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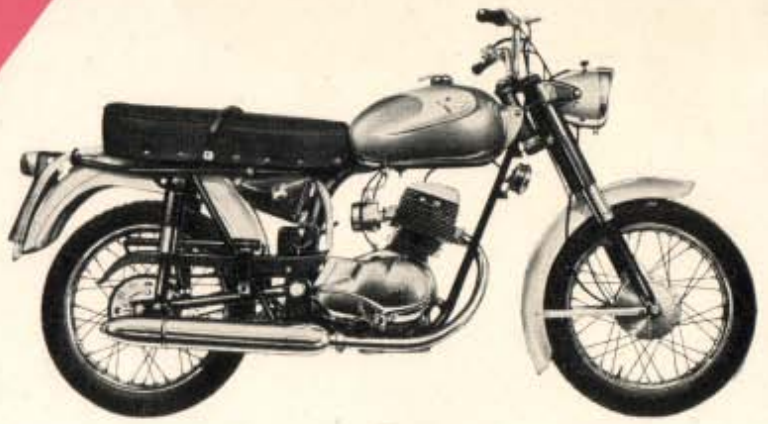
TELEGRAMMI: «DUCATIMEC» - BOLOGNA

DM. - Mod. 595

ESPORTAZIONE U.S.A.

DUCATI 125 BRONCO **196**

# Instructions for Use and Maintenance



Distributor for U. S. A.
BERLINER MOTOR CORPORATION

**DUCATI MECCANICA S.p.A. - BOLOGNA - ITALY**

PRINTED IN ITALY

# DUCATI 125 BRONCO 196

## FEATURES - USE - MAINTENANCE

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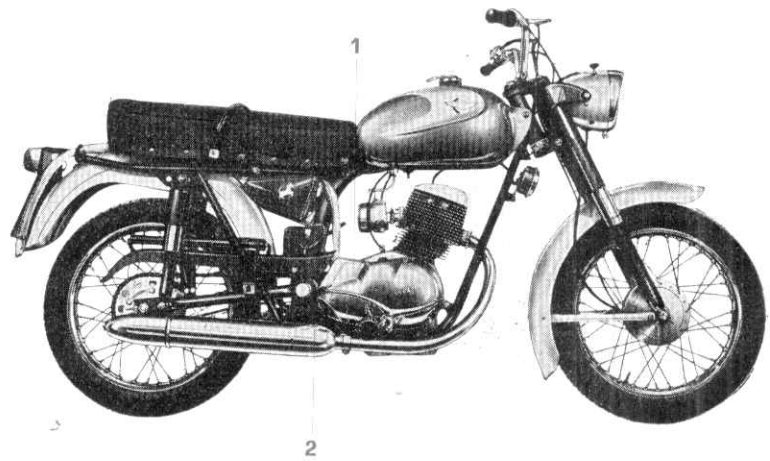
# SERIAL NUMBERS

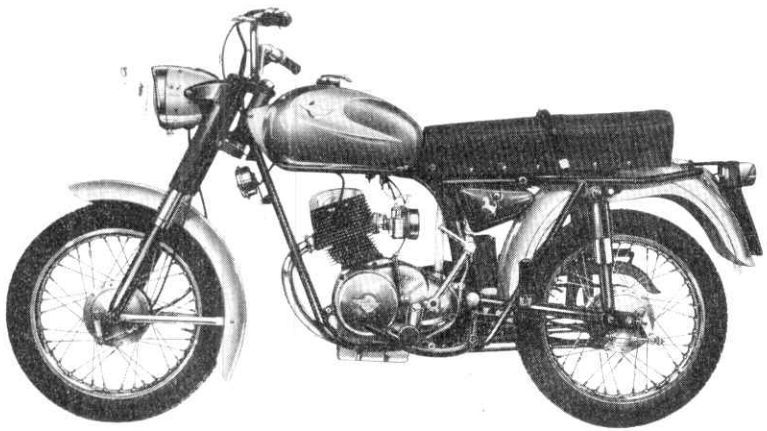
Every « DUCATI 125 Bronco » can be identified by the frame and engine numbers.

The frame serial number is stamped on the central girder of the frame, near the tool box.

The engine serial number is stamped on the crankcase, near the gear indicator.




1 - Identification number of the engine.
2 - Identification number of the frame.



NOTE!

The life of your engine depends on the treatment it receives from you during the initial runing-in period. You should, therefore, scrupulously follow the recommendations which you will find on pages 5, 16, 17, 18, 19, 20 and 21.



