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I. YOUR OSSA

It takes a long time to build an Ossa. We take the time and trouble because we want your new motorcycle to last a long time and to give good service. We are riding esthustiaists, so we build each model to deliver the utmost in handling performance and reliability for a particular type of riding.

The Ossa line of 250 and 175 c.c., with five speeds, covered in this Manual, consists of the Pioneer, the Stiletto and the T.T., the last one being manufactured only in 250 c.c.

The pioneer is a multi-purpose machine for street or off-road riding. It has the steering wide-ratio gearbox, and long-travel suspension needed for trial-riding or flat-out enduro competition.

The Stiletto is a lightweight, but sturdy, scrambler. The gearbox ratio is close, but not too close. The engine is tuned for all-around scrambling.

The T.T. is designed for competition on short-track or very rapid tracks; it has an extremely powerful engine and a very close ratio gearbox.

There is an Ossa of 250 or 175 c.c., with 5 speeds for every type of riding. The layout, operation and maintenance however are similar among all models. For the photos in this Manual, we have used a 250 c.c. Pioneer; wherever there are differences among the various models, we have explained those differences.

Although your Ossa is built to deliver long life, the motorcycle does require normal maintenance. Before riding your machine, please read this Owner's Manual carefully, so that you will understand how to keep the motorcycle in first-class condition. We hope that you will receive a great deal of pleasure from riding your Ossa in the years to come.

Maquinaria Cinematográfica, S. A.

II. THE OSSA WARRANTY

We have learned from experience that on an off-road machine, a faulty part will break within the first 2,000 miles, or two months of riding.

The Ossa warranty is valid only for the original owner of the motorcycle. It is not valid in case of accidents or maltreatment of the motorcycle by the rider. It is valid only if the warranty card was filled out and mailed to the Ossa distributor by the Ossa dealer when you purchased the motorcycle new.

The warranty provides for free replacement of parts, and free labor to replace those parts, during the warranty period, when the replaced parts are adjudged by the distributor to be faulty in manufacture or assembly. This warranty does not apply to piston-seizures, because long piston-life depends solely upon the rider following the run-in instructions in this manual. Warranty repairs are to be done solely by an authorized Ossa dealer, and we recommend strongly you have any warranty work done by the dealer from whom you purchased the machine, because the dealer makes no profit from warranty work.

The Pioneer is warrantied for two months, or 2,000 miles, whichever comes first.

The Stiletto and the T. T., being competition machines, do not have a guarantee.

III. THE CONTROLS

This chapter identifies the controls, tells how to use them, and describes minor adjustments.



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A. THE HANDLEBARS

Sit in the saddle of your Ossa. Grasp the handlebar grips and notice the amount of bend in your elbows. If your elbows are locked so that your arms are straight, the handlebars are positioned too far away from you. If your elbows are bent at 90-degree angles, the handlebars are too close to you.

A riding position halfway between the two extremes is generally the best.

If your motorcycle is a Pioneer or a Stiletto, you will want to be able to stand on the footpegs, and lean forward somewhat to control the machine for long periods of time, in this position, you will have maximum control of the machine.



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on difficult terrain. The handlebars on these machines should be adjusted so that you can ride comfortably whether sitting in the saddle or standing on the pegs.

To adjust the positioning of the handlebars, use a allen 6 mm. wrench to loosen the nuts on the four bolts that mount the handlebars. Position the handlebars to suit your riding needs, and re-tighten the nuts.

B. THE TWISTGRIP

The right-hand handlebar grip is the throttle. It rotates against spring tension. To go faster, grasp the twistgrip with your right hand and bend your wrist downward. To go slower, bend your wrist upward. When you want to stop, release the twistgrip, and it will return to the «idle» position.

We recommend minimum twistgrip tension, for maximum throttle-control.

C. THE CLUTCH

The lever at the left-hand handlebar-grip operates the clutch. When you pull the clutch lever up against the handlebar grip, the engine is disconnected from the gearbox and cannot rotate the rear wheel. You must use the clutch for shifting gears.

The positioning of the clutch lever on the handlebar is adjustable. When your fingers are curled loosely over the clutch lever, your hand and your wrist should be in a straight line with your forearm.

For the Pioneer and the Stiletto, the positioning of the clutch lever should be a compromise between the best position when you are sitting on the saddle and the best position when you are standing on the footpegs.

To adjust the position of the clutch lever, use a screwdriver to loosen the two screws that clamp the lever to the handlebar. Rotate the clutch lever on the handlebar until the lever is positioned correctly for you. Then tighten the two screws.

D. THE FRONT BRAKE

The lever next to the twistgrip operates the front brake. When you pull the lever toward the handlebar grip, the front brake slows the front wheel.

Position the front-brake lever at the same angle on the handlebar as the clutch lever.

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E. THE SWITCHBOX

The Stiletto and the T. T. have no switchbox.

The Pioneer is equipped with an electrical switchbox clamped to the handlebar on the left side of the motorcycle. The switchbox contains the following controls:

1. **Kill Button**

The small red pushbutton on the right side of the switchbox.

2. **Horn Button**

The small black pushbutton on the right side of the switchbox.

3. **Light Switch**

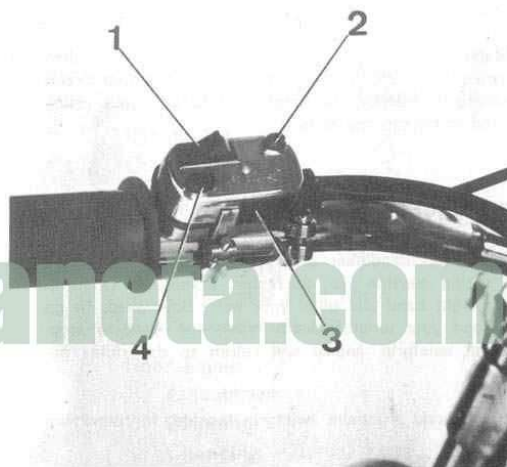
The black plastic toggle-switch in the side of the switchbox. To turn on the lights, depress the left side of the toggle switch. To turn off the lights, depress the right side of the switch. To toggle switch turns on: the headlight, tail-light, and speedometer light.

4. **Dimmer Switch**

The plastic toggle-switch in the top of the switch-box. When the lights are lit, depress the left side of the dimmer switch to use the low beam of the headlight. Depress the right side of the switch to use the high beam. When you are using the high beam, the high-beam indicator light, located atop the headlight assembly, will also burn.

F. THE SPEEDOMETER

The speedometer and odometer are located on the right of the headlight assembly. The speedometer is calibrated in miles per hour. The odometer is calibrated in miles. There is also a partial totalizer, with zero setting.



1. DIMMER SWITCH
(in «high-beam» Position)
2. KILL BUTTON
3. LIGHT SWITCH
(in «on» Position)
4. HORN BUTTON

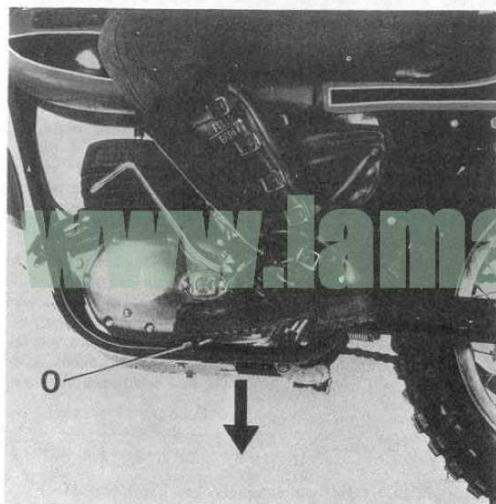


- 1. CONTACT-KEY
- 2. PETCOCK LEFT SIDE
- 3. CARBURETOR TICKLER
- 4. SIDE STAND
- 5. FOOTSHIFT LEVER
- 6. KICKSTARTER

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G. THE FOOTSHIFT

The footshift lever is located in front of the left footpeg. Your Ossa can also be equipped with footshift on the right. With it, you can select four forward speeds, and neutral. The footshift lever can only change to the next higher or next lower gear in any single operation. To downshift from



- 0. FOOTSHIFT LEVER
DOWNSHIFTING



- 0. FOOTSHIFT LEVER
PRESS UPWARD

fifth gear to first gear, you must downshift to fourth gear, then to third, then to second and finally to first.

To downshift to the next lower gear, press downward on the footshift lever until stops. To shift up to the next higher gear press upward on the footshift lever until it stops. Neutral is located between first gear and second gear. Use of the footshift lever is described more fully in a later chapter.



H. THE PETCOCKS

The gas tank is fitted with two petcocks. These petcocks control the flow of fuel to the carburetor. When the petcock-levers are in the center, the fuel is turned off.

When the levers are pointing toward «A», the gas is turned on, and you will be able to use all but 1/4 gallon of the fuel in the gas tank.

When the levers are pointing toward «R», you will be able to use the reserve fuel.

Never use only one petcock. Always keep both petcocks turned off, turned on, or turned to the reserve position.

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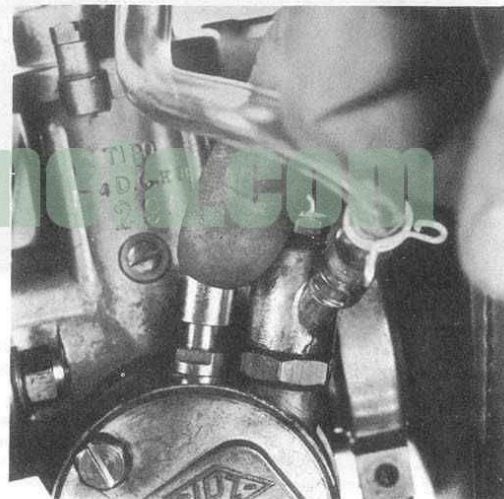


It is good practice, for street and trail-riding, to keep the levers in the «on» (not the «reserve») position while you are riding. Should you run low on fuel, the engine will stop. You will be able to turn the petcock levers to the «reserve» position and start the engine again, but you will have been reminded to stop at the next filling station for fuel.

Always turn off both petcocks as soon as you have stopped the engine.

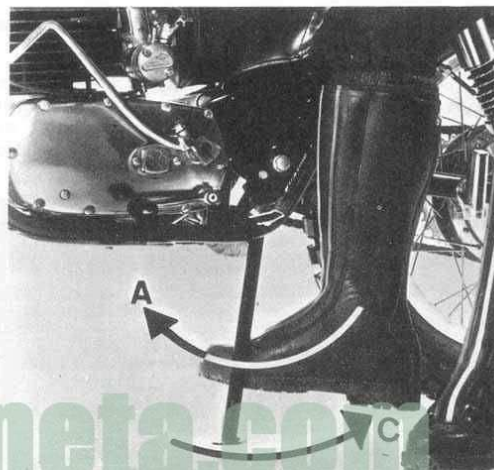
I. THE CARBURETOR TICKLER

The carburetor tickler is a push-button located on the left side of the carburetor next to the fuel-line fitting. After turning on the petcocks, depress the tickler for a few seconds, until the first few drops of fuel drip down the side of the carburetor. This refills the float bowl so that you can start the engine. You need not use the tickler if the engine is still warm from previous running.



J. THE KICKSTARTER

The kickstarter is attached to the left side of the engine. It operates in a clockwise direction. To start the engine, fold out the kickstarter arm. If the morning is chilly, pull the clutch lever and depress the kickstarter a few times to separate the clutch plates. With the gearbox in neutral, stand at the left side of the motorcycle, place your right foot on the kickstarter arm, and kick backward and downward with your foot. The engine is very easy to start if you use this method of starting. If you attempt to kick only downward with your foot, the engine will be much more difficult to start.



K. THE STAND

The Pioneer model is equipped with a side stand, fitted on the left side of the motorcycle. To park, stand at the left side of the motorcycle. Grasp the left handlebar-grip with your left hand and the saddle with your right hand. Fit your right foot between the bottom of the lower framemembers and the top of the side stand. Move your foot downward, in a clockwise direction, until the stand is fully extended. Lean the motorcycle gingerly to the left. Do not release the machine until you are certain that the ground is hard enough to support the side stand. Test the balance of the machine once or twice to make certain that the motorcycle cannot fall.

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To retract the side stand, stand at the left side of the motorcycle. Grasp the left handlebar-grip and the saddle. Lean the machine to a vertical position, and with your right foot press upward on the side stand in a counterclockwise direction. Be careful never to begin riding with the side stand extended.

1. PETCOCK RIGHT-SIDE
2. FORK TUBE
3. SLIDER LEG
4. REAR-BRAKE PEDAL
5. FOOTPEG
6. SWING ARM
7. REAR SHOCK-ABSORBER

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L. THE REAR BRAKE

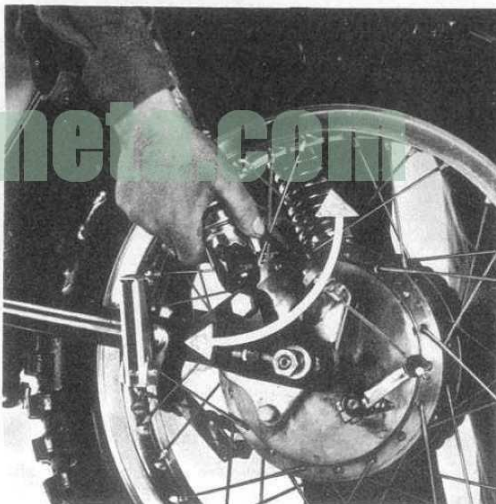
The rear-brake pedal is located in front of the right footpeg. To apply the rear brake, depress the pedal.



