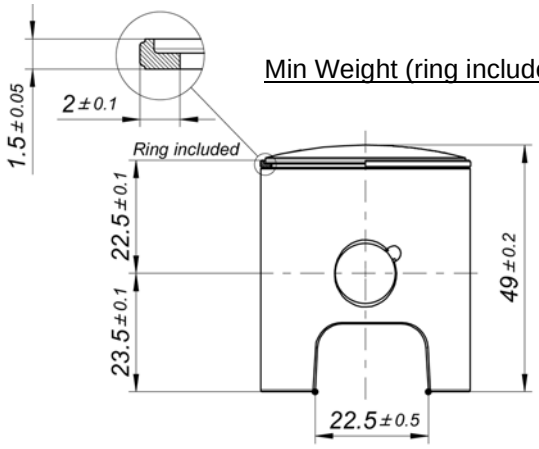
60CC MINI SWIFT USA - TaG

FEATURES	
Cylinder Volume	60.00 cm³ 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

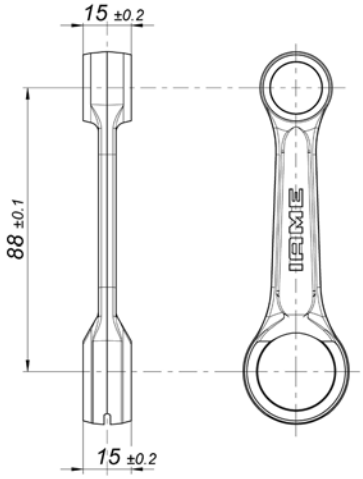
DESCRIPTION OF THE MATERIAL	
Conrod material	Steel
Crankshaft material	Steel
Head Material	Aluminum
Cylinder Material	Aluminum
Liner material	Cast Iron
Crankcase material	Aluminum
Piston material	Aluminum
Piston rings material	Cast Iron
Exhaust muffler material	Sheet-steel
Ball-bearings	6204 type

PISTON



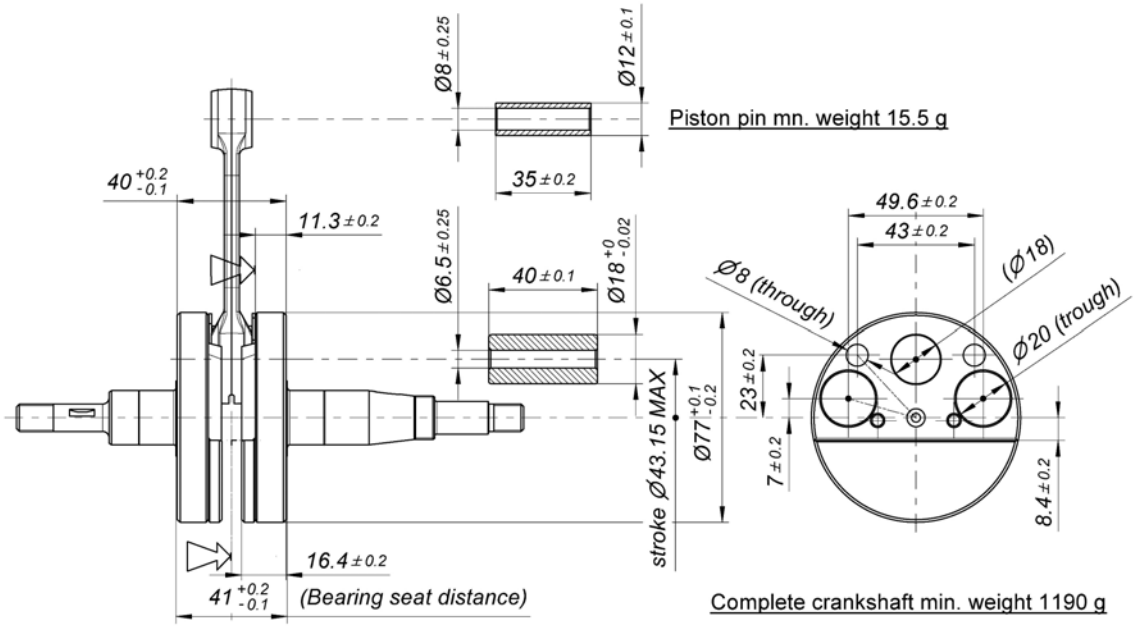
Min Weight (ring included) 60 g

DISTANCE BETWEEN CONROD CENTERS



Min Weight 80 g

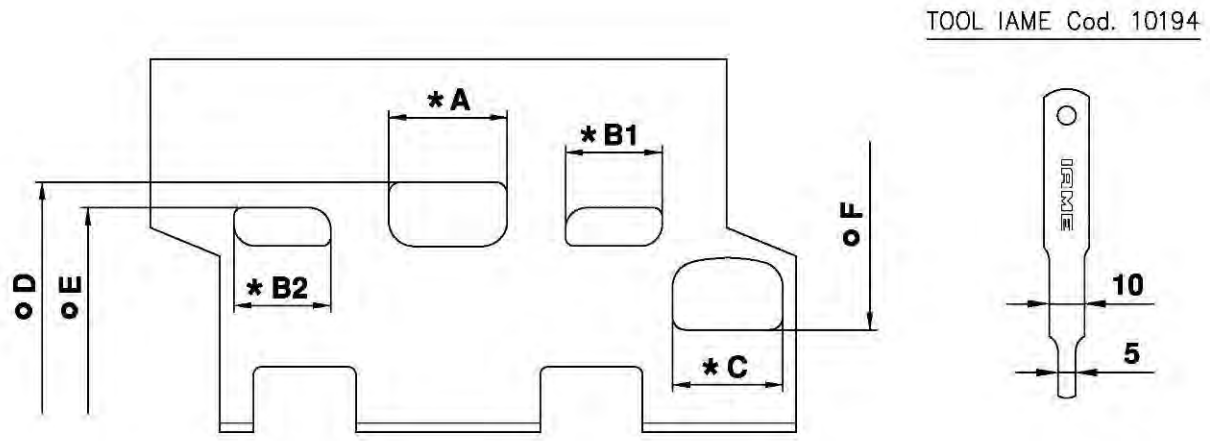
CRANKSHAFT



Piston pin mn. weight 15.5 g

Complete crankshaft min. weight 1190 g

CYLINDER DEVELOPMENT

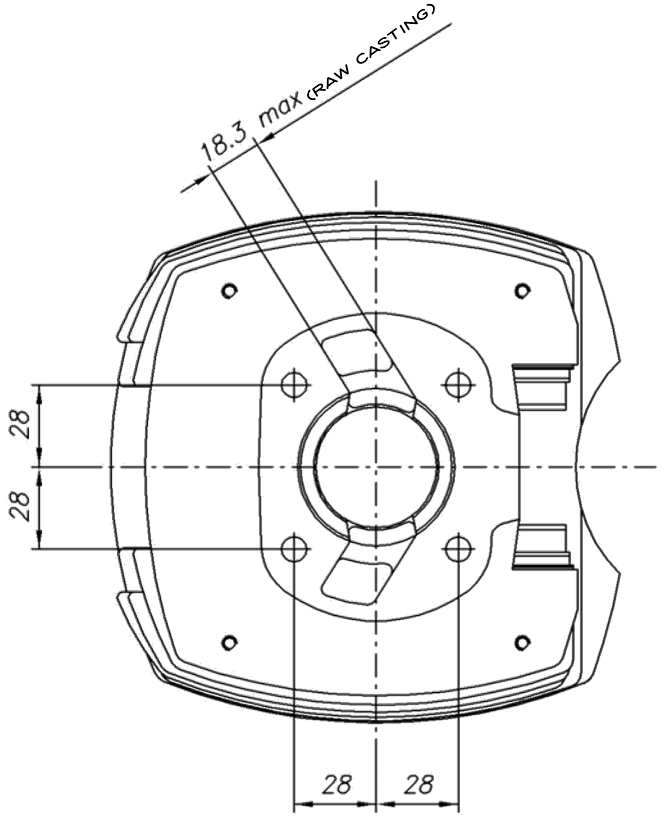


A	≤ 28.5 mm
B1 = B2	≤ 22.3 mm
C	≤ 26.5 mm
D	155.5° ±2°
E	115.5° ±2°
F	143.0° ±2°

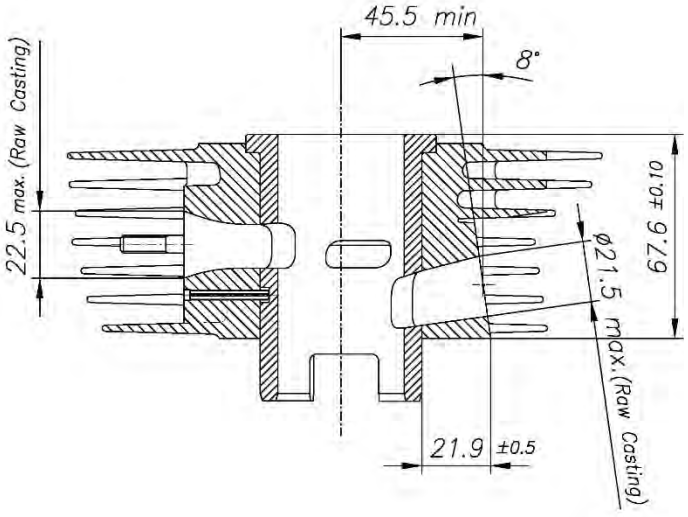
* CHORDAL READING

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

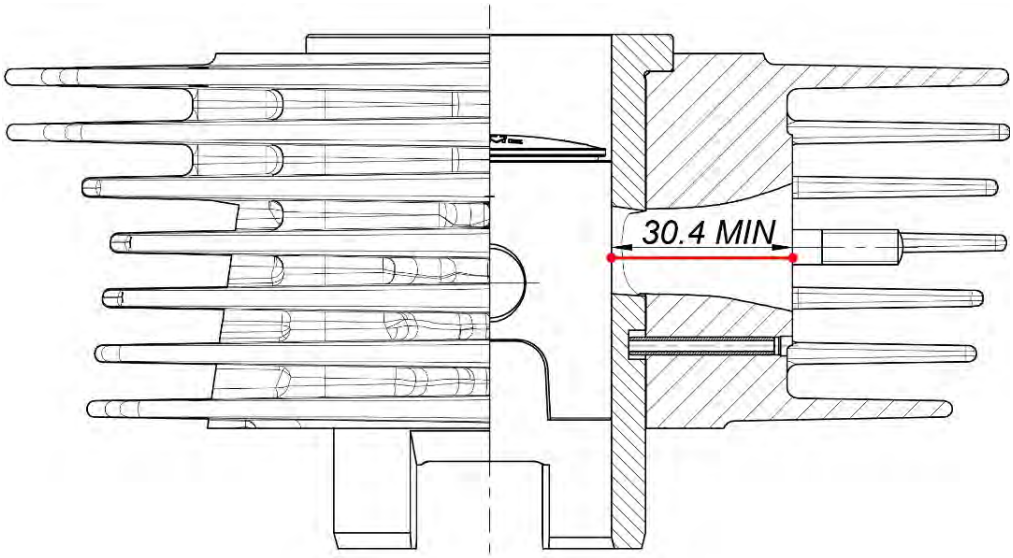
CYLINDER BASE VIEW



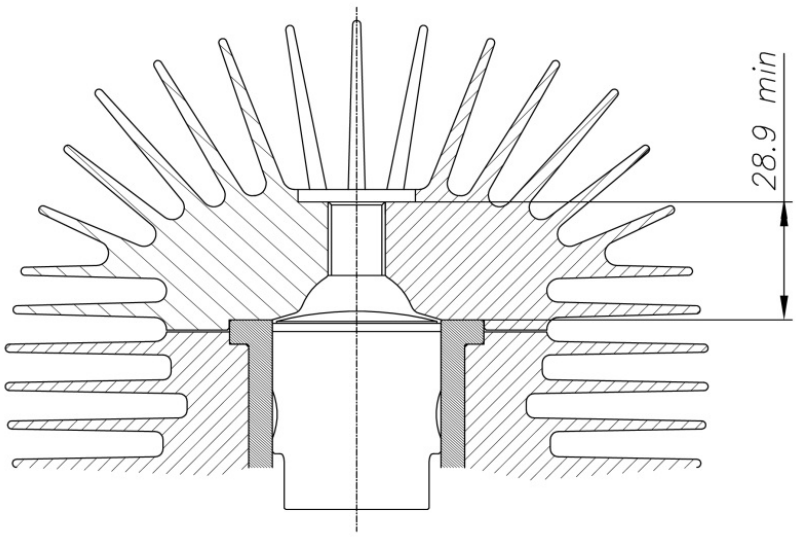
CYLINDER SECTION VIEW



DISTANCE FROM EXHAUST FLANGE TO PISTON

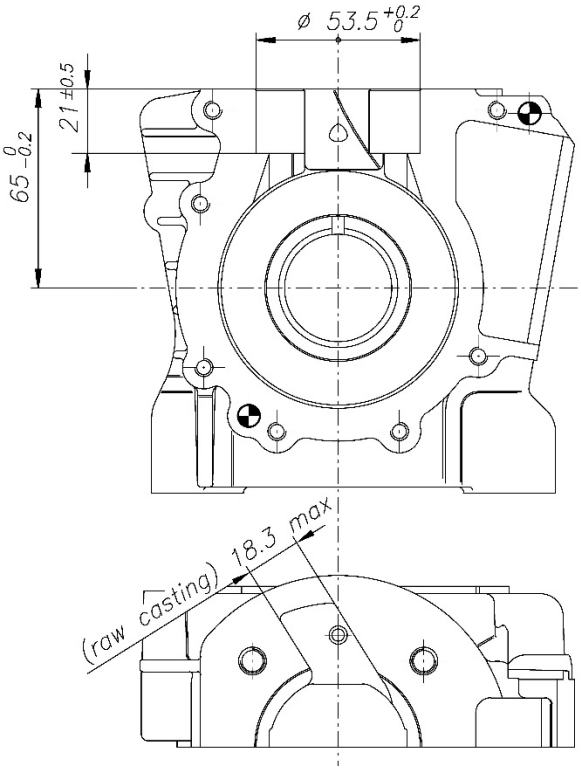


COMBUSTION CHAMBER VIEW



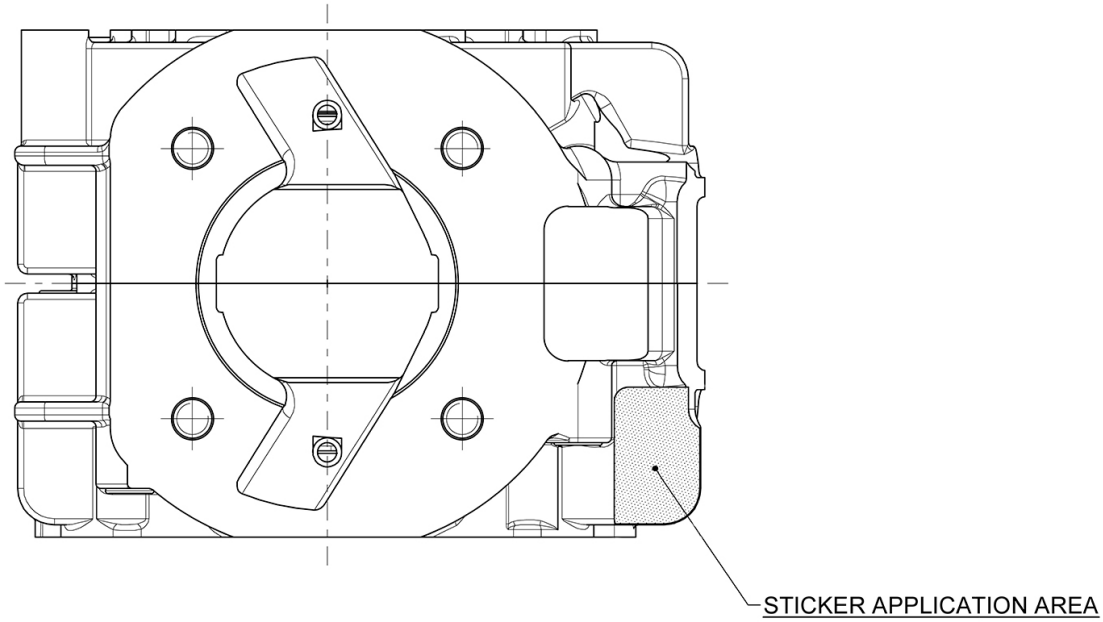
SQUISH MIN.= 0.025” (0.635 mm)
(measured with 0.0625” (1/16”) / Ø1.6mm solder)