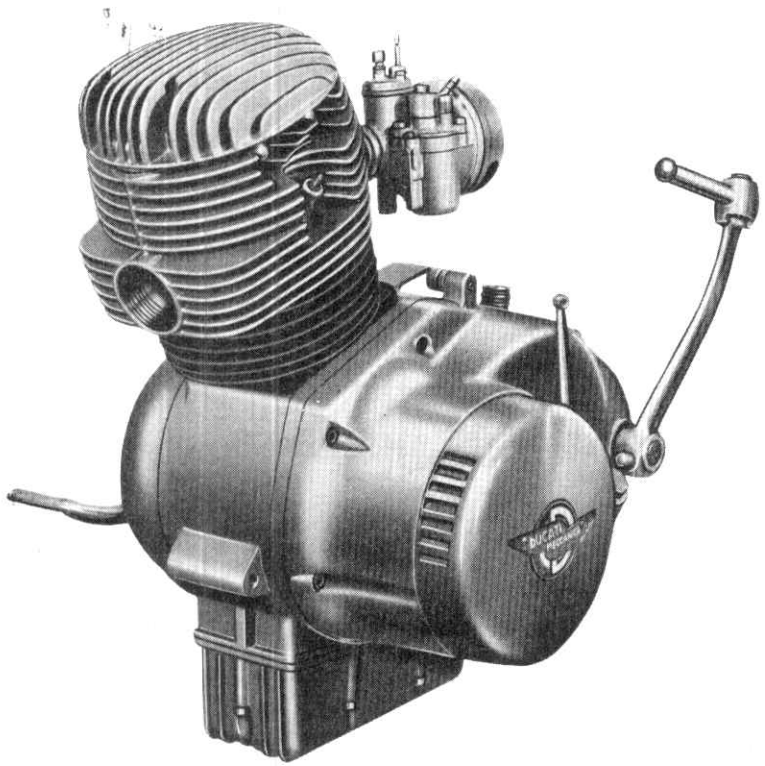
# PRECAUTIONS TO BE FOLLOWED DURING THE INITIAL RUNNING-IN PERIOD

All the moving parts of the engine and cycle must be gradually « bedded-in » during the initial use of the machine and great care must be taken not to strain the moving parts of the engine at this stage. You are, therefore, advised not to indulge in sudden acceleration and to avoid long bursts of speed at high revolutions, especially when travelling uphill. To ensure proper bedding-in of all the moving parts of the engine, it is advisable to keep well within the following maximum speeds:

| Distance Run | Maximum speeds per hour in Km. and Miles | | | |
|---|---|---|---|---|
| | in bottom gear | in second gear | in third gear | in top gear |
| First 310 miles | 6 | 12 | 22 | 31 |
| First 500 Kms. | 10 | 20 | 35 | 50 |
| From 310 to 620 miles | 9 | 19 | 28 | 37 |
| From 500 to 1,000 Kms. | 15 | 30 | 45 | 60 |

and after completing the first 300 Kms. (186 miles) you should:
— change the engine oil;
— readjust the tappets;
— tighten the holding-down rods of the cylinder head and all other nuts;
— readjust the contact-breaker inside the flywheel magneto.
The more strictly followed and accurately complied with are the foregoing recommendations, the longer will be the life of the engine and the fewer the overhauls and adjustments needed.

# MAIN FEATURES



## ENGINE.

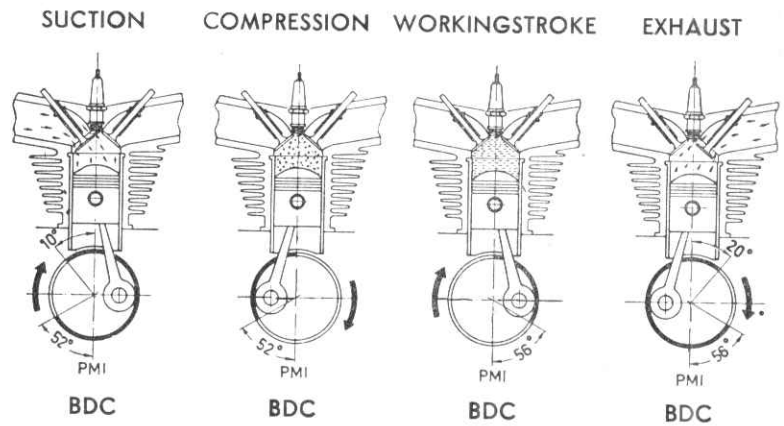
— Single cylinder four-stroke, wiht cylinder inclined forward 25° from the vertical;
— Bore: 55.2 mm. (2.1733 in.);
— Stroke: 52 mm. (2.0473 in.);
— Cylinder capacity: 124,443 c.c. (7.5940 cu. in.);
— Compression ratio: 6,8 : 1;
— Maximum power: 6.5 CV (6.4111 HP.) at 6,500 r.p.m.;
— Hemispheric combustion chamber;



— Cylinder of special cast-iron;
— Connecting rod of speciale steel, with Dürkopp roller cage at big-end (crank-pin) and bush at little-end (gudgeon pin);
— Domed piston of light alloy, with skirt in one piece and four sealing-rings, two of which are slotted oil scrapers;
— Cylinder head cast in light alloy and closely finned.

## TIMING.

Overhead « V » valve timing is controlled by two cams on a shaft in the crankcase, rods and rockers. The valves are of special steel.




— Tappet adjustment is effected by means of screws on the rockers.

