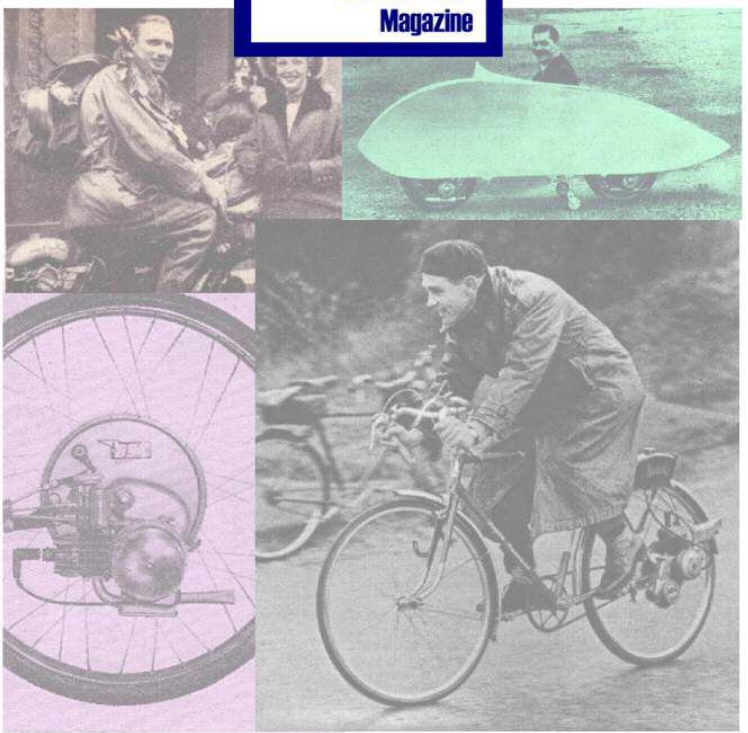
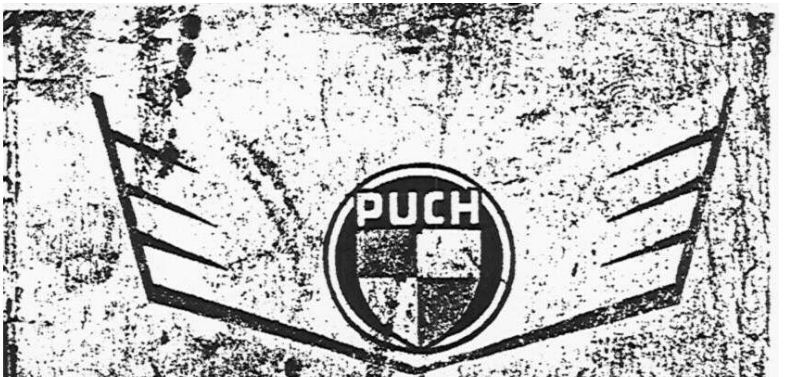
IceniCAM
Information Service

The Iceni
CAM
Cyclemotor Autocycle C Moped
Magazine





Mo-Ped / Cyclomoteur / Ciclomotor

MS 50 L / MS 50 V / VS 50 L / VS 50 K

VS 50 D / DS 50 / DS 50 K

The most important things in brief

Le plus important en peu de mots

Lo más importante en pocas palabras

ENGLISCH — FRANZOSISCH — SPANISCH

We are just as pleased as you are over your purchase of a

PUCH Mo-Ped.

in recompense for your confidence in our achievement we can offer you all the experience gathered in half a century of bicycle and motor cycle making.

In spite of its light and graceful construction the PUCH mo-ped is just as robust and reliable as the world-renowned PUCH motor cycles.

Riding a mo-ped is child's play: on you get and off you go!

Neverthless, we must ask you to read this booklet carefully, so that you know exactly how to handle your new mo-ped in order to ensure long years of faithfull service. We won't keep you long. We just want to tell you the most important things about your mo-ped as concisely as possible. You yourself will reap the benefit.

In general, these operating instructions apply to all models. However, where differences in the equipment call for different handling of the machine, this will be specially noted in the respective chapters. Analogously, the present instructions will apply to further variations of the existing models, and to all VS models with 60 c.c. piston displacement.

TECHNICAL DATA

VS 50 L

Engine:

PUCH two-stroke single-piston engine with reverse scavenging, forced-air colled by radial blower, de-compressor.
Bore: 38 mm. (1.5 in.), stroke: 43 mm. (1.7 in.), piston displacement: 49 c.c. (3 cu. in.). Compression ratio: 6.5 : 1. Sparking advance: 2.5 mm. (0.0984 in.) bTD. Lubrication: engine lubrication by oil added to the petrol (gasoline) at a ratio of 1 to 25, i. e. 4 per cent. Spark plug: BOSCH W 225 T 1.

Carburettor:

Bing carburettor, 12 mm. (0.47 in.) intake diameter, with needle jet; float chamber ventilated from inside. Jet needle clamped into second notch from its top end; main jet No. 60; choke; selfwetting air filter; small intake silencer;
or
Bing carburettor, 12 mm. (0.47 in.) intake diameter, with needle jet; float chamber ventilated from outside (Blue point). Jet needle clamped into second notch from its top end; main jet No. 50; choke; selfwetting air filter; big intake silencer.

Gearbox:

Two-speed gearbox with twist-grip control on the left handlebar and plate clutch running in oil bath.

Transmission ratios: Engine-gearbox: 58 : 16; i = 3.63. Gearing: 1st speed: 28 : 10; i = 2.8; 2nd speed: 23 : 16; i = 1.44; gearbox-rear wheel: standard: 34 : 11; i = 3.09; optional: 34 : 12; i = 2.83; or 34 : 10; i = 3.4. Gearbox lubricated by oil filled into transmission case.

