Motocoupé

BMW

Isetta

EXPORT

INSTRUCTION MANUAL

MANUEL D'INSTRUCTIONS

MANUAL DE INSTRUCCIONES

BAYERISCHE MOTOREN WERKE AG. MÜNCHEN

MANUEL

pour votre

MANUAL

for your

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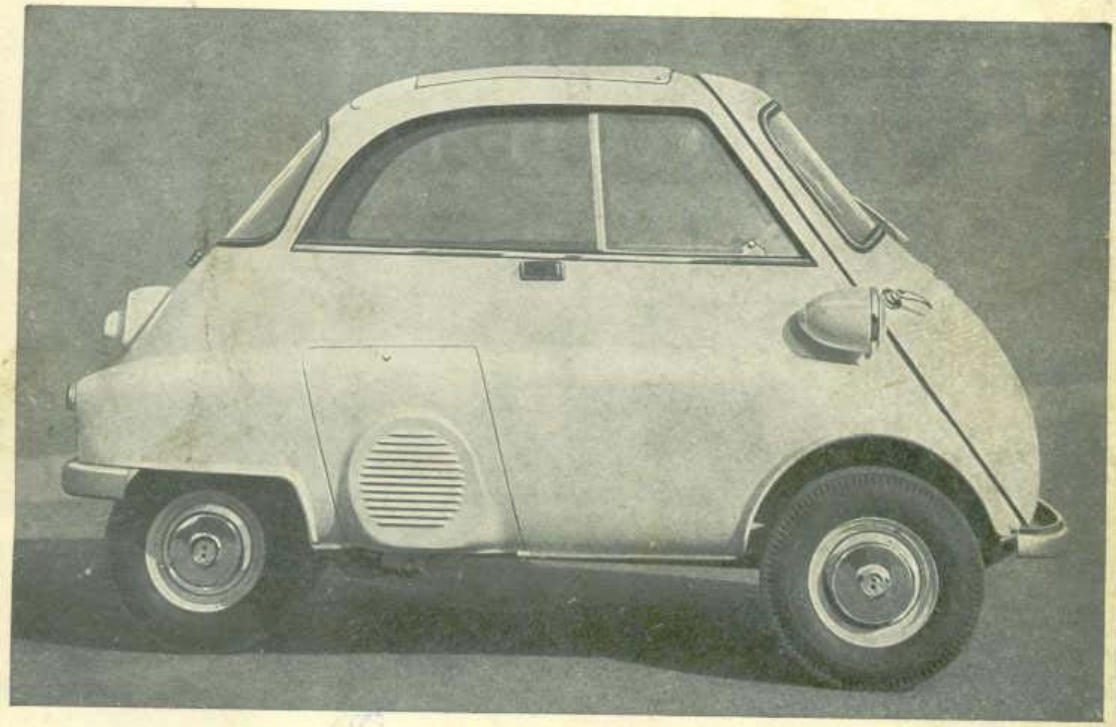
para su

MOTOCOUPÉ



BMW Isetta

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Forward

The contents of this document were taken from the original owners manual (Instruction Manual) that my father was given when he purchased his Isetta in 1957. This book and car has remained in our family since that time. It is somewhat “used” and is showing its age.

In converting the original booklet to this document, I kept most of the German translation the same. I find the terminology and use of the English language somewhat amusing. Where words were misspelled, I made an attempt to correct these mistakes. I also found several references to figures that were in error and these were also corrected.

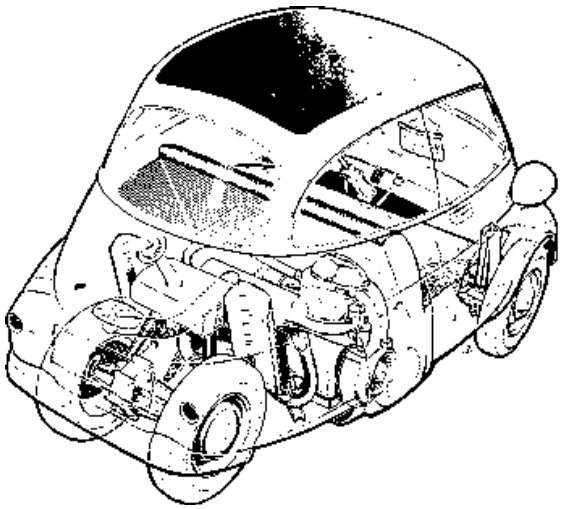
In addition to the booklet, I found an insert which I believe was from another document pertaining to the US Export lighting systems. This information is included at the end of this document.

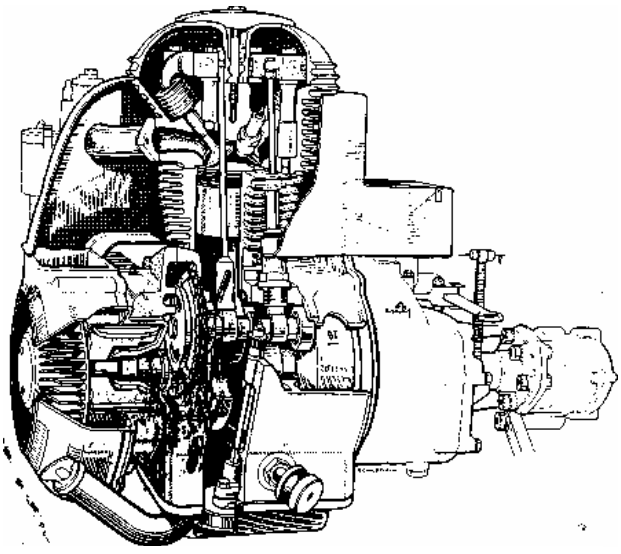
Bill Rogers

A word of advice

Please don't believe that we want you to know the contents of this booklet by heart and don't be afraid by finding a lot of technical data already on the first pages. These are mostly written for the technically-minded Isetta owner, and also for the service stations. The remaining text, however, should be read once at least by every driver. In compiling it we abstained from employing technical terms and rather adopted an easily understandable language in which you may like to talk with your friends about your brand-new BMW Isetta.

The Motocoupe BMW-Isetta is not an automobile or a midget car or just a scooter with weather protection. It is rather a new solution of the motoring problem. It's maneuverability in city traffic, the absolute weather protection yet permitting a draft-free open-air drive through a folding roof and transparent canopy arrangement, its comfortable interior dimensions, quick acceleration and considerable top speed by a high-performance air-cooled engine unit, — are all advantages which make the BMW-Isetta a vehicle that we are sure will meet the motoring trend of a wide public as a safe-to-handle runabout suitable for city traffic and country





driving, for field tracks and highways alike. Excellent road holding and a brake system of surprising efficiency ensure a maximum of riding safety. BMW service stations are organized in the form of a wide net of BMW agencies and are always at your service. All shops displaying the BMW sign, shown on the door of your Isetta will gladly service and repair your BMW vehicle. You will find specially trained personnel at BMW Service Stations, as well as proper tools and a complete stock of genuine BMW spare parts.

Some more explications

The Isetta engine size has been conceived for performances allowing the Isetta driver to easily follow the traffic stream. This means, however, that he must be given momentary swift acceleration — to pass other vehicles for instance — as a definite factor contributing to the driving safety. Consequently, the Isetta engine has been designed to provide relatively high speeds (up to 53 mph) for short instants, a feature you will appreciate in many situations.

This quick acceleration, however, is not intended to induce the Isetta owner to continually run the engine at its possible maximum speed. The Isetta motor is of the high efficiency type. It therefore only depends on you to run it as reasonably as to obtain a long service life.

Test rides over many 100,000 miles and numerous testimonials from Isetta drivers have proved it an acknowledged fact that with reasonable motoring the Isetta owner possesses an engine of proverbial reliability.

Now, what's about reasonable motoring? First the breaking-in or running-in as Britons say. Make it a rule to strictly follow the breaking-in instructions! The care devoted to your engine will pay you unexpected dividends during its service life. Thus the breaking-in of high-performance engines is a rather important matter.

A transfer picture on the windshield quite in front of your eyes tells you at a glance how fast you can run in each gear during the breaking-in period. Bear this well in mind when driving uphill and above all when descending a gradient! And another point: Don't forget to carry out the oil change in time.

And now the driving after the breaking-in period. Once done the running-in you may thoroughly use the efficiency of your engine unit. The "resistance point" en-countered by the accelerator pedal, that is the resistance to be felt at a certain point when depressing this pedal indicates you to "what an extent you can depress the accelerator without having to glance at the speedometer dial. For a jump to pass another vehicle you can use the full acceleration capacity without hesitation, but don't forget to let the gas pedal return to the resistance point as soon as you have achieved the passing Jump: That means the speedometer pointer must soon leave the red-colored segment that is entered at the 50 m.p.h.-mark.

You can also somewhat exceed the 50 m.p.h. mark when driving downhill for short periods. When ascending a gradient depress the gas pedal to the resistance point only, - temporarily you can depress it also to its full extent for a passing jump for instance or on hair-pin bends, but thereafter the pedal must return to the resistance point!

When driving away and accelerating step on the gas pedal slowly and only to the resistance point. This may cost you some tenths of a second, but the engine will reward it on the long run and besides you'll spare gasoline for the resistance point is also an economizing position.

The decalcomania on the windshield, in the direct line of your vision, shows you the cruising speeds you should not exceed in the individual gears. The resistance point gives you a warning and moreover the speed limits for the various gears are clearly marked on the speedometer dial. Thus you cannot fail to do things well.

Technical data:

Engine: BMW single-cylinder, four-stroke engine, blower cooled

	250 c.c. engine	**300 c.c. engine**
Bore	68 mm (2.67 in.)	72 mm (2.83 in.)
Stroke	68 mm (2.67 in.)	73 mm (2.87 in.)
Capacity	245 c.c. (14.83cu.)	298c.c. (18.61 cu. In.)
Compression	6.8 to 1	7 to 1
Power	12 bhp at 5,800 rpm	13 bhp at 5,200 rpm
Valves	overhead, in V-arrangement	
	Valve timing measured at .08 in. valve clearance:	
	Intake opens	6° after T.D.C.
	Intake closes	34° after B.D.C.
	Exhaust opens	34° before B.D.C.
	Exhaust closes	6° before T.D.C.
Lubricating system	force feed lubrication	
Gulch	Single plate dry clutch	
Engine position	Right hand side, transverse behind the seat	
Starter	12 volt dynamo starter Noris, LA 12/130 R.	
Electrical equipment	12 volt/130 watt generator with voltage regulation	
Sparking plug	Bosch W 240 T 1	
Battery	12V 24 Ah	

Carburetor:

Type: Bing throttle slide carburetor with starter

	1/22 250 c.c.	**1/22 300 c.c.**
Main jet	130	130
Needle jet	1310 / 6	1308
jet needle	2023	2023
Needle position	1	2
Idling jet	35	35
Pilot air screw opened	1 1/2 to 2 turns	1 1/2 to 2 turns
Starter jet	55	55

Transmission: BMW four forward speed and reverse gearbox

Gear ratios:		Overall gear ratios:
1st	10.05	23.21
2nd	5.17	12.14
3rd	3.54	8.17
4th	2.70	6.1
Reverse	12.15	30.0

Final drive: Final drive 2.31 (13/30 teeth) through transverse re-silient mounted drive shaft and totally enclosed, fully adjustable chain drive in oil bath.

Chassis frame: Rigid tubular chassis frame

Axle layout and suspension:

Front wheels: Independent front wheel suspension, swinging arms. coil springs and shock absorbers
Camber 1 1/2 deg.
King pin inclination 5 deg., castor 2.44 in., toe-in 4 to 5 mm = .16 to .20 in., measured on the front border, and the rear border of the rim.

Rear wheels: Narrow axle with suspension by quarter elliptic leaf springs and telescopic shock absorbers

Wheels:	Steel disc wheels with split rims 1o facilitate tire mounting. Rim size 3.00 D -10		
Tires:	Five tires, size 4.80 x 10"		
Tire pressures	17 lbs. /sq. in. (front), 14 lbs./sq. in (rear)		
Steering:	Steering wheel, reduction steering gear, smallest turning circle approx. 24 feet.		
Brakes:	Four wheels hydraulic brakes. Brake diameter 7 in. Total brake lining area 49.9 sq. in.		
Dimensions:	Track (tread), front	47.2 in.	
	Track (tread), rear	20.4 in.	
	Wheelbase	58 in.	
	Overall length	89.9 in.	
	Overall width	54.3 in.	
	Overall height (unladen)	52.6 in.	
Weight:	Kerb weight approx.	770 lbs.	
	Carrying capacity	507 lbs.	
Maximum speed:	53 mph.		
Climbing ability:	First gear 1 in 3		
Average fuel consumption:	250 cc engine: 80 miles/Imp.gal. = 67 miles/U.S. gal. 300 cc engine: 76 miles/Imp.gal. = 63 miles/U.S. gal.		
Oil consumption:	approx. 1.2 litter per 1000 kilometers		
Fill-up data:			
Fuel tank	2.8 Imp. gal. = 3.4 U.S. gal. with reserve fuel supply of .65 Imp. gal. (.8 U.S. gal.)		
Oil capacity, engine	3.1 Imp. pints = 3.6 U.S. pints		
Oil capacity, gearbox	1 Imp. pints = 1.2 U.S. pints		
Oil capacity, chain drive	.44 Imp. pints = .55 U.S. pints		
Fuels and lubricants:			
Fuel:	Automotive Petrol (Gasoline)		
Lubricant:	See lubrication chart		

Recommended speeds:

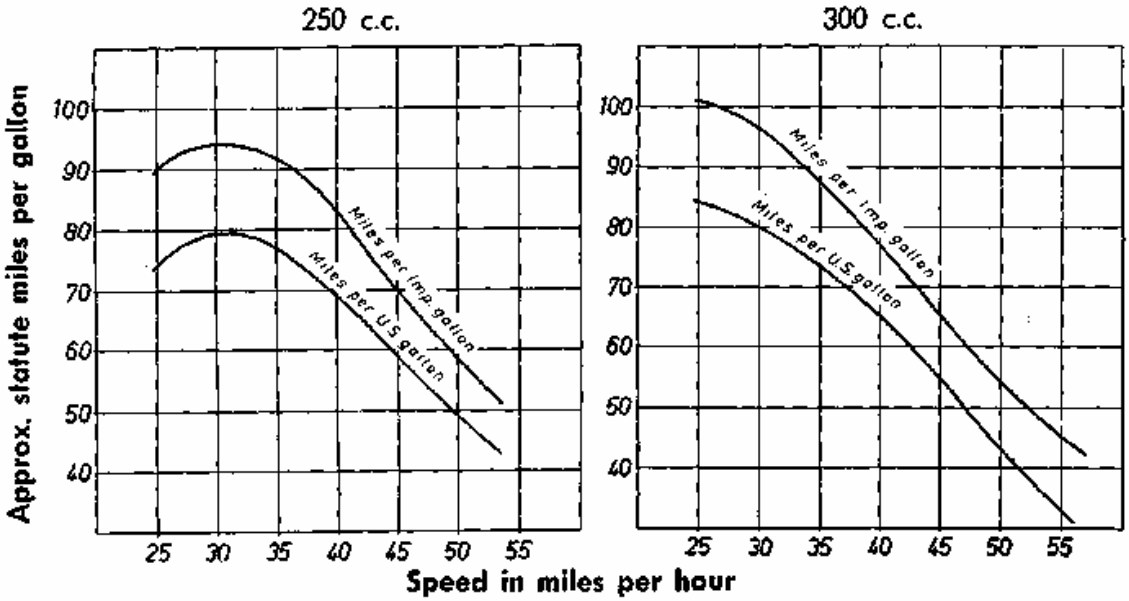
Miles recorded		Max. permissible cruising speeds (m. p. h.)			
		1st	2nd	3rd	4th
Running-in breaking-in	0 to 600 miles	9.3	18.6	28	37.2
	600 to 2000 miles	11	21.7	34	43.4
After the breaking-in period	Over 2000 miles	12.4	24.8	37.2	46.6 *)

*) Isetta with 300 cc engine 50 mph

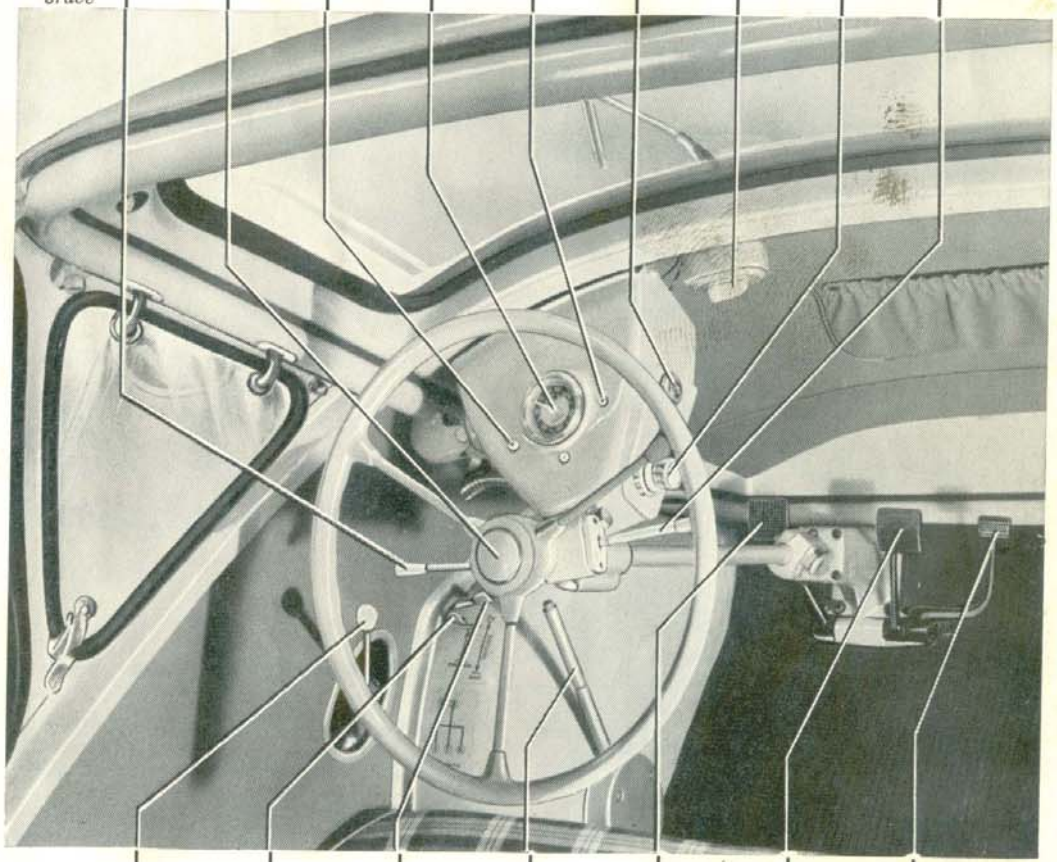
Max. speeds for short jumps, (for inst. To overtake another vehicle).

1st	14 mph	3rd	40 mph
2nd	28 mph	4th	53 mph

Fuel Consumption Curves



WHAT IS WHERE? | QUOI ET OU? | *¿DONDE ESTÁ CADA COSA?*



Direction indicator warning light (green light) is situated below the speedometer
Contrôle de clignoteurs (feu vert) se trouve au-dessous du tachymètre
Indicador luces dirección (luz verde) va ubicado debajo del velocímetro

For police and customs authorities

Serial plate:
Inside at the right in front of the seat **(figure 2** No. 1)

Chassis number:
On front cross member of frame, below the right-hand door corner **figure 2,** No. 2)

Engine number:
On engine housing, beside the ignition coil **(figure 3)**

For filling stations and workshops

Fuel tank:
In the rear end of vehicle, access from outside above the license light nacelle. **Capacity 2.8 Imp. gal. = 3.4 U. S. gal. with reserve fuel supply of .65 Imp. gal. (figure 4)**

Engine oil filler:
Oil filler and dipstick on right-hand bottom side of engine. Maintain oil level always up to the notch on dipstick. Oil capacity 3.1 Imp. pints = 3.6 U. S. pints. Trade-mark engine oil SAE 40 in summer, SAE 20 in winter **(figure 5)**.

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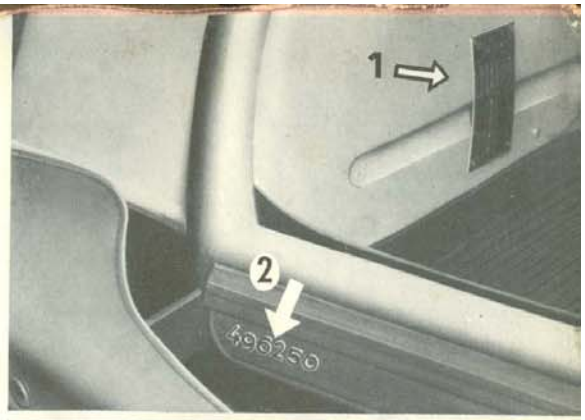

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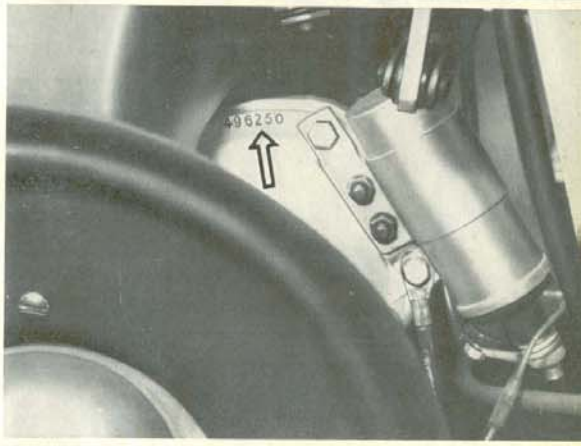

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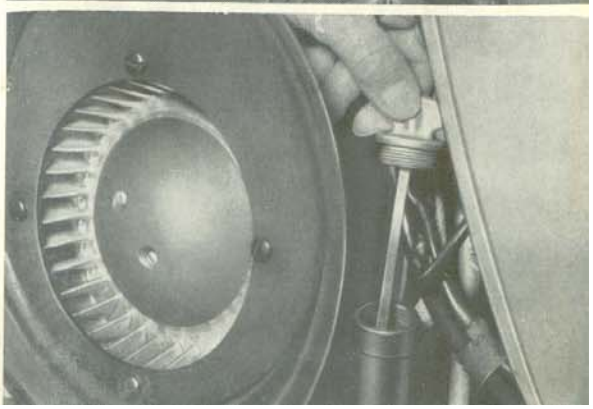


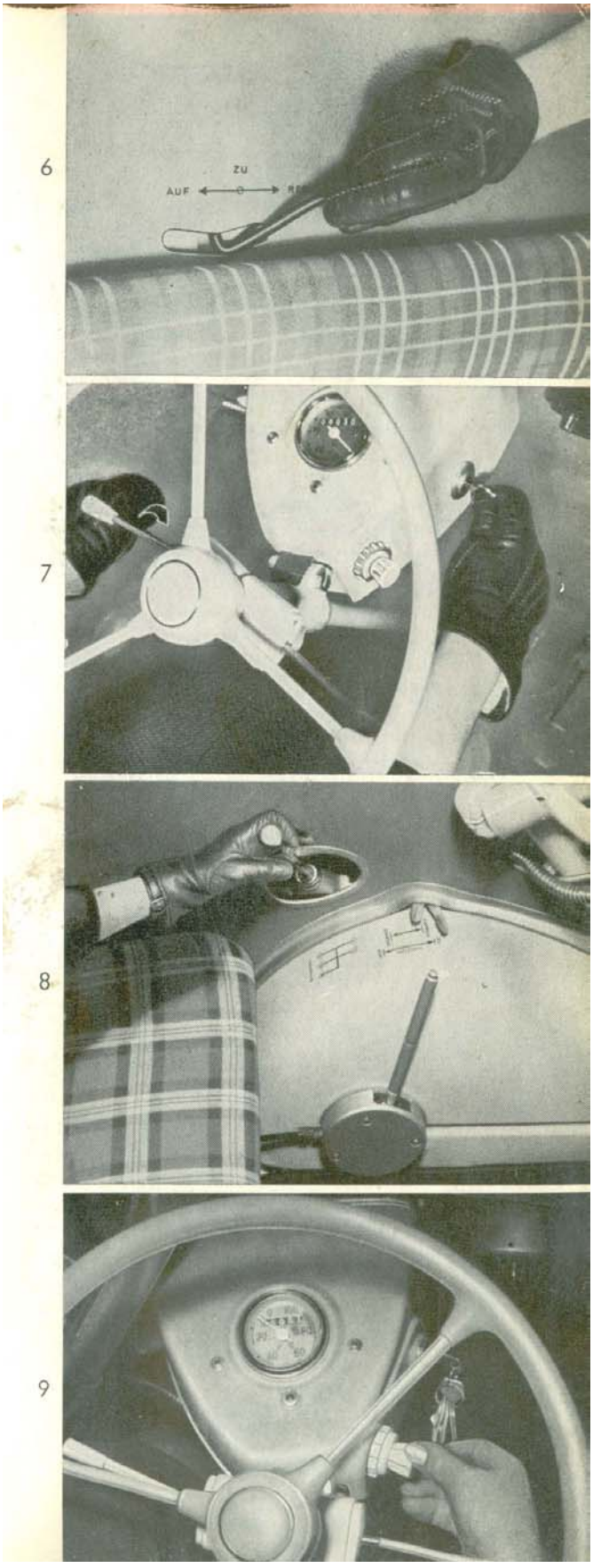
Driving controls and running-in

You have already learnt at the driving school how to handle a vehicle. Therefore we think it unnecessary to repeat all of it. With your BMW Isetta you have acquired a vehicle which accommodates all these controls in a convenient arrangement that makes their handling a pleasure. The lever for the three-way fuel line control tap, situated behind the seat squab, is easily reached with your right hand **(figure 6).** When starting from cold, pull choke lever backwards **(figure 7**), while the right hand, turning the ignition key, switches on the ignition and pushing same in with a further short clockwise rotation operates the starter motor. As soon as the engine fires, reset the choke lever into its foremost position.

Starting engine in cold weather:

a) Turn off fuel before stopping engine, let engine run until carburetor is empty.
b) Turn on fuel before starting.
c) Switch off headlamps.
d) Depress clutch pedal to the floor until engine fires.
e) Do not step on accelerator to start the engine. At very strong frosts and upon extended parking in the open air starting will be easier if battery was stored in a warm place.

The gear change mechanism works smoothly, specially if you adopt the habit not to grasp the gear lever with the whole hand, but to pull it with the fingers and to push it with the palm of your hand **(figure 8)**. If the first gear does not engage at once, release the clutch a bit or clutch and declutch again for an instant. The heating for the interior is also controlled with the left hand by moving for or aft the small lever situated just beneath the choke lever. The lighting switch, located below the steering wheel, is at your easy reach, too, **(figure 9)**, and the switch for dipping and raising the headlamp beams is shifted by the middle finger of your left hand while holding the steering wheel **(figure 10).** The same happens with the directional signal switch which you can operate with the middle finger of your right hand without

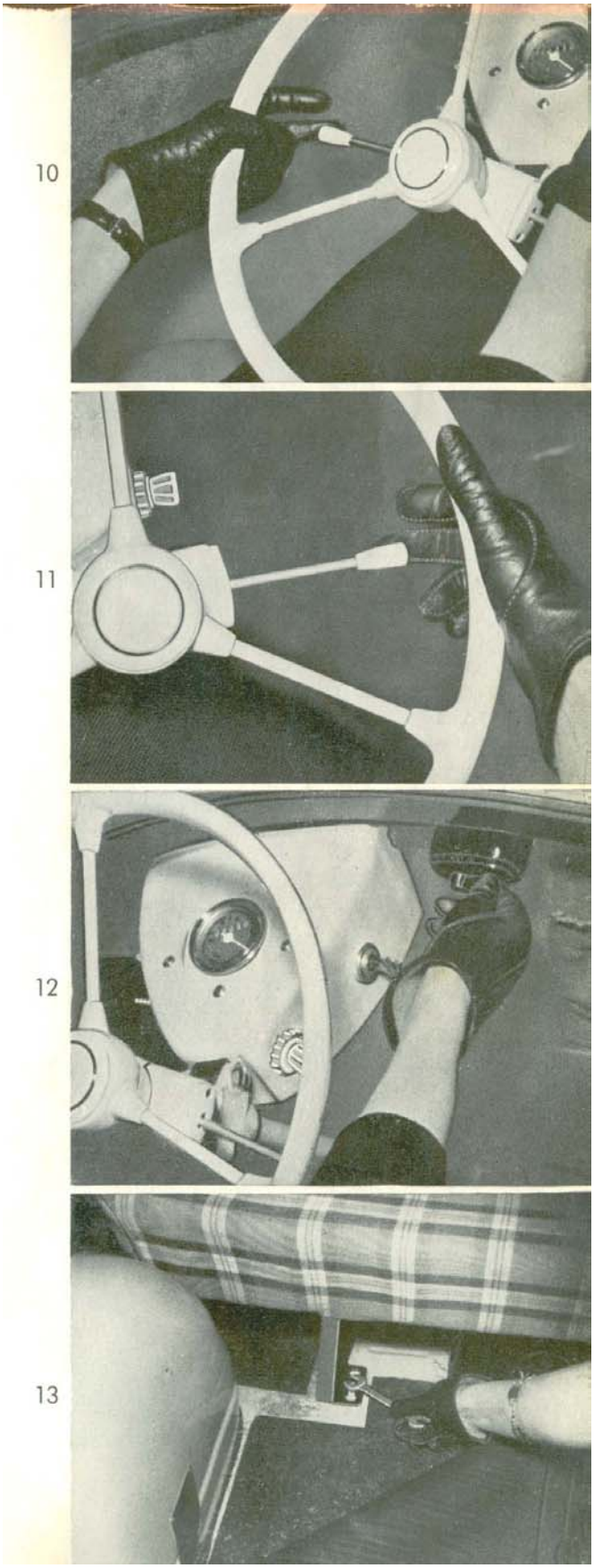


leaving the steering wheel **(figure 11).** To bring the wiper motor in motion, operate the switch of this unit, fitted to the door beside the instrument panel **(figure 12),** and finally let us mention the seat adjustment procedure. Having removed the covering board below the seat, you may slacken the two hexagon screws and adapt the seat to your requirements **(figure 13).** For the other controls and instruments see “Where Is What” on page 9.

