

OSSA WEST

SERVICE BULLETIN #0-0-1

Revision 1

Dated 12/10/67

Page 1 of 1

Ossa Service Bulletins have three sets of numbers, separated by dashes. The first number refers to the model, as follows:

0. - All models
1. - Pioneer only, or Pioneer and Stiletto
2. - Stiletto only
3. - Plonker
4. - Wildfire

The second number refers to the assembly of the motorcycle that needs talking about, as follows:

1. Engine
2. Clutch
3. Gearbox
4. Carburetion
5. Exhaust
6. Ignition
7. Other electrics
8. Front forks and steering
9. Swing arm and rear shocks
10. Wheels
11. Brakes
12. Frame and other components

The third number is the number of the Service Bulletin pertaining to that particular assembly on a particular Ossa model. For example, SB#4-2-6 would be the sixth SB covering the clutch in the Wildfire.

We recommend storing the SB's in a three-ring binder in numerical order.

END

### 1. Removing the Motorcycle

Check the name and number shown on the motorcycle crate with the information on the invoice.

Use a crowbar and a hammer to break the straps and pry up the top of the crate on three sides. Fold back the top.

Pull the front of the crate loose from the sides of the crate. Pull down the front of the crate and bend down the nails that you might later step on.

Two boards have been fitted between the wheel spokes and nailed to the rear of the crate. Gently rotate each board until the nails have been pulled out, and remove the board from the wheel. Remove the wooden bracing from the wheels.

A tubular shipping brace is clamped to the fork crown and nailed to the rear of the crate. With a crowbar, pry loose the brace from the crate. The motorcycle is no longer supported in the crate.

While somebody else supports the motorcycle, tear away the polyurethane shipping bag and remove the loose packing materials from the motorcycle.

Remove the motorcycle from the crate.

### 2. Installing the Components

Remove the cardboard tied to the motorcycle.

With a 10mm wrench, remove the nuts from the handlebar-mount U-bolts on the fork crown. Remove the shipping bracket from the fork crown.

Fit the handlebar to the fork crown and install the U-bolts, the washers, and the nuts.

Install the electrical switchbox on the left side of the handlebar, between the grip and the clutch-lever mount.

Fit the gearshift lever to its shaft at the primary case and install the mounting bolt with a 10mm wrench.

### 3. Gas and Oil

Drain any fuel that might be in the gas tank. Mix some fuel, as described in the Rider's Manual, and put it in the gas tank. Turn on the fuel taps, tickle the carburetor, and start the engine. Run the engine until the cylinder begins to feel warm (but do not ride the motorcycle). Stop the engine and shut off the fuel taps.

With a 17mm wrench, remove the drain plug from the bottom of the engine. This drains the gearbox and the primary case. Install the drainplug.

Remove the oil-level screw from the primary case. Remove the inspection cover, and add SAE 30 motor oil, or Full-Bore SAE 80 Gearbox Lubricant (the equivalent of SAE 25 motor oil), as shown in the Rider's Manual. Install the inspection cover and the oil-level screw.

#### 4. Cables

The clutch and brake cables do not seem to be coming through with enough lubricant. If the clutch feels rough, lube the cable as shown in the Rider's Manual.

#### 5. Carburetion

There is usually too much slack in the throttle cable. Adjust it with the cable adjuster atop the carb, as shown in the Rider's Manual.

#### 6. Idle

The springloaded screw atop the carb is the idle RPM screw. Rotate it clockwise to decrease the idle RPM, or counterclockwise to increase the idle RPM. The springloaded screw on the right side of the carb is the idle mixture screw. Rotate it clockwise to decrease the fuel flow, or counterclockwise to increase the fuel flow at idle.

#### 7. Sparkplug

Use an NGK BIOEN, or equivalent, in the Stiletto. In the Pioneer, use an NGK B77EC; or, for very hard running, an NGK B8EN, or equivalent.

#### 8. Timing

The factory recommends ignition timing between 3.25mm and 3.50mm BTDC. You will obtain maximum power output at those figures. However, some of the motorcycles may be difficult to start or may occasionally start running backwards at low RPM at that ignition setting. Some dealers have found that these tendencies go away if the engine is timed between 2.75mm and 3.25mm BTDC.

The Ossa has electronic ignition. To time the engine, remove the ignition wires and their clips from the high-voltage coil. Remove the sparkplug and install a dial-indicator adapter. Install the plunger (note: if you are using a Peacock #107 dial indicator you will have to lengthen the plunger). Install the dial indicator.

Remove the magneto case. Shift the gearbox to neutral. Rotate the magneto flywheel in the direction indicated by the arrow until the piston is the correct distance BTDC. The small hole in the face of the magneto flywheel will be positioned at about 11 o'clock. Insert the Ossa timing rod (or any rod that is a close fit) into the small hole in the flywheel. If the timing is correct, the rod should slip into another hole on the magneto backing plate. If you can't do so without rotating the flywheel enough to move the piston out of tolerance, you will need to adjust the timing.

To adjust the timing, remove the magneto flywheel. Loosen the three screws that mount the magneto backing plate until the plate can rotate freely. Fit the flywheel to the driveshaft again, but do not install the nut. Insert the timing pin and rotate the flywheel until the pin goes into its hole in the backing plate. Now rotate the flywheel and the backing plate until the dial indicator shows that the piston is positioned at firing time (the correct distance BTDC). Watch the dial indicator to make certain that you don't move the piston, and gently remove the flywheel from the driveshaft. Tighten the backing-plate screws securely. Install the magneto flywheel and the magneto case. Remove the dial indicator. Install the ignition wires on the high-voltage unit. The clip with the block wire goes to the bottom post.

9. Pioneer Muffler

The Pioneer is sold with an auxiliary muffler and mounting spring that are shipped separately to you. For riding in populated areas, the rider should use the auxiliary muffler.

To use the muffler, slide it on the end of the exhaust pipe so that the stud on the pipe goes into the slot in the end of the muffler. Hook the spring to the eyes on the pipe and the muffler.

If the rider wants a slight increase in power, and the additional noise won't bother anybody, the rider should remove the muffler, and mount it alongside the exhaust pipe by means of the tube brazed to the side of the auxiliary muffler.

END

OSSA

Service Bulletin #2-4-1

Dated 9/27/68

Reference: 1968 1/2 230cc Stilettos

We have been advised by the factory that mid-range main jet is too small (second main jet in from the air filter). The proper size jet is a #76.

With regards to final tuning, once the engine has been broken in, remove the 10:1 compression ratio head gasket (Approximately 2mm thick) and install a 13:1 gasket (Approximately 1mm thick). Please note! it will also probably be necessary to raise both the mid-range and high speed needles to their highest position.

Check the number of the high speed needle. Some carburetors have a 3.5 high speed needle. Our experience indicates that a #2 needle (which is smaller) works better.

The final tuning should be done in incremental steps. The mid-range jet and needle perform the most important part in regulating the carburation of the 18% double needle carburetor. Concentrate on this set first.

Final tuning and racing should be done with a racing plug - NGK B 10 EN or equivalent, or a colder racing plug.

END

OSSA WEST

SERVICE BULLETIN #0-6-2

Revision 0

Dated 12/20/57

Page 1 of 2

TROUBLESHOOTING THE IGNITION SYSTEM: 1967-68

1. NOTE: The resistance readings given in Revision 0 of this Bulletin are not exact, and you may find some variation among ignition systems that are working okay.
2. If the engine won't start, remove the sparkplug and fit a new sparkplug to the sparkplug cap (this is important, because in a two-stroke engine, metal salts can form an invisible short-circuit in the sparkplug). Hold the plug against a fin on the cylinder head and operate the kickstarter lever. You should get a healthy spark that says "snap." (NOTE: Never use anything but a sparkplug to check for spark, or you may burn out the windings in the high-voltage coil.)
3. If you didn't get a spark, and the machine is fitted with a kill button, hold a flashlight along the right side of the rear wheel and locate the electrical junction-block that hides up near the top of the plastic shield. With a jeweler's screwdriver, loosen either of the two terminal screws that mount the two blue wires, and remove one of the blue wires from the junction block. Make the sparkplug test again. If you get a good spark now, you've probably got a grounded connection in the switchbox on the handlebar.
4. If you didn't get a good spark, then the problem is probably in the high-voltage unit or the magneto backing-plate. Chances are that the backing-plate is at fault, so we'll begin with it.
5. Unclip the black wire and the blue wires from the high-voltage unit. Remove the magneto case and the magneto flywheel. You may wish to remove the backing plate.
6. The low-voltage ignition-coil on the magneto backing-plate of the 1967-68 models has black insulation on the wiring. The coil has a plastic end-plate. On the side of the plate facing the crankshaft are two solder joints covered with clear epoxy. Scrape enough of the epoxy off each solder joint so that you can make good electrical contact against it with the test lead of an ohmmeter.
7. Set the resistance switch of the ohmmeter to read "R X 1" or "R X 10." Zero the needle. Touch the test leads of the meter to the two solder joints on the end-plate of the low-voltage ignition-coil. You should get a reading of 150-185 ohms. If you read a lot more--or much less--resistance, then the coil is bad.
8. If the low-voltage ignition-coil is good, you should check the round black diode mounted next to it. One wire from the diode is mounted to the solder joint nearest it on the low-voltage ignition coil, which you have already scraped. The other wire is grounded to the magneto backing-plate. With the resistance switch set at "R X 10" or "R X 100," touch one of the ohmmeter test leads to the scraped solder-joint and touch the other lead to the base of the magneto backing-plate. Take a reading and then reverse the ohmmeter leads and take another reading. You should get a reading of 800 - 1200 ohms and a reading of infinity (open circuit). If not, the diode is bad.

## TROUBLESHOOTING THE IGNITION SYSTEM (Con'd)

9. The pickup coil, which has a metal rod sticking out of its top, is located on the other side of the low-voltage ignition-coil from the diode. The pickup coil has two yellow wires. With the resistance switch set at "R X 1," touch the test leads to the uninsulated portions of the two yellow wires where they are attached to the pickup coil. You should get a reading of 16-20 ohms.
10. If any of the above tests give bad readings, install a new magneto backing-plate. If all of the tests give good readings, check the high-voltage unit. You may need to remove the gas tank to check the unit.
11. With the resistance switch set at "R X 1," touch the test leads of the ohmmeter to the mounting posts for the black wire and the blue wires on the high-voltage unit. Read the meter and reverse the test leads. Take another reading. In both cases, you should get a reading of 25-35 ohms.
12. Next, set the resistance switch to "R X 100" or "R X 1000." Touch one of the test leads to the clip inside the sparkplug cap; touch the other lead to a fin on the cylinder head. You should get a reading of about 7000 ohms.
13. If either of the checks at the high-voltage unit gives a bad reading, discard the high-voltage unit and mount a new one, making certain that the mounting lug makes a good ground against the frame. When attaching the wires to the high-voltage unit, make certain that the black wire goes to the bottom clip and the blue wires go to the top clip. If you reverse the order of the wires, you'll burn out the high-voltage unit the next time you start the engine.
14. If everything gives good readings, check for intermittent short circuits in the wires, or broken wires, or a faulty magneto flywheel.

