



# JAPAN AUTOMOBILE FEDERATION

F. I. A. Recognition No. 1541  
Group 2 - Touring

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

Form of recognition in accordance with  
Appendix J to the International Sporting Code.

Manufacturer	TOYO KOGYO CO., LTD.	ROTARY ENGINE	ROTARY ENGINE
Chassis	M10A-10001	Cylinder-capacity	<del>4</del> x 491 cm <sup>3</sup> <del>4</del> x 30.0 in.
Serial No. of engine	10A-10001	Model	M10A (FAMILIA ROTARY COUPE)
Recognition is valid from	<u>1st November 1968</u>	Manufacturer	TOYO KOGYO
The manufacturing of the model described in this recognition form was started on	<u>MAY 1968</u>	Manufacturer	TOYO KOGYO
1000 identical cars, in accordance with the specifications of this form was reached on	<u>AUG. 1968</u>	List	<u>1968/10</u>

Photograph A, 3/4 view of car from front



The vehicle described in this form has been subject to the following amendments :

Variants

on	19	rec. No.	List
on	19	rec. No.	List
on	19	rec. No.	List
on	19	rec. No.	List
on	19	rec. No.	List

Stamp and signature of the  
National Sporting Authority

Normal evolution of the type

on	19	rec. No.	List
on	19	rec. No.	List
on	19	rec. No.	List
on	19	rec. No.	List
on	19	rec. No.	List

Stamp and signature of the F. I. A.

D

Make TOYO KOGYO

Model MLOA

F.I.A. Rec. No.

IMPORTANT - the underlined items must be stated in two measuring systems, one of which must be the metric system. See conversion table hereafter.

**CAPACITIES AND DIMENSIONS**

1. <u>Wheelbase</u>	2260	mm	89.0	inches
2. <u>Front track</u>	1200	mm	47.2	inches *
3. <u>Rear track</u>	1190	mm	46.9	inches *
4. Overall length of the car	383.0	cm		inches
5. Overall width of the car	148.0	cm		inches
6. Overall height of the car	134.5	cm		inches
7. <u>Capacity of fuel tank</u> (reserve included)			40	ltrs
	10.6	Gallon US		Gallon Imp.

8. Seating capacity

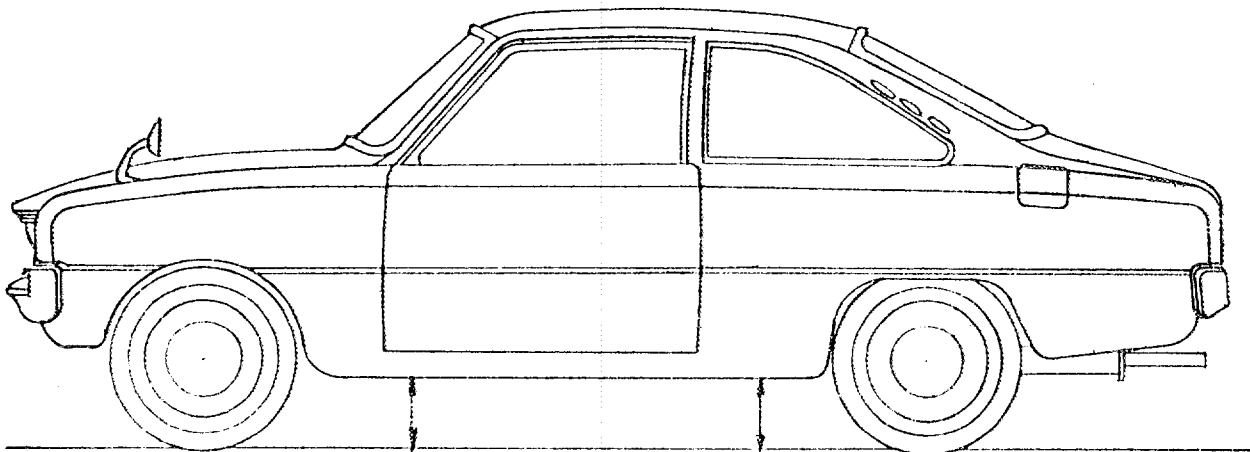
9. Weight, total weight of the car with normal equipment, water, oil and spare wheel but without fuel nor repair tools.

755 kg (46311 FIA) 1664 lbs  
 (850 kg (Bulletin #43) 461 lb) cwt

\* Differences in track caused by the use of other wheels with different rim widths must be stated when recognition is requested for the wheels concerned.

Specify ground clearance in relation to the track and give drawing of two fixed points of the vehicle's structure at which measurements are taken

These ground clearance dimensions are only for information when checking the track and can in no way affect the eligibility of the car.



**CONVERSION TABLE**

1 inch / pouce	= 2.54 cm	1 quart US	= 0.9464 ltrs
1 foot / pied	= 30.4794 cm	1 pint (pt)	= 0.568 ltrs
1 square inch / pouce carré	= 6.452 cm <sup>2</sup>	1 gallon Imp.	= 4.546 ltrs
1 cubic inch / pouce cube	= 16.387 cm <sup>3</sup>	1 gallon US	= 3.785 ltrs
1 pound / livre (lb)	= 453.593 gr.	1 hundred weight (cwt)	= 50.802 kg

**CHASSIS AND COACHWORK** (Photographs A, B and C)

- 20. Chassis/body construction : ~~SEPARATE~~ / unitary construction
- 21. Unitary construction, material (s) steel  
Separate construction
- 22. Separate Constructions. Material(s) of chassis
- 23. Material (s) of coachwork steel
- 24. Number of doors 2 Material (s) steel
- 25. Material (s) of bonnet steel
- 26. Material (s) of boot lid steel
- 27. Material (s) of rear-window glass
- 28. Material (s) of windscreen glass
- 29. Material (s) of front-door windows glass
- 30. Material (s) of rear-door windows
- 31. Sliding system of door windows vertical, manual
- 32. Material (s) of rear-quarter light glass

