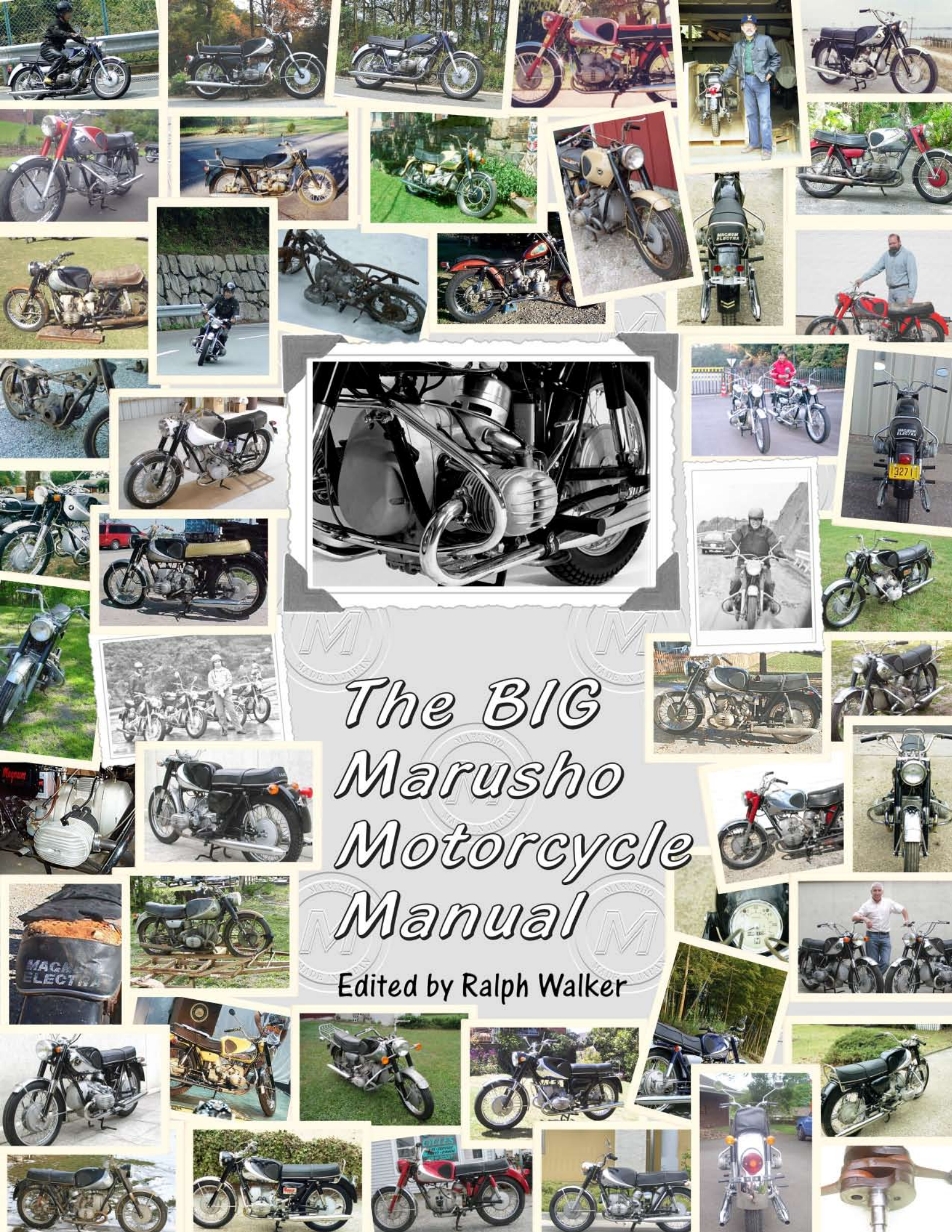

The BIG Marusho Motorcycle Manual

Edited by Ralph Walker

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History of Marusho/Lilac

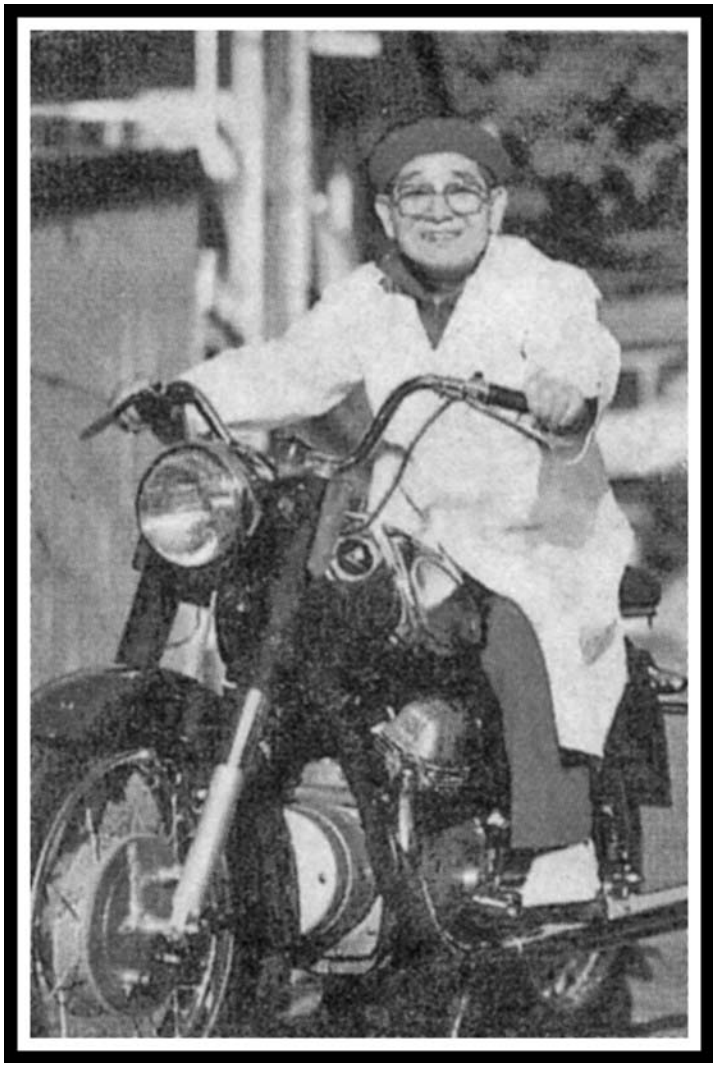
Much of this narrative is extracted from the pages of www.MarushoLilac.com.