M. THE REAR SHOCK-ABSORBERS

You can adjust the setting of the shock by lifting on the bottom of the spring with your left hand rotating the notched ring at the bottom of the shock with your right hand. To obtain firmer springing, rotate the ring clockwise; to obtain softer springing, rotate the ring counterclockwise.

For street riding, a lightweight rider should use the softest springing on good pavement. For heavier riders, or for high-



speed cornering on rough pavement, use firmer settings. Competition riders in scrambles or enduro events should experiment to find the best settings for the particular type of terrain encountered.

Always make certain that both shock absorbers are adjusted to the same setting.

N. THE FOOTPEGS

The Pioneer, the Stiletto and the T. T. have folding footpegs for fast cornering, safety, and riding amongst the rocks.

O. THE TOOL KIT

In the Pioneer, the tools are located in a compartment behind the saddle. Loosen by hand the serrated, slotted nut at the rear saddle-mount. Lift the saddle-mount bracket off the stud, and remove the cover.

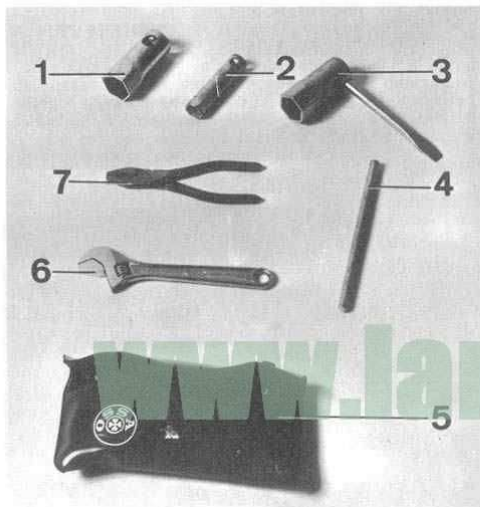
Encased in the plastic tool bag are: A spark-plug socket, a 23 mm socket for the auxele nuts, a 6" adjustable wrench, pliers, a 12 mm socket, a T-handle for the sockets, and two tire tools. On the Stiletto and the T. T., they are in a separate bag together with the accesories.

If you wish to perform the normal maintenance on your motorcycle, we recommend that you buy open-end metric wrenches in 8, 10, 11, 12, 13, 14, 19 and 23 mm sizes.

All Ossas are built to decimal metric DIN or ISO standards.



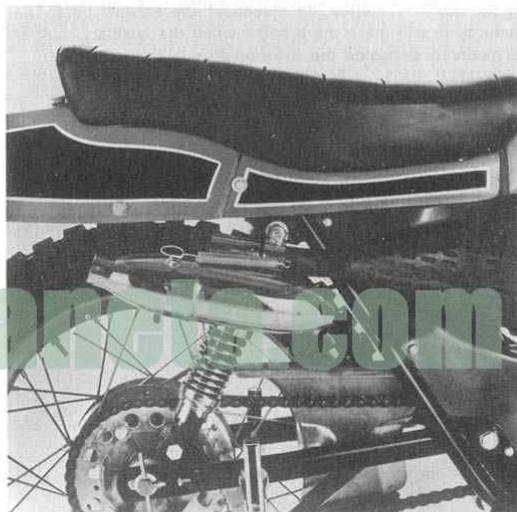
If you are an experienced mechanic, and you wish to be able to perform any maintenance that your Ossa might require through the years, your Ossa dealer can obtain for you the complete range of special tools and the shop manual.



1. 23 MM SOCKET
2. 12 MM SOCKET
3. SPARK PLUG SOCKET
4. T-HANDLE
5. TOOL BAG
6. ADJUSTABLE WRENCH
7. PLIERS

P. PIONEER MUFFLERS

The Pioneer is equipped with two mufflers. The standard muffler is built into the exhaust pipe. The auxiliary muffler can be mounted to the end of the exhaust pipe, or it can be mounted alongside the exhaust pipe.



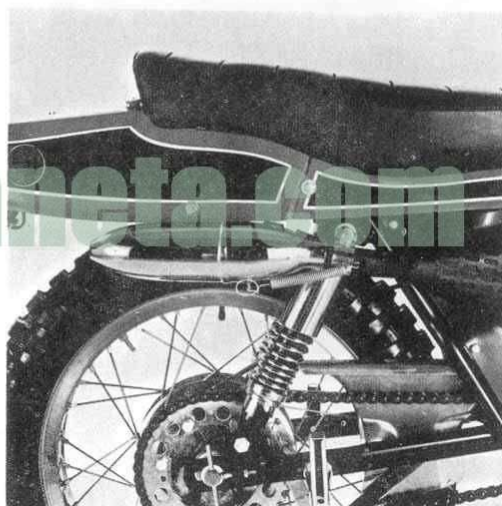
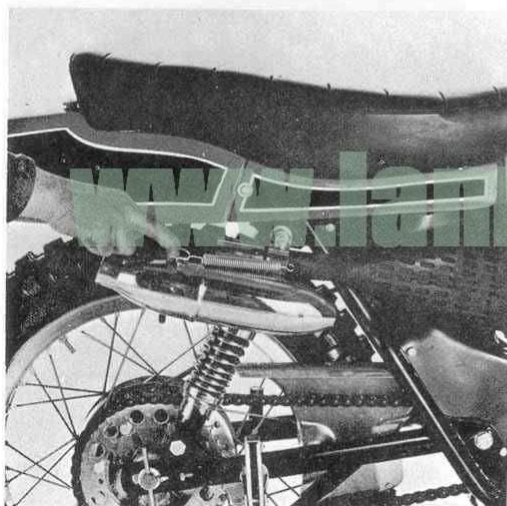
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When the auxiliary muffler is mounted to the exhaust pipe, the Pioneer runs very quietly. Always use the auxiliary muffler when riding on the street, or when riding off-road in populated areas.

To obtain a little more power for flat-out cross-country riding in unpopulated areas remove the muffler from the exhaust pipe and fit the mounting-ring, located on the side of the auxiliary muffler, to the end of the exhaust pipe. The motorcycle will make more noise when the auxiliary muffler is mounted alongside the exhaust pipe in this manner.

Wear gloves if you plan to change the position of the auxiliary muffler after you have reached an unpopulated area off the road, since the auxiliary muffler will be hot.

NOTE: You will not need to change the carburetion when you change the position of the auxiliary muffler.



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IV. PREPARATION

This chapter tells how to mix the fuel, and how to make a few simple checks before taking the first ride on your new Ossa.

A. FUEL MIXTURES

The Ossa gets its engine-lubrication from oil mixed with the gasoline. You should never run the motorcycle with straight gasoline (that does not contain oil), even for short distances. Always use high-test gasoline, of at least 96 octano. Do not use additives, such as nitro, benzene, acetone, nitromethane or other commercial additives.

There are three general categories of oil that you can mix with the gasoline for the motorcycle: regular motor oil; general-purpose two-stroke oil; or oil developed especially for two-cycle motorcycles, such as Full-Bore 2-Cycle Racing Oil, SAE 50. It is better not to switch around among various types of oil; you should select one type, and one brand, and continue to use it.

1. Regular Motor Oil, SAE 40

This is the normal type of motor oil used in automobiles, available at all filling stations. Mix this type of oil at 5 % or 20 parts of gasoline to 1 part of oil. To 1 gallon of gasoline, add 6.4 ounces, or 192 cc. of oil. If the cycle sits for more than 10 hours, we suggest that you grasp the handlebars and shake the cycle from side to side.

2. General-Purpose 2-Cycle Oil

General-purpose 2-cycle oil is made for use in lawnmowers, outboard motors, etc. It is available at many filling stations, hardware stores, and sporting-goods-stores. Mix this oil at 5 %, or 20 parts of gasoline to 1 part of oil. To 1 gallon of gasoline, add 6.4 ounces, or 192 cc.

3. 2-Cycle Motorcycle Oil, SAE 50

Several brands of oil, such as Full-Bore (in the United States), have been developed specifically for use in high-performance 2-cycle motorcycles. These oils are available through your Ossa dealer.

a) New Motorcycles and Scramblers. During the first 500 miles in the Pioneer, and continually in the Stileto, mix this 2-cycle motorcycle-oil at 5 %. This is 20 parts of gasoline to 1 part of oil; to 1 gallon of gasoline, add 6.4 ounces, or 192 cc. of oil.

b) After the Run-in Period (Except Scramblers). After the first 500 miles in the Pioneer, mix this 2-cycle motorcycle-oil at 3 %. This is 32 parts of gasoline to 1 part of oil. To 1 gallon of gasoline, add 4 ounces or 125 cc. of this type of oil. For competition, use a 5 % mixture. In model T. T. use always 7 % of Full-Bore oil or other special competition 2-cycle oil.

4. Mixing the Fuel

Pour the oil and the gasoline into a clean five-gallon gas can, and shake the can to slosh the liquids for several minutes, until they are thoroughly mixed. If no gas can is available, punt the gasoline, and then the oil, into the gas tank of the motorcycle and rock the motorcycle from side to side for several minutes to mix the fuel. Take the time to mix the fuel thoroughly. If unmixed oil gets into the carburetor, it will clog the jets, and the motorcycle, won't run. If unmixed gasoline gets into the engine, the crankshaft assembly and the piston will receive no lubrication and they will be damaged.

5. Fuel-Mixture Chart.

Do not guess at the amount of oil to use. Do not make rough estimates, by using soft-drink bottles and the like. Buy a graduated cylinder, or similar type of measuring device, and use it to add the correct quantity of oil to be mixed with the gasoline.

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FUEL-MIXTURE CHART

Gallons of Gasoline	Litres	7 %		5 %		4 %		3 %	
		Oz	cc	Oz	cc	Oz	cc	Oz	cc
.2	0.76	1.6	53	1.3	39	1.1	33	.8	24
.4	1.52	3.3	106	2.6	78	2.1	63	1.6	48
.6	2.28	4.7	160	3.9	117	3.2	96	2.4	72
.8	3.04	6.7	213	5.2	156	4.2	126	3.2	96
1.0	3.8	8.4	266	6.4	192	5.3	159	4.0	120
1.2	4.56	10.1	319	7.7	231	6.4	192	4.8	144
1.4	5.32	11.8	372	9.0	270	7.4	222	5.6	168
1.6	6.08	13.5	426	10.3	309	8.5	255	6.4	192
1.8	6.84	15.2	479	11.6	348	9.5	285	7.2	216
2.0	7.60	16.9	532	12.8	384	10.6	318	8.0	240
2.2	8.36	18.6	585	14.1	423	11.6	348	8.8	264
2.4	9.12	20.3	638	15.4	462	12.6	378	9.6	288
2.6	9.88	21.9	692	16.7	501	13.7	411	10.4	312
2.8	10.64	23.6	745	17.9	537	14.7	441	11.2	336
3.0	11.40	25.3	798	19.2	576	15.9	477	12.0	360
3.2	12.16	27	851	20.5	516	17.0	510	12.8	384
3.4	12.92	28.7	904	21.8	654	18.0	540	13.6	408
3.6	13.68	30.4	958	23.1	693	19.1	573	14.4	432

B. PRIMARY CASE AND GEARBOX

The primary case, on the left side of the engine, houses the clutch and the primary-drive chain. The primary case shares its lubricant with the gearbox. You should check the lubricant level before taking your first ride.

To check the lubricant level, remove the oil-level screw and washer from the primary case. This screw is located to the left of, and slightly lower than, the inspection cover with the four-leaf clover. Lean the motorcycle slightly to the left of vertical. A little bit of lubricant should begin to flow out of the screw-hole. If not, you will need to add lubricant.

To add lubricant, remove the two screws that mount the inspection cover to the primary case. Remove the inspection cover, being careful not to damage the gasket. Insert a small funnel into the primary case, through the inspection hole. Slowly add lubricant until it begins to overflow the oil-level screw-hole. Bear in mind that it takes a while for the lubricant to get to the oil-level screw-hole. We recommend using Full-Bore SAE 80 Gearbox Racing Lubricant. SAE 30 or 40 motor oil can also be used. (NOTE: The SAE ratings for motor oil and gearbox lubricant are different; do not use SAE 80 motor oil.)

Install the inspection cover, with its gasket. Mount the oil-level screw and washer.

C. TIRE PRESSURES

Tire pressures have a great deal to do with the handling of any motorcycle. Since the Ossa is built to deliver good handling, you should make certain that the tires are properly inflated. Always use valve caps on the valve stems. Check the tire pressures frequently, with a good-quality pressure-gauge.

The exact tire-pressures needed will depend upon the weight of the rider, his riding-style, and the terrain. You will need to experiment to find the tire pressure that will suit you best. However, for the Stiletto and the T. T., try between

15 and 12 lbs in both tires. If it is raining or the ground is very soft, decrease the pressure by several pounds in both the front and rear tires.

For the Pioneer, for off-road riding, try between 14 and 10 pounds, keeping in mind that the rear tire must have less pressure than the front tire.



1. CLUTCH-LINKAGE ADJUSTING-SCREW WITH LOCK-NUT
2. PRIMARY CASE
3. ADD LUBRICANT
4. OIL-LEVEL SCREW-HOLE

D. NUTS AND BOLTS

Fit your 23 mm socket and handle to the front-axle nut and make certain that it is tight. Do the same with the rear-axle nut.

Test the handlebar to make certain that it is firmly mounted. Test the handlebar controls to make certain that they are clamped tight to the handlebar. The levers themselves should have some play on their mounts.

