



OWNER'S MANUAL 1995

Updated 02/2015

4 STROKE

ATK

Thank You . . .

. . . for purchasing an American-made ATK motorcycle. ATK is committed to building the highest-quality, best-handling off-road motorcycles in the world.

Prime examples of that commitment are readily visible on every ATK model: Beautiful components such as machined-from-billet aluminum hubs and triple clamps, Protaper handlebars, 4130 chrome-moly steel frames and swingarms, premium-quality O-Ring drive chains, Ceet seatfoam and covers, and maintenance-free rear suspension systems are features you won't find on any competing brand of off-road motorcycle.

Using beautiful, high-quality parts provides more than pleasure for the eyes,

though. They insure that, given minimal care and maintenance, an ATK motorcycle will provide years of trouble-free off-road pleasure.

Thus, we urge you to read this manual--it's easy to digest--and to visit your ATK dealer if you have any bike problems, need advice or replacement parts or accessories.

Thanks again for buying an ATK. Have fun.

Sincerely,

Michael L. Tullis
C.E.O., ATK America.

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INTRODUCTION

Congratulations on your purchase of America's finest off road motorcycle: The ATK.

This manual explains operation, inspection, basic maintenance and tuning of your machine. If you have any questions about this manual or your machine, please contact your local ATK dealer.

WARNING

Please read this manual carefully and completely before operating this machine. Do not attempt to operate this machine until you have attained a satisfactory knowledge of its controls and operating features and until you have been trained in safe and proper riding techniques. Regular inspections and careful maintenance, along with good riding skills, will ensure that you safely enjoy the capabilities and the reliability of this machine.

IMPORTANT NOTICE

This machine is designed strictly for competition use, on a closed course. It is illegal for this machine to be operated on any public street, road, or highway. Off road use on public lands may also be illegal. Please check local regulations before riding.

SAFETY INFORMATION

1. This machine is to be operated by an experienced rider only. Do not attempt to operate this machine at maximum power until you are totally familiar with its characteristics.
2. This machine is designed to be ridden by the operator only. Do not carry passengers on this machine.
3. Always wear protective apparel. When operating this machine, always wear an approved helmet with goggles or a face shield. Also wear heavy boots, gloves, and protective clothing. Always wear proper fitting clothing that will not be caught in any of the moving parts or controls of the machine.
4. Always maintain your machine in proper working order. For safety and reliability, the machine must be properly maintained. Always perform the pre-operation checks indicated in this manual. Correcting a mechanical problem before you ride may

prevent an accident.

5. Gasoline is highly flammable and can cause injury or death. Always turn off the engine while refueling. Take care to not spill any gasoline on the engine or exhaust system. Never refuel in the vicinity of an open flame, or while smoking. If you should swallow gasoline, inhale excess gasoline vapors, or allow gasoline to get into your eyes, contact a doctor immediately.

6. Only operate the machine in an area with adequate ventilation. Exhaust fumes are poisonous. These fumes contain carbon monoxide, which by itself is odorless and colorless. Carbon monoxide is a dangerous gas which can cause unconsciousness or can be lethal.

7. Park the machine carefully.

8. Properly secure the machine before transporting it. When transporting the machine in another vehicle, always be sure it is properly secured in an upright position and that the fuel cock is in the 'off' position. Otherwise, fuel may leak out of the carburetor or fuel tank. For transporting we recommend **The Bike Shoe**, available from your ATK dealer.

SPECIFICATIONS

Model	ATK 605/350
Displacement	598cc/348cc
Engine type	Air-cooled, dohc, four-stroke, four-valve, Single
Bore and stroke	97.0 X 91.0mm/79.5 X 70.0mm
Compression ratio	9.5:1/10.0:1
Carburetion	40mm Dell'Orto/36mm Dell'Orto
Ignition	SEM electronic, 160w
Spark plug	NGK D8EA
Transmission	wide-ratio 5-speed/ wide-ratio 6-speed
Starting system	kick or electric
Battery	9ah
Fuel capacity	4.2 gallons
Fuel requirements	90 + octane
Wheelbase	58.5 inches
Rake/trail	26.5 degrees/4.3 inches
Seat height	37.5 inches
Ground clearance	13.5 inches
Footpeg height	16.0 inches
Footpeg to seat top	21.3 inches
Swingarm length	21.5 inches