As of this writing, in 2006, it has been 55 years since the first, and 39 years since the last, Marusho/Lilac motorcycle rolled off the assembly lines at Hamamatsu. During the 16 years of production the company produced many innovative, advanced, specialized and quirky designs, most of which were of the highly-regarded shaft-driven type.

Of the perhaps one hundred defunct and mostly forgotten Japanese motorcycle manufacturers, Marusho/Lilac occupies a unique place because of their decision to export to the North American market, competing directly with the giants Honda, Yamaha, Kawasaki and Suzuki.

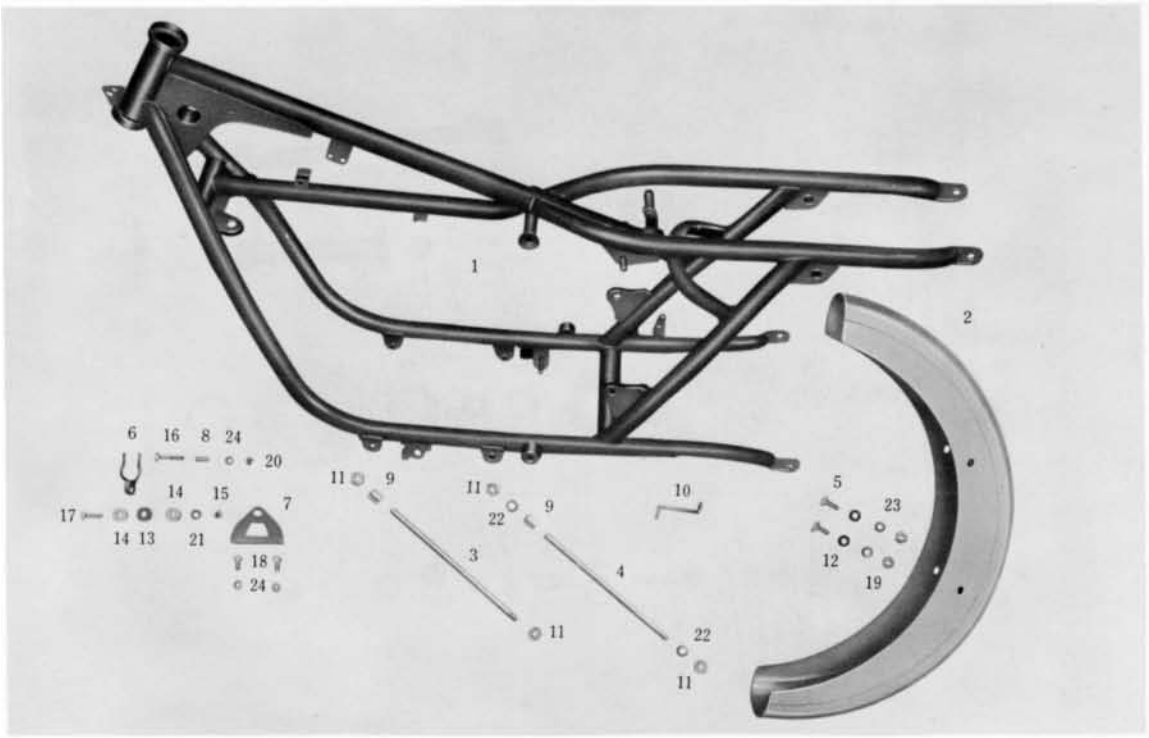
Today many of the perhaps 50,000 bikes produced by Marusho/Lilac are lovingly preserved by enthusiasts in many countries, including Japan, the US and Canada, Brazil, Australia, New Zealand, the Philippines, Malaysia, Thailand, India, England, France, Sweden, Germany, Belgium, the Netherlands, Croatia and South Africa.

Mr. Masashi Ito, President and founder of Marusho, passed away on March 23, 2005 at the age of 92. He was the honored guest at many Japan Lilac Owners (Friends) Club meetings and even took rides on the back of the members' motorcycles. The many fans of his Marusho and Lilac motorcycles, including the editor, are grateful for the pleasure he gave them with his handsome motorcycles.



