



JAPAN AUTOMOBILE FEDERATION

F. I. A. Recognition No. *1428*
Group *2 - Touring Cars*

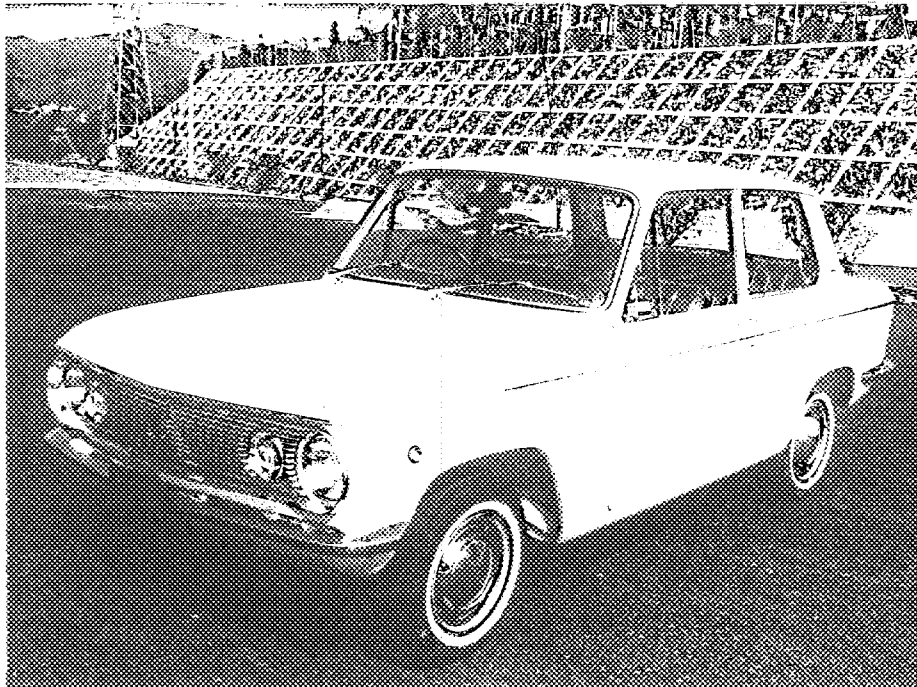
FEDERATION INTERNATIONALE DE L'AUTOMOBILE

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

Manufacturer	TOYO KOGYO CO., LTD.	Cylinder-capacity	782	cm ³	47.7	cu. in.
Serial No. of chassis	SSA-43701	Model	MAZDA FAMILIA "S"			
Serial No. of engine	SA-43701	Manufacturer	TOYO KOGYO			
Recognition is valid from	<i>1st May 1966</i>	Manufacturer	TOYO KOGYO			
		List	<i>14/4</i>			

The manufacturing of the model described in this recognition form was started on *October, 1965* and the minimum production of 1,000 identical cars, in accordance with the specifications of this form was reached on *March 1966*

Photograph A, 3/4 view of car from front



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

Variants				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	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

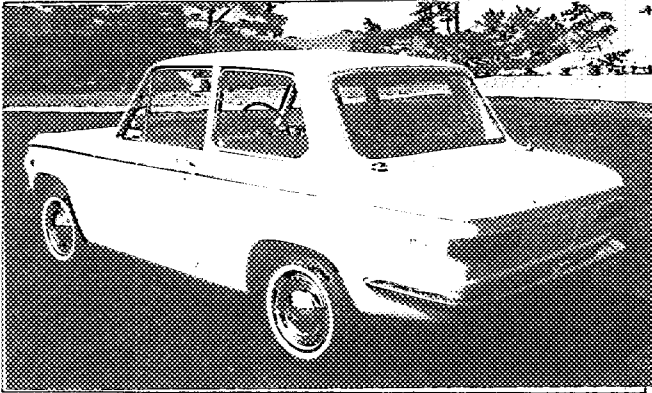
Stamp and signature of the
National Sporting Authority

Stamp and signature of the F. I. A.

