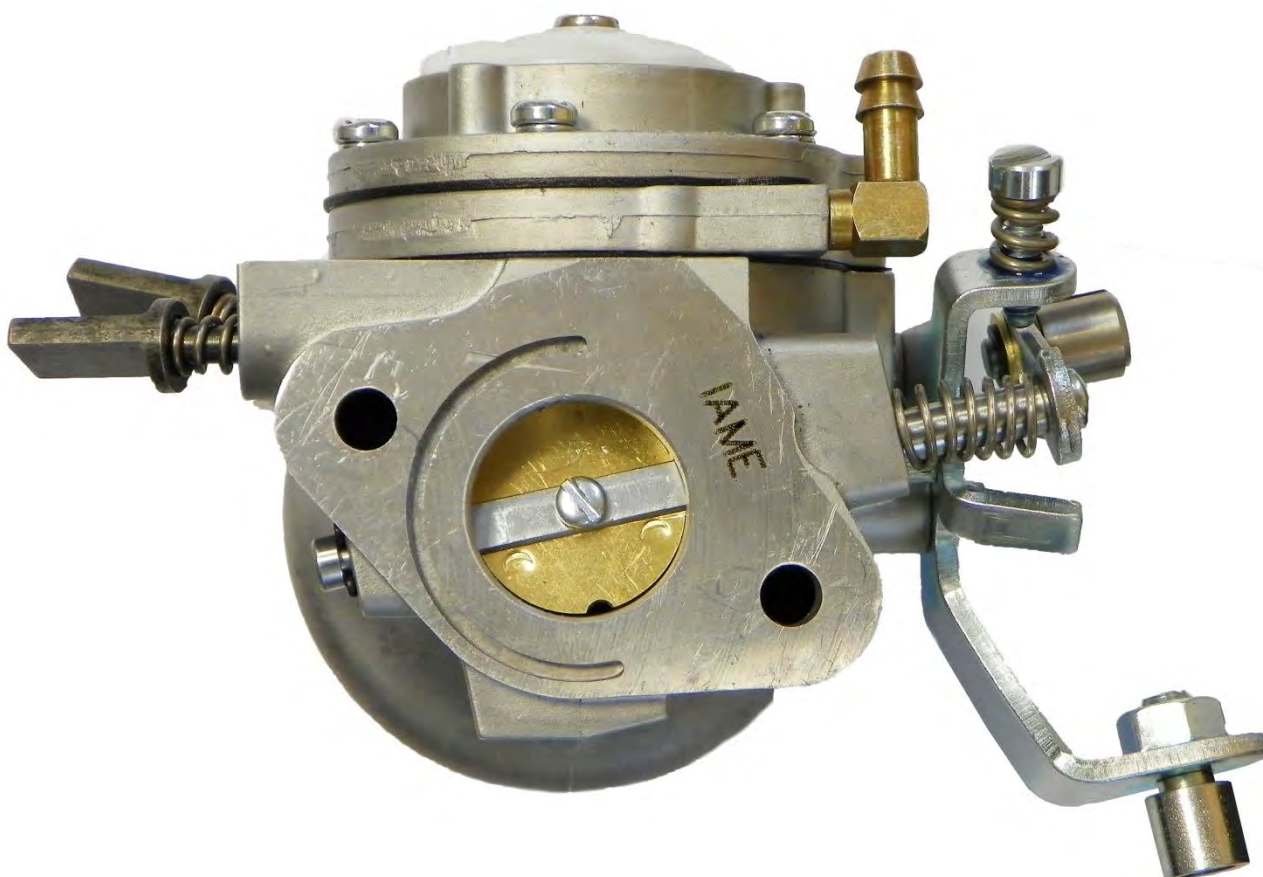
PHOTO OF INLET SIDE

Manufacturer	TILLOTSON LTD.
Make	TILLOTSON
Model	HW-31A

SECTION VIEW

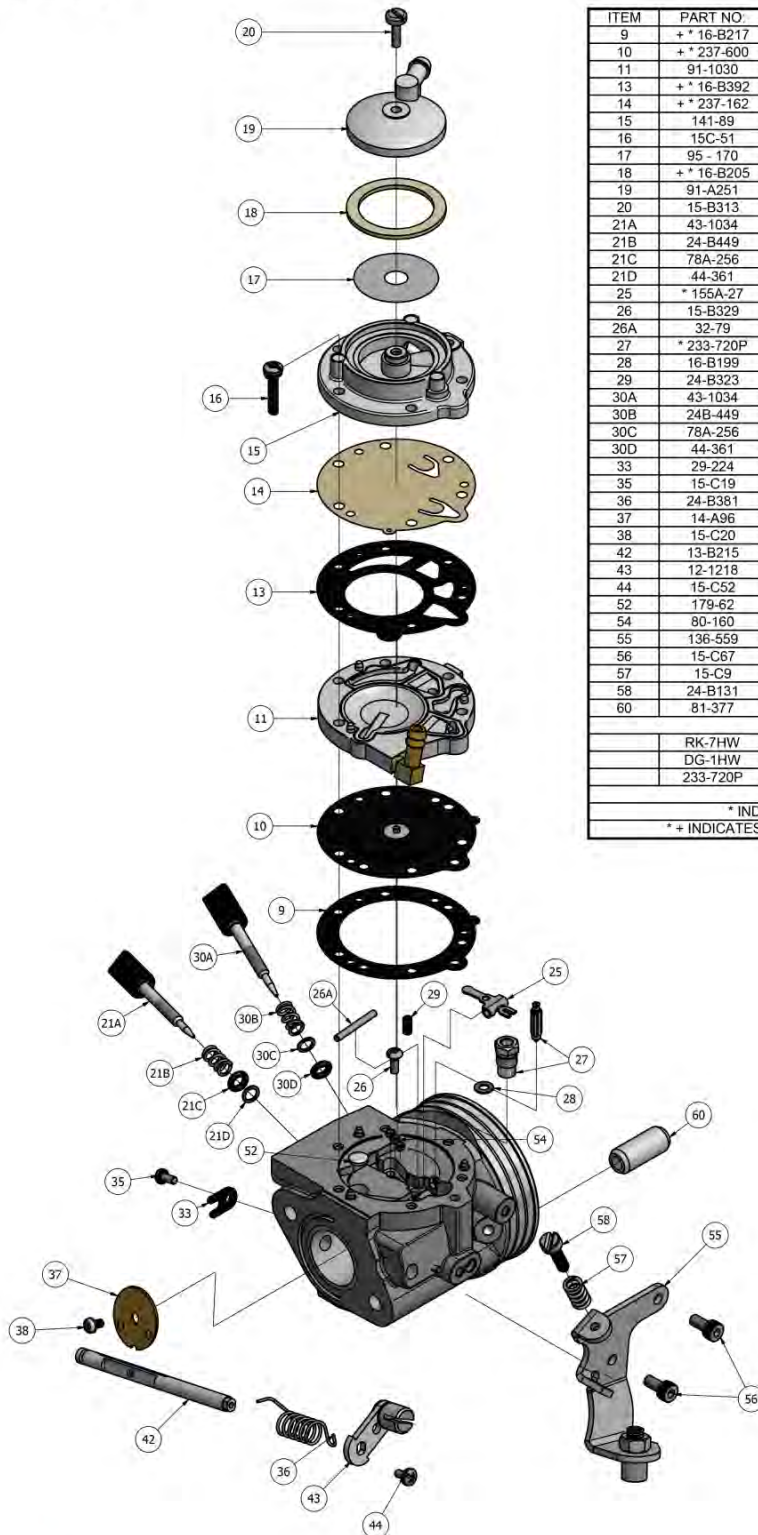


"IAME" MARKING



CARBURETTOR DESCRIPTION AND SKETCH OF PARTS

HW-31A



ITEM	PART NO	DESCRIPTION	QTY
9	+ * 16-B217	DIAPHRAGM GASKET	1
10	+ * 237-600	DIAPHRAGM	1
11	91-1030	DIAPHRAGM COVER	1
13	+ * 16-B392	FUEL PUMP GASKET	1
14	+ * 237-162	FUEL PUMP DIAPHRAGM	1
15	141-89	FUEL PUMP BODY	1
16	15C-51	FUEL PUMP BODY SCREW	6
17	95 - 170	FUEL STRAINER SCREEN	1
18	+ * 16-B205	FUEL STRAINER COVER GASKET	1
19	91-A251	FUEL STRAINER COVER	1
20	15-B313	FUEL STRAINER COVER RETAINING SCREW	1
21A	43-1034	IDLE MIXTURE SCREW	1
21B	24-B449	IDLE MIXTURE SCREW SPRING	1
21C	78A-256	IDLE MIXTURE SCREW WASHER	1
21D	44-361	IDLE MIXTURE SCREW PACKING	1
25	* 155A-27	INLET CONTROL LEVER	1
26	15-B329	FULCRUM LEVER SCREW	1
26A	32-79	FULCRUM LEVER PIN	1
27	* 233-720P	INLET NEEDLE & SEAT SET	1
