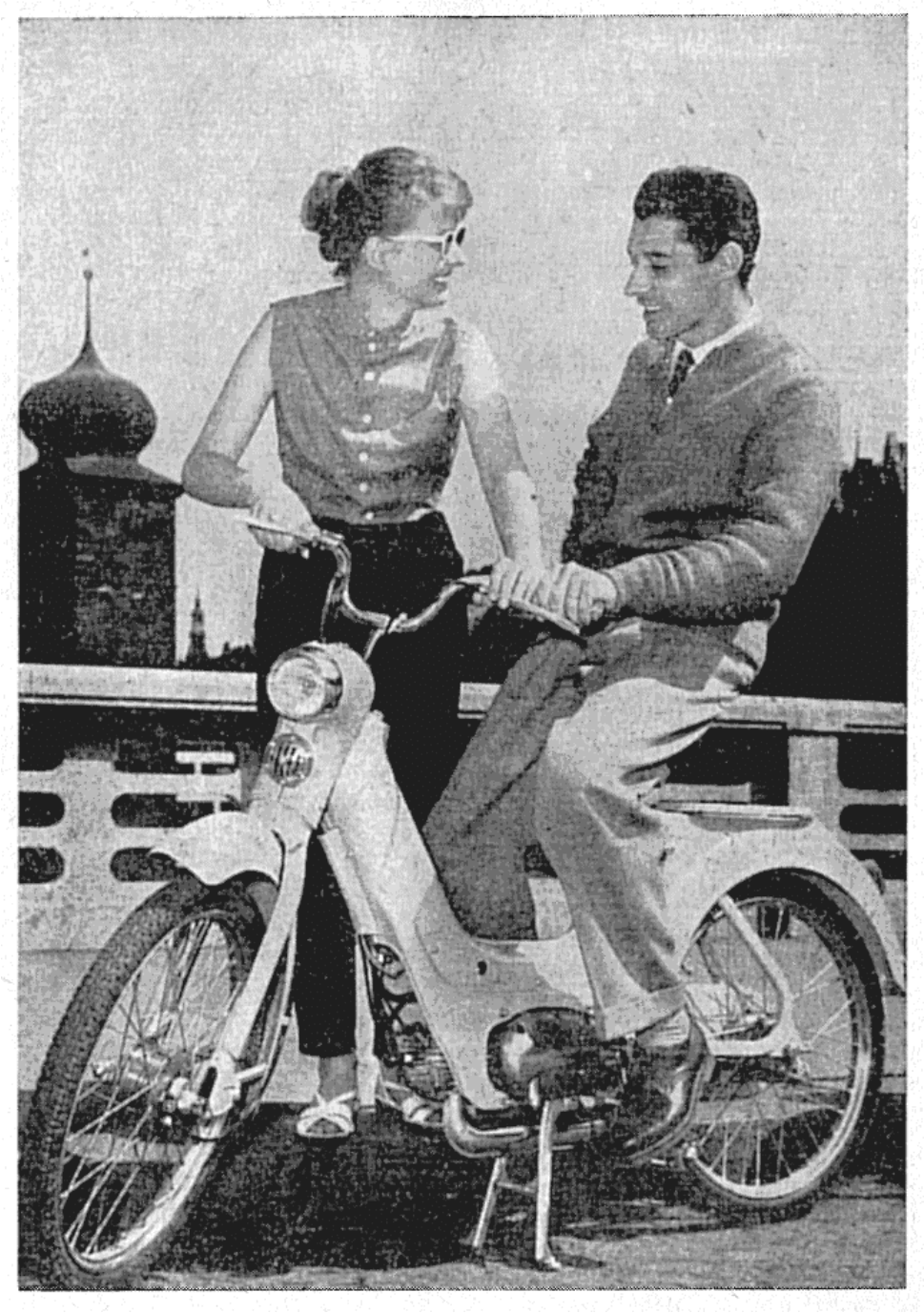
MEET THE JAWA MOPED



Jawetta Moped “Handbook”

Not actually a handbook but three articles from Czechoslovak Motor Review giving a variety of information about them. The first from issue 8 – 1959 has detailed technical information and I’ve added some useful service data. The second from issue 3 – 1961 gives details of the various options available. The third from issue 4 – 1962 giving information on initial setting up of the moped and some information on servicing.

JAWA MOPED

J. RAFL and J. RITSCHL

In the second half of this year great days for the Czechoslovak motor industry are coming, for the Jawa Works will celebrate 30 years of motor-cycle manufacture. It is at this significant period that the important motor-cycle Works are starting production of a new two-wheeler - the new Jawa moped. It is certainly no accident that the Jawa Works are coming with this model. Throughout their existence the Works were introducing models which served perfectly the needs of customers and which were both in respect of design and quality of manufacture up to world standards yet cheap to buy and to run.

To the world famous range of Jawa-CZ motor-cycles is now being added the Jawa moped, intended to serve above all those who look for a suitable means of transport between a bicycle and a motor-cycle. At low purchase price it is a fast enough and safe machine offering its owners an adequate measure of comfort and not requiring expert knowledge on the owners part for reliable operation. Claiming very little maintenance it is a machine which, due to its small size and low weight, needs no garage; thanks to its low fuel consumption the costs of its operation are exceptionally low as well. Apart from that mopeds in very many countries are licensed with certain advantages, for instance the rider is not required to hold a driving licence, the machine is liable for a lower rate of road tax or freed from road tax altogether. The fact that the moped is equipped with pedals makes it familiar to cyclists who wish to become motorised. Besides the moped is superior to a bicycle with auxiliary engine being of compact design and consequently safer and more reliable. All these qualities have been provided for in the design of the new Czechoslovak Jawa moped. Its power is sufficient to meet the requirements of users, but not so high as to exceed the permitted maximum speed for mopeds in many countries and the Jawa moped complies with the traffic requlations everywhere where mopeds are used.

From the described qualities of the Jawa moped it can be seen that this light machine completes suitably the

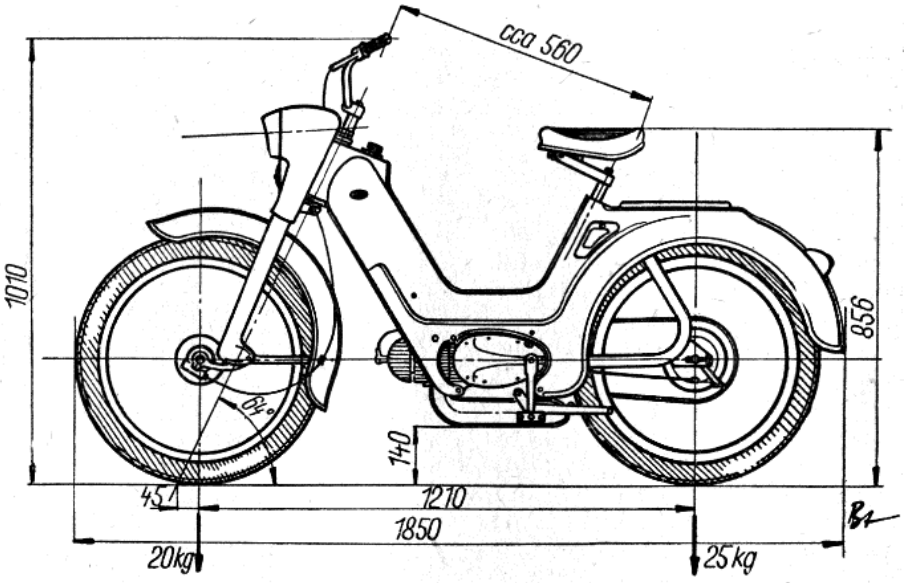


Fig. 1. Main dimensions of the 50c.c. Jawa moped. Overall handlebar width is 590 mm.

range of Jawa-CZ motor-cycles. The Jawa moped will be above all of interest for young people who have not yet acquired a driving license and among older it will be popular with owners who are satisfied with a lower speed than that attained by Jawa-CZ motor-cycles. A third group of owners of the Jawa moped will be formed by those who are saving to buy a more powerful machine or who own a motor car and need a cheap means of transport for short runs in the city or to reach their garage. For all those is this article intended as it gives a detailed technical description of the Jawa 50c.c., moped, model 551.

Principal technical data of the Jawa moped:

Dimensions (Fig.1): overall length 72.8 in. (1850 mm), overall width (across handlebars) 23.2 in. (590 mm), overall height 39.7 in. (1010 mm), ground clearance 5.5 in. (140 mm), wheel base 47.6 in. (1210 mm), steering axis angle 64º, trail 1.77 in. (45 mm).

The moped is intended to carry one grown up person with luggage or with a child (using a separate seat for the child), the maximum permissible load being 220 lbs (100 kg).

Dry weight of the moped is 93 lbs (42 kg), ready for road weight (moped with fuel) 99 lbs (45 kg). With the machine fully laden up to the maximum permissible load (320 lbs – 145 kg) the weight distribution is as follows: front wheel 110 lbs (50 kg), rear wheel 209 lbs (95 kg).

Maximum speed of the moped on level ground is 28 m.p.h. (45 km.p.h.), climbing ability fully laden without pedalling 18%. Fuel consumption on road at a steady speed of:

18.6 m.p.h. (30 km.p.h.) = 200 m.p.g. (1.4 litres p. 100 km),

25 m.p.h. (40 km.p.h.) = 155 m.p.g. (1.8 litres p. 100 km).

Fuel consumption dependent on various speeds of the machine is shown in Fig. 2.

Noise level: the noise level at maximum speed and engine under part load is 74 dB, at 25 m.p.h. (40 km.p.h.), with engine under full load 75 dB.

Weight of fully laden machine per 1 HP: 213.2 lbs/HP (96.6 kg/HP).

Power unit (Fig.3)**:** *The engine is a two-stroke, petrol, air-coiled horizontal single cylinder. Bore 38 mm, stroke 44 mm, stroke to bore ratio 1.16, cylinder capacity 49.9 c.c., compression ratio 7.5, maximum power output 1.5 HP at 4500 r.p.m., maximum torque 1.95 lb.ft. (0.270 kgm) at 2000 to 3500 r.p.m., mean effective pressure*

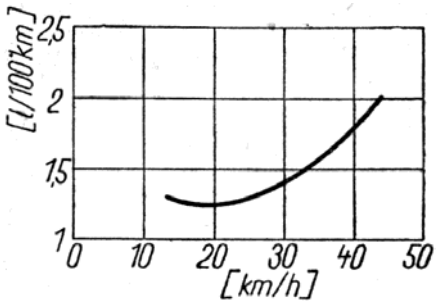


Fig. 2. Fuel consumption curve as determined by road tests.

