Husqvarna motorcycles

OWNER'S MANUAL

From frame No CO 00001, WO 00001, XO 00001

REMEMBER!
Racing can be dangerous. Do not be carried away by the heat of the battle. Make it a habit to check the function of brakes, carburettor control, suspension and steering system after a spill.

By following the instructions in this manual and using Husqvarna original parts for replacement your riding will be safer and more fun.

HAVE A GOOD TIME!

HUSQVARNA MOTORCYKLAR AB
SWEDEN

You and your Husqvarna

Welcome to the ranks of Husqvarna riders, in which we feel sure you will find yourself

The experience gained both in the laboratory and on racing circuits throughout the
been built into your machine. It has been manufactured with the greatest care in ac
with methods based on long experience, thereby the highest possible performance
mum reliability.

In order to help you take proper care of your motorcycle we have complied the
instructions and advice. Please study this manual carefully – by doing so you will be
many pleasant hours with your Husqvarna.

Remember – instructions and advices in this manual are given with the aim to insure th
possible safety and success.

Good luck and good riding!
HUSQVARNA MOTORCYKLAR AB
ÖDESHÖG – SWEDEN

Contents:

Controls

Clutch handle (Manual gearbox)
Declutching is done by pulling the lever towards the handlebar. See fig. 3.1.
Declutching must be done at every gear change.

Kill button
The short circuit contact is located on the left part of the handlebar. See fig. 3.1.

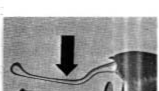


Fig. 3.1

Brake handle
The front wheel brake is actuated when pulling the lever towards the handlebar. See fig. 3.2.

Throttle control handle
The throttle control handle is fitted on the right part of the handlebar. It can be adjusted after the screws have been loosened.

The handles can be twisted on the handlebar by loosening the screws.
Don't forget to tighten the screws.


Fig. 3.2

Handlebar
Adjust the handlebar to suit your riding posture. See page 53.


Fig. 3.3

Check that the wires are mounted as shown on fig. 3.4.
The front brake wire shall be mounted in front of the clutch wire and the front brake wire guide to prevent the wire from getting stuck on the fork leg.


Fig. 3.4

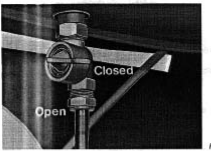


Fig. 4.1

Fuel cock
The fuel cock is located underneath the tank.

NOTE! There is no reserve fuel supply.

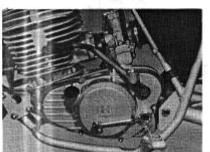


Fig. 4.2

Kick-starter pedal
The engine is started by kicking the pedal sharply downwards and backwards, with the gearbox in the neutral position. See to it that your toes are under the foot pedal when starting the engine.

NOTE! Do not alter the position of the starter crank on the shaft in order to get an earlier meshing, as there is then a risk that the pedal-stop on the motor cover is broken at back firing.

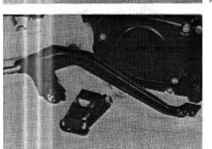


Fig. 4.3

Brake pedal
The brake pedal controls the rear wheel brake through a pull rod.

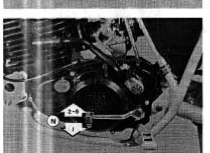


Fig. 4.4

Gear lever (Manual gearbox)
The gearbox is controlled by a lever fitted on the left-hand side of the engine.
The pedal returns automatically to its original position between each gear change movement. See fig. 4.4

The lever can be twisted on its shaft by loosening the screw (A) pull out the pedal push it in the wanted position.

NOTE! Tighten the screw.

Breaking in

Warning
This motorcycle is designed for off road competition. Port timing, exhaust system and carburation allows the engine to reach high r.p.m. very easy. Running for long time and light load (i.e. small throttle opening) at high r.p.m. may not give the engine necessary lubrication.
To avoid trouble the following is recommended:

1. Do not overrev with small throttle openings. More throttle at lower r.p.m. gives the engine better lubrication.
2. Let the engine pull instead of rev.
3. Ask your dealer for the correct carburettor setting for your area.
4. Use only well-known brands of oil.

Starting:

1. Make sure you have fuel in the gastank. See Techn. data.
2. Open the fuel cock beneath the gas tank.
3. Pull the choke lever downwards until the start valve is fully open.
4. Place the gear lever in neutral position.
5. Pull the kick starter pedal sharply downwards, with closed throttle.
6. Let the engine run for a while with the start valve still open, then close the start valve by pulling the choke lever upwards.
7. Pull the clutch lever towards the handlebar and pull the gear lever down to the 1st gear.
8. Twist the throttle somewhat and release the clutch lever and the motorcycle starts to move.

Fig. 5.1

Fig. 5.2

After the first running with the motorcycle, you ought to check these things.

1. Tighten the spokes in both front and rear-wheel.

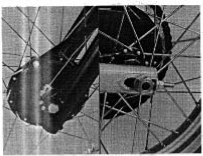


Fig. 6.1

2. Tighten the bolts in both front and rear-wheel.

Fig. 6.2

3. Tighten the bolts holding the rear-fork.

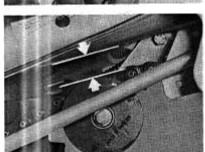


Fig. 6.3

4. Drive chain
Check so that the distance between rear fork and chain tensioner wheel does not exceed 20 mm (0,8 in.).

Both excessive and insufficient chain tension can cause unnecessary loading on the chain, sprockets, shafts and bearings. In order to reduce wear, the chain should also be lubricated with engine oil every time before use. See also page 34 **"Adjusting the chain tension".**

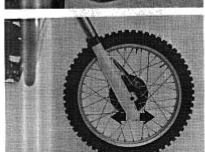


Fig. 6.4

5. Adjusting steering bearings
The play in the steering bearings is checked with the motorcycle blocked up so that the front wheel can rotate freely.
Grasp the lower part of the fork legs and try to move them backwards and forwards in the longitudinal direction of the machine.

If any play can be noticed:
Loosen the upper fork plate and tighten the upper guide bearing shell with a plier. Check that the bearing does not move stiffly.

Fig. 7.1

Tighten the cap nut and the fork plate clamping bolts. Check that the bearing does not move stiffly.

6. Handlebar screws
Tighten the screws holding the handlebar-holder to a torque of 40 Nm. (28,5 ft. lb).

Fig. 7.2

7. Engine bolts.
Tighten the engine bolts, both front and rear.

Fig. 7.3

8. Magneto flywheel
Tighten the flywheel nut.
See tech. data for torque.

NOTE! Tighten the flywheel nut three times, by assembling, after about 5 min running and then after about 1 hour.

Fig. 7.4

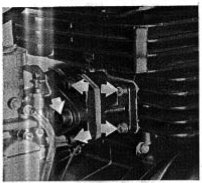


Fig. 8.1

9. Reed valve
Tighten the screws holding reed valve house.

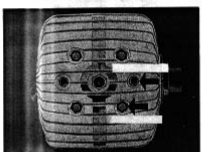


Fig. 8.2

10. Cylinder and cylinderhead
Tighten the nuts holding the cylinder and cylinderhead. See tecnical data for the correct torques. Tighten the nuts alternately up.

Engine

General
The engine is a single-cylinder, air-cooled, twostroke unit. The engine and gearbox form an integral unit.

Removing and fitting

1. Remove the exhaust system by loosening the screws and unhook the springs holding exhaust pipe. See fig. 9.1.

2. Screw out the two screws holding carburettor.

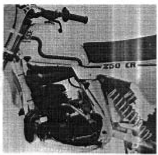


Fig. 9.1

3. Remove the kill button. Take off the contacts from the ignition coil and let the cable hang down.

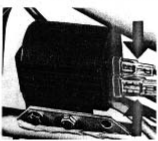


Fig. 9.2

4. Remove the chain, the front mounting plates and the shaft holding the swing arm.

5. Remove the engine out of the frame.


Fig. 9.3

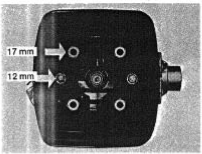


Fig. 10.1

Inspecting and changing piston ring, piston and cylinder

The cylinder and piston can be removed with the engine still in the frame. (Not on 500 CR and XC).

1. Loosen the four cylinder head retaining nuts (17 mm) and the two screws (12 mm) and take off the cylinder head.
2. Lay the motorcycle on the side so that dirt from the cylinder studs dont fall into the crankcase when you lift the cylinder.

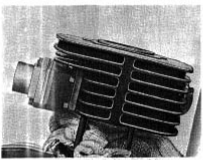


Fig. 10.2

3. Lift up the cylinder about 5 cm from the crankcase and place a piece of clean cloth in the crankcase opening to prevent dirt from entering the crankcase.
4. Lift off the cylinder.


Fig. 10.3

5. Remove the piston ring from the piston.
6. Check piston ring, piston and cylinder. See "Time for repairs".

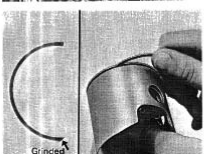


Fig. 10.4

7. Before fitting the piston ring, carefully remove any carbon deposits from the grooves in the piston.

This is preferably done with an old piston ring which is grinded apart.

7. Lap in the cylinder head against the cylinder with fine grinding paste.

Fig. 11.1

8. Place the piston at bottom dead centre.

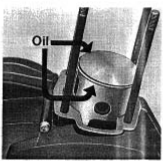


Fig. 11.2

9. Carefully oil the cylinder bore and piston ring and fit the cylinder over the piston.

NOTE! Make sure that the piston ring is placed correctly in relation to its locking pins and carefully push on the cylinder so as not to damage the piston ring.

