

FEDERATION INTERNATIONALE DE L'AUTOMOBILE  
8, place de la Concorde, PARIS (8<sup>e</sup>) Tél: 86.33 34-70

HOMOLOGY-SHEET:



No.: 1181

Issued in January 1963

The model (variant) has been presented in January 1962

Make: STEYR-PUCH

type: 650 T  
650 TR

Kind: private motor car  
(passenger vehicle)

Specification: The model 650 T and the special deviation 650 TR are variants of the model 500 D/CL. They differ from the basic models only in the series' equipment of a 6A cc engine and the possibility to be supplied at request with a full synchromesh gear.

General designation: STEYR-PUCH 650 T mod. Fiat  
STEYR-PUCH 650 TR mod. Fiat

Commercial designation: STEYR-PUCH 650 T  
STEYR-PUCH 650 TR

The same chassis is used as the type 500 D/CL.

4 seats provided.

Manufacture begins: February 1st, 1962

Chassis No. starting with: 51C.0071  
Engine No. starting with: 52G.0001

Model homologated in the category 3 B 1 N 6  
in the F.I.A. on March 19th, 1962

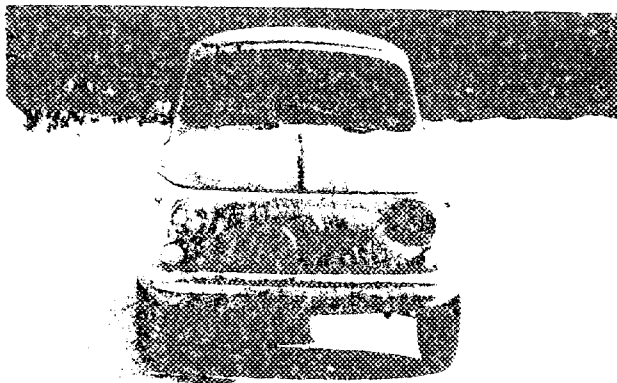
No. \_\_\_\_\_

Regulation No. 9 A 1 1963

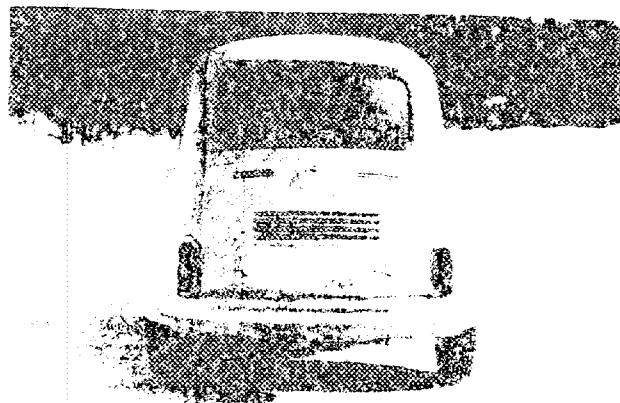
list générale  
de l'Automobile

Signature and stamp of the F.I.A.

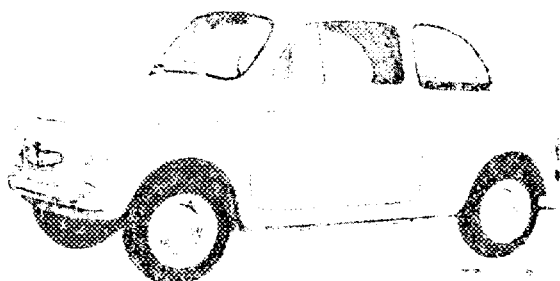
front view of the vehicle



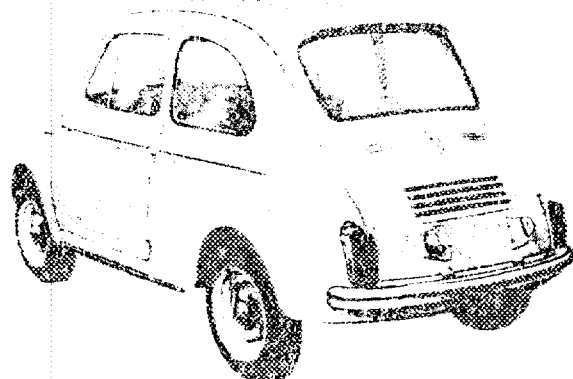
rear view of the vehicle



left view of the vehicle - front left



right view of the vehicle - front left



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Make: STEYR-PUCH

type: 650 T  
650 TR

Kind: private motor car  
(passenger vehicle)