Timing, with a clearance of 0.3 mm. (0.0118 in.) between the valve and the rocker, is as follows:

| VALVE | OPENING ±5° | CLOSING ±5° |
|---|---|---|
| Suction | 10° before TDC | 52° after BDC* |
| Exhaust | 56° before BDC | 20° after TDC** |

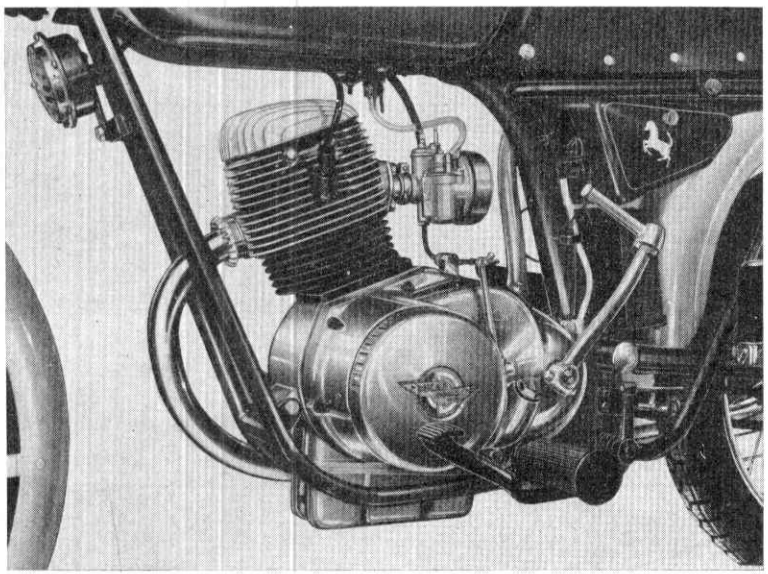
* BDC - Bottom dead center.
** TDC - Top dead center.

The clearance between valves and rockers, with the engine cold, is 0.05 mm. (0.0020 in.); and the clearance should be adjusted to this measurement aftetr checking the above timing data.

## PETROL FEED.

The petrol is fed to the carburetter by gravity. The carburetter is a Dell'Orto, type ME-18BS, complete with tickler and straight air-cleaner, type 4779.
For the correct operation of the carburetter, the details are as follows:

— diameter of choke: 18 mm. (0.7087 in.);
— main jet: n. 78;
— idling jet: n. 35.



The petrol tank holds about 13 litres (=2.8597 imperial gallons; = 3.4342 American gallons) and is provided with a three-way cock: closed. open, reserve. A further cock union makes available the approx. 2 litres reserve: (0.44 imp. gallons or 0.5284 American gallons).



## LUBRICATION.

The crankshaft and the connecting rod are pressure lubricated by means of a pump which gears are driven by the engine shaft; this pump draws the oil from the filter set in the sump.
The regeneration of the oil is obtained by means of gravity.
The head is lubricated by oil vapours.
When it is necessary to change the oil (ESSO EXTRA MOTOR OIL 20 W-30-40, or RACER 40) in the crankcase pay attention to fill the engine oil sump with 1 Kg. (2.205 lbs.) = 1.200 litres (0.2640 imp. gallons = 0.3170 U.S.A. gallons). The right level can be verified by means of the measuring stick in the oil plug wich is on the left sid e of the engine crankcase between the flywheel and the starting lever; this check must be carried out by screwing down the oil plug in its seat.

## COOLING.

Both the cylinder and its head are fully finned to promote engine cooling.

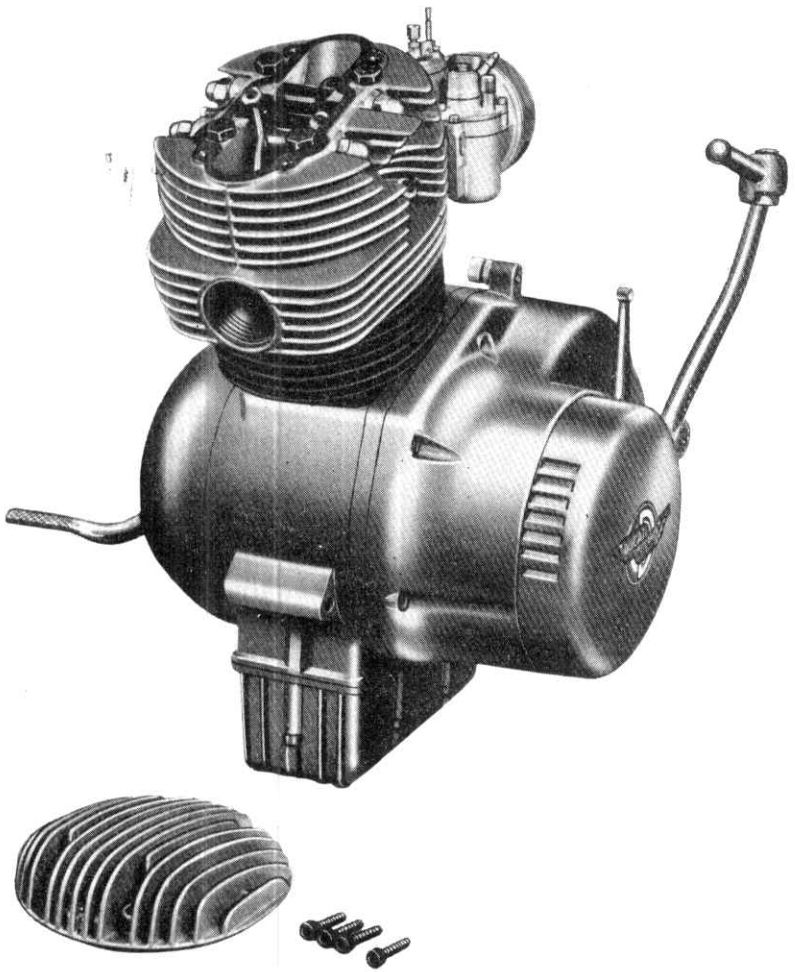
## IGNITION.