END

YANKEE MOTOR CORPORATION

March 10, 1969

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OSSA SERVICE BULLETIN #2-4-2

TUNING THE '69, 250cc STILETTOS

The 250cc Stiletto comes from the factory with a 10:1 compression head gasket. If, after break-in and a few initial races, you wish to increase the compression ratio to 13:1, order 250cc - 13:1 head gaskets from the Parts Department. Please note! It will probably be necessary to go a little richer on the carburetion.

Due to the variation in gasolines between Spain and the U.S., it is mandatory that you check the heat range of the spark plug and the carburetor setting. Our experience indicates that the mid range needle needs to be raised (and possibly the high speed needle as well) and that an NGK B-11EN racing plug (or equivalent) be used. You should try and achieve a spark plug appearing as follows:

- (a) Porcelain center electrode a malt brown.
- (b) Steel body of the plug should be black with just a trace of soot when rubbed with your finger.



March 10, 1969

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YANKEE MOTOR CORPORATION

OSSA SERVICE BULLETIN #0-2-2

CLUTCH ADJUSTMENT

Sometimes when a new engine is assembled at the factory, there is very little clearance between the clutch push rod and the outer clutch plate. The result is that as the clutch plates bed in, the outer clutch plate moves closer to the push rod until finally the push rod holds the outer plate from exerting 100% pressure against all of the clutch plates. The net result is that the clutch will start to slip and can possibly lead to a burned out clutch.

Procedure:

After the first 100 to 300 miles, check the push rod clearance by:

- #1. Back off clutch cable adjuster on clutch lever mounted on the handlebar.
- #2. See if you can detect at least 1/16" of free movement in the clutch arm assembly, Part #991-515BM.
- #3. If you cannot detect any movement, remove the inspection cover on the lefthand side of the engine and adjust the set screw until you pick up 1/16" of movement.

YANKEE MOTOR CORPORATION

March 10, 1969

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OSSA SERVICE BULLETIN #0-6-4

IGNITION SYSTEM

Effective as of the 1969 models, there are four separate magneto systems.

- #1 - Part # 112 025 M1 Magneto-Flywheel Assembly, Alum F/W, with lighting coils for Wildfire model.
- #2 - Part # 114 080 M1 Magneto-Flywheel Assembly, Alum F/W, without lighting coils, but with larger magnetic pickup, for Stiletto models.
- #3 - Part # 112 030 M1 Magneto-Flywheel Assembly, Bronze F/W, for Pioneer and Plover models, without batteries.
- #4 - Part # 118 097 M1 Magneto-Flywheel Assembly, Bronze F/W, for Pioneer models, with battery (1969)

- NOTE:
- (A) It is possible to use the Wildfire magneto system on the Stiletto models, if necessary.
  - (B) Each magneto flywheel and backing plate is a matched pair and have a serial # stamped into each component. The factory does not advise intermixing magnetos. The air gap between the magnetic triggers is very accurate and intermixing can cause a weak spark.
  - (C) Due to the fact that the low tension voltage on the Motoplat system is 300 to 400 volts, the factory have wired the kill button into the headlight switch on the side of the headlight for the 1969 Pioneer models. The kill button on the handlebar switch is now inoperative. Wiring diagrams will be mailed in two weeks from today.
  - (D) Be careful when using the magneto flywheel holding tool. The projections on the face of the tool that project through the magneto flywheel are too long and if allowed to project all the way into the flywheel, they can "shear off" the magnetic trigger on the stator plate! Suggestion: Saw off the projections so that they will not protrude beyond the inner face of the magneto flywheel. The factory has changed the tool drawing.
  - (E) As per bulletin #SB-0-6-3, it is important to use Loc-tite and 60 foot pounds of torque on the magneto nut.

The Motoplat magneto is now finally perfected. If you have any ignition trouble with a late '68 Ossa, check the high tension coil. The coil has now been improved with the 1969 production, and we now anticipate an end to the electrical problems. As stated previously, if any Ossas have electrical problems, we will make good on warranty.

YANKEE MOTOR CORPORATION

March 27, 1969

Page 1 of 2

OSSA SERVICE BULLETIN #0-1-3

250cc CONVERSION PROCEDURE

This bulletin deals with the conversion of 230cc engines to 250cc capacity. Please note! It is impossible to convert a 160cc or 175cc engine to 250cc because the connecting rod length is shorter and the cases are not machined to accommodate a 230cc or 250cc size cylinder.

CYLINDER -- The Ossa factory has increased the 230cc engine to 250 cc's by using a 72mm diameter piston instead of the normal 70mm piston. If you do not have a 250cc cylinder, it will be necessary to bore out your present 230cc cylinder. Note! Before boring out a 230cc cylinder, it is necessary to cut away the bridge on the intake port; otherwise you will damage the tool kit when reboring the cylinder.

250cc Piston to Cylinder

Clearance:

- (A) Pioneer -- 0.00175" to 0.002"
- (B) Stiletto -- 0.00225" - 0"  
+ 0.00025"

ENGINE CASES -- Since the 250cc piston is two millimeters longer in diameter (0.07874"), it is necessary to use an electric drill and rotary file to enlarge the cases so that the 250cc piston will clear at bottom dead center. There are three different diameter bores in the crankcases where the cylinder attaches to the cases. It is the second bore diameter that requires enlarging. Increase the diameter to 2.874" for the full depth of the second bore diameter. Refer to enclosed drawing 0-1-3A. The front half of the second bore requires more metal removal than the back half.

In order to prevent aluminum chips from entering the crankcase chamber, and big end bearing, pack the bottom of the crankcase opening (above flywheels) with modeling clay.

ENGINE BALANCE --

For Pioneers - It is recommended that the 230cc crank assembly be rebalanced for the heavier piston. However, it is possible to bypass this step. If the customer is going to do a lot of high speed woods riding or scrambling--rebalance the crank assembly.

YANKEE MOTOR CORPORATION

CORRECTED OSSA SERVICE BULLETIN #0-1-3

April 8, 1969

Supersedes Page 2 of 2  
Dated March 27, 1969

For Stilettos - It is absolutely mandatory to rebalance the Stiletto crank assembly at the time of the conversion. Due to the high revving capabilities of the Stiletto engine, if the crank assembly is not rebalanced, the vibration is likely to cause the frame to crack! The Ossa factory is not responsible for cracked frames when Stiletto engine has been converted.

Balancing Procedure

Please refer to drawing #0-1-3B.

The two small diameter balancing holes on the face of each flywheel must be enlarged to 0.335" in diameter.

Next, drill 4 holes in the periphery of each flywheel as per drawing. The diameter of these holes is 0.472", the depth of the two holes 15 deg. either side of the crank pin axis is 0.039", the depth of the two holes 30 deg. either side of the crank pin axis is 0.236".

Although the flywheels are heat treated, it is possible to do all the drilling operations with carbide drills.

We are set up to do the crank rebalancing here in Schenectady if you wish to send the cranks to us.

Attention! You must use a 250cc head gasket upon reassembly; otherwise the 72mm piston will strike the head gasket and break the piston.

Gerry Scott  
Yankee Service Manager

P.S. We have extra carbide drills of the proper dimensions in millimeters which we will sell at our cost.

Price of the 12mm carbide drill is \$23.00  
Price of the 8.5mm carbide drill is \$13.00

Revision 0

## CYLINDER LINERS

The early 250cc. machines were produced by boring the 230 cylinder to 72mm. during the assembly process. The later and current machines are fitted with a liner having a larger outside diameter. When replacing a 250 liner, measure the outside diameter of the cylinder liner at room temperature. If it measures  $3.032 \pm .001$ , it is a 230 liner which has been bored to 72mm. If it measures  $3.070 \pm .001$ , it is a standard 250 liner. When replacing the liner on the earlier machines, there are two alternatives that can be taken - a 230 liner can be installed and bored to the correct size or the cylinder can be bored to 3.067 and a 250 liner installed. The part numbers for these liners are:

111-002	230cc. liner
118-052	250cc. Pioneer liner
118-063	250cc. Wildfire & Stiletto liner

YANKEE MOTOR COMPANY

TUNING 250cc PIONEER

With reference to new 250cc Pioneers, it is necessary to alter the carburetion and spark plug heat range to prevent your customer from possibly seizing the engine during break in.

Due to variations in gasoline and altitude, each new Ossa should be carefully checked to make sure that the motorcycle has the proper combination of carburetion and spark plug. In order for a two cycle engine to function properly without risk of seizure, it is necessary to tune the engine so that the color of the porcelain center electrode of the spark plug is malt brown to chocolate brown, and there is just a trace of soot on the steel body of the plug.

It is imperative to use an NGK B9ES spark plug or equivalent and to raise both carburetor needles one notch. Both needles are set in the middle position when they leave the factory.

Check the jetting - you should have a #68 mid range jet and a #106 high speed jet. The high speed jet is closest to the air filter. A #40 low speed gas jet is fitted as standard.

Check the low speed air adjusting screw (located on the right hand side of the carburetor). With the engine running, screw the low speed adjusting screw until it bottoms, then back the screw out  $1\frac{1}{2}$  turns. Check to see if the engine idles smoothly and that the carburetion is clean when the throttle is blipped. Note: you may have to vary the adjusting screw in or out a half turn.

Note! If you have a customer who wants to ride a brand new Pioneer immediately in an enduro without 200 to 300 miles of break in, we suggest honing the cylinder 0.001".

YANKEE MOTOR COMPANY

YANKEE MOTOR COMPANY

SERVICE BULLETIN #1-4-6

July 10, 1970

Revision 0

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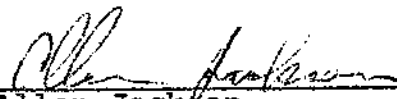
CORRECTION OF PRE-IGNITION

There have been several reports of the late model Pioneer making "detonating" or "pinging" noises at high speed or under a load. The solution involves cutting away the rear side (cylinder side) of the low speed emulsion tube (short needle jet). This improves the atomization (fuel-air mixture).