Marusho/Lilac Company Background

While I believe the version of Marusho's history below, there are several problems in pinning down the absolute chronology. First, we're dealing with a period of 50 years ago and most of the action took place in

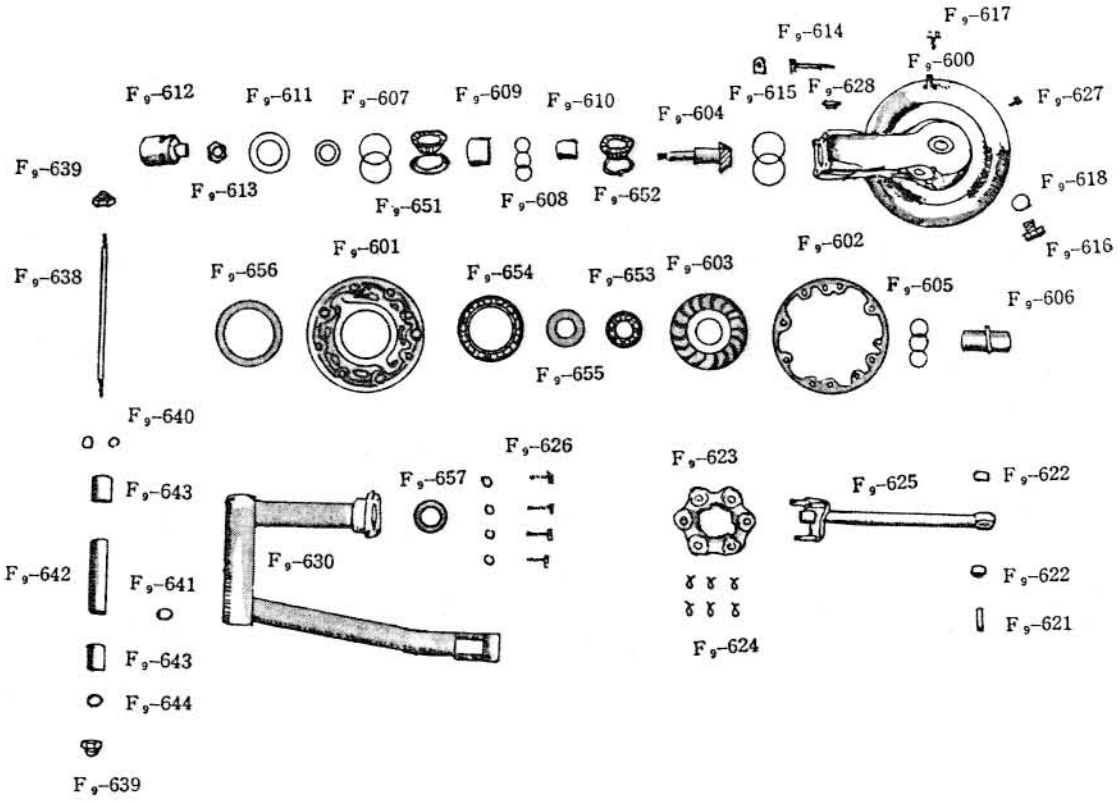


FRAME RELATIONS

Ref.No.	Part.No.	Part Name	Qty Req'd	Common
1	F9-900	Frame Body Complete (フレーム)	1	
2	150	Rear Fender Complete (リヤ フエンダー)	1	
3	151A	Engine Tighten Bolt (Front) (エンヂン 締付 ボルト (F))	1	
4	151B	Engine Tighten Bolt (Rear) (エンヂン 締付 ボルト (R))	1	
5	152	Rear Fender Tighten Bolt (リヤ フエンダー 締付 ボルト)	2	F_3
6	153	Engine Hanger (エンヂン ハンガー)	1	
7	154	Engine Hanger Plate (エンヂン ハンガー プレート)	1	
8	155	Engine Hanger Collar (エンヂン ハンガー カラー)	1	
9	156	Engine Tighten Collar (エンヂン 締付 カラー)	2	
10	157	Clutch Wire Sapport (クラッチ ワイヤー サポート)	1	
11	158	Engine Tighten Nut (エンヂン 締付 ナット)	4	
12	159	Rear Fender Tighten Washer (リヤ フエンダー 締付 ワッシャー)	2	F_3
13	160	Engine Buffer Rubber (エンヂン 防振 ゴム)	1	
14	161	Engine Hanger Washer (防振ゴム ワッシャー)	2	
15	162	Self-Locking Nut (回り止メ ナット)	1	
16		Hexagon Head Bolt 8×45 (六角 ボルト)	1	
17		Hexagon Head Bolt 8×30	1	
18		Hexagon Head Bolt 8×20	2	
19		Hexagon Nut M10 (六角 ナット)	2	
20		Hexagon Nut M8	1	
21		Flat Washer 8φ (平 ワッシャー)	1	
22		Spring Washer 12φ (スプリング ワッシャー)	4	

Ref. No.	Part No.	Cost Retail	Cost Dealer
PAGE 13 (con't)			
51		$ 0.10	$ 0.05
52		0.10	0.05
53		0.10	0.05
54		0.10	0.05
55		0.10	0.05
56		0.10	0.05
57		0.10	0.05
58		0.10	0.05
PAGE 14			
1	F9-900	$ 55.00	$27.50
2	901	21.00	10.50
3	902	21.00	10.50
4	903	9.00	4.50
5	904	9.00	4.50
6	906	2.85	1.43
7	907	0.50	0.25
8	908	1.00	0.50
9	909	3.25	1.63
10	910	1.50	0.75
11	911	0.80	0.40
12	912	3.00	1.50
13	931	27.00	13.50
14	932	4.50	2.25
15	933	6.80	3.40
16	941	4.00	2.00
17	942	27.00	13.50
18	943	2.00	1.00
19	944	0.20	0.10
20	946	0.50	0.25
PAGE 15			
21	F9-948	$ 0.25	$ 0.13
22		0.10	0.05
23		0.10	0.05
24		0.10	0.05
25		0.10	0.05
26		0.10	0.05
27		0.20	0.10
28		0.10	0.05
29		0.10	0.05
30		0.10	0.05
31		0.10	0.05
32		0.10	0.05
PAGE 16			
1	F9-913	$ 46.00	$23.00
2	914	6.80	3.40