Ignition is obtained by means of a flywheel magneto of the rotating inductor type.
Spark advance is steady; it is $35° \div 38°$.
The gap between the contact breaker points is $0.3 \div 0.4$ mm ($0.0118 \div 0.0157$ in.)
The H.T. coil is outside.
The spark plug is a Marelli CW 225 N, or an equivalent type.

## TRANSMISSION.

The transmission components comprise a clutch and a gearbox.
The clutch is of the multiple plate type with steel and phenolic resin disks, it operates in an oil bath and is assembled on the primary shaft of the gearbox. The clutch is operated by the lever on the lefthand side of the handlebar.
The drive is transmitted from the engine to the primary shaft of the gearbox by means of gears and the speed reduction ratio is 3.454 to 1. There are 4 speeds, their gears being always in engagement. Gear changes are made by pedal. There is an indicator on the engine crankcase to show which speed is engaged.
The ratios between the gearbox gears are:

— in bottom gear: 1 to 2.69;
— In second gear: 1 to 1.85;
— In third gear: 1 to 1.36;
— in top gear: 1 to 1.



The drive between the gearbox and the rear wheel is by chain and the reduction ratio is equal to 2.412 to 1.

**FRAME.**

The frame of the « DUCATI 125 Bronco » is of the tubular type, with double cradle, and is designed with smart lines.
The front fork is of the telescopic-hydraulic type and designed



for long stroke (MARZOCCHI); each tube contains 150 cu. cm. (9.1540 cu. in.) of ESSO EXTRA SAE 20.

The rear suspension consists of a swinging fork with double acting hydraulic shock-absorbes.

The engine is cradle attatched.

The rider's position has been designed with great care, with a view to realise the greatest possible comfort.

The brakes are expanding, in double-shoe type with a drum diameter of 123 mm. (4.8425 in.). The width is 25 mm. (0.9842 in.).

The front wheel, with removable axle, is supplied with reinforced knobby tyres, size 2.75" x 16". The rear wheel, with cushion drive, is provided with block-tread and reinforced tyres, size 2.75" x 16".

The tyre pressure is respectively: 1.75 kg/cm$^2$ (24.89 lb/sq. in.) and 2.25 kg/cm$^2$ (32.01 lb/sq. in.).

The number plate is mounted on the rear mudguard in regular position.

A roomy toolbox and the battery are fitted under the twin saddle.

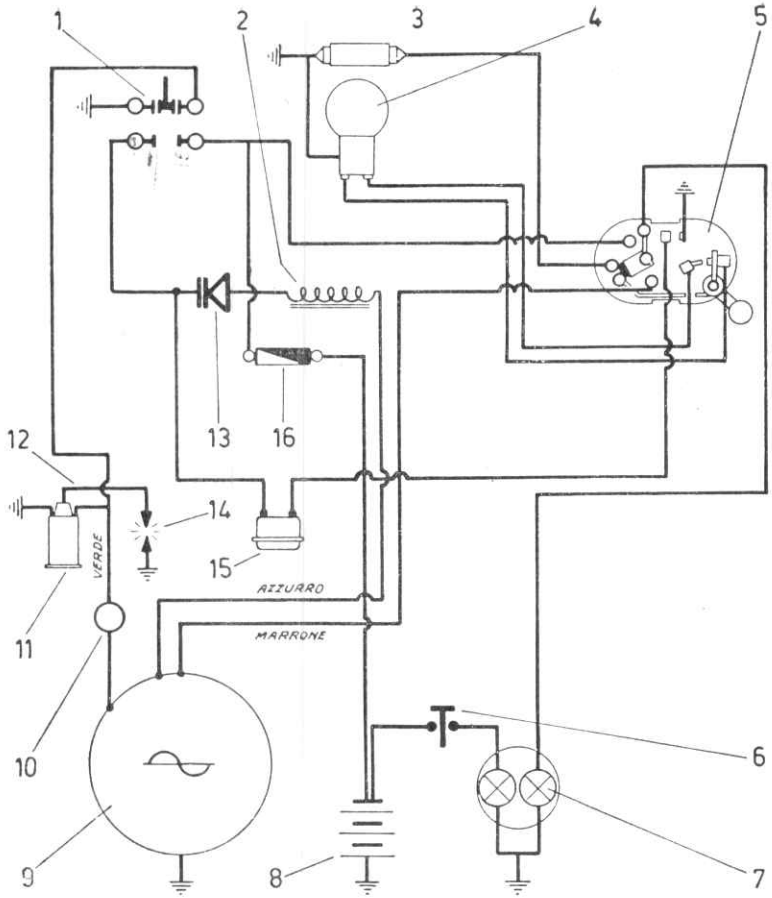
## ELECTRICAL PLANT.

The engine of the « DUCATI 125 Bronco » is equipped with a flywheel magneto alternator of the external H.T. coil type. The light system input coil has an output of 28 W.