As to the running-in (breaking-in) of the new vehicle we refer to the chapter "Some more explications", page 5, and to the scheme "Recommended speeds", page 7. These indicate you the maximum cruising speeds for the individual gears you should not exceed during the first running-in period up to 1000 kilometers (600 miles), during the second running-in period from 1000km to 3000km (2000 miles) and after the first 3000 kilometers. The running-in speeds are also shown on the transfer picture fixed to the windshield of your Isetta. When observing these speed limits you will in any case avoid to over-reving your engine.

The red markings on the speedometer dial show the cruising speeds for first, second and third. In the fourth gear, the speed range available within the red-colored section should be used for short moments only, for instant to pass other vehicles. A supplementary spring of the accelerator pedal facilitates this driving method: You will feel a slight resistance as soon as the permissible cruising speed is attained for the gear in question.

The Motocoupe BMW-Isetta has a wealth of other fine features. The ventilation of the interior, for instance, is regulated by means of the two sliding windows, which have stop-spring catches to prevent opening from outside while the vehicle is parked. To open a window press the button of the locking device and simultaneously push the window to the desired position **(figure 14).** With fair weather, and the folding roof being opened, the all round glass paneling provides the sensation of an open air drive. The folding roof is opened by



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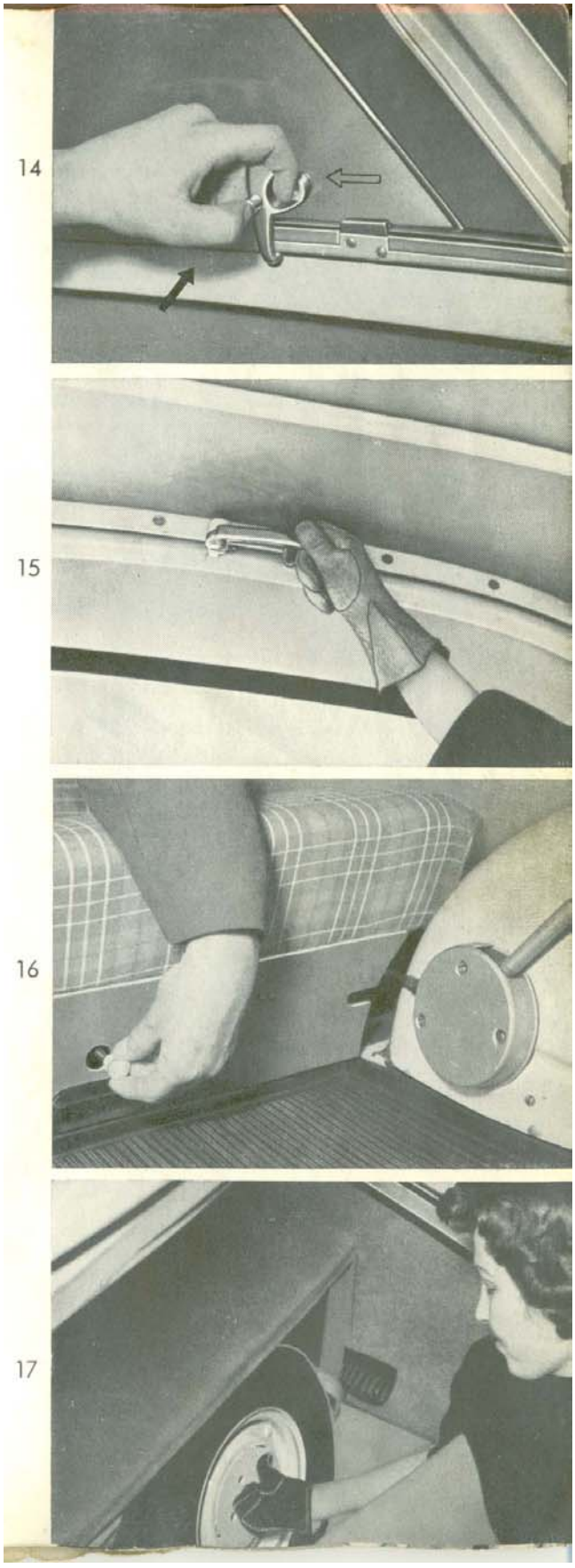
operating the lever situated in the middle of front rail. Please remember that after a rain the roof must not be opened unless it is completely dry. To close the canvas hood, draw the front rail forward and lock with the mentioned lever **(figure 15)**. At the same time one opens the front door, so that the weather-strip will be covered again by the top-edge of the door. The heating is brought into operation by moving backwards the longer lever above the left-hand front wheel arch. The push-pull rod to direct the air flow over the floor or to the defroster duct is located beneath the seat. Knob in front position = floor heating, knob in rear position = defrosting **(Figure 16)**. In case a wheel must be changed removal of spare wheel is made easier by loosening the seat and drawing same forward on the side of the spare wheel. Then lift the spare wheel slightly from beneath and remove it **(figure 17)**. Wheel changing does not involve any troubles. First of all secure in any case the Isetta to prevent rolling-off and tilting from the car jack. To change a front wheel, apply the hand brake, and to remove one of the rear wheels, secure both front wheels by wooden blocks or stones. Next remove the spare wheel and place it within easy reach at the side of the wheel which it to be changed. Now remove the wheel cover plate by means of the screwdriver from the toolkit **(figure 18)** and with the wheel nut spanner being also provided in the toolkit, slacken the wheel nuts **(figure 19).** Only then bring the car jack into position, i.e. below the frame side-member just before the upward bend **(figure 20)** for removal of a front wheel, and under the engine carrying cross member at the most accessible inward spot **(figure 21)** in case one of the rear wheels is to be changed.

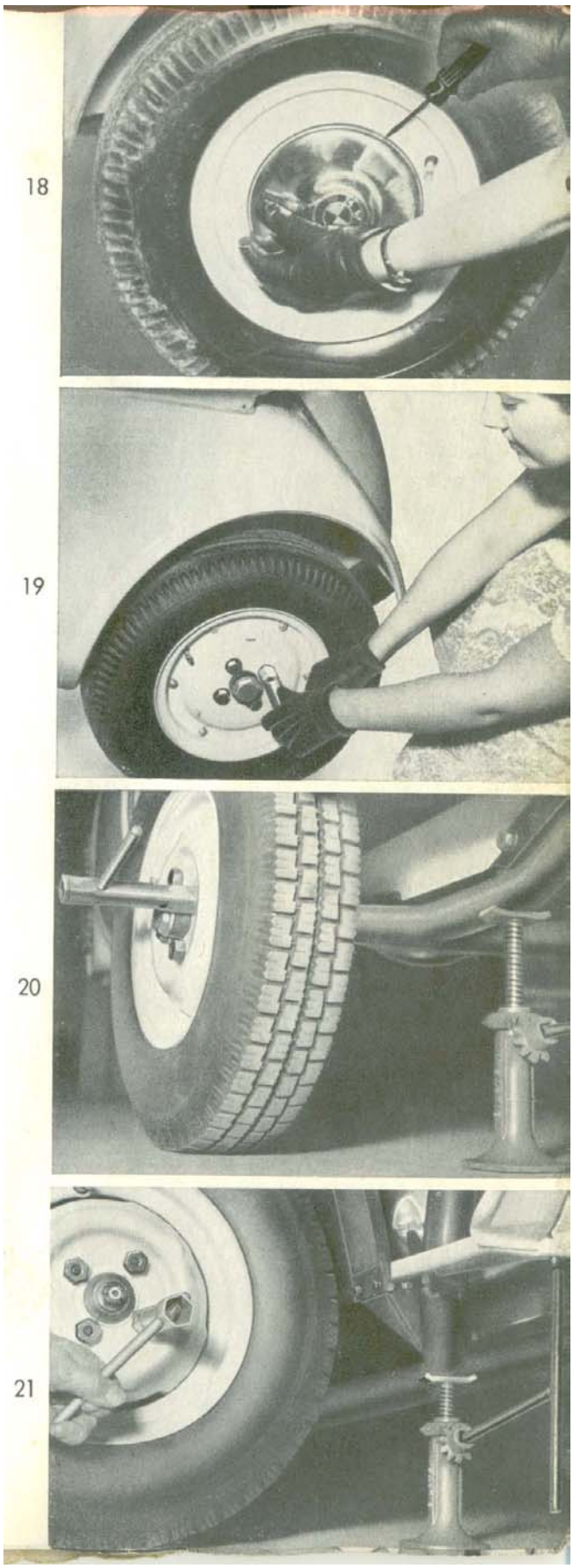
Thereupon remove the damaged wheel completely by undoing the wheel nuts and exchange it immediately against the new one. Tighten the nuts by hand, release the vehicle from the car jack and solidly tighten again in a crosswise order. Have a damaged tire repaired as soon as possible. Tire repairing is best done by a



skilled operator as the treatment of the split rim requires some special knowledge.

It must be said that the driving manner influences fuel consumption considerably. The BMW engine is quite economical and you will profit by this advantage provided that you use accelerator and brake pedal in a careful manner. Every vigorous movement of your right foot, every full depression of the accelerator pedal or brake pedal costs fuel. Therefore, try to adopt the popular smart driving method, in which the proper gear changing plays an important part. If after having attained 25 miles from a higher speed in city traffic you want to accelerate, this is best done by shifting from 4th into 3rd, and engaging the top gear again as soon as your BMW-Isetta will have regained the proper speed. If the city speed is generally below 31 miles, stay in third gear at half throttle opening. In this way you will spare your engine and you will save fuel.

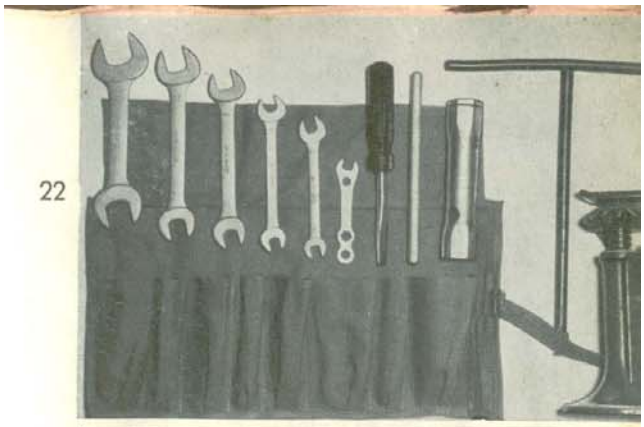
The BMW engine is designed for high revolutions and it will not suffer if you raise the rev. rate in the lower gears in city traffic in order to get away quicker. With the remarkable acceleration and the outstanding maneuverability of your BMW-Isetta you can easily wind through narrow spaces, so you may always keep up with the city traffic and not become one of those unfortunate traffic obstacles which are a nuisance to all other road users wherever they happen to appear.



Care of Coachwork

The true enthusiast mostly wants to take care of his vehicle himself, however, the simplest jobs require some knowledge in order to be done correctly. The tool kit **(Figure 22)** contains all items which you need for maintenance and minor repairs. The Isetta washing requires some care and should be performed by observing the rules outlined as follows. Chassis and lower part of body should first be flushed with water from a low pressure open end hose, to soak off the dirt, and afterwards a brush should be used. Long lasting dirt accumulations and dust, often containing chemical ingredients, would injure the lacquer. The washing of the varnished areas should therefore be done when cold, never wash or polish the Isetta in the direct rays of sun or while the body is still hot from having been exposed to sunshine. Apply an even spray of clear water on the exterior finish until dirt is soaked off. Do not allow a strong jet of water hitting the varnished surface.

Using plenty of water, dirt should be removed with a clean sponge **(fig. 23)**, the latter being cleaned at short intervals. Next use the wrung-out sponge to wipe off all drops of water and then rub the lacquer dry with a clean, soft chamois to avoid water spots **(figure 24).** Only in case water alone should not do the cleaning, the finish may be treated at times with lukewarm water, soapy water (1 to 2 per cent) or shampoos, as the varnish would become brittle by using them regularly. After soapy water or shampoo treatment wash the body thoroughly with clear water and polish with "Special BMW Hard-gloss Polish" **(figure 25).**



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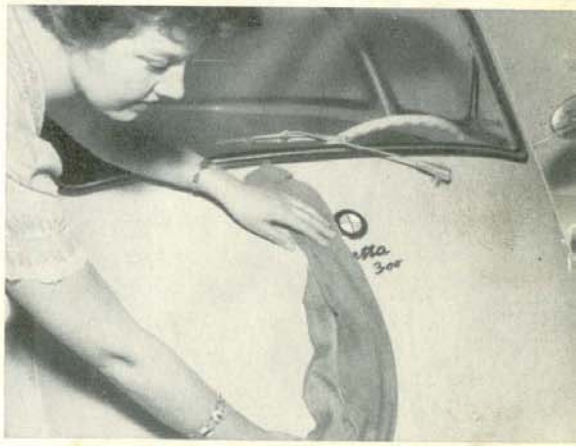

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The finish is well treated when water being poured upon it is repelled in beads. The product "BMW Hard-gloss Polish" is applied with a soft polishing cloth or polishing cotton, in small quantities upon the completely dry finish, doing only a small area at a time. Next dry the body and then rub it down, using a clean polishing cloth, until original brilliance is restored.

