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Special tools for BMW-Isetta

1. M 299 a Puller, ball bearing (with modification) (Matra device)
2. M 527 Puller screw, blower wheel (Matra tool)
3. M 528 Puller spindle, dynamo starter armature (Matra tool)
4. M 355 a Puller, camshaft (Matra tool)
5. M 467 Puller, bearing cover plate (Matra tool)
6. M 357 a Clamping screws for clutch installation (Matra device)
7. M 529 Arbour for centering of clutch (Matra tool)
8. M 498 Locking fixture for flywheel (Matra device)
9. M 311 Puller, flywheel, with two sets of screws (Matra device)
10. M 530 Arbour for adapting protection tubes of rocker arm push rods (Matra tool)
11. W 5002 Drift punch, gudgeon pin (to be made in the dealer's shop=shop-made tool)
12. L 5036 Parallels for alignment of connecting rods (Shop-made tool)
13. W 5021 Straightening tool, connecting rod (Shop-made tool)
14. Puller, gudgeon pin (commercial type)
15. M 368 Holder, for grinding-in valves with 7 mm stem diameter (Matra tool)
16. M 361 a Holding board for intake and exhaust valves and valve spring lifter (Matra device)
17. Valve guide reamer (commercial type)
18. Reaming tool, connecting rod bushing (commercial type)
19. Valve seat and valve face turning tool (commercial type)

No.: 17, 18, 19 to be supplied by
 Messrs. Ludwig Hunger,
 Werkzeugfabrik
 München-Großhadern
 Gräfelfinger Straße 146

Technical data of the Motocoupe
BMW Isetta

Engine:

Make and type
 BMW Isetta 250 cc or 300 cc
 Cycle Fourstroke Otto

Number of cylinders and arrangement
 1 cylinder with blower cooling

Valves
 Overhead, in V-arrangement

Camshaft drive
 Roller chain

Valve operation
 Tappets, pushrods and rocker arms

	250 cc engine	300 cc engine
Bore:	68mm(2.67in.)	72mm(2.83in.)
Stroke	68mm	73mm
Piston displace-	247 cc	295 cc
ment in.)	(15.07 cu. in.)	(18.61 cu. in.)
Compres-	6.8 to 1	6.8 to 1
sion ratio		
Power	12 bhp at 5800 rpm	13 bhp at 5200 rpm

Medium piston speed
 13.3 m/sec. = 43.6 ft./sec.
 at n = 5800 rpm

Valve clearance (with engine cold)
 Intake = 0.15 mm (.006in.)
 Exhaust = 0.20 mm (.008in.)

Lubricating system
 Force feed lubrication

Oil pump
 Gear-type oil pump
 Oil capacity, engine
 3.1 Imp. pints = 3.6 U. S. pints
 Lubricant
 Trade-mark HD oil SAE 20 in winter
 SAE 40 in summer

Carburetor: 250 cc 300 cc
 Model "Bing" 1/22/97 1/22/98

Adjustment:

Passage	22mm=.86in.	22mm
Main jet	130	130
Needle jet	1310/6	1308
Jet needle	2023	2023
Idling jet	35	35
Starter jet	55	55
Needle position	1	2
Weight of float	7 grams	7 gr. =.25 oz.
Pilot air screw	1 to 2	1 to 2
opened	turns	turns

Fuel supply by gravity

Air cleaner Micronic filtering element in air silencer

Clutch Single-plate dry clutch

Transmission

BMW four forward speed and reverse gearbox

1st	2nd	3rd	4th	Reverse
10.05	5.17	3.54	2.70	12.15

Gear ratios

Overall gear ratios

23.21	12.15	9.17	6.2	30.0
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Oil capacity, transmission

.96 Imp pints = 1.1 U.S pints
(trade-mark oil SAE 40)

Final drive:Type

Short rigid axle driven by chain in oil-bath case forming unit with the axle housing

Power transmission

through transverse resilient mounted drive shaft and totally enclosed, fully adjustable chain drive in oil bath.

Final drive ratio

2.31 : 1 (30/13 teeth)

Overall gear ratio in 4th gear

$i = i_1 \cdot i_0 = 2,70 \cdot 2,31 = 6,25:1$

Chassis frame:

Trapeze form

Type

Rigid tubular chassis frame

Steering:Type

Steering screw and nut

Steering gear ratio 16 : 1

Turning circle diameter approx. 8 m (24 feet)

Suspensions:Front

Independent (swing arm damped by coil spring and friction-type shock absorber)

Rear

Two quarter-elliptic leaf springs and telescopic shock absorbers

Wheels and tires:Type of wheels

Steel disc wheels with split rims to facilitate tire mounting

Rims 3,00 D-10

Tires

Five tires, overdimension size 4.80x10"

Tire pressure, front 17 lbs./sq. in.
rear 14 lbs./sq. in.

Camber 1 1/2°

King pin inclination 5°

Toe-in

4 to 5 mm = .16 to .20", measured on the rim borders, front and rear.

Castor 12°

Brakes:Type

Hydraulic (BMW-Teves)

Foot brake

operates on all four wheels

Hand brake

operates on the rear wheels

Brake design

Internal shoe brakes, (floating)
Brake drum diameter 7in.

Total brake lining area
49.9 sq. in.

Fuel tank:Capacity

2.8 Imp. gal. = 3.4 U.S. gal.
with reserve fuel supply of
.65 Imp. gal. = .8 U.S. gal.

Electrical system:

12 volts

Battery

12 volts/31 ampere hours

Dynamo (generator) starter

12 volts/130 watts (combined)

Designation:

Dynamo starter
Noris LA 12/130 R

Regulator type

Voltage regulator (F) RS/A
12/130 combined with starter relay

Starting RPM

approx. 1,200

Rated continuous output

130 watts at 1,800 RPM

Drive ratio

1 : 1

Starter operation

combined with ignition switch

Ignition:

Battery-ignition 12 volts

Ignition timing

automatic, with governor control on blower wheel

Initial ignition timing

7° before T. D. C. at idling speed

Maximum advance

7°+ 35° = 42° before T. D. C.

Contact breaker

Breaker gap 0.4 mm = .016 in.

Sparking plug

Bosch W 240 T 1 (electrode gap 0.6 mm = .024 in.)

Electric horn:

Noris HE 12

Radio unit: (optional item)

Installation intended for medium-waves wireless sets only.

Main dimensions:

Track (tread), front	47.2 in.
Track (tread), rear	20.4 in.
Wheelbase	58 in.

Overall dimensions:

Length	89.9 in.
Width	54.3 in.
Height (unladen)	52.6 in.

Weight:

Kerb weight
approx. 770 lbs.
Carrying capacity
507 lbs.

Road performance:

	<u>250 c.c. engine</u>	<u>300 c.c. engine</u>
Maximum speed	53 m. p. h.	56 m. p. h.
Climbing ability	First gear 1 in 3	

Running-in speeds for the first,
1,200 miles:

Miles registered on speedometer:

	Miles per hour in			
	1st gear	2nd gear	3rd gear	4th gear
0 to 600 not over				
10	18.5	31	40	
600 to 1200				
Increased speeds for short distances				
over 1200	15	30	40	53
			(56 with	
			300 c.c. engine)	