Fig. 11.3

10. Fit the cylinder head and tighten the four retaining nuts and the two screws moderately.

11. Then tighten the screws alternately.

See Technical Data, for correct torque.

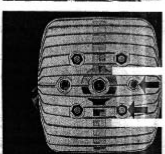


Fig. 11.4

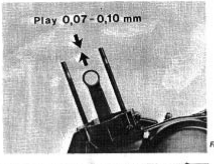


Fig. 12.1

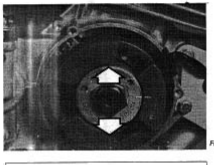


Fig. 12.2

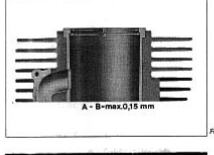


Fig. 12.3

Fig. 12.4

Time for repairs

Big-end bearing
Replace this bearing when the radial play amounts to 0,07–0,10 mm. Radial play can be measured by a radial indicator.

Main bearings
Replace these bearings as soon as any play is detected. Check for play by pulling at the two ends of the crank-shaft in the radial direction.

Cylinder
The cylinder should be bored up to oversize when the wear on its top section amounts to 0,15 mm, i.e. when the difference between measurements A and B in fig. 12.3 amounts to 0,15 mm.

Piston ring
Check the wear on the piston ring by placing it in the lower part of the cylinder bore. Measure the distance between the piston ring ends with a feeler gauge. If this exceeds 0,8 mm it is recommended that a new piston ring should be fitted. See fig. 12.4. Before fitting the piston ring, carefully remove any carbon deposits from the grooves in the piston.
Also scrape clean the piston crown and combustion chamber.

Piston
The piston has two points of wear: its ring groove and its skirt.

A. When the play in the ring groove amounts to 0,15 mm to a depth of approx 1,5 mm, replace the piston.

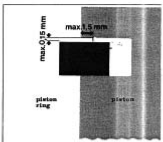


Fig. 13.1

B. When the piston skirt is worn down so that a measurement of approx. 0,3 mm can be taken as illustrated in fig. 13.2 scrap the piston.

For taking the crankcase halves apart or for other serious mechanical works, we recommend you to contact your dealer. Regarding service tools see page 57.

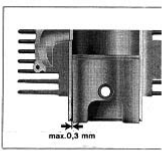


Fig. 13.2

Changing innertube-silencer
The exhaust system is equipped with a silencer.
Remove the three screws. Take out the supportwasher and change the absorber.


Fig. 13.3

REMEMBER!
Less sound makes more ground. Keep the silencer in good shape.
Do not create more regulations by reckless riding in populated areas. Save your energy and equipment for the race track.


Fig. 13.4

MIKUNI

Fig. 14.1

Functional range effectiveness of tuning parts in relation to the throttle valve opening.

The thickness of the arrows in fig. shows when the different tuning parts work.

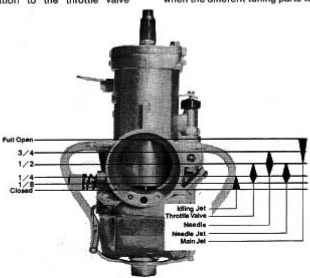


Fig. 14.2

Choke
The carburettor is provided with a starting-device. To get a richer fuel-air mixture to be sucked into the engine, press the choke-button down and turn the throttle-handle to zero.

NOTE! Do not use the choke when the engine is warm.

Fig. 15.1

Carburettor adjustment

Idling
Always warm up the engine before adjusting. Gently turn the air screw right home. Then screw it back 1,5 turn.

NOTE! Do not turn it too hard against the bottom.

1 = Air screw
2 = Throttle stop screw
3 = Throttle cable adjuster

Start the engine and adjust the throttle stop screw until a satisfactory slow running speed is achieved.

Adjust the air screw until the engine runs smoothly (turning clockwise gives a richer mixture, anticlockwise gives a leaner mixture).

If necessary, re-adjust the throttle stop screw for a satisfactory, slow running speed.

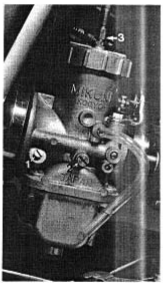


Fig. 15.2

The selection of the opening of the idling jet and the air screw is important. Turn the grip a little at no-load operation and see if the engine revolutions increases smothly.

If the idling jet is too small, increase in the engine speed is slow and irregular. Too big idling jet, on the other hand, would give rise to heavy exhaust smoke as well as a dull exhaust noise. If you cannot maintain the speed in the range of 12–25 M.P.H. (30–40 km/h) with the grip held constant, the idling jet is too small.

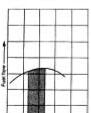


Fig. 15.3

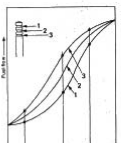


Fig. 16.1

Needle and needle jet
The needle jet and the needle serve to control a proper air-fuel mixture ratio during the so-called medium throttle valve opening (between 1/4 and 3/4 opening). The needle has 3 or 5 of settings, the uppermost giving the leanest and the lowest the richest mixture. As you see on fig. the needle setting is mostly noticeable at 50% throttle opening.

Needle position: See Technical Data.

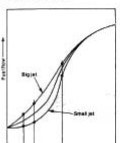


Fig. 16.2

By changing needle jet you can get richer or leaner air-fuel mixture. A small needle jet will give you a leaner mixture and on the other hand a big needle jet gives you a richer air-fuel mixture.
As you can see on fig. the changing of the needle jet is mostly noticeable at 25% throttle valve opening.

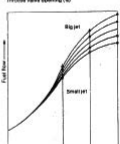


Fig. 16.3

Main jet
The surest way to determine the right size of main jet is to try an obviously large number. Run at full throttle and reduce jet size by one number at a time, until 4-stroking is eliminated. If the main jet is too small, acceleration may suffer. Use the largest possible size without 4-stroking at high revs.

The fig. shows the throttle valve opening in relation to fuel flow, with different kinds of main jets. In the range 50–100% throttle opening is the fuel mostly noticeable.

Fig. 16.4

Finally
High temperature, high elevation above sea level and lower barometric pressure generally require leaner settings. However, remember to restore the richer setting when conditions are normal again. If settings are too lean, acceleration and top speed will be less and there will be risk of engine damage.
The fig. shows the amount of air decreases in proportion to a rise in elevation.
Reduction in the amount of air sucked into the cylinder changes the air-fuel mixture ratio, with the result that the power output drops markedly.

Fuel level (Mikuni)
The fuel level can be checked by removing the float chamber from the carburettor. Hold the carburettor horizontal, and move the float lever with your finger.
When the float lever is 17~19 mm from the carburettor flange, the needle should just close the valve. See fig. 17.1.

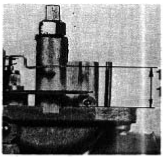


Fig. 17.1

Reed valve

The motorcycle features a valve system which prevents the fuel-air mixture from being forced back through the carburettor. The valves are located between the cylinder and the carburettor.

Engine trouble-shooting

When the carburettor setting is not correct for the engine, various irregularities are noticed. These can be traced to two main reasons.

(1) When the air-fuel mixture is too rich:
a) The engine noise is dull and intermittent.
(b) The condition grows worse, when the starter is opened.
(c) The condition grows worse, when the engine gets hot.
(d) Removal of the air cleaner will improve the condition somewhat.
(e) Exhaust gases are heavy.
(f) Spark plug is fouled.

(2) When the air-fuel mixture is too
(a) The engine gets overheated.
(b) The condition improves, wh
starter is opened.
(c) Acceleration is poor.
(d) Spark plug burns.
(e) The revolution of the engin
tuates and lack of power is n

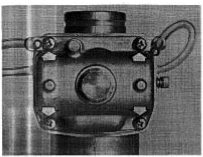


Fig. 18.1

Dismantling and cleaning the carburettor. (MIKUNI)

Lift out the throttle from the carburettor. Loosen the carburettor attaching clamps and remove the carburettor from the intake manifold, and air filter housing. Remove the float chamber from the carburettor by loosening the four screws.

Fig. 18.2

Remove the peg and take out the float lever.

Remove the spring and take out the float needle. Thoroughly clean all parts in petrol and blow dry with compressed air.
Assemble the carburettor in the reverse order. See fig. 14.2.

NOTE! Make sure that the float chamber is fitted correctly on the carburettor housing and that the rubber hose between the carburettor and air filter holder is intact.

Clean the fuel cock filter free from dirt.

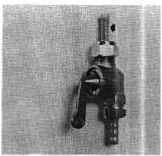


Fig. 19.1

Changing throttle wire

1. Remove carburettor cover and take out the throttle.

Fig. 19.2

2. Compress throttle spring, take out the wire lock and unhook the wire.
3. Remove the cover of the throttle handgrip and remove the wire.
4. Fix a new wire in handlegrip and the throttle in reverse order.

NOTE! Don't forget the wire lock.

Fig. 19.3

Fig. 20.1

Throttle cable adjustment
Screw in the carburettor adjusting screw fully and screw it back until there is no play at the throttle handle.

NOTE! Don't forget to lock up the carburettor adjusting screw.

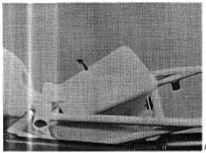


Fig. 20.2

Dismantling and cleaning the air filter
1. Remove the seat and filterbox cover. (Cover on WR:s only.)