The generator consists of the following parts:

1) the flywheel, constituted by the following parts: the magnets with their pole shoes, their supporting drum and the hub which carries te cam;
2) the contact breaker plate, composed by: two coils with their respective magnetic cores, the contact breaker, the capacitor and the leaf-spring holding the lubricating felt.

The headlamp supplies 3 lights: town light (6V-3W), headlight (6V-25W) and an antidazzling light (6V-25W).

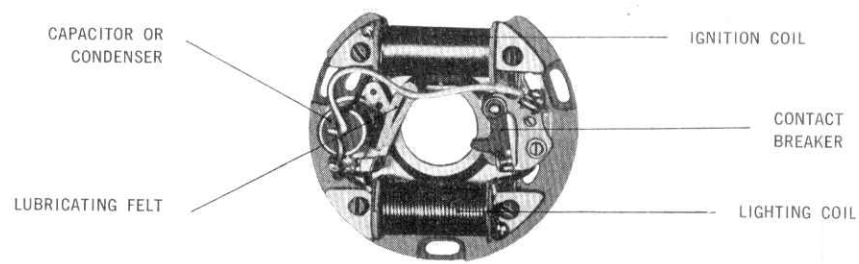


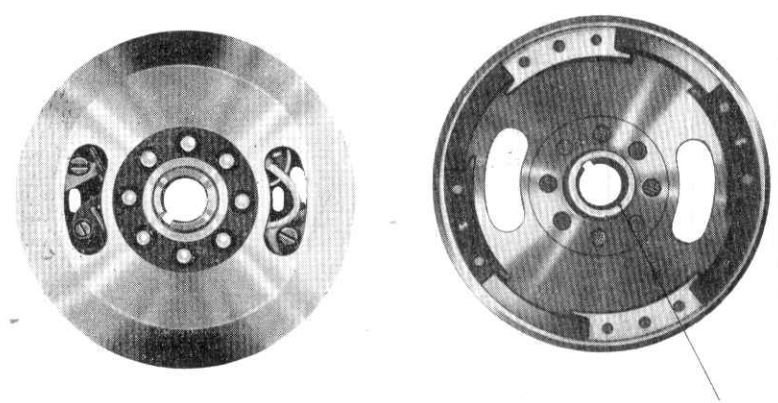

verde - green
azzurro - blue
marrone - brown



## DESCRIPTION OF ELECTRIC SCHEME.

1 - 4-position key;
2 - Single impedance;
3 - Town light (6V-3W);
4 - Headlamp (6V-25/25W);
5 - Main switch, dimmer switch and horn button;
6 - Stop light switch;
7 - Number-plate light 6V-3/15W;
8 - Battery 7A$^{h}$ - 6V - SAFA 3 IL3;
9 - Generator 6V-28W;
10 - Contact-breaker. Capacitor;
11 - H.T. Coil;
12 - Ignition cable;
13 - Rectifier E50-2. 2A-BF;
14 - Spark plug;
15 - Horn;
16 - Fuse.




OUTER VIEW OF THE ASSEMBLED FLYWHEEL

On the handlebar, near the lefthand grip, there is the three-position switch with the two-way control switch for the headlight and anti-dazzling light, as well as the horn button.

To use this switch, first insert the key (on the headlamp); if the key is taken out, the engine will stop at once.

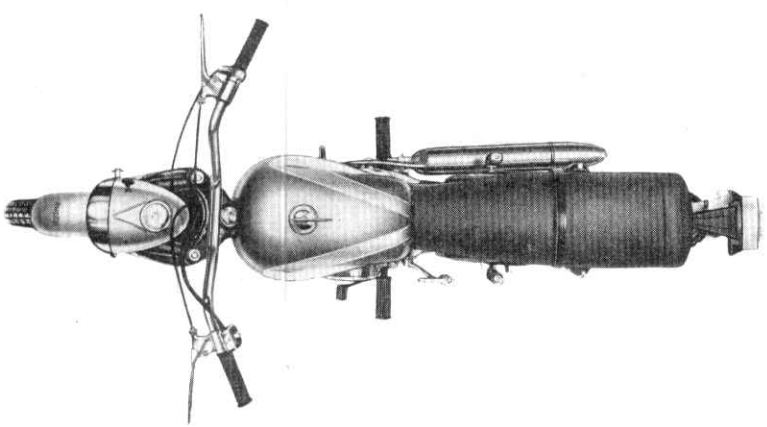
The number-plate bracket carries also the rear light with the bilux 6V-3/15W bulb that serves for the number plate and the stop-light.

A rechargeable, SAFA Model 3IL3, acid storage battery (6V, 7Ah), charged by the magneto-alternator, feeds the horn, the town light and rear light when the engine is at a standstill.

## CONTROLS.

As mentioned in the preceding paragraph, on the lefthand handlebar near the left, not-removable and grip are the three-position switcth, the horn pushbutton and the clucth release lever. The righthand hand-grip rotates to accelerate and slow down engine; right in front of this grip is the front brake hand-lever.

Near the lefthand footrest, is the rear wheel footbrake pedal which operates both the stop-light and the articulated kick-starter. Near the righthand footrest is the foot-operated double-arm gear change lever.