Front tire	80/100-21
Rear tire	110/100-18

Tire pressure, front and rear	14-20psi
Front wheel travel	11.8 inches
External adjustments	Compression & rebound damping
Standard spring rate	0.44 Kg / mm
Rear wheel travel	12.6 inches
External adjustments	Compression & rebound damping, spring preload
Standard spring rate	4.4 Kg / mm
Front brake	Nissin dual piston, 9.0-inch stainless- steel rotor
Rear brake	Nissin dual piston, 8.7 inch stainless-steel rotor
Final drive ratio	15-46 or 15-48
Drive chain	D.I.D. 520 VS O-ring

Internal gear ratios:

605cc		
Primary drive	32/76	2.375
1st	32/12	2.667
2nd	28/15	1.867
3rd	25/18	1.389
4th	23/22	1.045
5th	21/24	0.875

350cc		
Primary drive	32/76	2.375
1st	34/10	3.400
2nd	30/13	2.308
3rd	27/16	1.688
4th	25/19	1.316
5th	23/21	1.952
6th	21/22	0.955

Weight, wet no fuel:

350 Kickstart	258 pounds
350 Electric Start	273 pounds
350 Dual Sport Kickstart	278 pounds
350 Dual Sport Electric Start	288 pounds

605 Kickstart	260 pounds
605 Electric Start	275 pounds
605 Dual Sport Kickstart	280 pounds
605 Dual Sport Electric Start	290 pounds

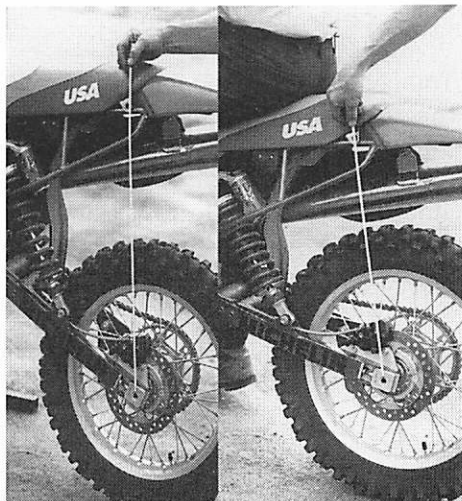
Recommended oil	10/40 winter 20/50 summer
Oil capacity	3-3.5 quarts
Brake fluid	Bel-Ray DOT 5

ADJUSTMENTS

Rear suspension:

Rear suspension sag is preset at the factory for a rider of approximately 180 pounds. But it should be rechecked for optimum performance. To set the sag, place the bike on a stand or box that lifts the rear wheel clear of the ground, then measure the distance from the center of the rear axle to the center of the seat-mounting bolt and record that number. Next, put the motorcycle on the ground and bounce on it a few times to loosen up the shock and swingarm pivots. With the rider sitting on the bike in his normal riding position, one foot on the ground for balance, have an assistant remeasure the distance from rear axle bolt center to the seat mount bolt and record that number. The difference in measurements should be exactly 101.6mm (4.0 inches).

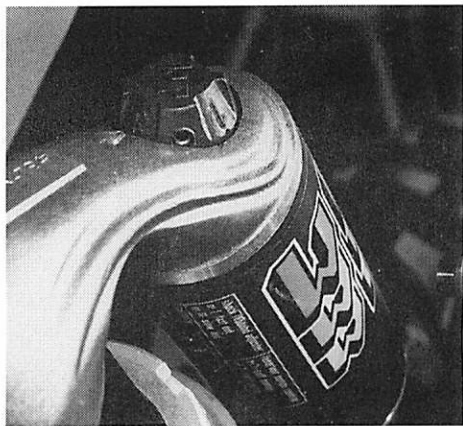
If adjustment is needed, loosen the shock-spring's locking ring then rotate the shock spring by hand to increase its preload. Lessen the preload if more



sag is needed. After rechecking the sag measurement, tighten the locking ring firmly using a spanner wrench or drift punch and hammer.