Ref. No.	Part No.	Cost Retail	Cost Dealer
PAGE 16 (con't)			
3	F9-915	$ 4.20	$ 2.10
4	916	1.30	.65
5	918	1.00	0.50
6	919	0.80	0.40
7	920	0.80	0.40
8	921	2.85	1.43
9	922	0.10	0.05
10	923	0.10	0.05
11	924	0.85	0.43
12	925	3.50	1.75
13	927	0.20	0.10
14	928	0.20	0.10
15	926	8.50	4.25
16	935	9.40	4.70
17	945	0.50	0.25
18	934	1.80	0.90
19	936A	0.20	0.10
20	936B	0.20	0.10
PAGE 17			
21	F9-929	$ 0.50	$ 0.25
22	930	0.10	0.05
23		0.10	0.05
24		0.10	0.05
25		0.10	0.05
26		0.10	0.05
27		0.10	0.05
PAGE 18			
1	R2-101	$125.00	$62.50
2	102	39.00	19.50
3	104	1.20	0.60
4	131	12.80	6.40
5	132	1.00	0.50
6	133	1.50	0.75
7	135	1.00	0.50
8	136	0.50	0.25
9	137	0.20	0.10
10	138	0.60	0.30
11	139	0.10	0.05
12	140	1.00	0.50
13	141	0.30	0.15
14	143	0.20	0.10
15	145	0.20	0.10
16	147	0.50	0.25
17	149	3.20	1.60
18	150	0.50	0.25
19	152	0.50	0.25
20	154	0.20	0.10



ベベルケース・リヤーフォーク関係
BEVEL CASE & SWINGING ARM RELATIONS (1)

部品番号 Part No.	部品名 Part Name	個/台 Pcs/Vehicle	共通 Common
F9-600	Bevel Case (ベベル ケース)	1 pce.	
601	Bevel Case Panel (ベベル ケース パネル)	1 〃	
602	Bevel Case Packing (ベベル ケース パッキン)	1 〃	F1A
603	Spiral Bevel Gear (スパイラル ベベル ギヤー)	1 〃	
604	Spiral Pinion Gear (スパイラル ピニオン ギヤー)	1 〃	
605	Bevel Gear Adjuster Shim (ベベル ギヤー アジヤスト シム)	3 pcs.	F1A
606	Bevel Shaft (ベベル シヤフト)	1 pce.	
607	Pinion Gear Adjuster Shim (A) (ピニオン ギヤー アジヤスト シム (A))	3 pcs.	F1A
608	Pinion Gear Adjuster Shim (B) (ピニオン ギヤー アジヤスト シム (B))	3 〃	F1A
609	Pinion Gear Bearing Outer Coller (ピニオン ギヤー ベアリング アウター カラー)	1 pce.	F1A
610	Pinion Gear Bearing Inner Coller (ピニオン ギヤー ベアリング インナー カラー)	1 〃	F1A
611	Bearing Check (ベアリング 押え)	1 〃	F1A
612	Joint Yoke (ジョイント ヨーク)	1 〃	F1A
613	Pinion Gear Nut (ピニオン ギヤー 締付ナット)	1 〃	F1A
614	Suspension Bolt (サスペンション 締付ボルト)	1 〃	F1A
615	Suspensinon Stop Plate (サスペンション ストップ プレート)	1 〃	F1A
616	Oil Cock (オイル コック)	1 〃	F1A
617	Oil Level Plug (オイル レベル プラグ)	1 〃	F1A

(5) Clutch

Item		Standard	Repairing Limit	Adjusting Point	Remarks
Clutch facing	Thickness	$3.0^{+0}_{+0.02}$	2.2	Exchange	
	Strain	0.2	0.5	Rectify or Exchange	
Clutch spring	Free length	$31.2^{+0.2}_{-0}$	29.6	Exchange	
	Tension	21kg	18kg	Exchange	17 of binding length
Clutch fly-wheel & pressure plate	Clearance in rotary direction	0.1—0.2	1.0	Exchange	
Clutch fly-wheel & outer plate	Clearance in rotary direction	0.1—0.2	1.0	Exchange	
Release rod	Bend	0.2 less	0.5 more	Rectify	

(6) Transmission, Change

Item		Standard	Repairing Limit	Adjusting Point	Remarks
Main shaft	Clearance in axial direction	0.05—0.15	0.3	Adjust by shim	
Spline shaft	Clearance in axial direction	0.05—0.15	0.3	Adjust by shim	
Counter shaft	Clearance in axial direction	0.05—0.15	0.3	Adjust by shim	
Ratchet gear	Teeth height	3	2.5		
Mission gear	Back lash	0.04—0.06			using possible as long as non-noise
Shift fork shaft	Out. dia.	$10\phi^{-0.013}_{-0.028}$	9.9ϕ	Exchange	
Shift fork	In. dia.	$10\phi^{+0}_{+0.017}$	10.1ϕ	Exchange	
	Thickness of top part	$5^{-0.3}_{-0.25}$	4.2	Exchange	
Shift fork & Shift fork shaft	Clearance	0.013—0.045	0.1	Exchange	
Change arm & Change arm Shaft	Clearance	0.01—0.035	0.1	Exchange	

ADJUSTMENT OF TAPPET CLEARANCE

Correct tappet adjustment is indispensable for smooth operation.