Fig. 20.3

2. Unhook the air filter holder and remove the filter with its case.

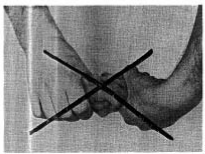


Fig. 20.4

3. Clean the filter in petrol or kerosine by squeezing it easily in the fluid a few times. At last squeeze it free from solvent.

NOTE! Never twist the airfilter as fig. 20.4 shows.

WARNING!
Never use gasoline or low flash point solvents for cleaning the air filter element in closed areas. A fire or explosion could result.

4. Oil in the filter with a few cc of Twin air action oil.

5. Squeeze the filter lightly between your palms to get even oil absorption. See fig. 21.1, 21.2 and 21.3.

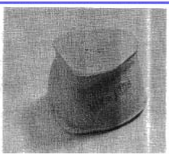


Fig. 21.1

6. Mount the filter and wait ca 10 minutes until the oil solvent has vaporated. Then start the engine.

NOTE! The engine must not be started before the solvent in the oil has vaporated.

Fig. 21.2

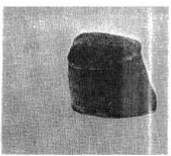


Fig. 21.3

WARNING!
Dirt and careless handling can have the throttle to stick in an open position.

Temperatures close to or below freezing point and water in the inlet system can have same effect.

Therefore take care of extreme cleanliness when working with air filter and carburettor.

Check frequently the function of twistgrip throttle cable and kill button. Replace the throttle cable whenever it signs of wear or damage.

Fig. 26.1

Insulator base, socket and electrodes coated with dry, black soot.

Possible fault: Heat rating too high. Fuel/air mixture too rich. (Air cleaner blocked.)

Fig. 26.2

Normal combustion

The power in an internal combustion engine is developed by the expanding gases resulting from the burning of the air/fuel charge. If the ignition timing is correct and the anti-knock quality of the fuel meets the engine requirements, the burning process should progress steadily across the combustion chamber until completed.

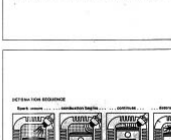


Fig. 26.3

Detonation

Detonation can occur when the anti-knock quality of the fuel does not meet the engine requirements.

Apart from the use of fuel with a lower octane value than recommended, there can be other reasons for this, e.g. over-advanced ignition timing, or build-up of deposits in the combustion chamber which will affect the rate of heat transfer to the cooling medium.

Detonation can occur in various ways but probably the most common is that in which combustion is initiated normally from the spark plug, the flame front advances part way across the combustion chamber – when the remaining fuel/air charge "explodes". This explosion imparts a hammering pressure to the piston crown, and combustion is completed too early. Together with the abnormal stresses, detonation causes greatly increased combustion chamber temperatures.

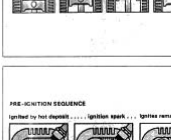


Fig. 26.4

Pre-ignition

Pre-ignition is the term used to define the ignition of the fuel/air charge before the spark occurs. Any hot-spot within the combustion chamber, such as carbon deposits, rough metallic edges, improperly seated valves, or overheated spark plugs can be capable of starting combustion.

As a result of this early combustion, the piston compresses the already expanding gas, causing an abnormal increase in combustion chamber temperature and pressure which may ultimately damage engine components and spark plugs.

Ignition coil
The ignition coil contains not only the low tension and the high tension coils.
In the ignition coil you will also find diodes, capacitor and thyristor.
Always make sure that the coil is properly connected to ground.

Voltage regulator
To protect the light-system from excess current all WR models are equipped with a voltage regulator.
Always make sure that the coil is properly connected to ground.
The voltage regulator makes it possible to reach a light brightness of 100 Hz already at 1000 rpm (SEM).

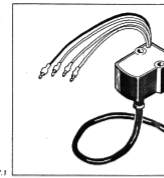


Fig. 27.1

See the Technical Data for wireing.

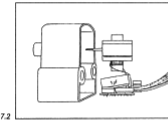


Fig. 27.2

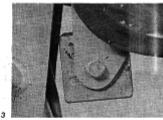


Fig. 27.3

Fig. 27.4

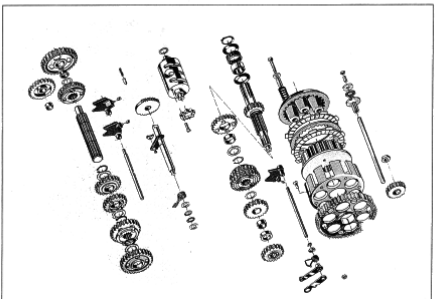
Transmission

Manual gearbox

General
The drive from the engine crankshaft is transmitted to the clutch through a gear drive.

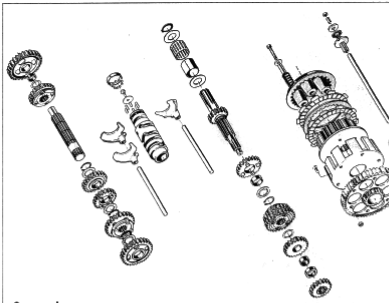
The clutch ring has a built-in damping system and the power is continued by eleven aluminium discs, six with linings and five without.
The discs are forced apart by a clutch rod which is actuated by a lever on the upper side of the gearbox. There is a cable between the lever and clutch control handle. When the handle is pulled in, the lever turns and declutches the engine.

The gearbox has six or four speeds. The gear wheels, shafts and gear shifter of the gearbox are enclosed in a gearbox housing which is integrally built with the engine. The gearbox housing contains a certain amount of oil which is splashed around by the gear wheels and lubricates the contact surfaces.



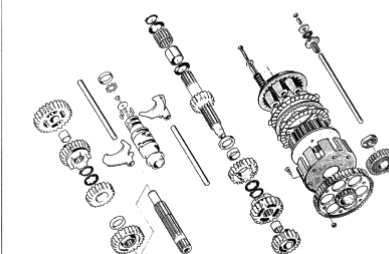
125 cc

Fig. 28.1



6-speed

Fi



4-speed

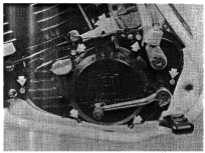


Fig. 30.1

Clutch repairs

1. Drain the oil or lay down the machine to the right and remove the transmission cover by loosening the screws.

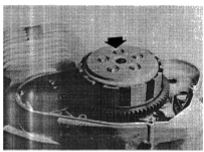


Fig. 30.2

2. Unscrew the spring tension screws and remove the pressure plate with springs, sleeves, washers and screws.

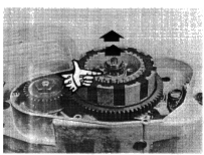


Fig. 30.3

3. Remove the push rod, remove the circlip and remove the clutch hub with discs.

Fig. 30.4

4. Remove the clutch ring.

5. Check the clutchring for cracks and worn slots.

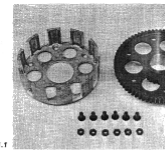


Fig. 31.1

6. Screw out the 6 screws.

NOTE! The nuts on the back-side are locked with lock-tite.

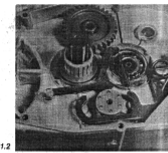


Fig. 31.2

7. Assembling is done in reverse order.

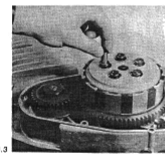


Fig. 31.3

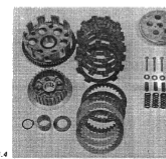


Fig. 31.4

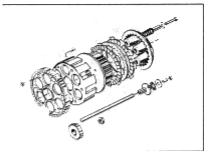


Fig. 32.1

NOTE! There are 6 disc with lining and 5 without lining. The discs are placed as shown in fig.

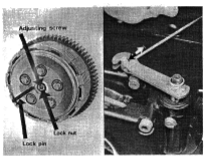


Fig. 32.2

8. Adjust the play (play 5–8 mm) on the clutch arm with the screw in the pressure plate. To prevent the shaft sleeve to go round use a lock pin in the hole.

9. Mount the transmission cover and check the oil. See "Oil changing".

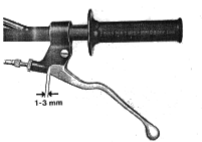


Fig. 32.3

10. Adjust the play at the clutch handle. The play should be 1–3 mm.

Oil
N.B.
The use of viscostatic oils with a too wide SAE-tange will cause clutch slipping.
See Techn. specificaton for oil recommendation.

Changing chain sprocket

1. Take off the sprocket cover.
2. Remove the drive chain.
3. Take off the circlip. See fig.
4. Remove the sprocket. See fig.

Mounting is done in reverse order.

NOTE! See to it that the circlip really is in its groove!

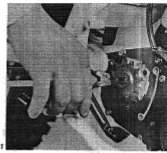


Fig. 33.1

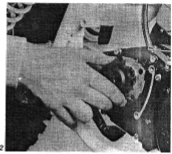


Fig. 33.2

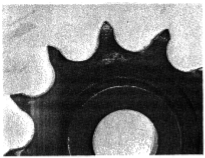


Fig. 34.1

Time for repairs

Chain sprockets

Replace the sprockets when the teeth begin to approach the appearance illustrated in fig. 34.1.

Chain

Replace the chain when the difference between its length contracted and extended begins to approach 15 mm. See fig. 34.2.