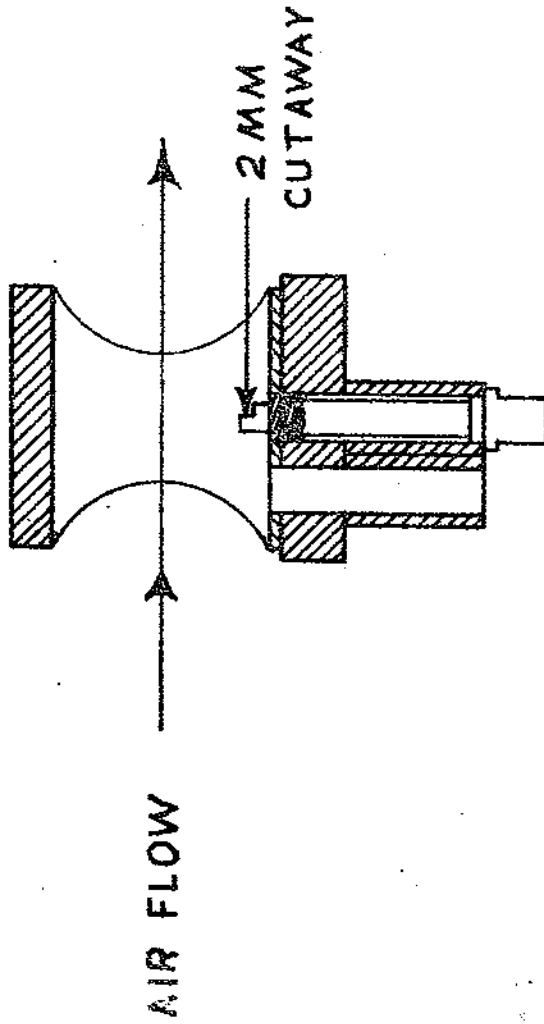
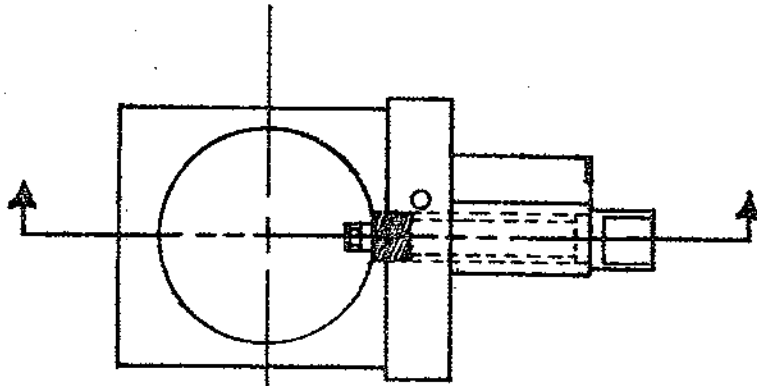
Since the emulsion tube screws in, it must first be marked on the vacuum side, or the side next to the cylinder, while still tight in the carburetor body. After the emulsion tube has been removed, cut away with a file or grinder, the marked half, 2 mm in depth.

The mid-range needle (long one) clip MUST be in the middle or top groove so the needle is down into the emulsion tube far enough that it can not come out. Each carburetor modified should be checked to see that the needle is not coming out of the emulsion tube.

This has also helped in the few cases brought to our attention of detonation in Stiletto (250cc and 175cc).

  
Allen Jackson  
Service Manager

AJ/cn



YANKER

250 PIONEER CARBURETOR

CORRECTION FOR PRE-IGNITION

SERVICE BULLETIN # 1-4-6 PAGE 2



### CUSH DRIVE SPRINGS

When reassembling the primary drive train of the OSSA engine, particular attention should be paid to the cush drive spring on the crankshaft. If frequent primary chain troubles are encountered, this spring could be the cause. Insufficient tension of this spring may result in premature chain wear or breakage. The methods for checking it are as follows:

1. Measure the relaxed height of the spring, using a caliper or height guage. It should measure no less than 1.4".

If you have access to a spring tester, complete the following check:

2. Assemble the cush drive components on the crankshaft, but leave out the spring. Tighten the 9 m/m allen nut. Once again, using the calipers, measure the distance between both spring seats as shown in the illustration. This distance should be  $1/250" \pm .010"$ . Put the spring on the tester and set the checking height of the tester to 1.250" or whatever your measurement was. It then should require at least 150 lbs. pressure to compress the spring to that height.

If the spring fails either of these tests, replace it. They are very inexpensive and could prevent subsequent difficulty later on. If your measurement of the distance between spring seats is in excess of 1.240" to 1.260", the outer spring stop may not be sliding far enough over the cush drive shaft. The splines on the outer spring stop should be flush with the end of the cush drive shaft. If any of these pieces prove defective, replace them.

It is also recommended that Loc-tite be used on the 9 m/m allen nut upon reassembly, and that the nut be torqued to 60 ft/lbs.

YANKEE MOTOR COMPANY

Paul Dean

Service Manager

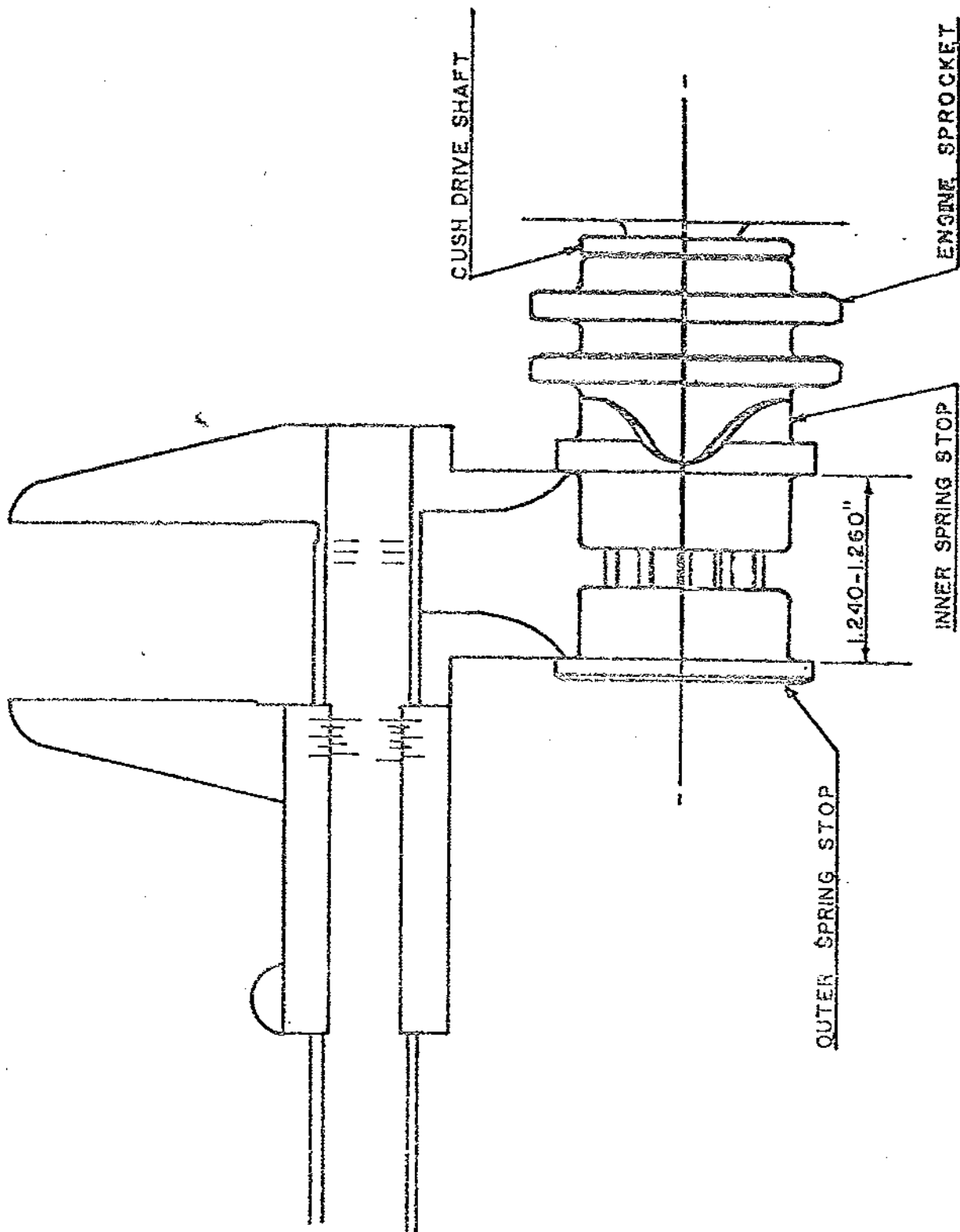
# SERVICE BULLETIN

0-1-5

CUSH DRIVE SPRINGS

12-17-70

PAGE 2



'71 & '72 PIONEER ELECTRICS

All Pioneers from serial number 300726 onward are fitted with a new charging system. The voltage regulator has been eliminated and in its place is a 15 OHM resistor. The diodes that were in the regulator are now located in the magneto stator, therefore allowing the charging circuit of the magneto to discharge DC current only. This magneto assembly, part #121-025-M1, is easily identified, as it has only three wires. There are the two ignition wires, blue and black and a single red wire for the charging circuit. When servicing the new Pioneers with this system, follow these instructions:

Before installing the battery, you will notice four loose wires under the seat. The red wire with the fuse attached connects to the red wire on the battery. The black wire is connected to the battery ground wire. This leaves a red and a purple wire. Connect these two together. Do NOT attach the battery ground wire to the tank mounting bolt as on previous models. Remove the eyelet from the battery ground wire and install an insulated removable connector on both the battery ground wire and the black wire in the wiring harness. If the battery is grounded to the frame, or an uninsulated connector is used and it touches a piece of ground metal, the lights and horn can be operated without the ignition being turned on.

If you desire to operate the machine without a battery, it is only necessary to remove the battery and tape the exposed end of the red wire so it cannot short against anything. However, it is possible that high RPM running could cause light bulb failure due to excessive current generated at fast engine speeds. The insulation of a resistor in the lighting circuit will help to alleviate this condition.

YANKEE MOTOR COMPANY

Paul Dean  
National Service Manager

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Revision 0

Page 2 of 3

Enclosed you will find a new wiring diagram and below a list of the new part numbers as well as the part numbers used on the earlier models.

<u>New Part #</u>	<u>Description</u>	<u>Old Part #</u>
121-025-M1	Magneto Assy.	118-097-M1
121-812-M	Wiring Harness	118-801-CM
121-813-M	Wiring, headlight & Switch	118-802-CM1
121-814-M1	Switch Box	(new item)
121-819-M	Bridge cable	(new item)
121-821-M	Wiring, stop light	118-803-BM
121-822-M	Junction Box	(new item)
121-818-M1	Resistor	118-807-M1 (regulator)

When ordering parts for a Pioneer with engine number below M-300-726 use the old part numbers and engines with serial numbers M-300-726 and above use the new part number.

YANKEE MOTOR COMPANY

Dominic Insognia  
Parts Manager

To All Ossa Dealers

February 26, 1971

In reference to Service Bulletin # 1-7-2. Revision 0 dated February 17, 1971 the electrical equipment on the 1971 Pioneer 250cc from engine serial number M-300-726 on has been modified. This modification eliminates the voltage regulator and in its place has incorporated a 15 ohm resistance system.