Power transmission:

From engine via clutch to gearbox by precision-made helical gears, from gearbox to rear wheel by roller chain $^1/_2 \times {}^3/_{16}$".

Electrical equipment:

A. C. flywheel magneto ignition lighting generator 6 V/17 W, made by BOSCH. Head lamp: light outlet 85 mm. (3.34 in.), Bilux bulb 15/15 W. Tail light: 6 V/2 W.

Chassis:

Frame: stressed pressed-steel frame of box section design, similar to the frame of the PUCH motor cycles 175 SV and 250 SG. Springing: Front: telescopic fork with hydraulic damping, all sliding surfaces being automatically lubricated. Rear: swinging arm, the bearings and teledraulic legs requiring no maintenance. Telescopic shock courses: front 60 mm. (2.36 in.), rear 40 mm. (1.57 in.). Closed chainguard. Steering angle: 63°. Trail: 85 mm. (3.34 in.).

Road wheels:

Front wheel fitted with internal expanding brake of full hub width, 105 mm. (4.13 in.) in diameter, and 25 mm. (0.89 in.) wide, operated by means of a hand lever on

the right handlebar and control cable. Rear wheel fitted with internal expanding brake of full hub width, 105 mm. (4.13 in.) in diameter, and 25 mm. (0.98 in.) wide, operated by means of pedals and control cable. Knockout spindles front and rear. Tyres: 23" × 2.25", dynamic diameter: 584 mm. (23 in.). Spokes: 2.5 ϕ × 190.

Fuel tank with feed tap and reserve valve:

Capacity: 5.5 litres (1.21 Imp. gal.). Tool box built into fuel tank.

-716

Saddle:

A large, comfortable saddle with springing in front hinge and a double-layer rubber top. Height adjustable; lowest saddle position 830 mm. (32.68 in.) above ground level.

Equipment:

Closed chainguard, front and rear wheel mudguards now with larger valances; two tool bags, one at either side of rear mudguard; speedometer; steering lock; center prop stand; bell; tool kit; tyre pump.

Performance and Fuel Consumption:

Maximum output of engine 2.3 h.p., maximum speed 50 km.p.h. (31 m.p.h.), but throttled to conform with the various speed limits enforced by different countries. In Austria throttled down to 40 km.p.h. (25 m.p.h.) to meet the requirements of existing traffic regulations with a corresponding output of 1.5 h.p.

Hill-climbing ability: in 1st (bottom)

at max. output:	20	per cent.
throttled:	19	per cent.

Hill-climbing ability: in 2nd (top)

at max. output:	9.5	per cent.
throttled:	9	per cent.

Fuel consumption: 1.6 litres per 100 km. = 177 miles to the Imp. gallon at 40 km.p.h. (25 m.p.h.).

Starting Device:

There are three ways of starting:

(1) Starting the stationary mo-ped, just like a motor cycle;

(2) starting the engine with the mo-ped jacked up on the stand;

(3) starting by pedalling, like a bicycle.

Length of tread crank: 135 mm. (5.32 in.). Decompressor operated by hand lever and control cable on the right handlebar.

Dimensions:

Overall height: 990 mm. (38.98 in.), maximum width: 625 mm. (25 in.), wheel base: 1160 mm. (45.67 in.), overall length: 1810 mm. (71.26 in.), ground clearance: 140 mm. (5.51 in.).

Weights:

Dry weight: 55 kg (121 lbs.), curb weight: 59 kg (129.9 lbs.), total permissible weight: 145 kg (319 lbs.).

Sundries:

Touring handlebar; if required, the mo-ped can be supplied with a sports-type handlebar, or with a special handlebar for very tall riders.

VS 50 K

The scooterette VS 50 K offers:

Engine with kickstarter, a
weather shield to protect the rider's legs,
foot boards fitted with rubber strips, a
foot-operated brake pedal, an
electric rattle, a
sports-type handlebar, whilst

all other details are the same as in model VS 50 L.

VS 50 D (Three-speed) Differences to VS 50 L

Gearbox:

Three-speed gearbox with twist grip control on the left handlebar and plate-clutch running in oil bath.
Transmission ratios: Engine-gearbox: 72 : 18; i = 4; Gearing: 1st speed: 39 : 12; i = 3.25; 2nd speed: 34 : 17; i = 2; 3rd speed: 24 : 19; i = 1.26; Gearbox-rearwheel: 35 : 11; i = 3.18.

Springing: Shock courses: front 60 mm; rear 85 mm.
Weight: Dry weight 58 kg, total permissible weight 160 kg.
Hill climbing ability: in 1st gear 24%; 2nd gear 14%; 3rd gear 9%.

MS 50 L

Carburettor:

Bing carburettor, 12 mm. (0.47 in.) intake diameter, with needle jet: float chamber ventilated from inside. Jet needle clamped into second notch from its top end; main jet No. 58; choke; selfwetting air filter; small intake silencer.

Brakes:

Internal expanding brakes of 90 mm. (3.54 in.) diameter and with 20 mm. (0.79 in.) wide linings.

Fuel tank capacity:

4.6 litres (1.012 Imp. gal.). Chainguard open.
No tool bags at the sides.

Weight:

43 kg (95 lbs.).
All other data the same as for VS 50 L.

DS 50

Which is different in the technical datas of the above model VS 50 L as follows:

Three-speed motor:

see section gear, model VS 50 D. Gear ratios: see model VS 50 D; the rear wheel however with 31 : 12, i = 2.58.

Frame:

Of sheet iron, pressed shell construction, closed design, lockable luggage room.

Acting on the rear wheel by means of a foot-operated brake on right side.

Suspension :

Pivoted fork (no maintenance required for the bearing) and telescopic suspension. Telescopic shock course: in front: 80 mm, rear: 85 mm.