It is a good idea to check all of the nuts and bolts on the motorcycle, except for cylinder-head nuts and the various bolts and screws on the carburetor.

V. RIDING

The running-in period consists of the first 500 miles of operation. During the running-in period, do not exceed the speeds listed below. Afterwards, increase your speeds progressively.

1. First 200 miles

Speeds in mph	Wildfire and Pioneer
1st gear	12
2nd gear	22
3rd gear	31
4th gear	37
5th gear	50

2. Next 300 miles

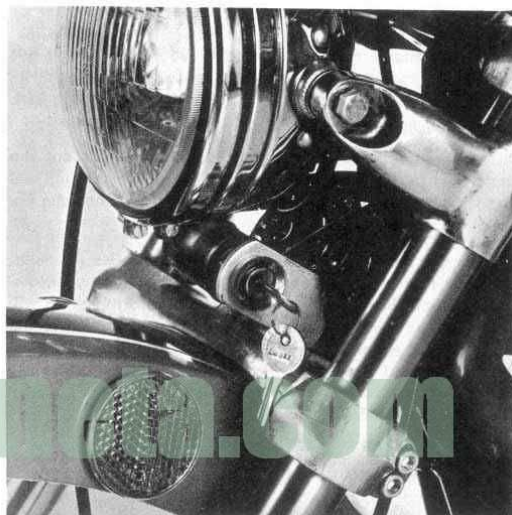
1st gear	15
2nd gear	28
3rd gear	43
4th gear	53
5th gear	60

3. Stiletto and T. T.

Run the Stiletto and the T. T. in practice on a deserted track for five hours before using it in competition. Restrict yourself to 1/2-throttle at the beginning, and increase rpm gradually. If you have been accustomed to shifting gears with your right foot, allow yourself plenty of time to think out your shifts until you become accustomed to the Stiletto and the T. T. to avoid overrevving the machine due to missed shifts. Do not lug engine (i. e. too low a speed for too low a gear or too high a gear). Alternate your speed, don't run at a steady half throttle.

B. STARTING THE ENGINE

1. Check the fuel level in the gas tank by opening the filler cap and looking inside the tank.
2. Turn on both of the petcocks, and turn the ignition key on the Pioneer.
3. Depress the carburetor-tickler button until a few drops of fuel run out of the side of the tickler.
4. Put the footshift lever in «neutral», between 1st and 2nd gear.
5. Stand on the left side of the motorcycle, and retract the side stand, if it is a Pioneer.
6. If the engine is cold, pull the handlebar clutch-lever, and with your foot, fold out the arm on the kickstarter lever and depress the kickstarter several times with your right foot to depress the clutch plates. Then release the clutch lever.
7. If you have not already done so, fold out the arm on the kickstarter lever. Rotate the twistgrip about $\frac{1}{4}$ of its travel, and hold it there.
8. Put your right foot on the kickstarter lever. Kick backward and down, quickly, to move the kickstarter all the way to its stop. Hold the kickstarter down until you know whether or not the engine is going to fire. If the engine does not start on the first kick, allow the kickstarter to return to its normal position, and kick again.
9. When the engine is running, use enough throttle at intervals to keep it running, but do not rev the engine hard while it is cold.



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C. STARTING OFF

With the engine running, sit on the saddle. Place your left foot on the footpeg. With your left hand, pull the clutch lever to the handlebar, and hold it there. With your left foot, press down on the gearshift lever to engage 1st gear.

Open your left hand slowly and smoothly to let out the clutch. As the lever passes the halfway point, the clutch will begin to engage. Feed more throttle, to avoid stalling the engine.

When the motorcycle is moving at several miles per hour, put both feet on the footpegs, and steer with the handlebars and your body weight. At speeds above 5 mph, you will steer primarily with your body weight, leaning the machine toward the direction you wish to take.

D. BRAKING

To stop the machine, pull the clutch lever with your left hand, and apply both brakes—with your right hand and your right foot—gently. By using the brakes gently for awhile, you will run them in properly, and you will become familiar with their operation.

On pavement, the front-wheel brake will do most of the work, but you should also use the rear brake.

On dirt, the rear brake will slow you the best; use the front brake, but use it sparingly. Stopping on dirt takes longer than stopping on pavement.

Never use either brake hard enough to lock up the wheel.

E. SHIFTING GEARS

Study the chart on running-in speeds for your motorcycle. To shift from 1st gear to 2nd gear, first check to see that your speed in 1st gear is high enough so that you will not lug the engine (run it too slowly) in 2nd gear.

Place the toe of your left foot beneath the rubber pad on the footshift lever, with your toe touching the lever. Turn off the throttle, pull the clutch, and press upward on the footshift lever quickly but firmly until it stops. Release the clutch smoothly but quickly, and at the same time, turn on the throttle. **Note:** «Neutral» is located between 1st gear, and 2nd gear; if the gearbox shifted into neutral, you didn't move the footshift lever far enough.

To shift up into 3rd gear, repeat the process. Shift up into 4th and 5th gears in the same manner.

To shift down into 4th and 3rd gears, place the sole of your left foot atop the rubber pad on the footshift lever. Release the twistgrip, and allow the motorcycle to slow until it reaches the permissible running-in speed for 4th and 3rd gears. Pull the clutch. Now feed some gas with the twistgrip, and at the same time, press downward on the footshift lever quickly and firmly until it stops. As soon as the footshift lever has stopped, release the clutch.

In the same manner, downshift into 2nd gear.

To downshift from 2nd gear to neutral, press the footshift lever only halfway down to its stop, and release the clutch gingerly to make certain that the gearbox is in neutral. To downshift from 2nd gear to 1st gear, press the footshift lever all the way down to its stop.

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As you become more familiar with your machine, you will want to practice downshifting while you are braking. With the fingers of your right hand pulling the front-brake lever, you'll use the palm of your right hand to rotate the twist-grip while you are downshifting.

NOTE: Always begin the shift your foot touching the footshift lever; it is a good way to avoid slamming the footshift lever, which can damage the gearbox. Do not shift hesitantly. Always use the clutch while shifting gears, and do not leave the throttle wide open while the clutch is disengaged.

F. A NOTE ON RIDING

The motorcycle is quite different from the automobile. For that matter, each brand of motorcycle is quite different from the other brands of motorcycles. It will take awhile before you become so familiar with your Ossa that you will know how to react instantly in an emergency. Until then, ride slowly and think ahead, so emergencies are avoided.

When riding on the street, always leave enough room between you and the vehicles in front of you so that you will have time to plan your next move.

Don't take shortcuts alongside curbs and between lanes of traffic, because automobile drivers aren't expecting anybody to be there. Drivers in the United States are not accustomed to watching out for motorcycles, and sometimes they'll fail to see you even when you are in plain view. If you ride as though you were invisible, but not indestructible, you won't

get into trouble while you are becoming acquainted with your machine.

Pioneer owners who are not familiar with off-road riding should start practicing in a vacant lot, learning how to stand on the footpegs and using body weight to maneuver around and over tricky obstacles at low speeds. Then proceed to desert or woods trails, and finally to cross-country riding.

VI. SCHEDULED LUBRICATION

Ossa motorcycles do not require much lubrication; however, the required lubrication should be provided. You can perform most of the work yourself. The following chart recommends the intervals at which the lubrication should be provided.

Two sets of figures are given for the Pioneer. Those riders who do very little off-road riding, and don't become involved with mud or water, should follow the first set of figures. Those who ride the rough stuff, or compete in enduro events, should follow the second set of figures.

All of the figures given are averages, meant for average riding conditions. If you ride under unusual conditions, and you feel that you should lubricate the motorcycle more frequently, then do so. However, you should not lubricate the brake cams excessively, to make certain that you do not get grease on the brake shoes.

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A. FREQUENCY OF LUBRICATION

	Pioneer	Stiletto & T. I.
1. Rear chain	Once a month, or before each event	Before each event
2. Clutch handlebar lever	3 times/year, or before each event	Before each event
3. Clutch cable	Twice/year, or before each event	Before each event
4. Front-brake Handlebar-lever	3 times/year, or before each event	Before each event
5. Front-brake cable	Twice/year, or before each event	Before each event
6. Front-brake cam	Twice/year	Twice a season
7. Rear-brake cable	Twice/year, or before each event	Before each event
8. Rear-brake cam	Twice/year	Twice a season
9. Twistgrip	Twice/year	Twice a season
10. Throttle cable	Twice/year, or before each event	Before each event
11. Speedometer drive	Twice/year	N/A
12. Speedometer cable	Twice/year	N/A
13. Clutch linkage	3 times/year, or before each event	Before each event
14. Check engine lube	3 times/year, or before each event	Before each event
15. Change engine lube	After first 1000 miles, then once a season	Before first event then after every 4 events
16. Change front-fork	Twice/year	Twice a season
17. Steering bearings	Once a year	Once a year

B. REAR CHAIN

Use a motorcycle-chain lubricant, available at motorcycle shops. We recommend a spray-type penetrating lubricant that evaporates quickly, leaving a film of heavy grease inside the chain plates and rollers.

To lubricate the rear chain, prop the motorcycle so that the rear wheel is off the ground. With the gearbox in neutral, rotate the rear wheel slowly, and apply the lubricant to the top side of the lower chain-run, just ahead of the rear sprocket. Make certain that the lube gets to the inside and outside of each plate on each side of every link.

C. CLUTCH HANDLEBAR-LEVER

Use good-quality SAE 30 or 40 motor oil or all-purpose oil. Work a few drops into the clutch-cable fitting and the pivot of the lever.

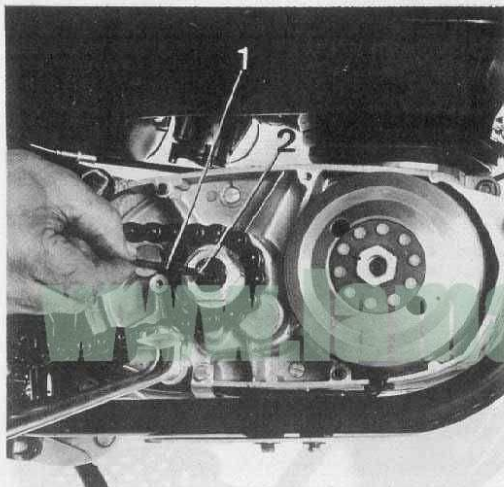
D. CLUTCH CABLE

Use good-quality SAE 30 or 40 motor oil or all-purpose oil. With wrenches or channel-lock pliers, rotate the clutch arm (atop the magneto case) clockwise, in the same direction as if you had pulled the clutch handlebar-lever, and remove the clutch cable from the outer-cable stop. Remove the clutch cable from the clutch arm. Pull the clutch handlebar-lever. Rotate the cable fitting until the clutch cable is aligned with the slot in the handlebar lever. Remove the clutch cable from the handlebar lever. Remove the cable from the motorcycle. Hang the cable so that it is vertical. Drip SAE 30 or 40 oil into the cable until its entire length has been lubricated. Install the cable in the reverse manner from which you removed it.



1. OUTER-CABLE
2. CLUTCH ARM
3. MAGNETO CASE

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1. CLUTCH PUSHROD
2. SEAL REMOVED

E. CLUTCH LINKAGE

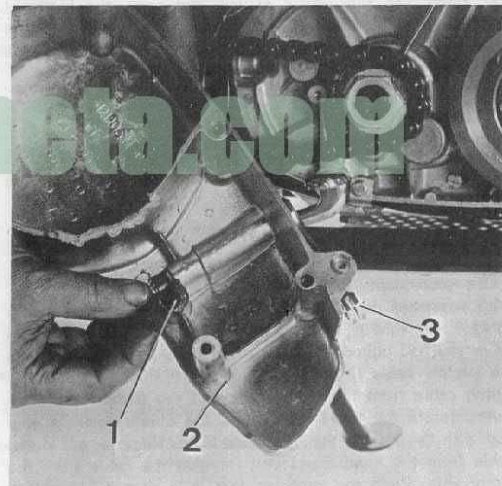
Use special grease with high melt point, or molykote type. With the motorcycle in gear, lean the left side of the machine against a wall. Remove the clutch cable from the clutch arm. With a large screwdriver, remove the four screws that mount the magneto case to the engine-case. Remove the magneto case.

One of the clutch pushrods sticks out of the center of

the shaft with the countershaft sprocket. Remove the clutch pushrod. Behind the pushrod is a ball bearing which should not fall out, because the motorcycle is leaning toward the left.

A rubber seal is fitted to the end of the shaft from which you removed the clutch pushrod. Carefully pry out this seal with a medium-size screwdriver.

Smear a large amount of grease on one end of the pushrod. Insert that end of the pushrod into the shaft, and push it

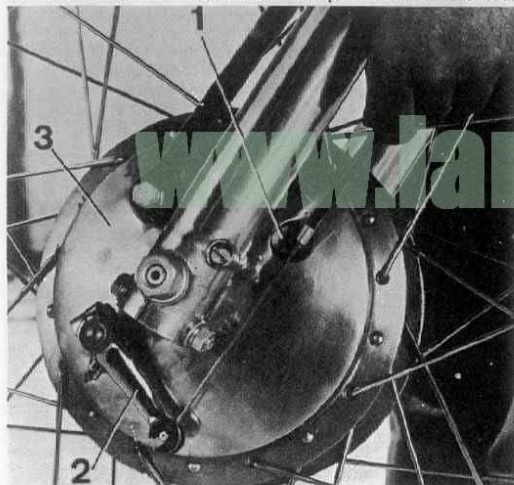


1. PLUNGER
2. MAGNETO CASE
3. CLUTCH ARM

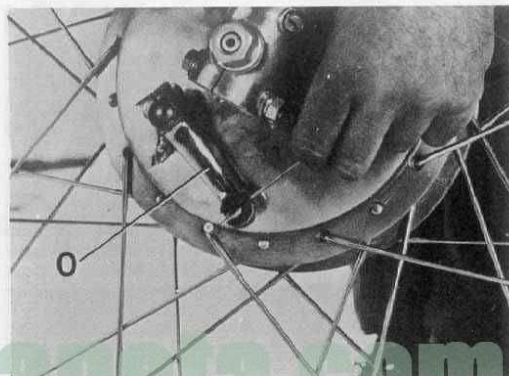
in all the way. Remove it again. If the ball bearing is stuck to the greasy end of the pushrod, remove the ball bearing and insert it into the shaft. Smear the entire pushrod with grease and insert it into the shaft. Press the seal into the shaft.