28	16-B199	INLET SEAT GASKET	1
29	24-B323	INLET TENSION SPRING	1
30A	43-1034	HIGH SPEED MIXTURE SCREW	1
30B	24B-449	HIGH SPEED MIXTURE SCREW SPRING	1
30C	78A-256	HIGH SPEED MIXTURE SCREW WASHER	1
30D	44-361	HIGH SPEED MIXTURE SCREW PACKING	1
33	29-224	THROTTLE SHAFT CLIP	1
35	15-C19	THROTTLE SHAFT CLIP RETAINING SCREW	1
36	24-B381	THROTTLE RETURN SPRING	1
37	14-A96	THROTTLE SHUTTER	1
38	15-C20	THROTTLE SHUTTER SCREW	1
42	13-B215	THROTTLE SHAFT	1
43	12-1218	THROTTLE LEVER ASSEMBLY	1
44	15-C52	THROTTLE LEVER RETAINING SCREW	1
52	179-62	WELCH PLUG	1
54	80-160	MAIN PLUG	3
55	136-559	CABLE BRACKET	1
56	15-C67	CABLE BRACKET RETAINING SCREW	2
57	15-C9	LIMITER SCREW	2
58	24-B131	LIMITER SPRING	2
60	81-377	CARBURETTOR MOUNTING NUT	2
	RK-7HW	REPAIR KIT	
	DG-1HW	DIAPHRAGM & GASKET (STANDARD)	
	233-720P	INLET NEEDLE & SEAT SET	
* INDICATES CONTENTS OF REPAIR KIT			
* + INDICATES CONTENTS OF DIAPHRAGM & GASKET SET			



