TRIAL 240 PROFESSIONAL

WELCOME AMONG FANTICMOTOR DRIVERS

We would like to express you our satisfaction for your choice and to thank you for the preference you have given us.
The TRIAL 240 PROFESSIONAL you own now, is a new, well tested strong vehicle and it will give you a lot of satisfaction.
In order to keep it always in perfect working conditions, we recommend you to strictly follow the instructions we give hereinafter.

FOREWORD

In order to keep your « FANTIC » in perfect working conditions and so that the guarantee conditions foreseen by the contract of sale would not be lost, we suggest you to contact for any repair only FANTICMOTOR Agent and Retailers.
All pieces supplied by FANTICMOTOR as spare parts are made of the same material and have undergone the same machining cycle and the same controls as the parts forming your FANTIC; a guarantee of a longer life and the best yeld of your vehicle.
We therefore recommend you to always require FANTICMOTOR original spare parts.
With the purpose of giving you a better and better product we reserve the right of introducing technical, aesthetical and colour changes even without notice.

TECHNICAL CHARACTERISTICS

Engine	two-stroke
Cylinder	aluminium, with chromium plated liner
Head	light alloy
Displacement	212 cc.
Bore	69 mm.
Stroke	56,5 mm.
Compression ratio	11,7 : 1
Maximum power	KW 13,25 (HP 18) at 5,500 rev/1'
Maximum torque	kg. 2,4 (Nm 23,54) at 5,5000 rev/1'
Ignition	electronic
Spark advance	1,6 mm. on the piston corresponding to 17° taken on the flywheel external circumference
Feed	gravity feed, with premium grade fuel mixture with 2% of oil ESSO 2T MOTOR OIL or ESSO AQUAGLIDE
Spark plug	CHAMPION L 82
Carburettor	DELL'ORTO PHBL 25 BS
Maximum jet	98
Minimum jet	44
Starting jet	60
Needle valve	D 33 type at the 2nd notch
Gas valve	N 50
Spray nozzle	AQ 268
Float	g. 8,3
Open air screw	2 and 1/4 rev.
Clutch	oil-bath multiple plates
Drive	primary drive with helical gears Z-21/71 ratio 1 : 3,38 secondary drive with chain 5/8" x 1/4" Z-12/39 ratio: 1 : 3,25
Gearbox	TRIAL with 6 ratios

at the gear			total
1st	Z-12/39	1 : 3,25	1 : 35,701
2nd	Z-15/36	1 : 2,4	1 : 26,364
3rd	Z-18/33	1 : 1,83	1 : 20,102
4th	Z-21/30	1 : 1,42	1 : 15,598
5th	Z-25/25	1 : 1	1 : 10,985
6th	Z-30/21	1 : 0,70	1 : 7,689

Start-up	with kick starter, forward operated. It is possible to start with any speed engaged, just pulling the clutch lever.

TECHNICAL CHARACTERISTICS

Frame	high-resistance, special steel, double closed cradle; sterring series assembled on taper roller bearings
Front suspension	telehydraulic fork with advanced pin, liner Ø 35 mm., stroke 170 mm. oil content each leg cc. 220 MARZOCCHI 3,8, ENGLER at 50°C
Rear suspension	oscillating fork and hydraulic shock absorbers which can be adjusted on 5 positions. Stroke 110 mm., wheel displacement 175 mm.
Wheels	rims AKRONT front WM/1x21", rear WM/2x18" in aluminium; aluminium conical hubs supported by bearings with built-in drum brakes with a braking diameter of 125 mm.
Tyres	front 2.75 x 21", rear 4.00 x 18" recommended pressures: for on road use and for on road and off road mixed use front and rear 0,7 bar max. for only off road it is better front and rear 0,4 bar min. Please note - TRIAL 240 PROFESSIONAL is provided with balanced wheels. Please pay attention to every types removing.
Electrical equipment	electronic flywheel 6V - 40+21W, headlight with three lights, rear lamp with stop light operated by the foot brake pedal and number plate lighting. Dipswitch with horn and stop-switch
Lamps	front bulb type 6V 35/35W and torpedo shaped 6V 5W rear bulb type 6V 5/21W
Size:	
wheel base	mm. 1,330
maximum length	mm. 2,130
maximum width	mm. 830
maximum height	mm. 1,130
minimum height	mm. 320
weight	kg. 88
Tank	in thermoplastic resin, capacity 4,5 l with reserve
Fuel distance	km. 130 about
Consumption (CUNA) 1/100 km.	l 4
Maximum speed	110 km/h.