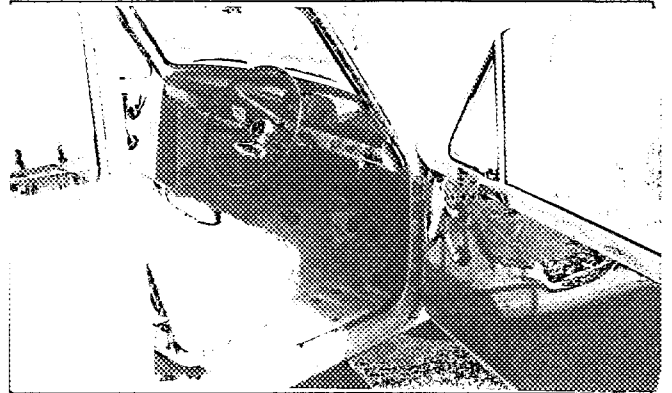


Photograph

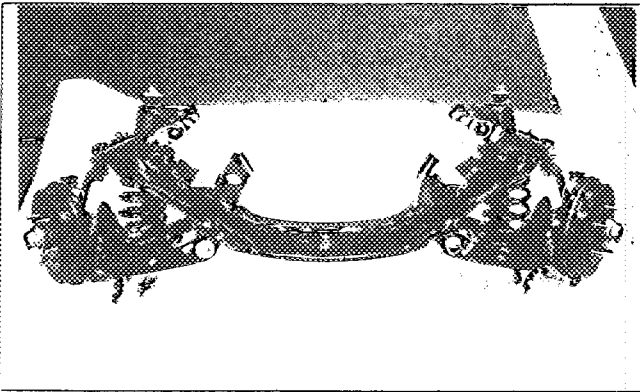
B, 3/4 view of car from rear



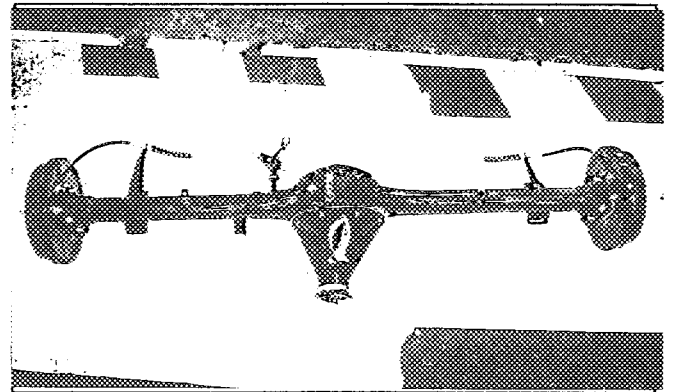
C, interior view of car through driver's door (open or removed)



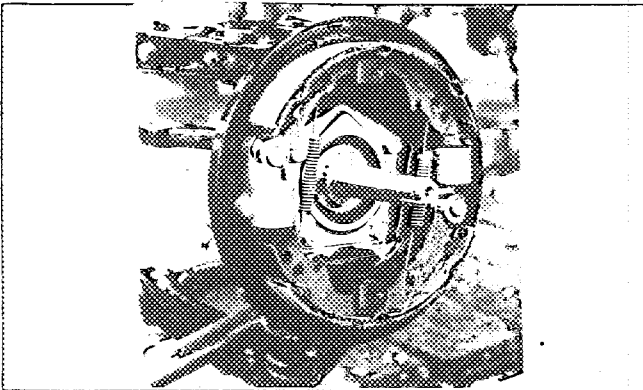
D, front axle complete, removed from car. Without wheels.



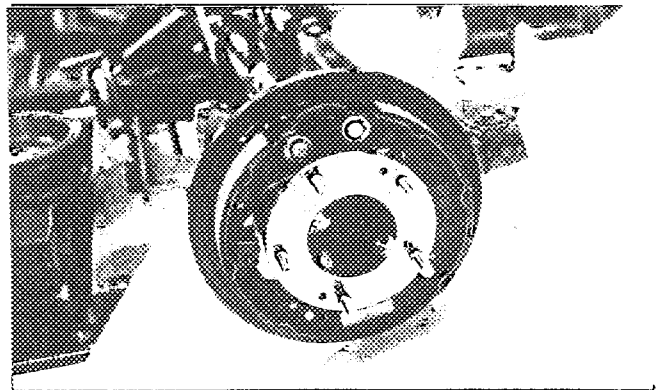
E, Rear axle complete without wheels, removed from car.