Specification: The model 650 T and the special deviation 650 TR are variants of the models 500 D/OL. They differ from the basic models only in the serial equipment of a 647 cc engine and the possibility to be supplied on request with a full synchronous gear.

General designation: STEYR-PUCH 650 T mod. Fiat  
STEYR-PUCH 650 TR mod. Fiat

Commercial designation: STEYR-PUCH 650 T  
STEYR-PUCH 650 TR

The same chassis is used as the types 500 D/OL.

4 seats provided

Manufacture begins: February 1st, 1962

Chassis No. starting with: 510,0001  
Engine No. starting with: 520,0001

Vehicle homologated in the category: T O U R I N G  
~~by the F.I.A. on March 14th, 1962~~

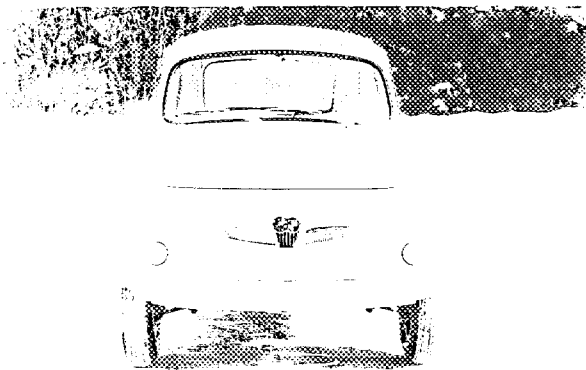
No. \_\_\_\_\_

*Regulazione le 9 JANV 1963*

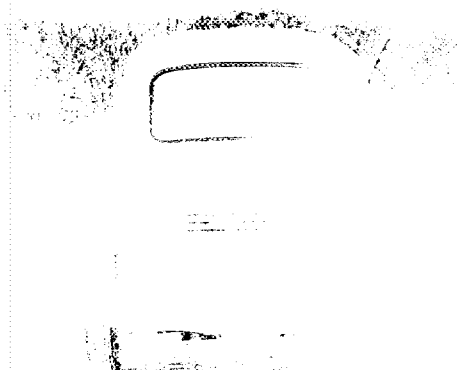
*liste generale 3  
addizionale 19*

Signature and stamp of the F.I.A.