Fig. 2 - **Left view.**
Fig. 1 - **Right view.**

SERIES NUMBER AND INSTRUCTIONS FOR RUNNING-IN AND USE

Before the star-up check the engine oil right level and the tyre right pressure. Then full the tank with 2% « petroil ».

Note:
The first use period is very important for the engine efficiency. We recommend a thorough running-in during the first 750 km. mileage. During the first 750 km. do not utilize the engine at its maximum power, but use the gas control opening at no more than 1/2 of its travel; later on increase progressively.
The « petroil » to be used during the running-in as well as after shall be of premium grade fuel added with 2% of oil ESSO 2T MOTOR OIL or ESSO AQUAGLIDE.
After the first 750 km. it is absolutely necessary to replace the gearbox oil with 500 cc. of ESSO PLUS SAE 20 W SAE 30 (see the instructions at pag. 9), later replace it every 3 ÷ 4,000 km.
Check that all the screws and the nuts fastening the main parts of the motorcycle are not unloosen, in particular the nuts securing the head and the shockabsorbers.
Also check that the fastening collars of the carburettor-cylinder and the carburettor-intake couplings are tightened.

Fig. 3 - **Frame number.**

Fig. 4 - **Engine number.**

DIPSWITCH

The dipswitch is placed on the handle bar left side and the different controls are dispayed in fig. 5, 6, 7, 8.

Fig. 5 - **Disconnected dipswitch, lights are off**
A earth button
B horn
Fig. 6 - **Front and tail lights on.**
Fig. 7 - **Traffic beam on.**
Fig. 8 - **Driving beam on.**

START-UP

— Put the gear in neutral position (fig. 10).
— Open the fuel cock (fig. 11). If the engine is cold pull the choke lever on the carburettor up (A fig. 12).
— Keep the gas handgrip to the minimum and at the same time operate with energy on the start-up pedal.
— Turn the engine in neutral during some minutes so as to obtain an optimum working temperature. Pull the clutch lever competely and engage the first speed pedal downward after the choke lever lowering (fig. 10).
— Gradually leave the clutch lever while rotating the gas handgrip.

Fig. 10 - **Speed selector pedal.**

RUNNING

Turn the gas handgrip to zero, pull the clutch-lever completely and engage the following speed, for upshifting gradually leave the clutch lever while rotating the gas handgrip.

ENGINE STOPPING

Turn the gas handgrip to zero, put the speed selector pedal on neutral (fig. 10), push the earth button (fig. 5) on the dipswitch, close the feed cock.
We suggest to engage the neutral position before the motorcycle has completely stopped for an easier shifting.

MAINTENANCE RULES

The perfect vehicle efficiency and life greatly depend on the care given to maintenance.
However, before carrying out any maintenance or adjustment of the various parts, it is necessary to carefully clean the motorcycle, using a brush and some naphta for the mechanical parts, while the painted or plastic parts shall be washed with water and dried with deerskin.

Fig. 11 - **Fuel cock.**

Fig. 12 - **Starter lever on the carburettor.**

Fig. 13 - **A = oil inlet plug.**

GEARBOX OIL REPLACEMENT

This operation shall be carried out at about every 3 ÷ 4,000 km. after the first replacement at 750 km. Every replacement has to be done when the engine is hot.

Operate as follows:

— stop the engine and rest the motorcycle on its stand;
— remove the oil inlet plug located on the engine left upper part (A fig. 13);
— unloosen the oil drain screw located under the engine (fig. 14);
— let the oil drain for about 3 minutes holding the motorcycle perpendicular to the ground;
— tighten the oil drain screw checking that the gasket is not damaged;
— pour through the inlet plug (A fig. 13) 500 cc. of oil ESSO PLUS SAE 20W SAE 30. If you do not have a graduated container, in order to know the exact oil quantity, unloosen the level screw for 2 or 2 turns (A fig. 15) and pour the oil until it comes out from the level screw hole. Then tighten the screw well and close the inlet plug.