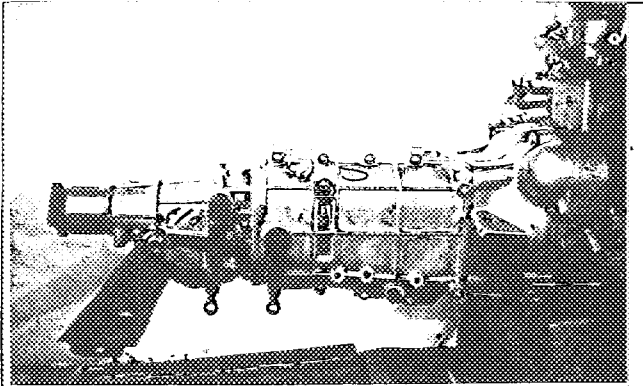
F, front brake, drum removed



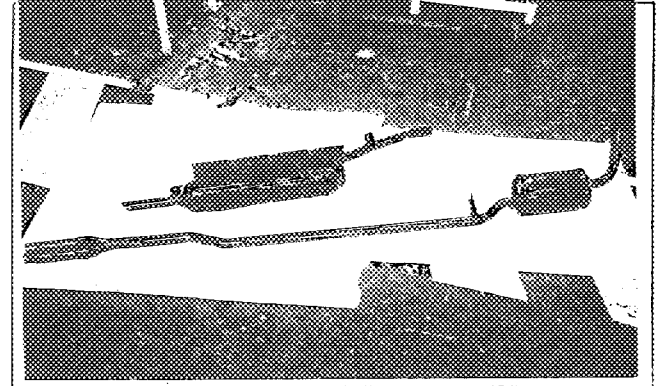
G, rear brake, drum removed



H, gear-box, view from side



I, silencer + exhaust pipes after exhaust manifold.

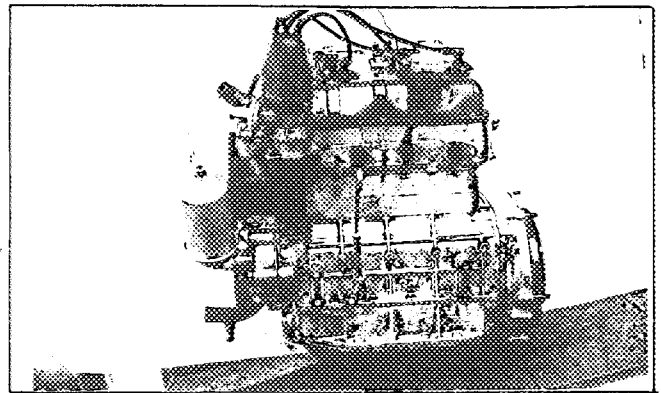
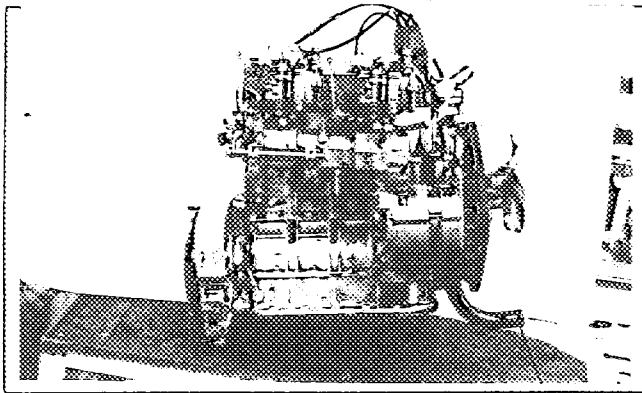


Make TOYO KOGYO

Model MAZDA FAMILIA "S" F.I.A. Rec. No

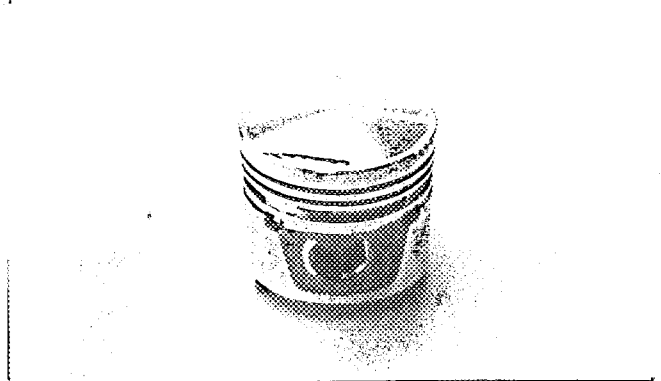
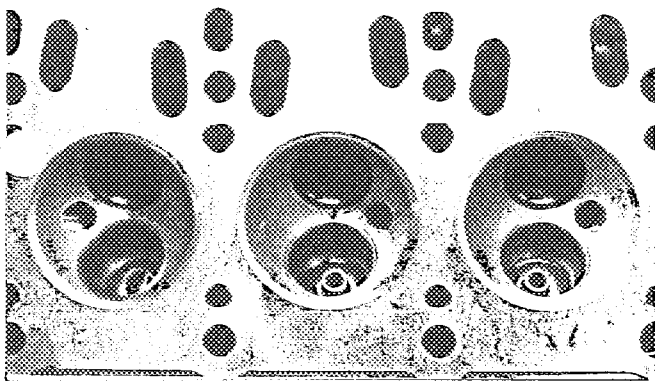
engine unit out of car, from right. With clutch and accessories but without air filter nor gear-box.