Tires :

3.00—12 (Moped).

Saddle :

Cross-seat for 2 persons.

Dimensions :

Total length 1680 mm., wheel base 1150 mm., total height 940 mm., largest width of handlebars 580 mm.

Weight :

dead weight 63 kg.

Note :

The vehicle is fitted with a protective shield and foot plates which have ample size for the feet of driver and passenger.

DS 50 K

All designs like model DS 50, but engine with kickstarter.

Design and construction subject to change!

OPERATING LEVERS

1. Throttle twist grip (Fig. 1, No. 1)
   On the right handlebar. It operates (Fig. 2: 1 shut throttle, 2 open throttle) the carburettor (adjustable Bowden cable).
2. Hand brake lever (Fig. 1, No. 2)
   On the right handlebar. It actuates the front wheel brake (adjustable Bowden cable).
3. Clutch control lever (Fig. 1, No. 3)
   On the left handlebar. It disengages the clutch (adjustable Bowden cable).
4. Gear shift twist grip (Fig. 1, No. 4)
   On the left handlebar. It serves to change gears (two adjustable Bowden cables). Positions: 1st speed ("1"), neutral ("0"), 2nd speed ("2"). It can be operated only when the clutch lever is pulled. Gears should be changed only while the engine is running or the moped is moving.
   With three speed models position 3rd speed ("3") also.
5. Dimmer switch combined with short-circuit button (Fig. 1, No. 5)
   On the left handlebar. It serves to switch on and off bright light and passing light respectively.
   In model VS 50 K the dimmer switch is combined with the horn button (on the left side), which actuates the electric rattle, and with the short-circuit button (front) for stopping the engine. With model DS 50 the dimmer switch (Fig. 1a, No. 1) is on right side (combined with short-circuit button). With model DS 50 K there is placed on r. h. side the dimmer switch combined

with horn button and on l. h. side the short-circurit button.

6. Choke button (Fig. 1, No. 6)
   In the middle of the handlebar. It operates the choke (adjustable Bowden cable). (DS 50 see Fig. 1a, No. 2.)
7. Head lamp (Fig. 3)
   On the head lamp, for switching the light on and off. (Model VS 50 D: two lighting positions: Parking light and head light.)
8. Fuel feed tap (Fig. 4)
   Below the fuel tank, on the right-hand side. Positions: "Off" („Zu") (Fig. 4), "On" („Auf") (Fig. 5), and „Reserve" (Fig. 6). You can go about 10 km (6 miles) on reserve fuel.
9. Pedals (on VS 50 L, VS 50 S, VS 50 D, MS 50 L)
   Bearings inside the engine crankcase. Their functions are:
   (a) Starting the engine (DS 50 also)
   (b) Serving as foot rests
   (c) Operating the coaster braker
   (d) Auxiliary pedalling on upgrades of more than 20 per cent (24 per cent).
10. Kickstarter (on VS 50 K and DS 50 K only) for starting the engine.
11. Foot-operated brake pedal on the right-hand side foot board [on VS 50 K and DS 50 (K) only]. It operates the rear wheel brake (adjustable Bowden cable). The rider's feet rest on the foot boards.
12. The bell signal is operated via a Bowden-cable by means of a small lever on the right turning handle (Fig. 1a, No. 3).

BEFORE RIDING THE MO-PED

A. Check oil level in gearbox:

1. Unscrew dipstick (Fig. 7), wipe it dry, screw it in and out repeatedly.
2. Oil quantity is correct when oil level is between the marks (200—270 c.c.). (For three-speed models 300—350 c.c.)
3. If the oil level is below the bottom mark, fill up with branded gear oils only; in summer use SAE 40—50, in winter SAE 20—30 oil.
4. If the oil level is above the top mark, loosen drain plug (Fig. 8), drain a little oil, wipe dipstick before measuring oil level again.
   Screw up dipstick completely every time you measure the oil level.

B. Check oil level in telescopic front fork:

(Not for DS 50 and DS 50 K)

1. Unscrew both clamping screws (Fig. 9) by 2—3 turns, so that the socket wrench can be inserted from below. In the VS models the grease nipple of the speedometer drive on the right-hand side must also be unscrewed.
2. Loosen nuts of the spring supporting bolts (Fig. 10).
3. Press spring supporting bolts upwards.
4. If oil issues, tighten nuts immediately.
5. If no oil issues:
   (a) Unscrew fork tube nut (Fig. 11, No. 1).

(b) Remove holding screws (Fig. 12).
(c) Pull head lamp braket upwards (Fig. 13, No. 1).
(d) Unscrew oil screws (Fig. 13, No. 2).
(e) Fill 40 c.c. of engine oil into each fork leg, using SAE 30 oil in summer, SAE 20 oil in winter.

C. Check tyre pressure:

Front wheel: 1.75 atü (25 psi)
Rear wheel: 2.25 atü (32 psi)

D. Fill up with petroil mixture:

Petrol (gasoline) and branded engine oil SAE 50 (see Oil Table!) at a ratio of 1 to 25 (= 4 per cent), i. e. 40 c.c. oil to 1 litre of petrol.

Attention! Never fill up with pure petrol (gasoline)!

A. Open fuel feed tap (Fig. 5).

B. Pull choke button (only when starting from cold) (Fig. 11, No. 2).

C. Starting the engine (VS 50 L, VS 50 S, VS 50 D, DS 50 and MS 50 L).

I. The easiest way of starting is the following one, on the stationary mo-ped:
1. Pull clutch lever, engage neutral gear ("0").
2. Bring one pedal to its top position (Fig. 14).
3. Release clutch lever.
4. Open throttle about one third of its way.
5. Step smartly on raised pedal.
6. If choke was pulled, push it back gradually as soon as the engine is running.