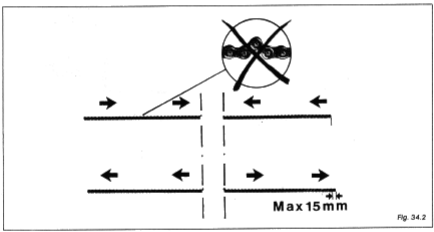


Fig. 34.2

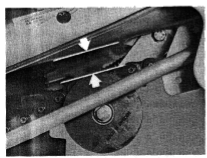


Fig. 34.3

Adjusting chain tension

1. Loosen the right shaft nut.
2. Tension the chain by screwing in the chain adjuster nut an equal amount on both sides.
3. Check the chain tension.
   The distance between rear fork and chain tensioner wheel must not exceed 20 mm (0.8 in.).
4. Check the rear wheel and chain alignment.
5. Tighten the shaft nut.
6. Check front and rear chain guide for wear.
7. Check the foot brake adjustment.

Chain masterlink
The chain masterlink should be mounted so that the closed part of the clip faces in the direction of rotation of the chain.

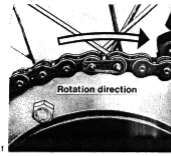


Fig. 35.1

Front and rear wheel alignment
Wheel tracking is best checked with the aid of two wooden planks about 2 m long. Position the planks on either side of the motorcycle about 10 cm above the ground, making sure that they are close up against the tyre on the rear wheel.
The front wheel should now be exactly in the center of the space between the planks and parallel with them. See fig. 35.2.
If adjustment of wheel tracking is required it is also necessary to check the tension of the chain.

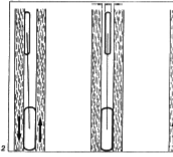


Fig. 35.2

Chain track
Also check the chain tracking by looking from the back of the machine.

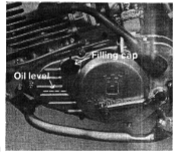


Fig. 35.3

Oil changing
Unscrew the filling cap on the crankcase, and the drain screw, (see on the other side of the engine and let the oil run out. Clean the magnetic plug of the drain screw and check its washer.
Screw in the drain screw again and fill up with new oil through the filling hole.
Connect the breather hose to the filling screw. See tecnical data sheet, for the correct amount of oil in gearbox.

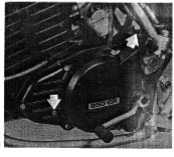


Fig. 35.4

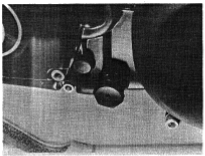


Fig. 36.1

125 cc

The filling cap also serves as a breather valve. Make sure to connect the breather hose to the screw after serving.

Front fork

Function
The front fork is of the telescopic type with hydraulic damping.
The damping action is obtained by means of a damping spindle which is attached to t
leg in such a way that the fork tube runs over the spindle. The oil in the fork is thereby fo
pass through an area which alternates with the spring movement of the machine and v
dimensioned so that the correct oil flow resistance is obtained for each particular positio
suspension system.
This means that heavier oil increases the damping effect (harder suspension), while a
oil reduces the damping effect (softer suspension).
Each forkleg is equiped with an air nipple.

Fig. 37.1

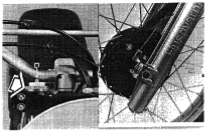


Fig. 38.1

Oil changing
Remove both the drain screws and filling screws. Screw in the drain screws again after the oil has run out. Fill up with right amount of oil in each fork leg.
Screw in and tighten up the filling screws.

Oil recommendation:
V.S.P. Husky Fork oil SAE 5–SAE 20.

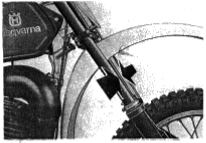


Fig. 38.2

If harder springload is required this can be obtained by filling max. 0,7 kp/cm^2 air in each fork leg.

Adjustment of front fork parallelism
In a crash, the fork shanks may be distorted in relation to one another as shown in fig. 38.2.

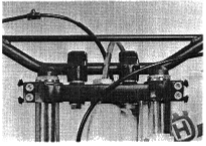


Fig. 38.3

This can be corrected by slackening the clamping bolts.

Fig. 38.4

Adjust the fork until the shanks are parallel again.

Slacken the lower clamping bolts of the fork legs compress the fork a few times and then tighten up the clamping bolts again.

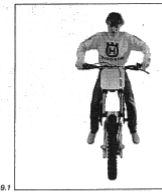


Fig. 39.1

Rubber mounted handlebar
The handlebar is connected with rubber element and mounted to the fork-crown. Rubber mounted handlebar gives you less vibrations.
Tighten the handlebar screws to a torque of 40 Nm. (28 ft. lb).

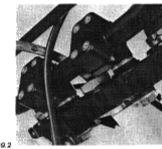


Fig. 39.2

NOTE! See to it that the distance between forkleg and fork crown does not exceed 10 mm (0.4 in.). This to prevent front-wheel from hitting the fender and the frame when fully compressed.

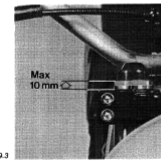


Fig. 39.3

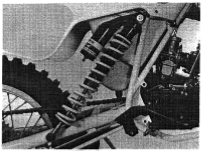


Fig. 40.1

Rear suspension

General
The shock absorber is of gas-damping-type. The damping system works in oil, but the pressure is controlled by a gas volume in the upper part of the schock absorber.

Function
When the shock absorber compressed, the oil will pass through the piston and bends a combination of metal washers on the upper side of the piston, this creates a damping force. When the shock absorber rebounces, the oil passes through the same piston and bends a different combination of metal washers on the other side of the piston.
By changing the combination of washers you can change the damping caracteristics both on compression and on rebound. The shock absorbers are equipped with springs, by changing the preload of the springs it is possible to adjust the bike ot different riders (weight) and different types of tracks.
N.B. For service and disassembly of reservoir shocks see your local dealer.

Rear-fork

Rear fork bearings
The rear fork is equipped with needle-bearings.
Two in each leg.
Inside the bearings there is a sleeve and around the sleeve there is also two O-rings.

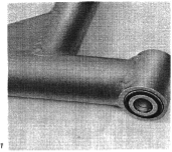


Fig. 41.1

Changing needle-bearings

Remove the bearings with help of the support 15 19 855-01 and press with help of the drift 15 19 856-01.

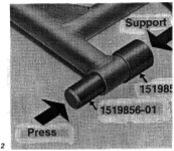


Fig. 41.2

Mounting of new bearings is done in the following order.

1. Take the drift 15 19 857-01.
2. Put on a new needlebearing on the drift. NOTE! Text on the edge of the bearing shall be out.
3. Put the steering-sleeve 15 19 854-01 on the drift, and then press the bearing into the swingarm with help of a hydraulic press.
4. Put another bearing on the drift and press it in from the other side of the leg. NOTE! Text shall be out. See fig.
5. Mount the sleeve and the two O-rings. See fig.

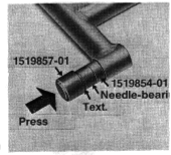


Fig. 41.3

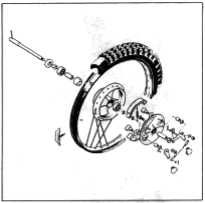


Fig. 42.1

Wheels and brakes

Front wheel

General
The front wheel has a solid hub and is fitted on a removable axle. The wheel has a brake hub, the shoes which are actuated by a control cable attached to the brake handle.

On models equiped with speedometer the speedometer drive is mounted on the right hand side of the frontwheel.

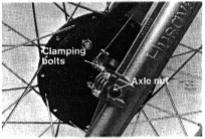


Fig. 42.2

Removing the front wheel
Block up the motor cycle so that the front wheel can rotate freely.
Loosen the right-hand fork leg clamping bolt and screw out the axle.
Pull out the axle.
N. B. Do not loosen the left-hand fork leg clamping bolt or axle nut.
Lift the front wheel out of the fork and remove the brake shield. Fitting is done in the reverse order.

NOTE! Don't forget to tighten up the clamping bolt.

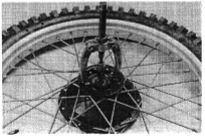


Fig. 42.3

Replacing bearings
Use an internal ballbearing – puller to remove wheelbearings.

When mounting the bearing put a drift on the outer track. See fig.

NOTE! Remember to fit the spacing sleeve between the bearings.

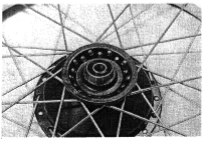


Fig. 42.4

Rear wheel

The rear wheel has a hub, which is connected to a "low-edged" rim with extra strong spokes.

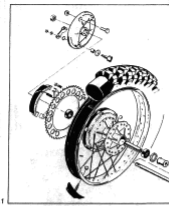


Fig. 43.1

Removing rear wheel

Block up the machine so that the rear wheel can rotate freely.

a) Part the drive chain by opening the chain master link.
b) Disconnect the brake link at the bearing point on the frame (i.e. not at the brake shield!).
c) Screw off the wing nut from the brake rod and remove its return spring.
d) Remove the axle and pull out the wheel.

Lift off the brake shield and distance pieces. Watch out for the spacing sleeve in the brake shield.

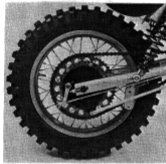


Fig. 43.2

Replacing wheel bearings

Check the bearing play by grasping the rear wheel with one hand and the rear part of the frame with the other. See fig. Push the wheel backwards and forwards alternately. If any play can be noticed, the wheel bearings should be replaced with new ones. Bearing replacement is carried out in the same way as for the front wheel, but note the spacing washer between the ball bearing and oil seal on the brake drum side.

Lubricate the spacing sleeve in the brake shield bearing and fit the brake shield.