**ACCESSORIES AND UPHOLSTERY**

- 38. Interior heating : ~~YES~~ - no
- 39. Air-conditioning : ~~YES~~ - no
- 40. Ventilation : yes - ~~YES~~
- 41. Front seats, type of seats and upholstery Separate Seat & Vinyl Leather
- 42. Weight of front seat (s), complete with supports and rails, out of the car :  
15.5(Left) 15.8(Right) kg lbs
- 43. Rear seats, type of seats and upholstery Bench Seat & Vinyl Leather
- 44. Front bumper, material (s) steel Weight 3.6 kg lbs
- 45. Rear bumper, material (s) steel Weight 2.7 kg lbs

**WHEELS**

- 50. Type pressed steel
- 51. Weight (per wheel, without tyre) 4.5 (4J) kg lbs
- 52. Method of attachment 4 Hub Bolt 4.7 (4.5J)
- 53. Rim diameter 330 mm 13 inches
- 54. Rim width 102 mm 4 inches  
114 mm 4.5 inches

**STEERING**

- 60. Type Ball and Nuts Type
- 61. Servo-assistance : ~~YES~~ - no
- 62. Number of turns of steering wheel from lock to lock 3.73
- 63. In case of servo-assistance

**SUSPENSION**

70. Front suspension (photogr. D), type Independent ~~Strut-Type~~ Macpherson  
 71. Type of spring Coil  
 72. Stabiliser (if fitted) Torsion Bar  
 73. Number of shockabsorbers 2  
 74. Type Hydraulic Telescopic  
 78. Rear suspension (photogr. E), type Rigid Axle Case, Leaf Spring  
 79. Type of spring Semi-Elliptic Leaf Spring  
 80. Stabiliser (if fitted)  
 81. Number of shockabsorbers 2  
 82. Type Hydraulic Telescopic

**BRAKES** (photographs F and G)

90. System Hydraulic  
 91. Servo-assistance (if fitted), type  
 92. Number of hydraulic master cylinders 1 (Tandem)

	FRONT			REAR		
93. Number of cylinders per wheel	2			1		
94. Bore of wheel cylinder (s)	mm	1.89	in.	mm	5/8	in.
<b>Drum brakes</b>						
95. Inside diameter	mm		in.	200	mm	in.
96. Length of brake linings	mm		in.	200	mm	in.
97. Width of brake linings	mm		in.	32	mm	in.
98. Number of shoes per brake				2		
99. Total area per brake	mm <sup>2</sup>		sq. in.	12,800	mm <sup>2</sup>	sq. in.
<b>Disc brakes</b>						
100. Outside diameter	244	mm	in.		mm	in.
101. Thickness of disc	10	mm	in.		mm	in.
102. Length of brake linings	63	mm	in.		mm	in.
103. Width of brake linings	47	mm	in.		mm	in.
104. Number of pads per brake	2					
105. Total area per brake	5,920	mm <sup>2</sup>	sq. in.		mm <sup>2</sup>	sq. in.

Make TOYO KOGYO

Model MLOA

F.I.A. Rec. No.

ENGINE (photographs J and K)

- 130. Cycle Rotary Engine 4 Stroke Otto Cycle
- 131. Number of cylinders 2 ROTOR, 6 CHAMBER
- 132. Cylinder arrangement In line
- 133. ~~Bore~~ TROCHOID AXIS WIDTH 60 mm 2.36 in. ECCENTRICITY  
240 x 180 mm 9.45 x 7.09 in. 134. ~~Stroke~~ 15 mm 0.59 in.
- 135. ~~Capacity per cylinder~~ SINGLE CHAMBER VOLUME 491 cm<sup>3</sup> 30.0 cu. in.
- 136. Total cylinder-capacity Rotary Engine 4 x 491 cm<sup>3</sup> 4 x 30.0 cu. in.
- 137. Material (s) of cylinder ~~block~~ HOUSING Al-alloy, Cr-plated slide surface
- 138. Material (s) of sleeves (if fitted)
- 139. Cylinder-head, material (s) Number fitted
- 140. Number of inlet ports 4
- 141. Number of exhaust ports 2
- 142. Compression ratio 9.4
- 143. Volume of one combustion chamber 52.2 cm<sup>3</sup> cu. in.
- 144. Piston, material Nodular cast iron
- 145. Number of rings 1 every rotor apex
- 146. Distance from gudgeon pin centre line to highest point of piston crown  
mm inches
- 147. Crankshaft : ~~cast~~ / stamped
- 148. Type of crankshaft : ~~integral~~ / integral (Eccentric shaft)
- 149. Number of crankshaft main bearings 2
- 150. Material of bearing cap
- 151. System of lubrication : ~~dry sump~~ / oil in sump
- 152. Capacity, lubricant 4.5 ltrs pts quarts US
- 153. Oil cooler : yes / ~~no~~
- 154. Method of engine cooling Rotor with oil, Housing with water  
pints quarts US
- 155. Capacity of cooling system 7.5 ltrs
- 156. Cooling fan (if fitted), dia. 35 cm inches
- 157. Number of blades of cooling fan 4

Bearings

- 158. Crankshaft main, type Plain Dia. 43 mm in.
- 159. ~~Crankshaft main, type~~ Plain Dia. 74 mm in.  
ROTOR BEARING

Weights

- 160. Flywheel (clean) 11.8 kg lbs
- 161. Flywheel with clutch (all turning parts) 16.6 kg lbs
- 162. Crankshaft 5.6 kg lbs
- 163. Connecting rod kg lbs
- 164. Piston with rings and pin 3.8 kg lbs

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**FOUR STROKE ENGINES**

- 170. Number of camshafts 171. Location
- 172. Type of camshaft drive
- 173. Type of valve operation

**INLET** (see page 8) \*

- 180. Material(s) of inlet manifold Al-alloy
- 181. Diameter of valves cf. page 8 mm inches
- 182. Max. valve lift mm
- 183. Number of valve springs in.
- 184. Type of spring
- 185. Number of valves per cylinder
- 186. Tappet clearance for checking timing (cold) mm inches
- 187. Valves open at (with tolerance for tappet clearance indicated) A.T.D.C.  $32^{\circ} \pm 10^{\circ}$
- 188. Valves close at (with tolerance for tappet clearance indicated) A.B.D.C.  $40^{\circ} \pm 10^{\circ}$
- 189. Air filter, type Dry