## ADJUSTMENT OF THE CHAIN TENSION.

When the motor cycle runs on the ground (not resting on its stand) with a passenger on the rear end of the saddle, or when the rear spring suspension is at half stroke, the chain must be a little stretched.

## OVERALL DIMENSIONS AND WEIGHT.

— Overall lenght: mt. 1.900 (6.2336 ft);
— Maximum width: » 0.820 (2.6903 ft);
— Maximum height: » 0.980 (3.2152 ft);
— Height of saddle: » 0.790 (2.5919 ft);
— Wheelbase: » 1.290 (4.2322 ft);
— Weight: kg. 91 (200.621 lb)

## TOOLS SUPPLIED WITH MACHINE.

— Tyre inflator;
— Brush for sparking plug;
— Screwdriver;
— Hexagon double box spanner, for 21 (0.8268 in.) and 22 mm. (0.8661 in.) nuts;
— Hexagon spanner for 5 mm. (0.1968 in.) hollow hexagons;
— Hexagon spanners for 14 (0.5512) and 19 mm. (0.7480 in.) hex. nuts and also for removing tyres.

## PERFORMANCE

Maximum speeds:
— in bottom gear: 19 m.p.h. (31 Km/h.);
— in second gear: 29 » (47 Km/h.);
— in third gear: 40 » (65 Km/h.);
— in top gear: 53 » (85 Km/h.);

Consumption at a cruising speed of 37-40 m.p.h. (60÷65 Km/h.) about 118 (England) and 99 (America) miles per gallon of NORMAL ESSO petrol.

— Trip possible on one full tank: about 335 miles (540 Km.)
— Maximum possible gradients with rider only:

| in bottom gear | in second gear | in third gear | in top gear |
|---|---|---|---|
| 25% | 20% | 11% | 7% |

# HOW TO HANDLE AND CARE THE 125 Bronco

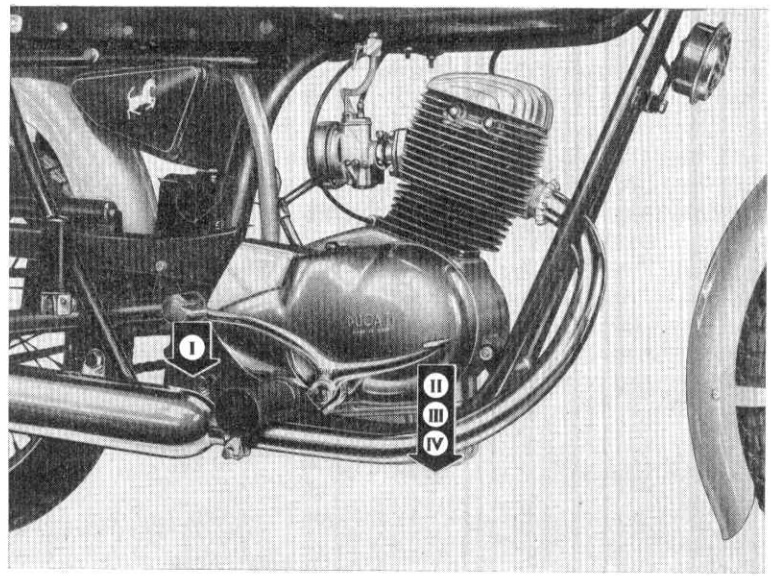
## FILLING - UP AND STARTING THE ENGINE.

Before starting the engine make sure there is sufficient fuel in the tank for the distance you wish to travel, and check that fuel cock is open and the oil level is right. Check the oil level by means of the measuring stick (in one with the oil plug) which is on the left side of the crankcase, between the flywheel and the starting lever.
We advise the use of ESSO EXTRA MOTOR OIL 20 W-30-40 or RACER 40.
Check that the gearshift lever is in neutral position, then move the carburetter tickler to make sure the petrol goes into the carburetter.
Now turn righthand twistgrip about 1/8th of its total run, and kick the starter vigorously down, after having inserted the key in the switch on the headlamp. If the engine will not start, turn the twistgrip more or less and kick the starter again. Once the engine has started, do not race it immediately, especially when it is cold, but let the lubricating oil warm up to facilitate its circulation throughout the engine, so as to reach and lubricate all moving parts.

## RIDING AWAY.

With the engine running, disengage the clutch and, using your heel, push downwards the rear arm of the gear lever. When this lever is left to itself, it will come back to its original position. The bottom gear is now engaged and the gear indicator has now moved to position 1. Now turn the righthand grip a little and gradually release your hold on the clutch lever; the motor cycle will slowly move. Having released the clutch entirely, speed up the machine to about 6-9 m.p.h. (10÷15 Km/h.) and then, with a view to engage the 2nd gear, fully and quickly, turn back the righthand grip; then pull the






clutch lever and push down the gearshift lever front arm. Again turn forward the righthand grip and release the clutch. Similar operations are carried out in order to pass from 2nd gear into 3rd gear, and from 3rd gear into top gear.
To change down from a high gear to a lower one, operate as follows: close the gas, pull the clutch lever, accelerate the engine for a while (thus synchronizing the gears about to be engaged), engage the lower gear and then release the clutch lever.
A good motorrider will make intelligent use of the controls and at the right time. When riding uphill and the machine tends to slow down, change to a lower gear at once; do not « hang on » to a high gear when the effort required from the engine advises the use of a lower gear.
The clutch should not be held too long disengaged with a gear engaged, because the clutch plates will become overheated, causing rapid wear by friction.