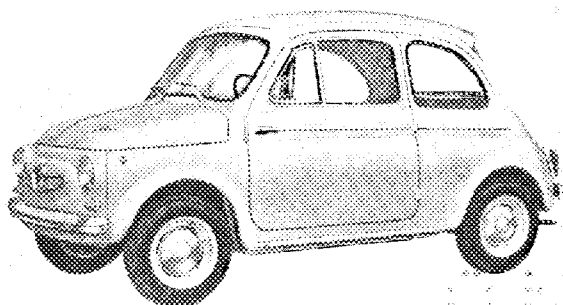
front view of the vehicle



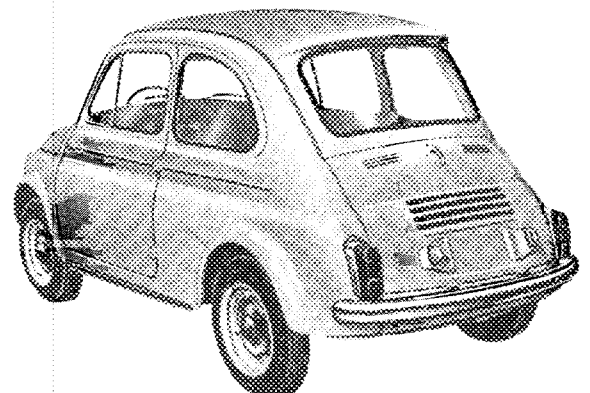
back view of the vehicle



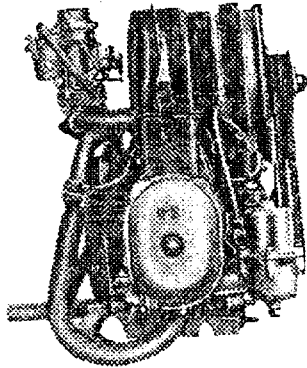
View of the vehicle - front left



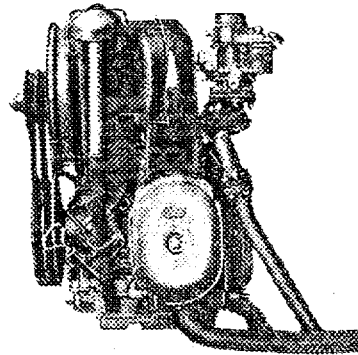
View of the vehicle - back left



Engine view (right hand side)



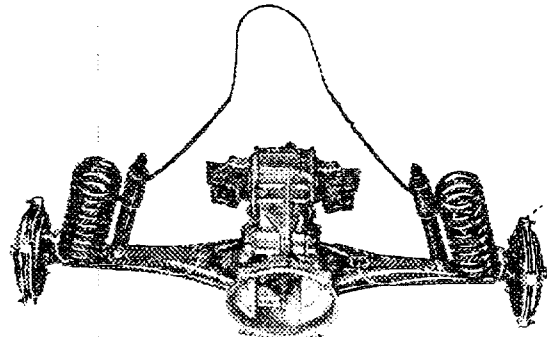
Engine view (left hand side)



Front axle complete without wheels



Rear axle complete without wheels



The same chassis is supplied for the models 500 D and 500 DL.

Primary material: Sheet steel

Additional material: Cabrio limousine with fabric top

Permissible number of seats: 4

Overall dimensions:

Width:	1,320 mm
Length:	2,695 mm
Height unladen:	1,355 mm
Height laden:	1,322 mm

Ground clearance: unladen	158 mm
Ground clearance: laden	120 mm

Average weight, measured on 5 vehicles, without petrol, without tool, with 1 spare wheel, without driver and without co-driver and without luggage.

Limousine (with steel top):	475 kg
Cabrio-limousine (with fabric top):	455 kg

Wheel base:	1,840 mm
Track of wheels:	1,120 mm (front) 1,135 mm (rear)

Rear wheel drive. - Rear engine - Power train by means of half axles

Gearing: Toothed wheel gear with 4 forward gears and 1 reverse gear.

Type of gearing: Toothed worm-gear steering.

ENGINE

Type:	4 - stroke	
Fuel:	Petrol	
Type (conception):	O.H.V.	
Performance:	2 19,8 DIN hp. or 27 DIN hp.	
Number of cylinders:	2, horizontally opposed.	
Cylinder bore:	80 mm $\varnothing$	Working tolerance: Tol_group I: 80,000 to 80,009 Tol_group II: 80,009 to 80,019
Stroke:	64 mm	Working tolerance: $\pm$ 0,05 mm
Capacity per cylinder:	321,6992 ccm	Engine total capacity: 643,3984 ccm
Total capacity, calculated according to the maximum tolerances:		644,2021 ccm
Over sizes of cylinders:	80,5 mm $\varnothing$	Tolerance group I: 80,500 to 80,509 Tolerance group II: 80,509 to 80,519
	81 mm $\varnothing$	Tolerance group I: 81,000 to 81,009 Tolerance group II: 81,009 to 81,019

Engine maximum capacity, calculated according to the maximum oversize: 660,4067 ccm  
 Engine capacity at maximum permissible wear of cylinders and pistons: 651,1064 ccm  
 Capacity of combustion chamber: 51,9 ccm or 33,85 ccm  
 Height measured in the middle of combustion chamber: 23 mm  
 Total height of the engine block without cylinder head and oil sludge: horizontally opposed engine!  
 Height of 1 cylinder: 100,2 mm  
 Height of cylinder head  
 (outer measurements): 80 mm