II. At very low temperatures it may prove necessary to crank the engine over for some time by means of pedalling. In that case apply the second possibility of starting:
1. Prop up mo-ped on stand.
2. Mount it.
3. Pull clutch lever and shift to neutral ("0") while simultaneously turning over the pedals.
4. Release clutch lever.
5. Open throttle about one third of its way.

6. Go on pedalling but continue treading until engine starts.

(7. If choke pas pulled, push it home graually.)

Before starting the mo-ped, it is advisable to depress tickler for a short period.

III. Finally, you can start your mo-ped in the manner generally applied. This is as follows:

1. Pull clutch lever, engange 2nd speed ("2") while simultaneously treading the pedals.
2. Get on and begin pedalling as on a bicycle, slowly release clutch lever.

(3. If choke was pulled, gradually push choke button home again.)

Starting (DS 50 K and VS 50 K)

1. Open throttle about one third (turn up twist grip about one third of its way).
2. Step smartly on kickstarter pedal. (DS 50 K: in forward direction, VS 50 K: in backward direction.)
3. If choke was pulled, push it home gradually as soon as engine is running.

D. Moving off. (This does not apply, if the engine has been started according to method III, above.)

1. Declutch, engage 1st speed (Fig. 15).
2. Slowly release clutch lever, at the same time opening throttle.
3. Place feet on pedals (or foot boards). Do not pedal backwards!
4. Open throttle still wider until normal cycling speed (about 10 km. = 6 m.p.h.) is reached. The first gear which you have been using up till now is for starting and going uphill. For normal riding the 2nd gear is used (resp. 3rd gear).

E. Changing to second gear. (This does not apply, if the engine has been started according to method III, above.)

1. Throttle down.
2. Pull clutch lever at once, shift to 2nd speed.
3. Release clutch lever.
4. Open throttle.

F. Changing to third gear

[for VS 50 D and DS 50 (K) only] see point E, above.

Continue to open the throttle till top speed has been attained. Then throttle back to about 3/4 throttle. The loss of speed will be hardly perceptible, while there will be a considerable drop in fuel comsumption. Regulate speed by means of throttle which should always be opened very gradually. Jerky opening up of throttle increases fuel consumption. Slow down by closing throttle.

Braking

The mo-ped has two brakes of ample dimensions. The front wheel brake is operated by means of the right-

hand side hand lever, whereas the rear wheel brake is actuated either by back-pedalling or by depressing the foot-operated brake pedal. Make it your habit to use both brakes simultaneously and do not be afraid of applying the front wheel brake! Its effect is even greater than that of the rear wheel brake, due to the increasing load on the front wheel during the braking operation. Only when the road is slippery in rainy weather, or when it is icy, caution is advisable. Reduce your speed already when approaching a bend. Braking in the bend increases the danger of skidding. Violent braking on a slippery bend, especially the application of the front wheel brake, is dangerous.

The braking effect of blocked wheels is very poor, the danger of skidding, however, is increased. Therefore, use the brakes gently, not forcefully. They are soft and highly effective, which makes correct braking very easy.

G. Changing down

1. Throttle back.
2. Pull clutch lever, shift to lower speed.
3. Release clutch lever.
4. Open throttle quickly.

Change down,

1. when the speed drops perceptibly on upgrades;
2. when you are forced to ride slowly, e. g. in town traffic.

H. Stopping

1. Throttle back.
2. Apply brakes.
3. Shortly before stopping pull clutch lever, shift to neutral.
4. Release clutch lever.

If you wish to stop the engine,

5. Press short-circuit button.
6. Shut fuel feed tap.

I. Riding by pedalling, with the engine stopped (only VS 50 L, VS 50 S, VS 50 D, DS 50 and MS 50 L).

1. Disengage clutch, engage 2nd (3rd) speed while stepping on pedal.
2. Get on and ride mo-ped like a bicycle while pulling the clutch lever.
3. Before stopping change back to neutral.

CLEANING AND MAINTENANCE

Cleaning is the fundamental element of all maintenance. The large, smooth surfaces of the PUCH moped make it very easy indeed. A sharp jet of water should be avoided, as it is detrimental to the paint and involves the danger of water getting into brakes and bearings or penetrating into carburettor and ignition, thus causing trouble. The best method of exterior cleaning is to use a big, soft sponge. The dirt should first be washed off with plenty of water, since rubbing the point with a half-dry sponge would cause tiny grains of sand to scratch the finish and destroy its lustre. The surface should be wiped dry with chamios-leather. The application of some mild paint wax after the washing is very much to be recommended, as it will preserve the attractive apprearance of the vehicle for a long time.

Even the bright parts will be grateful for a modest measure of maintenance. It is advisable to clean them from time to time, especially before the mo-ped is laid up for the winter. After the cycle has been operated for some time, the engine case will be dirty. The simplest way of cleaning it is washing with a tepid solution of some soap flakes or washing lotion.

After the initial 500 km (300 miles)

Change oil in gearbox:

1. Ride mo-ped until engine gets warm.
2. Remove dipstick (Fig. 7).
3. Remove oil drain screw plug (Fig. 8).
4. Drain oil.
5. Screw in oil drain screw plug.
6. Fill up with 250 c.c. of rinsing oil.
7. Screw in dipstick.
8. Start engine, let it run for a short while, and stop it.
9. Remove oil drain screw plug.
10. Drain off rinsing oil.
11. Screw in oil drain screw plug.
12. Fill gearbox with gear oil (in summer use SAE 40—50 oil, in winter SAE 20—30 oil) until notch on dipstick is reached (200—250 c.c.). For three speed models 300—350 c.c. (Screw up dipstick completely every time you measure the oil level!)
13. Screw in dipstick.