Except in case of emergency, never use the brakes brutally when you are almost up against an obstacle; first throttle down the engine, then use the brakes.
Bear in mind that insufficiently inflated tyres weaken the road-holding qualities of the motor cycle, they wear out more quickly and lower the brake efficiency.

## STOPPING THE MOTOR CYCLE.

To stop the machine, close the throttle completely (the engine will then act as a gentle brake), disengage the clutch and put the gear lever into neutral. The use of the brakes will then stop the machine.
To stop the engine take out the key from the switch on the headlamp.

## MAINTENANCE.

On good maintenance depends the good condition of the motor cycle.
By following the hereinafter fundamental rules, you can avoid serious trouble and obtain excellent service from your machine. The operations to be carried out, are described progressively since they depend on the mileage run by the motor cycle. Of course, the following recommendations are merely approximate, because lubrication, checking and adjustment depend on the nature od the route, the seasonal temperature, the length of the intervening period, etc.
After the first 186 miles (300 Km.) change the engine sump oil, clean the filter thoroughly, check tyre pressure with a gauge, tighten the cylinder holding-down rods if necessary, readjust the brakes and measure the clearance between valves and rockers, bringing it back to 0.05 mm. (0.0020 in.) by means of the nut and lock-nut disposed on the rockers.
Every 620 miles (1000 Kms.), add some oil to the contents of the cranckase until the maximum level is reached, as shown by the upper mark on the dipstick. Adjust the distance between the sparking plug electrodes to about 0.5 mm. (0.0197 in.) and clean them with a small wire brush and some petrol. Clean the platinum-plated points of the contact breaker with a rag damped in petrol and check the maximum opening of the points which should not exceed 0.3 ÷ 0.4 mm. (0.0118 ÷ 0.0157 in.). Check



the clearance between valves and rockers as mentioned previously. Every 1240 miles (2000 Km.) dismantle the exhaust pipe, the cylinder and its head to remove the carbon deposits from the cylinder head and the piston (this should be done by a DUCATI Servicing Garage). Change the crankcase oil; remove the old oil from the engine sump while the engine is hot to make sure that it drains off completely. Remove the carburetter air filter and wash it in petrol or Kerosene in order to remove all impurities from the gauze. Clean out the carburetter petrol chamber and the running and pilot jets. Readjust the clutch (the wear on its linings might otherwise let it slip). Lubricate the hinge of the rear fork. Dampen with 2 drops (not more) of thin mineral oil the lubricating whick of the contactbreaker cam. Every 6210 miles (10.000 Km.) take down the closing disks of the crankshaft and clean out the cavity of the crankpin.
The motor cycle should be washed and dried periodically according to the length of time it has been used and the state of the roads. Clean the engine with paraffin oil and wipe it dry with clean rags. Wash down the painted parts of the frame with water, using a sponge for washing and a shammy leather for drying. Never use solvents, petrol, spirit or Kerosene, otherwise the paint will look flat. Grease the chromium plating with vaseline and polish with a shammy.

## INSTRUCTIONS ON HOW TO PROCEED THE FIRST TIME YOU CHARGE THE BATTERY.

Battery type 31L3 - Capacity: 7 AH in 20 hors.

1) Fill each cell with sulphuric acid (specific weight 1280) till level is 1 cm. (0.3937 in.) above top edge of the plates.
2) Let battery rest for about 6 hours, to allow plates to soak and cool down; then re-establish the right level by adding more sulphuric acid.
3) Charge battery for at least 48 hours running, at an intensity equal to 1/10th its capacity, *until electrolyite thickness has recovered its initial value.*
(While charging the battery be careful electrolyte temperature does not exceed 50°C. 122°F.).

At this stage there will be an intense ebullition in all the cells. Voltage of each cell must reach at least 2.7 volts while charge is being made; that is, 8.1 volts for a 3-cell battery, an 16.2 volts for a 6-cell battery.
If necessary, restore right level by adding distilled water.
The battery is now ready for use.

## INSTRUCTIONS ON MAINTENANCE OF BATTERY.

During idle periods, and before using battery, make sure electrolyte level is at least 6 mm. (0.2362 in.) above top edge of plates if battery is for a car, and 2 mm. (0.0787 in.) if battery is for a motor cycle. See that the above mentioned level is always maintained. Add distilled water only; NEVER sulphuric acid.
If the battery is not used at once, it must be charged for a short time at least once a month, or every time it has to be used.
*Take great* care that especially the upper part of the battery is kept clean and dry. Make sure the vent plugs are well screwed down; if they are damaged, change them. Protect terminals and connections from possible oxidation by coating with pure vaseline.
The characteristics of the battery should correspond perfectly to those the electric equipment assembled on the motor cycle.