Remove the short plunger from the magneto case (it rests against the base of the clutch arm) and coat it heavily with grease. Insert the plunger into its boss in the magneto case. Fit the magneto case to the engine.

Fit some amount of OSSA seal compound. Anstall the four



1. OUTER-CABLE STOP
2. FRONT-BRAKE ARM
3. FRONT-BRAKE-BACKING-PLATE



0. FRONT-BRAKE ARM

mounting-screws. The two longer screws go toward the front of the case, at the top and the bottom. The two shorter screws go toward the rear of the case, at the top and the bottom.

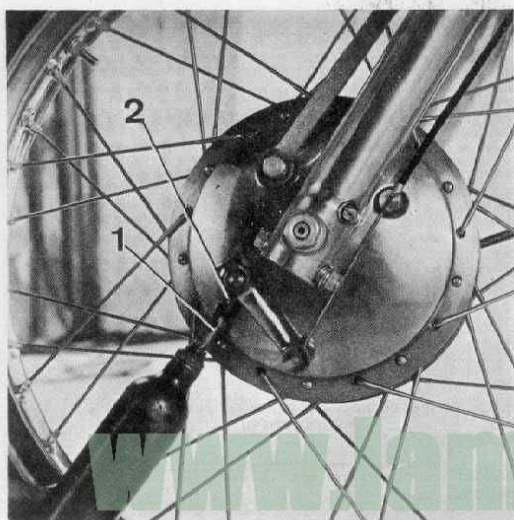
F. FRONT-BRAKE HANDLEBAR-LEVER

Use good-quality SAE 30 or 40 motor oil or all-purpose oil. Work a few drops into the brake-cable fitting and the pivot of the lever.

G. FRONT-BRAKE CABLE

Use good-quality SAE 30 or 40 motor oil or all-purpose oil. At the front wheel, press upward on the brake arm, to rotate it counterclockwise as if you had pulled the handlebar lever. Remove the brakecable from the outer-cable stop on the backing plate. Remove the brake cable from the fingers of the brake arm.

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1. GREASE GUM
2. GREASE FITTING

Pull the handlebar lever, and rotate the cable fitting until the cable is aligned with the slot in the lever. Remove the cable from the lever. Remove the brake cable from the motorcycle.

Hang the cable so that it is vertical. Drip SAE 30 or 40 oil into the cable until its entire length has been lubricated. Install the cable in the reverse manner from which you removed it.

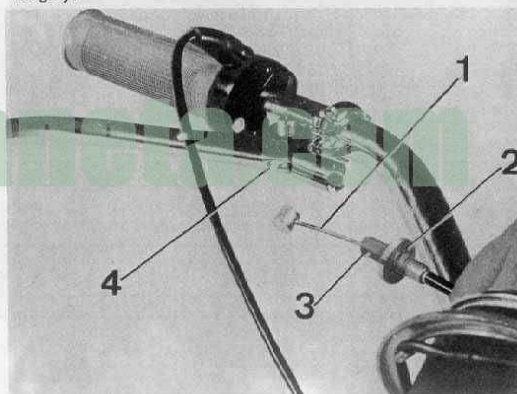
H. FRONT-BRAKE CAM

Use brake-cam grease, or high-temperature grease, available from most auto-supply or auto-parts houses. On the left side of the front wheel, wipe clean the M6 grease fitting on the boss behind the brake arm. Load brake-cam grease into a small grease-gun. Lubricate the brake-cam sparingly, with one or two shots.

I. REAR-BRAKE CABLE

Use cup grease or multi-purpose grease.

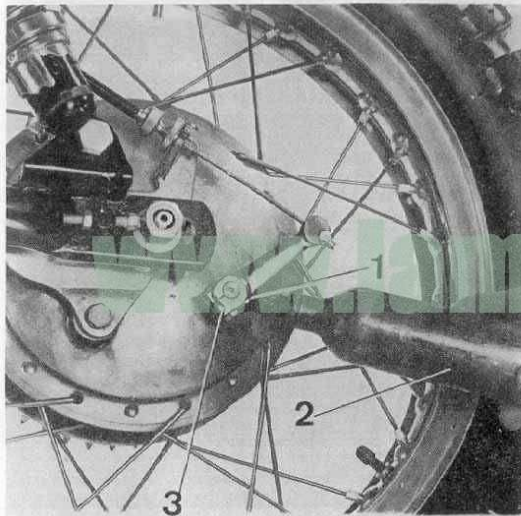
The rear-brake cable is equipped with an M6 grease fitting. Load grease into a small grease gun. Wipe clean the fitting on the rear-brake cable. Lubricate the rear-brake cable thoroughly.



1. BRAKE CABLE
2. CABLE ADJUSTER WHEEL
3. CABLE ADJUSTER
4. SLOT IN LEVER

J. REAR-BRAKE CAM

Use brake-cam grease, or high-temperature grease. On the left side of the rear wheel, wipe clean the M6 grease-fitting on the boss behind the brake arm. With a small grease gun, lubricate the brake-cam sparingly, with one or two shots.



1. GREASE FITTING
2. GREASE GUM
3. REAR-BRAKE ARM



1. GREASE GUM
2. GREASE FITTING
3. REAR BRAKE BACKING
4. CABLE ADJUSTER
5. LOCKNUT
6. OUTER-CABLE STOP

K. TWISTGRIP

Use cup grease or multi-purpose grease. Remove the two screws that mount the twistgrip to the handlebar. Remove twistgrip assembly from the handlebar. The twistgrip rotates in a two-piece mount. Lift off the plain mount and coat its inner groove with grease. Pull down the mount that houses the throttle cable, and coat its inner grooves with grease.

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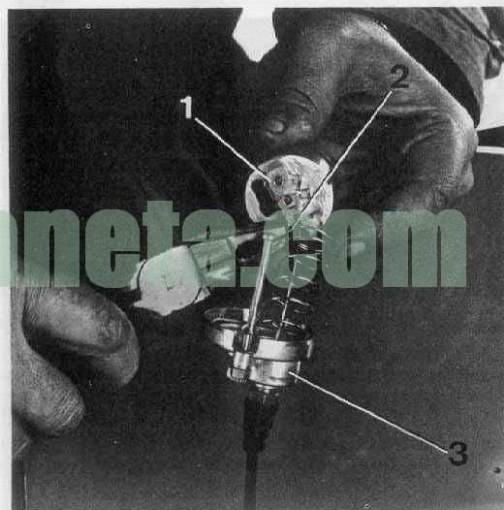


1. GREASE THE GROOVE
2. MOUNT
3. TWISTGRIP

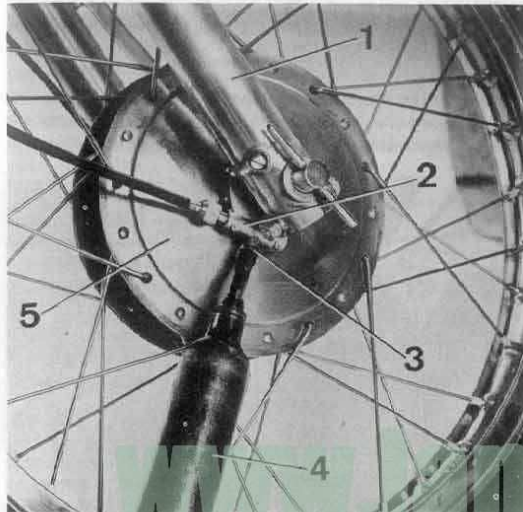
Position the mounts on the twistgrip. Slide the twistgrip assembly onto the handlebar until the end of the twistgrip rubber is just free of the end of the handlebar. Install the two screws, and tighten them. Rotate the twistgrip to make certain that it operates smoothly. If it doesn't, the twistgrip probably isn't aligned correctly with its mounts. Make certain that the throttle cable cannot get jammed up by the front-brake lever, and that the throttle cable does not have any sharp bends in it.

L. THROTTLE CABLE

Use SAE 30 or 40 motor oil or all-purpose oil good quality. Clean the motorcycle. Clean the carburetor very carefully. Two slotted bolts, at the top edges of the carburetor, mount the top of the carburetor to the body of the carburetor. With a screwdriver, remove these screws.



1. SLIDE
2. PIN
3. CARBURETOR TOP



1. RIGHT SLIDER-LEG
2. SPEEDOMETER DRIVE
3. GREASE FITTING
4. GREASE GUM
5. FRONT HUB

With clean hands, remove the top of the carburetor. The throttle cable is mounted to the carburetor slide by a slot and a pin. Remove the throttle cable from the slide, the spring, and the top. Place these components in a clean pan. Cover the carburetor body with a clean shop rag.

Disassemble the twistgrip. Pull down the throttle-cable mount. Rotate the twistgrip until the throttle cable is aligned with the slot in the twistgrip. Remove the throttle cable from the twistgrip. Pull the fitting to expose as much of the inner cable as possible, and remove the twistgrip mount (by means of the slot) from the inner cable.

Remove the throttle cable from the motorcycle. Hang the cable so that it is vertical. Drip SAE 30 or 40 oil into the cable until its entire length has been lubricated.

Feed the end of the throttle cable with the smaller fitting, through the cable adjuster in the top of the carburetor. Place the side spring on the throttle cable. Fit the cable fitting into its slot in the top of the slide. Install the small slotted screw. Fit the slide-stop rod into its slot in the top of the slide.

Insert the slide into the carburetor so that the lip on the inner surface of the slide mates with the groove in the body of the carburetor, and the two needles fit into their holes. Fit the top of the carburetor to the body of the carburetor and install the two slotted-bolts.

Position the throttle cable on the motorcycle. Grasp the fitting at the end of the cable, and pull the fitting to expose as much of the inner cable as possible. Position the slotted twistgrip-mount on the inner cable. Grasp the inner cable just below the fitting, and position the fitting in the twistgrip. Reassemble the twistgrip.

M. SPEEDOMETER DRIVE

Use cup grease or multi-purpose grease. The speedometer-drive assembly, mounted to the right side of the front wheel, is equipped with an M6 grease fitting. Wipe the fitting clean. With a small grease-gun, lubricate the speedometer drive thoroughly.

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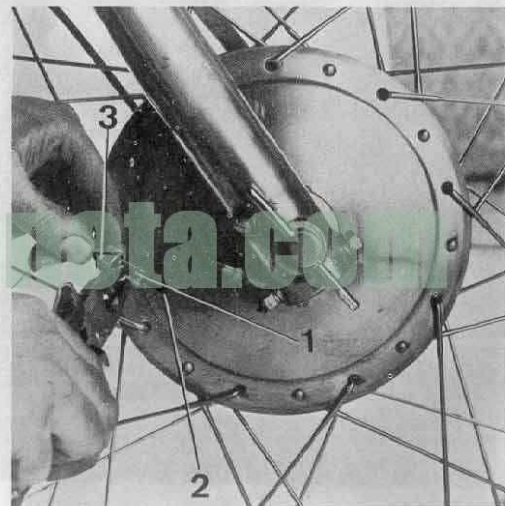
N. SPEEDOMETER CABLE

Use speedometer-cable lubricant, available from auto-supply or auto-parts houses. With a pair of pliers, rotate the speedometer-cable cap-nut (at the speedometer-drive assembly, on the right side of the front wheel) counterclockwise to loosen it. Unscrew the nut and remove the speedometer cable from the speedometer drive.

Lift the cap nut as far as it will go on the cable, exposing a clip attached to the cable. With pliers, remove the clip. Slide the cap-nut down off the cable.



1. SPEEDOMETER
2. CAP NUT
3. SPEEDOMETER CABLE



1. CLIP
2. SPEEDOMETER-CABLE
3. CAP NUT

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O. CHECKING ENGINE LUBRICANT

Use Full-Bore SAE 80 Racing Gearbox Lubricant, or SAE 30 or 40 motor oil. The gearbox and the primary case use the same lubricant. To check the lubricant level, remove the screw to the left of center in the primary case. Lean the motorcycle slightly to the left. Lubricant should begin to run out of the screwhole. If it does not, you should add more lubricant.

To add more lubricant, remove the two screws from the inspection cover (with the four-leaf clover) on the primary case. Remove the inspection cover and its gasket, being careful not to rip the gasket. Insert a small funnel into the inspection hole, and pour in a small quantity of lubricant. Wait awhile, and then lean the motorcycle slightly to the left. If lubricant begins to leak out of the oil-level screwhole, the lubricant level is correct. If not, continue to add lubricant and check the level.

When the lubricant level is correct, install the inspection cover with its gasket, and mount the oil-level screw. The quantity of lubricant to be put in, if you have drained it entirely, is 900 c. c. or one quarter.