1. Tappet clearance adjustment should be made with the adjusting screw attached on Look Arm. The tool kit contains the tappet adjusting spanner for this purpose.
2. The specified clearance is 0.0020 in (0.05 mm) for both inlet and exhaust valve tappets when the engine is cold.
3. It is proper to adjust the tappet at the top dead point when compressed.

After the adjustment has been completed, it is necessary to kick the kick starter a few times and recheck the clearance.

IGNITION TIMING ADJUSTMENT

Adjusting ignition timing should be done periodically.

Faulty timing or point surface may result in poor performance and erratic revolutions of the engine.

1. Remove the front dynamo cover and adjust the ignition timing so as to make the points open at 10 degrees BTDC.
   Adjust the point gap to 0.012~0.016 in (0.3~0.4 mm) by using the thickness gauge. If this way of adjustment is unsuccessful, turn the plate in rotary direction when the ignition timing is advanced, and in the opposite direction if it is retarded.

2. The automatic governor operates from 800 RPM and its full advance is at 30 degrees BTDC.

ADJUSTMENT OF CLUTCH

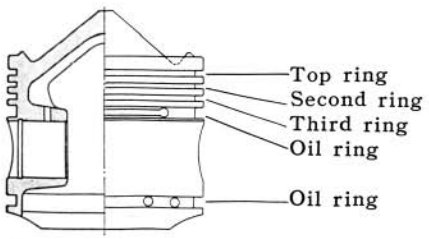
Clutch lever should be adjusted always to allow the proper free pay to enable the clutch to operate satisfactory.

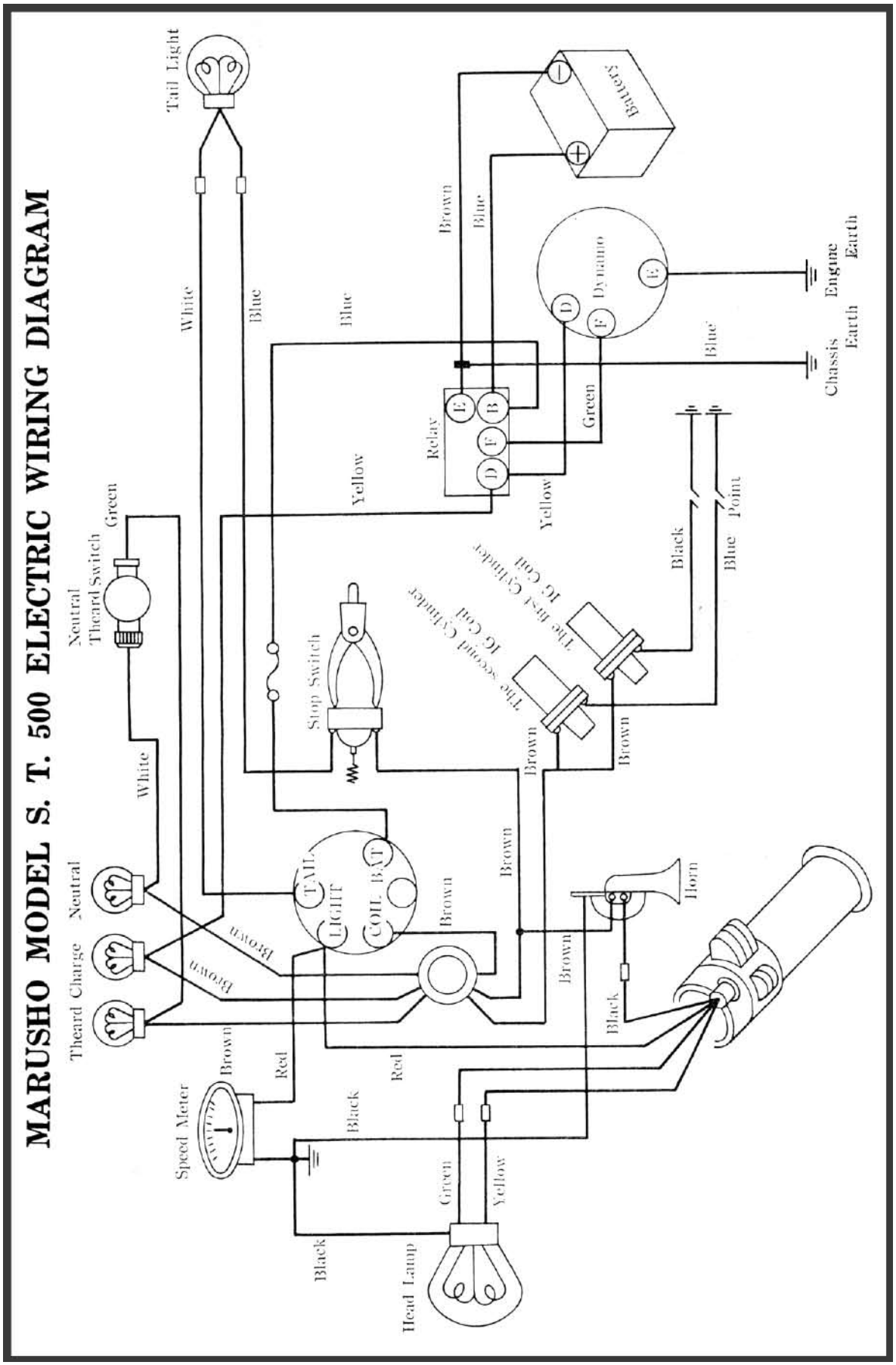
Clutch is adjusted to be disengaged power transmission when the space between the end of handle grip and the end of clutch lever is 1.6″ (40 mm).