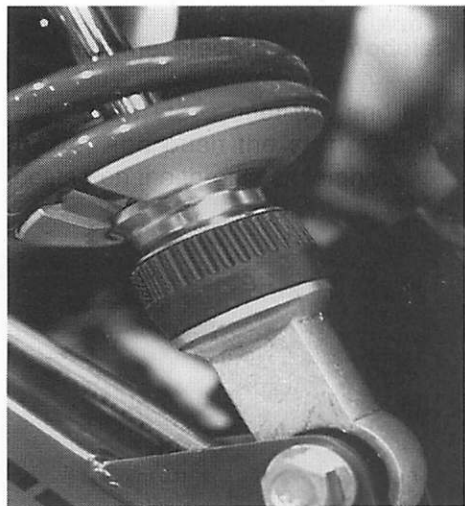
Shock compression damping:

Compression damping controls the speed at which the shock compresses. The compression-adjuster knob is located on the top of the shock's reservoir. Moving the knob to a higher number increases the shock's compression resistance and slows the shock's rate of compression. Choosing a lower number reduces resistance to compression and provides a softer ride.



Shock rebound damping:

Rebound damping controls the speed at which the shock returns to its extended length after being compressed. The rebound-adjuster knob is located below the shock spring, just above the shock's lower mounting bolt. A higher number increases damping resistance and slows the shock's return after being compressed. A lower number decreases resistance and lets the shock return faster.



Fork compression damping:

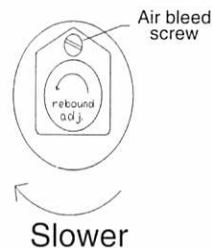
The compression damping adjuster for the left fork leg controls damping throughout the fork's travel. Setting the adjuster to #3 or #4 will provide smooth, comfortable fork damping. An identical adjuster on the right fork leg only effects damping during the last 3-inches of fork travel. Adjusting the right knob to a high number--6,7 or 8-- prevents "bottoming" in G-outs.



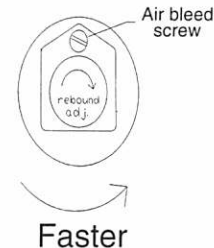
Fork rebound damping:

The fork's rebound damping is adjusted via a plastic knob on top of each fork leg. Turning the thumb screw adjuster clockwise increases resistance and slows the fork's rebound speed after being compressed. Turning the knob counter clockwise reduces resistance and lets the fork return to full extension quicker.

Top View



Top View



Fork air bleed:

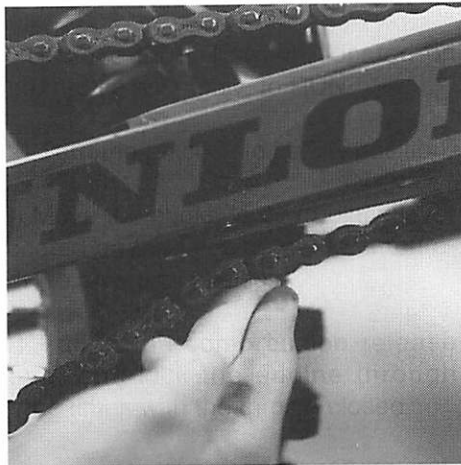
A small screw located on the top of each fork cap, next to the rebound damper adjustment, relieves built-up air pressure in the fork. A small flat-blade screwdriver is required.



Chain alignment is also very important to long chain and sprocket life. While on a stand, place a screwdriver shaft between the upper part of the chain and the rear sprocket, then turn the rear tire slowly rearward until the top of the chain becomes taut. Sight down the top of the chain. It should appear straight. If it looks curved, make the necessary corrections using the adjuster screws and recheck the adjustment and axle nut tightness.

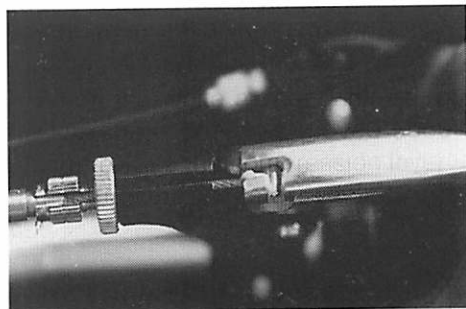
Drive chain adjustment:

The drive chain's adjustment should be checked after each ride. With the bike on a stand, push the bottom of the chain up towards the lower end of the chain rub pad. The chain should become tight when approximately 1/4 inch away from the swing arm. If adjustment is required, loosen the rear axle nut and adjust the chain tension by turning the axle-adjuster screws. After adjustment, retighten the adjuster screw locknuts and the axle firmly.