Light metal parts, such as bumpers, window Frames, etc. which have become opaque or spotted should be coated with a chromium-nickel polish and then be polished with a clean, soft linen cloth or wad until the original brilliance is restored **(fig. 26).**

The maintenance of the canvas hood is easy, if carried out correctly. Dust is removed with a soft brush and from time to time one cleans the canvas hood with a washing brush, using plenty of water **(figure 27).** Never try to remove spots with gasoline or other chemical products, but rather use good textile cleaner for this purpose in the same manner as you would use it for removing spots from clothes.

Care should be taken on the maintenance of the window panels. All windows are of toughened safety glass. The adherent dust is removed with a duster, or best with plenty of flowing water by means of hose and sponge. Rub them dry with a chamois skin, but never with a linen cloth.

To remove the seat from the vehicle in order to carry out interior maintenance there is a little trick. First remove the spare wheel in the manner as already described. Then fold the seat and turn it right into the gap which contained the spare wheel. Now draw the seat on its left corner forward, raise and remove in upward direction **(figure 29).**


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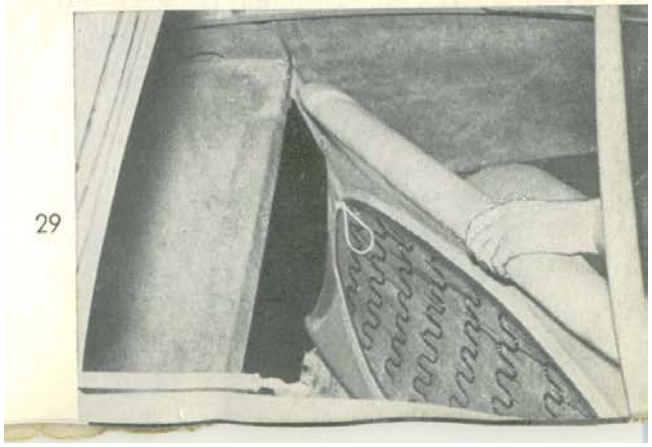
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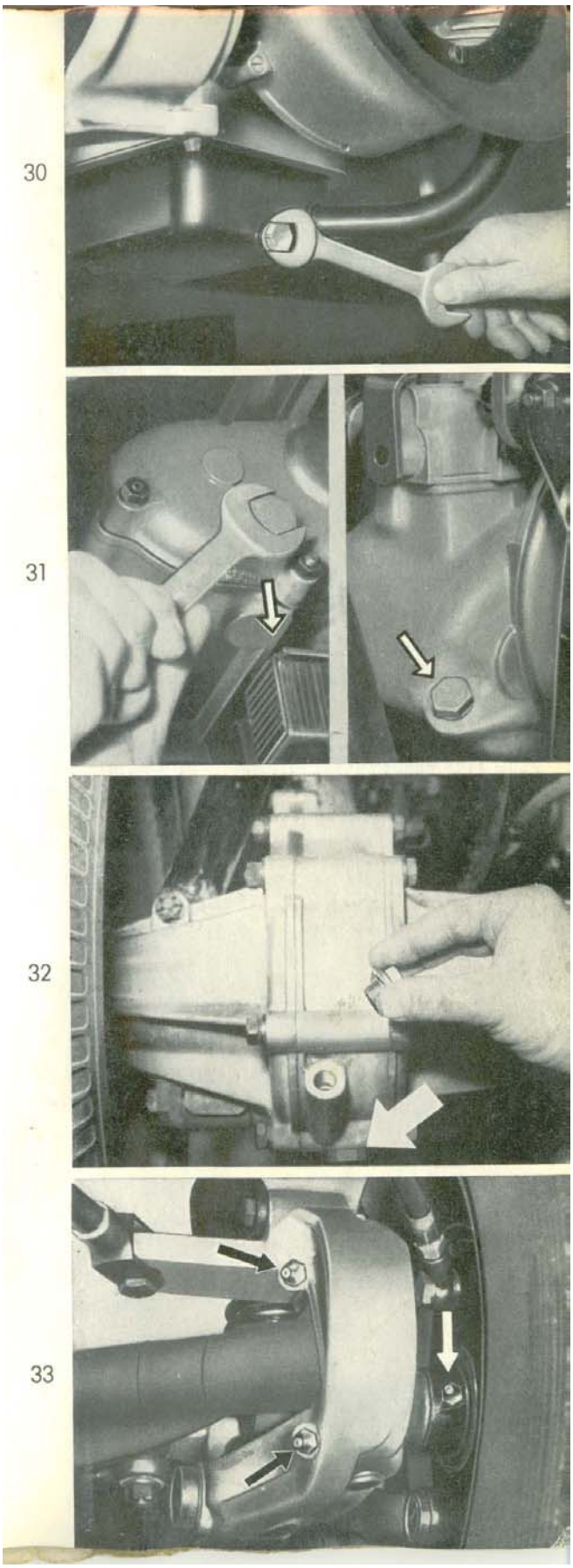
Technical maintenance

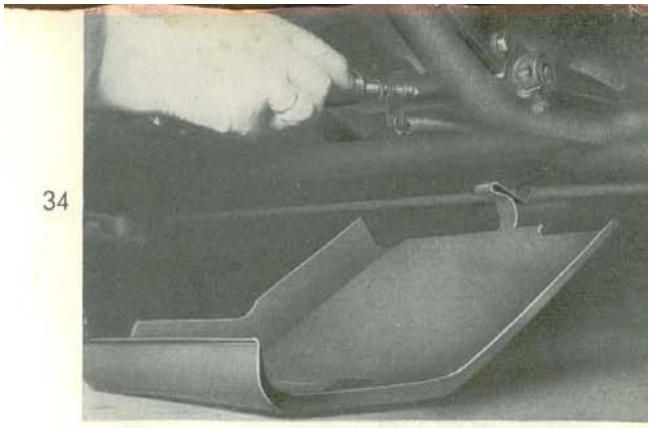
While you only need some enthusiasm and the necessary time to keep your Isetta looking smart and to clean it, the technical maintenance requires some special knowledge. Therefore the following jobs should only be carried out by yourself, if they can be done well. It starts already with the oil change in the engine which is to be carried out every 1000 miles **(figure 30)** while engine is hot.

Then proceed to unscrew the drain plug at the bottom of crankcase **(also figure30).** After the last traces of old oil have dropped out, fill in the new up to the height of the level mark on the dipstick **(figure 5, page 10).** (But do not forget to replace and to tighten the drain plug before refilling.) The oil capacity is 3.1 Imp. pints = 3.6 U.S. pints.

Draining should take place with the oil still being warm. On no account use flushing oil to flush the engine, but rather let engine some minutes run with a pint of engine oil and then flush through. Likewise, while the oil is still warm, it should be drained from transmission and chain drive. The transmission drain plug is reached from the side opposite the engine, at the bottom of gearbox case **(figure 31 left).** The transmission filler plug is located somewhat hidden below the air filter in front of the fender of the right-hand rear wheel **(figure 31 right).** Upon having drained the transmission oil and well tightened the drain plug, fill in transmission oil through the filler orifice until it can be seen in the filler hole. The tapping-up should be done in the same manner. Oil capacity approx. 1 Imp. pint. The oil level of the chain case and rear axle assembly is checked through the filler orifice in the rear axle unit **(figure 32).** The oil should reach the lower threads of the plug hole. The drain plug is situated just beneath the filler orifice and is marked by an arrow in figure 32. The oil capacity of this unit is about 1/2 U.S. pint. The BMW-Isetta features only 9 lubrication points requiring grease supply by means of a simple grease gun.



Each of the new front suspension units features three grease nipples and one oil filler plug.
The grease nipples serve to lubricate top and bottom bearings of each steering knuckle king pin and the central bearing of the brake plate **(figure 33).**
The grease gun should be applied to them every 1000 miles at Service A (give the central brake plate bearing only one or two strokes of the gun).
Prior to lubrication remove the old grease on the adjacent joints with a cloth and then inject the new grease through the nipple until the excess grease begins to emerge at the edges of joints.
Don't remove the emerged grease collar as it is the best protection against ingress of dirt and water into the joints and bearings.
The oil filler plug gives access to a small oil reservoir that lubricates the fulcrum bearings of the swing arm and the newly introduced torque arm **(figure 35)**.
Use engine oil SAE 40 for this lubrication point. Refill initially at 300 miles and subsequently every 1000 miles at Service A. Top up to about the middle of the filler hole thread.
The mounting of the front springs on the swing arms and that of the torque arms on the brake plates is by rubber-bonded bushes which should not be lubricated. The grease nipple for the steering shaft is also reached from underneath of the front **(figure 34).** The further lubrication points are the **universal joint** at the lower end of the steering column, accessible by opening the door **(figure 36a),** and the shaft for the foot pedals **(figure 36b).** Contrary to the firstly mentioned lubrication points the emerged grease is properly removed on these two latter points as they are located within the body and do not get splashed by dirt and moisture.
Moreover the joints lacking grease nipples, such as the door hinge pins, the yoke pins on the linkage mechanism of the pedal shaft, and all other parts causing friction should be given a few drops of oil from time to time (see lubrication chart page 32) by means of an oil gun **(figure 37)**.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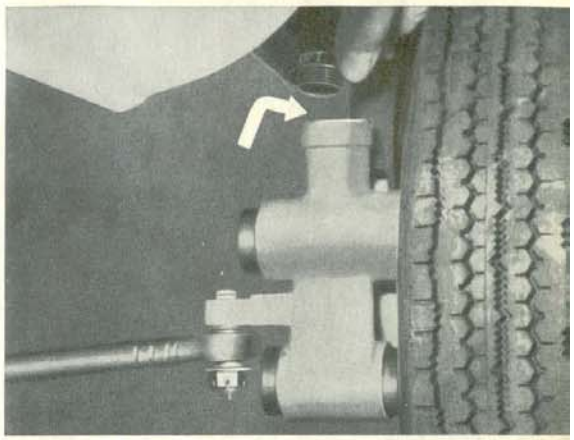
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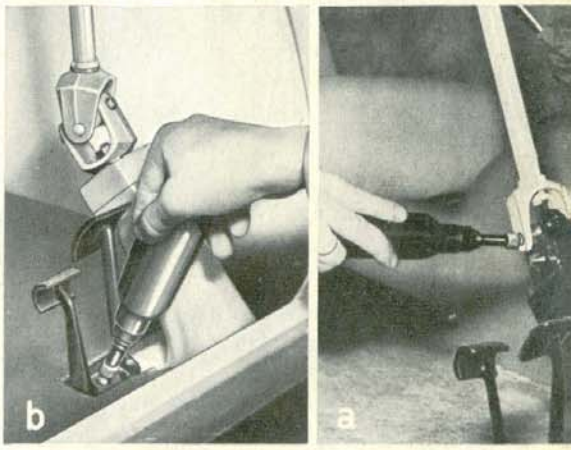

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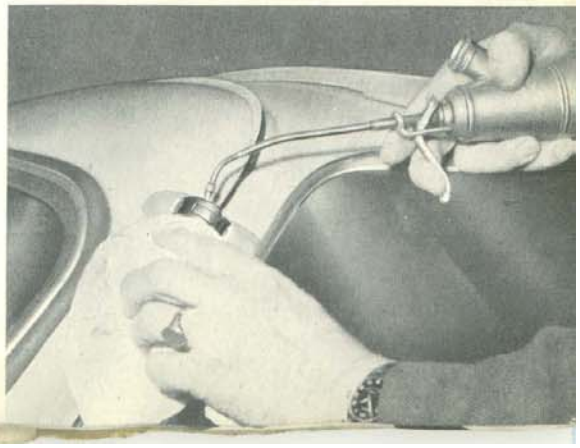
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For the greasing best use a trade-mark lubricating grease, which should always be stored in its well-closed container in order to prevent the ingress of dust and dirt.
After removal of the seat **(see page 16 figure 29)** the battery is accessible for checking and maintenance. The battery cover is removed by lifting the two cover holding springs, right and left **(figure 38).** This gives access to 6 plugs, which are unscrewed to add distilled water. This check should be performed every 1500 kilometers (about 1000 miles), i.e. every 4 to 6 weeks. The topping-up with distilled water (never use battery electrolyte) is done by means of a clean container with a rubber filler plug, which can be obtained for a few pennies in an accessory shop, bringing the level in each cell to approximately 10mm (.4") above the plates **(figure 39).** Coat the clean posts and terminals with light grease or Vaseline to prevent corrosion **(figure 40).** The tire pressures should be checked at shorter intervals, every 300 miles at least or once every week. If this is performed with your own tire gauge **(figure 41)** test from time to time with a calibrated tire gauge at a filling station in order to control the correct functioning of your own gauge. The tire pressures should be adjusted to 17lbs./sq. in. (front) and 14lbs./sq. in. (rear). If one always rides alone a front tire pressure of 15.6 lbs./sq. in. will be sufficient. The pressure difference between the two rear wheels or the two front wheels

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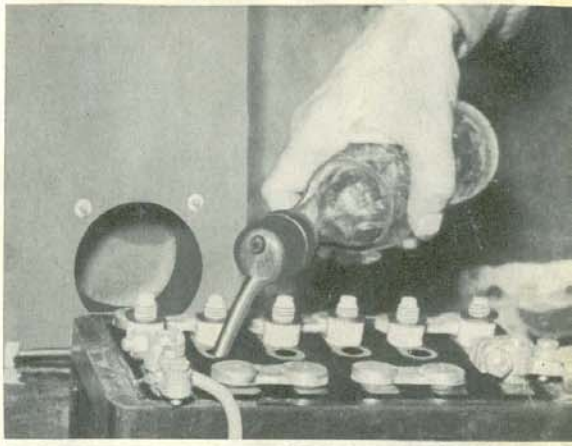

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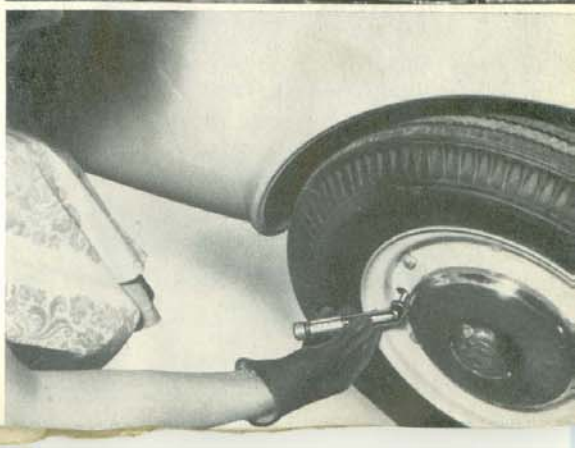