40,328 lb.sq.in. (2.84 kg/cm2), specific power output 30 HP per 1 liter, mean piston speed 21.65 ft/sec. (6.6 m/s).

Power output, torque and specific consumption curves in dependence on engine speed are shown in diagram Fig.4.

Fuel employed: petroil mixture at the rate of 25 to 1. Timing diagram is shown in Fig.5.

Carburetter: JIKOV 2912 - N 11 with induction silencer and air cleaner. Choke diameter 12 mm, main jet 45.

Transmission: primary drive is by helical gears, drive ratio 4.75 to 1 (57/12), final by chain, 2.92 to 1 (35/12), gearbox: low gear - 2.01 to 1 (16/13 X 18/11), high gear - 1 to 1 (direct). Overall gear ratios from engine to rear wheel resulting from part drives: low gear - 27.90 to 1, high gear- 13.85 to 1. Starter ratio: 23.96 to 1, overall ratio from pedals to rear wheel: low gear - 1.17 to 1, high gear - 0.58 to 1. It is possible to fit instead of the standard 12 T gearbox sprocket as alternative a 13 T sprocket.

The cylinder of the engine is a light alloy pressure die-casting with a pressed-in cast-iron liner. Due to this a more intensive heat conduction away from the working space of the cylinder has been obtained and at the same time its weight considerably reduced.

The induction port in the cylinder is as short as possible in order to

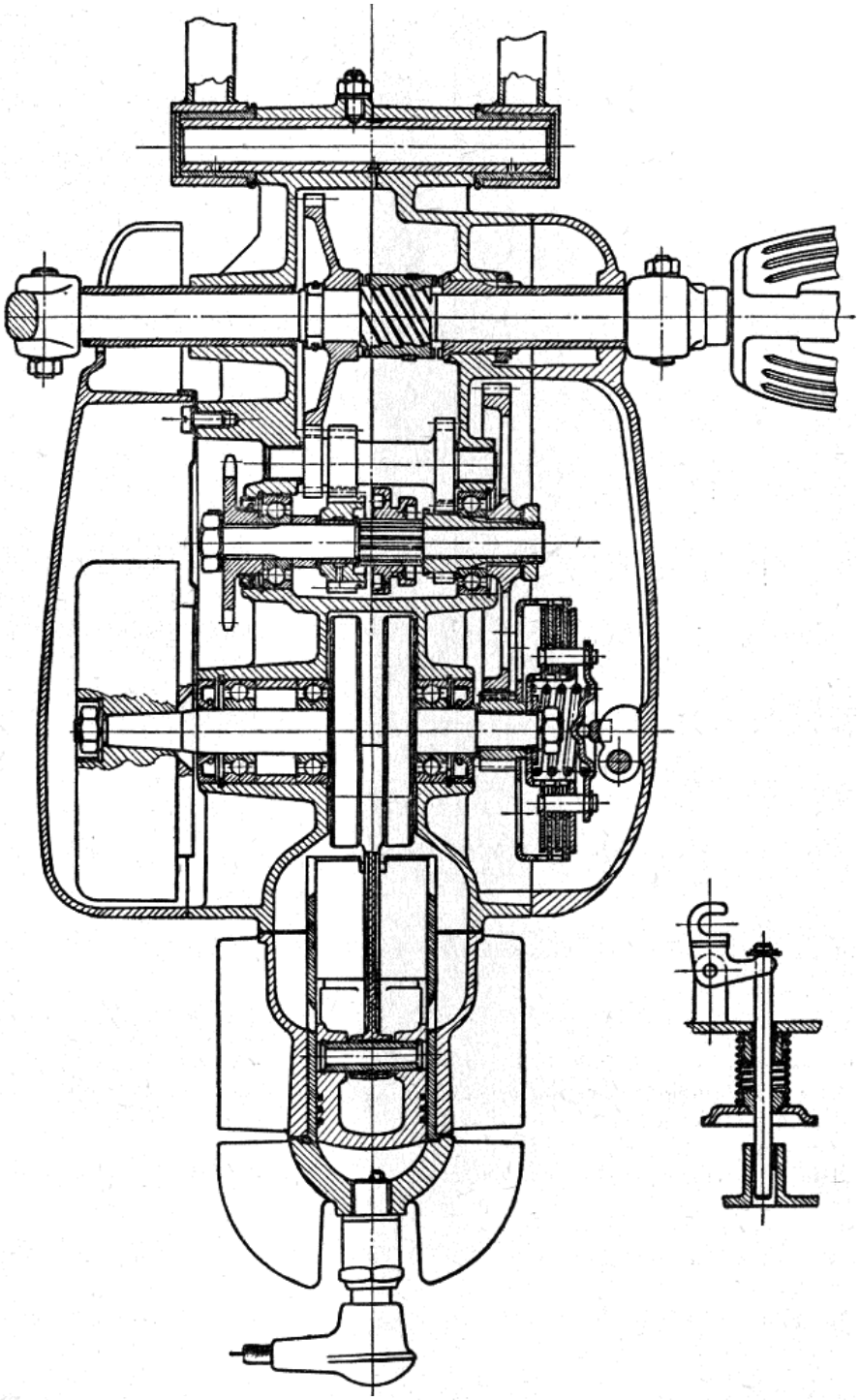


Fig.3a. View of the 50 c.c. Jawa moped engine sectioned in the vertical plane.

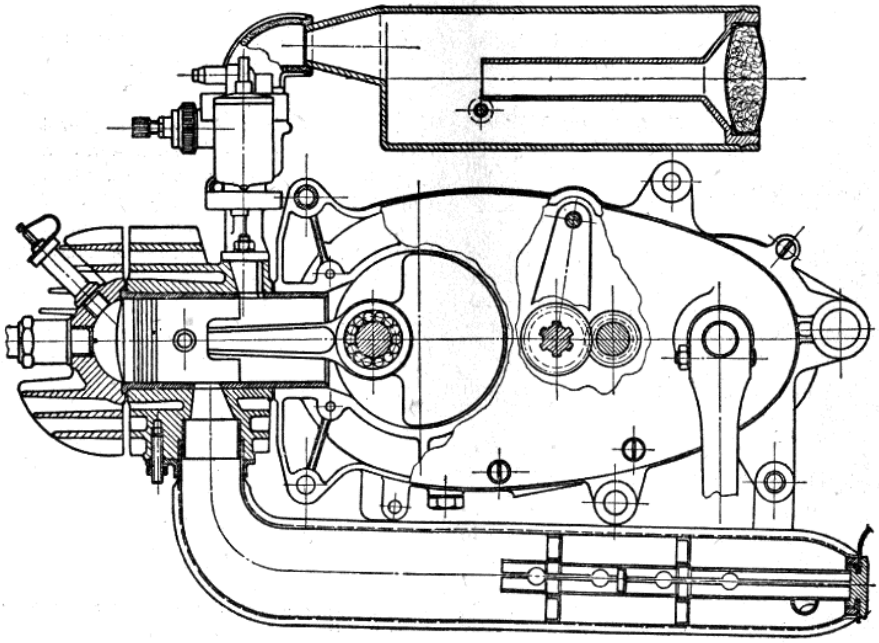


Fig.3b. View of the 50 c.c. Jawa moped engine sectioned in the horizontal plane. Above right is a detailed drawing of the gear selecting mechanism.

prevent the rate of filling being unnecessarily reduced through losses caused by friction and heating of the mixture in the port. The exhaust port is short as well which is an advantage, because the cylinder is being extremely little heated by exhaust gases.

The exhaust silencer is held to the cylinder with a single screw; the cylindrical pipe protruding out of the exhaust silencer neck is inserted into a longitudinal labyrinth arranged in the cylinder exhaust neck.

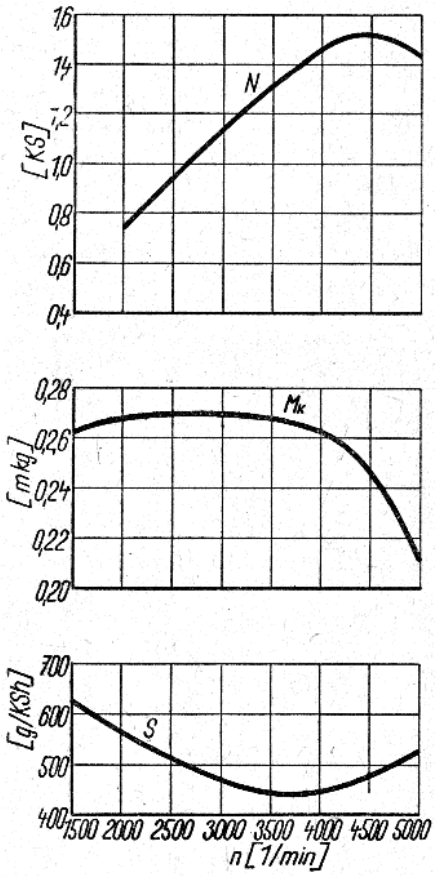


Fig.4. Dynamometer performance graphs. Topmost is the b.h p. curve, below it the torque curve and lowermost the specific fuel mixture consumption curve.

This layout ensures reliable sealing of the exhaust system and at the same time the face of the fins is not limited.

The cylinder head is also a light alloy pressure diecasting. It is generously finned. The combustion chamber is of hemispherical shape. The sparking plug is located in the cylinder axis; above the plug a decompressor of simple design is situated. Both the cylinder and the cylinder head are fastened to the crankcase with four studs and nuts.

An interesting feature of the crankshaft mechanism are the small size flywheels. Their size has been determined in view of the fact that a flywheel magneto is employed which in itself ensures sufficiently uniform running. To give the crankshaft enough rigidity both flywheels are forged as a whole together with the pins.

It is also interesting that the clutch is located on the crankshaft which isunusual in motor-cycle engines. This layout is favourable for an engine intended for mopeds as one of the principal requirements of design is to obtain minimum dimensions and weight.

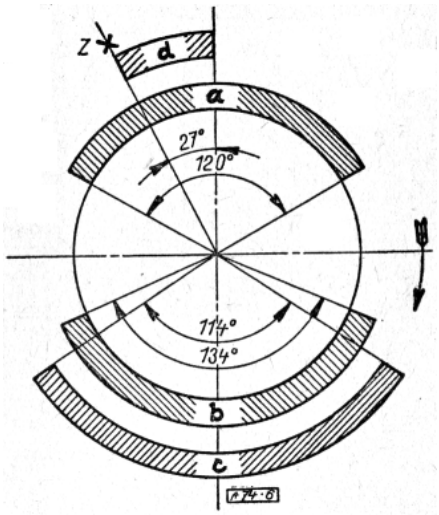


Fig.5. Timing diagram of the 50c.c. two-stroke Jawa moped engine. Topmost is d - angle of ignition advance, a - induction stroke, b - exhaust stroke, c - transfer period.