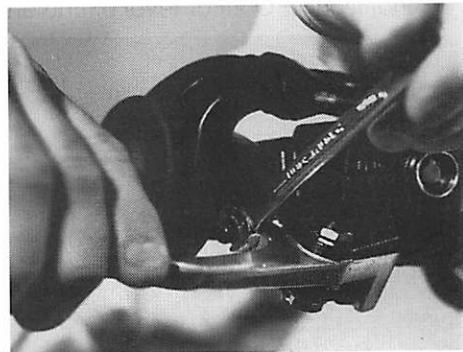
Clutch lever:

The clutch lever should be adjusted to provide 1/4 inch of freeplay at its ball-end.



Front brake lever:

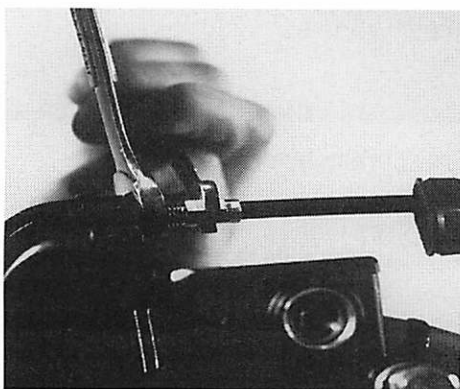
The front brake level is provided with an adjuster on its front side that allows



adjustment of the brake's engagement point. It should be adjusted to the rider's preference.

Throttle:

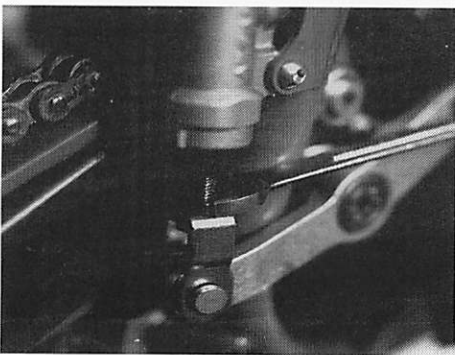
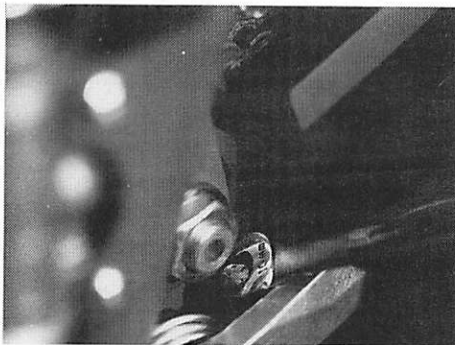
The throttle should have a small amount of freeplay in it. The adjustment is located under the rubber cover between the throttle assembly and throttle cable.



Rear brake pedal:

The rear brake pedal can be adjusted for static height and for travel before braking begins. The pedal's static height (position before being pushed)

is adjusted via a bolt on the pedal's backside. After making the static height adjustment, the pedal's engagement point should be adjusted to rider preference. The engagement point is adjusted by loosening the locknut on the top of the clevis and then turning the master cylinder push shaft in or out. After adjusting, be sure the cle-



vis locknut is retightened and there is a slight amount of freeplay in the brake pedal prior to the push shaft being moved.

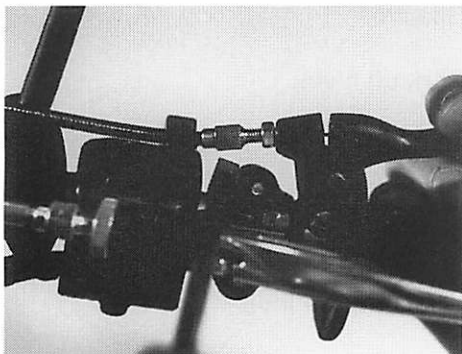
Handlebar adjustment:

The Protaper handlebar can be adjusted for height and reach. To lower the handlebar, loosen the four handlebar clamp bolts, then rotate the bar reward to lower its height and decrease the reach. Rotate the bar forward to raise its height and increase its reach. A scale printed on the top-center section of the handlebar provides a reference for adjustment. After adjusting the handlebar position, retighten the handlebar clamps, starting with the front bolts followed by the rear bolts.



Compression release:

The compression release should be adjusted for 1/4 inch of freeplay at its end while the engine is on a compression stroke (the engine will become hard to kick as a compression stroke is reached).



in the RESERVE position. The lever pointing at the ground is ON, and when the lever is pointing toward the right side it is OFF.