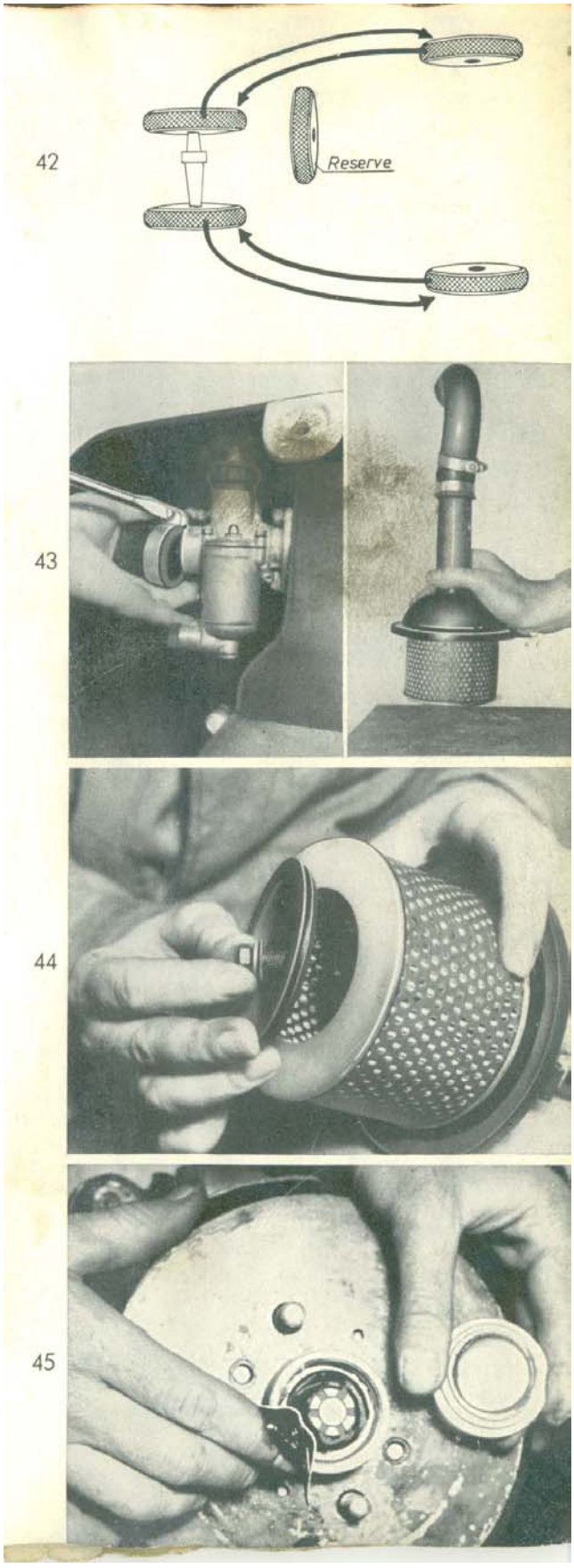
should not exceed a value of 1.4lbs./sq. in. When changing wheels round they should no be switched diagonally, but from front to rear and vice-versa, simultaneously at left and right **(figure No. 42)**.

Among the periodical maintenance items figures also the care of the air cleaner. This filter is of the dry element pattern and should be cleaned every 4000 miles. To do this disengage the rubber hose clip on carburetor by means of a screwdriver and push rubber tube away from carburetor **(figure 43, left).** Next loosen the toggle-action clips on filter. For this purpose grip the air-cleaner body and snap back the toggle-action clips. Then clean the filter by dropping same several times on a wooden block in order to expel the dust **(figure 43, right).**

The filter element should be replaced every 7500 miles (see Service C). To carry out this replacement slacken the fixing screw with a 9 mm spanner, remove cleaning element and fit a new element **(figure 44).**

The transmission of movement from clutch pedal to clutch unit, from accelerator pedal to carburetor, and from air lever to carburetor takes place by means of Bowden cables. These Bowden cables should also be checked from time to time and lubricated, if necessary. These jobs, however, are best done by a BMW Service Station. They should be performed at intervals of about once a year, i.e. every 7500 miles, as indicated in the maintenance chart, and therefore belong to the maintenance items of Service C **(page 29 and appendix).**

Finally there is a further maintenance job which should be carried out every 7500 miles (also see lubrication chart on last page). The grease loads in the ball bearings diminish at a very slow rate, so that the grease in the front wheel bearings must be renewed from time to time, only. For this purpose remove the wheel cover plates and with a clean finger press clean



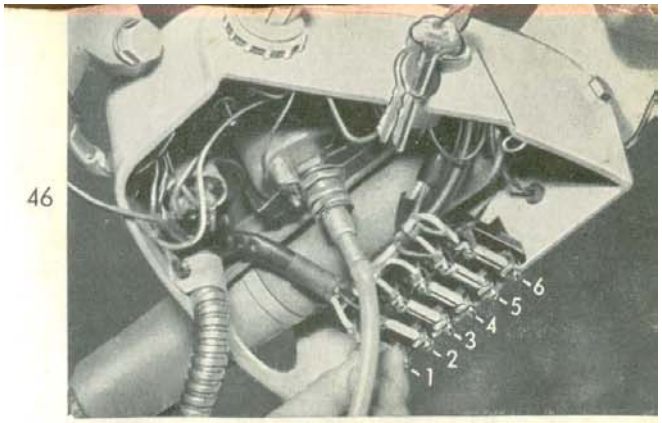
ball bearing grease into the bearings. Under no circumstances fill the dust cap completely and replace because such a procedure may inject grease into the brake linings **(figure 45).** For the detailed indication of the prescribed maintenance jobs and the corresponding service periods see attached Maintenance Survey **(page 29 and appendix).**

Besides these vital maintenance items there are some other jobs which must not be done periodically, but might become necessary due to a defect of some accessory. To find and replace a defective fuse (to be seen from the molten fuse thread) is not difficult if one knows the location of the fuse. The fuse box is situated below the instrument panel, the fuses become accessible on removing the cover **(figure 46).**

The various fuses protect the following circuits:

Fuses	Circuits	Cable colour
1	Headlamp high beam light, left	White
	Current lead-in wire connected to fuse 2	White
2	Headlamp high beam light, right	White
	High beam indicator light	Black
	Current lead-in wire	White
3	Dipped beam light for both headlamps	Yellow
	Current lead-in wire	Yellow
4	Tail light, left	White-blue
	Parking lights, right and left	White-blue
	Current lead-in wire	White-yellow
5	Tail light, right	White-red
	Speedometer light	Black-blue
	Current lead-in wire connected to fuse 4	White-yellow
6	Electric horn	Yellow-red
	Windscreen-wiper motor	Black-yellow
	Current lead-in wire	Yellow

When a fuse has blown out repeatedly, have the circuit checked by an expert, because the fuse replacement is only a temporary remedy, and will not eliminate the cause of the trouble. Thus, the examination



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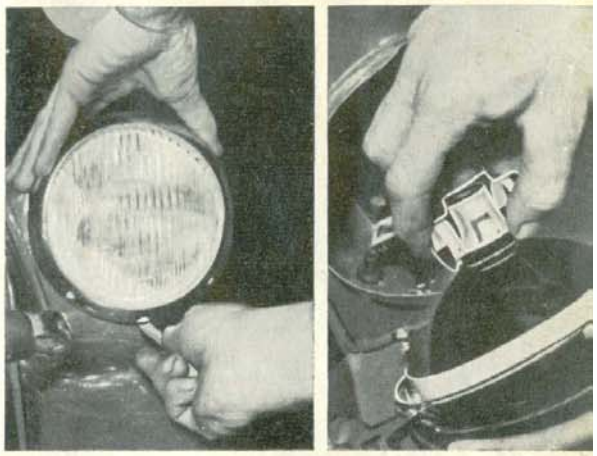
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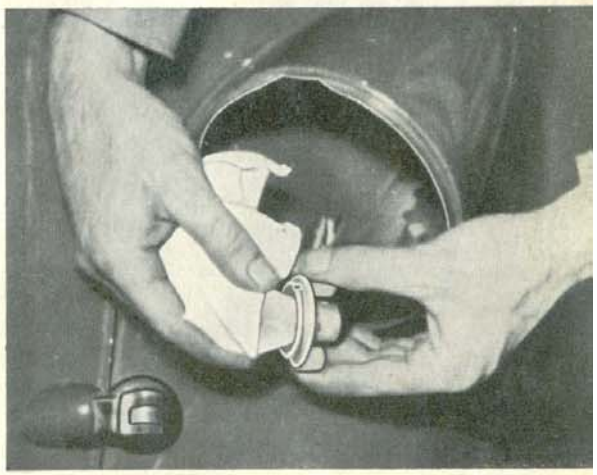
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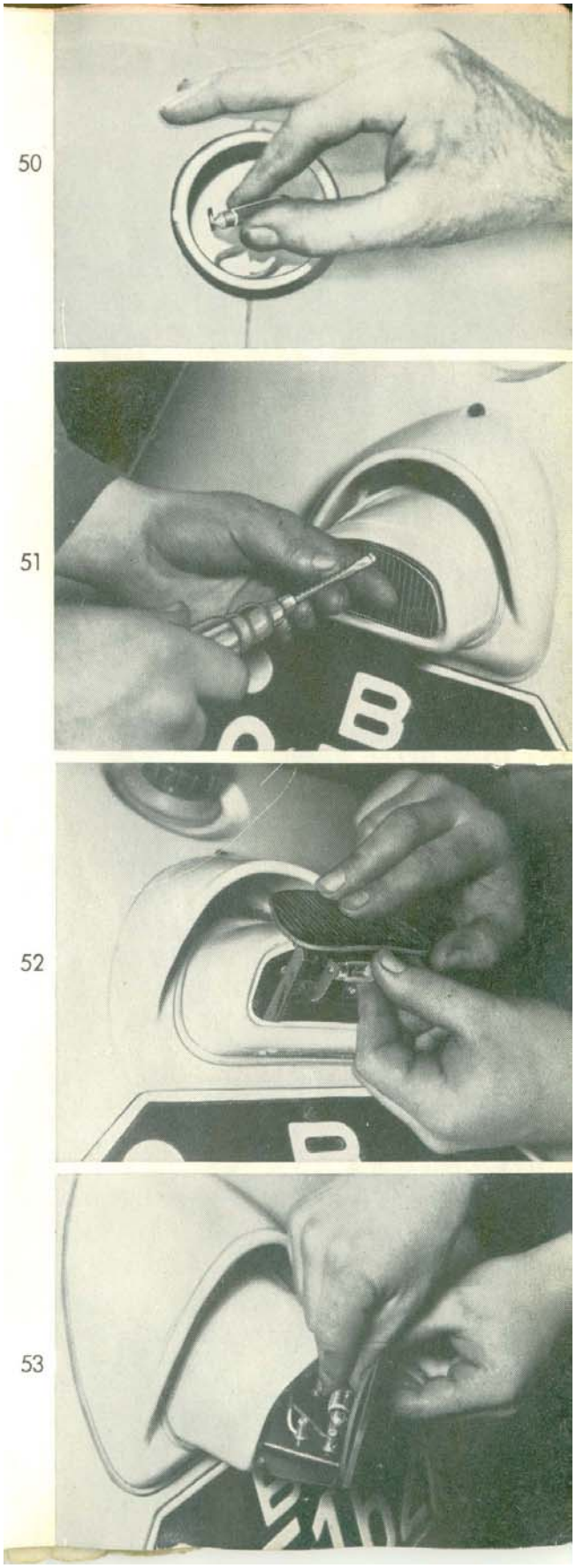
by an expert will prevent the system from further damages. The headlamps can be properly set by means of two adjusting screws. This setting, however, is best done by an expert because it requires adjusting devices and police usually examine the lights very accurately. Another thing is the bulb replacement. This can easily be done by you, if you know how to do it. The bulbs in the headlamps may be removed by unscrewing the reflector unit **(figure 47 left).** For this purpose remove the retaining clip, remove the lamp holder and remove the lamps by anti-clockwise rotation **(figure 47 right).** A Bilux lamp should only be touched with a clean cloth or paper, as otherwise the perspiration of the oily hand might dim the silver mirror in the headlamp **(figure 48).** Each headlamp contains one Bilux lamp 12V/25/25W and a parking lamp 12V/2W.

The tail lamps become accessible by simply turning the rim to the left **(figure49).** The festoon-type bulb 12V/5W is replaced by pressing back the elastic holder **(figure 50).** Refit the rim and glass unit, rotating it clockwise until the bayonet catch engages.

The license plate lamp is opened by means of a screw driver **(figure 51).** The license plate is illuminated by one festoon-type bulb 12V/5W, fixed to bottom end of transparent cover **(figure52)**, and a festoon bulb 12V/15W, located upon the transparent bottom plate, serves as stop light **(figure 53).**

Each of the two lateral turn signal lights features 2 festoon bulbs, 12V/15W. To replace them remove the securing screw at the bottom and the plastic cover. It is convenient to buy a small bulb container in order to carry a set of bulbs within the toolkit. However, please remember, to buy 12-volt bulbs, since the motocoupe BMW-Isetta has a 12 Volt circuit.