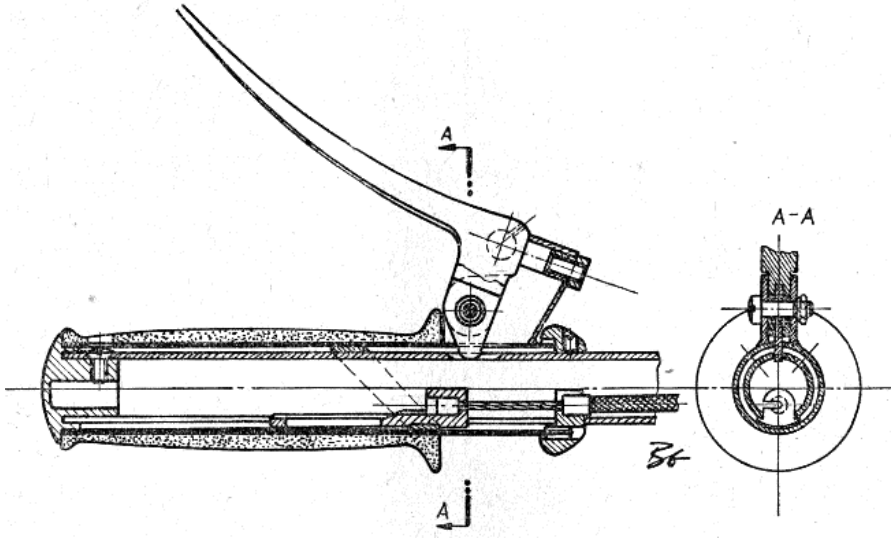
For to transmit the torque not increased by primary drive a clutch and consequently a crankcase of much smaller dimensions will be sufficient. The majority of clutch parts are steel sheet pressings. Its two plates have friction lining pressed on both sides; it is provided with radial grooves for draining of the oil pressed out of the friction faces when the clutch is engaged. Clutch engagement is by a dog located on a vertical shaft to the serrated bottom end of which a, cable controlled lever is fitted. The cable adjusting screw is easily accessible.

Primary drive is by a single pair of spur gears with helical corrected toothing of 1.75 mm module, corrected in respect of optimum strength and service life. Helical toothing has been employed to obtain silent running of the gears. Like the primary drive are corrected also the gearbox gears with straight toothing of 1.75 mm module.

The lay-out of the two-speed gearbox can be clearly seen in Fig. 3. The sliding ring located on the main shaft grooves is provided with interior claws on the faces engaging into a considerably reduced toothing on part of both gears. Apart from the main shaft gears the pedal shaft gear joined with the shaft by means of an axial dog clutch meshes also with the layshaft made of one piece.

In the center of the pedal shaft a triple-threaded bolt is shaped on which a nut is screwed; both faces of the nut are formed as halves of the axial dog clutch which can engage into opposite halves on the face of the gear and the rear brake lever hub. The clutch dogs are made to mesh in one direction only. The nut is braked against free rotation by a spring sleeve secured on the crankcase against rotation. When the pedal shaft is rotated forward, the nut is at first braked accordingly carrying out an axial movement until it engages into the teeth of the gear and becomes tightened and the shaft with the gear and nut begin to rotate as a unit. The nut, however, slips with light friction in the spring sleeve. The same happens when the pedal shaft is rotated backwards, when the nut engages into the hub of the rear brake rod lever. The considerable axial force caused by the effect of the bolt is in case of pedalling absorbed by a half-ring set in the shaft groove, in case of braking the extended part of the rod lever hub leans on the pedal lever.

Fig. 6. Longitudinal and transverse sections of twistgrip gear changing mechanism. The grip can be rotated only after full depression of the lever.



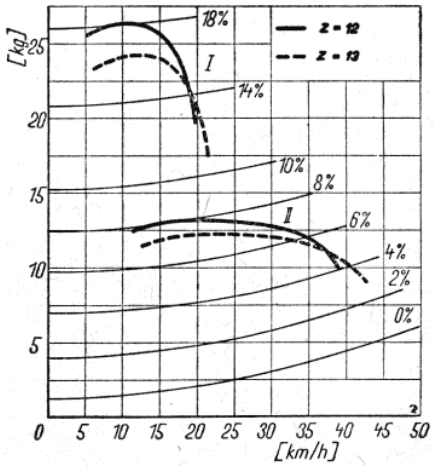


Fig. 7. Curves relating to the driving effort at the rear wheel and the counteracting combined resisting forces for both speeds. The full line denotes conditions with 12 tooth gearbox sprocket, dashed line - 13 tooth sprocket.

Consequently the axial force is not transmitted to the crankcase. All the gearbox gears are in constant mesh.

The gears are engaged by moving the sliding ring by means of a cam plate fixed to the gear change rod. A two arm lever controlled by cable from the L. H. handlebar twist grip moves the rod against the pressure of a spring located on it (Fig. 6). Movement of the control cable in relation to the turn of the twist grip is obtained in the manner usual for carburetter throttle valve control. The twist grip can be turned only after the clutch lever has been depressed, because the clutch lever keeps the twist grip arrested as well as the cam plate by means of the control cable in the individual positions. This makes gear changing without declutching impossible. When changing the rider rotates the twist grip together with the clutch lever. The twist grip has three basic positions. Neutral is between the positions of the two gears, low gear being engaged by rotating the twist grip towards the rider, high gear by twisting it away from the rider.

The carburetter with which the engine is equipped is of the down-draught type with horizontally located throttle valve. The sucked air is brought to the corburetter across a polyamide induction silencer fitted with an air cleaning screen. Under the engine is the exhaust silencer, the three chambers of which are formed by two baffles and a removable core, which can be easily cleaned.

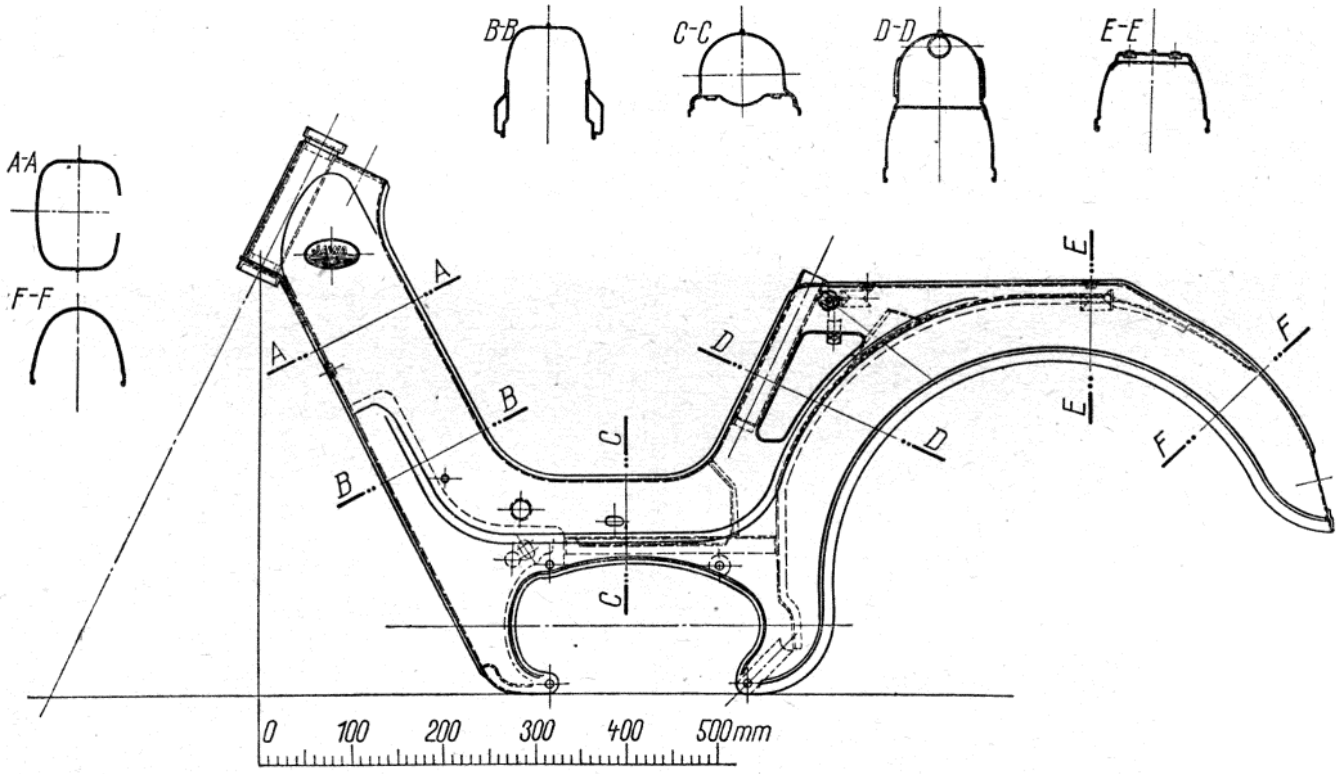
Fig.7 shows the traction forces on the circumference of the rear wheel in relation to vehicle speeds for individual gears, both for the 12 T and 13 T gearbox sprockets. In the diagram are also drawn curves of the sum of rolling resistance, air drag and climbing resistance marked with the corresponding rate of climb (in %).

The engine of the Jawa moped is in many respects identical with the Jawa 552 engine employed in the Stadion S11 moped with the advantage that the majority of spare parts are identical as well.

Cycle part: The frame of the moped is welded of deep drawn steel sheet pressings (thickness 0.8 mm) (Fig.8). Its surface is formed by two symmetrical parts (different in details) welded in the longitudinal vertical plane of the machine and thus forming partly a semi-closed and partly an entirely closed hollow section reinforced with several stays. Due to the suitable shape and dimensions of the main pressing and stays the frame as a whole is solid, rigid and at the same time light. It is of the open type to make mounting easy and to enable women to ride in skirts. The frame section can be seen in Fig.8.

In its front portion the frame forms a hollow compartment in which the fuel tank is located. In the middle bottom part the engine is fastened so that only the two crankcase side covers are visible. The carburetter and induction silencer are in the hollow space of the frame above the engine and are fully enclosed, the cylinder and cylinder head are almost entirely covered. Several openings in the frame portion enclosing the carburetter and induction silencer provide acces for the necessary servicing. In the space under the saddle the stays enclose a space in the frame serving as tool box and for putting

Fig. 8. The 50 c.c. Jawa moped frame is welded up of steel pressings. It is light in weight, yet combines exceptional strength with rigidity.



away of odd parcels. The compartment is accessible after opening the lid on the L. H. side of the frame. The rear frame portion forms the rear mudguard.