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



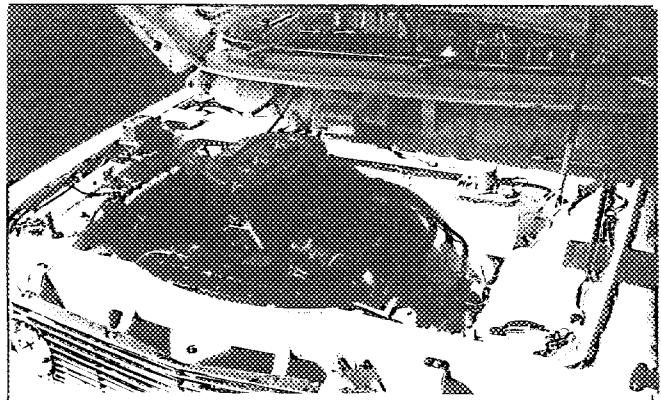
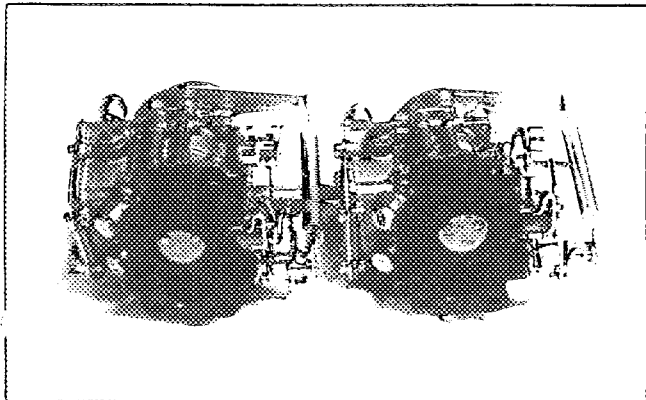
L, combustion chamber

M, piston crown



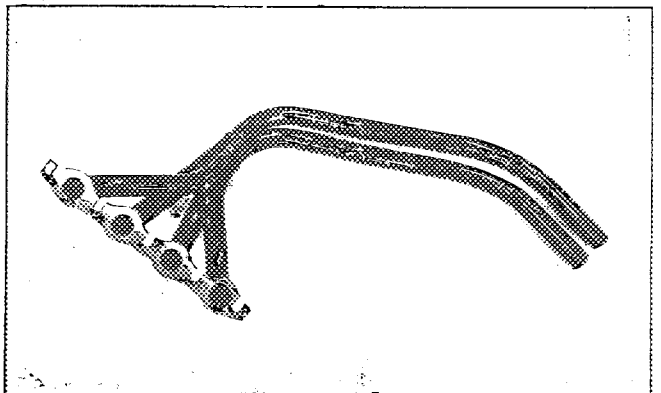
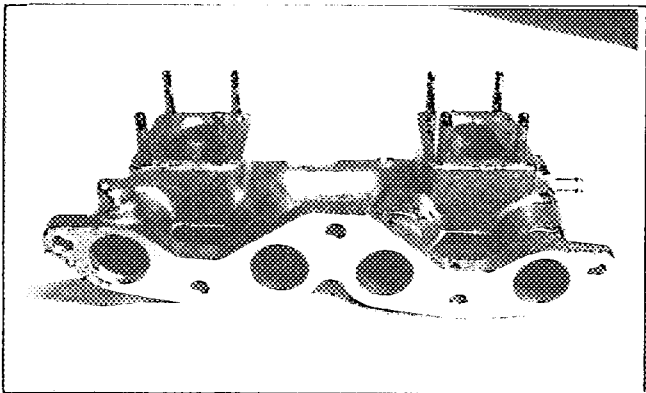
N, Carburettor (view from side of manifold)