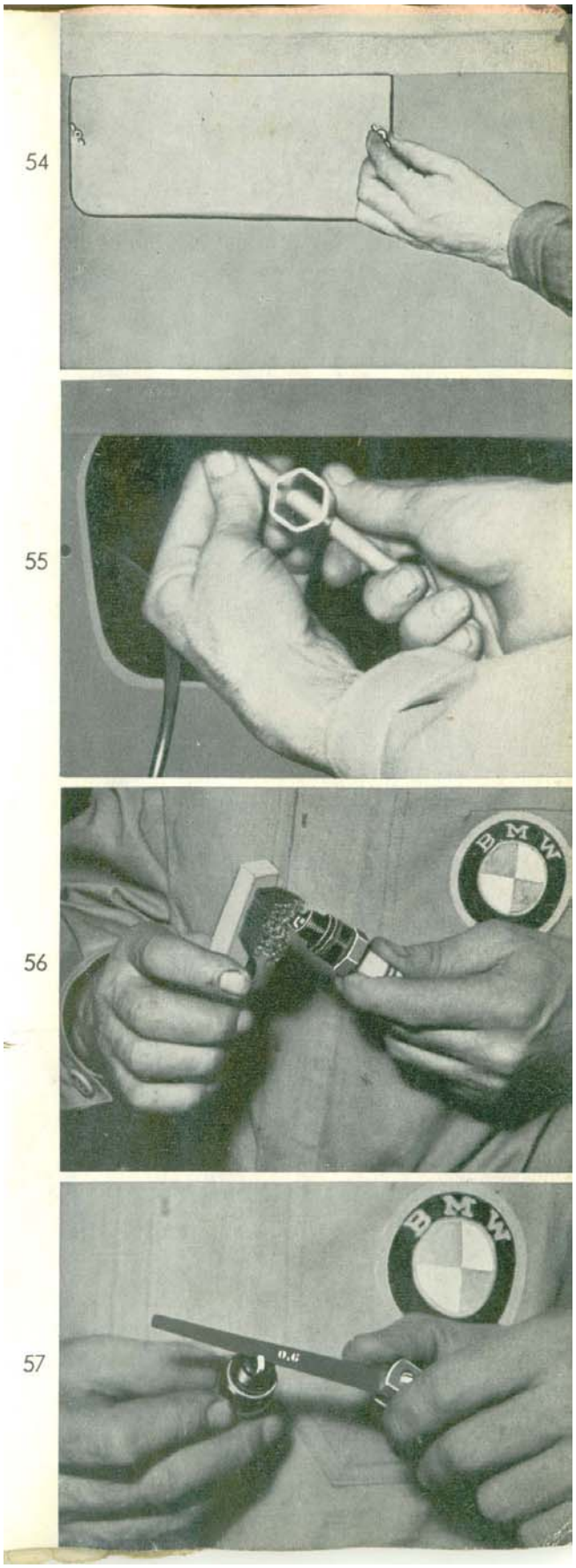


Minor inspections and adjustments

Among the BMW-Isetta owners who have possessed a motorcycle or a scooter there are many whose technical knowledge allows them to do the minor repairs by themselves. Therefore we included in this instruction manual a number of repair jobs which might be undertaken by those drivers who - besides their technical knowledge — possess the required special tools and appliances, gauges, car lifts, support stands, etc. We inserted these instructions also for the purpose of providing the BMW-Isetta owner with the necessary records, in order to have these jobs also performed at places lacking an authorized BMW Service Station.

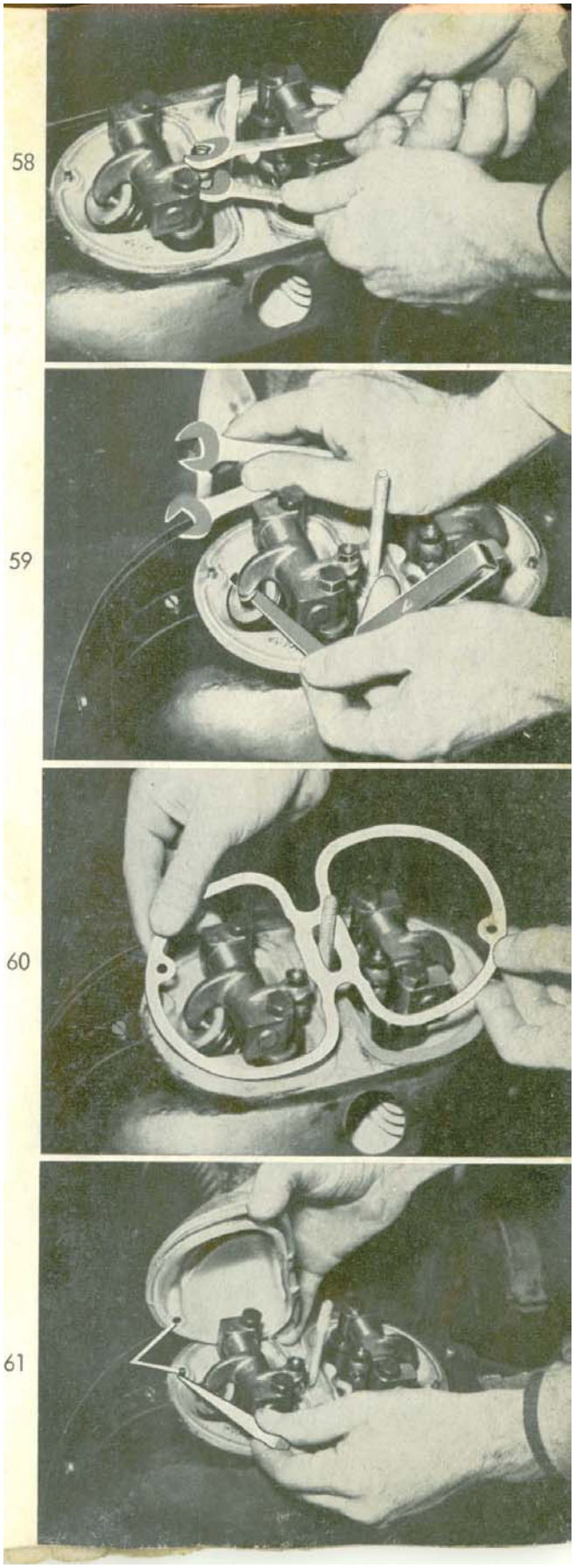
Sparking plug
Removal of the screw plate on the body panel behind the seat squab gives access to the cylinder head of engine for the sparking plug and valve treatment **(figure 54).** Remove the sparking plug with the aid of a spark plug spanner **(figure 55)**, clean it with a wire brush **(figure 56)**, and reset the electrode gap (0.6 mm = .024") by means of a gauge **(figure 57).**

Valves
Valve checking and adjustment as indicated in the following lines should be carried out every 4000 miles. The valves are adjusted at T.D.C. compression, when the two valves are closed in the instant of ignition. The setting T.D.C. compression is described in detail on page 25 under ignition timing. Make it a rule not to adopt too small a clearance as this might cause the valves to burn and thus create major troubles.



Valve clearance should be 0.10-0.15 mm (.004-.006")for Intake, and (0.10-0.20mm) (.004-.008") for exhaust, with the engine cold. The adjustment and re-adjustment of the valves requires two 12mm spanners. First slacken the locknut **(figure 58)** then turn the adjusting screw as required until the correct amount of play is felt with the feeler-gauge inserted between rocker arm and valve stem end **(figure 59).** When this is obtained, hold adjuster with its spanner and retighten the locknut securely. When this nut is properly tightened, check the play again, to make certain that it has not been altered while tightening the nut.

When adjusting the valves one should inspect the rocker box cover gasket and replace it, if necessary, in order to ensure the proper sealing of rocker box **(figure 60).** Place the gasket in a way that the two locating pins fit in the two holes of the gasket. Special care should be used in replacing the rocker covers, so that the locating pins engage exactly in the corresponding drilled holes provided in these units. When the locating pin is missed, and the cover is fitted incorrectly, the gasket does not seal properly and the consequences are deformation of the rocker cover and continuous oil leakage **(figure 61).** The figures illustrating the servicing of the valves in this booklet are shown with the engine in a complete accessible condition after removal of the body. Normally, these jobs are performed through the cover plate located behind the seat squab, as shown on **figure 54.**

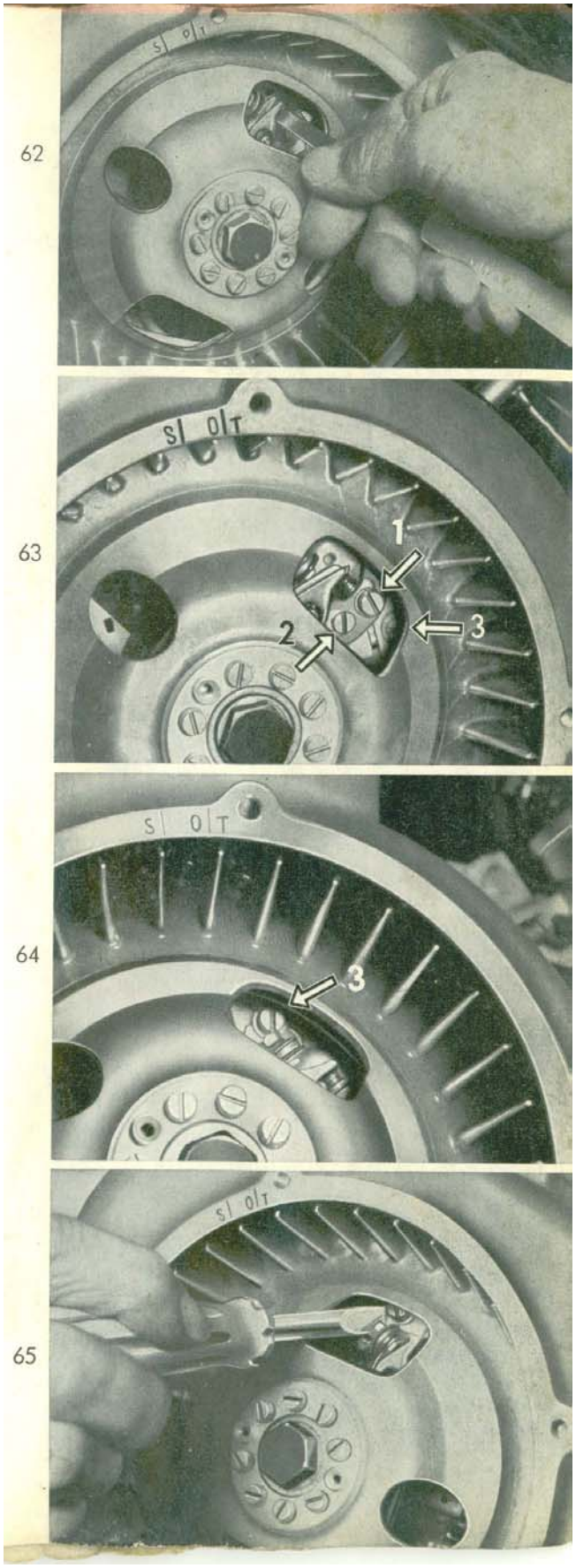


Ignition

The resetting of ignition timing requires a 12V test lamp, a contact gauge (0.4mm = .016") and a screw driver.

To perform the setting proceed as follows:

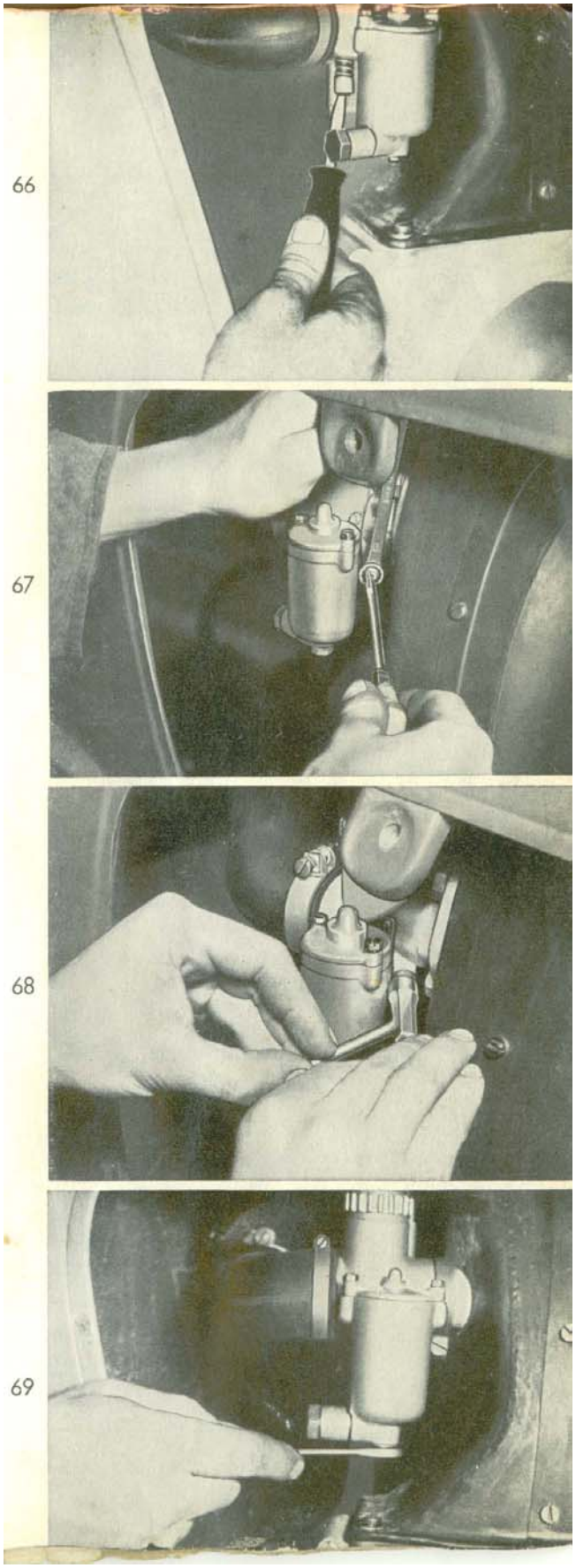
1. Withdraw sparkplug connector, unscrew sparking plug and remove cover from blower wheel as well as cover plate and rubber covering from the ventilating housing.
2. Rotate blower wheel in a clockwise direction until the color-marked blade meets the mark "S" on the housing of the blower unit. Now continue turning the blower wheel until the breaker contact points are fully opened.
3. Check contact breaker gap with the contact gauge (.016") **(figure 62),** which must slip easily when being drawn for and aft between the contact points. If the gap is too big or too small, slacken the stationary point locking screw **1 figure 63** and turn the eccentric adjusting screw **2 figure 63** until the correct gap is obtained. Then tighten lock screw 1 and recheck the gap.
4. Slacken the two contact breaker plate securing screws (3) **(figures 63 and 64)** and turn the blower wheel until the color-marked blade meets the mark "S" on the blower housing.
Now disconnect black-colored contact breaker lead from terminal 1 of ignition coil and connect the test lamp with one pole to terminal 1 of ignition coil and the other to the connector end of the disconnected black lead.
5. Push in ignition key to switch on ignition and move the contact breaker plate in rotation direction (downwards) until the lamp lights up. Then move contact breaker plate **(figure 65)** carefully contrary to direction of rotation (upwards) until the lamp just goes out. In this position tighten the contact breaker plate.
6. Withdraw ignition key to switch off ignition, detach test lamp, reconnect contact breaker lead to terminal 1 of ignition coil, refit cover of blower wheel, replace spark plug and push high-tension lead connector over the sparking plug.