Suspension: both wheels of the moped are sprung. Rear wheel suspension is by pivoted fork. The pivoted fork is made of a hollow rectangular section 25 x 15 mm of 1.5 mm thickness. The suspension eyes are provided with bronze bushes, the pin around which the fork pivots is fastened in a riser on the crankcase and secured with a bolt. The bushes are automatically lubricated with oil from the gearbox, the lubricant being conducted through a hole in the crankcase and further through openings and the hollow in the frame pivot as apparent in Fig.3. The left hand and right hand parts of the pivoted fork are joined together in their upper portion by a girder which at the same time forms the bearing surface for the pressure spring located under the saddle with which the fork is sprung. The spring is fastened to the connecting girder by means of shaped fillings of the end coils. The other end of the spring is held by similar fillings formed as a suspension eye and screwed within the frame under the saddle behind the saddle tube. In order to prevent dirt to enter through the hole through which the spring passes into the frame the spring is covered with a rubber sleeve. The rear wheel moves on a circular path, the vertical value of suspension travel being 58 mm.

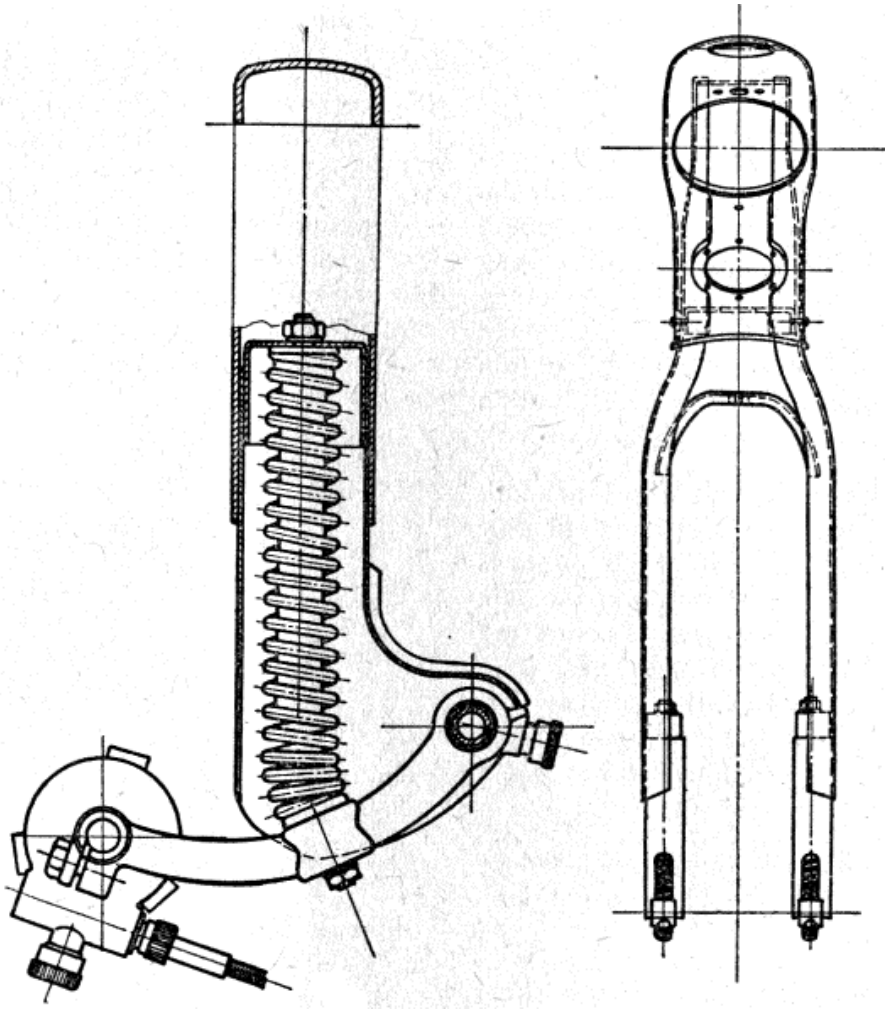
Front wheel suspension is by a simple bottom link fork (Fig. 9). The fork legs are steel sheet pressings of 2 mm thickness. Their section (approximately U shaped) can be seen in the picture. The legs are interconnected by welded brackets and by the front mudguard support. The top part of the fork legs is enclosed by the headlamp nacelle, bolted together of two thin-walled light alloy castings. At the bottom end the legs are provided with welded pressends in which the pivoted arms are supported on pins; the pivoted arms are high quality steel forgings the suspension eyes of which are provided with bronze bushes. The bushes are lubricated from lubricators screwed into the pivoted arms. The arms are sprung by pressure stressed (off axis) coil springs. At the top the springs lean on rests welded into the fork ends, at the bottom on the pivoted arms direct. At their bearing surfaces they are held by bolted shaped fillings of the end coils. The front wheel moves on a circular path, the vertical value of suspension travel being 62 mm.

Both the front and rear wheel suspension springs are provided inside by rubber inserts forming elastic suspension stops. Because these begin to act before the suspension travel is completed, they make the suspension characteristics in its final stage progressive, which is of advantage for the suspension of the machine.

Wheels and brakes (Fig.10)**:** The wheels are equipped with the today most usual tyre size for mopeds 2.00 x 23 and with the corresponding steel rims 2 x 23. The wheels are laced with 36 spokes of 2.65 mm gauge twice crossed. The spoke lacing is on both sides symmetrical. Identical hubs of both wheels are light alloy pressure die-castings with a cast-in steel liner which forms the brake drum. The symmetrically inserted brake shoes are light alloy castings both set on a common pin. The brake lining with steel wire insertion is pasted onto the brake shoes. The brake shoes are drawn together by a single steel spring bent into a horseshoe shape and held in the middle on the common brake shoe pin. The pin is cast into the back plate which is a light alloy casting so that the other end of the pin protrudes and is employed to take up the brake torque reaction. The brake cam is asymmetrical so that better use can be made of the leading shoe. This makes for better brake efficiency without reducing their safety against self-locking. The brake cam is provided with two shims forming the brake shoe guide. Both brakes are cable controlled. Adjusting of the two brakes is quick and no tools are required. The effective brake diameter is 80 mm, width of lining 16 mm.

The rear chainwheel is carried on an independent bearing and meshes with the rear wheel hub by means of three pins. When removing the rear wheel the rear chainwheel together with the chain and chaincase remains connected with the frame so that the rear wheel can be removed without dismantling the final drive.

Fig. 9. The front fork. Left: detailed drawing of helical spring with coaxial rubber spring.



On the front wheel use is made of the driving pins to take up the speedometer drive worm. The wheels are interchangeable. The relative distribution of the efficiency of the two brakes has been determined so as to comply with the requirements of safe operation, the front brake being more efficient than the rear brake. As the design of both brakes is identical different efficiency has been obtained by different leverage. For a retardation of the moped of 8.2 ft/sec^2 (2.5 m/s^2) with only the front brake applied, the pressure on the hand lever to be developed is approx. 23 lbs. (10.5 kg) whereas for the same retardation with only the rear brake applied a pressure of about 29 lbs. (13 kg) has to be developed on the pedal. Braking with the same intensity with both brakes applied at the same time it is possible to obtain on a dry concrete surface a retardation of approx. 14.7 ft/sec^2 (4.5 m/sec^2).

Mudguards and cowls. The rear mudguard is formed direct by the rear portion of the frame. The front mudguard is bolted to the bracket between the fork legs and in its bottom part is connected by two stays with the fork ends. Both mudguards are deep. The de luxe version of the moped is equipped at the front part of the frame with a leg shield pressed of steel sheet.

The rear chain is totally enclosed by an easily detachable chaincase bolted to the R. H. side of the frame.

The fuel tank is welded of steel sheet (0.8 mm) pressings and is located in the hollow space of the front part of the frame. It is fastened to the frame in that at the top it leans on the frame from which it is separated by a rubber sleeve and is bolted to the frame by two bolts at the bottom. Its capacity is 51/4 pts. (3 litres) of which about 1 pint fuel reserve is formed by the volume under the top opening of the three-way tap pipe provided with a screen. The fuel in the tank will last for approx. 133 milles (214 km) with the moped travelling at 19 m.p.h. (30 km.p.h.) average speed, 22 miles (36 km) of which on the fuel reserve. The tank filler cap is of an unusual kind. The filler neck employs as seal a rubber insert of annular section, oil and petrol resistant, expanded by a plate pressed to the insert by manual twistig of a screw (Fig.11). The filler cap is perfectly tight and its handling very easy.

The moped stand is a light alloy casting fastened to the crankcase. It is collapsible and is held in its lifted position by a steel leaf spring.

The saddle is similar in shape to bicycle saddles, but has a considerably larger seating face and is sprung by a pressure coil spring, the springing being adjustable. The height of the saddle can be adjusted.

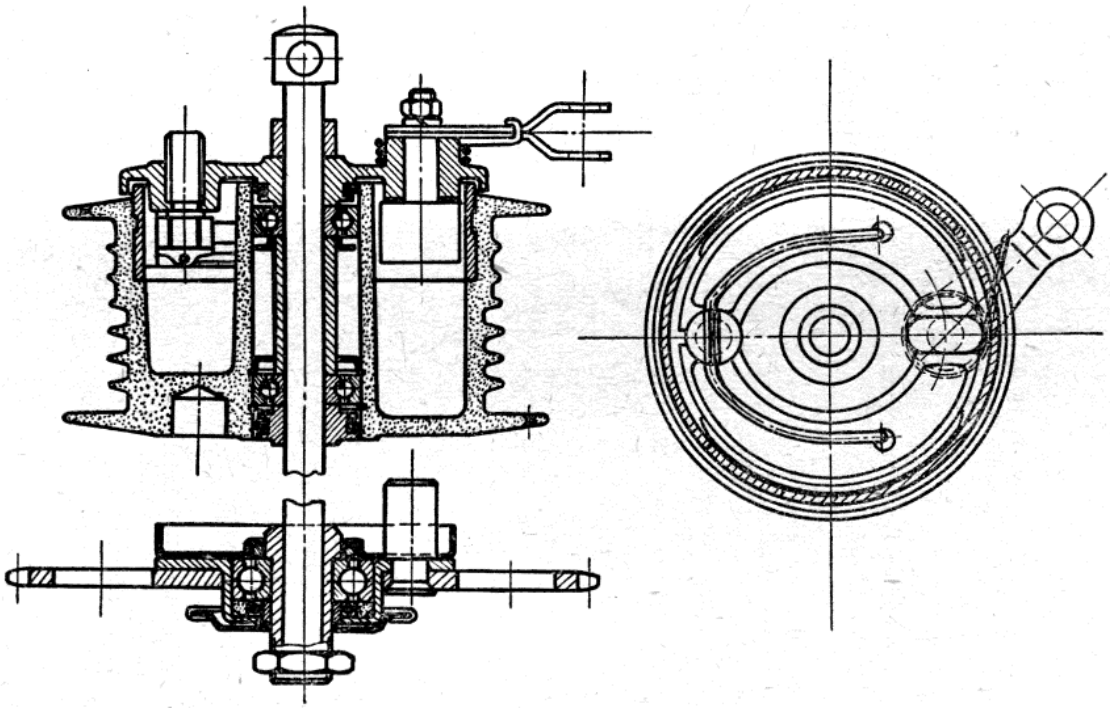
In the compartment under the saddle a set of tools wrapped in a PVC bag is located. A simple luggage carrier is bolted to the top surface of the frame behind the saddle. The moped is equipped with a speedometer built-in in the headlamp nacelle and driven by a flexible shaft from the front wheel by means of worm gears.