CRANKCASE INSIDE VIEW

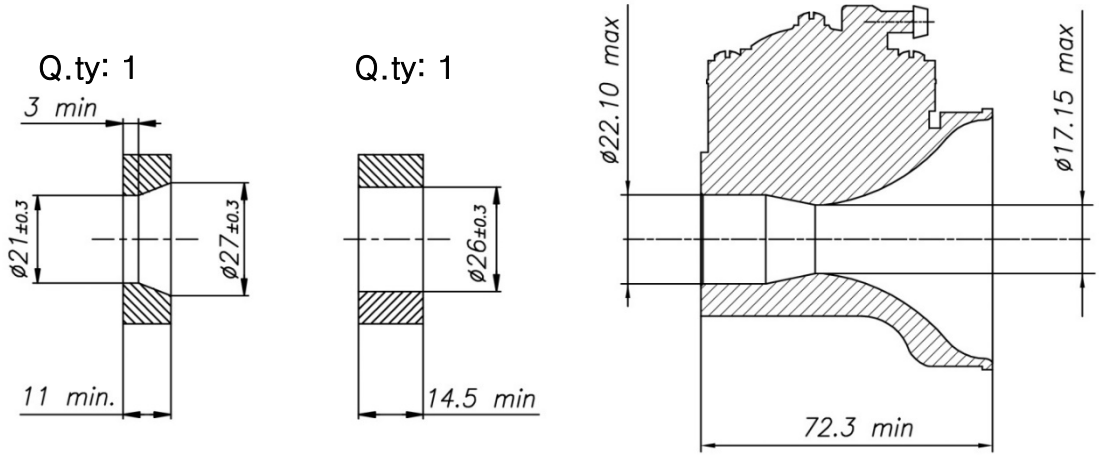


FROM 2026 ON

CRANKCASE UPPER VIEW – STICKER APPLICATION AREA



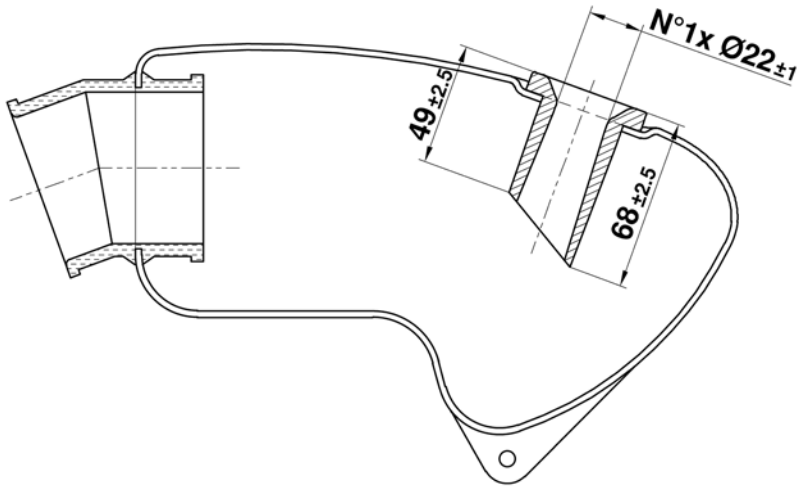
VENTURI CARB. DIMENSIONS and THERMAL SPACERS



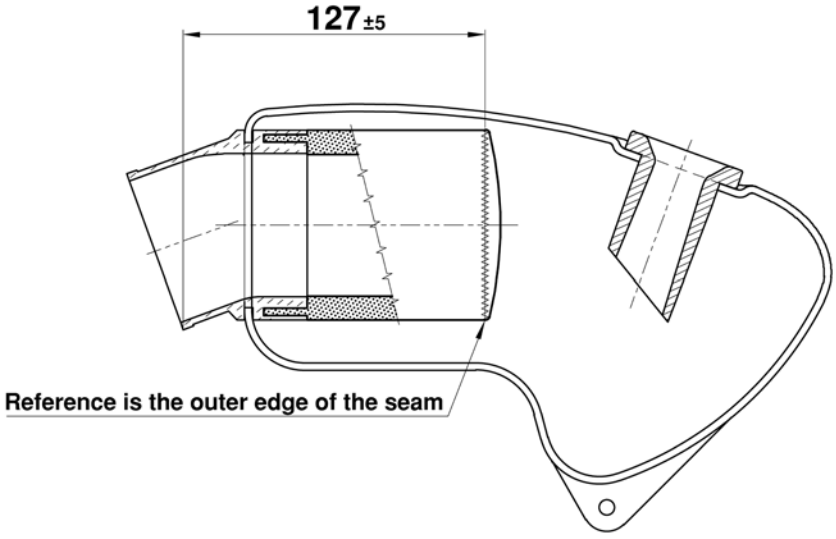
TILLOTSON MOD. HW-31A

INLET SILENCER

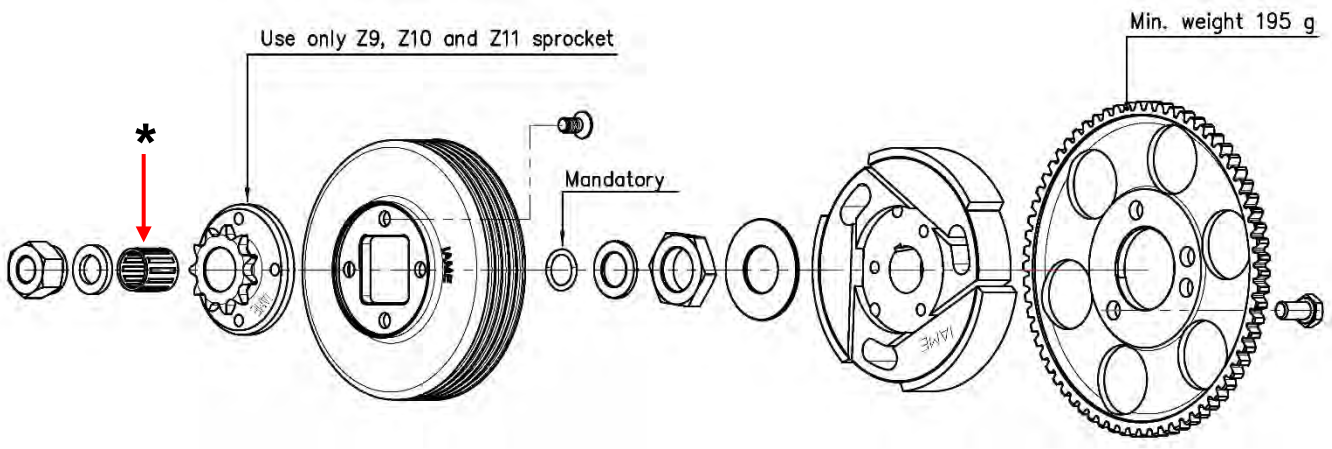
(CSAI OMOLOGATION N° 01/SA/14)



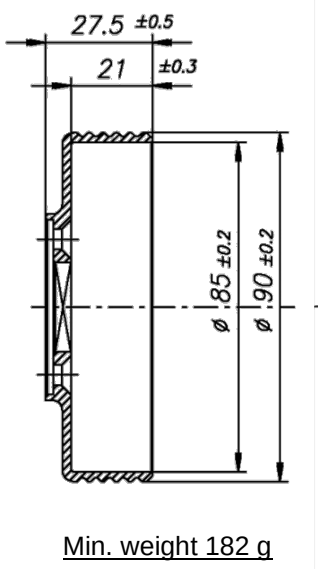
INLET SILENCER WITH ALTERNATIVE MANIFOLD SPONGE FILTER



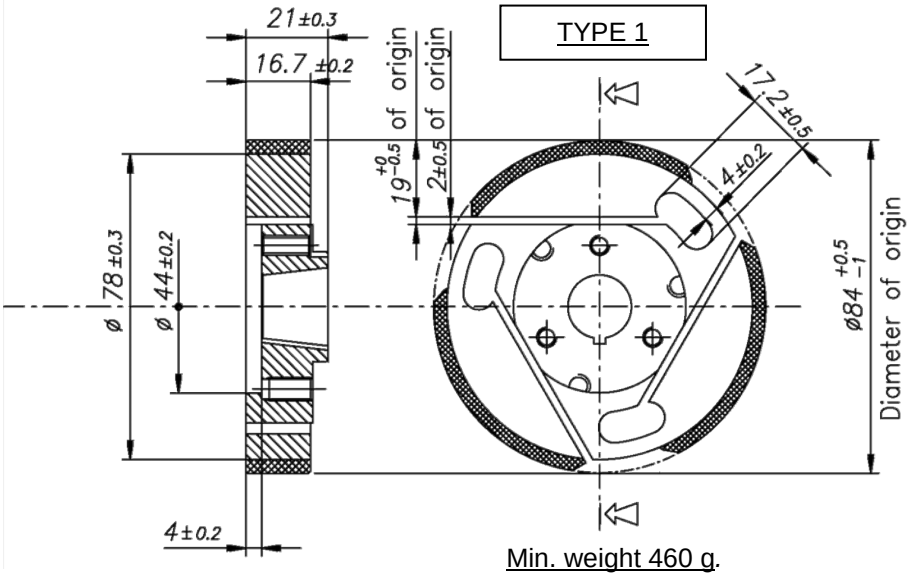
DESCRIPTION OF THE CLUTCH – TYPE1



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

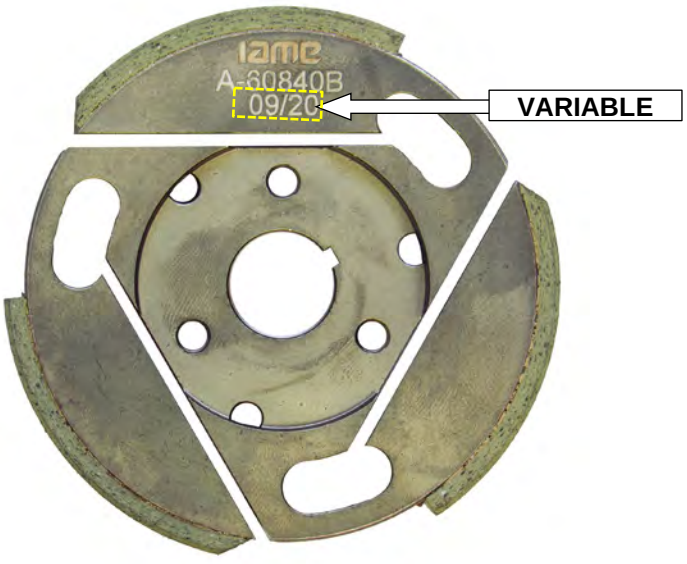


Min. weight 182 g

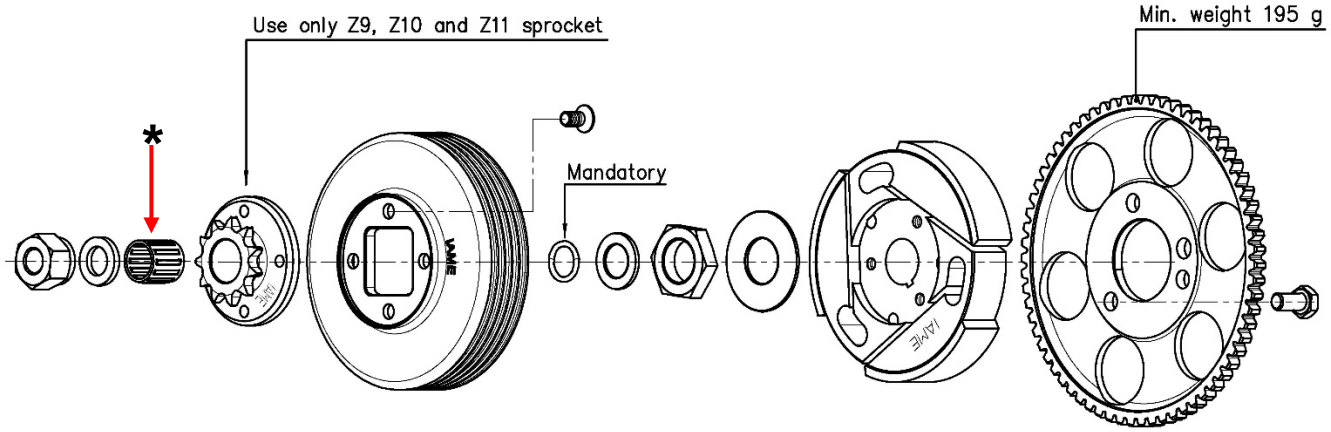


Min. weight 460 g.