Carburetor

On diagnosing faults, a lot of troubles, e.g. insufficient performance or high consumption, which are really due to the vehicle or to the driver, are usually attributed to the carburetor. But the carburetor cannot be blamed indeed if the consumption, for instance, seems to be too high. The arrangement of jets and the carburetor adjustment have been carried out at the factory through tests in order to obtain a maximum of economy in consumption and the best performance, as well. Therefore it is rather absurd, if one tries to increase performance or to lower the fuel consumption figure by altering the carburetor adjustment or by fitting jets of other sizes. It is possible to lower the fuel consumption through smaller jets, but this will immediately cause a sensible loss of power, the engine risks overheating and the valves burning, in short, major repairs will result.

Therefore we mentioned in this chapter only those jobs which can be done for the maintenance and servicing of the carburetor. The carburetor is regulated by means of two screws, the volume control screw **(figure 67)** and the idling adjusting screw **(figure 66).** The volume control screw is best left with its original adjustment set at the factory. If this adjustment has been altered by some cause, slacken lock nut of volume control screw, turn the screw fully in with a screw driver, and then back it off by 1 1/2 turns. This is best done with a special tool and therefore you should leave this job to an expert, **(figure 68).** The regulating and adjusting described above is all that can be done on the carburetor, by laymen and experts. To clean the carburetor, open the drain plug on bottom of float chamber **(figure 69),** past having set the fuel tap **(figure 6)** into its "Z" (off) position.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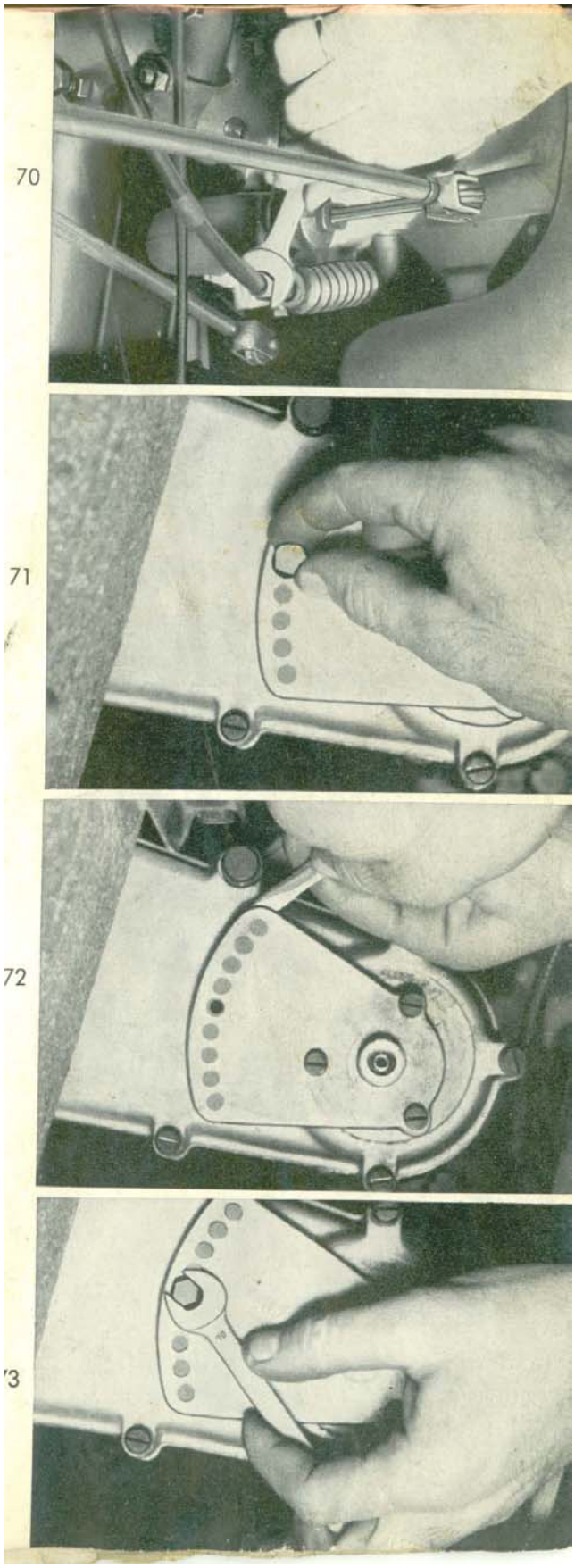
Clutch

The free movement at the clutch pedal pad should be about 12 to 15mm (.48" to .6"). The readjustment of clutch pedal clearance takes place on the clutch actuating lever at the transmission case, and is - like the chain adjustment — achieved from the side opposite the engine. This can be done with the vehicle supported at the rear, entering the spanner from behind. Turning the adjuster screw clockwise increases clutch pedal clearance, and contrary adjustment decreases it **(figure 70).**

Chain

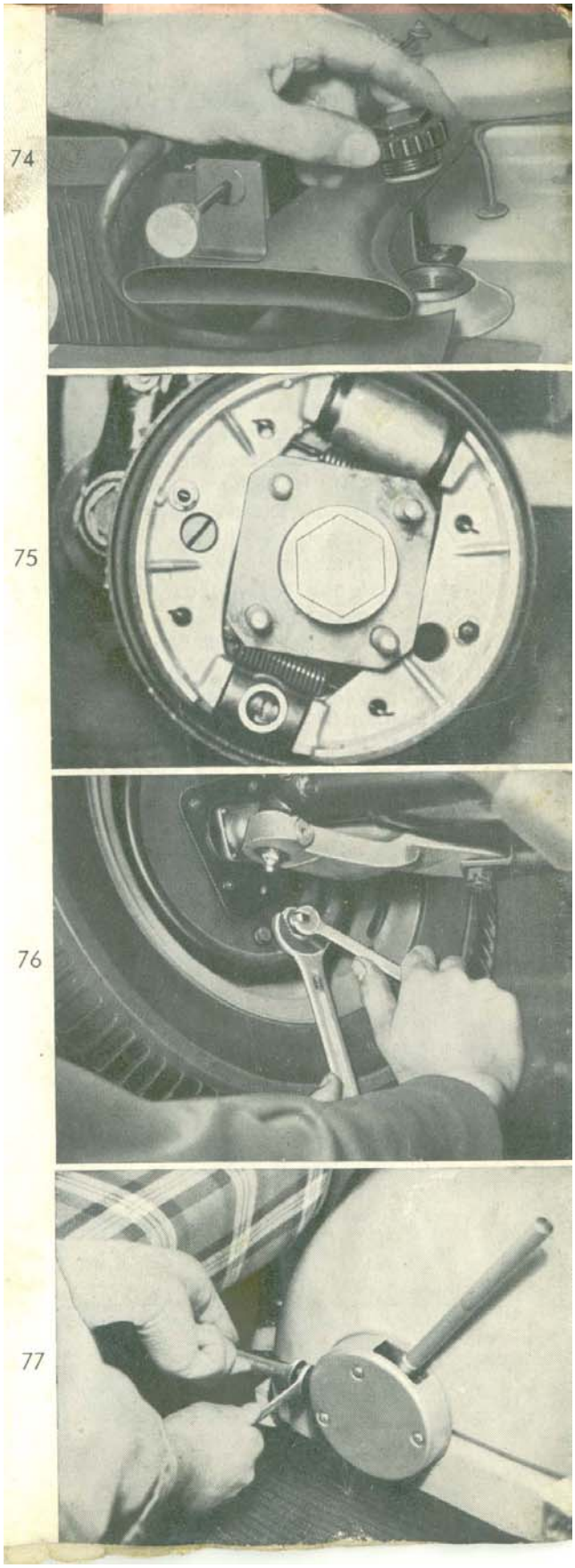
The power output of the engine is transmitted to the rear wheels by means of a chain running in an oil bath. Owing to its complete protection this chain has quite a long-lasting life, but it must be adjusted from time to time. By the chain's striking against its case one easily notes when the chain has lengthened and should therefore be adjusted. This job is done by means of a perforated adjuster plate on the chain case **(figure 71),** which is accessible from the side opposite the engine. Remove the adjuster plate locating screw with an appropriate spanner **(figure 71)** and then raise the adjuster plate with a screw driver from bottom upwards until strong resistance forbids further movement **(figure 72).** This re-establishes the proper tension of chain and now the question is to get the drill holes in adjuster plate in correspondence with one of the 2 screw holes in chain case. This cannot be done by forcibly lifting the plate until the holes meet each other **(figure 73),** because this would result in excessive chain tension. If the hole in the chain case happens to stay between two adjuster plate holes one recedes accordingly in order to get the locating screw info 'its hole.



Brakes

The foot brake is of the hydraulic type and operates on all four wheels, because the two rear wheels are mounted on a rigid axle. The maintenance of brake includes checking the brake fluid level. The brake master cylinder with the fluid reservoir is situated below the seat bench and is accessible through simply unscrewing the bakelite filler plug. When removing it take care to avoid getting dirt into the brake fluid. Use only original ATE blue fluid from the original can **(figure 74).** Too much free travel of the brake pedal is an indication that air has come into the hydraulic system; then the fluid line must be bled. This can only be done in a service station as it requires special devices and technical knowledge, as well. The brake adjustment, however, may be carried out by the driver himself. The brake support plate carries, beneath the wheel bearing, an adjustment screw, the clockwise rotation of which moves the brake shoes against the drum. First slacken lock nut on adjusting screw, then set the screw as described ahead and re-secure it in its final position by tightening the lock nut **(figure 76).** To obtain the proper adjustment jack up the car and rotate the wheel to be adjusted until a light drag is noted and then back off the adjusting screw until the wheel just turns freely. **Figure 75** shows the brake with the brake drum removed.

The adjustment of hand brake may be performed by means of two 12mm spanners. Slacken the lock nut and then screw out the adjusting screw until, with the hand brake lever set into its lowest position, the brake just begins to rub. Now return the adjusting screw by 1 to 2 rotations and secure again with the lock nut. The hand brake must not be adjusted unless the foot brake has been set correctly **(figure 77).**



Maintenance survey

All jobs mentioned in the preceding chapters for the proper maintenance and servicing of your vehicle are arranged in the following maintenance schemes to service groups which should be achieved at certain intervals and beyond that are indicated in the lubrication chart. **The first maintenance job, that is to change break-in oil of engine, should already be carried out after the first 500km (300miles).** The most frequent periodical jobs form the Service A to be performed every 1500km (1000 miles). The more complicated jobs to be done at longer intervals form the Service B and finally the Service C. When carrying out this servicing the experienced mechanic in the service shop can check the entire chassis, brake and steering assemblies as well as all stationary and movable parts. Besides these periodical services the vehicle will receive some inspections the details of which are determined by the local dealer on delivery of the car. Moreover it is recommended that the bottom side of the chassis, after being washed, be given a coating of spray oil, particularly at the beginning of winter. **For the details concerning the services A, B and C see the following indications and lubrication chart.**

After the first 500km (300 miles) oil change in engine.

Service A (every 1500km = 1000 miles)

1. Oil change in engine after the first 1500km (1000 miles) remove oil sump, clean it and wash the oil filter.
2. Greasing:
   a) steering knuckle king pins, 3 nipples at each side
   b) steering shaft
   c) universal joint of steering
   d) pedal shaft
3. Front suspension swing arm pivot bearings, right and left. Check oil level and top up if necessary.
4. Check electrolyte level of battery, add distilled water, grease terminals.

Service B (every 6000 km = 4000 miles)

1. Maintenance service A;
2. Check oil level in transmission, top up if necessary.
3. Check oil level in chain drive, top up if necessary.
4. Clean sparking plug, adjust electrode gap;
5. Check ignition, readjust if necessary;
6. Check valves and readjust if necessary;
7. Check brake fluid, top up if necessary;
8. Check brakes, reset if necessary;
9. Oil all hinges and joints;
10. Clean carburetor, tune if necessary;
11. Remove fuel filter screen on fuel inlet and clean it;
12. Clean air filter;
13. Give rear axle springs and bottom side of chassis a coating of spray oil.

Service C (every 12000 km = 7500 miles)

1. Maintenance service A;
2. Maintenance service B;
3. When changing oil in engine, remove oil sump and wash oil pump filter in gasoline;
4. Change oil in transmission;
5. Change oil in chain drive;
6. Remove brake drums and check brake linings;
7. Clean all Bowden cables, readjust, replace if necessary;
8. Replace cleaning element of air filter;
9. Repack front wheel bearings with lubricant.

The BMW Company, whose policy is one of continuous improvement, reserves the right to change specifications and equipment without incurring obligation. Dimension, weight and performance figures are understood with reasonable tolerances.

Lubrication Chart

Lubrication and maintenance chart

Jobs to be performed

The numerals correspond with the lubrication point indications and the illustrations of the lubrication chart on the margin.