In respect of styling the new moped follows the Czechoslovak school of design and many of its features retain the attractive lines of Jawa-CZ motor-cycles.

Electrical equipment: A.C. current for all the accessories is generated by a flywheel magneto located under the R.H. engine side cover. The ignition part of the magneto consists of a rotor with permanent magnets, an ignition coil and a contact breaker. The contact breaker point gap is 0.1 to 0.4 mm, ignition advance within 2.8 and 3.1 mm. Current for lighting and buzzer is supplied by an independent lighting coil of the magneto (6V, 18W).

Accessories and auxiliary equipment: Sparking plug PAL 225 with M14 x 1.25 thread. Headlamp of light, issuing opening dia 80 mm, equipped with a two filament bulb 6V, 15/15W. Tail lamp located on the rear mudguard using a 12V, 3W bulb. 6 V buzzer situated in the front bottom part of the headlamp nacelle. Combined dip switch and buzzer push button located on the L.H. side of the handlebars. Three position switch on the headlamp nacelle - explanation of the positions appears from the diagram. Individual lead connections differ by colour. The moped ignition is provided with interference suppressor according to the regulations.

Fig. 10. Wheel hubs and chainwheel.



From the diagram can be seen that the ignition circuit does not depend on either of the two switches and therefore the engine has to be stopped by means of the decompressor.

Road and operational qualities of the moped: Criteria according to which travelling qualities of a vehicle are considered can be found in the diagram of tractive forces and travel resistances. The engine power curve and the drive ratio in high gear, have been determined so as to make it impossible for .the machine to exceed the maximum speed of 28 m. p. h. (45 km p. h.) on level ground in compliance with the traffic regulations of the majority of countries to which it will be exported. The maximum speed of the moped is obviously quite sufficient for a vehicle of this class. To attain this speed the power of 1.5 HP is fully adequate, a favourable power curve at low engine speeds being desirable. This aim was successfully realised in the case of the described Jawa 50 engine, model 551. It has a very flexible characteristics as is well apparent from the engine torque curve; the curve reveals that values close to the maximum torque are attained at an unusually wide range of engine revolutions. This quality makes the engine exceptionally flexible which reflects favourably in the riding qualities of the moped. A favourable torque curve namely causes also a favourable course of tractive forces on the driving wheel with low and high gear engaged with the resulting high values of maximum climbing ability in both gears as well as good acceleration and small loss of speed when the moped has to master gradients smaller than corresponding to the maximum climb for the given gear. Expressed in figures, the moped is capable to master an 8% gradient (gearbox sprocket 12 T) or 7% (gearbox sprocket 13 T) in high gear and 18% and 16% respectively in low gear. On first class roads steeper than 8% gradient are very rare from which it follows that the machine does not require frequent gear changes and that it will run mostly in high gear. The climbing ability attained by the moped in low gear is adequate practically for all kinds of roads. The acceleration of which the moped is capable is also satisfactory and it is a lively machine in city traffic.

The drive between the pedal shaft and the crankshaft makes it possible to increase the traction power of the engine in case of great loss of engine revolutions by pedalling so that at 1500 engine r.p.m. it is necessary to pedal at a speed approximately of 1 revolution per sec. This condition corresponds in high gear to a speed of 7.5 m. p. h. (12 km p. h.) in low gear approximately to 3.75 m. p. h. (6 km p. h.) Of course the engine begins run regularly already at 1000 r. p. m. Consequently it can be seen that pedalling is not only theoretically but also practically possible. In high gear pedalling is quite unnecessary, for at a greater loss of engine revolutions it will be enough to change down to low gear, but it is nevertheless used by some sport-minded riders as riding in high gear at low engine speeds and pedalling is somewhat faster than the more comfortable riding without pedalling in low gear. Pedalling has a practical sense only in low gear if the moped has to overcome a gradient of some 18 or more % which happens exceptionally on low class roads or in cross-country going. From experience it can be said that on a first class road in flat country the speed of the machine will never fall below 24 m.p.h. (38 km.p.h.).

If necessary the moped can be driven by pedalling in low or high gear. In this case it is necessary to declutch in order not to drive the engine as well.

Fig. 11. The filler cap is of interesting design.

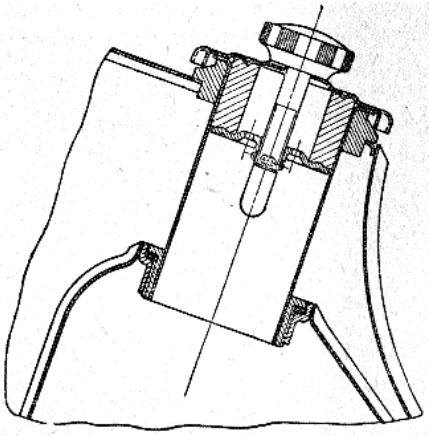
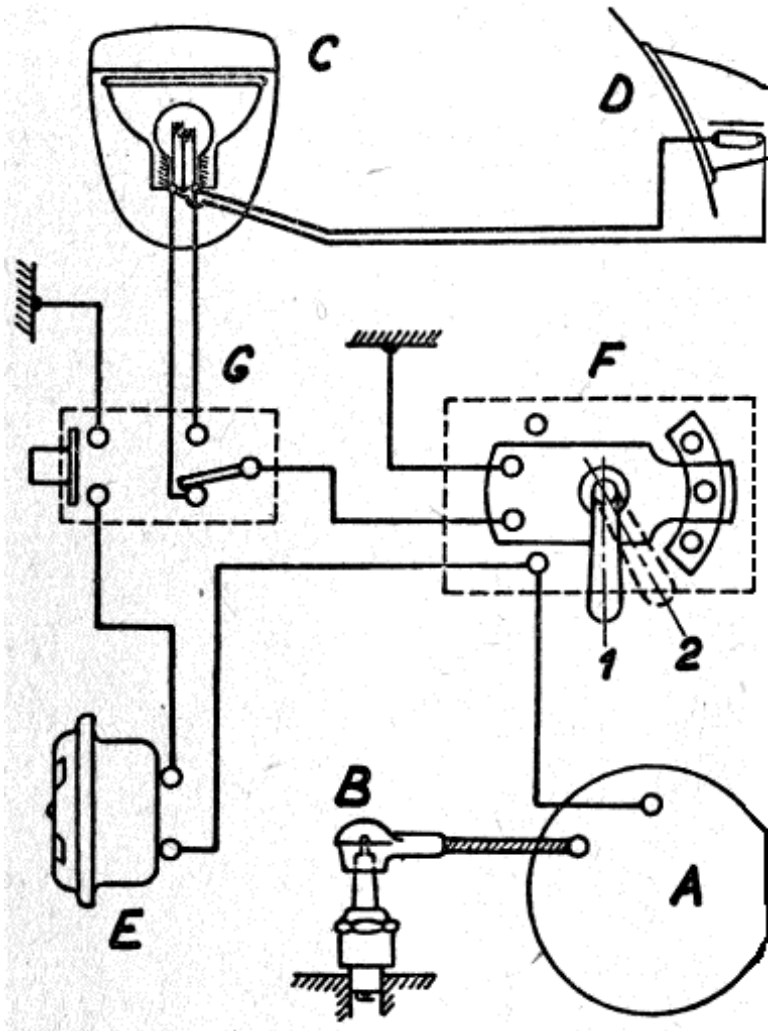
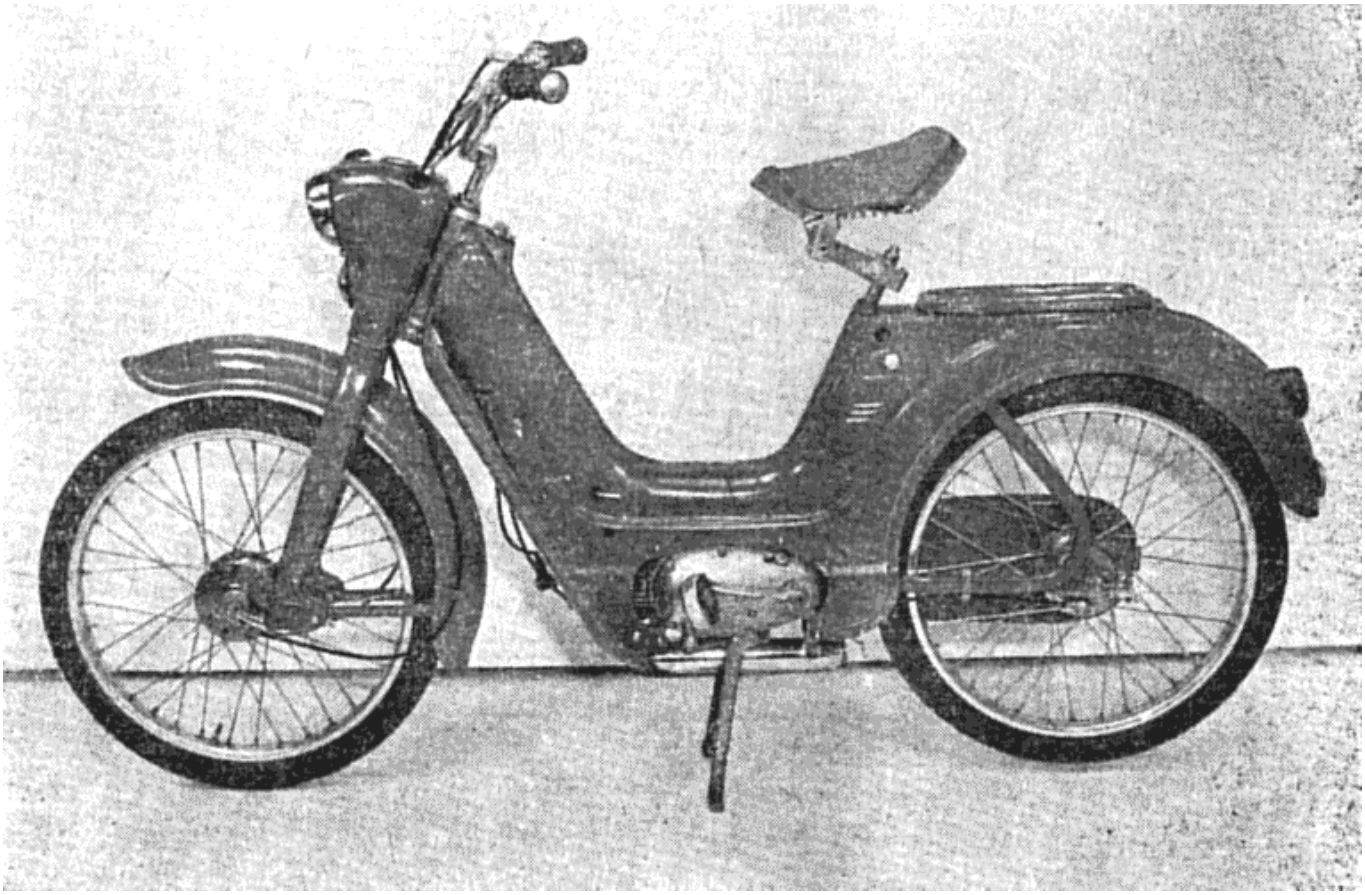