P. CHANGING ENGINE LUBRICANT

Use Full-Bore SAE 80 Racing Gearbox Lubricant, or SAE 30 or 40 motor oil. To change the lubricant, run the engine until it is warm. With a 19 mm wrench, remove the drain plug at the bottom of the gearbox. When all of the lubricant has drained out, install the drain plug again. Add 900 c. c. of lubricant or one quarter through the inspection-cover hole; check the level; and add more lubricant as required.

Q. FRONT-FORK LUBRICANT

Have your Ossa dealer change the lubricant in the front forks. If you wish to do it yourself, you should purchase a copy of the Ossa Shop Manual.

R. STEERING BEARINGS

Have your Ossa dealer remove the front forks, disassemble the steering components, and grease the steering bearings. If you wish to do this yourself, you should purchase a copy of the Ossa Shop Manual.

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VII. SCHEDULED CHECKS

Following is a listing of checks that you should make regularly, to be certain that the controls of your motorcycle are functioning properly.

Frequency of Checks

Pioneer, Stiletto and T. T.

- | | |
|---------------------------------|------------------|
| 1. Operation of front brake | Before each ride |
| 2. Operation of rear brake | Before each ride |
| 3. Operation of carburetor | Before each ride |
| 4. Operation of clutch | Before each ride |
| 5. Operation of lights and horn | Before each ride |
| 6. Sound of engine running | Before each ride |
| 7. Tension of rear chain | Before each ride |
| 8. Tightness of nuts and bolts | Before each ride |
| 9. Tightness of wheel spokes | |

B. FRONT BRAKE

The rider with average-size hands will want the front brakes to be locked tight when the handlebar lever is about halfway to three-quarters in toward the handlebar. Check the travel of the handlebar lever before starting the engine. To adjust the front brake, see «MAINTENANCE PROCEDURES», Chapter 8.

C. REAR BRAKE

The rear brake should be locked tight when the rear-brake pedal has traveled no more than 2". Check the travel of the rear-brake pedal before starting the engine. To adjust the rear brake, see «MAINTENANCE PROCEDURES».

D. CARBURETOR

Except on the Stiletto and the T.T. models, the engine should continue to idle when the machine is at rest; the engine is running; the gearbox is in gear; you have pulled the clutch; and your other hand is not on the twistgrip. With the motorcycle idling and the gearbox in neutral, the engine should not speed up when you rotate the handlebars to the right. With the motorcycle idling, the engine should respond immediately when you feed it some throttle. Check these points after you have started the engine and allowed it to warm up a bit. To adjust the throttle cable and the idle, see «MAINTENANCE PROCEDURES».

E. CLUTCH

You should be able to pull the clutch lever until there is a gap of 3/16" between the top edge of the lever and the

top edge of its mount before you encounter resistance. Check this before starting the engine. When the engine is running (at idle), you should be able to pull the clutch; shift into gear; and hold in the clutch without stalling the engine. If the carburation is correct, and the clutch is out of adjustment, you should adjust it. To adjust the clutch linkage, see «MAINTENANCE PROCEDURES».

F. LIGHTS AND HORN

With the engine running, and the motorcycle on its stand, stand in front of the machine; operate the headlight controls; and check to make certain that the headlight is working properly. Then stand at the right side of the machine; depress the rear-brake pedal; and check the operation of the taillight and the stoplight. Depress the horn button and check the horn. To change light bulbs, see «MAINTENANCE PROCEDURES».

G. ENGINE SOUND

When you are riding the motorcycle, listen to the engine sounds. There are two different kinds of sound: the exhaust-pipe sound, and sounds from the engine itself. If you only hear an exhaust sound on every other stroke (the machine sounds like a 4-stroke), then the engine is running too rich, and you should take the motorcycle to your dealer for adjustment.

The Ossa engine itself is much quieter than most other 2-stroke engines, but it normally makes a few quiet clicking and rattling sounds. If a clicking or rattling sound becomes

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particularly loud, the piston may be wearing out, or the mixture be too lean, or there may be other problems, and you should check with your dealer.

H. TIRE PRESSURES

You should buy an expensive, good-quality tire-pressure gauge (the other kinds are worthless), put it in a padded container, and keep it with the toolkit in the motorcycle. Check the gauge from time to time against a high-quality air-pump gauge at a filling station (many of the cheaper tire-pressure gauges fitted to air compressors at filling stations are also inaccurate). When you check tire pressures, also check tire wear. Install a new tire when half of the tread depth on the old tire is gone. To change tires, see «MAINTENANCE PROCEDURES».

I. NUTS AND BOLTS

Tighten all of the nuts and bolts except the adjusting screws on the carburator and the cylinder-head nuts. Adjust the cylinder-head nuts only if you have an Ossa-Shop. Manual and a low-reading (0-15 ft/lbs) torque wrench. Otherwise, you run the risk of straining the head or the cylinder, and seizing the piston.

J. WHEEL SPOKES

There are two methods of checking the spokes. One is to support the machine with the wheel off the ground, spin the wheel, hold a screwdriver so that each spoke brushes against it, and listen to the sound. If one or more of the

spokes on one side are loose, these spokes will make a different sound. It is necessary to check the spokes on both sides of the wheel.

The other method is to wiggle each spoke gently, above the nipple at the rim. If the spoke is able to move, it is loose. You should have the spokes tightened and the wheel «trued» by your dealer. If even one spoke is loose, it can conceivably cause a flat tire, and it should be tightened.

VIII. PREVENTIVE MAINTENANCE

It is difficult to know exactly when a particular part will become worn or will become so dirty that it will no longer function properly.

The most exasperating thing about breakage or malfunction of motorcycle parts is that the parts only seem to break when the rider is far from any town or assistance. Therefore, we recommend that you have some parts checked or replaced at regular intervals, as listed below, to minimize the possibility of having a part break at the wrong time. You can perform some of these operations yourself, as described in Chapter 8: «MAINTENANCE PROCEDURES»; others should be done by your dealer.

For those operations that you wish to have done by your dealer, we recommend that you take the motorcycle to him during the wintertime and have him do all of the once-a-year operations at once. If you wish to perform all of the preventive-maintenance procedures yourself, we recommend that you obtain an Ossa Shop Manual from your dealer.

A. FREQUENCY OF MAINTENANCE

	Pioneer	Stiletto, T. T.
1. Clean the rear chain	3 times/year, or before each event	Before each event
2. Wash the air cleaner. Replace it if it is a paper type	4 times/year, or before each event	Before each event
3. Clean top-end components	Twice a year	Every 2 events
4. Clean the fuel filters	3 times/year, or before each event	Before each event
5. Clean the carburetor	Twice a year	Every 4 events
6. Check the clutch plates	Twice a year, or before each event	Before each event
7. Install new cables	Twice a year	Four times a year
8. Check the brake linings	Twice a year, or before every other event	Before every other event
9. Check the steering	Twice a year, or before each event	Before each event
10. Check the spark plug	Twice a year, or before each event	Before each event
11. Check electrical	Twice a year, or before each event	Before each event
12. Check the battery	Twice a year, or before each event	

B. REAR CHAIN

The rear chain stretches because dirt gets inside the chain rollers and grinds away metal. The more frequently you clean the rear chain, the longer the chain will last.

C. AIR CLEANER

The air-cleaner element gradually becomes clogged with dirt and trash, which cuts down the performance of the engine. If you keep the element clean, the engine will run better and longer. On the Stiletto model, it is desirable to replace it very frequently, because paper cannot be entirely cleaned.

D. TOP-END COMPONENTS

Carbon gradually builds up on the piston, which can cause the rings to stick. Carbon also builds up on the cylinder head, and in the exhaust and intake ports of the cylinder, cutting the performance of the engine way down. Therefore, you should have the cylinder, the head and the piston cleaned at the recommended intervals.

E. FUEL FILTERS

Trash gets into the gas tank. Normally, it is collected and held by the fuel filters at the top of each petcock in the gas tank and the fuel filter where the fuel lines enter the carburetor. However, if the trash is allowed to build up over a period of time, little bits of it will get into the carburetor. The carburetor has two main-jets, each of which has tiny holes that can easily become clogged by a small particle of trash. If that happens, you're out of business until you get the carburetor cleaned. Therefore, you should have the filter elements cleaned periodically.

F. CARBURETOR

All motorcycle carburetors have narrow internal passages for fuel and air. Even though you wash the air-cleaner ele-

ment and the fuel-filter elements, the carburetor passages tend to get clogged up after awhile. Therefore, it is a good idea to have the carburetor taken apart and cleaned at the recommended intervals.

G. CLUTCHPLATES

Sometimes, after a lot of hard use, one or more of the plainmetal clutch plates will become bent. When that happens, it is very difficult to adjust the clutch linkage so that the clutch will operate smoothly, without dragging, slipping, or grabbing. You should have the clutch plates checked, and the clutch-spring nuts adjusted, periodically.

H. NEW CABLES

The control cables—clutch cable, throttle cable, front-brake cable, and rear-brake cable—tend to wear out fairly frequently. Therefore, we recommend that you have the old cables replaced with new ones before the old ones can give you trouble.

I. BRAKE LININGS

As a general rule, you can ride the machine for a couple of years before you need to check the brake linings. However, it is better to check the linings more frequently, just in case.

J. STEERING

The steering should be checked periodically, to make certain that the bearing aren't worn, and that there is no play in the steering assembly.

K. IGNITION TIMING

The Ossa uses an electronic ignition-system. It has no contact-breaker points. Therefore, you need not bother about timing. You should only watch the sparkplug condition and cleanliness.

L. ELECTRICAL WIRING

Occasionally, a screw in an electrical junction-block will loosen, allowing a wire to come loose. Or, insulation will be cut or broken inadvertently by a rider. Or an electrical wiring-harness will be pinched, allowing the wires to short out from time to time. These things can cause problems with the ignition and lighting that are very difficult to sort out. Therefore, it is a good idea to inspect the wiring very closely from time to time, looking for such things as almost invisible knife-cuts in the insulation.

If you plan to run always in wet conditions put some amount of OSSA seal compound in the converter terminal and in the switch key terminals to prevent the moisture to go in.

IX. MAINTENANCE PROCEDURES

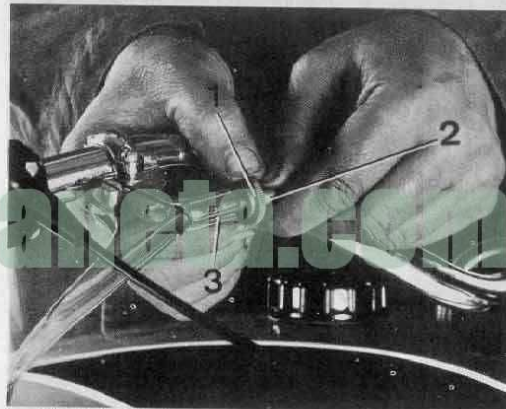
This chapter describes maintenance procedures for the following:

1. Regulating the front-brake linkage.
2. Regulating the rear-brake linkage.
3. Regulating the clutch linkage.
4. Carburetion:
 - a) Regulating the throttle cable.
 - b) Regulating the idle rpm.
 - c) Cleaning the air cleaner.
 - d) Cleaning the fuel filters.
5. Real chain:
 - a) Adjusting the chain tension.
 - b) Cleaning the chain.
6. Removing the rear wheel.
7. Removing the front wheel.
8. Changing a tire.
9. Changing a headlight bulb.
10. Changing a taillight bulb.
11. Installing a new sparkplug.

A. FRONT-BRAKE LINKAGE

You can adjust the travel of the front-brake handlebar lever at the handlebar lever and at the brake arm on the front-brake backing-plate.

When you can pull the front-brake handlebar-lever more than $\frac{3}{4}$ of the distance to the handlebar, you should regulate the linkage. Prop up the motorcycle so that the front wheel clears the ground. Rotate the serrated wheel in the handlebar-lever mount so as to extend the threaded cable-adjuster from the mount. Spin the front wheel until the front-brake is just beginning to drag. Now rotate the serrated wheel on the handlebar mount two turns in the opposite direction, and test the action of the front-brake lever; it should have the correct amount of travel.



1. SERRATED WHEEL
2. CABLE ADJUSTER
3. MOUNT

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0. FRONT BRAKE ARM

If you have extended the cable adjuster all the way, and the front-brake handlebar-lever still has too much travel, rotate the serrated wheel in the opposite direction, to retract the cable adjuster all the way into the mount. At the front-brake backing-plate, press upward on the brake arm, and remove the cable from the outer-cable stop. Remove the cable from the brake arm.

With a 10 mm wrench, remove the bolt that mounts the brake arm to its shaft. Notice the position of the brake arm in relation to the backing plate. Slide the brake arm away from the backing plate until the brake arm is just free of its splined shaft. Rotate the brake arm clockwise just a little bit, until the splines line up again in another position, and mount the brake arm to its shaft again. Install and tighten the 10 mm bolt. Fit the brake cable to the brake arm. Press upward on the brake arm, and fit the cable to the outer-cable stop on the backing-plate. Again adjust the travel of the front-brake handlebar-lever with the cable adjusted on the handlebar-lever mount.

Note: If you need to adjust the front-brake linkage frequently, the front-brake cable is wearing out and beginning to stretch badly, any you should remove the cable and install a new one.