Weights:

Flywheel:	5,22 kg		
Crankshaft:	5,15 kg		
Connecting rod:	0,41 kg		
Pistons for compression ratio 1 : 7,2		without rings: 0,308 kg	with rings: 0,360 kg
Pistons for compression ratio 1 : 10,5		without rings: 0,348	with rings: 0,400 kg

Crankshaft bearing:

Number:	3	Kind: 2 bearings of lead bronze with emergency layer 1 bearing of special aluminum alloy layer
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Big end bearing:

Number:	2	Kind: Bushes of lead bronze with emergency layer
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Valve clearance with cold engine:

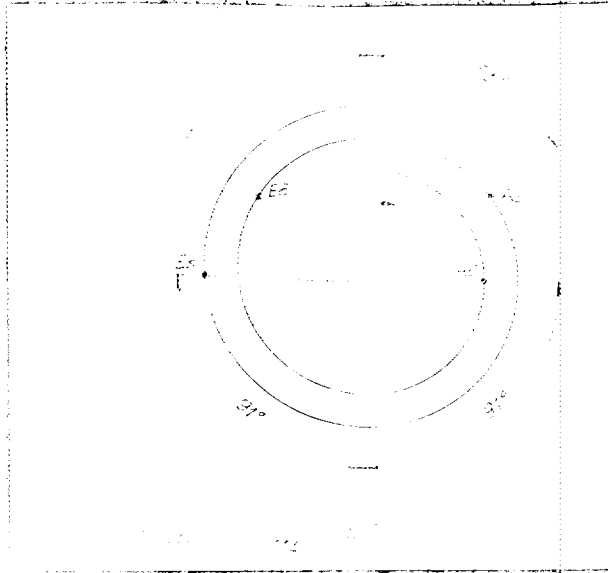
	Intake: 0,15 mm	Exhaust: 0,15 mm
Valves open:	Intake: $3^{\circ}$ b.t.d.c. (OT)	Exhaust: $41^{\circ}$ b.t.d.c. (UT)
Valves close:	Intake: $41^{\circ}$ after t.d.c. (UT)	Exhaust: $3^{\circ}$ after t.d.c. (OT)

Diameter of valves:

Intake:	33,0 mm $\varnothing$ or 38,0 mm $\varnothing$
Exhaust:	32,0 mm $\varnothing$ or 34,0 mm $\varnothing$



Valve gear diagram:



Intake pipe:	Outside diameter: 35 mm	Inside diameter: 32,6 mm	X
	or 38 mm	or 35,0 mm	

Position: Above the engine block, both cylinders together or separated leading into the silencer

Exhaust manifold:	Outside diameter: 38 mm	Inside diameter: 35,0 mm	X
	or 40 mm	or 36,0 mm	

Position: Below the engine block, both cylinders together or separated pointing to the muffler.

Exhaustdamping-System: Expansionset with connected chambers and one outlet hole,  
 or:  
 Absorptionset with 2 separated exhaust pipes  
 Sound level: 85 Phon

Intake pipe (detail):

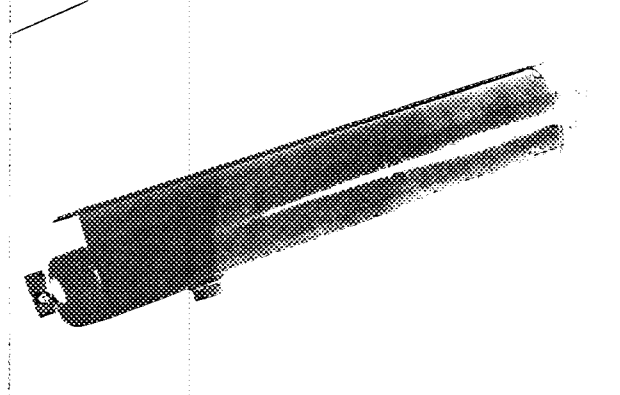
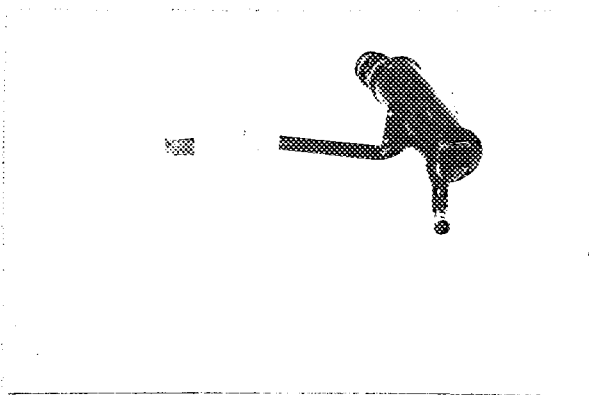
Exhaust manifold (detail):