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

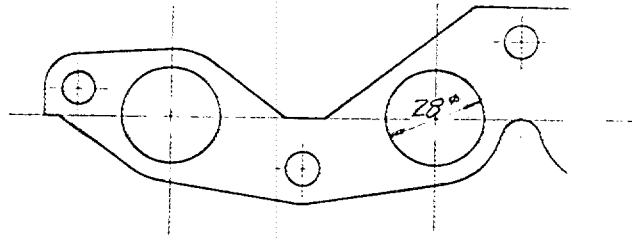


P, inlet manifold

Q, exhaust manifold

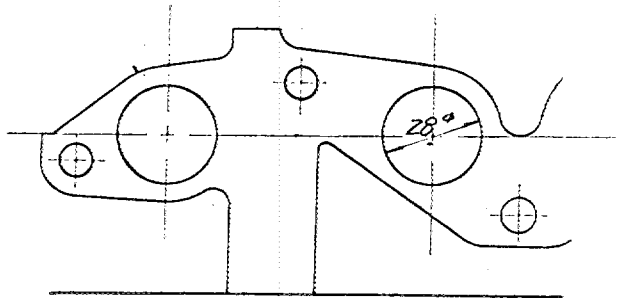


Drawing inlet manifold ports, side of cylinder-head. Indicate scale or dimensions and manufacturing tolerance.

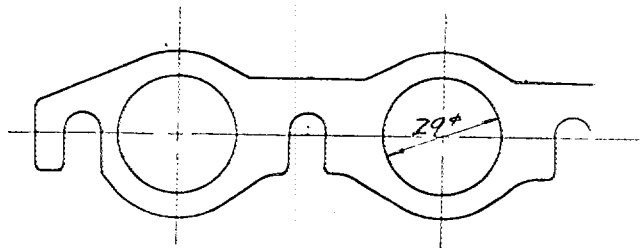


Dimension: m/m
Tolerance: ± 1.2
(Note: There are applicable to drawing of this sheet.)

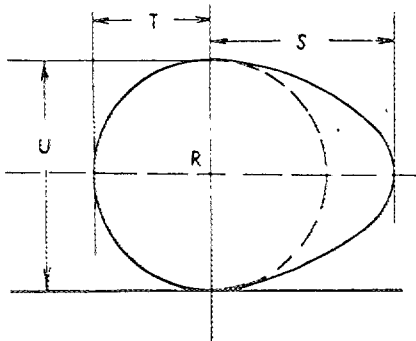
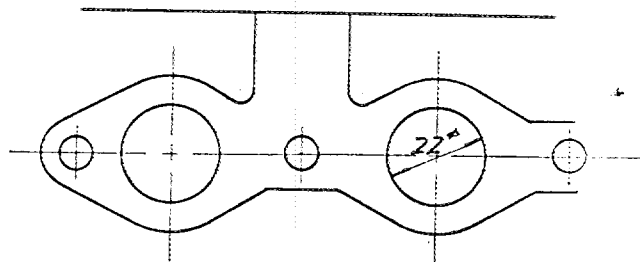
Drawing of entrance to inlet port of cylinder-head. Indicate scale or dimensions and manufacturing tolerance.



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.



R=centre of camshaft.

Inlet cam

S =	17.7	mm	0.69	inches
T =	11.5	mm	0.45	inches
U =	23.0	mm	0.91	inches

Exhaust cam

S =	17.7	mm	0.69	inches
T =	11.5	mm	0.45	inches
U =	23.0	mm	0.91	inches



Make TOYO KOGYO

Model MAZDA FAMILIA "S"

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>	2,190	mm	86.2	inches
2. <u>Front track</u>	1,200	mm	47.2	inches *
3. <u>Rear track</u>	1,190	mm	46.9	inches *
4. Overall length of the car		370.0	cm	inches
5. Overall width of the car		146.5	cm	inches
6. Overall height of the car		138.5	cm	inches
7. <u>Capacity of fuel tank</u> (reserve included)				40 ltrs
	10.6	Gallon US		Gallon Imp.
8. Seating capacity	5			
9. <u>Weight</u> , total weight of the car with normal equipment, water, oil and spare wheel but without fuel nor repair tools:				
	680	kg	1,499	lbs
				cwt

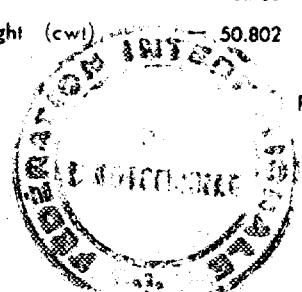
Differences in track caused by the use of other wheels with different rim widths must be stated when recognition is requested for the wheels concerned.