After every 500—1000 km (300—600 miles), depending on whether the machine has been subjected to great strain

Clean and oil chain:
This work should be done whenever the chain is dirty or dry. The life of the chain depends on its maintenance.
Lubricate bearings:

1. Prop stand: see Fig. 17.

2. Brake and clutch levers: oil sliding surfaces of levers.
3. Throttle twist grip and throttle cable:
   Raise cover of hand lever bracket (Fig. 18), oil sliding surface of twist grip and cable ferrule opening, turn twist grip both ways several times, and replace cover.
4. Gearshift twist grip: Turn handlebar to the left, tilt mo-ped to the right, oil sliding surfaces.
5. Clutch operating cable: oil wire, pull clutch lever several times.
6. Choke operating cable: Pull choke, grease bolt, operate wire several times.
7. Front brake cable: oil wire.

Clean air filter:

1. Remove clip (old model), or remove cover bearing inscription PUCH together with pressure spring.
2. Take out filter element.
3. Wash filter element in pure petrol (gasoline).
4. Dip filter element in engine oil for a short time and allow oil to drip off.
5. Fix filter element by means of clip, or with cover and pressure spring.

Grease speedometer drive at grease nipple on the front brake cover plate (VS models). On type MS the grease nipple is situated on the speedometer drive itself.

Oil speedometer cable:

1. Unscrew union nut (Fig. 28, No. 1) of the bottom connection.

2. Oil cable.
3. Re-connect cable.

After every 3000—5000 km (2000—3000 miles)

Check oil level in gearbox:

Grease knock-out spindles and chain tension adjusters:

1. Knock-out spindles: dismantle spindles and oil them.
2. Oil threads of chain tension adjusters.

In addition to this routine maintenance, these jobs should be performed every time the wheels have been removed.

Grease hinge bearings of saddle.

Clean exhaust silencer (VS models):

1. Unscrew nut and lock nut (Fig. 19, No. 1) in exhaust outlet.
2. Pull off exhaust end pipe (Fig. 19, No. 2), remove and clean baffles.

Assemble in reversed order.

With model MS only the end pipes of the silencer are freed from oily deposits.

Grease brake shafts on brake cover plates (not more than 1—2 shots from the grease gun). With model MS they are only oiled.

Decarbonize exhaust port:

1. Loosen fixing nut of swinging arm (VS models). With type MS the exhaust silencer is screwed on by means of the bottom engine retaining bolt (Fig. 19a).

2. Unscrew exhaust pipe.
3. Turn exhaust pipe and silencer downward.
4. Engage second gear, rotate engine by means of the rear wheel until the piston reaches its B.D.C.
5. Cautiously remove oil carbon deposit from exhaust port, taking care not to damage piston or cylinder liner.
6. Assemble exhaust in reversed order of dismantling.

Have the lubricator felt pad of the contact breaker greased by an authorized PUCH workshop.

Tighten engine retaining bolts:

Remove left-hand side tread crank and left-hand side rear crankcase cover, then tighten bolts (VS models). With type MS the blower louvre cover must be removed prior to this operation.

After every 8000 km (5000 miles)

Renew oil in gear-box and telescopic fork.

After every 15.000 km (9000 miles)

Grease bearings of road wheels.
This job should be performed by a workshop.

How to Lay up the Mo-ped for the Winter

If you wish to lay up your mount for the winter and get the same amount of enjoyment out of riding it next spring, we would advise you to observe the following rules:

1. Ride the mo-ped until its engine is really warm, then drain oil from gearbox and primary drive, fill up gearbox with fresh oil.

2. Thoroughly remove dust, dirt and oil from its exterior.
3. Clean all rust spots.
4. Grease all bright, unpainted parts with some acid-free grease.
5. Grease all grease nipples with grease gun until fresh grease issues. (Beware of excessively greasing the brake toggles!)
6. Thoroughly clean rear chain and lubricate it with some thick oil.
7. Treat all painted parts with some paint-wax.
8. To prevent the fuel tank from rusting fill it right up. However, if the room in which you wish to lay up your mo-ped is not fireproof, drain the tank completely and rinse it outh with oil. The fuel feed tap should be shut in any case.
9. Unscrew spark plug and remove carburettor, bring piston to T.D.C., fill 30 c.c. engine oil through intake port into cylinder, rotate engine several times by means of pedals, screw in spark plug and fit carburettor.
10. Inflate tyres to correct pressure.
11. Put mo-ped into some dry room, jack it up on stand, and cover it with canvas or packing paper.
12. Every two or three weeks rotate engine several times with the fuel feed tap closed.

It is very dangerous to start and run the engine of the laid-up mo-ped for a short while from time to time, because the engine will not get sufficiently hot in the course of this procedure, vapour will condense from the fuel, which will cause bearings and cylinder liner to rust.

How to prepare the mo-ped for operation:

1. Rotate engine several times. For this purpose, the spark plug has to be unscrewed, the crankcase venting screw opened, the fuel feed tap shut.
2. Screw in spark plug, start engine.

WHEN IN DIFFICULTIES

The engine fails to start; the running engine stalls . . .

because	therefore
1. the fuel feed tap is shut,	open fuel feed tap (Fig. 5), or switch it over to "Reserve" (Fig. 6).
2. the fuel tank is almost or completely empty,	switch fuel feed tap over to "Reserve" (Fig. 6), or fill up with mixture.
3. spark plug has become dirty,	clean spark plug.
4. spark plug is defective,	change spark plug.
5. gap of breaker points is incorrect,	bend ground electrode until gap is 0.5 mm.
6. spark plug cable is loose or has come off,	fix spark plug cable socket.
7. it is getting too much or too little gas,	open throttle about 1/3.
8. (a) the mo-ped was leaned against some object and has fallen down, or (b) the choke was pulled although the engine was warm,	start engine according to method III. If the engine is badly flooded, drain fuel mixture from crankcase by loosening oil drain plug (Fig. 20).