Enclosed you will find the new wiring diagram and below a list of the new part numbers as well as the part numbers used on the earlier models.

<u>New Part #</u>	<u>Description</u>	<u>Old Part #</u>
121-025-M1	Magneto Assy.	118-097-M1
121-812-M	Wiring Harness	118-801-CM
121-813-M	Wiring, headlight & Switch	118-802-CM1
121-814-M1	Switch Box (new item)	
121-819-M	Bridge cable (new item)	
121-821-M	Wiring, stop light	118-803-BM
121-822-M	Junction Box (new item)	
121-818-M1	Resistor	118-807-M1 (regulator)

Please make these corrections on your new 1971 Parts catalog and when ordering parts for a Pioneer with engine number below #M-300-726 use the old part numbers and engines with serial numbers M-300-726 and above use the new part number

Yankee Motor Company  
A. E. Hughes  
Parts Manager

YANKEE MOTOR COMPANY

Setup Bulletin

May 1, 1972

1. Removing the Motorcycle

Check the name and number shown on the motorcycle crate with the information on the invoice.

Use a crowbar and a hammer to break the straps and pry up the top of the crate on three sides. Fold back the top.

Pull the front of the crate loose from the sides of the crate. Pull down the front of the crate and bend down the nails that you might later step on.

Two boards have been fitted between the wheel spokes and nailed to the rear of the crate. Gently rotate each board until the nails have been pulled out, and remove the board from the wheel. Remove the wooden bracing from the wheels.

A tubular shipping brace is clamped to the fork crown and nailed to the rear of the crate. With a crowbar, pry loose the brace from the crate. The motorcycle is no longer supported in the crate.

While somebody else supports the motorcycle, remove the loose packing materials from the motorcycle.

Remove the motorcycle from the crate.

2. Installing the Components

Remove the cardboard tied to the motorcycle.

With a 6mm Allen wrench, remove the Allen screw from the handlebar-mounting blocks on the fork crown. Remove the shipping bracket from the fork crown.

Fit the handlebar to the fork crown and install the mounting blocks, the washers, and the nuts.

Install the electrical switchbox on the left side of the handlebar, between the grip and the clutch-lever mount.

Fit the gearshift lever to its shaft at the primary case and install the mounting bolt with a 10mm wrench.

### 3. Magneto Nut

Remove magneto cover (right side). Remove magneto nut with 26mm socket. Clean threads (shaft and nut), Loctite and torque to 65 ft. lbs., install magneto cover.

### 4. Gas and Oil

Drain any fuel that might be in the gas tank. Mix some fuel, as described in the Rider's Manual, and put it in the gas tank. Turn on the fuel taps, tickle the carburetor, and start the engine. Run the engine until the cylinder begins to feel warm (but do not ride the motorcycle). Stop the engine and shut off the fuel taps.

With a 17mm wrench, remove the drain plug from the bottom of the engine. This drains the gearbox and the primary case. Install the drainplug.

Remove the oil level screw from the primary case. Remove the inspection cover, and add SAE 30 motor oil, or Full Bore SAE 80 Gearbox Lubricant (the equivalent of SAE 30 motor oil), as shown in the Rider's Manual. Install the inspection cover and the oil-level screw.

### 5. Cables

If the clutch pulls hard, lube the cable as shown in the Rider's Manual.

### 6. Carburation

Remove slide from carburetor. Raise both needles one (1) notch. Take care when re-installing slide -- making sure needles drop into jets. Use no pressure. Adjust throttle cable with the cable adjuster atop the carburetor. Tighten lock nut as shown in the Rider's Manual.

### 7. Idle

The springloaded screw atop the carb is the idle RPM screw. Rotate it clockwise to decrease the idle RPM, or counterclockwise to increase the idle RPM. The springloaded screw on the right side of the carb is the idle mixture screw. Rotate it clockwise to decrease the fuel flow, or counterclockwise to increase the fuel at idle.

## 8. Sparkplug

Use an NGK B10-EN, B11-EN, or equivalent, in the Stiletto. In the Pioneer, use an NGK B9ES or, for very hard running, an NGK B10ES or equivalent.

## 9. Timing

The factory recommends ignition timing between 2.75 and 3.25 BTDC. You will obtain maximum power output at those figures.

The Ossa has electronic ignition. To time the engine, remove the ignition wires and their clips from the high-voltage coil. Remove the sparkplug and install a dial-indicator adapter. Install the plunger (note: if you are using a Peacock #107 dial indicator, you will have to lengthen the plunger). Install the dial indicator.

Remove the magneto case. Shift the gearbox to neutral. Rotate the magneto flywheel in the direction indicated by the arrow until the piston is the correct distance BTDC. The small hole in the face of the magneto flywheel will be positioned at about 11 o'clock-older mags and 5:00 o'clock-new type mags. Insert the Ossa timing rod (or any rod that is a close fit) into the small hole in the flywheel. If the timing is correct, the rod should slip into another hole on the magneto backing plate. If you cannot do so without rotating the flywheel enough to move the piston out of tolerance, you will need to adjust the timing.

To adjust the timing, remove the magneto flywheel. Loosen the three screws that mount the magneto backing plate until the plate can rotate freely. Fit the flywheel to the driveshaft again, but do not install the nut. Insert the timing pin and rotate the flywheel until the pin goes into its hole in the backing plate. Now rotate the flywheel and the backing plate until the dial indicator shows that the piston is positioned at firing time (the correct distance BTDC). Watch the dial indicator to make certain that you do not move the piston, and gently remove the flywheel from the driveshaft. Tighten the backing-plate screws securely. Install the magneto flywheel and the magneto case. Remove the dial indicator. Install the ignition wires on the high-voltage unit. The clip with the black wire goes to the bottom post.



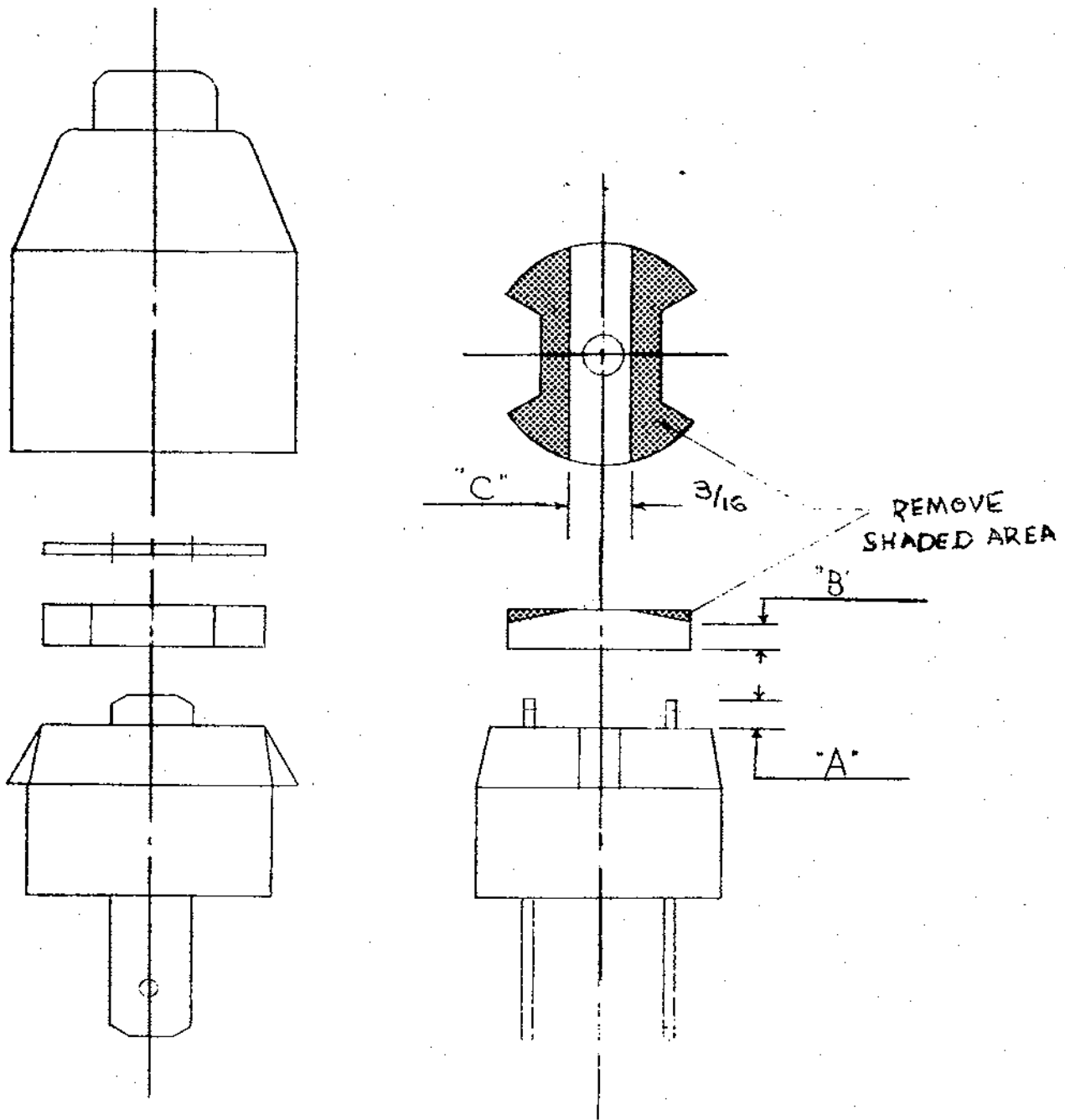
IN-LINE BRAKE LIGHT SWITCHES

We have received inquiries from several dealers in reference to the in-line rear brake light switches on the later 1970 Pioneer. It seems that, in some instances, excessive brake pedal pressure is required in order to activate the switch, making it possible to bring the machine to a complete stop without the brake light coming on. This is due to the use of a neoprene compression washer in the switch that is too hard. This washer does not compress enough to allow the contacts to come together using normal brake pressure. The following modification can be performed as shown in the illustration enclosed.

First, remove the cable from the machine. Using two very small screwdrivers, depress the two retaining shoulders on either side of the switch and separate the two pieces. It is not necessary to remove any of the parts from the cable. Place the neoprene washer in position between the two contact blades. With a sharp razor blade or other suitable cutting instrument, remove the correct amount of material as shown in the drawing. Since the height of the contact blades (dimension A) varies slightly from one cable to another, cut the washer so that dimension A and dimension B are the same. Dimension C is as noted, 3/16". Reassemble the cable and install on the machine. The switch should now only require minimum pressure to activate the stop light.

YANKEE MOTOR COMPANY

Paul Dean  
National Service Manager





YANKEE MOTOR CO., P. O. BOX 36, SCHENECTADY, N. Y. 12301 (518) 372-4727

FEB. 15, 1973

Bulletin No. 102

### 1973 OSSA SDR

Every 250cc OSSA SDR will exhibit the following changes and/or improvements over the 1972-73 OSSA Pioneer.