**EXHAUST** (see page 8)

- 195. Material (s) of exhaust manifold Cast iron
- 196. Diameter of valves cf. page 8 mm inches
- 197. Max. valve lift mm in.
- 198. Number of valve springs
- 199. Type of spring
- 200. Number of valves per cylinder
- 201. Tappet clearance for checking timing (cold) mm inches
- 202. Valves open at (with tolerance for tappet clearance indicated) B.B.D.C.  $82^{\circ} \pm 10^{\circ}$
- 203. Valves close at (with tolerance for tappet clearance indicated) A.T.D.C.  $43^{\circ} \pm 10^{\circ}$

**CARBURETION** (photograph N)

- 210. Number of carburetors fitted 1
- 211. Type Dawn draught
- 212. Make HITACHI
- 213. Model KCB 306
- 214. Number of mixture passages per carburetor 4
- 215. Flange hole diameter of exit port(s) of carburetor 26&30 mm in
- 216. Minimum dimensions of mixture passage(s) ~~with 26 & 30 mm diameter holes~~ 21 & 28 mm inches

**INJECTION** (if fitted)

- 220. Make of pump
- 221. Number of plungers
- 222. Model or type of pump
- 223. Total number of injectors
- 224. Location of injectors
- 225. Minimum diameter of inlet pipe mm inches

\*1 for additional information concerning two-stroke engines and super-charged engines see page 13.

Make TOYO KOGYO

Model M10A

F. I. A. Rec. No.

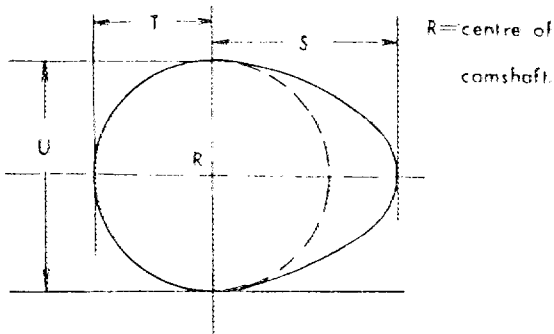
**ENGINE ACCESSORIES**

- 230. Fuel pump ~~mechanical~~ ~~and~~ ~~electric~~ electric
- 231. No. fitted 1
- 232. Type of ignition system MAKE AND BREAK IGNITION
- 233. No. of distributors 2
- 234. No. of ignition coils 2
- 235. No. of spark plugs per cylinder 2
- 236. Generator, type ~~dyno~~ alternator-number fitted 1
- 237. Method of drive V-Belt
- 238. Voltage of generator 12 volts
- 239. Battery, number 1
- 240. Location Engine ~~compartment~~ Room
- 241. Voltage of battery 12 volts

**ENGINE AND CAR PERFORMANCES** (as declared by manufacturer in catalogue)

- 250. Max. engine output 100 ps (type of horsepower: JIS ) at 7000 rpm
- 251. Maximum rpm 7000 output at that figure 100 ps
- 252. Maximum torque 13.5 kg-m at 3500 rpm
- 253. Maximum speed of the car 180 km/hour miles / hour

255.



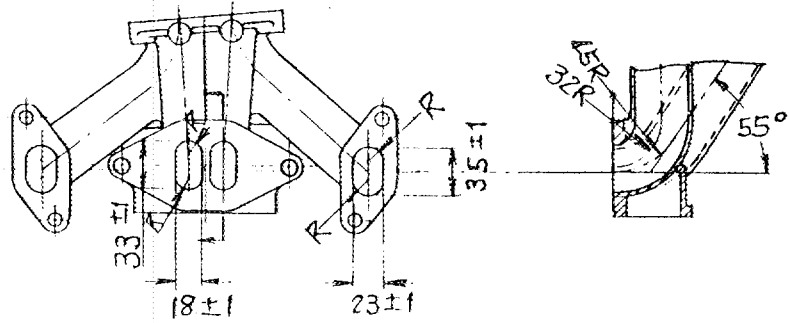
Inlet cam

- S = mm inches
- T = mm inches
- U = mm inches

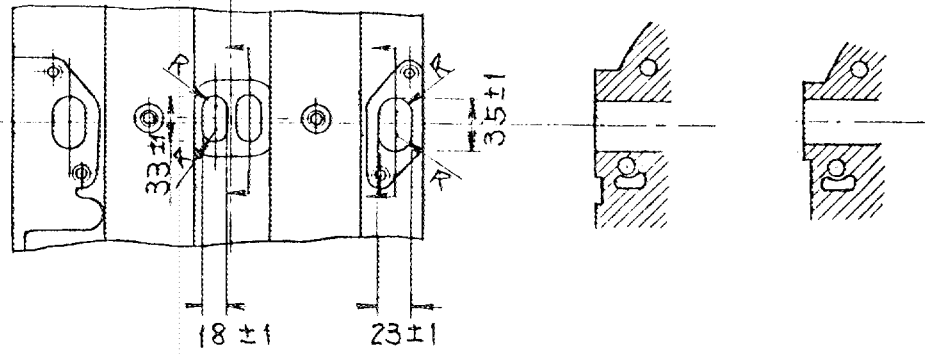
Exhaust cam

- S = mm inches
- T = mm inches
- U = mm inches

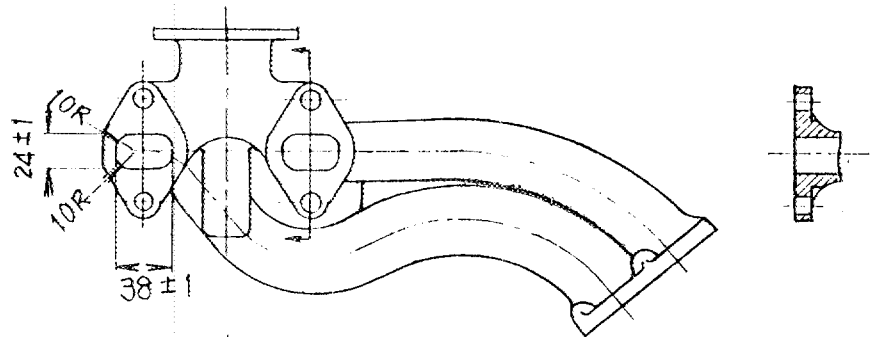
Drawing inlet manifold ports, side of cylinder-head. Indicate scale or dimensions and manufacturing tolerance.