SPARK PLUG

The spark plug is a very important part for the good yield of your engine and it shall therefore be deeply checked. The standard plug is CHAMPION L82.
Before unscrewing the plug it is essential to clean the head with compressed air jets, in order to avoid mud or sand grains settled on it from entering the cylinder.

SPARK PLUG DISASSEMBLY

— Unloosen the plug (when the engine is cold), by means of the suitable spanner, then unscrew it by hand, until it is completely out.
— Clean the spark plug with a wire brush and verify the distance between the electrodes, which shall be 0,5 ÷ 0,6 mm. This operation shall be carried out every 3,000 km. Every 6,000 km. replace the spark plug.
— Reassemble the spark plug and screw it by hand, using the spanner only for locking it.

Fig. 14 - **Oil drain screw.**

Fig. 14 - **Oil level screw.**

Fig. 16 - **Spark plug.**

GAS HANDGRIP ADJUSTMENT

By turning the gas handgrip you obtain the sliding of the gas valve and of the needle valve in the carburettor and consequently the engine acceleration or deceleration, that is of the vehicle, related to the rotation direction. By loosening the handgrip, this comes automatically back to zero.
The gas handgrip must always be efficient without any clearance which should prevent the immediate engine response at every pick-up and it must have the gas cable always at the right tension.
For the adjustment screw or unscrew the cable adjuster located on the carburettor (B fig. 12).

Fig. 17 - **Gas handgrip.**

CLUTCH CABLE ADJUSTMENT

This adjustment is necessary when the clutch is disengaged with difficulty even if you pull the lever completely.

Operate as follows:

— remove the protection cap of the clutch control;
— unscrew the ring nut A and screw the cable adjuster B fig. 18 clockwise (as shown by the arrows in fig. 18) if you want to reduce the clutch lever clearance, on the contrary rotate it counterclockwise direction of rotation. When this operation is ended, replace then the protection cap on the cable adjuster.

Note: we suggest to leave to the clutch lever an idle stroke of 10 ÷ 20 mm. measured at the lever end, before the clutch disengaging. If the lever clearance is too long, even after its adjustment you must check the clutch plates, but for this check we suggest to contact FANTICMOTOR sale and service organization.

Fig. 18 - **Clutch lever.**

FRONT BRAKE CABLE ADJUSTMENT

Before starting this operation it is better to remove the anchor plate, clean the drum and the brake shoes removing possible wasted friction stuff, check the lining wear, then reassemble all the parts. The adjustment must be carried out in the following way:

— remove the clutch control protection cap;
— unscrew the ring nut A and screw the cable adjuster B fig. 19 clockwise if you want to decrease the brake lever clearance, on the contrary screw it counterclockwise. When this operation is over, replace then the protection cap on the cable adjuster.

Note: we suggest to leave to the clutch lever a clearance of 10÷20 mm. measured at the lever end.
If the lever clearance is too long, repeat the same operation on the cable adjuster located on the front anchor plate (B fig. 22).

Fig. 19 - **Front brake control.**

Fig. 20 - **Brake rod adjuster.**

REAR BRAKE PEDAL ADJUSTMENT

As asserted for the front brake, before this operation we suggest to remove the anchor plate, clean the drum and the brake shoes removing possible wasted friction stuff checking the lining wear, then reassemble all the parts keeping the chain right tension.
The adjustment must be carried out by screwing or unscrewing the rod adjuster (A fig. 20). By rotating it clockwise, you will decrease the clearance, on the contrary, by rotating it counterclockwise you will increase the pedal clearance.
This adjustment carried out (leave to the pedal a clearance of 10 ÷ 20 mm.) check the stop switch right working.

Fig. 21 - **Stop switch.**

FORK OIL REPLACEMENT

This is the only operation you must really carry out for the fork. The oil replacement must be carried out every 2,500 km., while we suggest to check the oil level at every 2,500 km. and if necessary, add some oil. This operation must be carried out into two phases that is:

Oil outlet

— rest the motorcycle on its stand;
— unscrew the drain screws on the sleeves (A fig. 22) let the oil flow;
— operate on the handlebar by letting the fork slide till the complete emptying;
— check the drain screw seals, replacing them if necessary, and tighten the screws.