B. REAR-BRAKE LINKAGE

1. Regulating the Linkage

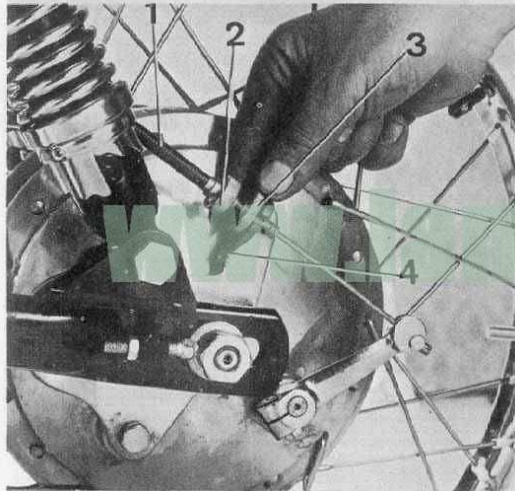
You can regulate the travel of the rear-brake pedal at the cable-adjuster on the left side of the swing arm, and at the brake arm on the rear-brake backing-plate.

When the rear-brake pedal travels more than $2\frac{1}{2}$ " without locking up the rear brake, you should adjust the rear-brake linkage. Prop up the motorcycle so that the rear wheel clears the ground. With an 11 mm wrench, loosen the lock nut on the cable adjuster. To decrease the travel of the rear-brake pedal, rotate the cable adjuster counterclockwise. Spin the rear wheel to see if the wheel is beginning to drag.

If not, continue to extend the cable adjuster and to spin the wheel until the rear brake is just beginning to drag.

Now rotate the cable adjuster two turns clockwise, and test the action of the rear-brake pedal. It should have the correct amount of travel. Tighten the cable-adjuster lock-nut.

If you have extended the cable adjuster all the way, and the rear-brake pedal still has too much travel, rotate the cable adjuster the opposite direction, to retract it into its mount. Pull upward on the brake arm, and remove the brake cable from the brake arm.



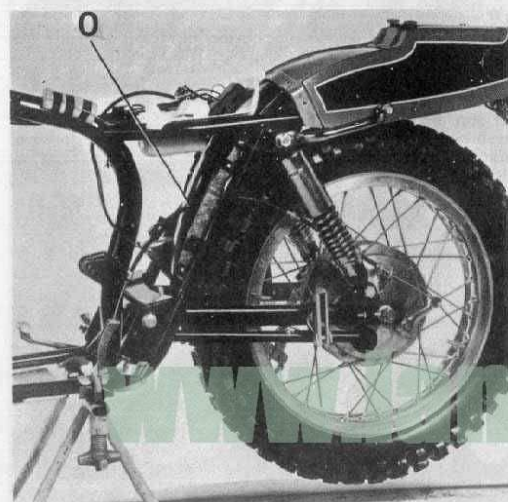
1. REAR BRAKE CABLE
2. CABLE ADJUSTER
3. LOCKNUT
4. OUTER-CABLE STOP

With a 10 mm wrench, remove the bolt that mounts the brake arm to its shelf. Notice carefully the position of the brake arm in relation to the backing plate. Slide the brake arm away from the backing plate until the brake arm is just free of its splined shaft. Rotate the brake arm counterclockwise just a little bit, until the next set of splines on the arm and shaft are aligned. Mount the brake arm. Mount the brake-arm bolt. Mount the brake cable to the brake arm. Adjust the rear-brake pedal-travel with the cable adjuster, and tighten the cable-adjuster lock-nut.



0. CABLE ADJUSTER RETRACTED

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0. REAR-BRAKE CABLE

175 AE-71
250 AE-71

2. Changing a Rear-Brake Cable in the Pioneer Model

Retract the rear-brake cable-adjuster into its mount. Remove the cable from the brake arm. Remove the cable from the cable-adjuster.

When you depress the brake pedal, it rotates a shaft beneath the motorcycle. A curved plate extends from this shaft. The rear-brake-cable-linkage is attached to this plate by means

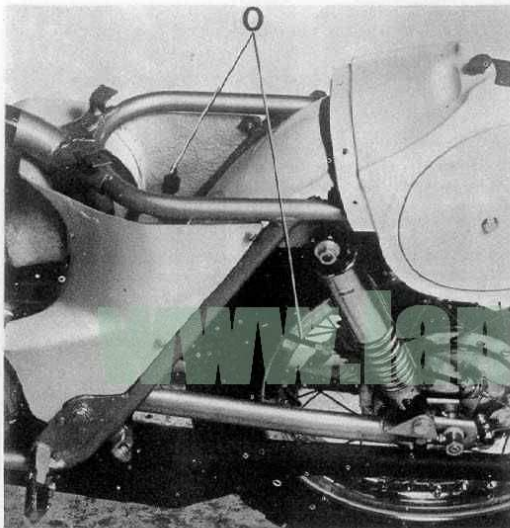
of a clevis pin and a cotter pin. Remove the cotter pin with pliers. Remove the clevis pin, with its washer. Remove the rear-brake cable, with its attached linkage, from the motorcycle. Install a new cable in the reverse order.

Note that curved plate has two holes in it. For greatest leverage, the brake-cable linkage to the bottom hole when mounting a new cable.



1. REAR-BRAKE LINKAGE
2. COTTER PIN
3. FOOTSHIFT LEVER

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O. REAR-BRAKE CABLE

250 TT-71
250 AS-71
175 AS-71



O. REAR-BRAKE CABLE

250 TT-71
250 AS-71
175 AS-71

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C. CLUTCH LINKAGE

You can adjust the clutch linkage at the clutch handlebar-lever and at the clutch (through the inspection-hole in the primary case). If the clutch drags (does not fully disengage when you pull the handlebar lever), or slips (is not fully engaged when you release the handlebar), you will need to adjust the clutch linkage.

If the clutch drags, rotate the serrated wheel at the handlebar-lever to extend the cable adjuster from its mount until the clutch no longer drags. When the adjustment is correct, you should be able —when pulling the handlebar-lever gently— to get a gap of about $\frac{3}{16}$ " between the top edge of the lever and the top edge of the mount before you encounter resistance.



O. BOTTOM HOLE

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If the clutch slips, rotate the serrated wheel to retract the cable adjuster into its mount until you get the correct adjustment as described above.

If you have extended the cable adjuster all the way from its mount and the clutch still drags, or if you have retracted the cable adjuster all the way into its mount and the clutch still slips, you will need to adjust the clutch linkage at the clutch. First, rotate the serrated wheel until the cable adjuster is extended 1/3 of its travel.

Remove the two screws that mount the inspection cover (with the four-leaf clover) to the primary case. Inside the inspection hole, you will see the outer clutch-plate. In the middle of the outer clutch-plate is a slotted screw with a lock nut.

Rotate the lock nut counterclockwise with a 14 mm socket to loosen it. To stop the clutch from slipping, rotate the slotted screw counterclockwise until you get the correct amount of play in the handlebar-lever. To stop the clutch from dragging, rotate the slotted screw clockwise until you get the correct amount of play in the handlebar-lever. Holding the slotted screw in position with a screwdriver, tighten the locknut as much as possible with your fingers. Rotate the slotted screw 1/8 turn counterclockwise to account for tightening the lock nut. Tighten the lock nut with a 14 mm socket, and make certain that the slotted screw is still positioned correctly. If necessary, regulate the cable adjuster to get the exact adjustment that you need. Install the inspection cover.

Note: If you cannot get the correct adjustment, or if the clutch does not engage and disengage smoothly, have your dealer check the clutch. The clutch-spring nuts may need adjustment, or one of the clutch plates may be bent.

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D. CARBURETION

1. Throttle Cable

If when the motorcycle is idling, the engine runs faster when you rotate the handlebars to the right, then the throttle cable is too tight.

Pull up the rubber cover to expose the throttle-cable adjuster, where the throttle cable enters the top of the carburetor. With an 11 mm wrench, rotate the lock nut at the base of the adjuster counterclockwise to loosen the lock nut. To loosen the throttle cable, rotate the cable-adjuster clockwise. To tighten the cable, rotate the adjuster counterclockwise. With the engine idling, test for correct adjustment by rotating the handlebar to the right, and by opening the throttle slightly but quickly. When you have the correct adjustment, tighten the lock nut and pull down the rubber cover.



1. CARBURETOR
2. THROTTLE CABLE ADJUSTER
3. LOCKNUT

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2. Idle Rpm.

The Pioneer should idle fast enough so that (with the clutch adjusted) the engine will not die when the throttle is closed and you have pulled the clutch. The engine should not idle so fast that you cannot shift smoothly from neutral to first gear.

The idle-rpm is adjusted by means of a spring-loaded screw atop the carburetor. To increase the idle-rpm, rotate the screw clockwise.

Note: If you cannot obtain a good adjustment, the low-speed mixture-screw may need adjustment, or the pilot passages may have become clogged up. In either case, you should have your desaler clean or adjust the carburetor.

3. Air Cleaner

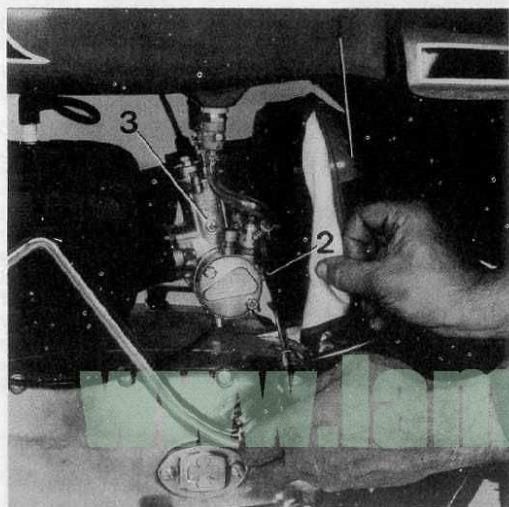
To clean the air-cleaner element in the Pioneer model first clean the outside of the carburetor and the air cleaner. Loosen the air-cleaner clamp-screw (that mounts the air-cleaner to the mouth of the carburetor) by rotating it counterclockwise with a screwdriver. Pull the air-cleaner assembly to the rear of the motorcycle and remove it from the carburetor. Remove the two screws that mount the front cover to the body of the air cleaner. Pull off the front cover. Remove the top screen, the air-cleaner element, and the bottom screen from the body of the air cleaner. Wash the element thoroughly in fresh gasoline and allow it to drip dry, or blow it dry with compressed air. Clean the body, cover, and screens in gasoline and dry them. Reassemble the air cleaner in the reverse order.

For the Stiletto, remove the nut securing the cleaner, take out the paper element and replace or clean it with compressed air. In the T.T. model, the element is of foam, so it should be washed and again impregnated in oil before being fitted.

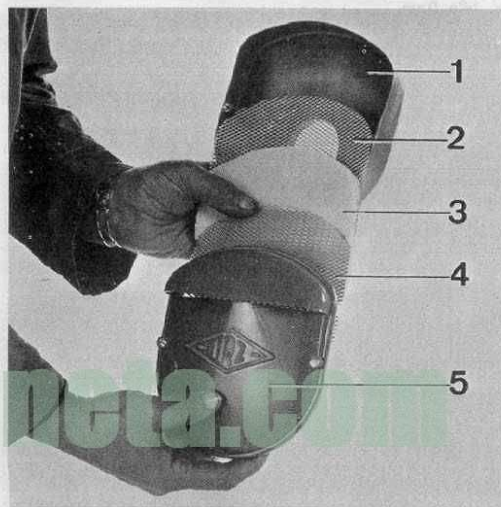
Be carefully to install the filter just in the center of the box with grease on the filter lips.



- 0. IDLE SCREW
- 1. SLOWER IDLE
- 2. FASTER IDLE



- 1. AIR CLEANER
- 2. AIR CLEANER CLAMP-SCREW
- 3. CARBURETOR



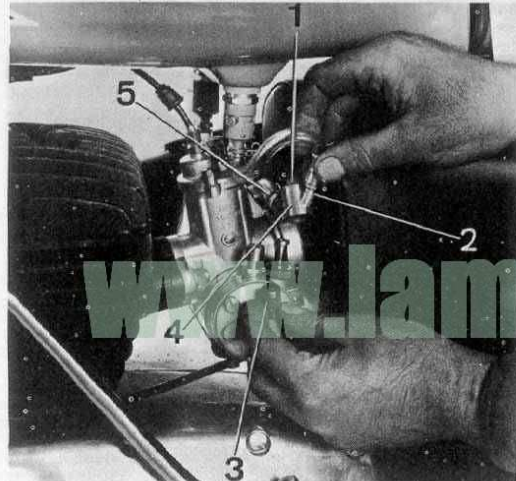
- 1. AIR CLEANER BODY
- 2. SCREEN
- 3. FILTER ELEMENT
- 4. SCREEN
- 5. COVER

4. Carburetor Fuel Filter

The carburetor fuel-filter is located just beneath the cover to which the two fuel lines are attached. Clean the outside of the carburetor. Remove the mounting bolt from the cover with an 8 mm wrench. Lift off the cover. Lift off the wide-screen fuel filter. Clean it thoroughly, but carefully, in fresh gasoline. Reassemble the components in the reverse order.

5. Petcock Fuel Filters

To clean the petcock fuel filters, remove the two fuel lines



1. MOUNTING BOLT
2. FUEL LINE
3. FUEL FILTER
4. FUEL FILTER COVER (or bango)
5. FUEL-LINE

from the carburetor, position a can beneath the fuel lines, and drain the gas tank. With a 17 mm wrench, rotate one of the petcocks clockwise to unscrew it from the gas tank. Clean the petcock fuel-filter thoroughly, but carefully, in fresh gasoline. Before installing the petcock in the gas tank, make certain that the petcock washer and its mating surface on the gas tank are clean and smooth. Clean the other petcock in the same manner. Install the petcocks and attach the fuel lines to the carburetor.