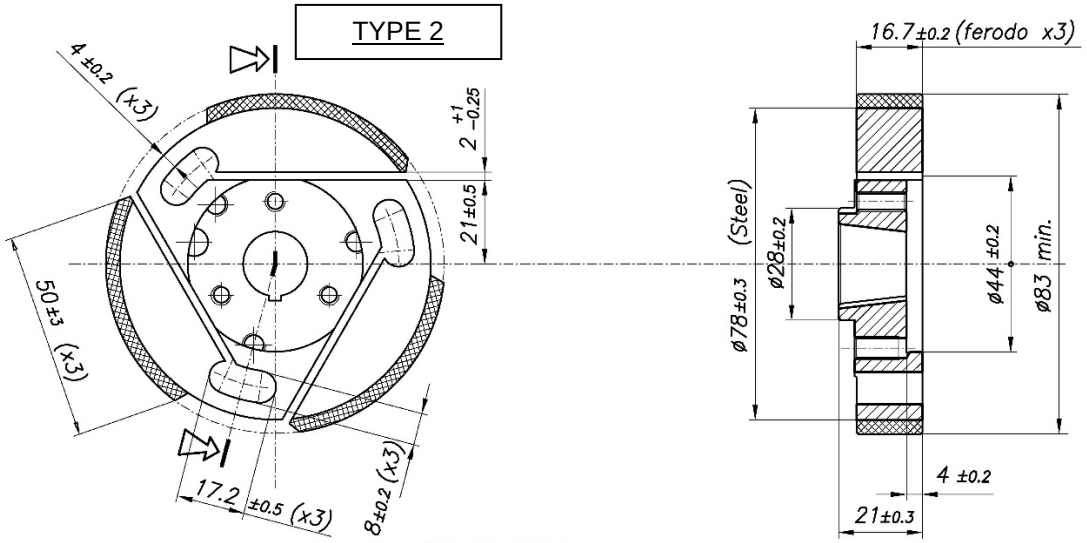
CLUTCH HUB IDENTIFICATION MARKING – TYPE 1



DESCRIPTION OF THE ALTERNATIVE CLUTCH – TYPE 2

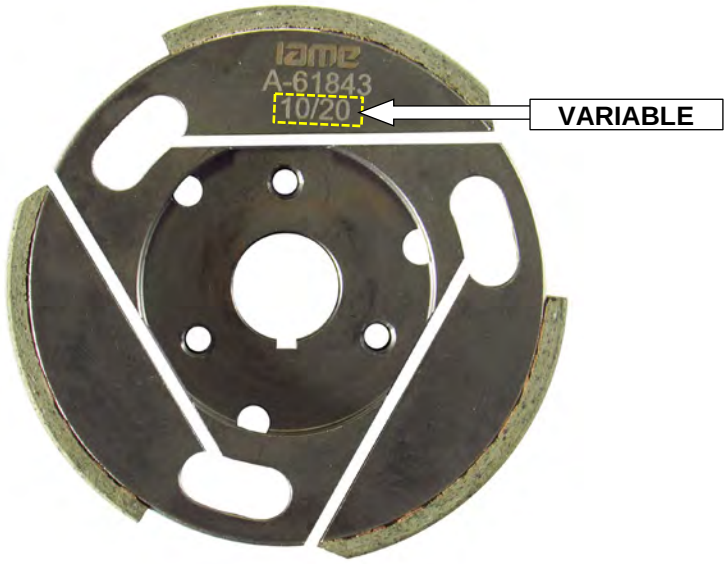


* When using the Z9, the roller cage is replaced by a bronze bushing, pressed into the sprocket

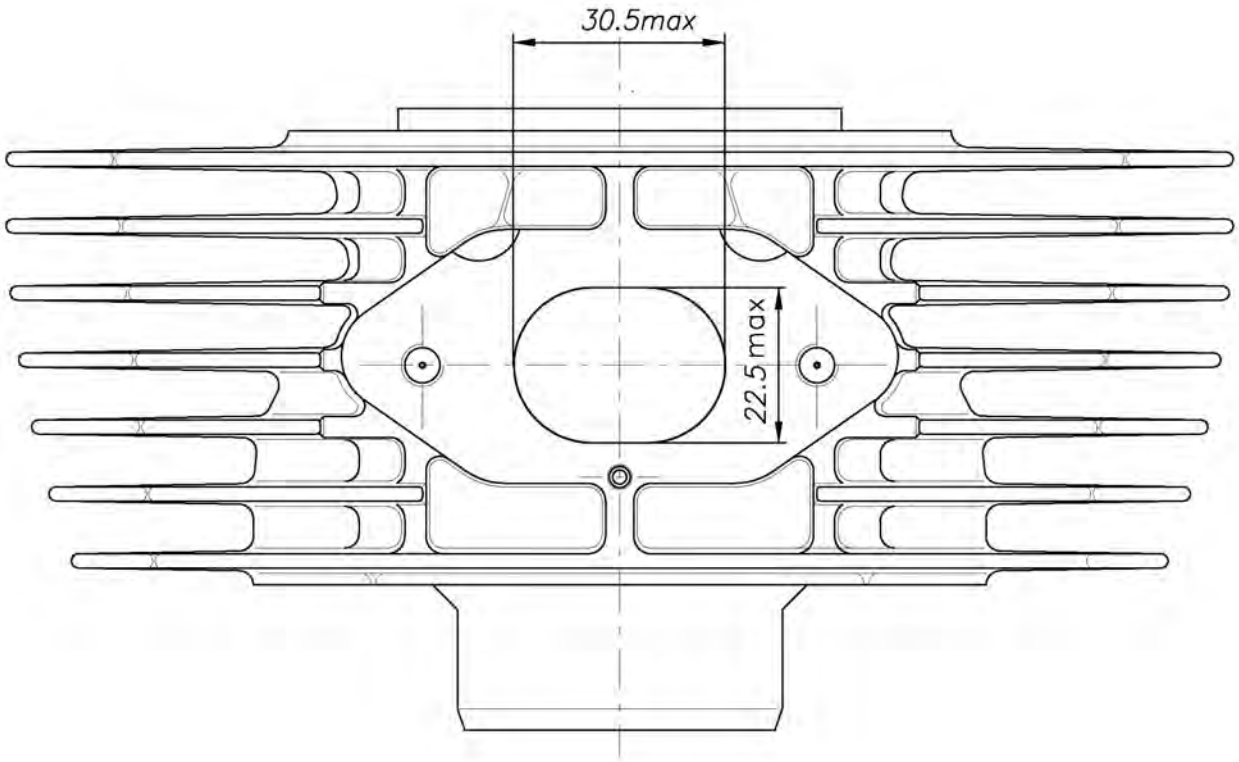


CLUTCH BODY / min. weight 465 g

ALTERNATIVE CLUTCH HUB IDENTIFICATION MARKING – TYPE 2

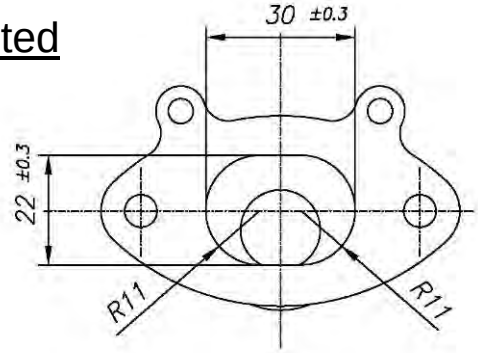


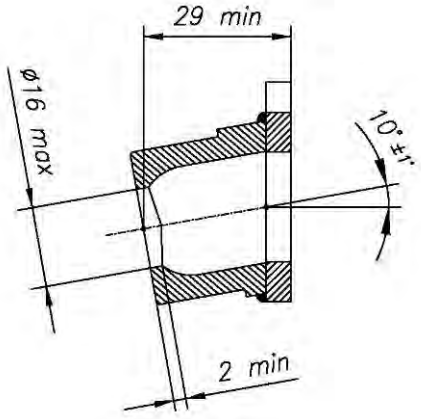
EXHAUST EXIT VIEW AND DIMENSION



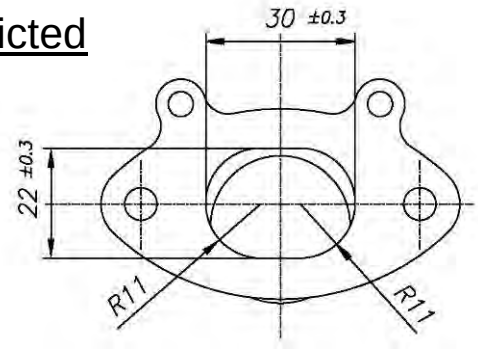
EXHAUST FITTING

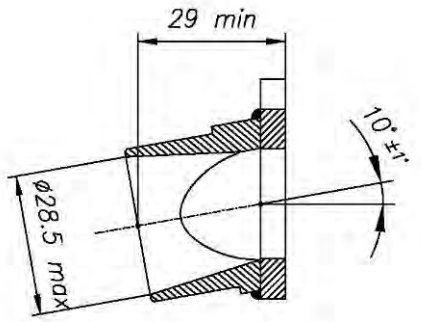
Restricted



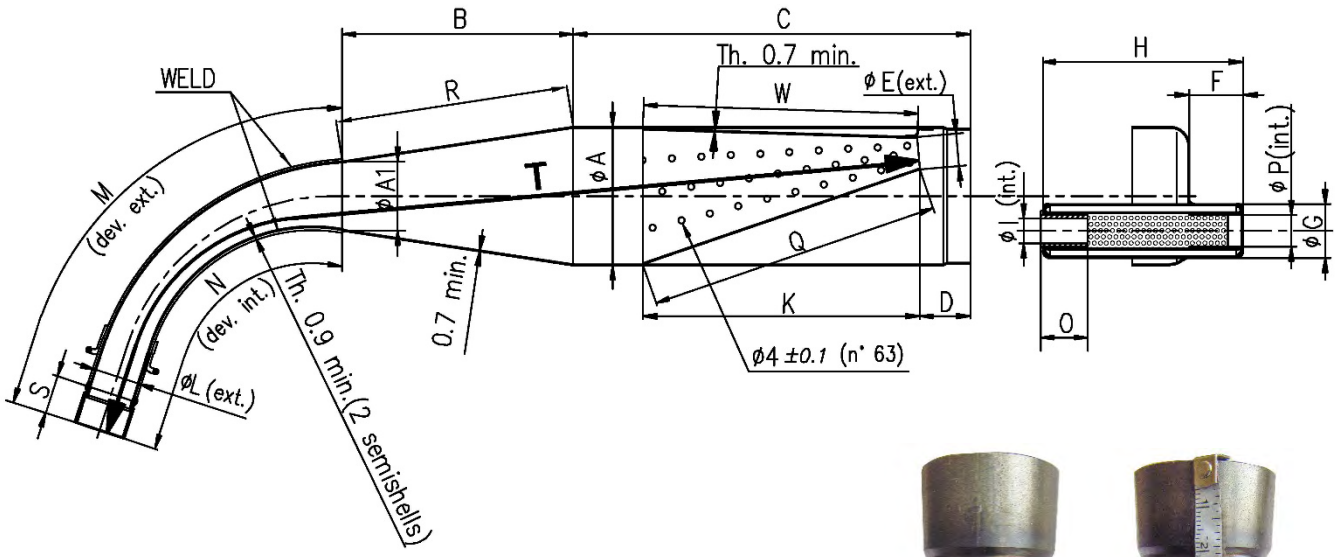


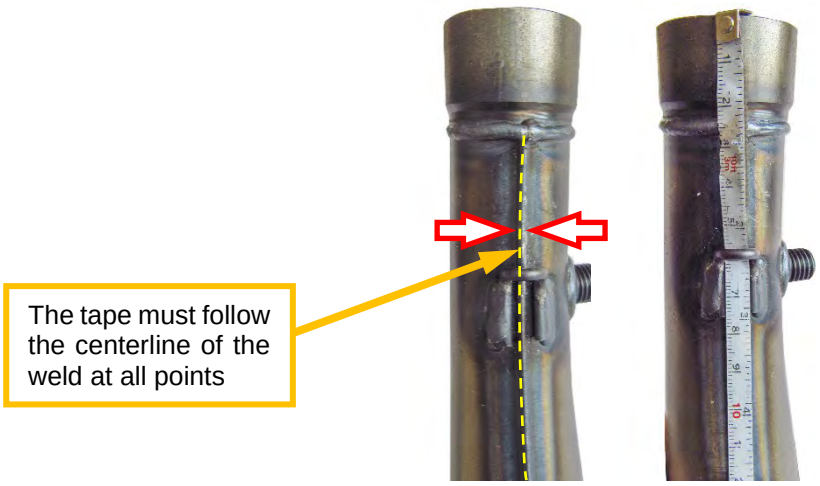
Unrestricted





EXHAUST VIEW AND DIMENSIONS (with and without embossed logo)





Min. weight 1.250 g

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

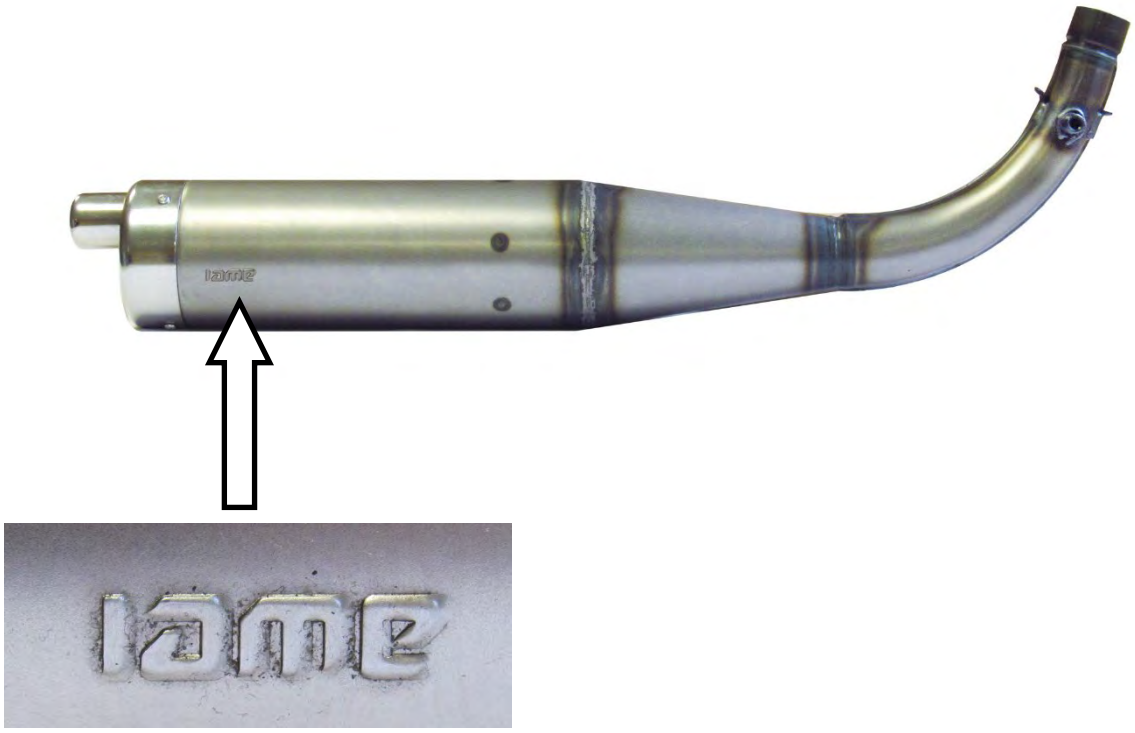
WARNING:

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

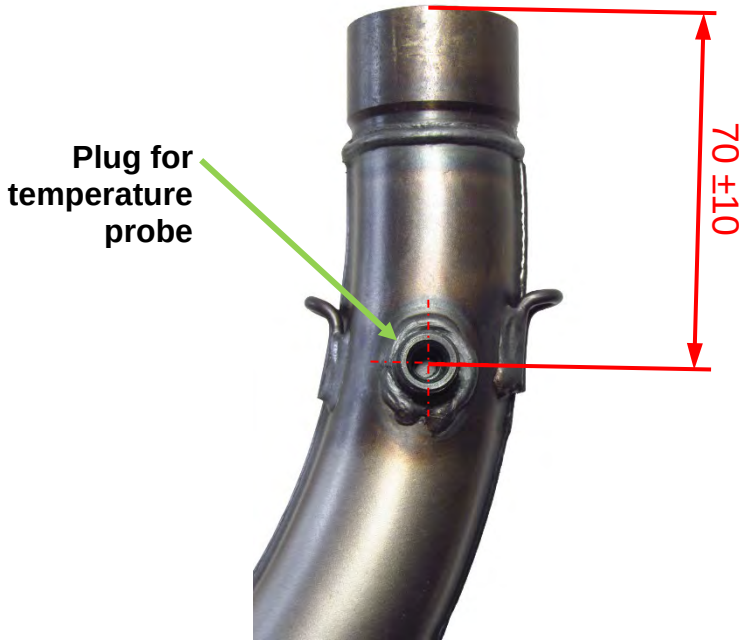
The dimensions "**M**" and "**N**" must be taken on the weld centerline.

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

ALTERNATIVE EXHAUST with embossed logo



MARKING



WIRING DIAGRAM

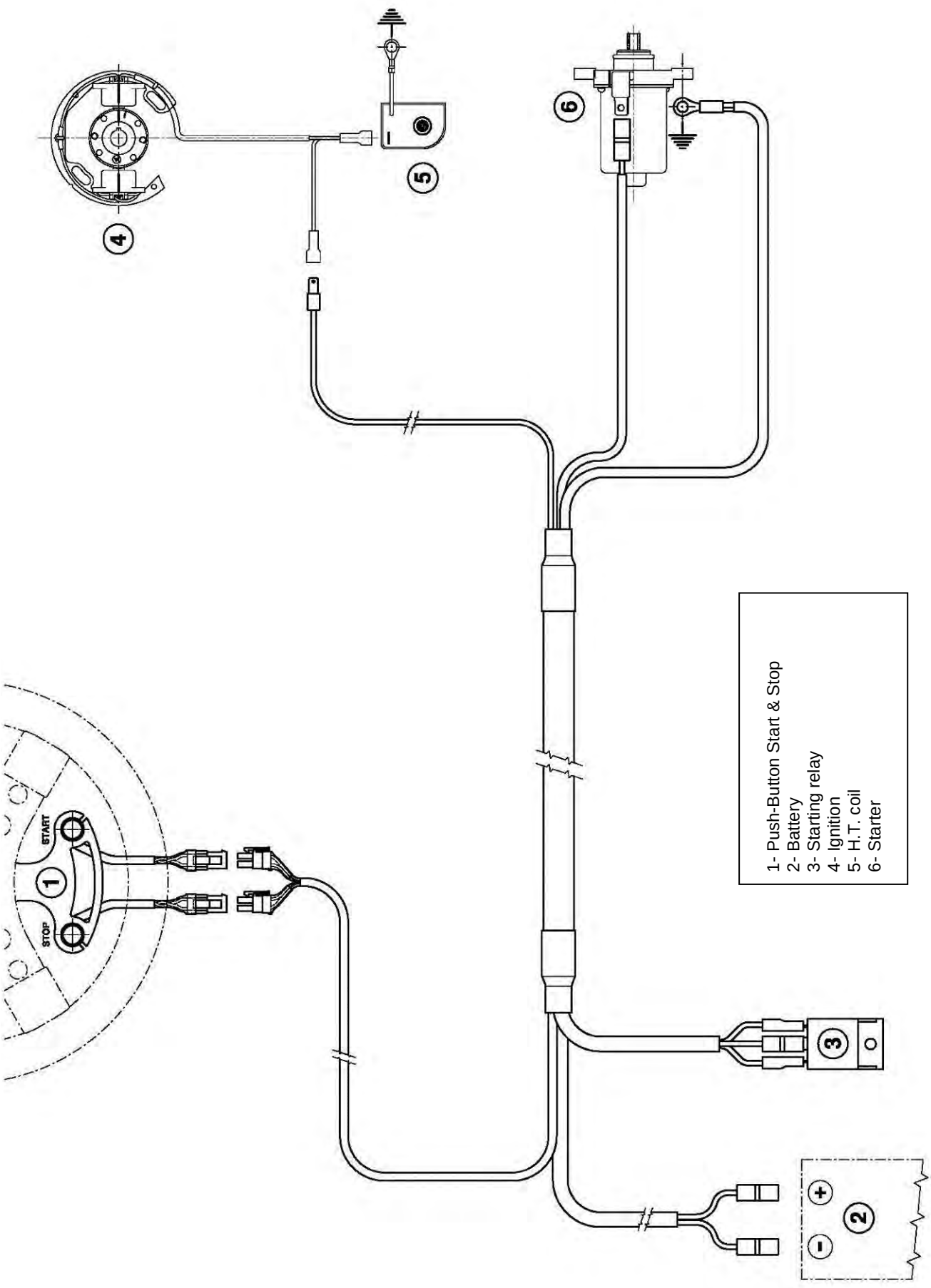


PHOTO COMPLETE WIRING

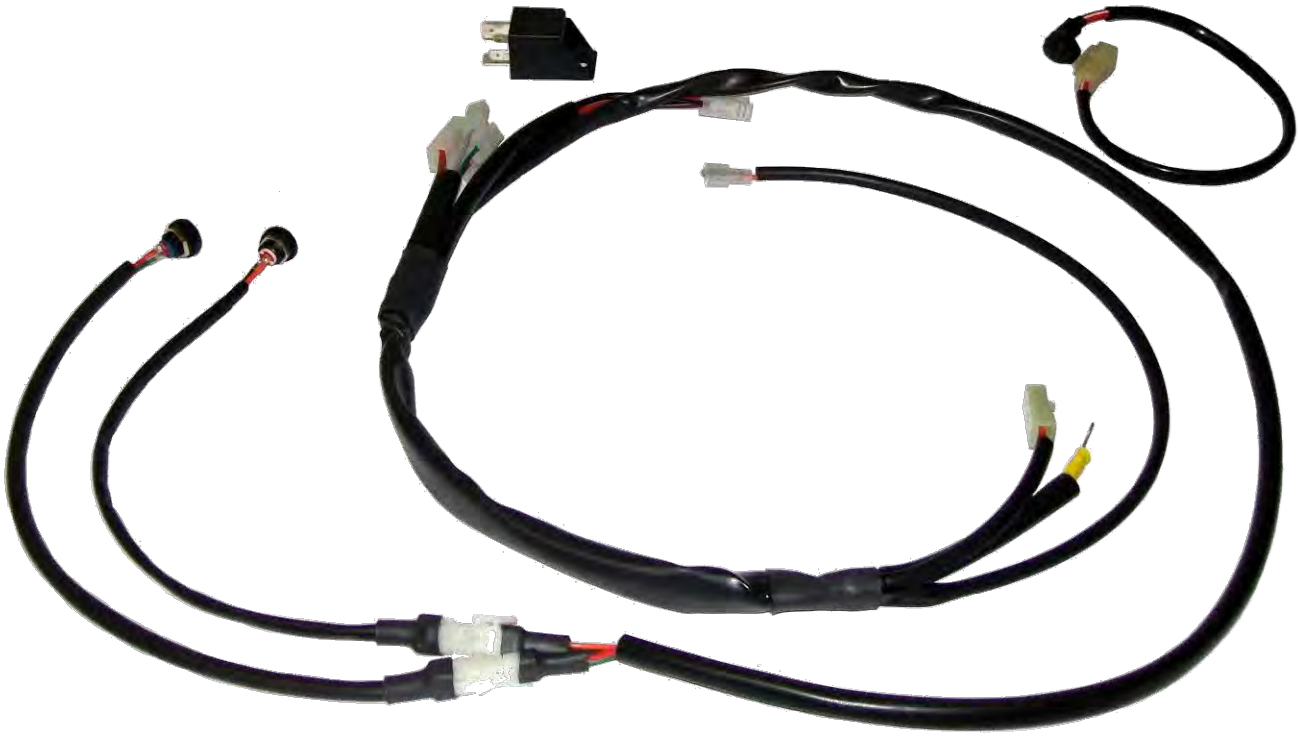
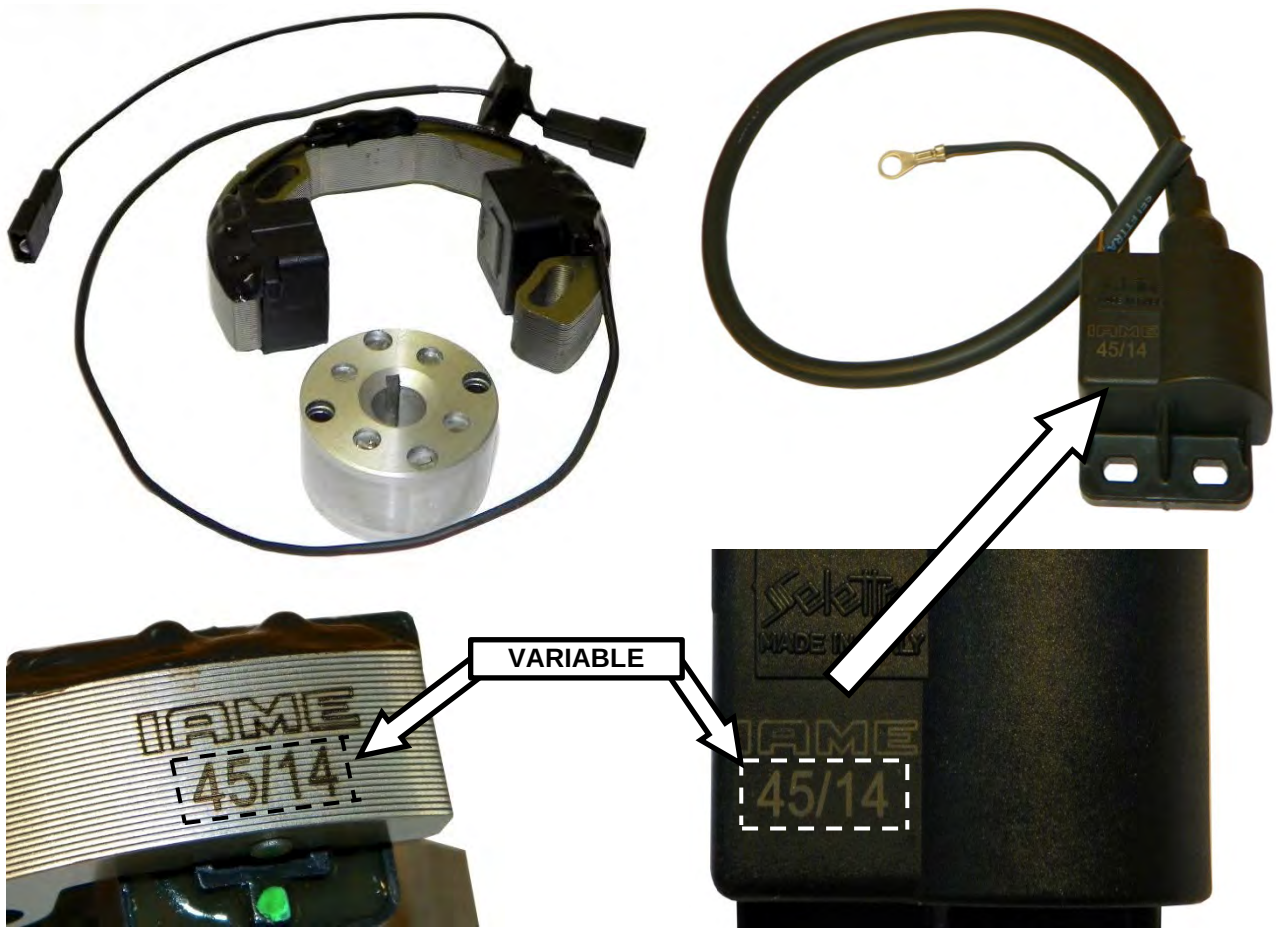


PHOTO OF IGNITION / PHOTO OF H.T. COIL (SELETTRA ANALOGUE 2 POLES)