Oil inlet

— unscrew the fork plugs (fig. 23). Before unscrewing the plugs we suggest to disassemble the handlebar and the headlight support for a more comfortable and easier operation;
— pour in every fork leg 220 cc. of MARZOCCHI-3,8 Engler oil at 50°C;
— check the two plug seals, replacing them if necessary and reassemble them.

FLYWHEEL

TRIAL 240 PROFESSIONAL is equipped with a DANSI 6 V 40 + 21 W flywheel. It is an electronic ignition flywheel and does not need any maintenance.
The only check to be carried out at intervals is the ignition check and it should be carried out as follows:
Rotate the inductor clockwise so that when A engraved on the flywheel coincides with the mark engraved on the crankcase (1), the arrow (2) on the flywheel inductor is in the middle of the two lines (3) marked on the pick-up (fig. 24). If this does not happen, you must carry out a new ignition timing, but to carry out this operation, we suggest to contact FANTICMOTOR sale and service organizations.

CHAIN

The current model TRIAL 240 PROFESSIONAL is equipped with a prelubricated REGINA EXTRA 135 BC chain. This organe is so important for a TRIAL motor that it needs a particular care and maintenance; the right adjustment and a thorough lubrication avoid unpleasant difficulties.

Concerning this we recommend that:

— the chain must be always at its right tension, its clearance must be 40 ÷ 45 mm. (fig. 25);
— the lubrication must be carried out every time you wash the chain with oil, after it has been used in mud or when it is dirty.

The lubrication must be carried out by strewing every link with a spray lubricant type REGINA CHAIN SUPER LUBE. This lubricant allows besides to diminish remarkably the wear and to improve the transmission efficiency.

Fig. 25 - **Chain tension.**

CHAIN DISASSEMBLY AND REASSEMBLY

For chain disassembly operate as follows:

— unscrew the rear wheel pin and securing nut and unloosen the two chain adjusters;
— remove the chain spring clip fastener by means of pliers (fig. 26) and pull the chain out after removing the link.

For chain reassembly operate as follows:

— reassembly the chain taking care of inserting the spring clip fastener as shown in fig. 26;
— operate evenly on the chain adjusters (B fig.) until you have reached the right tension;
— tighten the nut and the wheel pin.

CHAIN ROTATION DIRECTION

Fig. 26 - **Spring clip fastener.**

SHOCKABSORBER

TRIAL 240 PROFESSIONAL is equipped with shockabsorbers which can be adjusted on 5 positions.
The vehicle is generally supplied with shockabsorbers adjusted on the first adjustment. If you want to modify it operate using the suitable equipped spanner as shown in fig. 28 until you reach the right adjustment. It is very important that both shockabsorbers have the same adjustment.
The shockabsorbers do not need any special maintenance, but a periodical cleaning of external parts.

Please note: it is very important in case you transport a passenger to operate a more stiff shockabsorber adjustment so that you can allow them to better absorb blows even at full load, without harmful end of stroke.

Fig. 27 - **Shockabsorber.**
Fig. 28 - **Shockabsorber adjustment.**

AIR FILTER

One of the reasons why an engine has a poor yield is definitely the bad filter conditions. That is why it is advisable to carry out a thorough cleaning every 1,000 km. or more often if the vehicle is used in dusty areas.

Operate as follows:

— remove the right cover;
— unscrew the wing nut and remove the small cover of the intake box;
— remove the filter, wash it with warm water with mild soap or shampoo.

Spread it with filter oil BEL-RAY FOAM AIR FILTER MC-6 after rinsing and wringing it. Every 3,000 it is advisable to replace it. In case the filter has a relevant dust or impurity concentration, we suggest to replace it immediately.