Fig. 12. Technical diagram of electrical equipment. A - flywheel magneto, B - sparking plug, C - headlamp, D - rear lamp, E - buzzer, F - switchbox in headlamp cowl (1 - day riding position, 2 - night riding position), G - dipswitch combined with buzzer button on handlebar.





The engine is capable of running constantly at its maximum output without risk to the life of its parts. It is not inclined to overheating; it is well balanced and shows no tendency to vibrations in any range of revolutions. Fuel consumption is within the usual limits.

The engine is started by kicking the pedals forward; it is recommended to depress the decompressor lever on the L. H. side of the handlebars in the first stage of kicking the pedals down. To stop the engine the decompressor has to be used. The carburetter throttle valve is twist grip controlled, the twist grip being located on the R.H. side of the handlebars like on motor-cycles. Gear changing with the L.H. twist grip is easy. Front brake control is by lever on the R. H. side of the handlebars, rear brake by back-pedalling like on bicycles.

The height of the saddle, the handlebars and the pedals from the ground as well as the distance of the handlebars from the saddle are well chosen so that the rider sits in a natural position, his hands not leaning excessively on the handlebars.

This is very important if riding fatigue is to be reduced as much as possible. For if the rider has to lean excessively on the handlebars, shocks (inavoiable to a degree) are transmitted to his hands, which is one of the principal causes of fatigue. Both the saddle and handlebar height is adjustable. The machine has both wheels sprung with sufficient suspension travel. The suspension is satisfactory even on bad roads.

The front mudguard is deep enough to afford good protection to the rider in bad weather. The rider's legs are also well protected, if the moped is equipped with the leg shield.

Lighting for night riding is good, the electrical equipment gives reliable service. All parts of the machine are well fastened so that the noise level of the moped when travelling is very low even after it has been long in use. The space in the compartment under the saddle is big enough to take not only the tool kit but also a spare inner tube, sparking plugs, bulbs and other odds.

The moped makes little claim in respect of maintenance. Servicing is easy, so that it can be carried out by users with no experience.

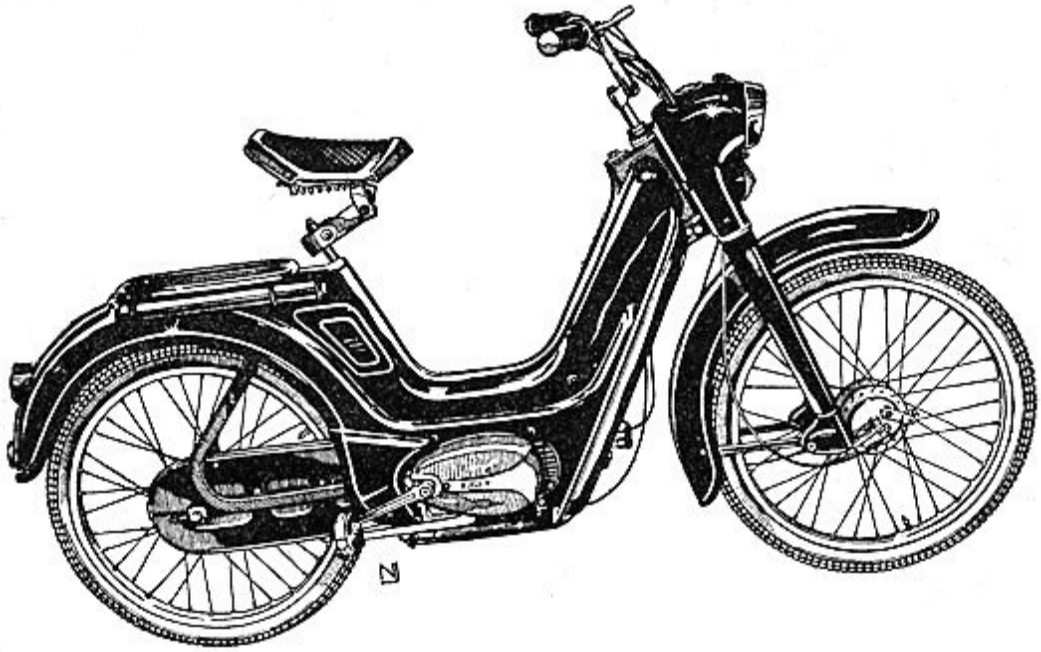
The tool kit is sufficient for normal servicing jobs. Thanks to its low weight and small size the machine is easily put away and in case of necessity it can be carried by hand. The moped is easily lifted on its stand, which is very steady. The surface of the machine is smooth with compact unbroken lines so that its cleaning and servicing is quick.

On the whole it can be said that the Jawa moped due to its modern design, riding qualities, functional lay-out and graceful styling ranks with the foremost of its kind. It can be assumed that it will become as popular as are motorcycles of Jawa-CZ make.

from Czech Motor Review
issue 8 – 1959

SERVICE DATA

Petrol / oil mix	25 to 1 (for running in 16 to 1)
Points gap	0.4mm (0.016") (piston at TDC)
Ignition timing	2.8 to 3.1mm BTDC
Spark plug	PAL 14-225 (Brisk N15, NGK B7HS, Champion L82)
Plug gap	0.5mm (0.020")
Gearbox oil	80w-90 gear oil approx 350ml
Tyre pressures - front	1.7atm (25psi)
rear	2.0atm (29psi)



JAWETTA MOPEDS

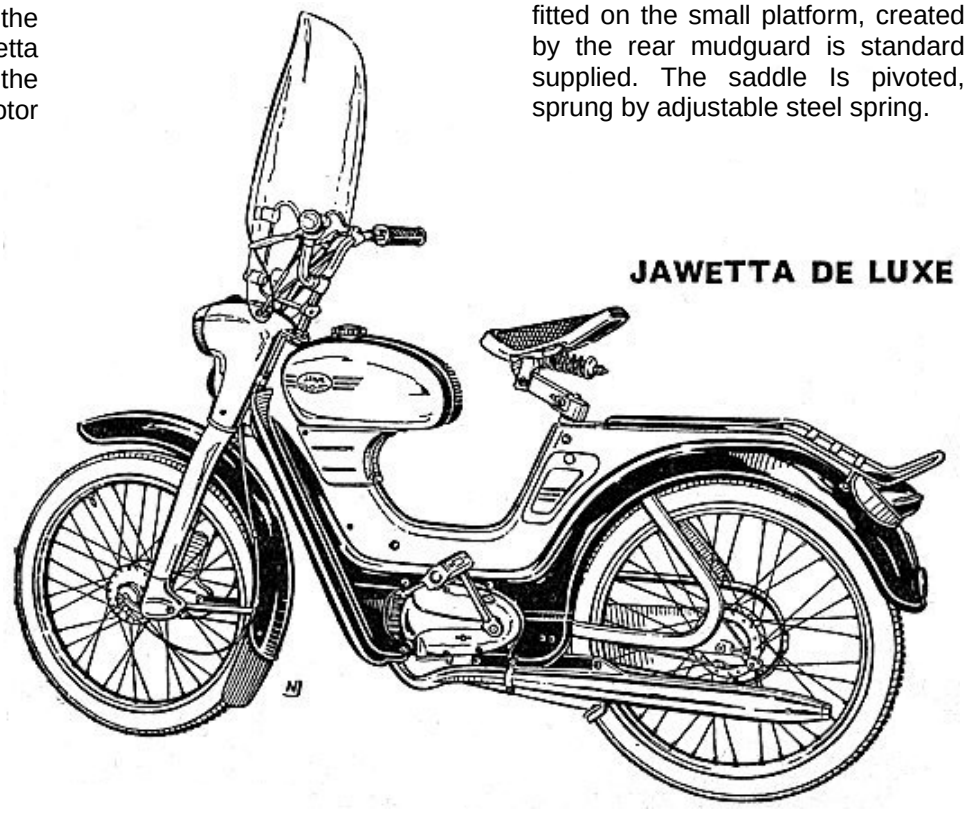
The Jawetta mopeds are the smallest products of the world-famous Jawa works which thus maintains its longstanding tradition to give its customers the vehicles inexpensive to buy as well as in operation. This tradition is also imprinted on the general design of the Jawetta mopeds in their simplicity, fitness as well as reliability in operation. This successful combination of all necessary requirements was the centre of admiration of foreign trade journals at the latest exhibition at Frankfurt-am-Main, where the general design of the Jawetta mopeds was given as model in the construction of the smallest motor vehicles.

The frame of the Jawetta moped: is pressed of quality steel sheet and the pressings are welded in a rigid and strong unit, forming also the rear mudguard. In the frame bottom part there is mounted the single-cylinder, two-stroke engine of the Jawa 551 model with horizontal cylinder. The engine is partially covered by the side frame sheets. Engine has a capacity of 49.8 c.c. and for the sake of good cooling the cylinder is of aluminium, provided with steel lining. in the engine bloc Is also the two-speed gearbox, controlled by the gear engaging handle on the LH side of the handlebars. Ignition is by magdyno with an output of 6V / 18W. The JIKOV carburettor with a 12 mm choke tube is provided with the suction silencer which together with an efficient exhaust silencer enables a very quiet run of the engine.