ALTERNATIVE WIRING LOOM DIAGRAM

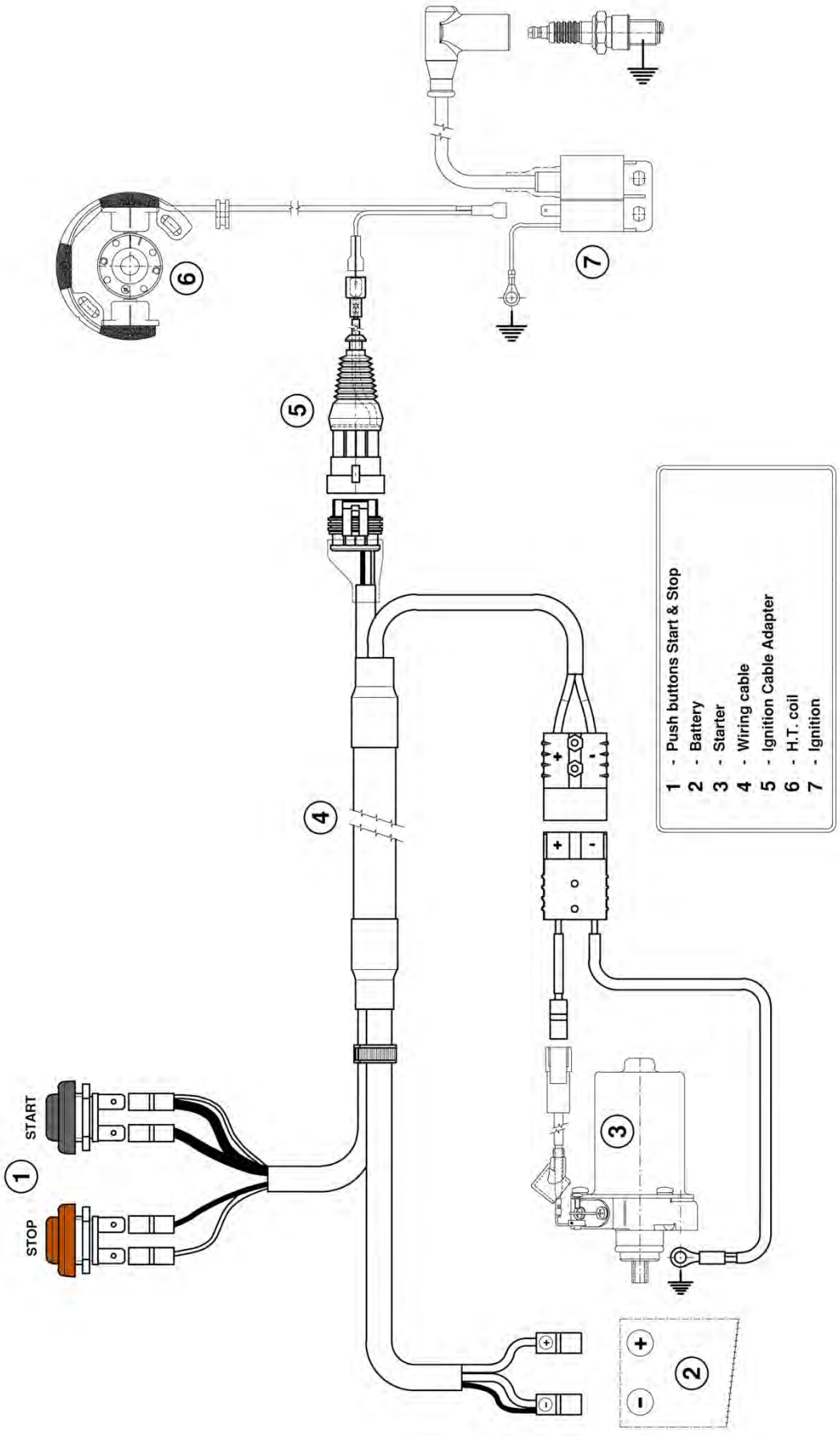
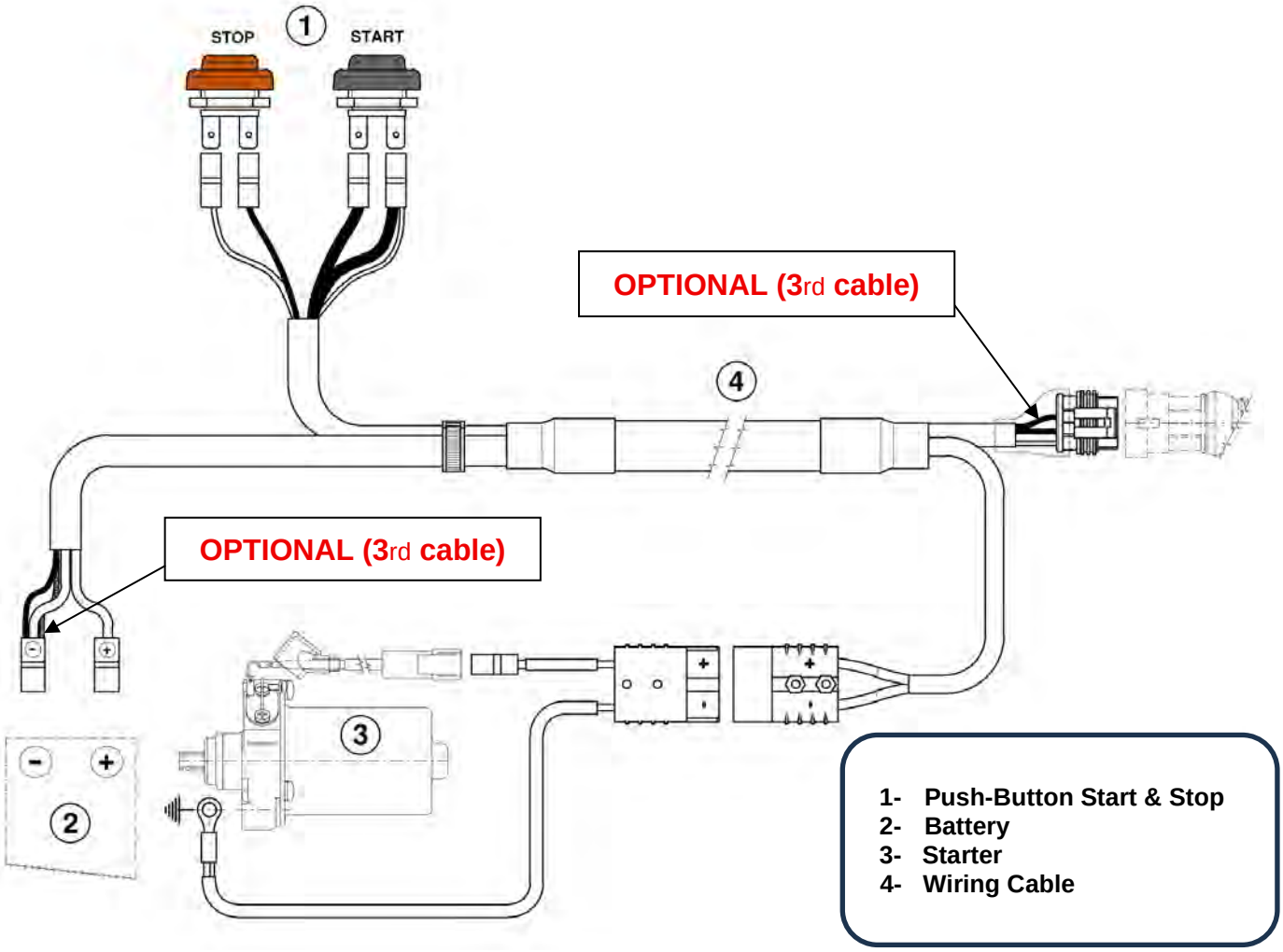
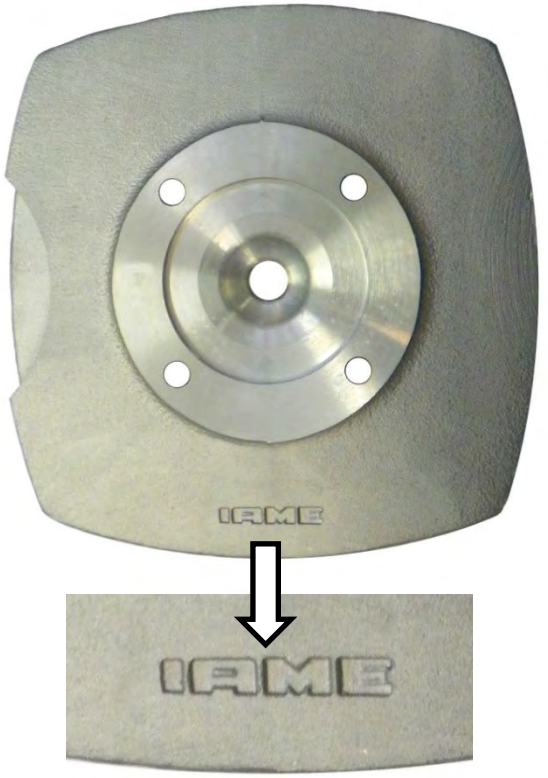
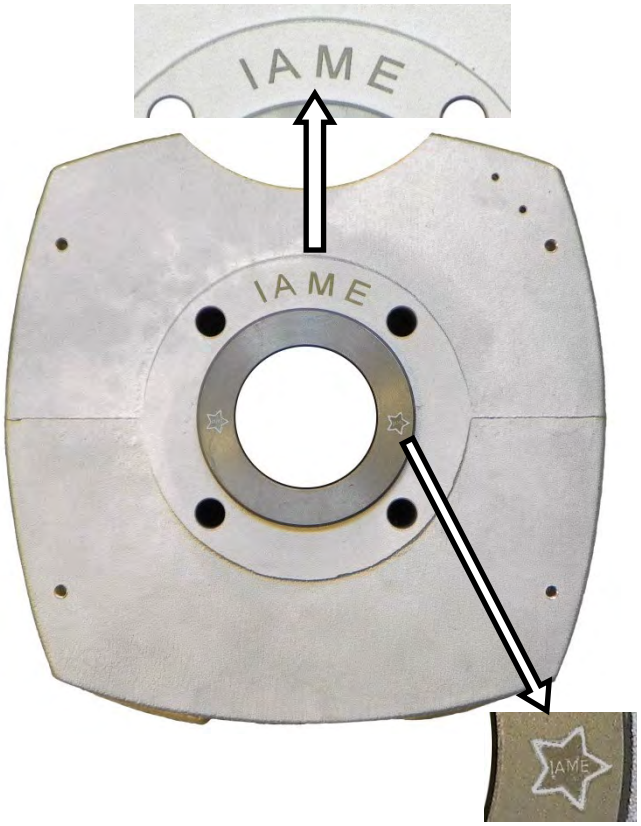
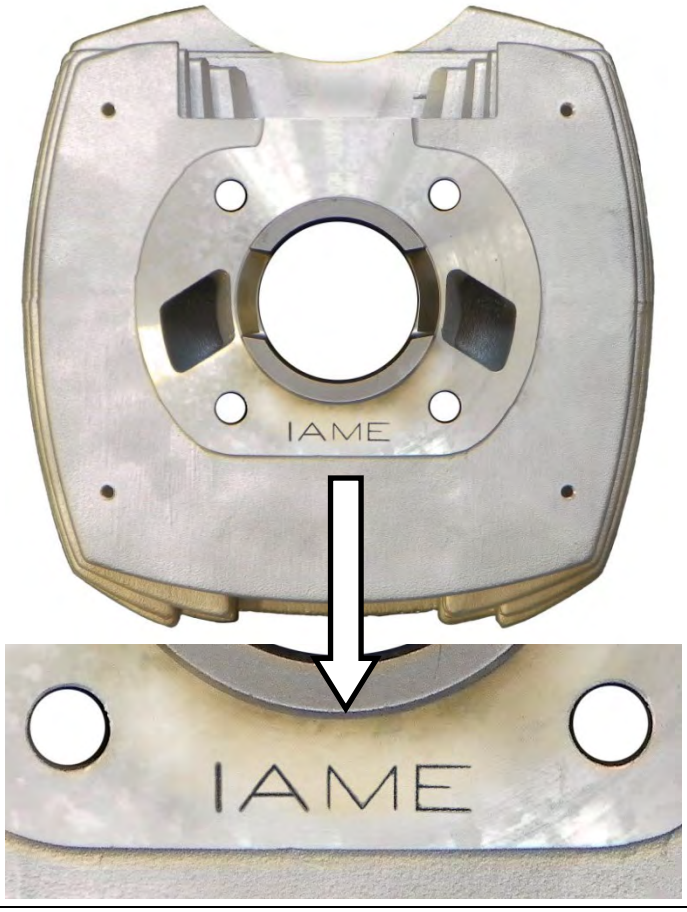