Fig. 29 - **Air filter.**

EXPANSION CHAMBER AND SILENCER

Another reason of the engine poor efficiency is undoubtedly due to some coking in the expansion chamber.
Every 5,000 km. check that there are not foulings on the cylinder connection mouthpiece and in the outlet hose of the expansion chamber, in such a case scrape the mouthpiece with a swab. The same operation must be carried out on the silencer end keeping the inlet and outlet hoses clean.
To carry out this operation, remove the two springs (fig. 30) securing the cylinder and unloosen the two securing screws, one under the tank and the other under the intake cover. Remove the expansion chamber and carry out the scraping.
Unloosen the screw (fig. 31) and disassemble the silencer end.
Before reassembling the expansion chamber we suggest to replace the cylinder mouth gasket and the gasket located on the silencer end.

Fig. 30 - **Springs securing expansion chamber.**
Fig. 31 - **Outlet silencer**

CARBURETTOR

TRIAL PROFESSIONAL 240 is equipped with a DELL'ORTO PHBL 25 BS carburettor and its characteristics are mentioned on pag. 4. The said carburettor is connected to the cylinder elastically by means of a coupling and to the induction box by means of a rubber connector and both of them are locked with collars. It is a good rule to check the cylinder-carburettor coupling periodically (fig. 32a) and to replace it every time it shows deterioration signs which should prevent a good carburation.

Fig. 32 - **Carburettor.**

IDLING ADJUSTMENT

This adjustment shall be carried out when the engine is hot operating in the following way:
Let the engine run with the gas handgrip closed, and tighten or unloosen screw (A fig. 32) until the engine reaches a low as possible number of revolutions, but a costant one.

Fig. 32a - **Collars securing coupling cylinder-carburettor.**

FRONT WHEEL DISASSEMBLY

Before carrying out this operation it is absolutely necessary to rest the vehicle on a support so that the front wheel is lifted from the ground. This support will be of wood or any stuff on condition that is suitable for this purpose.

Operate as follows:

— unscrew the speedometer transmission from the gear located on the right side of the vehicle between the fork leg and the wheel hub;
— unloosen the control wire (B fig. 22) so that to leave a clearance to the brake wire, then push the brake lever up and pull the transmission out;
— remove the shoeholder plate unscrewing the screw (A fig. 33) securing the brake lock rod to the plate itself;
— unloosen the screw securing the sleeves (B fig. 33);
— disassemble the pin and pull the wheel out.

For reassembling follow the opposite operation taking care of inserting the special speedometer lock in the hub.
Tighten the screw securing the sleeves on the fork legs very well. Check the front brake adjustment as shown on pag. 11.

REAR WHEEL DISASSEMBLY

For disassembling this wheel too, it is absolutely necessary to rest the vehicle on a support to that the wheel is lifted from the ground of some centimeters, then operate as follows:

— disassemble the rear brake adjuster knob (fig. 33a) and pull the brake rod out;
— loose the wheel pin and unloosen the chain tightenings;
— pull the chain out after removing the spring clip fastener and after removing the link;
— pull the wheel pin out and pull the wheel out.

For reassembling follow the opposite operation taking care of reassembling the spring clip fastener in the right position as shown in fig. 26.

Fig. 33 - **Front wheel hub.**
Fig. 33a - **Rear wheel.**

BRAKE SHOE DISASSEMBLING AND REPLACING

This operation is very easy to be carried out and does not need any special tool and it must be carried out in the same way both for replacing the front brake shoes that for the rear brake ones. Operate as follows:

— disassemble the wheel (see on pag. 18 the instructions for wheel disassembling);
— remove the shoeholder plate;
— insert a corkscrew or a similar tool under one of the shoes and lever as shown in fig. 34 until the shoe comes out;
— remove the springs and unloosen the second brake shoe.

For reassembling operate as follows:

— fasten the springs to shoes;
— set the brake shoes with fastened springs as shown in fig. 35 taking care that the brake cam and consequently the brake lever are in the right position;
— push the brake shoes at their ends with energy till making them come back to their initial position;
— reassemble the shoeholder plate;
— reassemble the wheel following the instructions given at pag. 18.