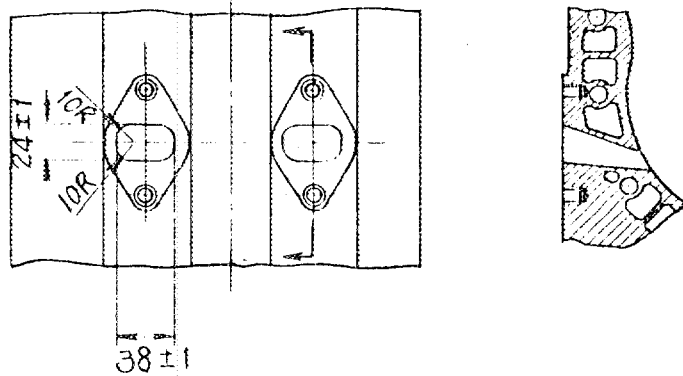
Drawing of entrance to inlet port of cylinder-head. Indicate scale or dimensions and manufacturing tolerance.



Drawing exhaust manifold ports, side of cylinder-head. Indicate scale or dimensions and manufacturing tolerance.



Drawing of exit to exhaust port of cylinderhead. Indicate scale or dimensions and manufacturing tolerance.



Unit : mm



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**DRIVE TRAIN**

**CLUTCH**

- 260. Type of clutch dry plate
- 261. No. of plates 1
- 262. Dia. of clutch plates 20.3 cm inches
- 263. Dia. of linings inside 13.0 cm in outside 20.0 cm in
- 264. Method of operating clutch Hydraulic

**GEAR BOX** photograph H)

- 270. Manual type, make TOYO KOGYO
- Method of operation Mechanical
- 271. No. of gear-box ratios forward 4 or 5
- 272. Synchronized forward ratios 1, 2, 3 & 4 or 1, 2, 3, 4 & 5
- 273. Location of gear-shift Floor
- 274. Automatic, make type
- 275. No. of forward ratios
- 276. Location of gear-shift Manual

277.	Manual		<del>Automatic</del>		Manual		<del>Automatic</del>	
	Ratio	No. teeth	Ratio	No. teeth	Ratio	No. teeth	Ratio	No. teeth
1	3.737	31/16 27/14	3.403	30/17 27/14	3.107	30/20 29/14	3.379	31/19 29/14
2	2.202	31/16 25/22	2.005	30/17 25/22	1.761	30/20 27/23	1.844	31/19 26/23
3	1.435	31/16 20/27	1.307	30/17 20/27	1.278	30/20 23/27	1.282	31/19 22/28
4	1.000		1.000		1.000		1.000	
5					0.798	30/20 17/32	0.865	31/19 17/32
6								
reverse	4.024	31/16 27/13	3.665	30/17 27/13	3.115	30/20 27/13	3.389	31/19 27/13

- 278. Overdrive, type
- 279. Forward gears on which overdrive can be selected
- 280. Overdrive ratio

**FINAL DRIVE**

- 290. Type of final drive Hypoid Gear
- 291. Type of differential Straight Bevel Gear
- 292. Type of limited slip differential (if fitted) ~~L.O.M.~~ type Mechanical
- 293. Final drive ratio 3.455 3.7 3.9 4.111 4.375 4.625 4.875
- Number of teeth 38/11 37/10 39/10 37/9 35/8 37/8 39/8

Make TOYO KOGYO

Model MLOA

F.I.A. Rec. No.

IMPORTANT- The conformity of the car with the following items of the present recognition form is to be disregarded during the scrutineering, when the vehicle has been entered in group 2 (Touring cars) or 3 (Grand Touring cars) : 41, 72, 80, 91, 142, 143, 144, 145, 146, 153, 156, 157, 160, 161, 162, 163, 164, 182, 184, 186, 187, 188, 189, 199, 201, 202, 203, 212, 213, 215, 216, 222, 225, 230, 250, 251, 252, 253, and photographs F, M, N, and page 8

During the scrutineering of cars entered in group 4 (Sportscars) only the following items of the present recognition form are to be taken into consideration : 1, 2, 3, 9, 20, 21, 22, 23, 24, 25, 26, 70, 71, 78, 79, 90, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 147, 148, 149, 150, 158, 159, 170, 171, 172, 173, 185, 200, 270, 271, 274, 275, 290, 291, 292 and photographs A, B, D, E, F, G, H, J, K, and O.

Optional equipment affecting preceding information. This to be stated together with reference number.

51	Weight (per wheel without tyre)		5.7 kg (4.5J) 6.7 kg (5J)
53	<u>Rim diameter</u>	356 mm	14 inches
54	<u>Rim width</u>	114 mm 127 mm	4.5 inches 5.0 inches

Make TOYO KOGYO

Model M10A

F.I.A. Rec. No.