- Frame: relocated rear brake pedal pivot eliminates cross-shaft and provides 1 in. additional ground clearance.
- Wheels: 5mm larger brake hub diameter, water resistant brake linings, 4.50 x 18 knobby tire fitted at rear.
- Electrics: some components are relocated, but the same basic system is retained.
- Exhaust: tuned high pipe with chromed heat shield.
- Speedometer: resettable in 10ths forward and reverse.

Note that SDR's with serial numbers from 380-001 to 380-599 will be retro-fitted with 33mm IRZ carburetors, while those with serial numbers from 380-600 onward will be equipped with 32mm Amal concentric carburetors. The latter group (380-600 and above) will also have a 1mm increase in exhaust port height.

#### General Information

The battery box is located beneath the fiberglass seat support. There are three loose wires under this seat support. The black wire with fuse connects to the positive battery terminal and the white wire (with black shield) connects to the negative battery terminal. The remaining red wire plugs into the only blank connection in the junction block.

Each SDR should be checked carefully for proper fuel-air mixture as carburetor jetting is not yet finalized. When this information becomes available, you will receive a supplement to this bulletin.

Yankee Motor Company

1973 OSSA S.D.R.

Two possible problem areas have developed with the 1973 Ossa S.D.R.

- I. Care must be taken when tightening clamps on the Amal carburetor adapters, as it is possible to over-tighten these clamps thereby cutting through the rubber carburetor adapter.
- II. On certain Ossa Six Day Replicas, the left footpeg can be folded fully up allowing the kick start lever to swing farther than is necessary to start the engine. When kick-starting these motorcycles, it is necessary to leave the left footpeg in the folded down position to serve as a stop for the kick lever. There is no internal stop inside the engine cases. If the footpeg is folded up and the lever is allowed a full downward swing, the kickstart ratchet gear Part No. 991-701, may contact the kickstart stop bolt, Part No. 101-019, and damage to either or both of these parts will result. This same problem can occur with the Ossa M.A.R., as the kickstart lever always clears the footpeg. The kickstart lever's swing should be stopped before the vertical (straight down) position is reached.

It is recommended that all customers who purchased Six Day and Mick Andrews Replicas be informed of the above problem areas. Since proper owner maintenance and starting procedure will alleviate these problems, warranty claims will no longer be honored for the above mentioned failures.





YAN VEE MOTOR CO., P. O. BOX 36, SCHENECTADY, N. Y. 12301 (518) 372-4727

Ossa Service Bulletin #104

October 25, 1973

MX TIRE INSTALLATION - ALL MODELS

The large MX tires that are now being produced have created a clearance problem between the tire & chain guard when installed on Ossa motorcycles.

To correct this problem you can remove the chain guide from the front dowel and install the inner brace on the rear dowel. You must drill a new hole and cut the excess part of the brace off. With this task completed, it should be possible to install any 4.20 x 18 or 4.50 x 18 MX tire with no problem. The moving of the chain guard closer to the swing arm also means that you must pinch the top of the chain guard together about 1/8 inch so that it will not rub on the side tube.

SWING ARM BUSHINGS - ALL CURRENT MODELS

To increase the life of swing arm bushings a grease fitting should be installed in the small hole that allows access to the swing arm axle. A bottom tap should be used, with corresponding threads to the grease fitting that you are going to use. The job can be done without removing the swing arm - any metal that is cut should fall out of the hole. When tightening the grease fitting, care should be taken, as there will be only about two threads.



YAN'EE MOTOR CO., P. O. BOX 36, SCHENECTADY, N. Y. 12301 (518) 372-4727

Ossa Service Bulletin #105

November 15, 1973

SWING ARM AXLE - 4-SPEED MODELS

Due to increased difficulty in obtaining certain parts for 4-speed model Ossa swing-arms, we suggest a conversion to the later style swing-arm parts. Swing-arm pivot bolt, part number 994-208 (used on 4-speed models) and the existing swing-arm bushings should be replaced with the swing-arm pivot axle, bolts and nylon bushings currently used on 5-speed Ossa models. The parts necessary for this conversion are:

<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
112-471	Pivot Axle	1
112-472	Nylon Bushing	2
112-474	Bolt	2
OAT-120	Washer	2

The installation of these parts is very simple. The only modification necessary is to drill-out the threaded hole in the right side swing-arm gusset of the frame. This hole is where the pivot bolt, No. 994-208 threads into the frame. A 15/32 in. (.469 in.) diameter drill should be used for this modification. Also, a small diameter hole (approx. 3/16 in.) should be drilled in the swing-arm axle tube in the same location as on the 5-speed swing arm (1.95 inches from the end of the tube). This hole provides access to the swing-arm axle, and a grease fitting should be installed per Service Bulletin No. 104.

SUPER PIONEER FORK OIL CAPACITY

The Super Pioneer has a new type of Betor front fork. Consequently, these forks require 220 cc's of fork oil in each fork leg instead of 180 cc's as is used in the other models.

NEW SERVICE TOOL

CRANK BEARING/SEAL TOOL #999-220-PH-Y

Brian Jueckstock has designed a new crank bearing/seal tool for the new style engines with the cast in, steel, crank bearing inserts. As you know, the factory and ourselves do not recommend the use of heat on these new style engine cases because of the risk of the steel, crank bearing inserts coming loose in the crankcases, thereby ruining the cases!

By definition; the new style cases start with the Phantom MX series and continue with the Desert Phantom and Super Pioneer engines. All future Ossa models will have the steel inserts also.

Therefore, the best way to work on these new Ossa engines is to use this new tool for: removal of bearing that stays in the engine case, installation of both new crank bearings into the engine cases, installation of the crank assembly into the left side case; installation of the seals, and installation of transmission bearings.

This special tool is also very convenient for removal and installation of the inner crank bearings and installation of the inner seals on the Yankee 500 Twin engine without the need to heat the central case.

This tool is now in stock and can be ordered under Part #999-220-PH-Y for \$16.00. Instruction sheets are included.



## SUPER PIONEER AIR FILTER SYSTEM

## REF: AIR FILTER BODY

The Super Pioneer air filter body does not have a drain hole. We recommend drilling a small 1/8" diameter hole at the lowest point of the air filter body (outside the air filter diameter). A washer and cotter key should then be placed in the hole to prevent mud from closing up the hole. It is important that the washer be assembled between the head of the cotter pin and the air filter body so that the cotter pin will not work itself through the hole.

## REF: WATERPROOFING

If the Super Pioneer is to be used in extremely wet conditions, we recommend "duct" taping around the front of the air filter body, between it and the frame tubes.

## REF: AIR FILTER REMOVAL

We recommend removal of the air filter rubber boot before removing a dirty air filter element. This procedure will prevent dirt, which might be around the base of the air filter, from falling directly into the carburetor upon removal of the air filter element.

## REF: JETTING

We find that a good starting point for jetting of the 32mm Amal should be:

260 Main Jet

40 Pilot Jet

## MISCELLANEOUS SUBJECTS

### Transmission Thrust Washer Part #121-117

A batch of transmission thrust washers were inadvertently shipped to us by Ossa without proper heat treatment. Before using any thrust washers from your stock, please check its hardness by running a file over the washer. If the file can not remove metal or leave an impression it is properly hardened. If, on the other hand, you can remove metal or leave an impression, harden the washer by heating it to just cherry red color and dropping it in a small pan of oil.

It is also good procedure to check this washer for hardness and wear whenever rebuilding an Ossa engine. The thrust washer should be 1 mm thick and show no signs of wear.

### Large Crank 5-Speed Engines

As per previous bulletins, the 250 Phantom, 175 Phantom, Desert Phantom, and 250 Super Pioneers all utilize the large diameter crank assembly.

Dealers sometimes ask how they can quickly identify one of these engines. The best way is to check the serial number on the righthand front engine mount. Serial number sequences are: 180-; 181-; 182-; 170-; 110-; 310-

### Steering Head Bearings

Occasionally we receive calls from dealers advising that the steering head bearings of a new Phantom (or other model) have brinelled. Actually, there is nothing wrong with the bearings; it's just that the bearing grease Ossa uses has hardened. We recommend under these instances to clean out with solvent and relubricate.

Phantom Connecting Rod Breakage

We have had quite a few instances where a customer has used an improper air filter on his Phantom MX which in turn has allowed excessive amounts of dust to enter the engine and wear out the big end of the connecting rod. Excessive connecting rod wear will allow the rod to "clip" the side of the crank half, ultimately breaking the connecting rod which in turn destroys the engine. The immediate reaction is to decide that the rod breakage was due to improper metallurgy. However, if there is evidence of dirt induced wear on the piston (vertical lines) the breakage was caused by excessive wear due to improper filtration.

Super Pioneer Chain Adjustment

Since the Super Pioneer is essentially a Phantom chassis with a Pioneer engine, the previous suggestion regarding proper chain adjustment applies, i.e., 1½ inches free chain travel.

Phantom Leftside Crank Damage Potential

Some of our dealers have used their Phantom primary drive sprocket puller without the thread protector (provided with the puller) which screws onto the end of the crank. If the thread protector is not used, the puller will destroy the centers on the end of crank and will require replacing the lefthand crank half when the crankshaft is rebuilt.

1975 OSSA Timing Specs

Super Pioneer 250	2.85mm	BTDC
Phantom MX 250	2.95mm	"
Desert Phantom 250	2.85mm	"
Explorer 250	2.75mm	"
M.A.R.	2.50mm	"
Phantom MX 175	2.75mm	"
Phantom MX 125 (with MK II exhaust)	1.75mm	"

May 13, 1975

### SYNTHETIC TWO CYCLE OILS

Effective immediately, all warranties expressed or implied are void if any type of synthetic two cycle oil is used in an Ossa or Yankee motorcycle. We have just been involved in a situation where a new Desert Phantom was completely worn out in three weeks (i.e., rings, liner, big end bearing and crank bearings) due to the customer's use of a synthetic lubricant.

Since Yankee had never had an official position regarding synthetic lubricants, we warranted that particular engine. However, this where we stop.

May 13, 1975

### SILICONE RUBBER SEALING COMPOUNDS

It has been standard race-prep practice to use silicone rubber compounds (GE RTV or equivalent) to seal the ignition wires around the high tension coil.

Motoplat has discovered that quite a few magneto/coil failures have been attributable to the use of standard silicone rubber sealing compounds due to the fact that they are acid base compounds. The acid base creates corrosion which in turn creates resistance at the coil terminals and eventually causes magneto and/or coil failure.

The solution is to use alcohol base silicone rubber compounds (GE RTV #162 or equivalent) or a non hardening sealer - Dow Corning "4 Compound." or GE "G-661" compound.