Free play can be adjusted with the clutch adjusting bolt.

PISTON AND PISTON RING

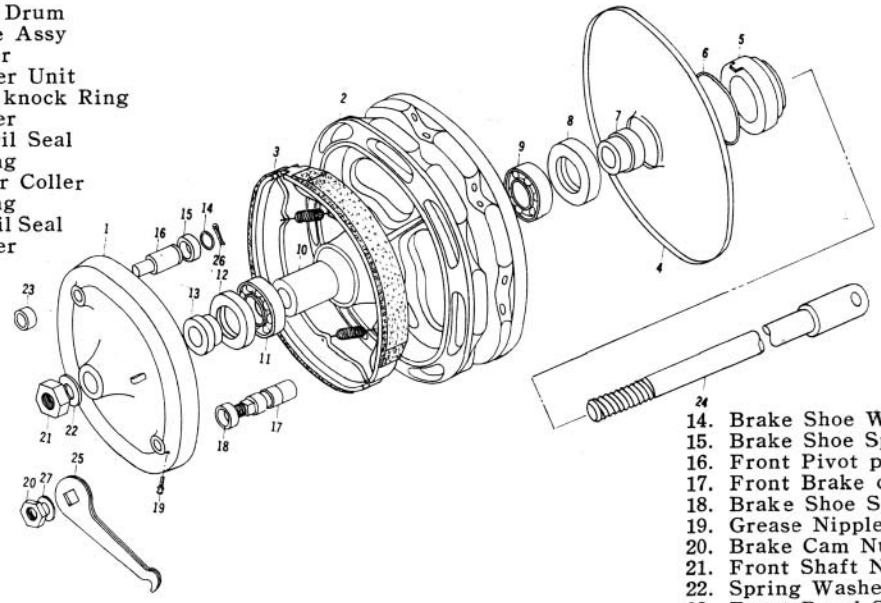
1. The piston pin hole is off-set on the inlet side of the piston center line. The directional mark on the top of the piston should be set to the exhaust side of the piston center line.
2. When fitting the piston rnigs onto the piston, installing order and its direction should be cared.
   top ring (plated with hard chromium)
   second ring
   third ring
   oil ring
   oil ring




MARUSHO MODEL S. T. 500 ELECTRIC WIRING DIAGRAM
Tail Light
White
Blue
Blue
Brown
Blue
Battery
Dynamo
Engine Earth
Chassis Earth
Blue
Green
Relay
Yellow
Yellow
Black
Blue Point
Neutral
Theard Switch
Green
Stop Switch
The second Cylinder
IG Coil
The first Cylinder
IG Coil
Brown
Brown
Brown
Brown
Brown
TAIL LIGHT
COIL BAT
Horn
Black
Theard Charge
Neutral
Brown
Brown
Speed Meter
Brown
Red
Red
Black
Green
Yellow
Black
Head Lamp

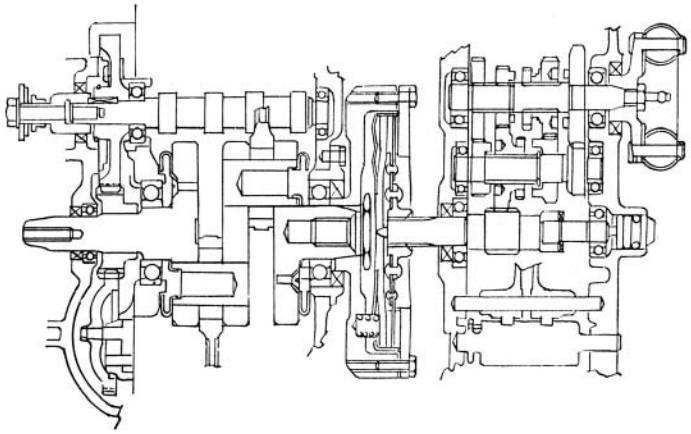
FRONT WHEEL ASSY.

1. Front Panel
2. Front Hub Drum
3. Brake Shoe Assy
4. Drum Cover
5. Speed Meter Unit
6. Hub Drum knock Ring
7. Outer Coller
8. 47×28×7 Oil Seal
9. 6204 Bearing
10. Front Inner Coller
11. 6204 Bearing
12. 47×28×7 Oil Seal
13. Outer Coller



14. Brake Shoe Washer
15. Brake Shoe Spacer
16. Front Pivot pin
17. Front Brake cam
18. Brake Shoe Spacer
19. Grease Nipple Comp.
20. Brake Cam Nut
21. Front Shaft Nut
22. Spring Washer
23. Front Panel Stopper
24. Front Shaft
25. Front Brake Arm
26. Cotter Pin
27. Spring Washer

CRANK & GEAR BOX ASSY.