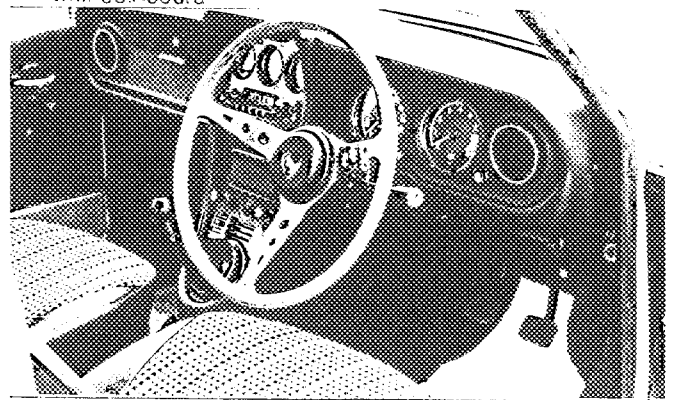
D

Photograph

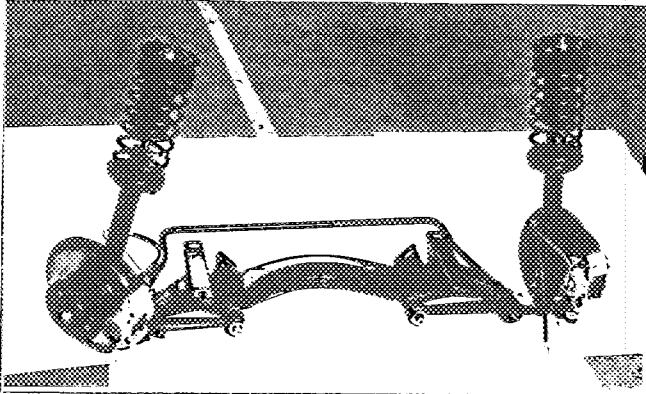
B. 3/4 view of car from rear



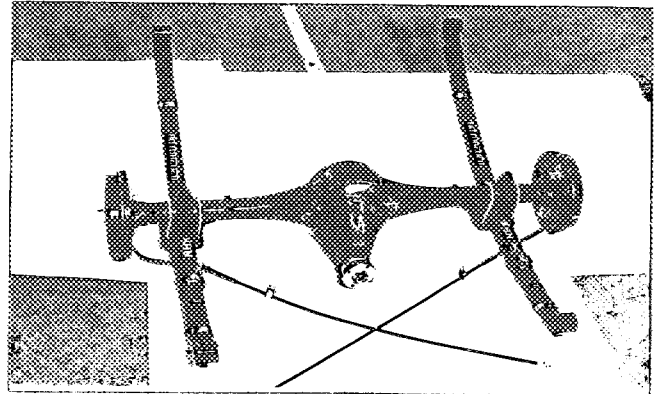
C. interior view of car through driver's door (open or removed) with dashboard



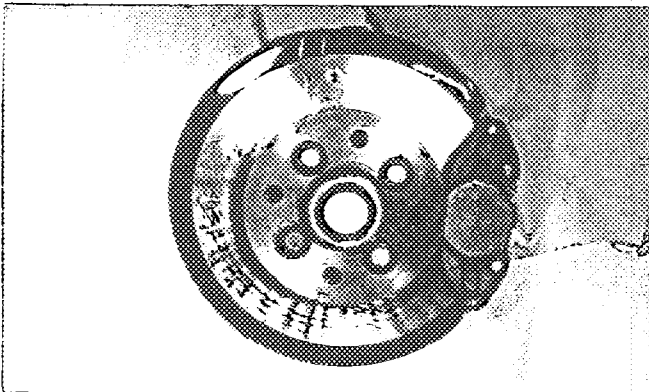
D. front axle complete, removed from car. Without wheels



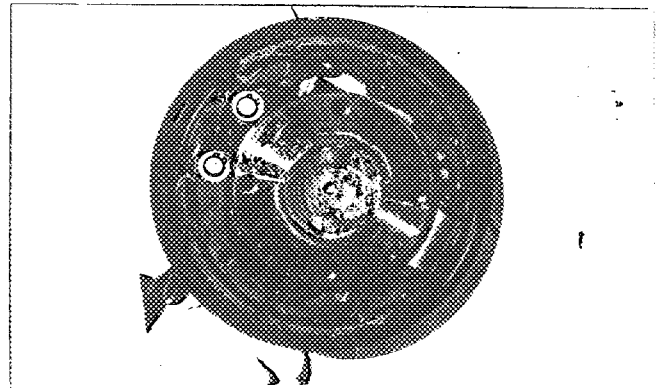
E. Rear axle complete without wheels, removed from car.



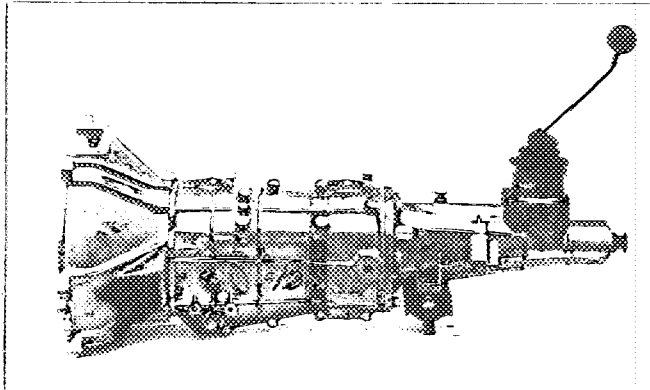
F. front brake, drum removed or disc with calipers



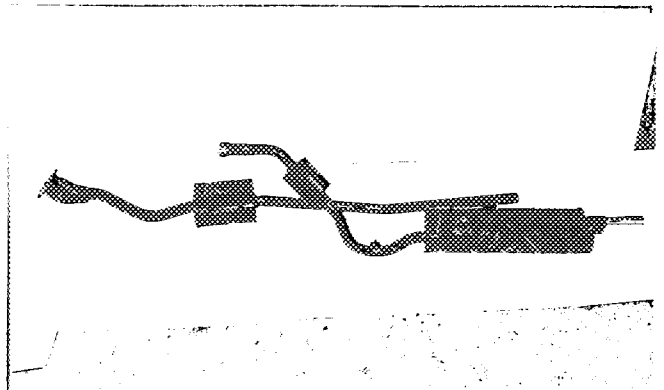
G. rear brake, drum removed or disc with calipers