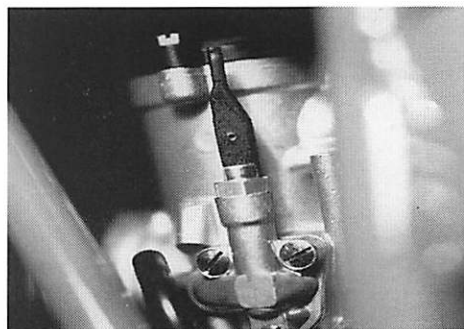


5) Release the compression release lever and move the kickstart pedal until it becomes difficult to push. Then pull the compression release lever and slowly push the kickstart pedal while watching the window on the top of the cam-belt tower for a white mark.

6) When the white mark is noticed, or the kickstart pedal has moved about 1-inch, release the compression lever and return the kickstart pedal to its top.

7) Kick the starter pedal through briskly, being careful to keep the throttle completely closed. If the engine doesn't start, repeat steps 5, 6 and 7.

8) After the engine warms up return the choke lever to its OFF position.



STARTING PROCEDURES

Fuel petcock:

The fuel petcock, located on the lower right rear of the fuel tank (seated on the bike) has three positions: OFF/ON/RESERVE. When the lever arm is pointing toward the engine, it is

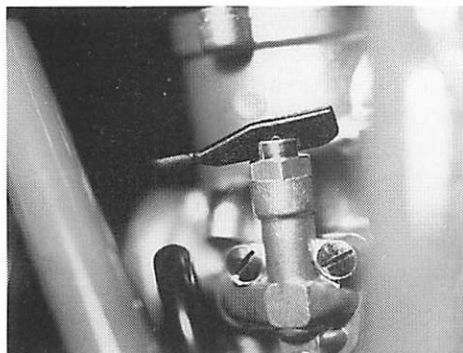
Cold engine, kickstart models:

1) Move the kill switch, located on the throttle assembly, to RUN.

2) Turn the petcock to its ON position.

3) Move the choke lever (a black lever located on the left side of the carburetor) to a vertical position.

4) Pull in the compression release lever and kick the engine through three times with the throttle closed.



Double check the choke to ensure that it is completely off by pushing down on its pivot point.

Cold engine, electric start models:

1) Follow steps one, two and three above, and push the starter button located on the throttle assembly.



2) After the engine is warmed up, follow step 8, above.

Warm engine, kickstart models:

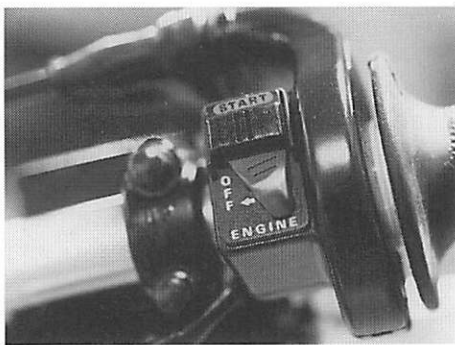
1) Follow steps five, six and seven of cold starting procedure.

Warm engine, electric start models:

1) Push the starter button.

Engine stop:

1) Move the kill switch, located on the throttle assembly, to the OFF position.



SUSPENSION

Fork oil:

Your new ATK's fork is supplied with 5-weight suspension fluid. 7.5-weight fluid may be substituted if a firmer ride is desired. Use only a high-grade suspension fluid such as Bel-Ray HVI or Spectro.

Fork oil level:

Minimum level	6.77 inches (172mm)
Maximum oil level	5.51 inches (140mm)
Stock oil level	5.51 inches (140mm)

Effects of oil level:

Raising the fork oil level increases the fork's resistance to bottoming and generally makes the suspension feel stiffer during the last half of its travel.

Lowering the oil level softens the last half of the travel.

Setting the fork oil level:

The fork legs must be removed from the motorcycle to accurately set the oil level. Prior to fork removal, the forks caps should be loosened (after loosening the top clamp's pinch bolts).

1) Remove the fork legs and one fork cap.

2) Push the outer tube down a couple of inches and remove the spring-retainer clips and the spring preload spacers.