9. the fuel pipe is clogged,	blow through the fuel pipe.
10. the fuel feed tap is clogged,	have it cleaned by a PUCH agent.
11. the main jet is clogged,	clean main jet.
12. there are foreign bodies in the valve seat of the float needle,	clean valve seat.
13. the float needle is not in the notch,	dismantle float, move needle until it registers in the notch.

The engine runs irregularly or intermittently . . .

because	therefore
1. there is too little fuel in the tank,	turn fuel feed tap to "Reserve" (Fig. 6), fill up with fuel mixture.
2. the carburettor is loose,	tighten carburettor holding screws.
3. the float leaks,	exchange the float.
4. the spark plug cable is loose,	fix spark plug cable socket.
5. the spark plug is defective,	change spark plug.
6. the mixture is faulty,	empty fuel tank, fill up with correct mixture, ratio 1 to 25 (= 4%).

Poor Performance

because	therefore
1. choke is perpetually pulled out,	push back choke.
2. exhaust is clogged,	remove oily deposits from exhaust.
3. the carburettor is loose,	tighten holding screws of carburettor.
4. the spark plug is defective,	exchange spark plug.
5. the brakes catch,	adjust the brakes.
6. the clutch slips,	adjust clutch.
7. the exhaust port is clogged,	decarbonize exhaust port.
8. the float leaks, the float needle is deformed (jams),	check, and if necessary, exchange parts of the float chamber.
9. the air filter is clogged,	clean air filter.
10. the fuel mixture is faulty,	empty fuel tank, fill up with correct mixture, ratio 1 to 25 (= 4%).

MAINTENANCE WORK

If there is any work to be done that you feel you cannot carry out yourself, turn to your PUCH agent for advice. He will only be too glad to help you.

Changing (cleaning) the Spark Plug

1. Remove spark plug cable from spark plug.
2. Unscrew spark plug by means of spark plug spanner (Fig. 21).
(3. Clean electrodes.
Test spark plug (4.—7.)
4. Put spark plug socket on new (cleaned) spark plug.
5. Place plug thread against a bright engine part ("ground it").
6. Rotate engine by means of pedals. Powerful sparks must now jump from electrode to electrode. If this is not the case, the electrodes must be cleaned, or their gap corrected.
7. Take off spark plug cable.
8. Screw in spark plug 2—3 turns by hand.
9. Tighten spark plug with spark plug spanner.
10. Put on spark plug cable socket.

Removal of Front Wheel (For DS 50 see next page.)

1. Loosen the clamp bolts at both fork lugs (Fig. 9) with spark plug wrench.
2. Unscrew lock nut of knockout spindle (with VS models on the left-hand side, looking in the direction of motion) by means of the spark plug wrench (Fig. 22), while, holding the opposite end of the spindel with an inserted mandrel. On the MS models the lock nut of the knockout spindle in on the right-hand side.
3. Disengage brake control cable (this applies to VS models only; it is unnecessary with MS models); for this end unscrew the forward lock nut (Fig. 22, No. 3) of the adjusting screw (Fig. 22, No. 4), then turn back the rear lock nut (Fig. 22, No. 5) so that the cable becomes slack and the wire nipple can be unhooked at the brake lever (Fig. 22, No. 6). Then pull out adjusting screw and slip wire through slot in the bracket on the brake cover plate.
4. Unscrew speedometer drive cable (only VS models): for this end unscrew union nut (Fig. 28, No. 1) of the drive cable and pull out cable.
5. Pull out knockout spindel with the inserted mandrel and remove wheel. On type MS detach brake cover plate and leave it hanging from brake control cable. On the models with full-hub brakes the brake cover plate (Fig. 28, No. 2) can be detached for the purpose of exchanging the brake shoes or spokes only after the slotted nut has been unscrewed in a workshop.

Removing of front wheel (DS 50):
Remove the knockout spindle with rough-thorn from the thread of the right swing arm. Loosening of the tachometer shaft and brake cables see model VS 50.

Mounting the Front Wheel

Proceed in reversed order of dismantling. Fit brake stop

tube (Fig. 22, No. 1) of the right-hand side sliding tube into the recess (Fig. 22, No. 2) of brake cover plate. Before fitting the knockout spindle put washer on it. Compress telescopic fork several times, then tighten clamp bolts (Fig. 9).

Removal of Rear Wheel (For DS 50 see next page.)

1. Unhook brake control cable (this applies to VS models only, not to type MS): for this end pull off securing spring (Fig. 23, No. 2) of retaining bolt (Fig. 23, No. 3), pull out retaining bolt and take brake control wire out of its support in the brake cover plate (Fig. 23, No. 4).
2. Loosen fixing clip of brake cover plate (VS models only), after removal of securing spring and retaining bolt.
3. Open chainguard (all VS and DS models) after unscrewing two nuts (Fig. 24, No. 1) and removing chainguard rear part (Fig. 24, No. 2).
4. Unscrew knockout spindle (on the left-hand side, looking in the direction of motion, on VS models; on the right-hand side on type MS) by means of spark plug wrench (Fig. 24, No. 3).
5. Pull out spindle by means of inserted mandrel. Push rear wheel forward a little way, so that chain (Fig. 25, No. 1) can be lifted from chain sprocket (Fig. 25, No. 2). Hang chain on threaded stud to prevent it from slipping forward.
6. Tilt mo-ped slightly and remove rear wheel downward. On type MS detach brake cover plate and leave it suspended from the brake cable (Fig. 25a). The brake cover plate of the full-hub models can be removed only after the pressed-on thrust ring has been detached (to be done by a workshop).