Specify ground clearance in relation to the track and give drawing of two easily recognizable points at front and rear 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 ²	1 gallon Imp.	— 4.546 ltrs
1 cubic inch/pouce cube	— 16.387 cm ³	1 gallon US	— 3.785 ltrs
1 pound/livre (lb)	— 453.593 gr.	1 hundred weight (cwt)	— 50.802 kg



SUSPENSION

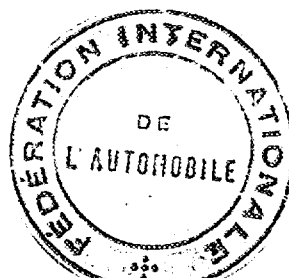
- 70. Front suspension (photogr. D), type
- 71. Type of spring
- 72. Stabiliser (if fitted)
- 73. Number of shockabsorbers 2
- 78. Rear suspension (photogr. E); type
- 79. Type of spring
- 80. Stabiliser (if fitted)
- 81. Number of shockabsorbers 2

- Independent, Wishbone
- Coil
- Torsion Bar
- 74. Type Hydraulic, Telescopic
- Rigid Axle Case, Leaf Spring
- Semi-Elliptic Leaf Spring
- 82. Type Hydraulic Telescopic

BRAKES (photographs F and G)

- 90. Method of operation
- 91. Servo-assistance (if fitted), type
- 92. Number of hydraulic master cylinders 1

	FRONT			REAR		
Number of cylinders per wheel	2			1		
94. Bore of wheel cylinder (s)	22.2	mm	in.	19.0	mm	in.
Drum brakes						
95. Inside diameter	200	mm	in.	200	mm	in.
96. Length of brake linings	200	mm	in.	200	mm	in.
97. Width of brake linings	32	mm	in.	32	mm	in.
98. Number of shoes per brake	2			2		
99. Total area per brake	6,400 x 2	mm ²	sq. in.	6,400 x 2	mm ²	sq. in.
Disc brakes						
100. Outside diameter		mm	in.		mm	in.
101. Thickness of disc		mm	in.		mm	in.
102. Length of brake linings		mm	in.		mm	in.
103. Width of brake linings		mm	in.		mm	in.
104. Number of pads per brake						
105. Total area per brake		mm ²	sq. in.		mm ²	sq. in.



Make TOYO KOGYO

Model MAZDA FAMILIA "S"

F. I. A. Rec. No.

ENGINE (photographs J and K)