H. gear-box, view from side



I. silencer & exhaust pipes after exhaust manifold



D

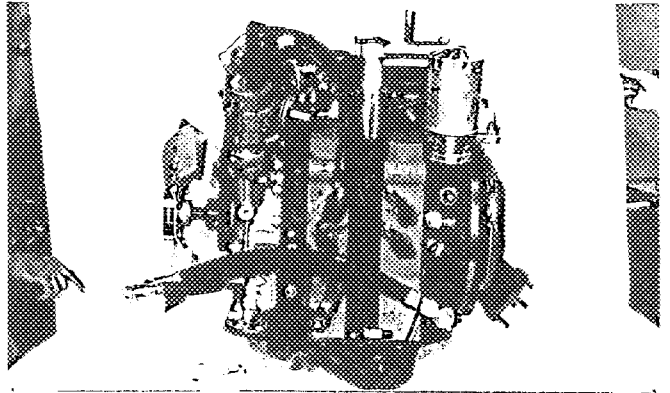
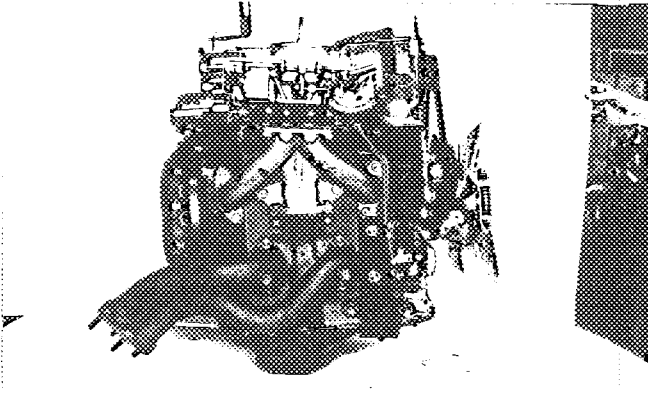
Make TOYO KOGYO

Model M10A

F.I.A. Rec. No

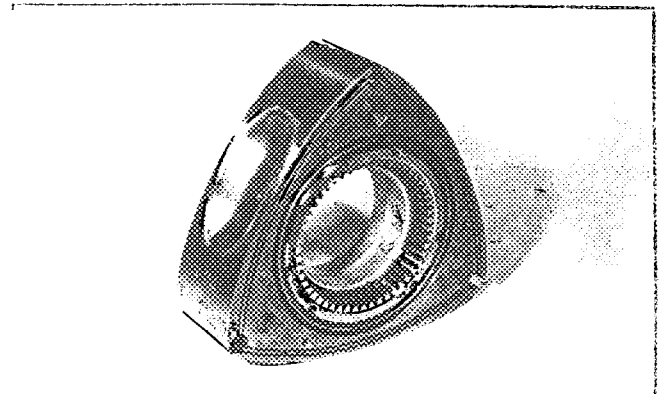
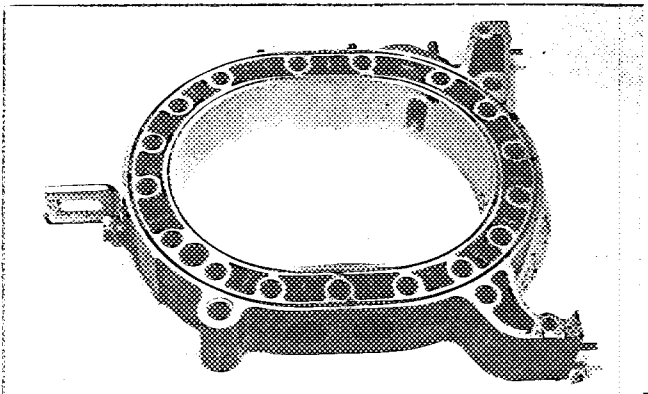
engine unit out of car, from right. With clutch and accessories but without air filter nor gear-box.

Engine unit out of car, from left. With clutch and accessories but without gear-box nor air filter.



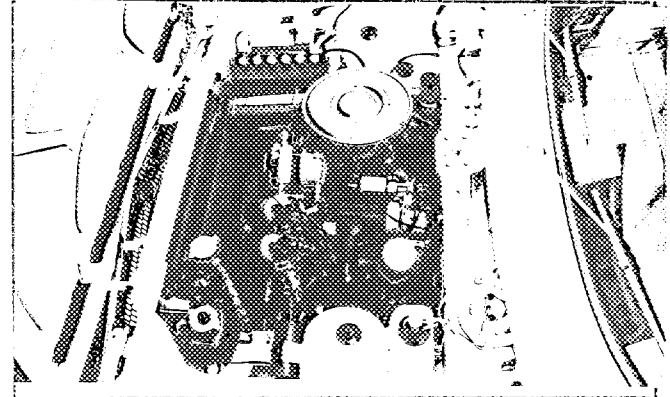
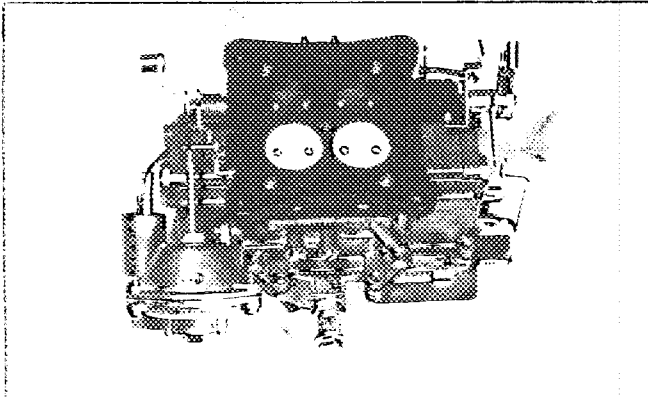
L, combustion chamber