1. Pedal shaft - Lubricating grease
2. Universal joint, steering - Lubricating grease
3. Steering arm shaft — Lubricating grease
4. Steering knuckle assemblies, right and left 3 nipples at each side - Lubricating grease
5. Wheel bearings, right and left - Lubricating grease
6. Front suspension, swing arm pivot bearings, right and left -engine oil SAE 40
7. Brake master cylinder - ATE brake fluid blue
8. Battery - Distilled water
9. Contact breaker - High-temperature bearing grease
10. Engine - HD engine oil
11. Rear suspension leaf springs - spray oil
12. Rear drive - Engine oil SAE 40
13. Air-cleaner -
14. Transmission - Engine oil SAE 40

Symbols used for lubricants and maintenance products

♦ Engine HD oils - summer SAE40, winter SAE 20 or 20 W/40, at very strong frosts 10W/30

● Transmission, rear drive and front suspension swing arm pivot bearings
(O level check) engine oil SAE 40 (Premium or HD oils for Otto cycle engines)

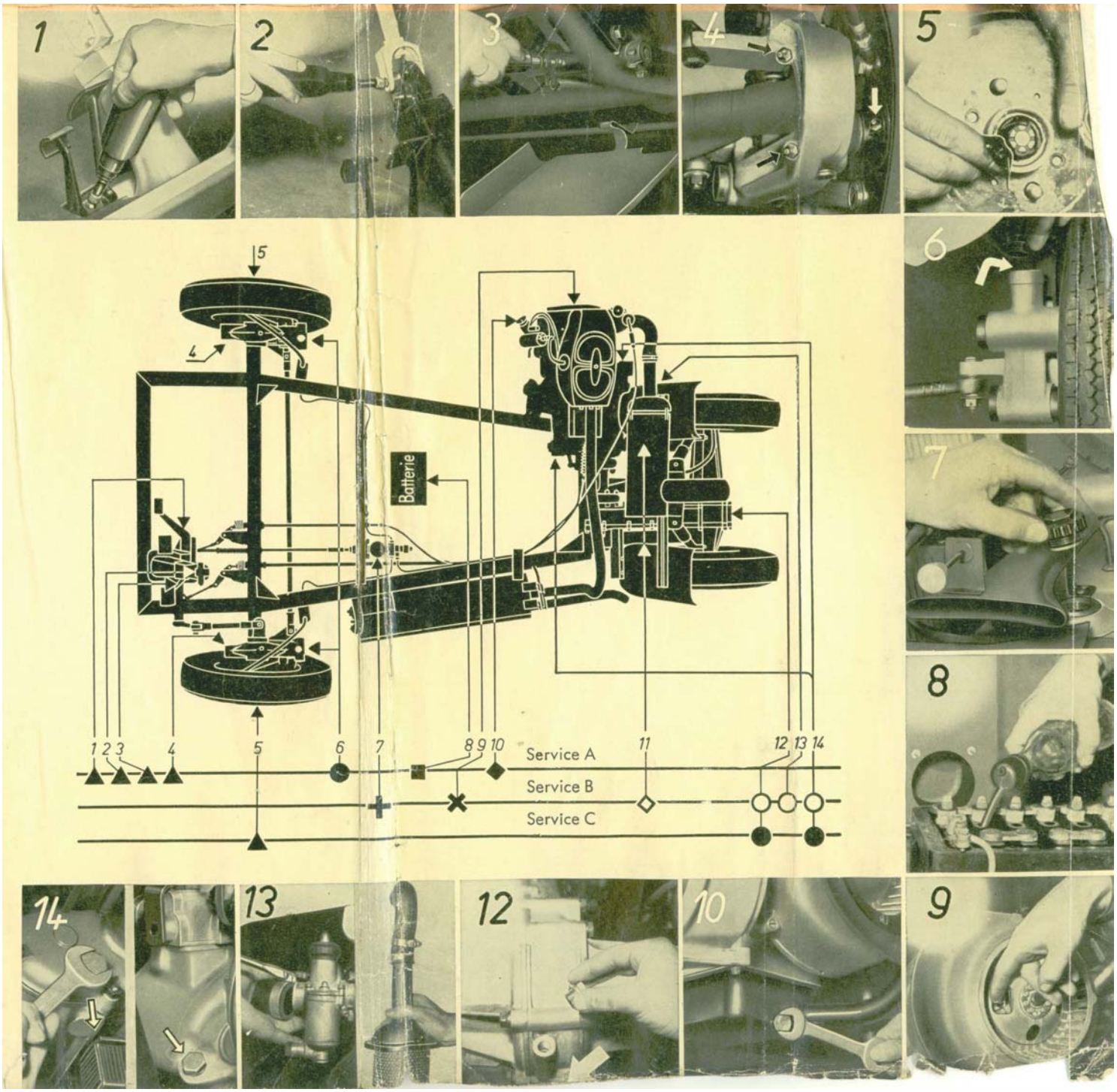
▲ Lubricating grease 355° F, melting point

■ Distilled water

+ Brake fluid -ATE blue

◊ Spray oil

x High-temperature bearing grease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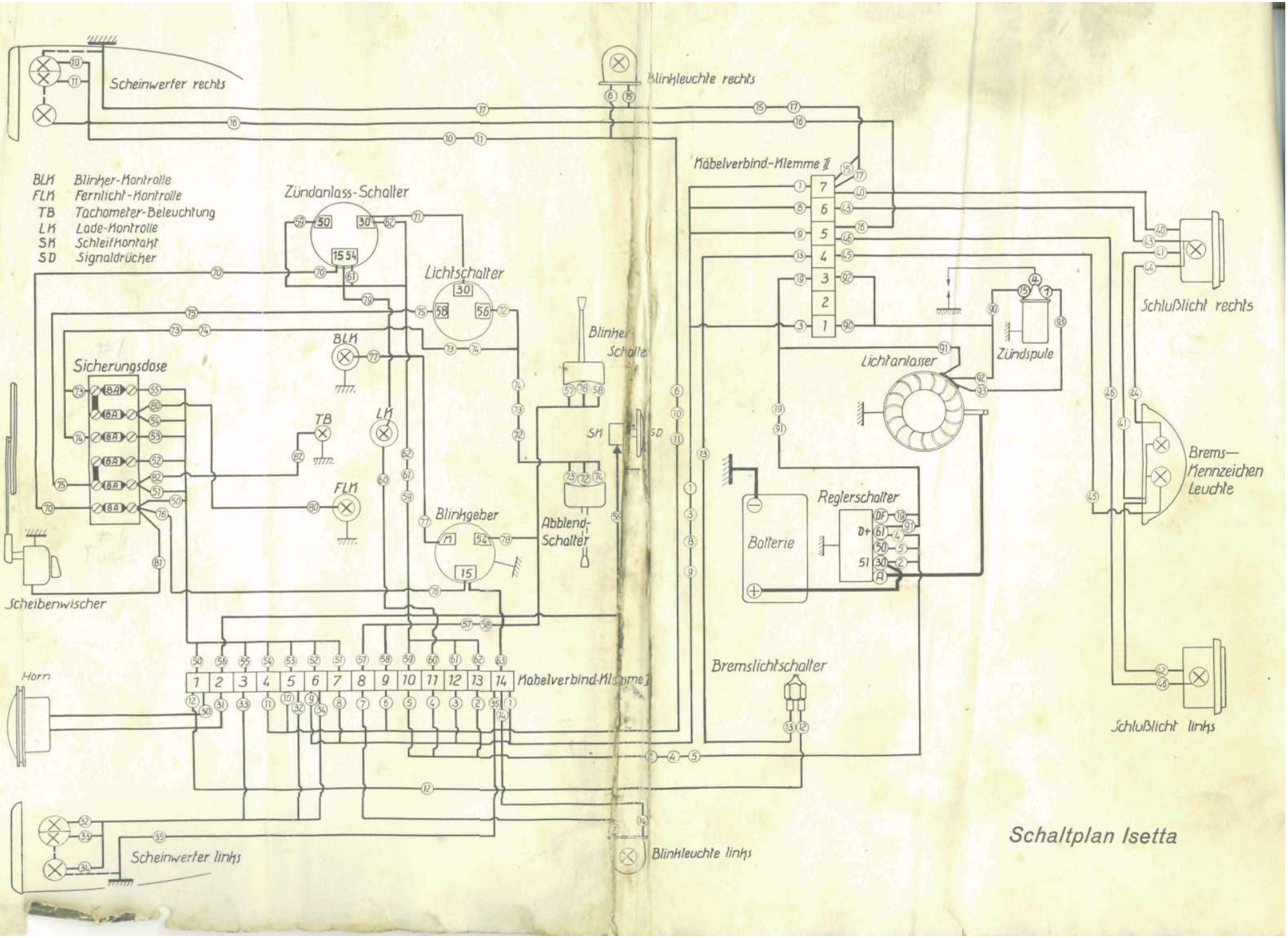
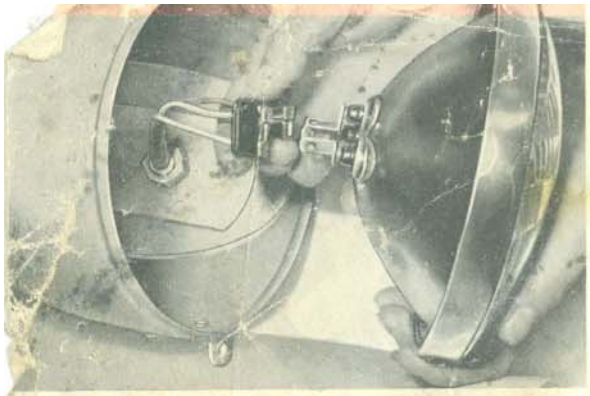
Batterie
1 2 3 4 5 6 7 8 9 10 11 12 13 14
Service A
Service B
Service C


BLK Blinker-Kontrolle
FLK Fernlicht-Kontrolle
TB Tachometer-Beleuchtung
LK Lade-Kontrolle
SK Schleifkontakt
SD Signaldrücker
Scheinwerfer rechts
Blinkleuchte rechts
Kabelverbind.-Klemme 1
Zündanlass-Schalter
Lichtschalter
Blinker-Schalter
Sicherungsdose
BLK
TB
LK
FLK
SK
SD
Lichtanlasser
Zündspule
Schlußlicht rechts
Brems-Kennzeichen Leuchte
Reglerschalter
Batterie
Blinkgeber
Abblend-Schalter
Scheibenwischer
Horn
Kabelverbind.-Klemme 1
Bremslichtschalter
Schlußlicht links
Scheinwerfer links
Blinkleuchte links
Schaltplan Isetta

Schaltplan Isetta	Wiring diagram	Circuit d'éclairage	Instalación eléctrica
BLK Blinker-Kontrolle	Direction indicator control light	Contrôle des clignoteurs	*Piloto luces de dirección*
FLK Fernlicht-Kontrolle	Headlamp control light	Contrôle des grands phares	*Indicador luces de carretera*
TB Tacho-Beleuchtung	Speedometer light	Eclairage du compteur	*Luz del velocimetro*
LK Lade-Kontrolle	Ignition control light	Lampe de contrôle de charge	*Luz indicadora de la carga de la batería*
Sk Schleifkontakt	Slide contact	Contact coulissant	*Contacto deslizante*
SD Signaldrücker	Horn button	Bouton d'avertisseur	*Botón del claxon*
Scheinwerfer rechts	Headlamp (right)	Phare droit	*Faro derecho*
Scheinwerfer links	Headlamp (left)	Phare gauche	*Faro izquierdo*
Sicherungsdose	Fuse box	Boîte de fusibles	*Caja de fusibles*
Scheibenwischer	Wiper motor	Moteur d'essuie-glaces	*Motor del limpiaparabrisas*
Horn	Horn	Avertisseur	*Claxon*
Zündanlaß-Schalter	Ignition and starter switch	Contact et démarreur	*Contacto del encendido y arranque*
Lichtschalter	Lighting switch	Commutateur d'éclairage	*Conmutador de luces*
Blinkgeber	Directional flasher	Clignoteur	*Transmisor para los indicadores de dirección*
Blinkerschalter	Directional signal switch	Commande de clignoteurs	*Conmutador luces de dirección*
Abblendschalter	Headlamp dipper switch	Commutateur phares codes	*Conmutador luces de carretera-cruce*
Kabelverbind.-Klemme I	Cable connector unit No. I	Borne de jonction No. I	*Tira de conexiones nº. I*
Blinkleuchte rechts	Directional signal light (right)	Feu clignotant droit	*Luz indicadora de dirección (derecha)*
Blinkleuchte links	Directional signal light (left)	Feu clignotant gauche	*Luz indicadora de dirección (izquierda)*
Kabelverbind.-Klemme II	Cable connector unit No. II	Borne de jonction No. II	*Tira de conexiones nº. II*
Batterie	Battery	Batterie	*Batería*
Bremslichtschalter	Stop lamp switch	Contacteur de Stop	*Interruptor para la luz de «pare»*
Reglerschalter	Regulator & cut-out	Conjoncteur-régulateur	*Regulador disyuntor*
Lichtanlasser	Dynamo starter	Démarreur à dynamo	*Arranque-dinamo*
Zündspule	Ignition coil	Bobine d'allumage	*Bobina de encendido*
Schlußlicht rechts	Tail light (right)	Feu arrière droit	*Luz piloto (derecha)*
Schlußlicht links	Tail light (left)	Feu arrière gauche	*Luz piloto (izquierda)*
Brems-Kennzeichenleuchte	Stop & License plate light	Feu Stop-Eclairage plaque d'immatriculation	*Luz de «pare» e iluminación de la matrícula*

Headlights. Each headlight incorporates a "Sealed Beam" reflector unit. To replace a unit remove the securing screw at the bottom of the headlight rim, pull the lens and reflector unit off of the headlight housing and disconnect the triple pole connector (**Figure 47**). Then, after careful withdrawal of the wire fasteners, the sealed beam reflector can be removed from the headlight (**Figure 48).**



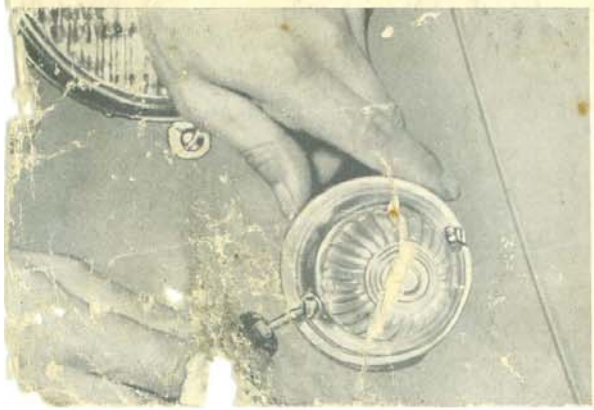
47

48

In order to aim the headlights it is necessary to remove the seat and the body trim panels at either side of the seat. Loosening the nut shown in **Figure 49** with a 22 mm spanner allows up-and-down and sideways adjustment of the headlight by moving same accordingly upon its spherical support. This job, however, is best done by service men who possess the necessary testing equipment to insure accurate aiming.

49

Combination parking and directional lights at front. Each unit contains one Bilux lamp No. 1034 / 12 V-32 / 4 cp. After removal of the rim and glass unit past taking out the two securing screws **(Figure 50 a**) with a screw driver, the lamp can be removed from the bayonet socket by pushing lamp inwards and turning to the left **(Figure 50 b**).



50
a

The combined tail, stop and directional lights with integral rear reflectors are also equipped with Bilux lamps, each unit containing one lamp No. 1034/12 V-34/4 cp. To replace the bulb remove rim and glass unit after taking out the fixing screw at the bottom, unhook the bulb holder retaining spring (**figure 51**) and withdraw the bulb holder from the opposite holder slot. The bulb can then, be withdrawn from the holder, proceeding in the manner described for the front signal lights **(Figure 52).**

License plate light. Detach the bulb carrier and cover assembly whereupon the spherical bulb No. 89/12 V-6 cp can be removed in the above described manner **(Figure 53).**

The all-round glass paneling of the BMW Isetta U.S. Model features a windshield of laminated glass and side and rear windows of toughened safety glass.

Dimensions:

Owing to the new bumper arrangement the U. S Model has an:

overall length of 93.7 in
and an
overall width of 55.5 in