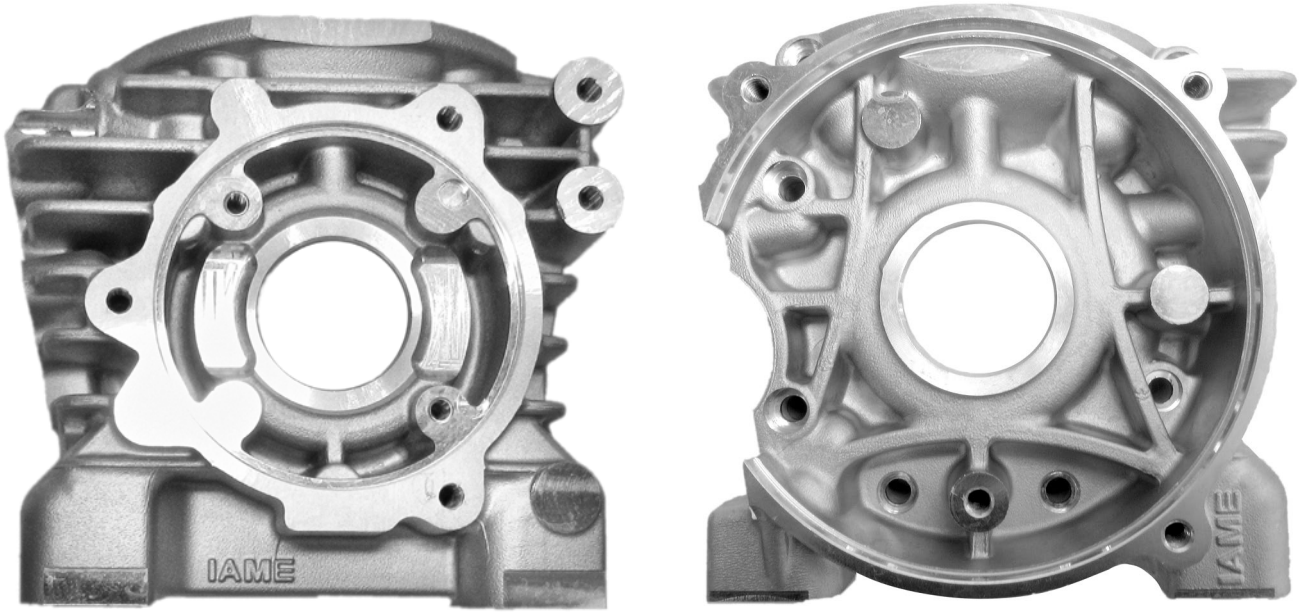
PHOTO OF ALTERNATIVE COMPLETE WIRING LOOM

ALTERNATIVE WIRING LOOM DIAGRAM

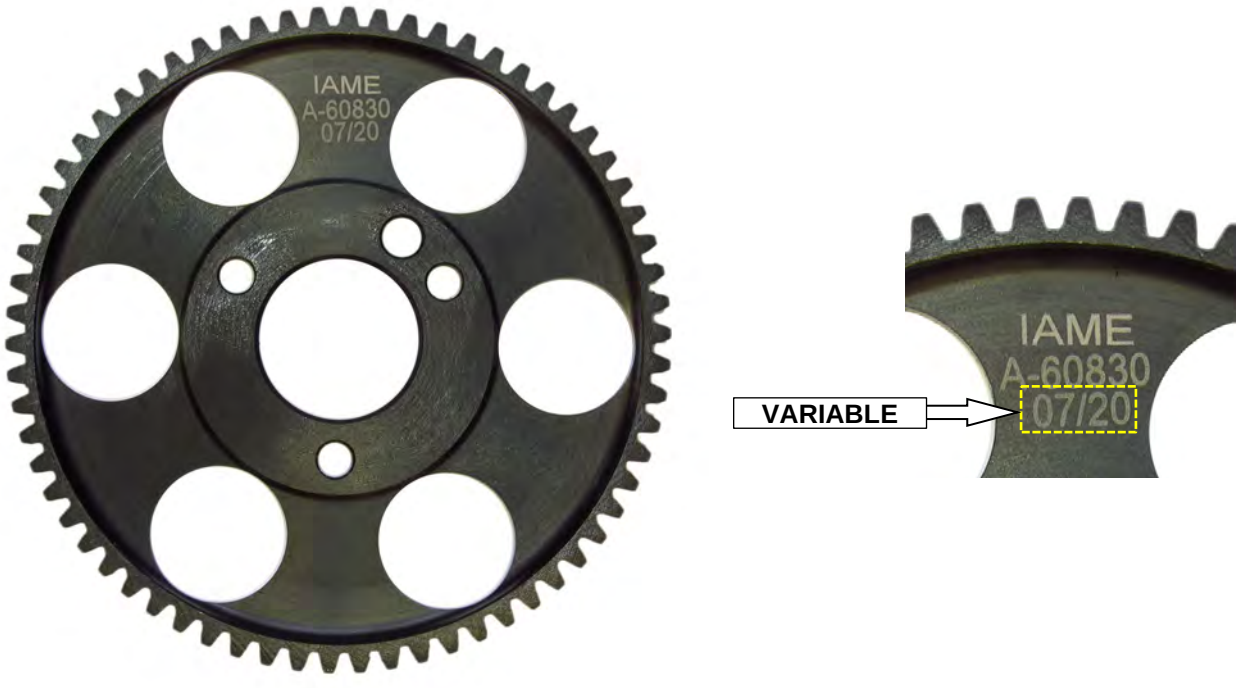


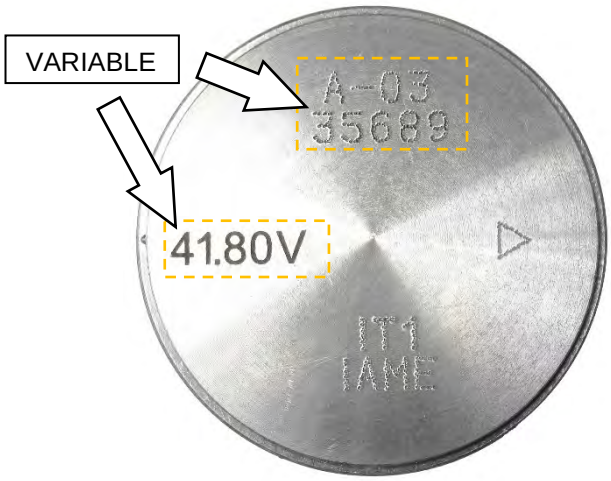
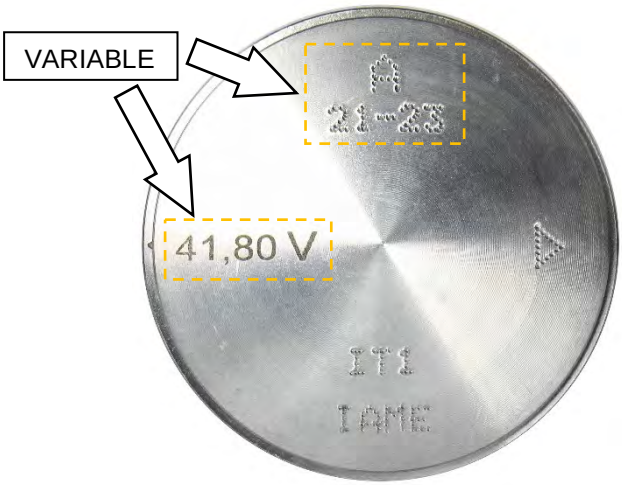
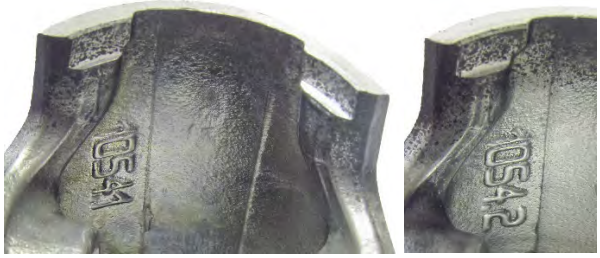
HEAD IDENTIFICATION MARKING	CYLINDER IDENTIFICATION UPPER MARKING
	
ENGINE STICKER “USA”	CYLINDER IDENTIFICATION LOWER MARKING
	

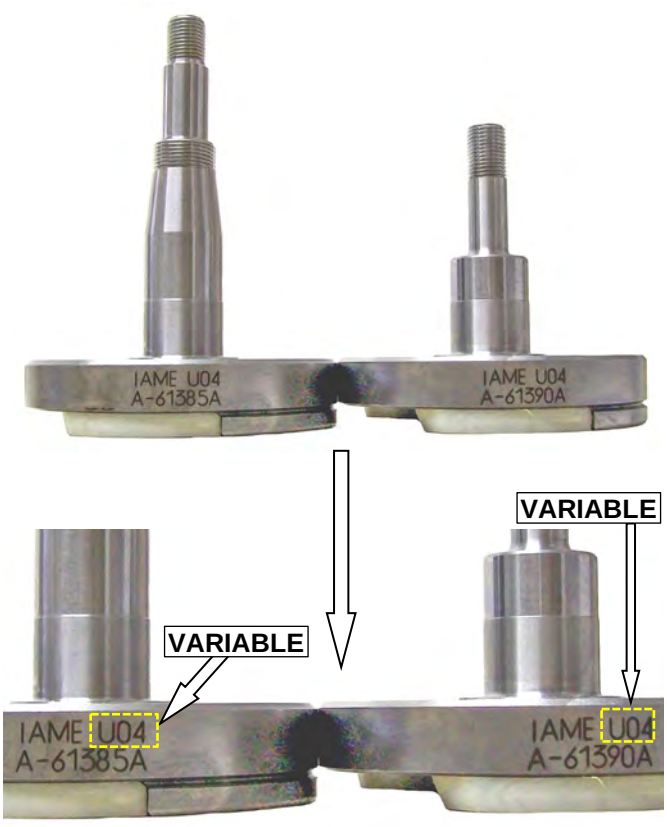
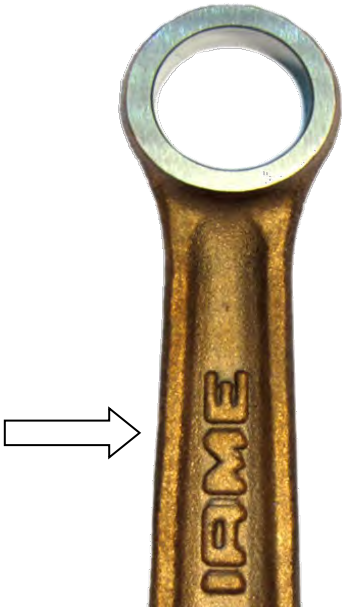
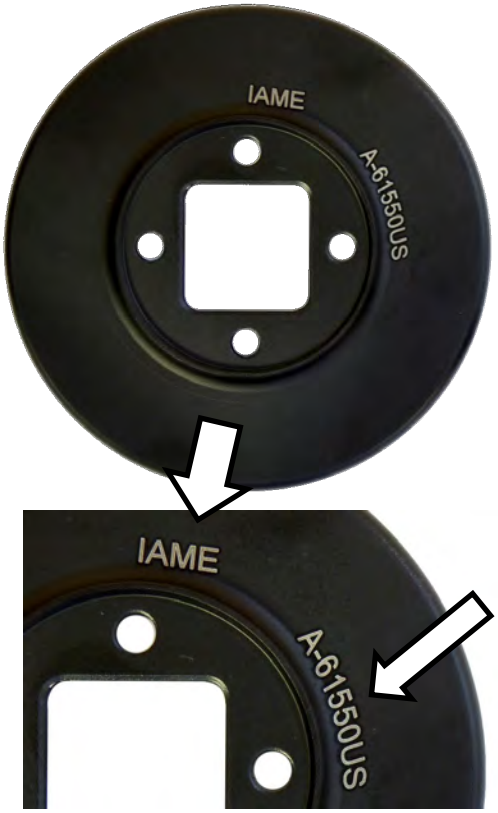
SEMICARTER IGNITION SIDE AND TRANSMISSION SIDE IDENTIFICATION MARKING



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

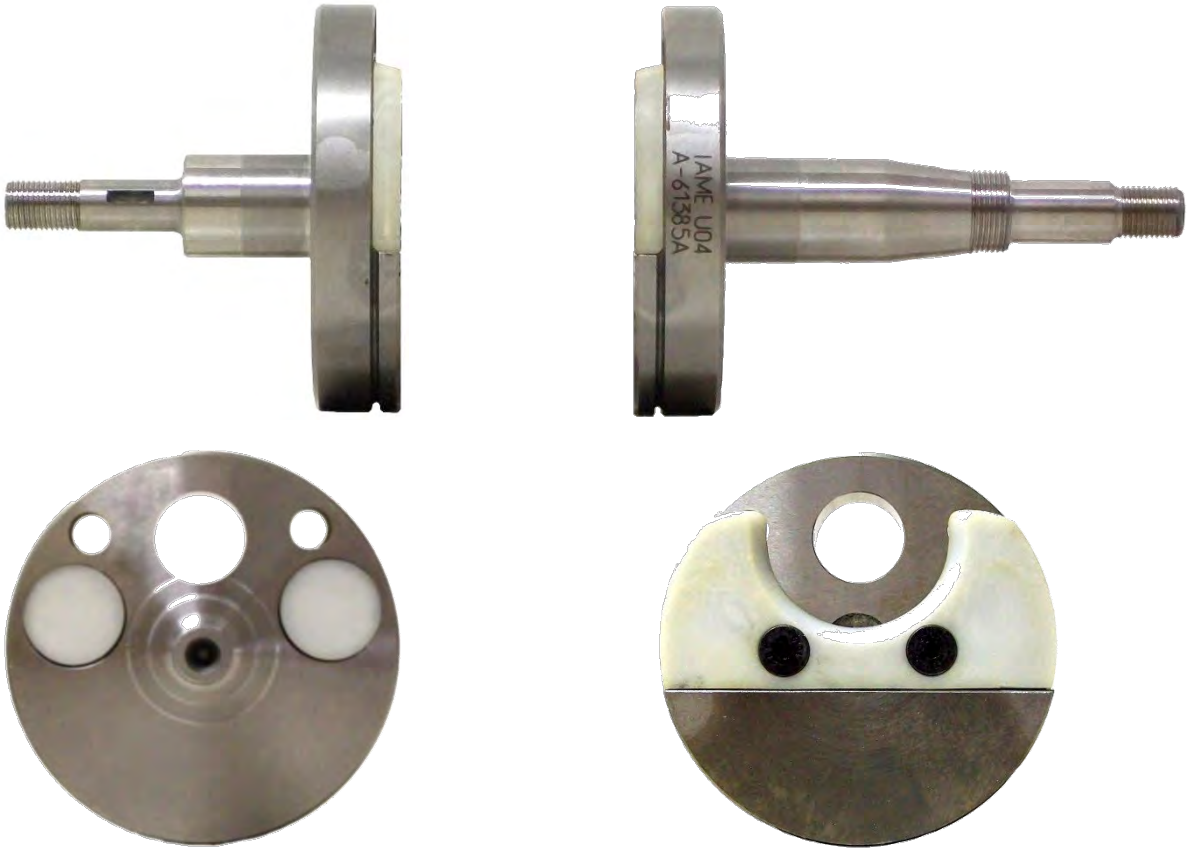


PHOTO OF COMPLETE CRANKSHAFT

EXHAUST without embossed logo

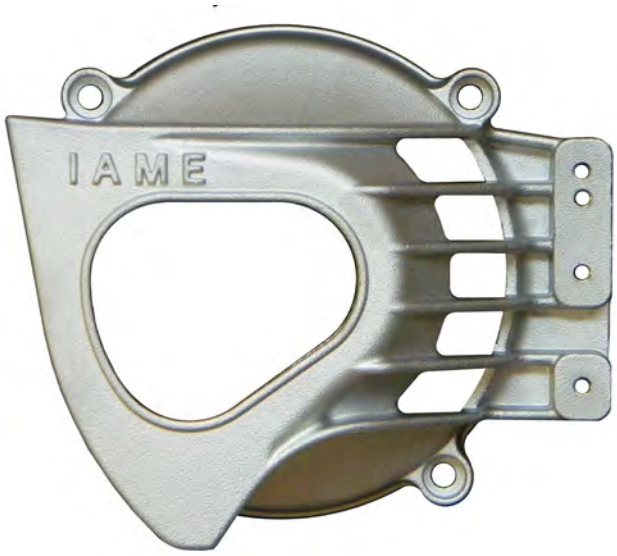
IGNITION COVER IDENTIFICATION MARKING	CLUTCH COVER IDENTIFICATION MARKING
	
INLET FILTER IDENTIFICATION MARKING	
	

PHOTO IDENTIFICATION OF CONROD – TYPES ALTERNATIVE

TYPE 1

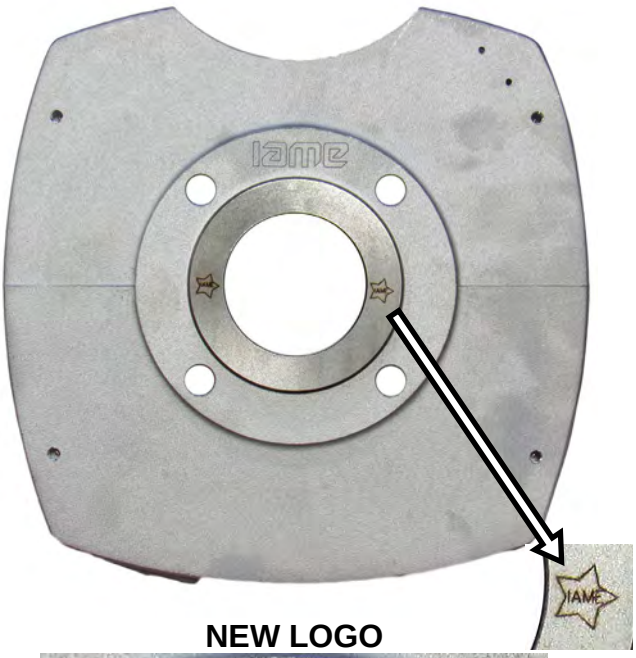
TYPE 2

TYPE 3

PARTICULARS WITH ALTERNATIVE NEW LOGO “IAME”