Clash Industrial Estate - Tralee - Ireland
www.tillotson-racing.com



PARTS OF CARBURETTOR

**REF.9 - P. N°16-B217
DIAPHRAGM GASKET**



Thickness = 0.5 ± 0.1 mm

**PUMP DIAPHRAGM GASKET
REF.13 - P. N° 16-B392**



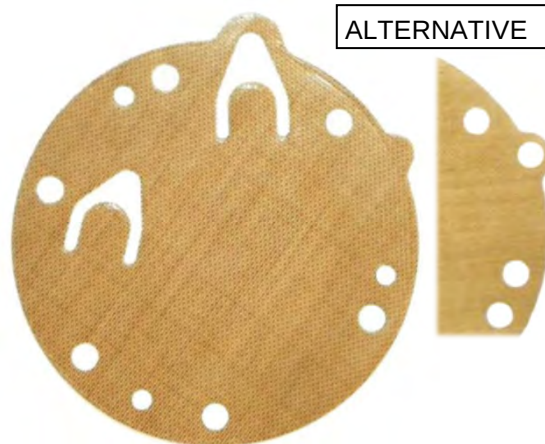
Thickness = 0.8 ± 0.1 mm

**REF.10 - P. N°237-600
DIAPHRAGM**



Thickness = 0.13 ± 0.07 mm

**REF.14 - P. N°237-162
PUMP DIAPHRAGM**



Thickness = 0.10 ± 0.063 mm

**REF.11 - P. N° 91-1031
DIAPHRAGM COVER**

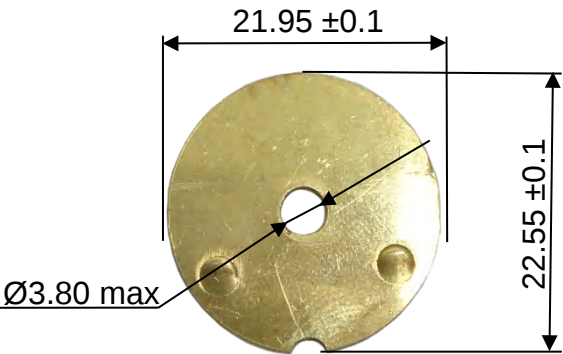
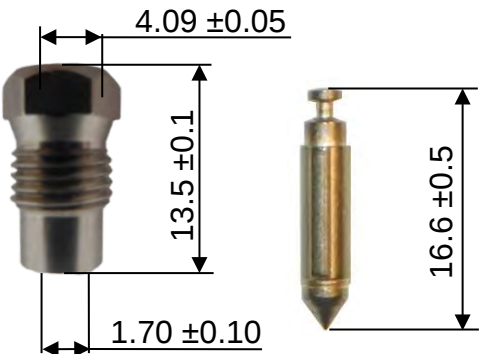
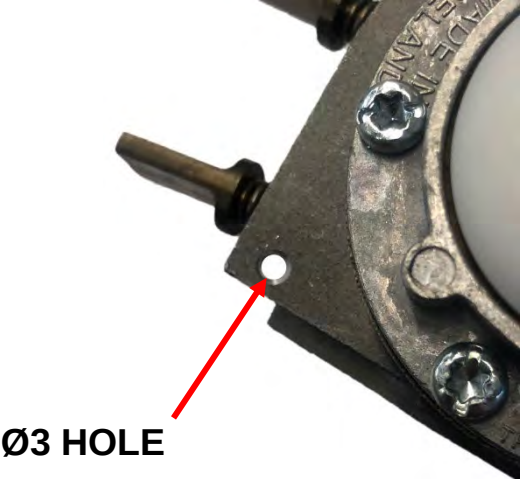


Thickness = 6.75 ± 0.15 mm

**REF.15 - P. N° 141-89
PUMP COVER**



Thickness = 12.5 ± 0.15 mm

REF.37 - P. N° 14-A96 THROTTLE SHUTTER  Thickness = 0.81 ±0.1 mm	REF.27 - P. N° 233-720P SEAT + NEEDLE 
REF.21A - P. N° 43-1034 NEEDLE LOW SPEED 	REF.30A - P. N° 43-1034 NEEDLE HIGH SPEED 
NEEDLE FUEL ALTERNATIVE	HOLE FOR CARBURETTOR SEALING
REF.27 - P. N° 233-720P 	The carburettor can have this hole for sealing.  Ø3 HOLE