M, piston crown



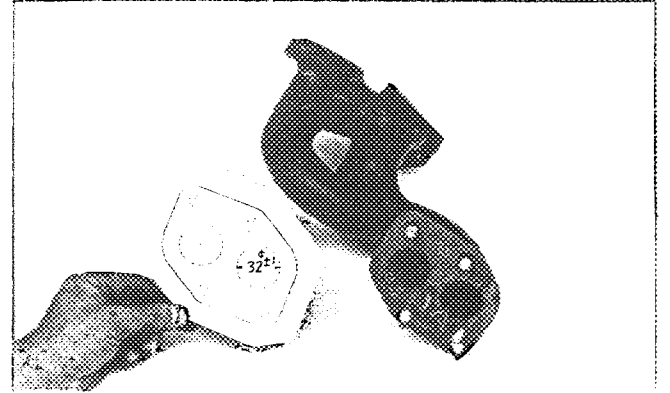
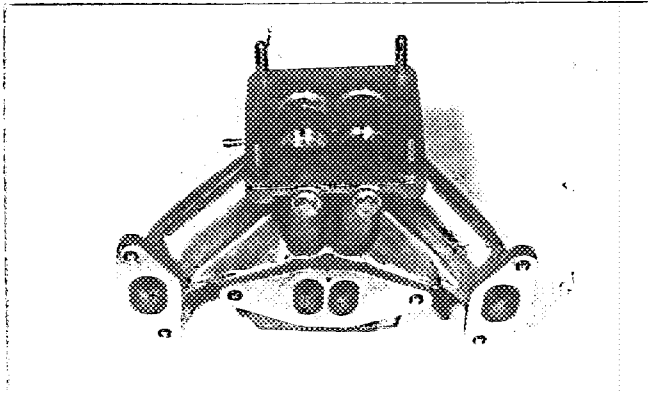
N, Carburettor (view from side of manifold)

O, engine in car with all accessories, bonnet open or removed.



P, inlet manifold

Q, exhaust manifold





JAPAN AUTOMOBILE FEDERATION F. I. A. Homol. No

1541/1/1V

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

Amendment to Form of Recognition in accordance with the International Sporting Code.

Make TOYO KOGYO

Model M10A (FAMILIA ROTARY COUPE)

Modification's application starts with serial

No. chassis M10A-10001 engine 10A-10001

Application of this amendment started the

Commercial denomination after application of modifications

The modifications are to be considered as: Variant / ~~None~~ ~~Extension of the type~~ FAMILIA ROTARY COUPE

Date amendment is valid from List

Description of amendment

Capacities and Dimensions

7. Capacity of fuel tank (Reserve included)

60 ltrs	15.9 gallon US
80 ltrs	21.1 gallon US
100 ltrs	26.4 gallon US

Stamp and signature of National Sporting Authority

JAPAN AUTOMOBILE FEDERATION

Handwritten signature of Yasuharu Nanba

Yasuharu Nanba

Stamp and signature of F. I. A.

Handwritten signature of F. I. A.



JAPAN AUTOMOBILE FEDERATION F.I.A. Homol. No 1541 / 2 / 2 V

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

Amendment to Form of Recognition in accordance with the International Sporting Code.

Make TOYO KOGYO

Model M10A (FAMILIA ROTARY COUPE)

Modification's application starts with serial

No. chassis M10A-10001 engine 10A-10001

Application of this amendment started the

Commercial denomination after application of modifications

The modifications are to be considered as: Variant / ~~normal~~ ~~XXXX~~ of the type

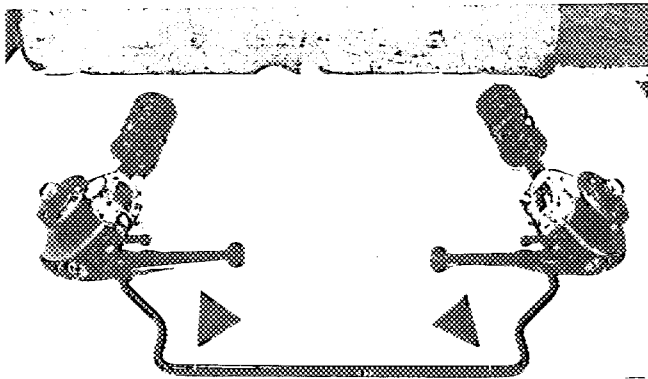
Date amendment is valid from 1/4/70 List 70/4

Description of amendment

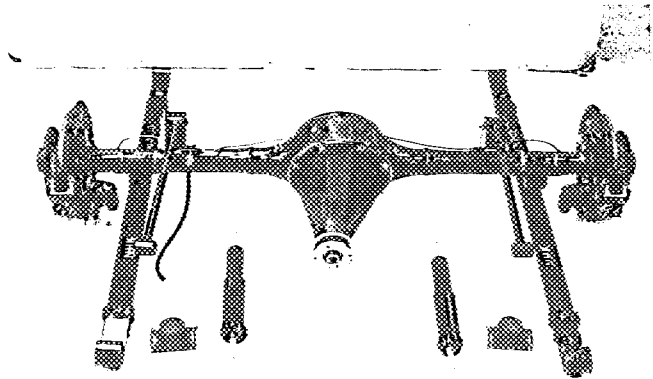
OPTIONAL EQUIPMENTS

Reinforced Suspension Kits

(Front)



(Rear)



STEERING GEAR KIT

62. Number of turns of steering wheel from lock to lock. 3

Stamp and signature of National Sporting Authority

Stamp and signatures of F. I. A.

JAPAN AUTOMOBILE FEDERATION

Handwritten signature of Yasuharu Nanba

Yasuharu Nanba

Handwritten signature of F.I.A. official



JAPAN AUTOMOBILE FEDERATION F.I.A. Homel. No 1541/3/30

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

Amendment to Form of Recognition  
in accordance with the International  
Sporting Code.