Note, these acid-base compounds are easy to recognize as they have a pronounced odor of acetic acid (vinegar).

May 13, 1975

## TRANSMISSION SHIMMING UP-DATE

THE FOLLOWING CLEARANCE FIGURES  
SUPERSEDE THE OSSA SHOP MANUAL:

- A - Selector Drum .006" to .008" clearance
- B - Lay Shaft .006" to .008" clearance

Please note!! The clearances given for the above selector drum and lay shaft are with the center case screws hand tight. After the clearances have been reconfirmed (with the case screws hand tightened), use an impact driver to final tighten the center case screws--this will reduce the clearances further (approx. .002") which will then be the final working clearances.

- C - Main Shaft - same as Shop Manual - .020" to .035"
- D - Selector Shaft - .025" to .030" clearance as measured per Shop Manual. This used to be .015" to .080".

All of the foregoing clearances assume that the transmission does not have any worn out shifting forks, dogs or gears. The foregoing tighter clearances will not compensate for worn out parts.

The following should also be noted:

- (a) With the tighter clearances, the centering spring on the selector fork must be in good condition; otherwise the selector fork will not properly ride over the engagement pegs on the face of the selector drum.
- (b) All shims used to obtain the proper clearances must be used on the lefthand side of the selector drum, lay shaft, main shaft, and selector fork shaft, except for a single .002" shimming/thrust washer on the lay shaft, Part #033-292-1, which goes on the righthand end of the lay shaft between the lay shaft and the bushing.

June 18, 1976

GP II MX

Warranty on GP II will not be honored unless air cleaner element has been replaced with a 2-stage air cleaner element such as:

Twin Air  
Hoss  
Uni Filter Stripper

Recommendations:

To extend life of rear fender and seat cover it is advised that the direction of the exhaust be altered. This is easiest done with a weld on tip now available, part number 130-921 - price \$1.00.

Carburetor Jetting:

#40 Pilot jet  
#175-180 main jet  
#280 needle jet  
#1 slide

Jetting will vary due to altitude and severe weather conditions.

Ignition Timing:

1.8 - 2.0mm BTDC

It is advisable to remove the epoxy paint on the frame from behind washers on engine mount bolts, shock bolts, wheel adjusters, head stay bolts, swing arm pivot, etc., to insure a tight and lasting fit.

SERVICE BULLETIN #120

July 20, 1976

### 350 MOUNTAINEER

Upon set-up of the 350 Mountaineer there are a few mandatory checks that must be performed. These checks and changes will insure a happy customer and the maximum and lasting performance of the motorcycle.

#### Main Jet

The first shipment of Mountaineers was received with #145 main jets. This jet greatly affects the running of the motorcycle. If the Mountaineer has a 145 jet, change it to a 140. Later shipments will be received with the correct main jet. This is only a recommendation, as proper jetting will vary due to altitude, weather conditions, etc.

#### Ignition Timing

Check ignition timing on all 350 Mountaineers! Timing should be in the range of 2.75mm - 2.85mm BTDC. The ignition timing will greatly affect the low end and mid range performance.

#### Air Box and Filter Modifications

The Mountaineer's performance is not affected by the air box cover if timed and jetted properly. Do not remove the cover thinking that it breathes better; it only allows greater quantities of dirt and water to get to the element.



When servicing the stock foam element, a few tips will be helpful to you. Because of the density of the foam, a thin oil must be used, or the performance is affected. Before replacing the mesh body, place a 3/4" wide piece of duct tape around the bottom, outside of the mesh. This will act as a stand tube, allowing 3/4" of water in the airbox before it can enter the carburetor.

To further insure that water will not enter the carburetor, a 1/4" hole should be drilled in the base of the air box. This hole should be located under the end of the air inlet tube with a cotter pin and washer placed in the hole to prevent mud from closing the hole. It is important that the washer is placed between the head of the cotter pin and the air cleaner base so that the cotter pin doesn't work its way through the hole. Vibration keeps the cotter pin constantly moving, thus keeping the drain hole open.

#### Gas Line Modification

The following Mountaineers were received with the gas line longer than necessary from the right petcock to the carburetor. Being too long, the gas line will melt if it contacts the exhaust pipe or cylinder head. This line should be shortened accordingly.

M-530-178	530-067	530-064
530-049	530-061	530-182
530-176	530-188	530-072
530-053	530-180	530-179
530-173	530-070	530-112

## TUNE UP SPECIFICATIONS - OSSA MOTORCYCLES

350 MAR TRIALS

-Ignition timing: 2.85mm BTDC

-Recommended Carburetor Jetting:

main jet	#140
pilot jet	# 25
needle jet	#106
needle	U
slide	#3

-Fork leg capacity: 210cc

350 MOUNTAINEER

-Ignition timing: 2.75 - 2.85mm BTDC

-Recommended Carburetor Jetting:

main jet	#140
pilot jet	# 35
needle jet	#276
needle	#1
slide	#1

-Fork Leg Capacity: 210cc

250 GP II MX

-Ignition Timing: 1.8 - 2.0mm BTDC

-Recommended Carburetor Jetting:

main jet	#175
pilot jet	# 40
needle jet	#280
needle	#1
slide	#1

-Fork Leg Capacity: 220cc

250 SUPER PIONEER

-Ignition Timing: 2.75 - 2.95mm BTDC

-Recommended Carburetor Jetting:   main jet   #260  
  pilot jet  # 40  
  needle jet #108  
  needle     #X-B  
  slide      #3.5

-Fork Leg Capacity: 210cc

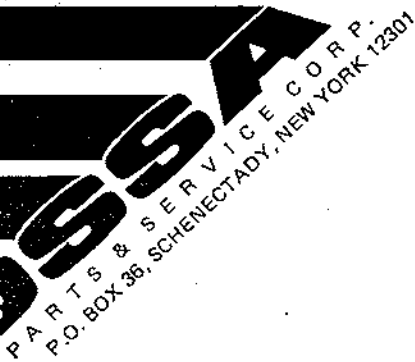
250 DESERT PHANTOM

-Ignition Timing: 2.85mm BTDC

-Recommended Carburetor Jetting:   main jet   #165  
  pilot jet  # 40  
  needle jet #283  
  needle     #1  
  slide      #4

-Fork Leg Capacity: 190cc

The carburetor jetting is only a recommendation and will give you a starting point to jet the motorcycles for your area.



SERVICE BULLETIN #122

December 15, 1976

For all early 1977 Desert Phantoms and 175 Super Pioneers fitted with forward mount suspension the possibility exists that some of these models were assembled with too small a diameter washer for the upper shock absorber mount. It is imperative that the washer be inspected as the shock absorber may slide over the existing washer should the bushing fatigue. The proper outside diameter for the shock mount washer should be 1-1/8". A kit is available from the Parts Department at no charge and should be ordered using Part No. N/C-017. This kit consists of larger washers and four "O" rings. Two "O" rings must be placed between the existing top rubber shock bushings for better compression, and the new washers should replace the existing shock washers.

We recommend that any forward mount conversion kits received from Ossa Parts & Service Corporation be checked, and the N/C-017 kit be installed if necessary.

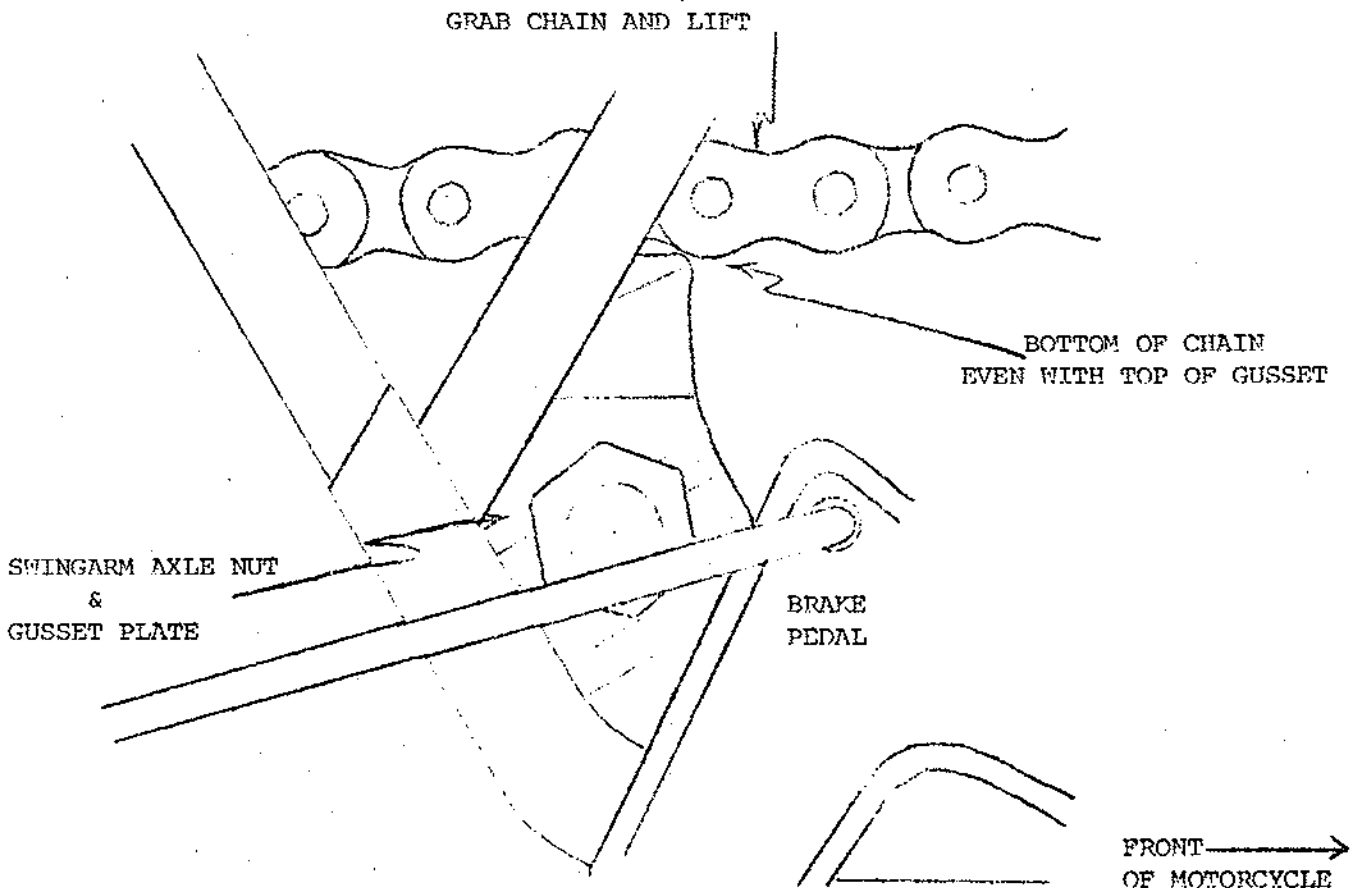


SERVICE BULLETIN #123

January 6, 1977

CHAIN TENSION - MOUNTAINEER & 1977 SUPER PIONEER

Because of the increased rear wheel travel on the New Super Pioneer and the 350 Mountaineer, chain tension has become critical. The free play of the chain must be exact or the resulting effects may seriously damage the engine cases or transmission. First put the motorcycle in neutral; then the easiest point to check chain tension is at the top run of the chain, just above the swing arm pivot. When the chain is in proper adjustment you should be able to lift this portion of chain, removing the slack, and have the bottom of the chain side plates just even with the top of the swing arm pivot gusset plate as shown in the diagram. This method will give you the exact amount of slack through the entire travel of the rear wheel.