1. AIR FILTER ELEMENT
2. STUD AIR FILTER
3. COVER AIR FILTER

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E. REAR CHAIN

1. Adjustment

With the gearbox in neutral, sit in the saddle and walk the motorcycle along. Watch the rear chain, and stop the motorcycle when the chain is at its tightest point. Still sitting in the saddle, reach down and pull up on the lower chain-run at a point halfway between the countershaft sprocket and the rear sprocket.



On the Pioneer, Stiletto, and T.T., the chain should have 3/4"-1" of vertical play upward. If the rear chain is too tight or too loose, you will need to adjust it.

To adjust the tension of the rear chain, loosen the rear-axle nuts with a 23 mm wrench or the axle-socket from your toolkit. An adjusting-bolt, mounted to the swing arm presses against each rear-axle nut. Loosen the lock nut at the base of each adjusting bolt. To tighten the chain, rotate the adjusting-bolts so as to extend them from their mounts and



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move the axle nuts to the motorcycle. A good practice is to rotate each adjusting bolt the same amount, such as $\frac{1}{2}$ turn, and then check the chain tension. If you rotate each bolt the same amount, the rear wheel will remain in alignment.

If the chain is too tight, rotate the adjusting bolts so as to retract them into their mounts. Tap the axle nuts gently with a rawhide mallet, to press them up against the adjusting bolts.

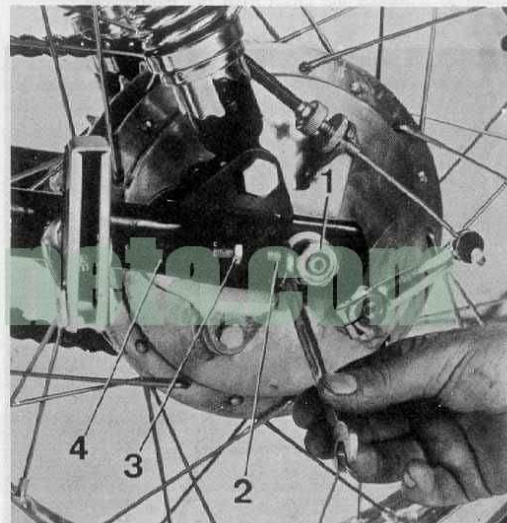
When the chain is tensioned correctly, check the rear-wheel alignment by sighting along the upper chain-run from the rear sprocket to the countershaft sprocket. If the chain runs true, then the rear axle is correctly positioned. If the chain, after it leaves the rear sprocket, bends to the right and then back to the left, then the rear axle (viewed from above the motorcycle) is cocked in a clockwise direction. To correct this, extend the left-side adjusting-bolt from its mount, and retract the right-side adjusting-bolt into its mount.

If the chain, after it leaves the rear sprocket, bends to the left and then back to the right, the rear axle is cocked in a counterclockwise direction. Correct this by retracting the left-side adjusting-bolt from its mount. Tap the axle nuts with a rawhide mallet to make certain that the nuts are bearing against the adjusting bolts. After aligning the wheel, make certain that you still have the correct chain tension, and then tighten the rear-axle nuts.

2. Cleaning

Put the gearbox in neutral. Remove the clutch cable from the clutch arm. Remove the four screws that mount the mag-

neto case to the engine case. Remove the magneto case. Prop up the motorcycle so that the rear wheel clears the ground. Rotate the rear wheel until the master link of the rear chain is positioned on the rear sprocket.



1. REAR-AXLE NUT
2. ADJUSTING BOLT
3. LOCKNUT
4. SWING ARM

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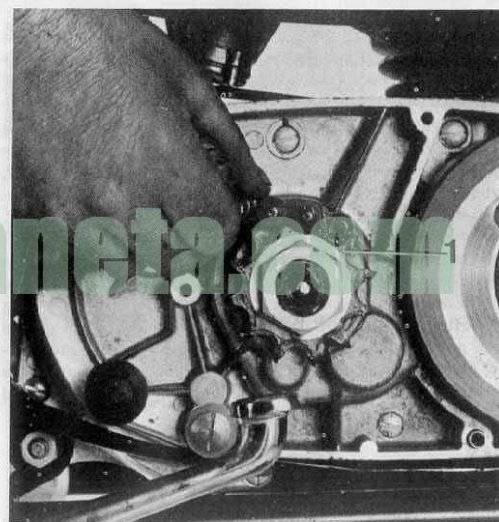
Press the jaws of a pair of pliers against the master link so that one jaw bears against a leg of the spring clip and the other jaw bears against one of the protruding studs. Pop the spring clip free of the stud nearest the ends of the legs. Lift the spring clip away from the other stud. Remove the outer plate of the master link. Pull out stud plate of the master link from the other side of the chain. Rotate the rear wheel to unthread the chain from the motorcycle.



0. CLIP REMOVING CUP FROM MASTER LINK

Immerse the chain in a pan of gasoline. Scrub the rollers and both sides of the links with a bristle brush. When the chain is clean, immerse it in a pan of hot grease, and stir the chain around to get grease into all of the rollers. Remove the chain and allow it to cool.

Fit the chain to the top of the rear sprocket. Thread the chain to the countershaft sprocket. Butt the ends of the chain together on the rear sprocket. If you cannot do this, loosen the rear-axle nuts and move the rear wheel forward.



1. COUNTERSHAFT SPROCKET

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Insert the stud plate of the master link through the ends of the chain from the opposite side. Fit the outer plate to the ends of the chain, making certain that it goes beyond the studs for the spring clip. Position the spring clip over the studs, with the closed end of the clip facing the direction of chain travel (the rear wheel rotates in clockwise direction). Fit the clip to the stud nearest the closed end. Use pliers to force the legs of the clip over the stud. Do not reuse a spring clip more than twice. If necessary, tension the chain. If necessary, align the rear wheel.

Position the magneto case against the engine case. Mount the four screws. The longer screws go toward the front of the engine; the two shorter screws go toward the rear of the engine. Fit the clutch cable to the clutch arm. Fit the clutch cable to the outer cable stop.

3. Changing.

When the old chain has become so worn that it has permanent kinks, or the rollers have a great deal of stretch (when you hold the chain out sideways, the other end dips down toward the ground), remove the old chain and replace it with a new one.

As a general rule, a new rear chain will stretch rapidly for a short while, so that you will need to re-tension it several times at frequent intervals. After that, it will stretch more gradually.

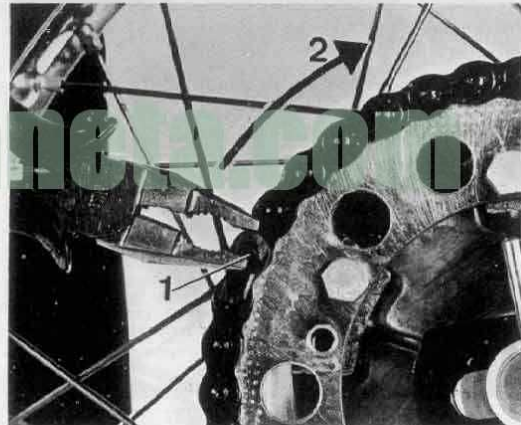
F. REMOVING THE REAR WHEEL

To remove the rear wheel, prop up the motorcycle so that the rear wheel clears the ground. Retract the rear-brake cable-adjuster into its mount. Remove the rear-brake cable from the brake arm. Remove the clutch cable from the clutch arm.

Remove the magneto case from the engine case. Remove the master link from the rear chain. Remove the rear chain from the rear wheel.

On the Pioneer, Stiletto and T.T., remove one of the axle nuts. Press a drift rod against the axle. With a mallet, drive the axle out through the other side of the wheel. Remove the rear wheel from the motorcycle.

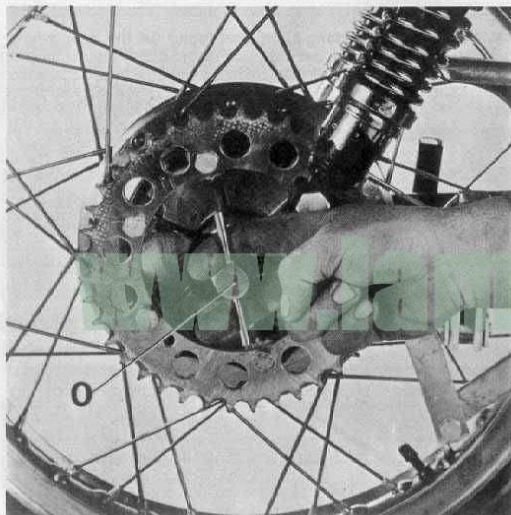
With the brake backing-plate positioned on the rear wheel, move the rear wheel forward so that the tongue on the inside of the left leg of the swing arm fits into its groove in the anchor plate on the backing plate. This is very important.



1. CLOSED END OF SPING CLIP
2. DIRECTION OF CHAIN TRAVEL

Position the spacers between the rear wheel and the swing arm as shown in the accompanying photo. Insert the rear axle into the swing arm and the rear wheel. Tap the rear axle gently into position with a rawhide mallet. Mount the other rear-axle nut and its washer, but do not tighten them. Install

the rear chain. Install the magneto case. Fit the clutch cable to the clutch arm and the outer cable stop. Mount the rear-brake cable and adjust it. Tension the rear chain and align the rear wheel. Tighten both rear-axle nuts securely with a 23 mm wrench.



0. REAR AXLE



1. GROOVE IN ANCHOR PLATE
2. TONGUE ON SWING ARM

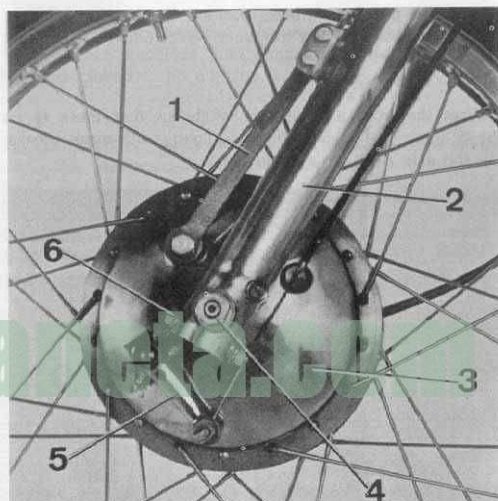
G. REMOVING THE FRONT WHEEL

Prop up the motorcycle so that the front wheel clears the ground. Pull up on the front-brake arm and remove the brake cable from the outer-cable stop. Remove the brake cable from the brake arm. Unscrew the speedometer-cable cap-nut from the speedometer-drive on the right side of the front wheel. Remove the cable from the drive.

With 14 mm wrenches, remove the nut and bolt that mount the brake anchor-plate to the left slider leg of the front forks.

Use a 12 mm wrench to loosen the axle-clamp bolt in each front-fork slider-leg, beneath the front axle.

With a 23 mm wrench, or the socket supplied with your toolkit, remove the front-axle nut and its washer. Fit a drift into the hole drilled into the right side of the axle, and pull out the axle. Remove the speedometer-drive unit from the right side of the front wheel. Remove the front wheel from the motorcycle. Lift out the brake backing-plate, and inspect the brake linings.



1. FRONT BRAKE ANCHOR-PLATE
2. LEFT SLIDER LEG
3. FRONT-BRAKE BACKING-PLATE
4. FRONT AXLE NUT
5. FRONT BRAKE ARM
6. AXLE CLAMP BOLT

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To install the front wheel, position the backing plate in the front wheel. Position the front wheel between the front forks.

Clean the front axle very carefully so that there is no dirt or trash on it. Smear the axle lightly with clean grease. Lay the axle aside in a clean place.



0. ANCHOR-PLATE NUTS AND BOLTS

Rotate the front-brake backing-plate so that the anchor plate will be aligned with its mount on the slider leg. Fit the speedometer-drive assembly, with the felt pad between the drive and the tab plate. Place the drive assembly on the right side of the front wheel; with the tabs facing the wheel. Fit the tabs to the slots in the hub, and make certain that the tabs stay in their slots as you install the front wheel.

Position the wheel in alignment with the axle bosses in the front forks. Insert the front axle (from the right side) into the right slider-leg and the wheel. Fit the spacer between the left side of the wheel and the left slider-leg. Push the front axle through the left slider-leg. Push the front axle through the left slider-leg. Mount the front-axle nut and its washer, but do not tighten the nut.

It is very important to follow the tightening sequence given below. Install the nut and bolt that mount the anchor plate to the slider leg. Run the nut down finger-tight.

With a 23 mm wrench, tighten the front-axle nut securely. Take the motorcycle off the support and put the front wheel on the ground. Place your hands on the handlebar grips, and work the front forks up and down. This will align the right-side slider-leg on the front axle. With a 12 mm wrench, tighten the axle-clamp bolt on each slider leg beneath the front axle.

With 14 mm wrenches, tighten the anchor-plate bolt and nut at the slider leg securely. This is important. If the anchor plate comes loose, you won't be able to use the front brake.

Install the speedometer cable to the speedometer-drive. Mount the front-brake cable, and adjust it.



The Ossa's are equipped with two rim-locks per wheel. The threaded, headless bolts mounted to the rim are the rim-locks. Remove the nut and washers from each rim-lock.



H. CHANGING A TIRE

To change a tire, remove the wheel from the motorcycle, and remove the backing plate from the wheel. Remove the valve cap from the valve stem. With a valve-core tool, remove the valve core. Remove the lock nut from the valve stem.