MODEL. MAGNUM ELECTRA

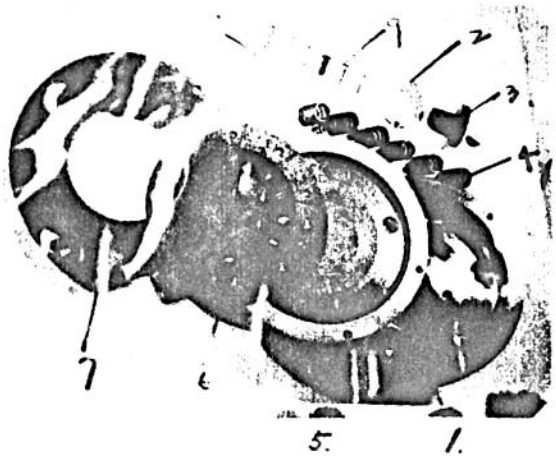
Overall length	84 in (2105 mm)
Overall width	29.7 in (755 mm)
Overall height	42.9 in (1090 mm)
Wheel base	55.2 in (1400 mm)
Min. ground clearance	5.1 in (130 mm)
Total weight	414 lb (188 kg)
Max. top speed	100mi/h (160km/hr)
Climbing gradient	25°
Fuel consumption	25mi/*l*(40km/*l*)
Cycle	4-cycle
Cylinders	2-cylinder
Bore×Stroke	68×68 mm
Total displacement	493 cc
Compression ratio	9.6 : 1
Max. output	38 B.H.P./7000 rpm
Engine weight	143 lb (65 kg)
Ignition system	Battery ignition
Carburettor	MIKUNI VM28
Battery	MBH 3-12
Spark plug	BC-64EW
Lubrication	Wet sump and gear pump
Plug gap	0.024-0.028in(0.6-0.7mm)
Point gap	0.012-0.016in(0.3-0.4mm)
Valve gap	Inlet; 0.0020 in (0.05)
	Exhaust; 0.0020 in (0.05)
Ignition timing	10° before TDC
Advance angle	30° before TDC
Fuel tank capacity	3.96 gal. u.s. (15.0 *l*)
Type of gear changing	Constant mesh and Foot control
Type of clutch	Dry single plate
Gear ratio	
First	4.29
Second	2.78
Third	2.09
Fourth	1.59
First reduction ratio	Direct connection
Second reduction ratio	3.22
Max. steering angle	45°
Caster	63°
Trail	3.66 in (93 mm)
Tyre size	
Front;	3.25-18-4P
Rear;	3.50-18-4P
Brake	
Front;	Right-hand operated, cable (hand-brake)
Rear;	Right-foot operated, rod (foot-brake)
Suspension	
Front;	Telescopic Oleo
Rear;	Swinging Arm
Head lamp	12 V-25 W/35W
Tail lamp	12 V-4W
Stop lamp	12 V-32W

(Specifications will be revised without notice.)

1-6 Cluth

(1) Disassembling

As in the case of removing the engine, just by removing the transmission, the clutch can be dismantled even when the engine is still mounted to the frame.



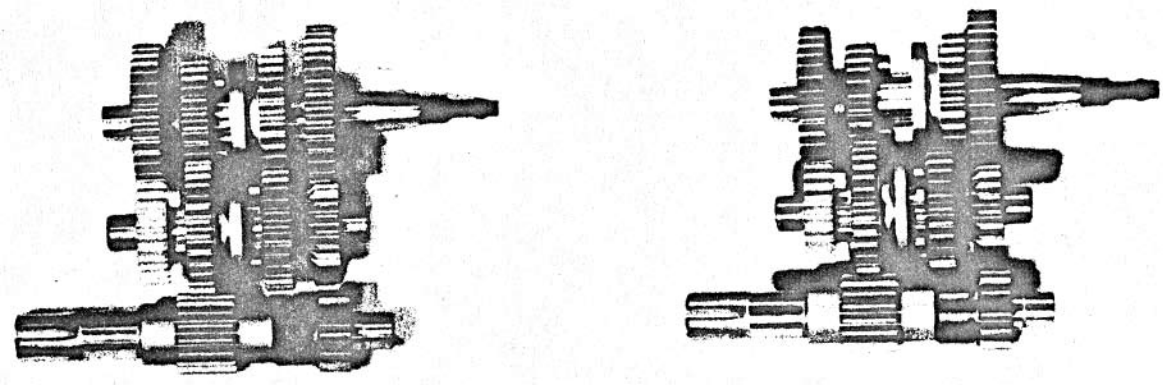
1. Flywheel
2. Lock washer
3. Fly wheel bolt
4. Coil spring
5. Pressure spring
6. Clutch desk
7. Outer plate
8. Lock washer
9. Binding bolt

(2) Checking and Assembling

a. Wear of the clutch disc.
b. Strength of the coil spring.(Check it in the same manner as the valve spring)
c. Tightness of the clutch disc revet.
d. The fly wheel being heavy,special attention is to be given to fitting it firmly. Careless fitting may result in undesirable condition of the machine due to loosefly wheel.
e. Outer plate should be set to place the clutch disc to the center. Transmission can be mounted easily if clutch disc is centered.

1-7 Transmission System

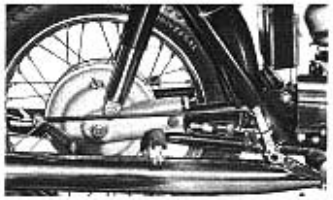
Transmission is of the stopper type and of the constant mesh forward four step method. As shown in Fig-25 the gear system has the main shaft, the counter shaft and the spline shaft. The mesh for each step is low, second, third and top as shown respectively in Fig-26, 27, 28, and 29.