CYLINDER

NEW LOGO



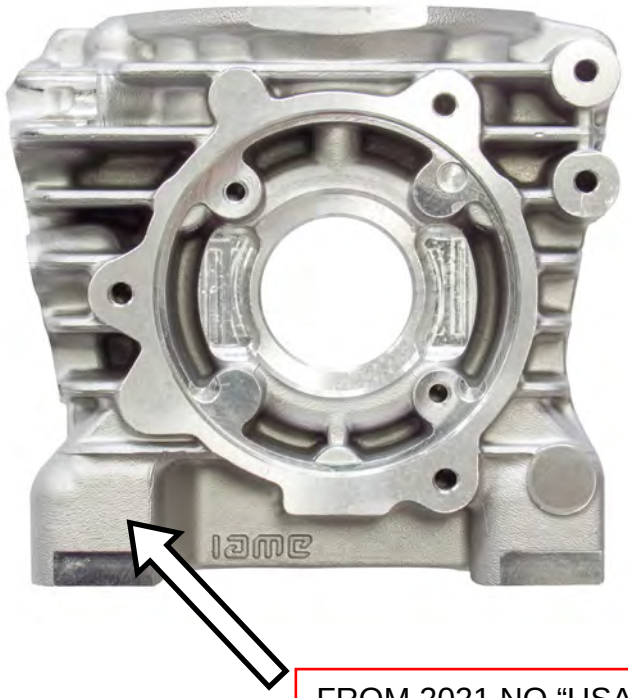
NEW LOGO

CYLINDER HEAD

NEW LOGO

PARTICULARS WITH ALTERNATIVE NEW LOGO “IAME”

SEMICARTER IGNITION SIDE



NEW LOGO

FROM 2021 NO “USA” MARKING

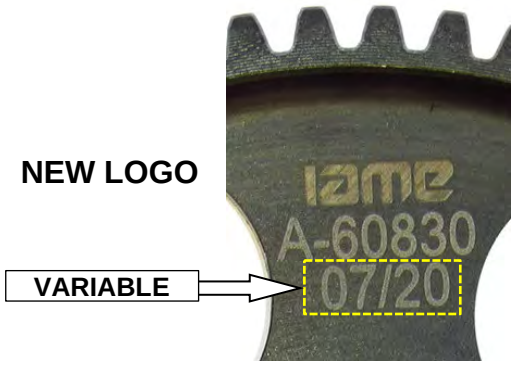
SEMICARTER TRANSMISSION SIDE

NEW LOGO

PARTICULARS WITH ALTERNATIVE NEW LOGO “IAME”

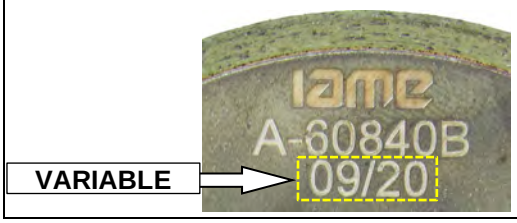
CLUTCH HUB

NEW LOGO



CLUTCH HUB – TYPE 1

NEW LOGO



CLUTCH DRUM

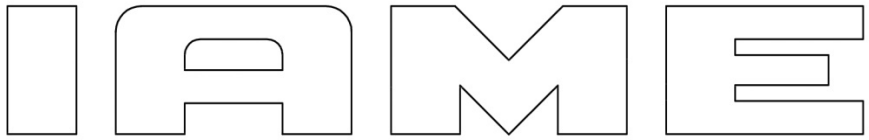
NEW LOGO

PARTICULARS WITH ALTERNATIVE NEW LOGO “IAME”

IGNITION COVER	CLUTCH COVER
 **NEW LOGO** 	 **NEW LOGO** 
INLET FILTER	**EXHAUST without embossed logo**
 **NEW LOGO** 	 **NEW LOGO** 

PARTICULARS WITH ALTERNATIVE NEW LOGO “IAME”

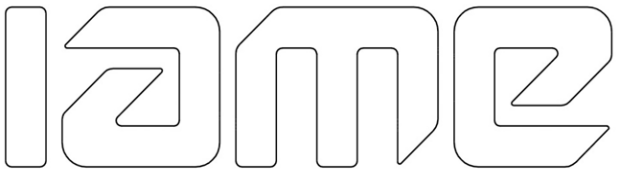
THE OTHERS COMPONENTS OF ENGINE THAT ARE MARKED (LASER OR PUNCHING) UNTIL TODAY WITH LOGO OR WRITTEN “IAME”



or

IAME

NOW COULD BE MARKED WITH NEW LOGO “IAME”



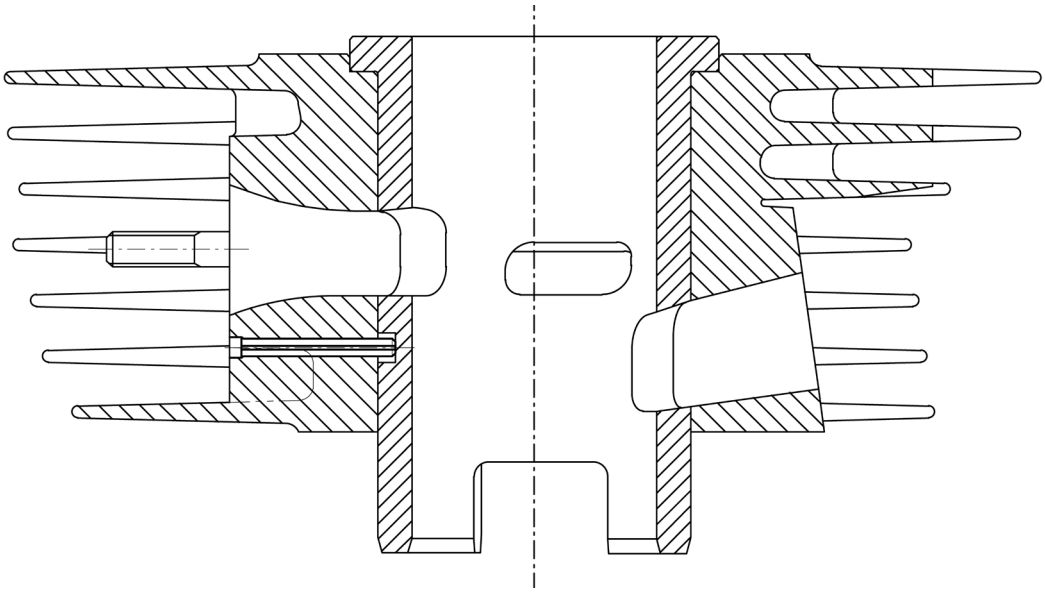
or

or

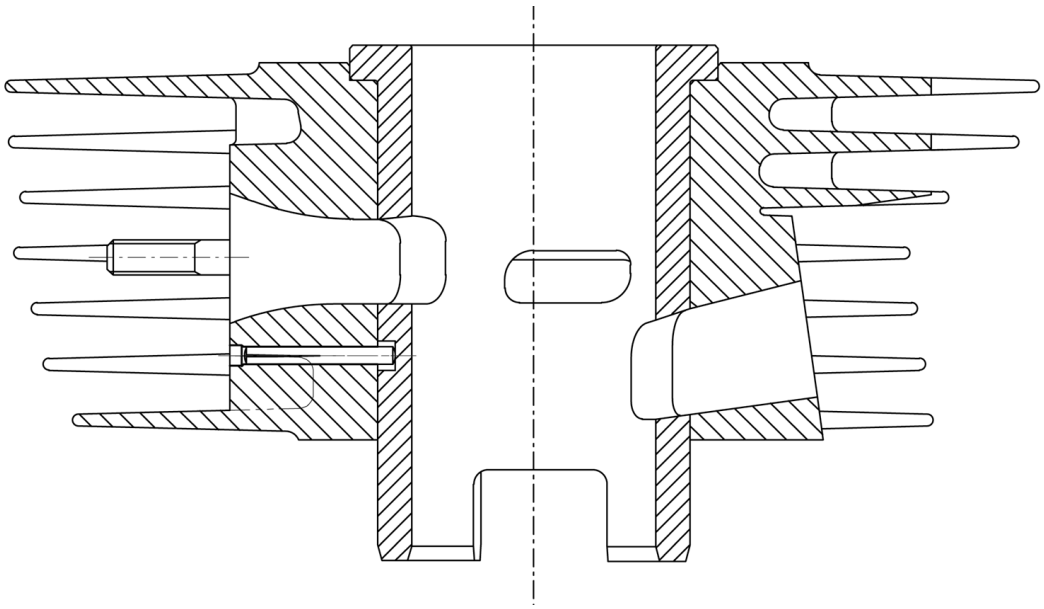
FROM 2025 ON

CYLINDER IDENTIFICATION – ALTERNATIVE CYLINDER LINER LOCK PIN

CURRENT PIN (SPRING PIN)



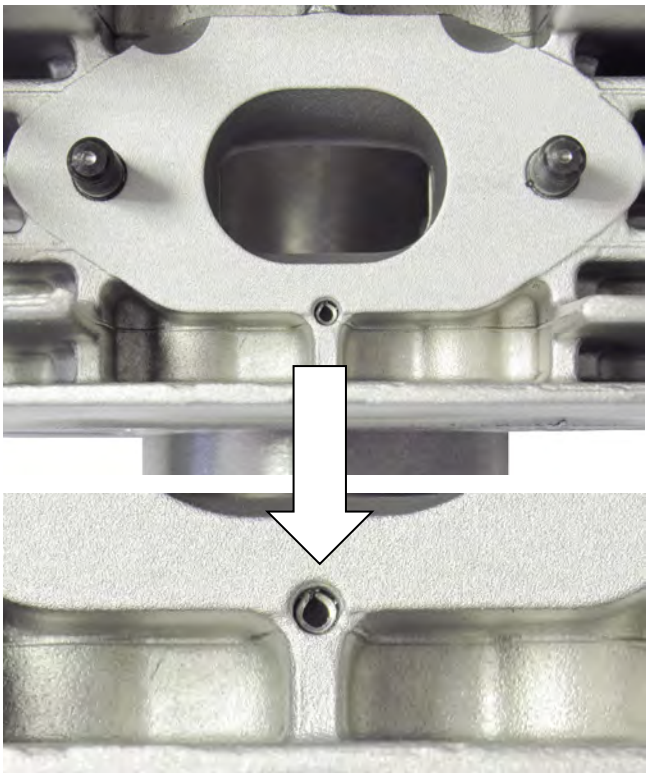
ALTERNATIVE PIN (GROOVED PIN)