These photographs state the outlet opening and inlet opening at the cylinder head



Exhaust pipe: Expansions system

Exhaust pipe: Absorbtions system



Valve springs:

a) Single springs:	Length: 41 mm inside diameter: 22,2 mm	Outside diameter: Number of coils:	29,8 mm 6	X
b) Double springs:	Length: 38 mm inside diameter: 24,0 mm	Outside diameter: Number of coils:	31,5 mm 5,75	X
	Length: 35 mm inside diameter: 19,0 mm	Outside diameter: Number of coils:	24,0 mm 6,75	.

CARBURETTOR:

a) Principle:	down-draught	make: Weber	Type: 32 ICS	Passage (outlet diameter): 32 mm Ø	X
b) Principle:	down-draught	make: Zenith	Type: 32 NDIX	Passage (outlet diameter): 2 x 32 mm Ø	

Fuel feed from tank to carburettor: Mechanically driven diaphragm pump

CLUTCH:

type: Single plat clutch, dry type

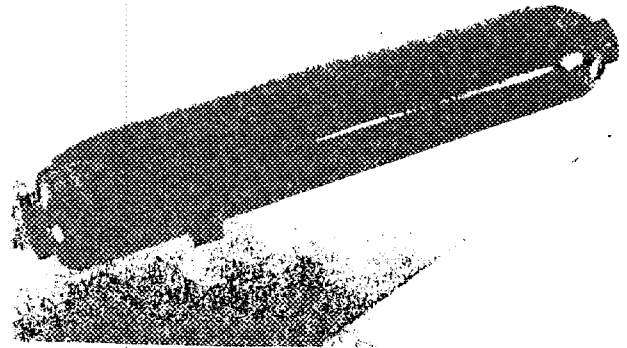
Diameter of clutch disc : 160 mm



Exhaust pipe: Expansion system



Exhaust pipe: Absorbent system



Exhaust springs:

a) Single springs:	length: 41 mm inside diameter: 22,2 mm	Outside diameter: Number of coils:	29,8 mm 6
b) Double springs:	length: 38 mm inside diameter: 24,0 mm	Outside diameter: Number of coils:	31,5 mm 5,75
	length: 35 mm inside diameter: 18,8 mm	Outside diameter: Number of coils:	24,0 mm 6,75

CARBURETTOR:

i) Principe:	down-draught	make:	Wohler	Type:	32 ICS	Passage (outlet diameter):	32 mm Ø
ii) Principe:	down-draught	make:	Zenith	Type:	32 180IX	Passage (outlet diameter):	2 x 32 mm Ø

fuel feed from tank to carburettor: Mechanically driven diaphragm pump

CLUTCH:

type: Single plate clutch, dry type

Blasster of clutch disc: 160 mm

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Make P U C H Type A Synchronash gear with 4 forward gears and 1 reverse gear

Gear ratios: Gearing type "A"

	Gear transmission		Various ratios, supplied on demand							
	ratio	number of teeth	ratio	number of teeth	ratio	number of teeth	ratio	number of teeth	ratio	number of teeth
1	3,73	41 : 11	3,73	41 : 11	3,08	40 : 13	3,08	40 : 13	2,47	37 : 15
2	2,18	37 : 17	2,18	37 : 17	1,79	34 : 19	1,79	34 : 19	1,68	33 : 20
3	1,30	30 : 23	1,48	31 : 21	1,48	31 : 21	1,48	31 : 21	1,35	31 : 23
4	0,89	25 : 28	1,00	27 : 27	0,95	26 : 27	1,21	29 : 24	1,12	28 : 25
Reverse	5,48	41 : 17								
		25 : 11								