March 10, 1977

Since the introduction of the GP-II Motocrosser and the 350 Mountaineer motorcycles, we have noticed an alarming rate of transmission problems reoccurring after they have been initially repaired. To avoid this situation, a few very easy and critical steps must be taken in checking transmission components before reassembly.

If these steps are followed, the chance of the transmission failure reoccurring is minimal.

1. Remove gears from transmission shafts and check runout of the transmission shafts. 0.001 inch is the maximum allowed.
2. Carefully check all gears, looking for worn or cracked teeth and engaging dogs.
3. Carefully remove and inspect layshaft needle bearings and inspect engine case for distortion with a telescope gauge. Engine case distortion is the primary reason for recurrent transmission failure.
4. Check mainshaft bearing and 5th gear needle bearings for unusual amount of wear.
5. Check tightness of 5th gear bearing in case. This bearing must be tight in case.
6. Reshim shafts - Layshaft and shift drum 0.006 - 0.008 inch end play, and Mainshaft 0.030 inch end play, placing shims on the left hand side of shafts and shift drum.
7. Inspect shift drum pins for excessive wear and looseness.
8. Inspect selector fork for rounded, or chipped fingers. Check locating tab and its slot in the selector shaft.
9. Set clearance between selector fork fingers and flat surface of shift drum to 0.015 inch. This is accomplished by bending locating tab, and/or selector fork fingers, keeping in mind selector fork must easily return to a neutral position after it has engaged the shift drum pins and changed gear.

These steps are a "must-do" measure before the engine is completely reassembled.



SERVICE BULLETIN #125

March 23, 1977

It has been brought to our attention that some of the dealers are using #123-007-M1 Rod Assembly in place of #123-006-M1 Rod Assembly.

This is not a good practice, as it could cause premature big end rod bearing failure.



March 23, 1977

SET-UP SPECIFICATIONS FOR THE OSSA ST-1

1. Gear box oil - 1 quart
2. Ignition timing - 1.8 - 2.0 mm BTDC
3. Fork leg capacity - 6.5 oz. 5W or 10W oil
4. Recommended carburetor jetting:

Pilot jet	#40
Slide	#2.5
Needle	#6DH3
Needle jet	#P-2
Main jet	#300

These settings will vary depending on your area.

5. The air filter should be oiled lightly.
6. The rear brake caliper should always be directly over the axle for proper braking action. Adjustment is provided where the overarm attaches to the swingarm.
7. Check the exhaust flange on the cylinder for tightness after running.





SERVICE BULLETIN #127

May 12, 1977

### ST-1 SHORT TRACKER

In further testing of the ST-1 short track engine, we have found that using a modified DMR piston, a 1 mm. head gasket, and setting the timing at 3.5 mm. BTDC, the ST-1 produces more power than the factory recommended engine we are now using.

The updated specifications are as follows:

Port timing: The intake port should open 94° ABDC and the exhaust should open 84° ATDC as measured with a degree wheel attached to the magneto side crank. The new DMR piston part number will be 121-044 and should be modified per the drawing #5-1. A DMR piston is identified by its wall thickness which is no less than .120".

Please note! Under no circumstances should the GP-II piston which is now in the engine be substituted for a DMR piston with a DMR type cutaway! The thinner piston skirt of a GP-II piston has a high risk of cracking if the inlet skirt is modified in any way!

The 1 mm. thick head gasket part number will be 118-096.

When setting the timing it should be checked with a strobe light for proper total advance of 3.5 mm. BTDC.

Do not deviate from the 1 mm. head gasket or 3.5 mm. ignition timing.

In the interest of getting the best performance from our ST-1's, we will be sending a piston, head gasket and base gasket to all dealers who have purchased short trackers. These parts are to be installed on the short trackers on your floor or on the bikes you have already sold.

If any of your short track bikes have already been bored, please return the new DMR piston to us with a note explaining what size piston you need.



SERVICE BULLETIN #126

May 12, 1977

Re: Ossa 250cc GP-III Motocrosser

Some modifications have been made to the primary drive of this new model, and the factory installed a tensioner for the primary chain.

The factory subsequently noticed that some units corresponding to the first series of this model have their primary chain excessively tightened. This could provoke a rapid wearing out of the chain and could even damage the engine transmission.

The factory, therefore, recommends that you check the tension of the primary chain. Remove the chain cover and give a clearance of 8 to 9 mm. (to be measured from the center of the chain).

When the engine has been operated for a few hours, the chain can have a clearance of 12 to 13 mm. (always to be measured from the center).

Ref: front suspension - each leg of the front fork contains 250cc Hidrol 4 oil (instead of 220cc on the GP-II).

As soon as the factory sends us the owner's manual for this model, it will immediately be forwarded to you.

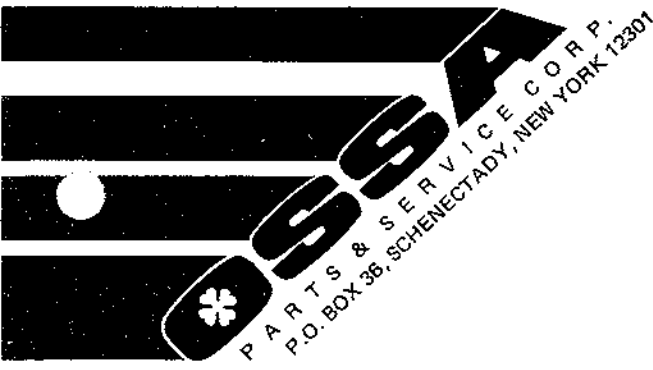
SERVICE BULLETIN #127-A

May 19, 1977

(This amends and corrects Service Bulletin #127)

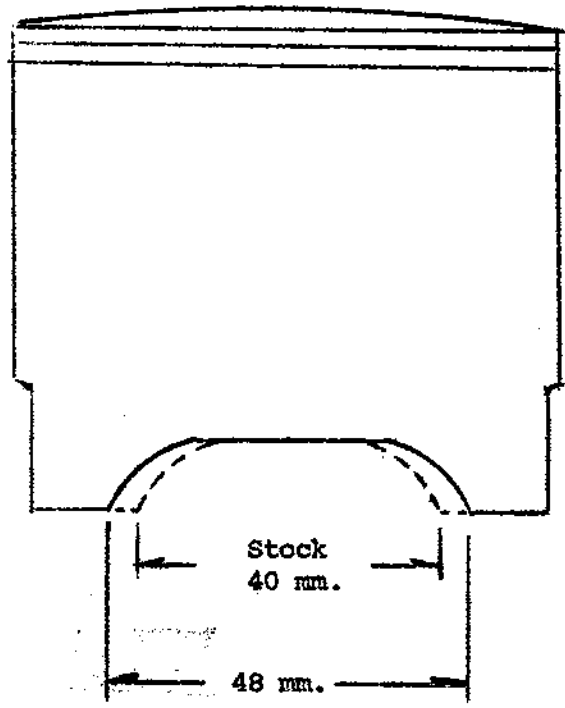
ST-1 SHORT TRACKER

Reference: Port timing - A mistake was made in mentioning that the intake port should open at  $94^{\circ}$  ABDC - this is incorrect! The proper timing should be  $86^{\circ}$  After Bottom Dead Center (or expressed another way,  $266^{\circ}$  After Top Dead Center). The tolerance is plus or minus  $2^{\circ}$ . However, the engine runs best at precisely  $266^{\circ}$ ! Please remember that to adjust the port timing to the above "blue printed" specification, the inlet side of the piston skirt has to be scribed and then filed. Do not alter the inlet port of the cylinder liner just the piston skirt.



DRAWING #5-1

DMR PISTON #121-044



WIDEN CUTAWAY AS SHOWN AND DEBURR ALL EDGES

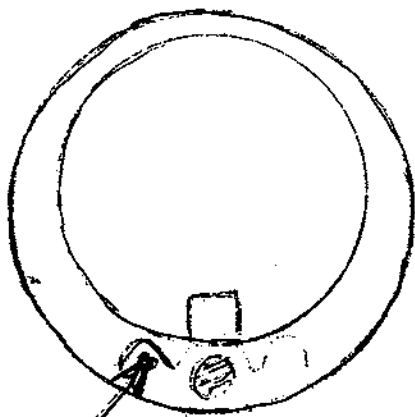
OSSA SERVICE BULLETIN #128

JUNE 20, 1977

**GP-II & GP-III CARBURETOR MODIFICATION**

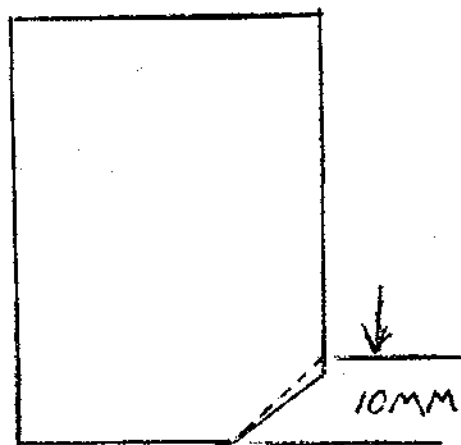
To increase low RPM performance and improve pulling power out of corners, we recommend the following modifications to be made to the 38 mm Bing carburetors installed on Ossa GP-II and GP-III Motocrossers.

View Looking Into  
Venturi of Carburetor



Drill 1/16" hole thru  
to Pilot Air Screw hole.  
It is approx. 5/8" deep.

Carburetor Slide



increase slide cutaway  
to 10 mm as shown.

Main Jet	-	180
Needle Jet	-	280
Needle Number One	-	All the way down
Pilot Jet	-	30 or 35

We have found the above jetting to work well in this area; however you may have to alter it slightly due to climatic conditions.



SERVICE BULLETIN #129

JUNE 23, 1977

BETOR FORKS GP-III

We have experienced a few instances of front fork seal leakage with the new leading axle Betor forks on the GP-III Phantom. An easy remedy for this situation is as follows:

1. Disassemble the fork legs and clean all components with a safety solvent
2. Remove the fork seals and replace with Part Number OLI-8113-18, one seal per leg
3. Reassemble the forks, using 250cc of fork oil in each leg. 10 wt. or 20 wt. should be used, depending upon rider preference.