Fig. 34 - **Brake shoe disassembling.**
Fig. 35 - **Brake shoe assembling.**

DRIVING TORQUES

Description	Q.ty	Ø mm.	Nm. Torque
ENGINE			
Transmission pinion assembling nut	1	14	70 ÷ 90
Flywheel assembling nut	1	15	65 ÷ 70
Engine head assembling stud	4	9	30 ÷ 35
Front engine securing screws	1	10	50 ÷ 60
Rear engine securing screws	4	8	25 ÷ 30
Engine cover securing screws	11	6	9 ÷ 11
Clutch drum fastening nut	1	16	80 ÷ 100
Connecting rod system fastening internal nut	1	20	50 ÷ 70
FRAME			
Shockabsorbers screws	4	8	19 ÷ 22
Front wheel axle nut	1	15	39 ÷ 44
Rear wheel axle nut	1	17	98 ÷117
Handlebar clamp screws	4	8	19 ÷ 22
Fork leg securing screws on the wheel axle	4	6	7 ÷ 9
Steering gear nut	1	20	39 ÷ 49
Rim securing screw	6	7	16,5 ÷ 18,5
Fork leg securing screw	2	12	50 ÷ 70

LUBRICATION AND PERIODICAL OPERATION SUMMARY TABLE

Operations	the first 750 km. After	After the first 3,000 km.	Every 3,000 km.	Every 5,000 km.
Brake check and adjustment	•	•	•	
Clutch check and adjustment	•	•	•	
Carburettor check and adjustment	•	•		•
Gearbox oil replacement	•	•	•	
Spark advance check	•			•
Screw and nut check	•			•
Tyre pressure check	•	•	•	
Chain adjustment		•	•	
Shoeholder plate wear and cleaning		•		•
Fork oil replacement		•		•
Filter replacement			•	
Fork lubrication				•
Wheel bearing lubrication				•
Shoeholder plate cam lubrication				•
Steering bearing lubrication				•
Expansion chamber cleaning				•

TROUBLES AND CURES

When the vehicle operates irregularly, carry out the following checks and act as follows.

If the trouble remains, once all given instructions have been followed, we suggest you to contact FANTICMOTOR sale aid centers which have at their disposal the necessary equipment for any repair and setting up.

Troubleshooting	Cures
Start-up difficulties	
Feeding, carburation, ignition	
— the « petroil » cock is closed or the fuel tank is empty	— open the cock or fill the tank
— jet, carburettor body or cock obstructed or dirty	— disassemble and wash with petrol. Dry with a compressed air jet.
— flooded engine	— close the petrol cock, rotate the gas handgrip, and push on the pedal until starting up. If the engine does not start, disassemble the the spark plug, clean it or replace it. Before reassembling the spark plug make the engine idle for expelling the excess of fuel.
— air filter obstructed or dirty	— see on pag. 16.

Troubleshooting	Cures
Different working irregularities	
1) exhaust noise weakening	— too much coking on the cylinder gas hoses. Obstructed silencer.
2) engine stopping at the maximum gas opening	
— dirty jet	— disassemble and clean.
— weak carburation	— replace the jet with an uprated one after checking that: · the jet is not dirty or oxidated · the spark plug is not dirty or faulty · the carburettor is clean · the « petroil » flows regularly · the gaskets are not faulty.
3) engine exhaust irregular, cracklings in pickup or when the vehicle is climbing	
— too rich a « petroil »	— replace the jet with a lower one.
— flooded carburettor due to impurities in the fuel	— disassemble and wash with petrol. Dry with a compressd air jet.
4) excessive consumption	
— air filter clogged or dirty, or the air fixed lever in the « closed » position or not completely open	— clean the filter. — unloosen the air lever and lubricate.
— other reasons « carburettor, weak compression)	— contact the sale aid centers.
5) excessive noise, bad clutch working, spontaneous gear release, lacking coupling of the start-up group, suspension inefficiency	— contact the sale aid centers.

ELECTRIC DIAGRAM

2) Bulb-type lamp 6 V - 35/35 W
4) Horn 6 V - 28 W
6) Two-way connector
8) Stop switch N.C.
10) Nine-way connector
12) Spark plug
14) Speedometer 6 V - 1,2 W
1) Torpedo-shaped lamp 6 V - 5 W
3) Diode
5) Flywheel 6 V - 40 + 21 W
7) Bulb-type lamp 6 V - 5/21 W
9) Light device
11) Coil A T
13) Five-way connector

grigio	grey
bleu	blue
bianco	white
nero	black
marrone	brown
verde	green
giallo	yellow
arancio	orange
rosso	red
rosa	pink

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