Removing of rear wheel (DS 50):
See model VS 50; however, when removing the brake cable from the support on the mounting plate, the counter nut (Fig. 23a, No. 1) of the cable line adjusting screw (Fig. 23a, No. 2) must first be removed.

Mounting the Rear Wheel

Proceed in reversed order of dismantling. When interting the knockout spindle slip chain tension adjusters and washers on to it.

Chain Tensioning

You should be able to move the chain up and down easily by 10—15 mm. (0.4—0.6 in.) halfway between front and rear chain sprockets.

1. Loosen knockout spindle (Fig. 24).
2. Tighten both chain tensioning nuts (Fig. 26) by an equal number of turns until chain tension is correct. If he chain is too tightly stretched, both chain tension nuts must be loosened a little, but always by an equal number of turns. Before tightening the lock nut of the knockout spindle make surre that the distance between wheel and mudguard (fender) part of the frame is exactly the same on both sides.
3. DS 50: When stretching the chain it is absolutely necessary to charge the rear seat of the mo-ped, which will only enable a real and correct control.

Clutch Adjustment

The clutch release lever (Fig. 27, No. 1) attached to the crankcase cover must have a play of 2—3 mm. (0.08 to 0.12 in.) measured on the outside.

1. Hold clutch cable adjusting sleeve (Fig. 27, No. 2) at the eye of the crankcase cover.

If the clutch has excessive play, proceed as follows (2a—4a):

2a) Loosen forward lock nut (Fig. 27, No. 3) by a few turns.

3a) Turn rear lock nut (Fig. 27, No. 4) in the same direction until play is correct.

4a) Re-tighten forward lock nut.

If the clutch has too little play, proceed as follows (2b—4b):

2b) Loosen rear lock nut (Fig. 27, No. 4) by a few turns.

3b) Turn forward lock nut (Fig. 27, No. 3) in the same direction until play is correct.

4b) Re-tighten rear lock nut.

Brake Adjustment

(a) Front wheel

You should not be able to pull the hand lever so far that it touches the grip.

Full-hub models

1. Loosen forward lock nut (Fig. 22, No. 3) of the adjusting sleeve on the brake cover plate.
2. Turn rear lock nut (Fig. 22, No. 5) in the same direction until brake has correct grip. If the adjusting sleeve was unscrewed too far so that the brake catches, it should be screwed up again at little.
3. Now hold adjusting sleeve and tighten forward lock nut.

Type MS: An adjusting screw with lock nut (Fig. 28a) is used on the brake cable running downward.

(b) Rear wheel

Adjustment of the rear wheel brake becomes necessary when the pedal must be turned too far backwards thus offering unfavorable leverage.

1. Slip back rubber sleeve (Fig. 29, No. 1).
2. Loosen lock nut (Figs. 29, No. 2, 30, No. 1) of adjusting sleeve with 11-mm. wrench.
3. Unscrew adjusting sleeve (Figs. 29, No. 3, 30, No. 2) until brake has proper grip again.
4. Hold adjusting sleeve with spanner and tighten lock nut.
5. Pull rubber sleeve over adjusting sleeve.

A further means of adjusting the brake is offered by the extremely fine toothing of both brake levers (VS and DS models only).

Adjustment of the rear brake (DS 50):

The adjusting screw of the rear brake cable line is arranged on the support of the mounting plate. When adjusting the brake, the rear nut of the adjusting screw must first be loosened. Otherwise as indicated under model VS 50.

Gearshift Adjustment

1. Put machine on stand.
2. Bring gearshift twist grip to "0" position. You must be able to turn the rear wheel freely, without any grating noise in the gearbox.
3. Now operate clutch lever, turn gearshift twist grip about 2 mm. backwards and forwards and see if, within this range, the rear wheel can be moved freely, and without any grating noise in the gearbox.
4. To adjust the gearshift, i. e. to eliminate any grating noise, use the two cable adjusting screws (Fig. 31).

Cleaning the Main Jet

1. Unscrew main jet (Fig. 32). The main jet of the FISCHER carburettor is situated in the rear.
2. Clean main jet either by blowing through it or by means of a bristle. Never use a piece of wire!
3. Install main jet and tighten it with feeling.

Control of Carburettor Float

1. Loosen holding-down screws of float chamber cover (Fig. 33, No. 1).
2. Cautiously lift off float chamber cover, taking care not to damage the needle point. If necessary, clean valve seat in the cover.
3. Take out float with needle.

If the needle is not in its notch, shift it until it registers. Test needle point for perfect condition. Exchange float if it leaks.

Assemble in reversed order of dismantling. When putting on the float chamber cover, first fit the valve seat on the needle point.

Cleaning the Carburettor

1. Unscrew fastening screws (Fig. 33, No. 2) of carburettor.
2. Remove carburettor to the right. Take care not to lose the two intermediate flanges and the two gaskets.
3. Unscrew screw cover (Fig. 33, No. 3).
4. Pull out throttle slide (Flig. 34, No. 3) together with jet needle and compression spring.
5. Press together screw cover (Fig. 34, No. 1) and throttle slide (Fig. 34, No. 3), push cable into the through-bore (Fig. 35, No. 1) of the throttle slide, and pull out cable with spring (Fig. 34, No. 2) and screw cover.
6. Remove jet needle (Fig. 34, No. 4) together with clamp spring. Clean all parts; if necessary, change clamp spring, clamp needle into second notch from the top and fit it into the needle hole of the throttle slide (Fig. 35, No. 2).

Assemble carburettor in reversed order of dismantling.

A flat slide is used in the FISCHER carburettor (Fig. 34a). To remove the flat slide (Fig. 34a, No. 1) press it against the screw cover (Fig. 34a, No. 2) of the carburettor body and unhook the cable.