Another item concerning these forks is that it is possible to over torque the front axle pinch bolts, thereby damaging the front fork sliders. The proper torque for these bolts is 100 to 105 inch-lbs. or 8 to 9 foot-lbs.



September 6, 1977

SET-UP SPECIFICATIONS FOR THE OSSA ST-1

1. Gear box oil - 1 quart
2. Ignition timing - 3.20 - 3.25mm BTDC  
(with 1mm head gasket)
3. Fork leg capacity - 6.5 oz. 5W or 10W oil
4. Recommended carburetor jetting:

Pilot jet	#35
Slide	#1.5
Needle	#6FJ6
Needle jet	#159 Q-5
Main jet	#360
Air jet	#2.0

These settings will vary depending on your area.

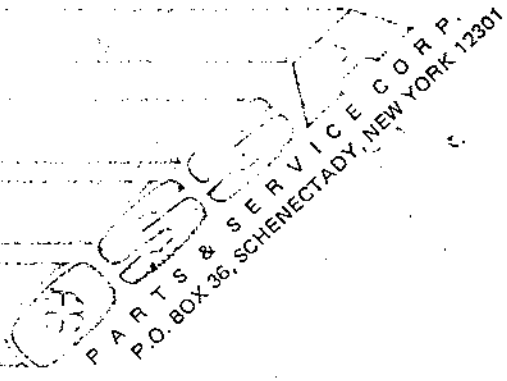
5. The air filter should be oiled lightly.
6. The rear brake caliper should always be directly over the axle for proper braking action. Adjustment is provided where the overarm attaches to the swingarm.

**SSA**  
P A R T S & S E R V I C E C O R P.  
P.O. BOX 36, SCHENECTADY, NEW YORK 12301

IMPORTANT NOTE

YOU MUST REMOVE THE TWO WASHERS WHICH ATTACH THE EXHAUST SPRINGS TO THE FRONT CYLINDER FINS. THE SPRINGS SHOULD BE HOOKED DIRECTLY THRU THE CYLINDER FINS TO INCREASE TENSION ON THE PIPE AND PREVENT A POSSIBLE AIR LEAK AT THE EXHAUST PORT.





OSSA SERVICE BULLETIN #131

December 20, 1977.

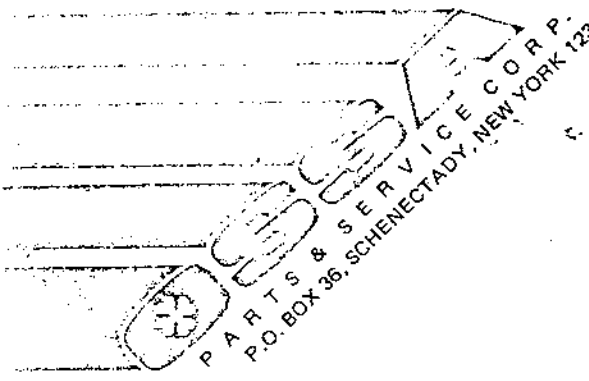
CENTER CASE GASKETS

It has come to our attention that there is a variance in the thickness of the center case gaskets part no. 123-215. It is recommended that when an engine is split you should "mike" the gasket and replace it with one of the same thickness. This procedure would ensure that if the engine and transmission were shimmed properly to begin with they would stay within the proper tolerances. (See Service Bulletin #124 step 6) If it is not possible to replace the gasket with one of the same thickness you must then use what you have and re-shim the engine and transmission over again.

This procedure is quite critical because we have found that the actual variance can be as much as .017. This alone could amount for a crankshaft or transmission failure.

Steps have been taken to insure consistency of the thickness of this gasket in the future.

Service Department



PARTS & SERVICE CORP.  
P.O. BOX 36, SCHENECTADY, NEW YORK 12301

OSSA SERVICE BULLETIN #132

December 20, 1977.

### BASE GASKETS

Our current stock of base gaskets for the 250GP engines, part no. 121-043 have been found to be too thick. These base gaskets are not advisable to be used. They are easily identified by their gray color and when mic'd show a reading of .031. This reading is almost one half a millimeter over the proper thickness of .013. These gaskets when used will show a noticeable decrease in performance due to the fact that they raise the cylinder enough to change the compression ratio and port timing.

Until we receive the proper gaskets to replace the defective ones you can order base gaskets no. 133-043. This gasket was designed for use in a GP-III but can easily be modified to fit any phantom engine simply by trimming the excess material away from the transfer passage.

Service Department



OSSA SERVICE BULLETIN #130

Sept. 1, 1977

MOUNTAINEER TRANSMISSION REPAIR

The Ossa factory recommends that GP-II/GP-III Phantom layshaft and fifth gear units be installed in any 350 Mountaineer that requires transmission service or repair. This gear pair has greater tooth engagement due to the larger transfer gear at the end of the layshaft and is therefore stronger than the original gear combination.

The part numbers are 130-106 for the layshaft (16 teeth) and 123-134 for 5th gear (24 teeth). These are to replace the stock layshaft No. 131-106 (15 teeth) and 5th gear No. 121-104 (26 teeth).

The effect of this change on operation of the bike will be to raise the overall gearing in gears 1 thru 4 and decrease the gear ratio spacing between 4th and 5th. It may be necessary to change the rear sprocket to a 44 T. or 46 T. to retain similar overall gearing.

Service Department

OSSA PARTS and SERVICE CORPORATION  
P.O. Box 36  
Schenectady, NY 12301

OSSA SERVICE BULLETIN #133

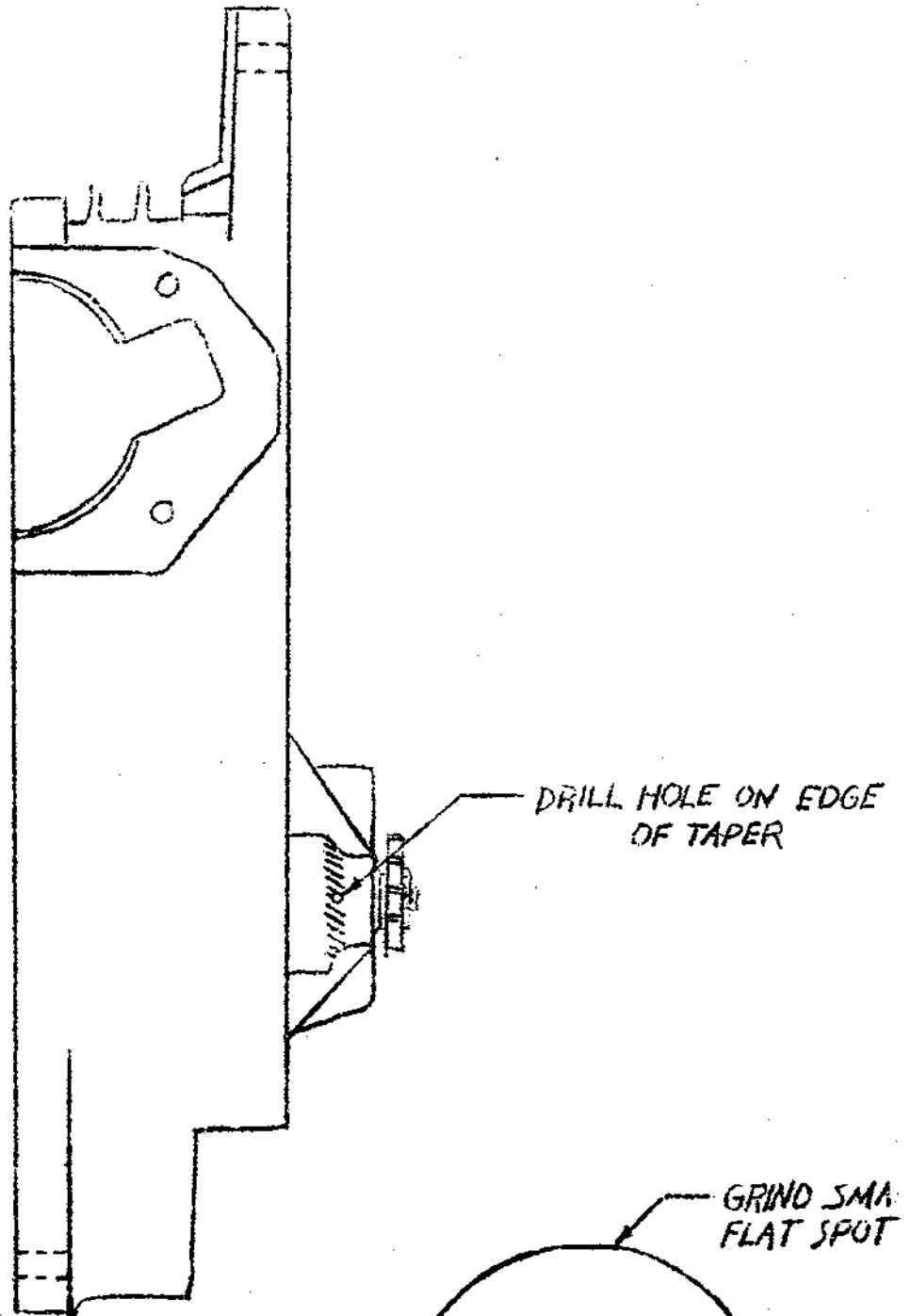
Set Screw Modification for Transmission Bearing

The following modification will prevent any further problem with transmission failures due to the right side transmission bearing working out of its seat. There has been known to be a lack of interference fit between the 5th gear bearing and the steel sleeve that fits in the right side of the center case. This can be attributed to repeated replacement of the particular bearing or lack of sufficient drive chain slack. In any event, there is an easy and inexpensive solution to the problem.

- 1) Dismantle engine and split cases.
- 2) Remove countershaft nut, washer, sprocket, bushing, and seal.
- 3) Slide the 5th gear out of the transmission bearing.
- 4) Press transmission bearing out of right side center case.
- 5) Using a center punch mark where hole is to be drilled (shown in diagram).
- 6) Drill a 13/16" hole and tap to 1/4 x 20 thread.
- 7) Grind small flat spot on top of bearing (as per diagram)
- 8) Scribe line on inside of center case showing where hole was drilled and taped.
- 9) Press bearing in place lining up flat spot with scribed line (flat spot must be in line with hole drilled).
- 10) Locktite 1/4 x 20 setscrew and bottom snugly against bearing surface.
- 11) Check bearing making sure it rotates freely.
- 12) Fill remaining hole with silicone sealant to ensure screw from backing out.

SERVICE DEPARTMENT

# TOP VIEW OF ENGINE CASES



DRILL HOLE ON EDGE  
OF TAPER

GRIND SMA  
FLAT SPOT

TRANSMISSION BEARING  
OKC-25-52-15