Gearing: Make PUCH type "B" All 4 gears synchronashed , 4 forward gears and 1 reverse gear

	Gear transmission		Various ratios, supplied on demand							
	ratio	number of teeth	ratio	number of teeth	ratio	number of teeth	ratio	number of teeth	ratio	number of teeth
1	3,73	41 : 11	3,08	40 : 13	3,73	41 : 11				
2	2,18	37 : 17	1,84	35 : 19	2,18	37 : 17				
3	1,30	30 : 23	1,41	31 : 22	1,35	31 : 23				
4	0,89	25 : 28	0,95	26 : 27	0,93	25 : 27				
reverse	3,55	39 : 24								
		24 : 11								

Both gears are shifted by column control

gear ratios	4,22	4,88	5,14
number of teeth	38 : 9	39 : 8	36 : 7

Total transmission ratio to driving wheels : The ratio is to be calculated according to transmissions of the single speeds and final drive the driver has selected.

Wheels: type - disc wheels - make : IRCMAG weight: (without tires) 2,85 kg

Rims: type - well base rim dimension : 3,51 x 12

tyres: type - low pressure tyres dimension : front 125 - 12 or 135 - 12 rear 125 - 12 or 135 - 12

Brakes: Primary type: foot operated brake, hydraulic, operating on all 4 wheels Secondary type: hand brake, cable, operating on rear wheels

Number of brake cylinders: 1 brake master cylinder  
4 wheel brake cylinders

Inside diameter of brake drum: 180 mm

Outside diameter of brake drum: 235 mm

Length of one brake lining: 184 mm

Width of one brake lining: 30 mm

Type of brake linings: shape-pressed

Special hints about the brake: one circuit brake system

Fuel capacities: fuel tank: 22 l  
 engine: 1,75 l  
 gear box and  
 rear axle: 1,5 l

Cooling system: Air-cooling by fan-wheel

Kind of wheel suspension: Front : individually suspended with 1 transverse spring and wishbones  
 Rear: individually suspended with 2 coil springs.

Front wheel suspension: Transverse leaf-spring with 5 spring leaves  
 total thickness of the spring at the middle : 22,5 mm  
 width of top spring leaf: 45 mm.

Rear wheel suspension: 2 coil springs  
 Outside diameter : 102 mm  
 inside diameter: 78 mm  
 Diameter of spring wire: 12 mm  
 Number of coils: 9,5 mm

Shock absorber: number 2 front 2 rear  
 operation hydraulic

Special hints about suspension: If desired the rear suspension is available with Panhard-bar.

Generator: make Bosch-dynastart type: LA/CJ/150/12/3,000 + 1,0 R 1  
 Voltage: Voltage 12 V performance 240 W

Battery: Voltage 12 V Capacity: 28 Ah or 32 Ah

Ignition: type: battery ignition Ignition advancing : by centrifugal weight

Spark plugs: type BOSCH # 225 T or similar thread diameter: 14 mm Number per cylinder: 1

Air cleaner: type: paper-, wire gauze-, or oil-bath filter. Number: 1

Oil filter: type: micronic filter, full flow type

Oil cooler: Flat tubular radiator situated in the air flow.  
 If desired an additional air conduit for the oil cooler can be fitted for traffic use or hot ambient air-temperature

Further serial equipment: Speedometer,  
 Revolution meter (if desired)  
 Cooling water thermometer is not provided  
 Oil thermometer (if desired)  
 Heating system  
 Air conditioning plant not provided  
 Head lamp, normal or asymmetric  
 Additional head lamp (if desired)  
 Trafficator - flashing direction indicator  
 Reversing light not provided  
 Internal lighting  
 Clock not provided  
 Oil pressure manometer if desired