Make TOYO KOGYO Model M10A (FAMILIA ROTARY COUPE)  
Modification's application starts with serial No. chassis M10A-10001  
Application of this amendment started the engine 10A-10001  
Commercial denomination after application of modifications  
The modifications are to be considered as: Variant/~~normal version~~ of the type  
Date amendment is valid from 1/4/70 List 70/4

Description of amendment

OPTIONAL EQUIPMENTS

DISC BRAKES


	FRONT	REAR
93 Number of cylinder per wheel	2	1
94 Bore of wheel cylinder(s)	53.98 mm	31.75 mm
100 Outside diameter	254 mm	230 mm
101 Thickness of disc	20 mm	10 mm
102 Length of brake linings	78 mm	97.5 mm
103 Width of brake linings	52 mm	37.5 mm
104 Number of pads per brake	2	2
105 Total area per brake	8112 mm <sup>2</sup>	7312.5 mm <sup>2</sup>

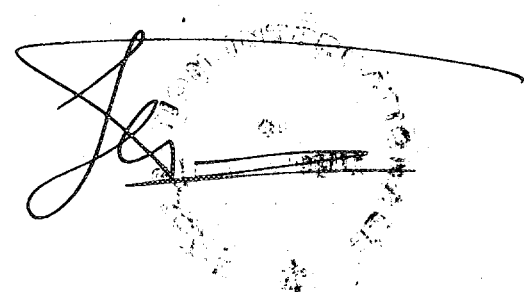
Two photographs(F and G) are shown in the attached sheet.

Stamp and signature of  
National Sporting Authority

Stamp and signature of F.I.A.

JAPAN AUTOMOBILE FEDERATION

  
Yasuharu Nanba



# TOYO KOGYO CO., LTD.

6047 FUCHU-MACHI, AKI-GUN, HIROSHIMA, JAPAN  
PHONE: HIROSHIMA 62-1111  
CABLE ADDRESS: TOYOKO HIROSHIMA

TELEX: JAPAN 682-333  
BRANCH OFFICES: TOKYO, OSAKA  
ESTABLISHED: JANUARY 1920

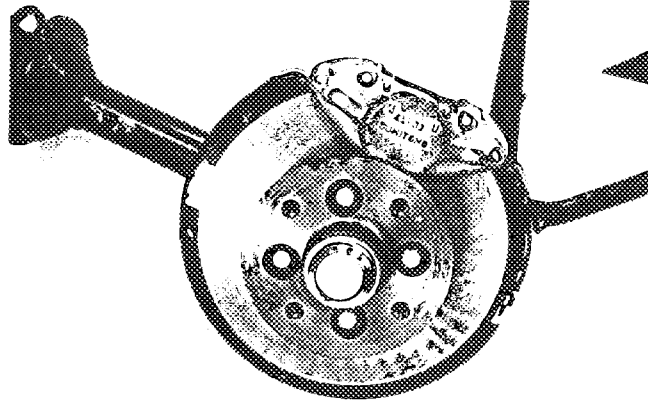
154-1/3/30

OPTIONAL EQUIPMENTS for the model M10A.,

## DISK BRAKES

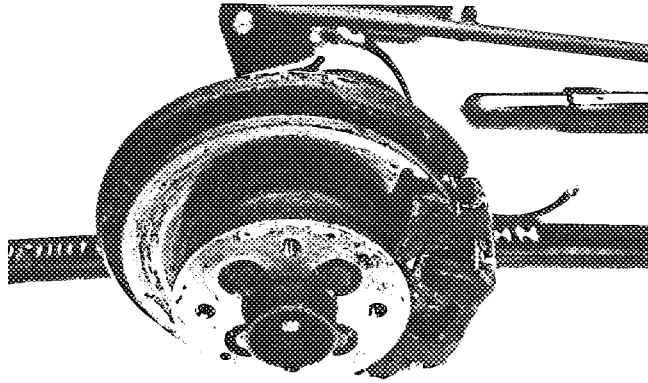
PHOTOGRAPH F

Front brake, disk with caliper.



PHOTOGRAPH G

Rear brake, disk with caliper.







JAPAN AUTOMOBILE FEDERATION F. I. A. Homol. No 1541 /4/4V

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

Amendment to Form of Recognition  
in accordance with the International  
Sporting Code.

Make TOYO KOGYO

Model M10A (FAMILIA ROTARY COUPE)

Modification's application starts with serial

No. chassis M10A-10001  
engine 10A-10001

Application of this amendment started the

Commercial denomination after application of modifications

The modifications are to be considered as: Variant / ~~normal version~~ of the type

Date amendment is valid from 1/4/77 List 70/11

Description of amendment

OPTIONAL EQUIPMENTS



FENDER EXTENSION KIT

When fitted overall body width is increased by 5 cms, each side.

See the next attachment sheet.

Stamp and signature of  
National Sporting Authority

Stamp and signature of F. I. A.

JAPAN AUTOMOBILE FEDERATION

Kazunari Komotori



JAPAN AUTOMOBILE FEDERATION

F.I.A. Homol. No 1541/4/40

FEDERATION INTERNATIONALE DE L'AUTOMOBILE

Amendment to Form of Recognition  
in accordance with the International  
Sporting Code.

Make TOYO KOGYO

Model M10A (FAMILIA ROTARY COUPE)

Modification's application starts with serial

No. chassis M10A-10001  
engine 10A-10001

Application of this amendment started the

Commercial denomination after application of modifications

The modifications are to be considered as: Variant / ~~normal variation~~ of the type

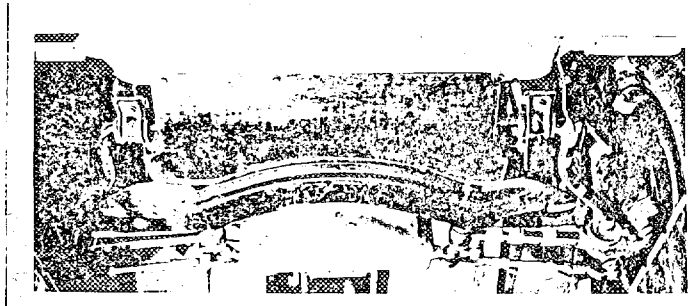
Date amendment is valid from 1/4/70 List 70/4

Description of amendment

OPTIONAL EQUIPMENT

Protection shield under the car

Dimensions-



Weight-

Stamp and signature of  
National Sporting Authority

Stamp and signature of F.I.A.

JAPAN AUTOMOBILE FEDERATION

難波靖治

Yasuharu Nanba



2/2