130. Cycle 4

132. Cylinder arrangement Inline

133. Bore 58 mm 2.28 in.

135. Capacity per cylinder 195.5 cm³

136. Total cylinder-capacity 782 cm³

137. Material (s) of cylinder block Al-Alloy

138. Material (s) of sleeves (if fitted) Cast Iron

139. Cylinder-head, material (s) Al-Alloy

140. Number of inlet ports 4

142. Compression ratio 11.0

143. Volume of one combustion chamber 19.6 cm³

144. Piston, material Al-Alloy

146. Distance from gudgeon pin centre line to highest point of piston crown 32.9 mm

147. Crankshaft : ~~XXXXX~~ / stamped

149. Number of crankshaft main bearings 5

150. Material of bearing cap Al-Alloy

151. System of lubrication : ~~dry sump~~ / oil in sump

152. Capacity, lubricant 3.5 ltrs

153. Oil cooler : ~~xxx~~ / no

155. Capacity of cooling system 4 ltrs

156. Cooling fan (if fitted), dia. 27 cm

157. Number of blades of cooling fan 4

131. Number of cylinders 4

134. Stroke 74 mm 2.92 in.

135. Capacity per cylinder 11.9 cu. in.

136. Total cylinder-capacity 47.7 cu. in.

137. Material (s) of cylinder block Al-Alloy

138. Material (s) of sleeves (if fitted) Cast Iron

139. Cylinder-head, material (s) Al-Alloy

Number fitted 1

140. Number of inlet ports 4

141. Number of exhaust ports 4

142. Compression ratio 11.0

143. Volume of one combustion chamber 19.6 cm³ cu. in.

144. Piston, material Al-Alloy

145. Number of rings 3

146. Distance from gudgeon pin centre line to highest point of piston crown 32.9 mm inches

147. Crankshaft : ~~XXXXX~~ / stamped

148. Type of crankshaft : integral / ~~XXXXXXXXXX~~

149. Number of crankshaft main bearings 5

150. Material of bearing cap Al-Alloy

151. System of lubrication : ~~dry sump~~ / oil in sump

152. Capacity, lubricant 3.5 ltrs pts quarts US

153. Oil cooler : ~~xxx~~ / no

154. Method of engine cooling Water

155. Capacity of cooling system 4 ltrs pints quarts US

156. Cooling fan (if fitted), dia. 27 cm inches

157. Number of blades of cooling fan 4

Bearings

158. Crankshaft main, type Plain Dia. 45 mm in.

159. Connecting rod big end, Plain Dia. 45 mm in.

Weights

160. Flywheel (clean) 4.1 kg lbs

161. Flywheel with clutch (all turning parts) 6.7 kg lbs

162. Crankshaft 9.3 kg lbs

163. Connecting rod 0.4 kg lbs

164. Piston with rings and pin 0.2 kg lbs



FOUR STROKE ENGINES

170. Number of camshafts 1 171. location Cylinder Block
 172. Type of camshaft drive Gear
 173. Type of valve operation Push rod, Rocker Arm

INLET (see page 4) *

180. Material(s) of inlet manifold Al-Alloy
 181. Diameter of valves 32 mm 1.26 inches
 182. Max. valve lift 7.5 mm 0.3 in.
 183. Number of valve springs 1
 184. Type of spring Coil
 185. Number of valves per cylinder 1
 186. Tappet clearance for checking timing (cold) 0.2 mm inches
 187. Valves open at (with tolerance for tappet clearance indicated) 20° BTDC $\pm 5^\circ$
 188. Valves close at (with tolerance for tappet clearance indicated) 60° ABDC $\pm 5^\circ$
 189. Air filter, type Dry

EXHAUST (see page 4)

195. Material (s) of exhaust manifold Steel Pipe Welding
 196. Diameter of valves 23 mm 0.91 inches
 197. Max. valve lift 7.5 mm 0.3 in.
 198. Number of valve springs 1
 199. Type of spring Coil
 200. Number of valves per cylinder 1
 201. Tappet clearance for checking timing (cold) 0.2 mm inches
 202. Valves open at (with tolerance for tappet clearance indicated) 60° BBDC $\pm 5^\circ$
 203. Valves close at (with tolerance for tappet clearance indicated) 20° ATDC $\pm 5^\circ$

CARBURETION (photograph N)

210. Number of carburetors fitted 2 211. Type Down Draft
 212. Make HITACHI 213. Model DEAW FL/RL
 214. Number of mixture passages per carburetor 2
 215. Flange hold diameter of exit port(s) of carburetor 26 & 28 mm in.
 216. Minimum diameter of venturi / ~~minimum diameter of venturi~~ 22 & 24 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

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



Make TOYO KOGYO

Model MAZDA FAMILIA "S"

F. I. A. Rec. No.

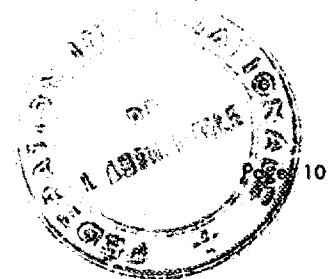
ENGINE ACCESSORIES

230. Fuel pump : ~~mechanical~~ electric
232. Type of ignition system Make & Break Ignition
234. No. of ignition coils 1
236. Generator, type: ~~dyno~~ alternator-number fitted 1
238. Voltage of generator 12 volts
240. Location Engine Room
241. Voltage of battery 12 volts

231. No. fitted 1
233. No. of distributors 1
235. No. of spark plugs per cylinder 1
237. Method of drive V Belt
239. Battery, number 1

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

250. Max. engine output 52 PS (type of horsepower: JIS) at 6,200 rpm
251. Maximum rpm 6,500 rpm output at that figure 51 PS
252. Maximum torque 6.6 kg-m at 5,000 rpm
253. Maximum speed of the car 125 km/hour miles / hour



Make

TOYO KOGYO

Model

MAZDA FAMILIA "S"

F. I. A. Rec. No.

DRIVE TRAIN

CLUTCH

Dry Plate

260. Type of clutch 261. No. of plates 1

262. Dia. of clutch plates 16.2 cm inches

263. Dia. of linings, inside 11.0 cm in. outside 16.0 cm in.

264. Method of operating clutch Hydraulic

GEAR BOX (photograph H)