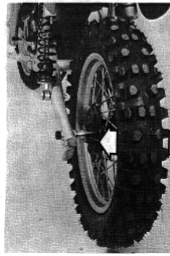


Fig. 43.3

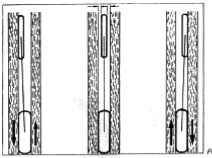


Fig. 44.1

Fitting rear wheel in rear fork
Place the wheel in the rear fork and fit the distance pieces, axle and axle nuts.
Tighten the axle nuts loosely and fit on the brake linkage and brake rod with the pedal.
Check the drive chain tension. See page 34.
Adjust the chain tension if necessary with the tensioning screws.
Check that the rear wheel tracks with the front wheel.
Tighten up the axle nuts.

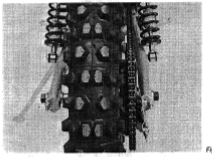


Fig. 44.2

Front and rear wheel alignment
Wheel tracking is best checked with the aid of two wooden planks about 2 m long.
Position the planks on either side of the motorcycle about 10 cm above the ground, making sure that they are close up against the tyre on the rear wheel.
The front wheel should now be exactly in the center of the space between the planks and parallel with them. See fig. 44.1.
If adjustment of wheel tracking is required, it is also necessary to check the tension of the chain.

Chain track
Also check the chain tracking by looking from the back of the machine. See fig. 44.2.

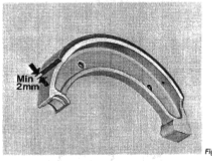


Fig. 44.3

Brakes

Replacing brake shoes
If the brake linings are worn down to 2 mm, replace the brake shoes with new ones.

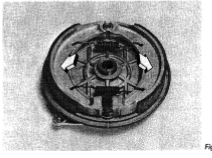


Fig. 44.4

Clean all the parts and make sure that no oil comes into contact with the brake linings.
Check that the return springs are intact and that there is no excessive play on the brake cam bearing. Replace the bush in the event of excessive play. Lubricate the bearing lightly with grease. Mounting is done as per fig. 44.4.

Adjusting brake cable
Adjust the handle play, so that you feel comfortable when riding.

Fig. 45.1

Full braking effect should be obtained when the handle is parallel to the handlebar.

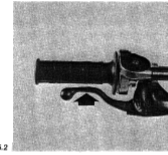


Fig. 45.2

The handle clearance is adjusted in the first place by means of the adjusting screw on the brake handle, and in the second place with the adjusting screw on the lower cable attachment.

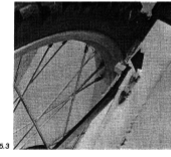


Fig. 45.3

Adjusting foot brake
The foot brake pedal should have a play of at least 15 mm measured at the front edge of the pedal.
The upper position of the pedal can be adjusted by the screw (A) behind the pedal.

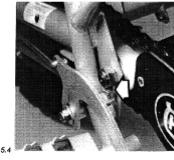


Fig. 45.4

Adjust by turning the wing nut on the end of the brake rod.

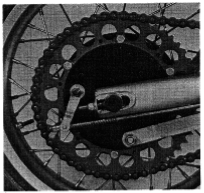


Fig. 46.1

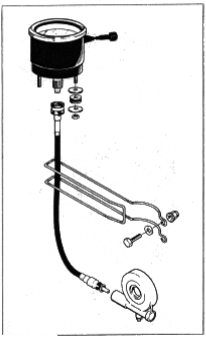


Fig. 46.2

Speedometer
Some Husqvarna models are equiped with speedometer.
The speedometer cable should run as smoothly as possible from the speedo to the drive. Grease the drive after washing the cycle.

Removing and fitting the tyres

Removing

1. Remove the wheel and let the air out of the tyre by unscrewing the valve. Put the parts of the valve in a place where they will not get dirty or lost.

2. Protect the wheel bearings with a piece of cloth or cotton waste.

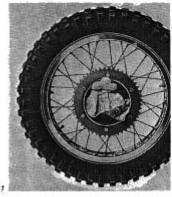


Fig. 47.1

4. Loosen the tyre from the rim and lay the wheel down.

5. Insert one of the tyre irons close to the valve. Pry up the bead of the tyre carefully, at the same time pressing the opposite side down into the well of the rim with your knees.

6. Insert the other tyre iron about 10 cm from the first one and pry the tyre off the wheel rim. Move the iron round the rim 5–10 cm at a time and lever off the tyre about one-third of the way round the wheel. Remove the tyre the rest of the way round the wheel, using your hands.

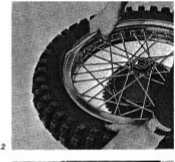


Fig. 47.2

7. Push the valve out of the wheel rim and remove the inner tube.

8. Stand the wheel upright and, from the inside of the rim, insert a tyre iron between the other tyre bead and the rim.

9. Lever the tyre off the rim.

10. Remove the rim band and check that the rim is free from rust and dirt etc. which may damage the tube.

Fig. 47.3

Fig. 48.1

Fig. 48.2

WARNING:

Failure to follow these tyre instructions may cause serious accidents:

- Off road knobby tyres are not suitable for prolonged road use for highway application.
- Max speed catogery 80 Mph = 130 km/h. In countries allowing this type of tyre for highway use recommended speed max 56 Mph = 90 km/h.
- Mount tyre and rim with directional arrow on sidewall correctly oriented to wheel rotation.
- Remove any foreign material from inside the tyre casing.
- Clean and lubricate tyre beads for proper seating on rim. THIS IS A MUST.
- Use only approved tyre installation tools for mounting.
- Do not damage the tyre bead area when mounting.
- Inflate tyre with core in valve stem to 42 psi = 2,9 bar maximum. Stand back, tyre bead should move into bead seat of rim. Never stand over or in front of the tyre when inflating.
- Inspect tyre bead location to make sure it is seated concentricly. If not, deflate, adjust, lubricate bead and reinflate – when bead is correctly seated, reduce pressure to motorcycle manufacturer-s recommended inflation.
- Install collar nut on valve stem, put cap on valve stem back collar nut up into cap to act as a lock nut.
- Valve stem should always point directly toward the wheel center. If not, immediately deflate and readjust the tyre and tube location on the rim so the tube valve stem is correctly positioned.
- Do not use screw drivers, chisels or other sharp radius pry levers for mounting tyres. Do not rush or brute force the installation. Broken bead wires are an injury of incorrect installation.
- For safety and tyre wear life, always check tyre pressure before riding. Use an accurate low pressure gauge. Very high pressure may damage rim, reduce contact patch size on ground and affects riding comfort.
- Underinflation causes poor handling and may damage rims and tubes, increases breakaway under power in corners, increase rolling resistance and may cause breaks in the tyre textile carcass. Excessive casing flexing generates high heat within the tyre and may cause damage to the rubber physical properties.

Fitting

1. Fit the rim band, making sure that it is correctly positioned and covers all spoke nipples.
2. Pull one side of the tyre in place on the wheel rim. This will be facilitated if the beading is coated with a soap solution.
3. Inflate the tube partially so that when held from the hand it forms an ellipse with two folds, one at top and one at bottom. Powder the inside of the type with talc and the tube as well, if necessary.
4. Fit the valve in the rim and push the tube into the tyre. Check that the valve is at right angle to the rim.
5. Push the tyre over the rim of the wheel by hand. Begin at the side opposite the valve and finish off at the valve position with the aid of tyre irons.
6. Push the valve inwards and check that the hose is not pinched against the rim.
7. Inflate the tyre and check that the marking on the tyre is concentric with the wheel rim.

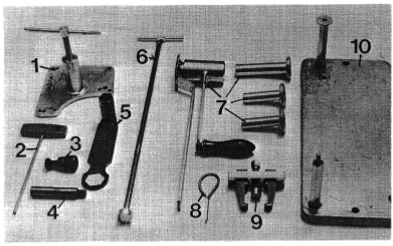
Framenumber

The framenumber of the bike is placed on the steering-head.

Engine number

Engine number is located on top of the crankcase.

Tools

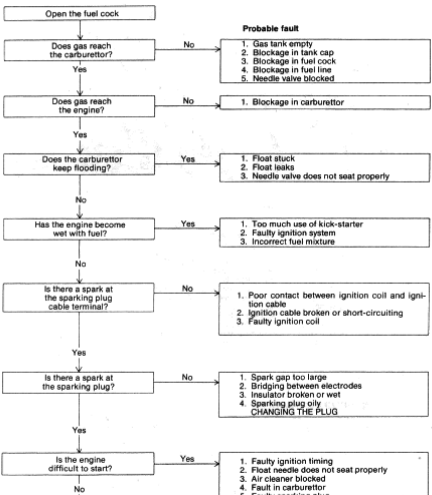


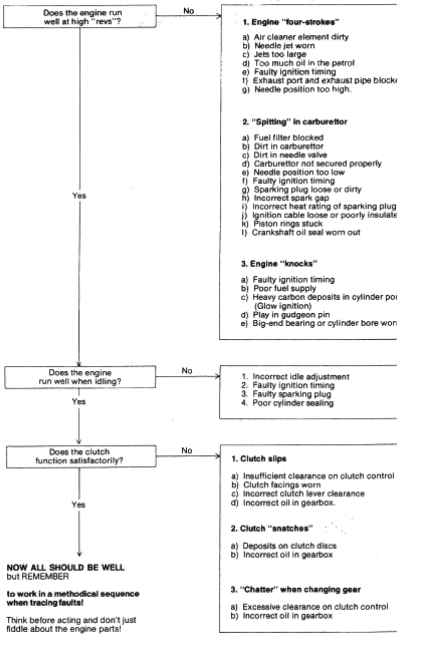
Pos	Part number	Description
1	15 19 810-01	Puller, crankcase, 250, 430, 500
	15 19 556-01	Puller, crankcase, 125
2	15 19 653-01	Allen key, M6
3	15 19 324-01	Puller, magneto, 125 XC, WR, 240 WR, 250 WR, XC, 430 WR, 500 XC
	15 19 276-01	Puller, magneto, 125 CR, 240 CR, 250 CR, 500 CR
4	15 19 248-01	Drift, Piston bolt 125
	15 19 249-01	Drift, Piston bolt 250, 430
5	15 19 347-01	Universal tool (Spark plug wrench)
6	15 19 122-01	Holder damping spindle
7	15 19 564-01	Mounting tool complete
8	15 19 847-01	Spring hook
9	15 19 805-01	Puller drive wheel
10	15 15 591-01	Mounting stand, 250, 430, 500
	15 19 243-01	Mounting stand

WORKSHOP MANUAL

For complete disassembling of your motorcycle we have a WORKSHOP MANUAL. With that book you can do your mechanical work yourself. Ask your dealer for the book.