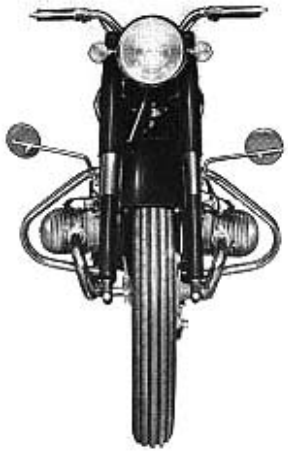
ライラック 独特の技術によってあなたの夢を実現したハイウエイ時代の大型オートバイ

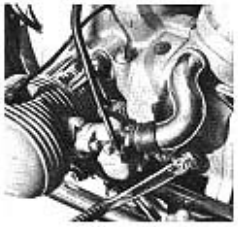
ライラック
500 c.c. R-92 型

● ハイウェイ時代のオートバイとして、伝統のシャフト・ドライブシステムとVの技術をさらに生した水平対向2気筒エンヂン、ツインキャブのずばぬけた高速、加速、耐久力の3ポイントによりすばらしい安定と乗心地を味わっていただけます。

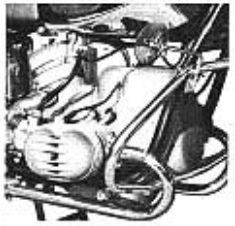


振動を消す
シャフト・ドライブシステム





高性能を発揮する
ツインキャブレター



すばらしい安定性と強力な
水平対向エンヂン

ライラック号 R92型 500 cc
現金正価 ¥ 258.000

丸正自動車製造株式会社
浜松市森田町413番地
TEL.㊀5555・㊁3339・2871

特

約

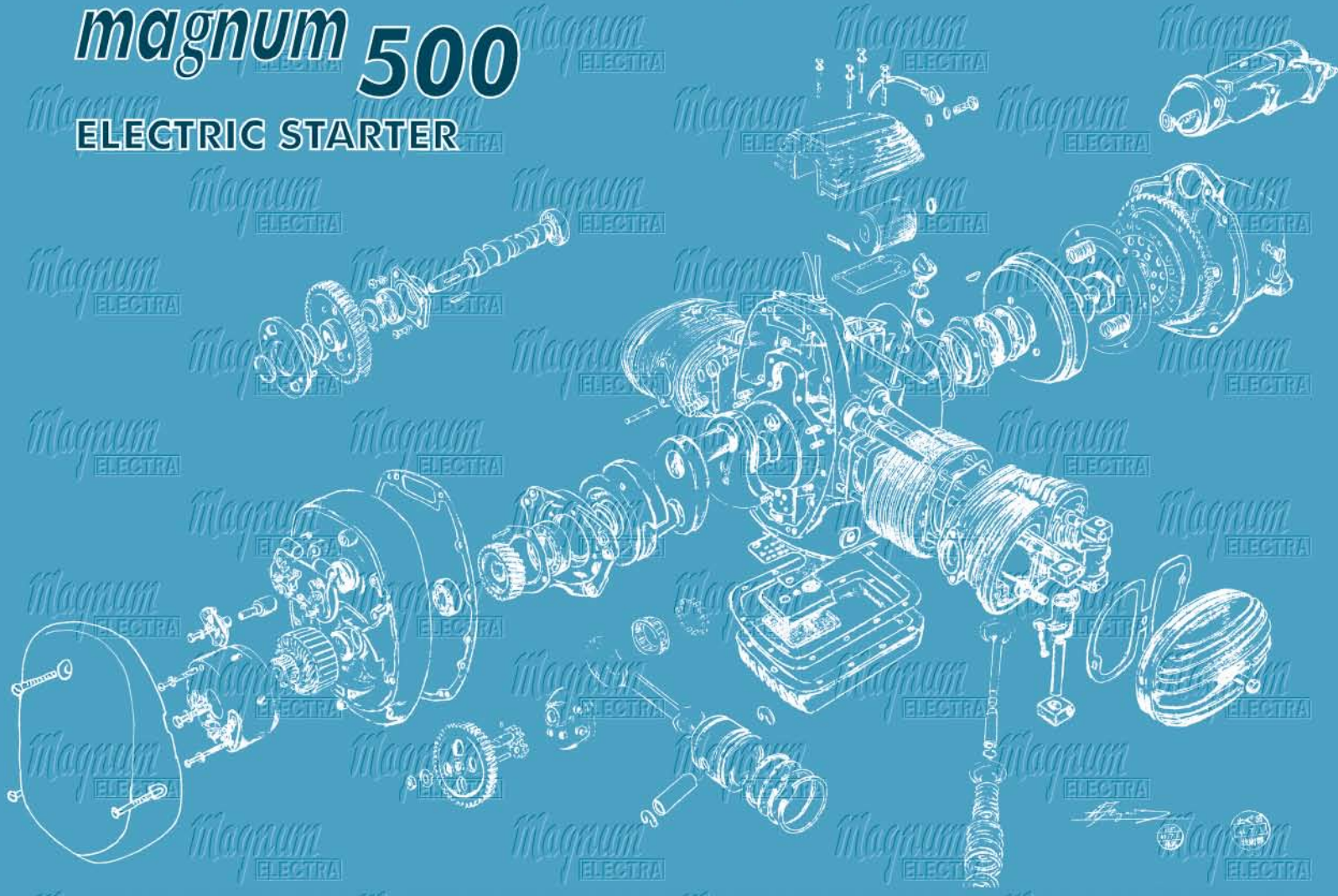
店

新型車誕生

MARUSHO

magnum 500

ELECTRIC STARTER



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