## RECHARGING.

Before recharging the battery, which has been removed from the machine make sure it is quite clean.
Put into circuit and recharge preferably at a normal intensity in amperes equal to and not exceeding 1/10th of the battery capacity rating in 10 hours (see tables and other data in SAFA Catalogue).
If, while recharging, the temperature (measured by means of an appropriate thermometre dipped in the electrolyte) reaches 50°C. (122°F.) reduce or stop the charge till the temperature has gone down to at least less than 40°C. (104°F.). Charging



must continue until reading of the electrolyte density is the same 3 times running and is equal to 31° Bè (specific weight 1275) or until voltage has reached the value of 2.7V. per cell. *NEVER add sulphuric acid.* Maintain level by adding chemically pure distilled water ONLY.

# LOCATING AND REMEDYING FAULTS

You will find below a list of some of the faults which may arise, and also the advice how to remedy them:

## ENGINE DOES NOT START EASILY.

First of all, ascertain that there is enough petrol and the cock is turned on. (A=ON, R=RESERVE). If these are not the cause the fault may be one or more of the following:

| CAUSE | REMEDY |
|---|---|
| **Petrol pipe is clogged.** | Blow through it until the obstacle is removed. |
| **Petrol filter dirty.** | Dismantle the filter and clean the gauze by air blows. |
| **Petrol filter of cock dirty.** | Dismantle the filter and clean it by a blast of air through the gauze. |
| **Carburetter float stuck.** | Remove the float and clean out the float chamber. (This should be done at a DUCATI Servicing Garage). |
| **Float leaking.** | Change the float (at a DUCATI Servicing Garage). |
| **Jet is clogged.** | Send a blast of air through it, to remove obstacle. |
| **The cable between the ignition coil and the sparking plug is broken or sparking externally.** | Inspect the cable insulation for faults and, if necessary, change the cable (at a DUCATI Servicing Garage). |



| CAUSE | REMEDY |
|---|---|
| **Defective sparking plug.** | Change or clean the plug, making sure that the insulating core is not damaged, that there are no carbon deposits one the electrodes and that the spark gap does not exceed 0.5 mm. 0.0197 in.). |
| **The contact breaker point do not open.** | Check the position of the fixed contact point (at a DUCATI Servicing Garage). |
| **The contact breaker arm seized on its pivot.** | Check movement between rocker arm and pivot and, if necessary, lubricate the pivot (at a DUCATI Servicing Garage). |
| **The contact breaker points are dirty.** | Clean the points with a rag damped in petrol (at a DUCATI Servicing Garage). |
| **The capacitor is broken or is in short circuit.** | Change the capacitor (at a DUCATI Servicing Garage). |
| **Compression is lacking.** | See that sparking plug is tightly screwed in; control the valves for gas-tightness; check the piston rings, too. (At a DUCATI Servicing Garage). |
| **Valve spring broken.** | Change the valve spring (at a DUCATI Servicing Garage). |
| **Valve sticking.** | Dismantle the valve, clean the valve stem and the bore of the guide; when reassembled, the clearance between stem and bore should not exceed 0.15 mm. (0.0059 in.) At a DUCATI Servicing Garage). |
| **Tappet clearance adjustment screw is loose.** | Readjust the clearance and tighten the set-nut properly. (At a DUCATI Servicing Garage). |

## ENGINE EFFICIENCY IS UNSATISFACTORY.

| CAUSE | REMEDY |
|---|---|
| **Irregular feed of petrol to carburetter.** | Clean carburetter filter, cock filter and petrol pipe. |
| **Main jet partially obstructed.** | Clean it out by means of an air blast. |
| **Carburetter butterfly valve does not open completely.** | Readjust the valve travel by means of the adjusting screw of the carburetter Bowden cable. (At a DUCATI Servicing Garage). |
| **The float needle does not close properly.** | Clean out the carburetter and especially the needle valve seat (at a DUCATI Servicing Garage). |
| **Petrol of bad quality.** | Emptly the petrol tank and refill it at a reliable garage. |
| **The sparking plug is not of the right type.** | If the sparking plug overheats you will have preignition, knocking and misses, especially at high revs. If the sparking plug remains too cold you will have no ignition because the electrodes will short-circuit. Use the right type of sparking plug; we suggest the use of a plug having a thermal figure of 225 on the Bosch international scale. |
| **The sparking plug works loose.** | Tighten the plug down well. A copper washer should always be placed between the sparking plug and its seat in the cylinder head. |
| **The sparking plug cable sparks externally.** | Change the cable or repair the insulation (at a DUCATI Servicing Garage). |
| **The sparking plug gap is too wide.** | Adjust the gap to the proper width about 0.5 mm. (0.0197 in.). |



| CAUSE | REMEDY |
|---|---|
| **The sparking plug electrodes are dirty.** | Clean them. |
| **The contact breaker opening is excessive.** | Readjust the opening to a maximum of 0.3÷0.4 mm. (0.0118 ÷0.0157 in.) (at a DUCATI Servicing Garage). |
| **The secondary winding of the coil is short-circuited or broken.** | Change the coil (at a DUCATI Servicing Garage). |
| **The silencer is almost completely clogged.** | Clean out the silencer, to ensure the free discharge of the spent gases. |

Every DUCATI Ligth Motor Cycle is supplied with a sealed guarantee, which will be found in the toolbox. The seal may be broken only by the purchaser.

POLIGRAFICA BODONIANA - BOLOGNA