Fault-tracing schedule




Does the engine run well at high "revs"?
No
1. Engine "four-strokes"
a) Air cleaner element dirty
b) Needle jet worn
c) Jets too large
d) Too much oil in the petrol
e) Faulty ignition timing
f) Exhaust port and exhaust pipe blocke
g) Needle position too high.
2. "Spitting" in carburettor
a) Fuel filter blocked
b) Dirt in carburettor
c) Dirt in needle valve
d) Carburettor not secured properly
e) Needle position too low
f) Faulty ignition timing
g) Sparking plug loose or dirty
h) Incorrect spark gap
i) Incorrect heat rating of sparking plug
j) Ignition cable loose or poorly insulate
k) Piston rings stuck
l) Crankshaft oil seal worn out
3. Engine "knocks"
a) Faulty ignition timing
b) Poor fuel supply
c) Heavy carbon deposits in cylinder poi
(Glow ignition)
d) Play in gudgeon pin
e) Big-end bearing or cylinder bore wor
Yes
Does the engine run well when idling?
No
1. Incorrect idle adjustment
2. Faulty ignition timing
3. Faulty sparking plug
4. Poor cylinder sealing
Yes
Does the clutch function satisfactorily?
No
1. Clutch slips
a) Insufficient clearance on clutch control
b) Clutch facings worn
c) Incorrect clutch lever clearance
d) Incorrect oil in gearbox.
2. Clutch "snatches"
a) Deposits on clutch discs
b) Incorrect oil in gearbox
3. "Chatter" when changing gear
a) Excessive clearance on clutch control
b) Incorrect oil in gearbox
Yes
NOW ALL SHOULD BE WELL
but REMEMBER
to work in a methodical sequence when tracing faults!
Think before acting and don't just fiddle about the engine parts!

NOTES ON YOUR HUSKY

Whenever work or tuning is performed on your Husky, keep the changes noted here for future reference and forseeing maintenance requirements.

Frame number _____

Engine number _____

DATE BIKE PURCHASED: _____

DATE OF CHANGE OR REPAIR

ENGINE

Piston _____
Rings _____
Cylinder _____
Clutch _____
Bearings _____
Con Rod _____
Gears _____
Ignition _____
Overhaul _____
Decarbonized _____
Spark plug _____
Oil changed _____

CARBURETOR

Jets _____
Needle Position _____
Rebuild _____

WHEELS

Front Brake Lining _____
Rear Brake Lining _____
Front Bearings _____
Rear Bearings _____
Sprockets, Engine and Rear _____
Chain _____
Greasing _____

FORKS

Seals _____
Steering Crown _____
Oil _____

REAR SHOCKS

Setting _____
Spring Rate _____
Replacement _____

CONTROLS

Throttle Cable _____
Front Brake Cable _____
Clutch Cable _____

You and your Husqvarna on the competition circuit

Competition practice
Ride calmly and carefully when making your first practice runs.
Then open up a little more when you know the track conditions better and note the behaviour of the motor cycle.

Ask yourself these questions:

a) Is ground adhesion as good as it could be? It may be necessary to alter the tyre pressure, or even to fit tyres with a special tread pattern if you have these available.
b) Is the damping function of the front fork as it should be and are the rear suspension units correctly adjusted for this type of circuit? It might be necessary to adjust the hardness setting of the suspension units and to alter the damping function of the front fork by changing over to another oil viscosity (see under "Repairs and Maintenance").
c) Is the reduction ratio between the gearbox and rear wheel right for this type of circuit? If you are in any doubt about this, try out another chain sprocket which you think might be more suitable.
d) Is the carburettor function the best possible for this type of circuit? It might be necessary to alter the needle position or to change the jet.

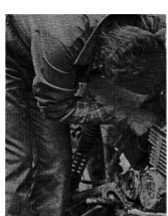


Fig. 53.1

Fig. 53.2

The above points need clarifying and the necessary action taken during practice. Do not be put off by tearaway competitors during practice runs but stick to your own tempo.
When you are acquainted with the overall conditions of the track and are satisfied with the function of the motor cycle, make one or two practice runs "flat out". If you find any section of the track particularly difficult, concentrate on this section systematically and take it easy over the rest of the circuit.

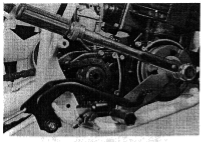


Fig. 54.1

Preparation before race or practise

1. **Check the engine.** Take of the cylinder and inspect the piston and the big-end bearing. See page 10–13.

2. **Clean and check the carburettor.** See page 14–18. Tighten all screws.

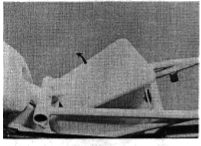


Fig. 54.2

3. **Check the ignition system.** Tighten the flywheel and the ignition coil. Check sparking plug. See page 22–26.

4. **Clean the airfilter.** See page 20–21.

Fig. 54.3

5. **Check the wheels and tighten all spokes.** Begin at the valve. See fig. See page 42–43.

6. **Check the wheel alignment and the chain tracking.** Adjust the chain and tighten the wheel. See page 33–35. Put on sprockets for right gearing.

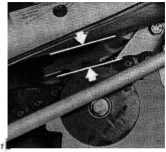


Fig. 55.1

7. **Adjust the brakes and the clutch cable.** Check the brake linings. See page 44.

8. **Check the shock absorbers.** If necessary install new springs. See page 40.

Fig. 55.2

9. **Check the frontfork.** Change oil. See page 38–39.

10. **Tighten all screws and nuts** and adjust the handle bar.

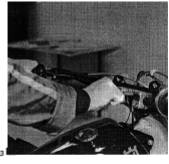


Fig. 55.3

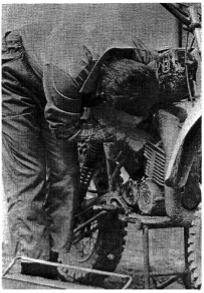


Fig. 56.1

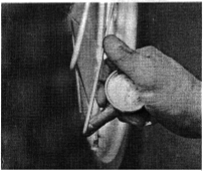


Fig. 56.2

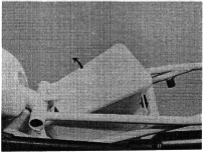


Fig. 56.3

Maintenance between motos

1. **Clean the bike if necessary.**
2. **Check the wheels.**
   Tighten all spokes. Change tyre if necessary. Check tyre air pressure.
   See page 5.
3. **Check and adjust the chain.**
   Lubricate the chain.
   See page 34.
4. **Check and adjust the brakes.**
   See page 45.
5. **Check and clean the air filter.**
   See page 20.
6. **Check the frame for any faults that may occur.**
7. **Tighten the flywheel and all screws and nuts.**
   See technical data.
8. **Check the frontfork and the shock-absorbers.**
   See page 38–39.
9. **Check the oil level in the transmission.**
   and fill up the tank with gasoline. Mixed at a ratio of 20:1. Start the engine.

Riding

Riding position
Many riders complains about pain or sourness in hands, wrists, arms or in the back.

They also ask themselfes: "Why do I get this pain when I have trained so hard and why do not other riders in the team get it?"

Mostly the answer is to be found in the fact that the handlebar and levers are not adjusted correctly to the rider's riding position.

When assembling the motorcycle at the factory the handlebar is put in the same position as all other bikes not considering the individual rider's length etc.

The first thing you have to do before riding a new bike is to adjust the handlebar and levers.

Remember
The levers must be reachable without a too large angle in wrists both when sitting and standing.

In brief there are three different riding positions:

1. **START POSITION** used at starts and during acceleration.
2. **SOFT GROUND POSITION** used when riding on soft bumpy circuits (sand).
3. **HARD GROUND POSITION** used on hard and flat circuits (grass).

Even if it is impossible to learn how to ride from a book – here are some important advices for each of the positions:

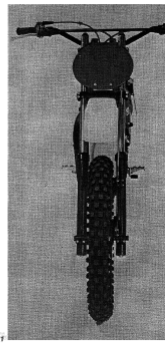


Fig. 57.1

Fig. 57.2

Fig. 57.3

Fig. 58.1

1. **START POSITION**
1. Sit on the bike with "brake foot" supporting the bike. The other foot placed on the footpeg.

2. Sit on the middle of the bike and then move forward 10–15 cm. Lean forward with chest about 10–20 cm above handlebar and your chin in front of handlebar and above front fender.