Adjusting Gas for Idling

It is important that the engine, when in neutral gear, goes on running regularly.

1. Loosen lock nut (Fig. 36, No. 1) of the throttle slide stop screw (BING carburettor only).

2. Start engine.
3. Turn throttle control twist grip right back ("Throttle down").
4. When the engine threatens to stall, screw up throttle slide stop screw until the warm engine "ticks over" regularly (Fig. 36) (BING carburettor only).

Cleaning the Fuel Pipe (fuel tank may be drained for this purpose)

1. Shut fuel feed tap.
2. Pull fuel pipe from its top connection, drain contents of pipe into a clean vessel; empty fuel tank, if necessary.
3. Pull fuel pipe from its bottom connection.
4. Blow through fuel pipe.

A USEFUL PIECE OF ADVICE

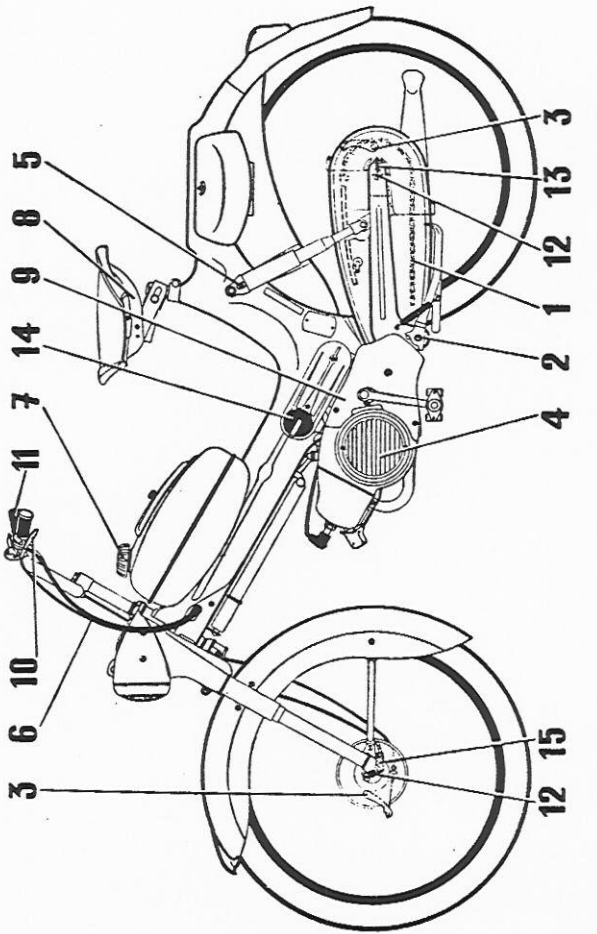
Unless you are an expert yourself, you will not be able to detect certain defects at once. But the trained mechanic will save you unnecessary expense by some small repair work. So bring your mo-ped to our representative after every 2000 miles or so. He will go over it, and if necessary, decarbonize the engine. Have your machine overhauled thoroughly after every 6000 miles.

IMPORTANT !

We expressly point out that it is strictly forbidden to remove the throttling device fitted in the carburettor and required by law, nor must the intake silencer be taken off, because serious damage may be done to the engine if the carburettor is not specially regulated for operation with throttling device and intake silencer.

Lubrication Table

1. Chain	To be cleaned after every 500—1000 km (300—600 miles)
2. Prop stand	To be greased after every 500—1000 km (300—600 miles) (Fig. 17)
3. Brake shafts	To be greased after every 3000—5000 km (1800—3000 miles)
4. Breaker points	Grease lubricator felt pad after every 3000—5000 km (1800—3000 miles). Have the PUCH agent do this.
5. Telescopic spring legs	Grease them with a grease gun after every 3000 km (1800 miles)
6. Cables of brakes, clutch, throttle and choke	To be oiled with engine oil after every 500—1000 km (300—600 miles)
7. Fuel tank	Mix engine oil with fuel at a ratio of 1 in 25 (= 4%), using SAE 50 oil in summer and winter
8. Swinging saddle	Oil hinges with engine oil after every 3000—5000 km (1800—3000 miles)



9. Gearbox	Change oil after the initial 500 km (300 miles). Check level of transmission oil after every 3000—5000 km (1800—3000 miles)
10. Hand levers	Grease sliding surfaces with oil after every 500—1000 km (300—600 miles)
11. Twist grips	To be greased with oil after every 500—1000 km (300—600 miles)
12. Knockout spindles	To be greased after every 3000—5000 km (1800—3000 miles)
13. Chain tension adjusters	Oil threads after every 3000—5000 km (1800—3000 miles)
14. Air filter	Clean filter inset and dip it in oil after every 3000—5000 km (1800—3000 miles)
15. Speedometer drive	To be greased with a grease gun after every 3000 km (1800 miles)

Spark Plug Table

The "cold" plugs now generally used with two-stroke engines are suitable for the PUCH mo-ped. Such plugs are:

Country of origin	Brand	Type
Germany	Bosch	W 225 T 1
	Beru	225/14
Great Britain	KLG	F 70
	Lodge	HN HNP
Italy	Marelli	225
USA and Great Britain	Champion	L 10 S

The most suitable electrode gap is 0.5 mm. (0.02 in.)!

Oil Table

The brands of oil quouted below are particularly suitable for making up the petrol mixture to be used for operating your mo-ped. High-grade SAE 50 oils of other brands can also be used, provided their viscosity does not drop below 2.3° E at 100° C.

BP-Energol Motoroil SAE 50
BV-Oil Spezial 50
Castrol Two Stroke or Grand Prix
Essolube Motoroil SAE 50
Mobiloil D or Mobil Mix TT
Motanol Motor engine oil Super S
Shell X 100 Motoroil 50

(The names of the firms are arranged in alphabetical order.)