The Jawetta is standard supplied with an engine of 1½ HP output, on customer's request and according to the traffic regulations of the respective country it is also possible to supply engines with a smaller output – 0.8 and 1.1 HP or also with a greater one of up to 1.8 HP. An excellent quality of the Jawa 551 engine is its flexible run and a high output even at small revolutions, so that when riding on standard roads the engaging of the first gear is an exception.

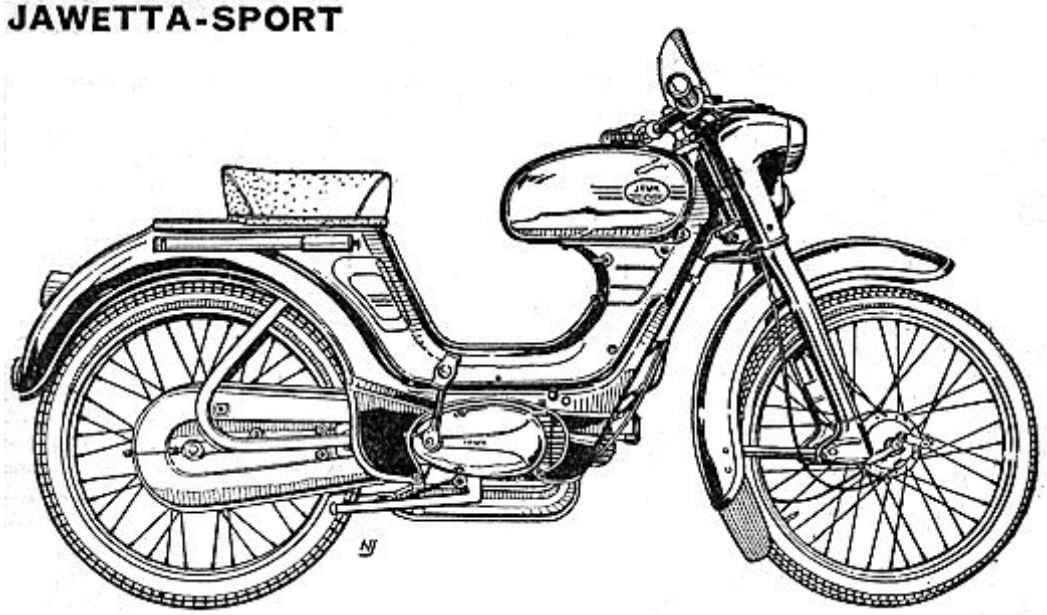
The springing of the Jawetta moped is very comfortable. In front this important function is provided by a pressed fork with short rockers. Its top part is formed by the nacelle in which the headlamp, electric horn, speedometer and light changeover switch are fitted on. In the rear is the sprung pivoted fork the pin of which is mounted on the supports of the engine bloc and automatically lubricated from the gearbox. The springing Itself Is provided by steel helical spring, anchored in the space under the saddle, on which the pivoted fork bears by its top end. The design is simple, attractive and perfectly functioning.

In the pressed frame in front is located the fuel tank, in the central part the suction silencer and air cleaner and in the top part the space for tools and petty parts. This space is accessible by means of a tipping up cover on the LH side of the motor-cycle. The inside frame space is therefore fully exploited. A carrier, fitted on the small platform, created by the rear mudguard is standard supplied. The saddle Is pivoted, sprung by adjustable steel spring.



JAWETTA DE LUXE

JAWETTA-SPORT



The last type Is Jawetta Sport Special which differs from the original Sport type by these changes: chrome-plated fuel tank, cigar-shaped silencers, tubular luggage carrier, tyres 2.25 x 23". It is standard supplied with the same engine outputs as the Sport model and in one colour scheme. On special request it is possible to obtain a two-colour scheme and a special stop-lamp.

We should like to draw your attention to the fact that the Jawetta Sport mopeds are equipped with carburettors and choke tube of 13 mm in dia. so that it is possible to increase easily their outputs. On the other hand the Jawa Works supplies all the above-mentioned types with an adjusted main drive for maximum speed of 30 km/hr. for the countries which permit this maximum speed for mopeds.

The wheels, size 23 in. are equipped with steel rims and tyres 23 x 2.00. The brakes are naturally full width hub, richly dimensioned. It goes without saying that this modern design has the advantage of complete encasing of the main drive.

Another model is Jawetta de Luxe which is different from the former type by the fuel tank from the Jawetta-Sport moped, knee protecting cowls and tyres size 2.25 x 23. This type is now standard supplied In one colour scheme with engines of 0.8 - 1.1 - 1.5 and 1.8 HP. On special request the Jawetta de Luxe moped is supplied in a two-colour scheme with additional tubular luggage carrier, cigar-shaped silencer, chrome-plated tank and special stop lamp.

From the Jawetta moped has been created especially for the youth a new model, the Jawetta-Sport, the shape of which resembles the sports motor-cycle, the desire of every young man. The handlebars of the Sport type are straight and narrow, covered by a fairing of laminates. On the fairing is fitted a racing windscreen of plexi-glass. Instead of the fuel tank, hidden In the frame, the sport model is equipped with a large fuel tank of sports type, with a capacity of 6.5 lt.

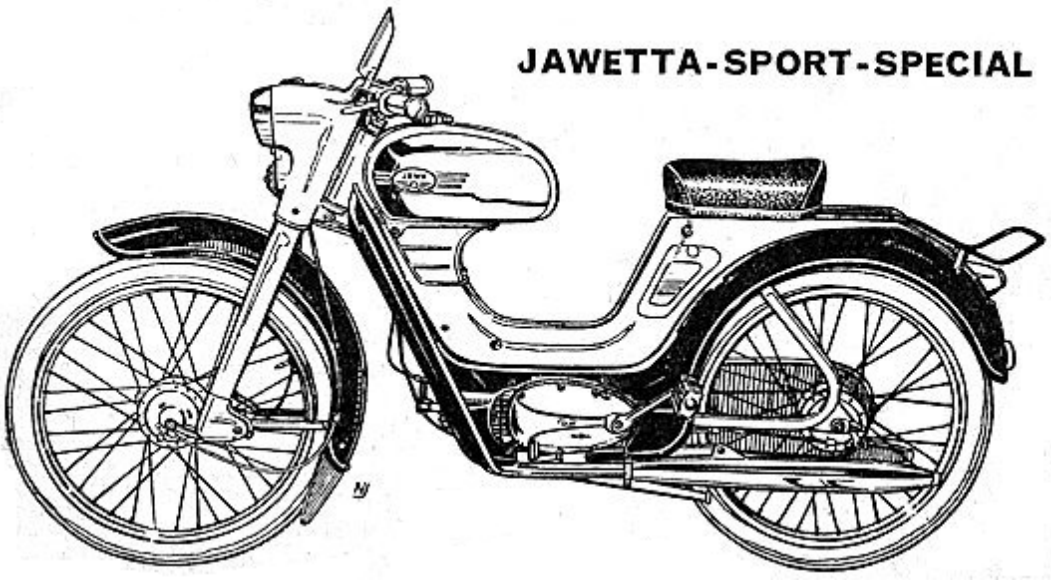
The saddle, too, is low with foam rubber padding. This moped is standard supplied in one colour with an engine of 0.8 - 1.1 - 1.5 - 1.8 HP. On special request it is possible to supply an additional tubular luggage carrier, one colour scheme, a chrome-plated fuel tank, tyres 2.25 x 23 and a special stop-lamp.

From Czech Motor Review issue 3 - 1961

Technical data:

Model	Jawetta	Jawetta-Sport
Engine	single-cylinder, two-stroke, air-cooled	
Bore/stroke mm	38/44	
Cylinder capacity	49.8 cc.	
Power output	1.5 HP at 4250 rpm.	1.8 HP at 5,000 rpm.
Ignition	6v / 18W magdyno	
Gearbox	two-speed	
Tyres	2.00 x 23 in.	
Brakes	80 x 16 mm in dia.	
Weight	42 kg (93 lbs)	45 kg (99 lbs)
Maximum speed	45 km p hr.	50 km p hr.

JAWETTA-SPORT-SPECIAL



JAWETTA MOPEDS AND THEIR MAINTENANCE

The JAWETTA moped is easy to handle and with its low fuel consumption it is a suitable means of transport for going to work as well as for pleasure riding. To make all the parts of the mopeds to do their duty as they should it is necessary to follow the instructions contained in the Operator's Manual, supplied with every machine. To answer some of the inquiries we shall deal in this article with the unpacking and putting the moped in operation as well as its maintenance as some users take delivery of machines packed, which are not previously adjusted at Agent's workshops, JAWETTA mopeds are mostly supplied in cardboard packing. So that protective packing of cardboard may be used it is necessary to dismantle some parts of the moped. This differs somewhat in the case of the Standard model and in that of the Sports model. In the following paragraph unpacking and putting in operation of the two models is described.

JAWETTA STANDARD, Model 551

The purpose of the cardboard packing is to protect the moped finish from damage during transport. It is first necessary to remove the saddle before the packing can be taken off. Slacken the saddle clamp nut (Fig.1, No.1), and pull the saddle out of the tube. After that remove the cardboard upwards. Having removed the cardboard replace the saddle on the tube (Fig.1, No.3) which is adjustable after slackening the screw (Fig.1, No.2) and tighten the clamp nut. The saddle should be at the most 20 mm (0.8 in) from the top edge of the tube as it might otherwise hit the screw head in the course of its suspension travel. Sufficient distance (20 mm - 0.8 in) should be also left between the frame and the edge of the saddle clamp. During transport the handlebars take the direction of the longitudinal axis of the moped and are in their lowest position. To bring the handlebars into their correct position proceed as follows:

Using spanner 11 slacken the handlebar bolt (Fig.1, No.4) by several turns and tapping the bolt head with a wood hammer free the handlebars. Rotate them into their correct position and adjust their height at 85 mm (3 11/32 in) between the bottom edge of the handlebars and the steering head.