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Lay the wheel on the ground, and walk around on the tire to break the bead. Spray or spread rubber lubricant between the tire and the rim on each side of the wheel. Insert a tire tool between the tire and the rim, and lever a portion of the edge of the tire outside of the rim, being careful not to puncture the tube. Holding that tool in place, insert the other tire tool, and pry loose another portion of

the edge of the tire outside of the rim. Work the tools all the way around the rim, until one side of the tire lies outside of the rim.

Press the rim-lock bolt into the rim. Reach inside the rim and remove the rim-lock from the wheel. Remove the other rim-lock.



Press the valve stem into the rim. Reach in between the tire and the rim, and remove the inner tube from the wheel.

Stand the wheel on end. From the side of the tire that is still inside the rim, reach the tire tool through to the other side of the rim. Lever a portion of the tire completely

off the rim. Bend the free portion of the tire down, and work a larger section of the tire off the rim. If necessary, hold the freed portion of the tire down with one hand, and beat the edges of the tire with a rubber mallet. Pull the tire off the rim.

To install a tire, check the wide rubber band that is fitted to the inside of the rim. Make certain that the valve-stem hole and the rim-lock holes in the band are aligned with the holes in the rim.



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Install the valve core in the valve stem with a valve-core tool. Put just enough air into the inner tube so that it doesn't sag when you hold it up. Check the tire to see if there is a small paint-mark on one side near the bead. Push the inner tube into the tire: if the tire has a paint mark, position the valve stem next to that mark.

Lay the wheel on the ground. Lay the tire on top of the wheel. With a mallet, gently beat on the edges of the tire, so that the bottom side of the tire is forced over the lip of the rim.

Reach in between the tire and the rim and work the valve stem through the hole in the rim. Start the lock-nut on the valve stem so that the stem won't be pulled back into the rim later on.



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Fit a rim-lock up against the inner tube, and work the rim-lock into the tire, so that the cupped portion of the rimlock fits between the inner tube and the sides of the tire. Position the rimlock so that you can fit the threaded bolt through the hole in the rim. Be careful, while positioning the rim-lock



so that you can push it through the hole in the rim, not to dig into the rubber band so that you move the hole in the rubber band out of alignment with the hole in the rim. Fit the washers and the nut to the rim-lock, but only tighten the nut two or three turns. Install the other rim-lock in the same manner.

With the wheel still lying in the same position on the ground, gently beat the free edge of the tire to force it over the edge of the rim. You may need to use the tire iron. If so, be very careful not to gouge the inner tube.



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Inflate the tire. The valve stem and the rim-locks will pop out into position. Tighten the valve-stem lock-nut and the rim-lock lock-nuts. Listen for leaks. Install the valve cap. Install the wheel in the motorcycle.



I. HEADLIGHT BULB

To change a headlight bulb, remove the small screw by closing the headlight unit clamp. Pull out the rim and the sealed beam assembly. Install a new sealed beam in the reverse manner.



1. SEALED BEAM
2. WIRE CLAMP

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J. TAILLIGHT BULB

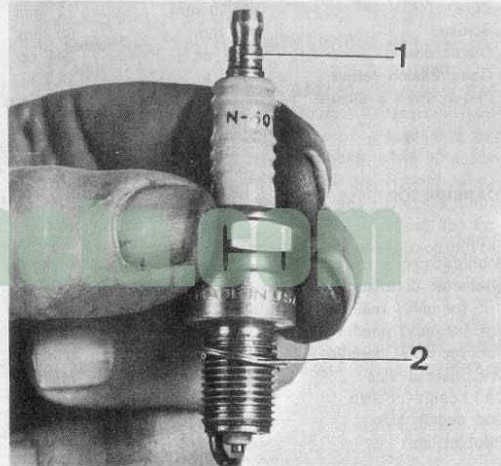
To change a taillight bulb, remove the two screws that mount the lens to the taillight assembly. Remove the lens. Press the old bulb inward, rotate it, and remove it.



1. BUSHING BULB HOLDER
2. BULB
3. LENS

K. SPARKPLUG

To remove a sparkplug, rotate the sparkplug counterclockwise with the sparkplug-socket-screwdriver tool in your tool kit. Before installing a new sparkplug, secure the small nut at the top of the sparkplug. Make certain that the sparkplug that you are about to install has a washer on the threads at the bottom. Tighten the new sparkplug securely, but remember that the sparkplug threads in the cylinder head are made of aluminium alloy.



1. NUT SECURED
2. WASHER

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X. SPECIFICATIONS

A. ENGINE

	Stiletto	Stiletto	Stiletto	Pioneer	Pioneer
	175 AS	250 AS	250 TT	175 AE	250 AE
1. Type	Two-cycle	Two-cycle	Two-cycle	Two-cycle	Two-cycle
2. Number of cylinders	One	One	One	One	One
3. Bore	60,90 mm	72 mm	72 mm	60,90 mm	72 mm
4. Stroke	60 mm	60 mm	60 mm	60 mm	60 mm
5. Displacement	175 cc	244 cc	244 cc	175 cc	244 cc
6. Compression ration	13.8:1	13.2:1	14.5:1	11.5:1	11.5:1
7. Piston sizes available	Standard	Standard	Standard	Standard	Standard
	1st over (+0,20 mm)	1st over (+0,20 mm)	1st over (+0,20 mm)	1st over (+0,20 mm)	1st over (+0,20 mm)
	2nd over (+0,40 mm)	2nd over (+0,40 mm)	2nd over (+0,40 mm)	2nd over (+0,40 mm)	2nd over (+0,40 mm)
	3rd over (+0,60 mm)	3rd over (+0,60 mm)	3rd over (+0,60 mm)	3rd over (+0,60 mm)	3rd over (+0,60 mm)

B. CARBURETOR

	IRZ	IRZ	IRZ	IRZ	IRZ
1. Brand	IRZ	IRZ	IRZ	IRZ	IRZ
2. Manufacturer's description	1062	1066	1070	1063	1067
3. Diameter of mixing chamber	29 mm	33 mm	33 mm	29 mm	29 mm
4. 1st (or only) main-jet size	80	76	96	82	68
5. 1st (or only) needle-jet size	260-75	260-75	260-75	260-75	260-75
6. 1st (or only) needle size	Midle	Midle	Midle	Midle	Midle
7. 2nd main-je size	90	115	108	100	106
8. 2nd needle-jet size	260-75/1	260-75/1	260-75/1	260-75/1	260-75/1
9. 2nd needle size	Midle	Midle	Midle	Midle	Midle
10. Pilot-jet size	35	40	40	35	40

C. GEARING	Stiletto	Stiletto	Stiletto	Pioneer	Pioneer
	175 AS	250 AS	250 TT	175 AE	250 AE
1. Primary-drive ratio	2,26:1	2,26:1	2,26:1	2,26:1	2,26:1
2. Gearbox: 1st gear ratio	2,62:1	2,62:1	1,99:1	3,59:1	3,59:1
3. Gearbox: 2nd gear ratio	1,80:1	1,80:1	1,48:1	2,44:1	2,44:1
4. Gearbox: 3rd-gear ratio	1,34:1	1,34:1	1,21:1	1,81:1	1,81:1
5. Gearbox: 4th-gear ratio	1,10:1	1,10:1	1,04:1	1,35:1	1,35:1
6. Gearbox: 5th-gear ratio	1:1	1:1	1:1	1:1	1:1
7. Countershaft sprocket	12 teeth	12 teeth	12 teeth	11 teeth	12 teeth
8. Rear sprocket	53 teeth	53 teeth	53 teeth	40 teeth	40 teeth
9. Primary chain & gear lube	Full-Bore SAE 80 Gearbox Racing Lubricant, or SAE 90 automobile Hypoid lube, or SAE 30 motor oil	Full-Bore SAE 80 Gearbox Racing Lubricant, or SAE 90 automobile Hypoid lube, or SAE 30 motor oil	Full-Bore SAE 80 Gearbox Racing Lubricant, or SAE 90 automobile Hypoid lube, or SAE 30 motor oil	Full-Bore SAE 80 Gearbox Racing Lubricant, or SAE 90 automobile Hypoid lube, or SAE 30 motor oil	Full-Bore SAE 80 Gearbox Racing Lubricant, or SAE 90 automobile Hypoid lube, or SAE 30 motor oil
10. Quantity (refill)	about 750 cc	about 750 cc	about 750 cc	about 750 cc	about 750 cc
11. Quantity (total)	1000 cc or 1/4 gallon	1000 cc or 1/4 gallon	1000 cc or 1/4 gallon	1000 cc or 1/4 gallon	1000 cc or 1/4 gallon

D. PRIMERY CHAIN	Stiletto	Stiletto	Stiletto	Pioneer	Pioneer
	Renold 114-038 Joresa 2032-50	Renold 114-038 Joresa 2032-50	Renold 114-038 Joresa 2032-50	Renold 114-038 Joresa 2032-50	Renold 114-038 Joresa 2032-50
1. Brand					
2. Pitch	3/8"	3/8"	3/8"	3/8"	3/8"
3. Width	0,225"	0,225"	0,225"	0,225"	0,225"
4. Diameter of roller	1/4"	1/4"	1/4"	1/4"	1/4"
5. Number of links	50	50	50	50	50

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E. REAR CHAIN	Stiletto	Stiletto	Stiletto	Pioneer	Pioneer
	175 AS	250 AS	250 TT	175 AE	250 AE
1. Brand	Renold 110054 Joresa 55	Renold 110054 Joresa 55	Renold 110054 Joresa 55	Renold 110054 Joresa 55	Renold 110054 Joresa 55
2. Pitch	5/8"	5/8"	5/8"	5/8"	5/8"
3. Width	0,255"	0,255"	0,255"	0,255"	0,255"
4. Diameter of roller	0,4"	0,4"	0,4"	0,4"	0,4"
5. Number of links	116	116	114	106	106

F. ELECTRICAL EQUIPMENT	Stiletto	Stiletto	Stiletto	Pioneer	Pioneer
	Magnetic flywheel	Magnetic flywheel	Magnetic flywheel	Magnetic flywheel	Magnetic flywheel
1. Ignition & lighting					
2. Brand	Motoplat	Motoplat	Motoplat	Motoplat	Motoplat
3. Voltage	6 V	6 V	6 V	6 V	6 V
4. Ignition system	Electronic	Electronic	Electronic	Electronic	Electronic
5. Ignition timing	1,9 ÷ 2 mm BTDC	2,9 ÷ 3,1 mm BTDC	2,9 ÷ 3,1 mm BTDC	1,9 ÷ 2 mm BTDC	2,9 ÷ 3,1 mm BTDC

G. LIGHTING	Stiletto	Stiletto	Stiletto	Pioneer	Pioneer
1. Headlight bulb				6 V 30/30 W	6 V 30/30 W
2. Taillight bulb				6 V 5/18 W	6 V 5/18 W
3. High-beam indicator bulb				6 V 1,5 W	6 V 1,5 W

H. SPARKPLUG	Stiletto	Stiletto	Stiletto	Pioneer	Pioneer
1. Size	175 AS	250 AS	250 TT	175 AE	250 AE
2. Reach	14 mm	14 mm	14 mm	14 mm	14 mm
3. Type fitted	3/4"	3/4"	3/4"	3/4"	3/4"
4. Note:	Champion N-57R	Champion N-57R	Champion N-57R	Champion N-60Y	Champion N-60Y
For competition use, you may need a different heat range plug.					
J. FRONT SUEPENSION					
1. Type	Telescopic	Telescopic	Telescopic	Telescopic	Telescopic
2. Damping	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
3. Travel	7"	7"	7"	7"	7"
4. Type of oil	CS Merak D, Caltex Regal F, Esso-Tereso 85, Shell-Tellus 69.			CS Merak CH, Caltex Regal E, Esso-Tereso 65, Shell-Tellus 41.	
	Hydraulic. Tipe Oil Viscosity-Engler a 50°C 11.5:12.5.			Hydraulic. Tipe Oil Viscosity-Engler a 50°C 9.9:5.	
5. Quantity, per kg	180 cc	180 cc	180 cc	180 cc	180 cc
K. REAR SUSPENSION					
1. Type	Telescopic	Telescopic	Telescopic	Telescopic	Telescopic
2. Damping	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
3. Travel	3 5/16"	3 5/16"	3 5/16"	3 5/16"	3 5/16"

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L. WHEELS	Stiletto	Stiletto	Stiletto	Pioneer	Pioneer
	175 AS	250 AS	250 TT	175 AE	250 AE
1. Front tire	3.00×21	3.00×21	3.50×19	3.00×21	3.00×21
2. Rear tire	4.00×18	4.00×18	4.00×18	4.00×18	4.00×18
3. Spokes, front wheel	36	36	36	36	36
4. Spokes, rear wheel	36	36	36	36	36
5. Spoke diameter	4 mm	4 mm	4 mm	4 mm	4 mm
M. BRAKES					
1. Type	Internal expansión,	Internal expansión,	Internal expansión,	Internal expansión,	Internal expansión,
2. Diameter	158 mm	158 mm	158 mm	158 mm	158 mm
N. GENERAL					
1. Wheelbase	55"	55"	54 5/16"	54"	54"
2. Overall length	81 5/16"	81 5/16"	80 1/2"	82 9/16"	82 9/16"
3. Saddle height	33"	33"	33"	34"	34"
4. Ground clearance	7 5/16"	7"	6"	10 1/4"	10 1/4"
5. Empty weight	228 lbs.	233 lbs.	237 lbs.	242 lbs.	242 lbs.
6. Gas tank capacity	2 gallons	2 gallons	2 gallons	3/4 gallons	3/4 gallons
7. Reserve capacity	0.45 gallon	0.45 gallon	0.45 gallon	1/2 gallon	1/2 gallon

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