FROM 2025 ON

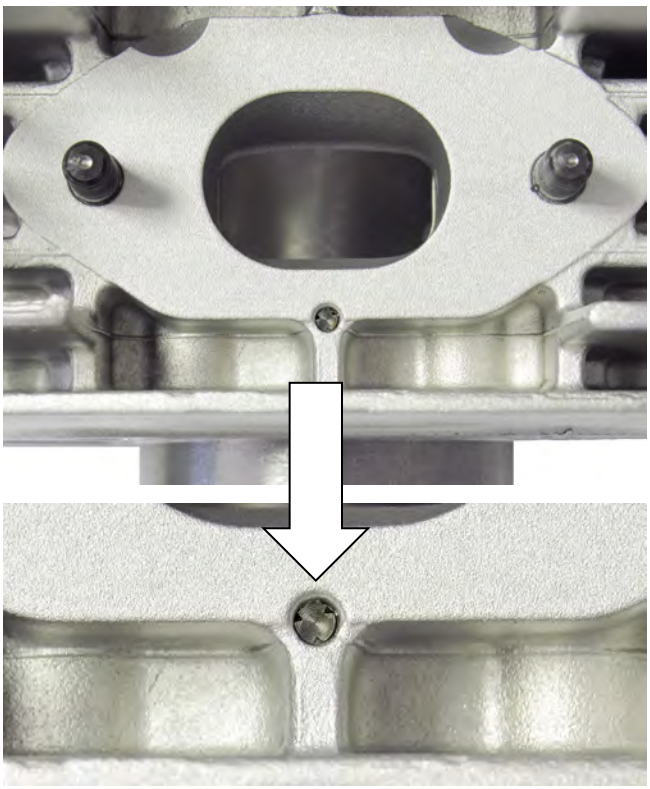
CYLINDER IDENTIFICATION – ALTERNATIVE CYLINDER LINER LOCK PIN

CURRENT PIN



SPRING PIN

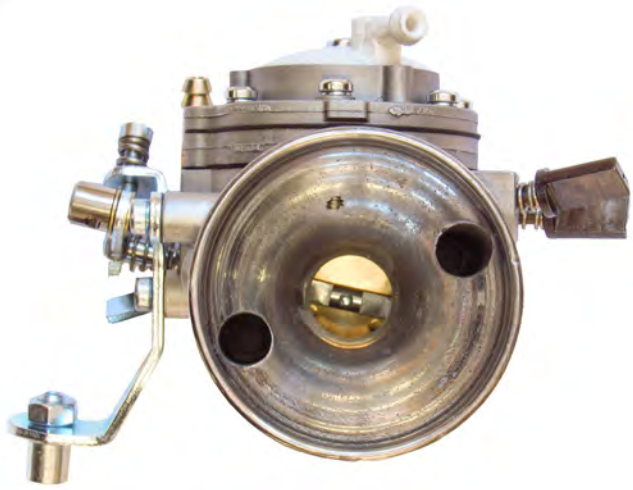
ALTERNATIVE PIN



GROOVED PIN

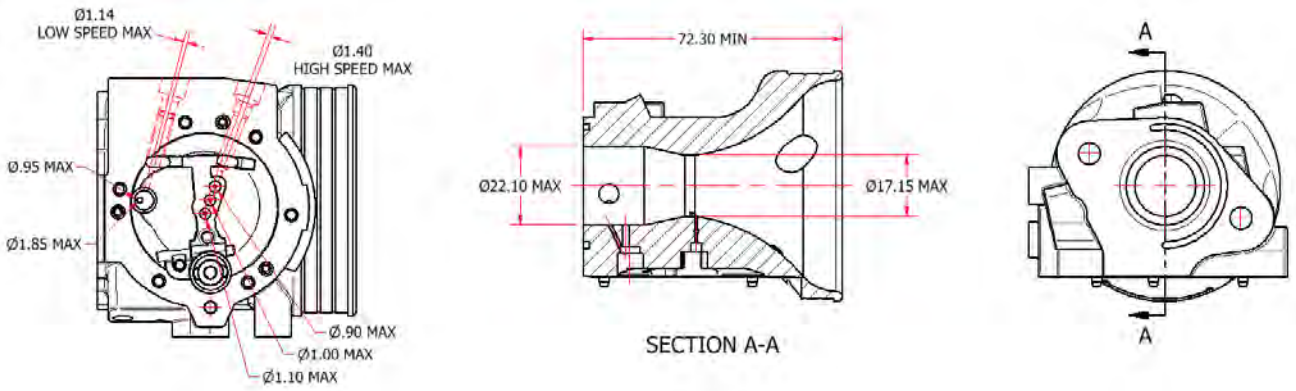
CARBURETTOR

Tillotson HW-31A

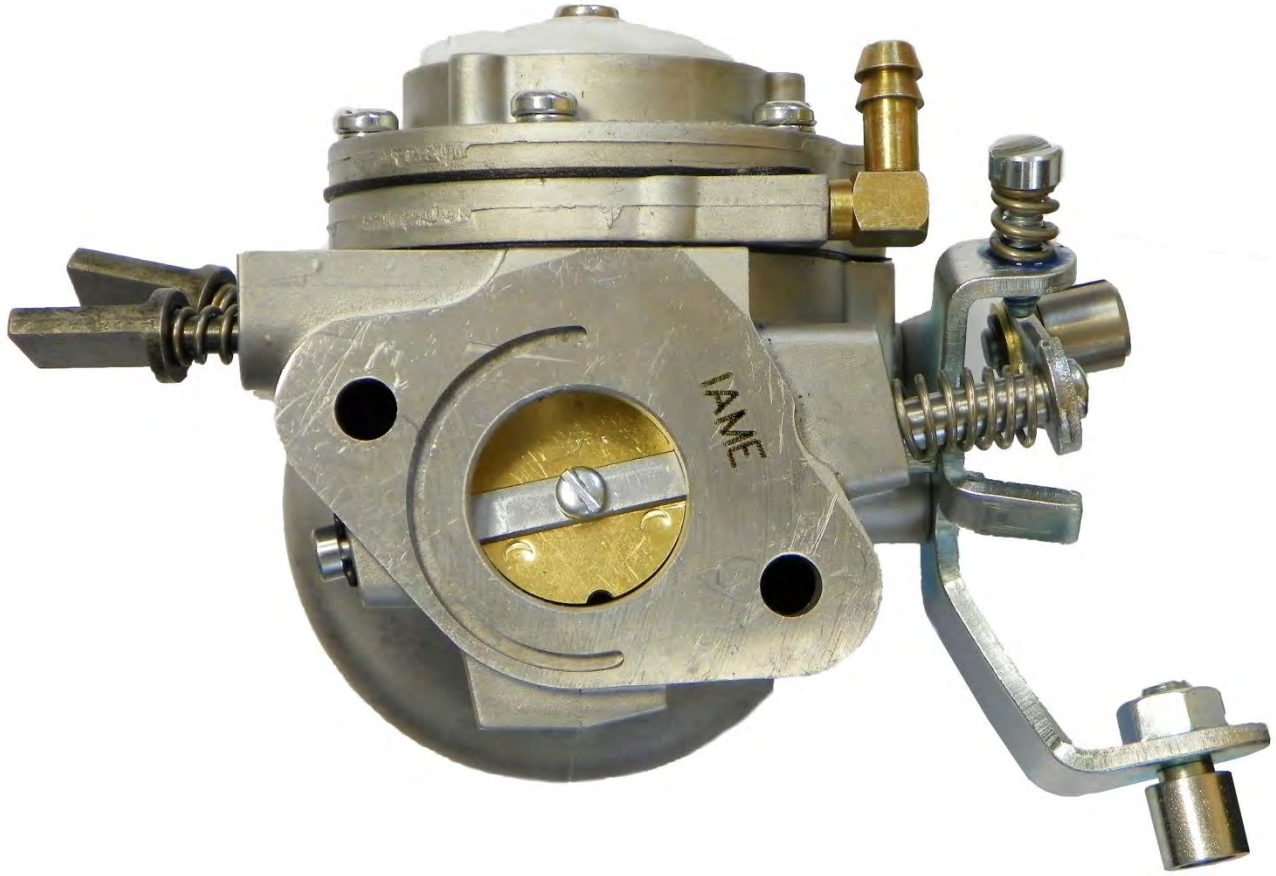
	
PHOTO OF ADJUSTING SIDE	PHOTO OF INLET SIDE

Manufacturer	**TILLOTSON LTD.**
Make	**TILLOTSON**
Model	**HW-31A**

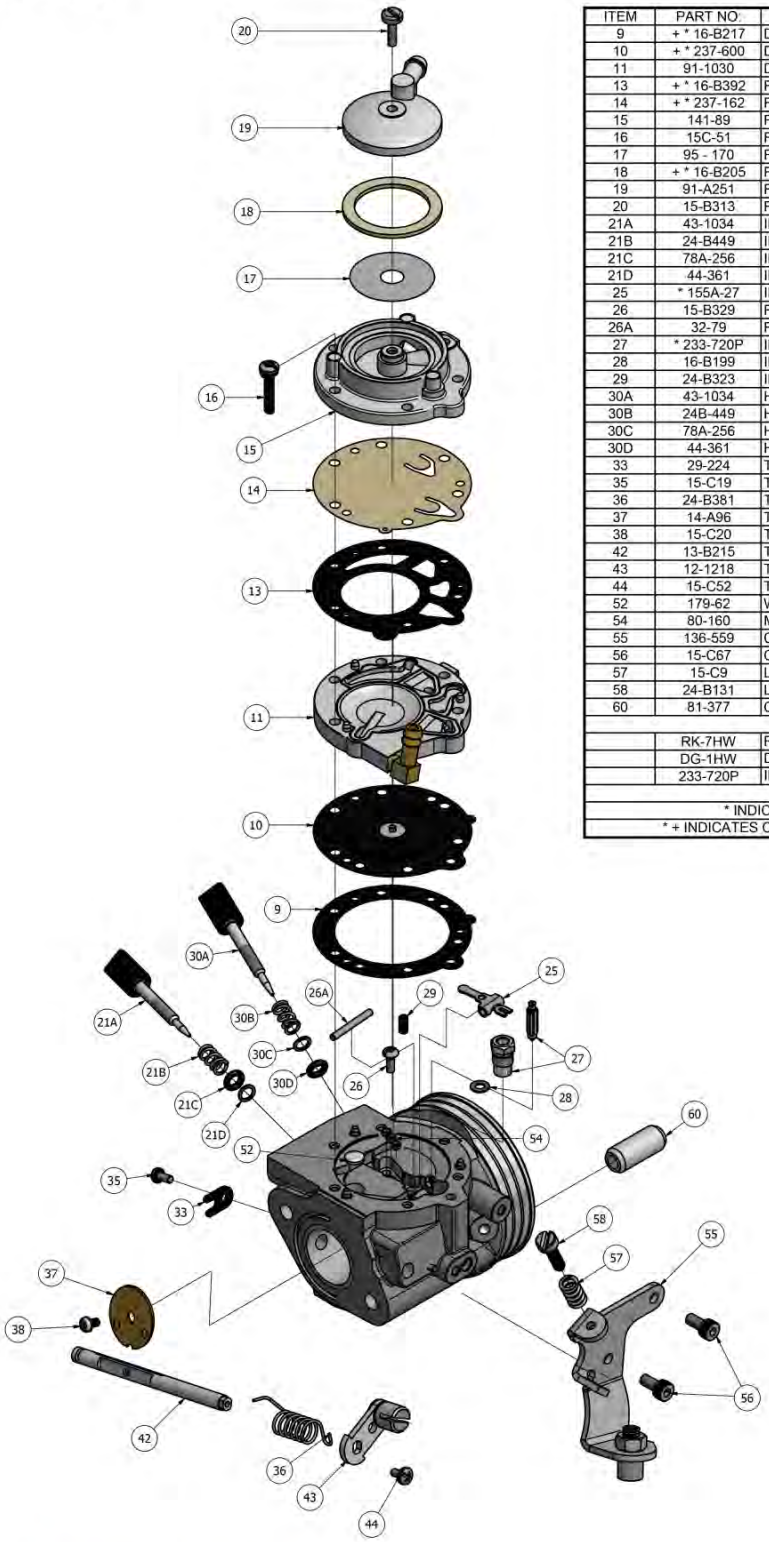
SECTION VIEW



“IAME” MARKING



HW-31A

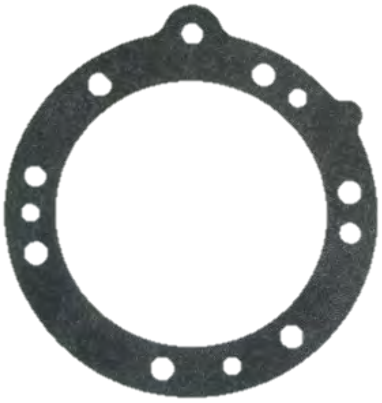


ITEM	PART NO.	DESCRIPTION	QTY
9	+ * 16-B217	DIAPHRAGM GASKET	1
10	+ * 237-600	DIAPHRAGM	1
11	91-1030	DIAPHRAGM COVER	1
13	+ * 16-B392	FUEL PUMP GASKET	1
14	+ * 237-162	FUEL PUMP DIAPHRAGM	1
15	141-89	FUEL PUMP BODY	1
16	15C-51	FUEL PUMP BODY SCREW	6
17	95 - 170	FUEL STRAINER SCREEN	1
18	+ * 16-B205	FUEL 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 BRAKET	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			

Tillotson RACING
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

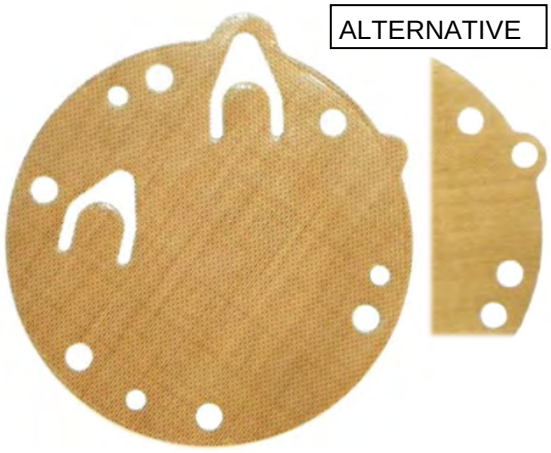
Thickness = 0.8 ±0.1 mm

REF.10 - P. N°237-600
DIAPHRAGM

Thickness = 0.13 ±0.07 mm

REF.14 - P. N°237-162
PUMP DIAPHRAGM

ALTERNATIVE



Thickness = 0.10 ±0.063 mm

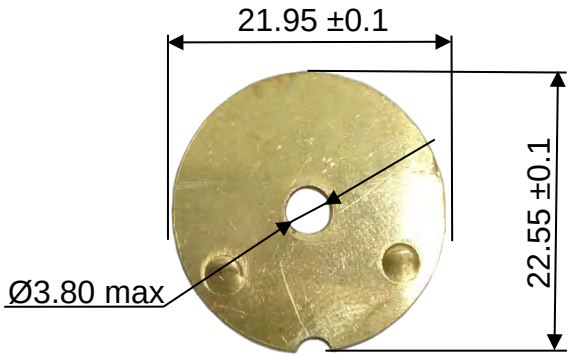
REF.11 - P. N° 91-1031
DIAPHRAGM COVER

Thickness = 6.75 ±0.15 mm

REF.15 - P. N° 141-89
PUMP COVER

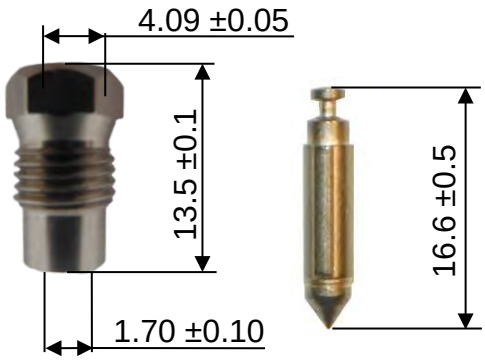
Thickness = 12.5 ±0.15 mm

REF.37 - P. N° 14-A96
THROTTLE SHUTTER

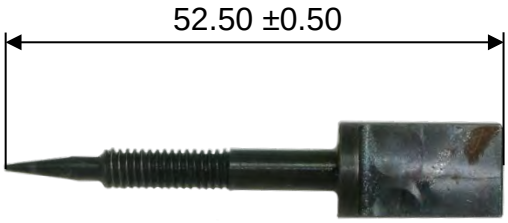


Thickness = 0.81 ±0.1 mm

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

REF.27 - P. N° 233-720P

HOLE FOR CARBURETTOR SEALING

The carburettor can have this hole for sealing.