3. Put pressure on handlebar, footpeg and seat in order to get good traction and balance. Concentrate.

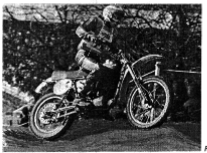


Fig. 58.2

In order to be able to put pressure on bike and to have a good balance the supporting foot must be in almost straight line with upper part of your body (depending on length of your legs).

2. **Soft ground position**
Circuits with soft surface, as for instance sahd, usualy gets very ruff and bumpy.

When going over the bumps, try to ride just on the top of them. This can be done if you lift the front wheel before you hit the next bump and if the speed is sufficiant. The faster you go – the easier it is!

Fig. 58.3

At the beginning – when the speed is to low and it is difficult to lift the frontwheel – you can help the motorcycle by standing with bodyweight more backwards.

As soon as you can go fast over the bumps you have to put your bodyweight over that part of the bike that moves less over the bumps in order to get a better controlle of the motorcycle.

Most of the time you have to stand up except in bends. Try to change position as often as possible to let the lactic acid out of your muscles.

Sit down on every metre were it is possible. Even a short "sit down" of 1 second is useful in the long run.

Fig. 58.4

With this method you save your arms and legs from getting exhausted too fast and your back serve as shock-absorber.

3. **Hard ground position**
On circuits with hard surface, as for instance grass, you have to move your body weight further back in order to put pressure on rearwheel for good traction. See fig.

When going into bends – you have to move forward again to get fast in and fast out of the bend. (Start position).

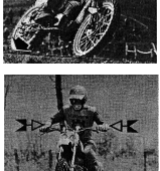
This means that this riding position suits your body well as you have to move back and forth on the motorcycle thereby letting your muscles work in intervalls.

Fig. 59.1

Common to all three positions is that your forearms shall be parallel with the ground when sitting down. (About 90° angle in elbows).

Riding in bends
A so called "be prepared" position is used in bends when a rear wheel skid can be expected.

By holding out the leg with the foot just above the ground, you are prepared to support the motorcycle if a slide should take place.



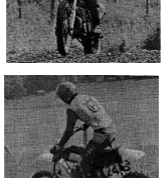
N. B. It is the ground meeting the foot – not the other way around!

Fig. 59.2

Braking
One of the most important part of riding motocross is braking for turns. You save more time here than anywhere else during a race.

On soft tracks with deep sand you often do not have to use the brakes as the sand itself is slowing down the bike.

Braking shall be done by using both front and rear brakes.



The front brake is the best brake.
When using the front brake going into a bend all your weight is on the front end giving you better traction.

Fig. 59.3

Unless the track is not superflat you stand up when going into a turn. This prevent you from being knocked off by the bumps and gives you better control of the bike.

Teach yourself not to shut off too early and to hold your braking point as long as possible into the turn.

Fig. 59.4

Fig. 60.1

Fig. 60.2

Fig. 60.3

Fig. 60.4

If using a berm or if the bend is not too bumpy you sit down as soon as you are in the turn. Lean the bike over and open the throttle to accelerate out of the turn as fast as possible.

Sit forward in "start position" and try to accelerate out of the turn as straight as possible.

The most important to practice are:

1. Downshifting and braking before a turn.
2. Acceleration through and out of a turn.
3. "Folding" a turn.
4. Choice of lines.
5. Planning of lines considering the following next three bends.

Remember

1. Set up your lines by planning three turns ahead.
2. When entering the turn stand with the bike tight between your knees.
3. Use your brakes properly.
4. Use a berm only when you know it is faster than pivoting at the apex.
5. You can accelerate out of the turn either by clutch or throttle control.
6. **Clutch control**
   When going into a turn, pull the clutch lever. Kick the bike into a lower gear and clutch it out of the turn by using a lot of throttle.
7. **Throttle control**
   Do not use the clutch. Ease the gas on smoothly when going out of the turn.
8. If riding a 125 cc bike. Do not use the clutch. Try to keep the bike wide open all the way through the turn.
9. When going out of a turn, use the start-position.
10. When pivoting, get off the brakes at the pivot point and sit up near the tank.

Training program

When Swedish doctors began to study the physical demands on various sportsmen in 1965, they did their main tests on motocross riders. Some of the human guinea pigs who volunteered at the dawn of this research were Rolf Tibblin, Torsten Hallman, Sten Lundin and a youthful Åke Jonsson.

Professor Bengt Saltin of the Swedish physiological Institution and Chief Instructor Göran Agnevik of the Gymnastics and Sports Training College compared top motocross racers against an equal number of student physical training teachers-men of the same age and in the pink of physical condition. After a series of tests, the results were astonishing.

Although there was not much difference in actual strength and stamina between the two groups, the motorcycle racers had the ability to work at their peak for twice, or even three times as long as the Phys. Ed. students. In particular the tests put the strain on legs, arms and wrists with intense pressure on and of, alternately for long periods. The test closely reproduced the physical demands of long cross-country races.

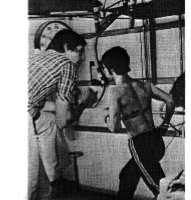


Fig. 61.1

As a result of these studies and the experiences gained from Team Husqvarna, the traditional ideas of physical conditioning had to be revised drastically, where they concerned training motorcycle riders. Flat-out endurance training, like running for long periods at a time, for instance, does not really build the muscles you need for motocross racing, or fast trail riding.

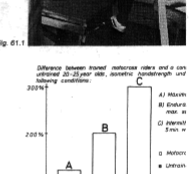


Fig. 61.2

There are many fine books on the market that tell you how to be a top-notch motorcycle racer, but most do not deal sufficiently with the rider's mind and body. Your psychological and physical condition are equally important to winning motocross as your riding technique and the performance of your motorcycle.

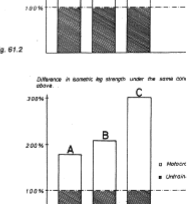


Fig. 61.3

In brief, the most important elements in a rider's success are:

A. Psychological (will power, motivation).
B. Maximum conversion of energy (oxygen absorption, muscle endurance capacity).
C. Teamwork between nerves and muscles (talent, strength).
D. Riding technique (smoothness, ability to develop thinking and technique, reasoning power).

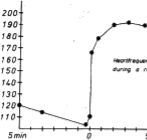


Fig. 62.1

The amount of these elements varies a great deal depending on an individual's native character.

A rider with developed riding technique blessed by native physical and mental talents burns up less energy during a race and needs less physical training than those of us who are less fortunately endowed.

Whether your goal is to wear the number one on your jersey or just able to ride cow-trails faster, safely, for a few minutes longer, the information in this chapter will guide your efforts to that achievement by the most direct route, without wasting any effort on your part.


Fig. 62.2

General advice
Know your body. One might say that like a motorcycle, your body has an engine that demands maintenance, tuning and service. To make your training more effective, you must know how your body is functioning and what happens to it during training or racing.

The training must be adjusted to the individual and not the other way around. We are all different in many ways. Each rider must draw up his own training program, but is must include the following points:

A. INTERVAL TRAINING (physical condition).
B. MUSCLE ENDURANCE TRAINING (Circle-training).
C. SPECIAL TRAINING (riding).

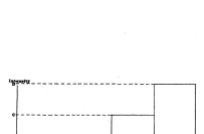


Fig. 62.3

To get improved condition from your training, you need a constant increase in intensity of training, as the body always adjusts to the demands put on it. This also implies that you must not start training too intensely, or with too heavy a load. Increase your training slowly and step-by-step. Otherwise parts of your body will be overstressed.

Begin each training period with **Warmup exercises** to get ready for training proper, so that you obtain the maximum benefit from it and also to prevent injuries.
Remember you are not properly warmed up until you are all in sweat.

A INTERVAL TRAINING
(physical condition)

This training must be carried out in a way that demands great lung ventilation and high heartbeat frequency. Many muscle groups are put in dynamic work (the muscle alternately growing longer or shorter through movement).

Short-short intervals
Run 15 seconds, rest 15 seconds, over a period of 20 to 30 minutes.
If the tempo is not too high and/or the rest periods too short, the muscles have a chance to get enough oxygen and hold the lactic acid level down.

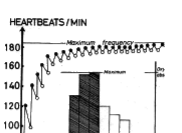


Fig. 63.1

Without a watch and good ambition (or a scrupulous coach), it's difficult to carry out this exercise properly.

Short intervals
Run 60 to 90 seconds, rest 20 to 30 seconds, five to nine repetitions.

The rest periods must be within the prescribed limits (See fig. for why).

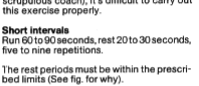


Fig. 63.2

Long intervals
Run 2 to 10 minutes, rest 1 to 4 minutes, five to nine repetitions.

Fig. shows effects of four minutes running, two minutes rest. This method (adjusted to your body characteristics) creates maximum demand for oxygenation, but is painful, as you usually choose too high a speed at first.

70–20 cross-country intervals
Mark out a cross-country track 200–600 yards long. Run at high speed for 70 seconds. After exactly 70 seconds, rest for exactly 20 seconds, then go into another 70 second sprint. Do this four to eight times. Taken together with the above-described interval training, this method develops the best condition (measured in oxygen absorption liters/minute) in the shortest time.