270. Manual type, make TOYO KOGYO CO., LTD.

271. No. of gear-box ratios forward 4 272. Synchronized forward ratios 4 forward 1, 2, 3, 4

273. Location of gear-shift Column

274. Automatic, make type

275. No. of forward ratios 276. Location of gear-shift

277.	Manual			Automatic			Automatic			Automatic		
	Ratio	No.	teeth	Ratio	No.	teeth	Ratio	No.	teeth	Ratio	No.	teeth
1	3.913	$\frac{34}{13}$	$\frac{29}{14}$	3.617	$\frac{31}{16}$	$\frac{28}{15}$	4.013	$\frac{31}{16}$	$\frac{29}{14}$	3.290	$\frac{30}{17}$	$\frac{28}{15}$
2	2.300	$\frac{34}{18}$	$\frac{28}{23}$	2.306	$\frac{31}{16}$	$\frac{25}{21}$	2.399	$\frac{31}{16}$	$\frac{26}{21}$	1.920	$\frac{30}{17}$	$\frac{24}{22}$
3	1.433	$\frac{34}{18}$	$\frac{22}{29}$	1.490	$\frac{31}{16}$	$\frac{20}{26}$	1.435	$\frac{31}{16}$	$\frac{20}{27}$	1.240	$\frac{30}{17}$	$\frac{19}{27}$
4	1.000			1.000			1.000			1.000		
5												
6												
reverse	3.913	$\frac{34}{18}$	$\frac{29}{14}$	3.655	$\frac{31}{16}$	$\frac{29}{14}$	4.013	$\frac{31}{16}$	$\frac{29}{14}$	3.660	$\frac{30}{17}$	$\frac{29}{14}$

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 Bevel Gear

292. Type of limited slip differential (if fitted) Mechanical

293. Final drive ratio 4.625 5.125 5.375

Number of teeth 37/8 41/8 43/8



Make TOYO KOGYO

Model MAZDA FAMILIA "S"

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 I, M and N.

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.

WHEELS

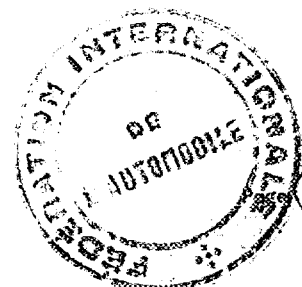
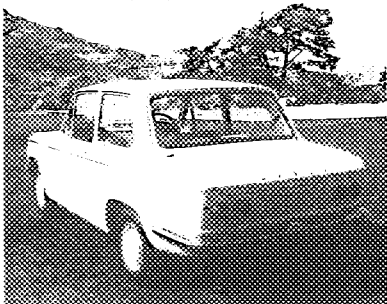
50. Type Pressed Steel
51. Weight (per wheel, without type) 4.8 kg lbs.
52. Method of attachment 5 Hub-Bolts & Nuts
53. Rim diameter 305 mm 12 inches
54. Rim width 114 mm 4 1/2 inches

SUB-TRANSMISSION

Floor shift changing

	Ratio	No. teeth
1	0.810	$\frac{18}{20} \cdot \frac{18}{20}$
2	1.000	

Round type tail lamp (see photo)



Make TOYO KOGYO

Model MAZDA FAMILIA "S"

F.I.A. Rec. No.

TWO STROKE ENGINES

300. System of cylinder scavenging			
301. Type of lubrication			
302. Inlet ports, length measured around cylinder wall		mm	inches
303. Height inlet port	mm		
305. Exhaust ports, length measured around cylinder wall		mm	inches
306. Height exhaust port	mm		
308. Transfer port, length measured around cylinder wall		mm	inches
309. Height transfer port	mm		
311. Piston ports, length measured around piston		mm	inches
312. Height piston port	mm		
314. Method of precompression			
16. Bore	mm	inches	
318. Distance from top of cyl. block to highest point of exhaust port :		mm	inches
319. Distance from top of cyl. block to lowest point of inlet port :		mm	inches
320. Distance from top of cyl. block to highest point of transfer port :		mm	inches
321. <u>Drawing of cylinder ports.</u>			
	in.	304. Area	mm ² sq. in.
	in.	307. Area	mm ² sq. in.
	in.	310. Area	mm ² sq. in.
	in.	313. Area	mm ² sq. in.
		315. Precompression cyl.:	yes /no
		317. Stroke	mm inches

30. Supercharging—state full details hereafter :

JAPAN AUTOMOBILE FEDERATION

Chairman

of Technical Subcommission

Osamu Hirose

Osamu Hirose