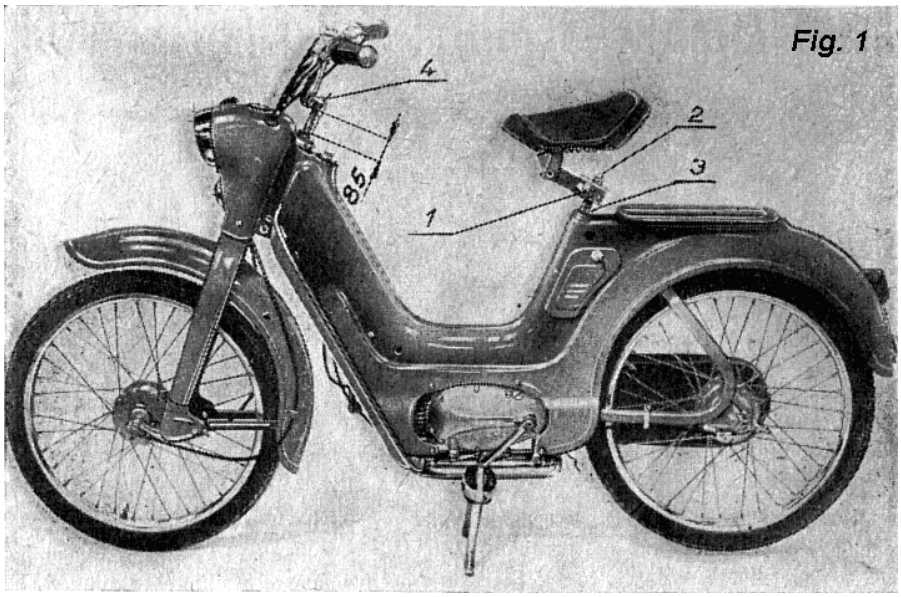


Fig. 1

For this height the length of control cables is provided for and the manufacturers do not recommend a different setting. After that tighten the handlebar bolt.

JAWETTA SPORTS, Model 551/02

In case of the Sports model the cardboard can be removed without taking off the saddle. Handlebar adjustment in the case of the Standard model is the same as in the case of the Sports model, the only difference being that the handlebars are in their highest position. The front brake control cable is disconnected from the brake back plate and the front brake lever is held with a rubber band to the handlebars in order not to damage the paintwork of the tank. Handlebar height is also different from that of the Standard model. The distance between the steering head and the bottom edge of the handlebars is 18 mm (0.7 in). After adjusting the handlebar height tighten the bolt. To be able to fit the handlebar enclosure the bolt has to be unscrewed (previous tightening is necessary to make the handlebars stay in their correct position after unscrewing the bolt). Fit the enclosure and the spacer between the two washers on the bolt and screw to the handlebars. The handlebar enclosure should sit on the headlamp nacelle.

As already mentioned the front broke cable is disconnected for transport. Connect the brake in the following manner:

Place the cable into its rest on the front brake back plate, pull it through the brake lever and screw the knurrled nut on. To adjust the brake turn the nut and make sure that the wheel rotates freely. As soon as it is found that the brake begins to act turn the nut backwards and try again the wheel for free rotation. When adjusting hold the bolt with the spanner in order not to twist the cable when turning the nut (Fig.3).

Otherwise the procedure is the same for both models

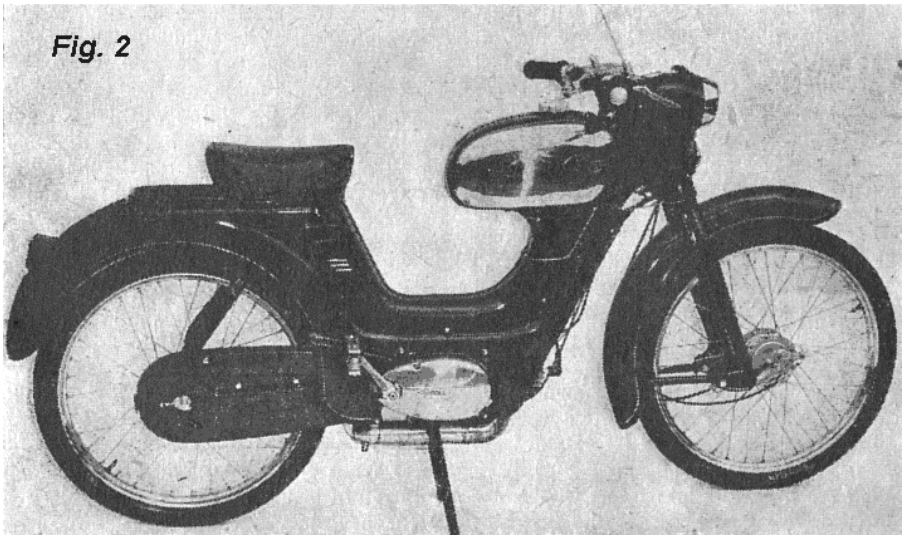


Fig. 2

Chromium plated parts of the moped are provided with anti-corrosive coat before dispatch. This protective layer can be easily removed with a soft cloth dipped in petrol. The pedals are located in the tool box for transport. Having taken them out screw them to the cranks. The L. H. pedal is marked with capital "L" on the face for the spanner and is left-threaded. The R. H. pedal is not marked and is right-threaded.

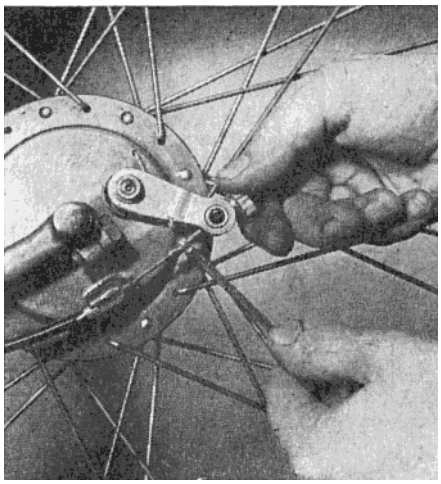


Fig. 3

Adjustment and Servicing

The Operator's Manual contains all the instructions for servicing, maintenance and repairing of minor faults. It is absolutely necessary to follow these in order to avoid unnecessary troubles.

In the following paragraphs we shall deal only with some of the most important instructions for adjustment and servicing the moped during the running in period.

Before putting the moped in operation it is necessary to check the gear changing. To check the gear changing proceed as follows: Place the moped on its stand, set the twist grip to zero and see whether the rear wheel rotates freely. Should this not be the case or if some of the gears keep catching set the correct neutral position with the adjusting screw located on the control cable leading from the enclosure above the cylinder head. This check should be carried out regularly after some time, as the gear change cable is liable to become extended after some time of operation. Make sure there is enough oil in the gearbox by unscrewing the oil level screw in the L.H. engine side cover (Fig.4, bottom arrow).

When starting the machine follow the instructions in the Operator's Manual. It is not recommended to start by coasting downhill without engaged gear as there is danger that the pinions in the gearbox might be damaged when engaging gear with the machine travelling. Therefore always start from standstill with bottom gear engaged and clutch depressed.

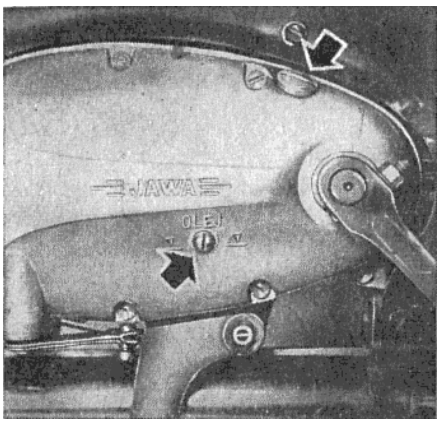


Fig. 4

After riding it is important to shut the fuel tap as with downdraught carburetters it may happen that fuel will flow into the cylinder if the fuel tap is kept open. A new machine has to be correctly run in before full use can be made of its power. Conscienciously and careful running in will prolong the life of the parts and therefore follow these instructions:

a) Before completing the first 300 miles (500 km) do not exceed the speed of 19 m.p.h. (30 km.p.h.). During non stop long runs it is recommended to cool the engine by opening and closing the throttle periodically. After stopping let the engine idle at its lowest speed. Do not use bottom gear unnecessarily long.

b) After completing 300 miles (500 km) make a thorough check of all screws and nuts for tightness. Move the carburetter throttle valve needle from fourth notch to second notch from top (the needle aims with its point downwards). Change the oil in the gearbox in the following way:

It is best to change the oil having finished riding while the engine and the oil are warm. Warm oil will take with it most of the impurities. Drain the oil with the draining screw (Fig.5) in the bottom portion of the crankcase and rinse the gearbox with flushing oil. To rinse proceed as follows: Close the draining hole and pour flushing oil (400 c.c.) through the filler hole (Fig.4, top arrow), screw the plug in and let the engine idle for 2 to 5 minutes (ride for a short distance or let the engine run with the moped on its stand). Change gears and after that drain the flushing oil into a clean vessel and leave it to settle. The clean part of the flushing oil can be used again next time. Never rinse the gearbox with paraffin or fuel oil, their residues would spoil the fresh oil. Fill the gearbox with fresh summer or winter oil (according to the period of the year). Check the oil for correct level as described above.

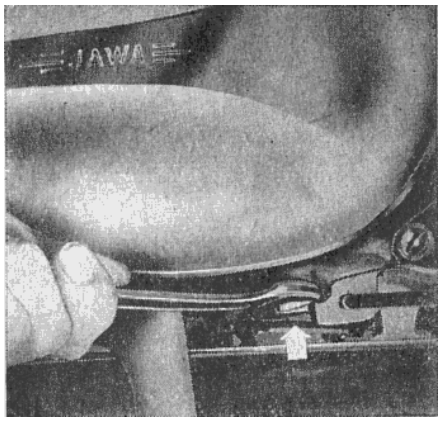


Fig. 5

Fill the front fork lubricators with motor car grease and lubricate the link pins by tightening the lubricators from time to time.

Before completing 900 miles (1500 km) do not exceed the speed of 25 m.p.h. (40 km.p.h.). After 900 miles (1500 km) the moped may be considered as run in and there is no more speed limit.

c) After the first 900 miles (1500 km) change again the oil in the gearbox as described in paragraph b. Refill the front fork lubricators with motor car grease. Having completed 900 miles (1500 km) it is necessary to burn out the exhaust silencer core. After slackening the rear brake control cable, unscrew the spindle nut, remove the spring washer and free the wheel spindle pushing it to the R.H. side. On the L.H. side remove the brake reaction anchor, take the wheel off the dogs and remove it. Unscrew the nut with the perforated core from the exhaust silencer end. Burn the core out with a flame to make burn the carbon deposits. (Soldering lamp, in an oven or pouring petrol over the core, etc.).

With careful servicing of your run in moped you will make it a cheap and reliable means of transport. The time and work spent on servicing will bring a manifold return in the form of comfortable and pleasant riding.

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