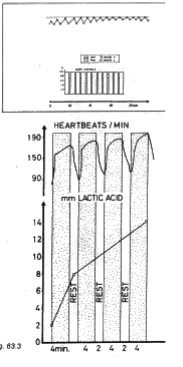


Fig. 63.3

Fig. 64.1

2–10 minute cross-country intervals
Lay out a cross-country circuit of 500–2 000 yards lap length.
Start from point "A" (any convenient place) and run at the highest speed you can keep up during the work period.
Mark where you finished, and go back to "A". Take as much time walking to the start as the work period.
In your next workperiod, you will try to reach the same point on the track as before. If you succeed and go farther, move you mark. If not, try again. Do this three to five times.

Sprinting
This develops speed and muscle strength. Run uphill at maximum speed. 10 to 60 seconds. Walk or limber up while going back downhill. Do this five to ten times.

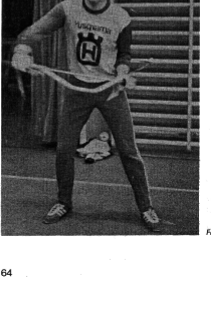


Fig. 64.2

B. MUSCLE ENDURANCE TRAINING
(Circle-training)

Perhaps you have noticed after a hard ride, some muscles stiffen up and refuse to respond with any precision. This "partial seizure" is due to insufficient oxygen supply and blood flow at the same time as residues of lactic acid and other fatigue substances have accumulated in the muscle.

Therefore the aim of this training is to delay the appearance of these symptoms as long as possible, and to harden your muscles and yourself. This training is the hardest and the cruelest for the rider, as he must force himself to continue even when he feels an intense fatigue and is ready to give up.

Muscle training is also a training of the nervemuscle function (coordination) and therefore depends on the pattern of movements and contractions used. If you use the wrong exercises, much work will give very little or no effect when riding.

The do-it-yourself method is called "Circle-training". Here is how to do it.

Circle Training
Mark out an indoor or outdoor circle with seven to ten stations. On each station you will do one exercise for a separate muscle group. In this example, we have chosen the exercises for you (see fig. 65.1)! Again warm up for at least 10 minutes first.

Maximum test
Before you start the real training, you have to do a maximum test to find out what load to use during the following week's training.

Start at station One. Do as many workouts as possibly during exactly 60 seconds. (If you are wellthrained, 120 seconds.) Rest for 60 (120) seconds, while at the same time you write down the number of workouts you did at Station One, and move to Station Two.

After exactly 60 (120) second's rest, you start on Station Two, doing your maximum of that exercise for exactly 60 (120) seconds. Rest as before, writing down the result and move on . . .

When you have completed all the stations you have ten minutes of rest. During that time take your notebook and divide the result from each station by two to get a figure showing your 50 percent capacity for the work period. This is the load you will carry during the following sessions.

Fig. 65.1

Training
After the rest period, start a stopwatch as you begin at Station One. Now you have to do half of your maximum capacity on each station as fast as possible and without rest between sessions. Three laps of your circle must be completed, after which you stop your watch and record the time in your workbook.

The next day you do the same, but now try to reduce the time for three laps.

After one week with three to five training sessions, you will have reduced the time by 15 to 20%, and it's time for a new maximum test. After this test, you will check your figures against the previous week and notice a 15 to 25% improvement. This should stimulate you to continue the following week, using the new 50% figures derived from the second maximum capacity test. And so on . . .

Fig. 65.2

Fig. 66.1

This training is for individuals. You are only competing against yourself, and the intensity of the training increases automatically with the weekly tests.

"Circle Training" is extremely hard, and if beginning or in poor condition, you may have to use fewer stations or work two laps.

Fig. 66.2

SPECIAL TRAINING (riding)

To be a good pianoplayer you need musicality – to be a good tennis player you need ball sense. Independent of natural ability, training implies an improvement of your efficiency. "Special training" means coordinating of movements while riding.

Your aim during this training must be to get a smooth riding technique. With smoothness, you don't need to work so hard – you can do the work with less energy loss.

Fig. 66.3

Movements and frame of mind affect each other, meaning that impulses coming from your surroundings have a great influence on the functioning of your central nervous system. Your race results will be affected by (for example) temperature, weather conditions, track condition, noise-level, and the influence of your surrounding friends and mechanics.

During practice you may have good command of your techniques, but with competition, spectators, noise, and other stresses have been added. This means that a very important part of your training is real racing. Your goal must be a top placing, no matter what competition you have.

Fig. 66.4

TRAINING SCHEDULE

After the race season is over – put your bike in the garage and forget about it for at least a month or so!
Relax and do all the other things you didn't do during the season. Go out for a two-mile cross-country run once or twice a week to keep fit.

After a while you will get hungry for a ride again, and now it's time to begin your preparations for next season. Start to tune-up your body. After a while also include your "special training" by practicing on your bike.

The first races you enter are to be included in your schedule as training. You have to decide by yourself when, and with what race, your season actually starts.

During the season, between races, you also need some training, because racing itself is not enough to keep one really fit during a (compared to other sports) very long season.

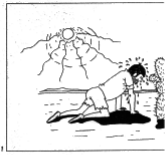


Fig. 67.1

The body fluid balance

The body is cooled down by perspiration, among other things. Your perspiration can during a motocross race, sweat out at the rate of up to two or three litres/hour depending on how high the outside temperature is and how hard the track makes you work.

This perspiring reduces the body fluid balance. When the body fluid is reduced by two percent of the body weight, physical capacity goes away considerably.

To keep up the capacity you must compensate the liquid loss by drinking enough, so that the weight of the body is kept on a constant level. Otherwise you will tire quickly in the second heat and blow the whole competition.

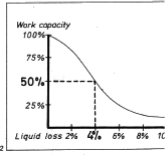


Fig. 67.2

Therefore, find out how much you lose in weight during a normal race, and afterwards take it as a good rule to drink the same quantity during competition.

Carbonic acid drinks are quite unsuitable.

Fig. 67.3

Fig. 68.1

Testing physical condition

Heart capacity is often the factor determining the ability of persons to perform heavy work for long periods. Measuring heart activity is therefore a fully satisfactory yardstick of maximum work capacity. This test is based on the fact that after a correct program of training the ability to absorb oxygen increases and the pulse rate is slower for the same amount of work. The most common methods of measurement are the ergometer cycle test and the step test. Of these, the step test is the most suitable for the individual motocross rider, since with this simple method it is possible for anybody to test himself without the use of special equipment or instruction.

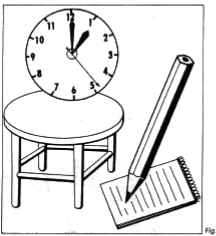


Fig. 68.2

General rules for testing

1. You should have slept soundly and be well rested. It is best to carry out the test in the morning.
2. You should not eat anything within two hours before the test.
3. You should not make within one hour before the test. (Smoking is not conducive to good physical condition and motocross riders are advised to abstain.)
4. Light clothing should be worn.
5. Do not carry out the test if you are sick.

Materials

Chair, bench, box or the like about 0,4 m in height. Watch or clock with second hand.

Work

To carry out a step test, step up and down from the chair continuously for five minutes, each time with the same foot first and at a rate of 30 stepups and 30 step-downs per minute.

This can be timed in such a way that you are standing on the chair with both feet after the first second, and are back down on the floor with both feet after the second etc.

Carry out each step-up and step-down with the left foot first.

When standing up on the chair your knees should be straight: your hips slightly thrust forward and your head held high in a relaxed stance. Hold your arms naturally. It is extremely important to learn these movements correctly from the start, so that the work involved in each test is as identical as possible. This is in order that the results of several tests can be compared.

Fig. 68.3

Pulse

After five minutes, sit down and rest for precisely one minute. Then take your pulse for 30 seconds. Double the result and make a note on the test sheet. (Best way of feeling your pulse is to lay the flat of

your hand against your heart on the left side of your chest or place your fingertips over the carotid artery which you will find just behind the larynx.)

Assessing test results
The test method described above provides a measure of the work capacity of the heart, taking into account the weight of the body, as the body is lifted up each time you step onto the chair. You could also enter the results on a graph (see fig. 66.2) so that you can see at a glance how your physical condition improves.

Physical condition	Test pulse	1st	2nd	3rd
Poor	120			
Fair	110			
Fairly good	100			
Good	90			
Very good	80			
Excellent				

Fig. 69.1

INTELLECTUAL CAPACITY
Physical tiredness impairs the capacity of thinking. Therefore a rider in poor physical condition must either ride at a lower speed or else take more risks than a rider with the same competence only in better condition, especially during the later part of the race.

To get the best results a very strong determination to win is demanded as motivation.

Better effort of will gives, as a rule, better results – to a point. Beyond that point, the result will be the opposite. That means I have "over-motivation" which means that I want more than the capacity I have.

The bad results come from the fact that the over-motivated person works too hard and commits his energy reserves too fast.

The spectators often find the over-motivated nonchalant, apathetic, clumsy or ruthless.

Over-motivation can also arise from concentration on difficulties, unfavorable circumstances or bad condition.

To get the right motivation, (a balance between will and results) you must clearly evaluate both yours and the competitors' and realistically estimate the chances to win.

Fig. 69.2

Test sheet

Date	Weight	Pulse	Notes

Your riding tactics should be planned in detail before the start.

Where shall I line up at the start gate? If I win the start, which speed shall I keep? Can I keep this tempo all the time?

One of the most important things to keep in mind is that a motocross race is not decided until the finish of the last heat. It's not only the rider who must manage, also the motorcycle must be able to make the whole distance.

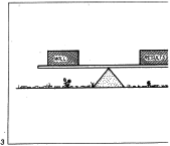


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Fig. 69.3

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