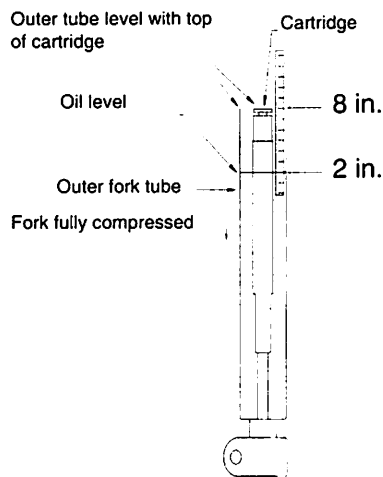
3) Slowly remove the fork spring from the fork.

4) Push the damper cartridge and outer tube to the bottom of their travel, then raise the outer tube's top edge flush with the top of the damper cartridge top.

5) Insert a narrow, steel rule into the fork between the damper cartridge and the wall of the outer tube, stopping at the 8-inch mark on the rule.

6) Carefully remove the rule and note

the oil height on it. Subtracting the oil mark number from 8 gives the oil level.



Fork-spring preload:

Fork-spring preload refers to the distance the spring is compressed when it is installed in the fork with the fork fully extended.

Effect of spring preload:

Spring preload effects the motorcycle's ride height. Increasing the spring

preload raises the ride height of the bike and makes the fork feel slightly stiffer during the initial part of its movement. Generally, a lower fork-spring preload is advisable.

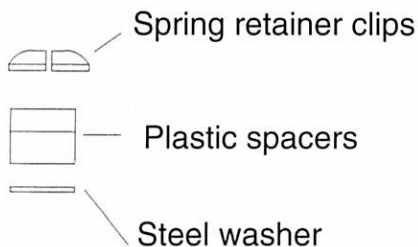
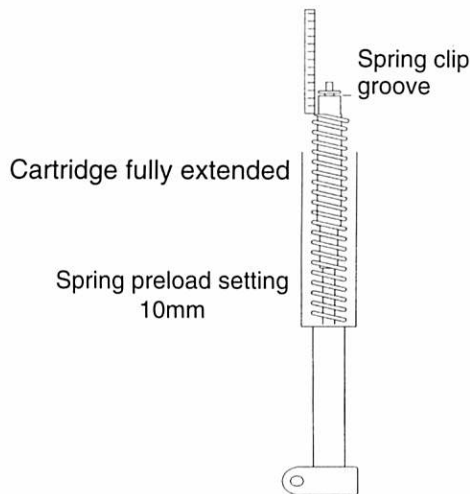
The recommended fork-spring preload is 10mm.

Setting the fork-spring preload:

1) Follow steps one and two under Setting the fork-oil level.

2) Holding the damper cartridge fully extended, measure the distance from the bottom of its spring-clip groove to the top of the fork spring and record that number.

3) Add the amount of spring preload desired to the number derived in two (2), (next page) to determine the length of the preload spacer.

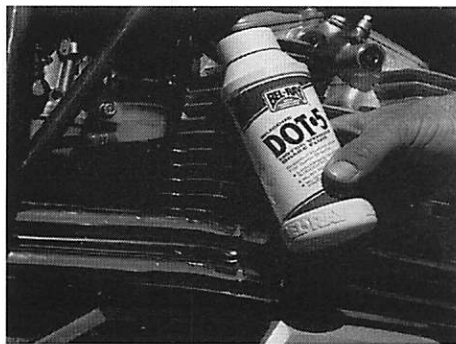


BRAKES

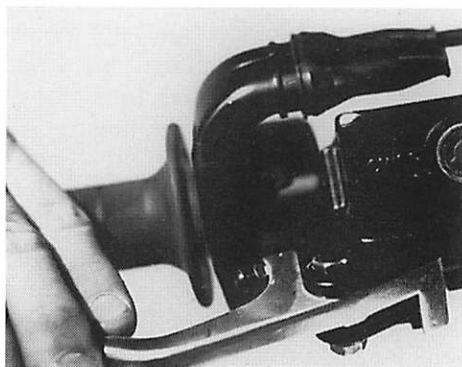
Nissin hydraulic brake components are used on your new ATK. The dual-piston front and rear calipers are exactly the same, as are their brake pads. Using a dual-piston caliper on the rear wheel offers several advantages: brake pad life is greatly increased; stopping power is greater; and overheating, even at high-speeds and during severe use in tight woods, is reduced.

Brake fluid:

Your new ATK's brake system is filled with premium Bel-Ray DOT 5 fluid. DO NOT mix with another brand or rating of brake fluid. If another brand

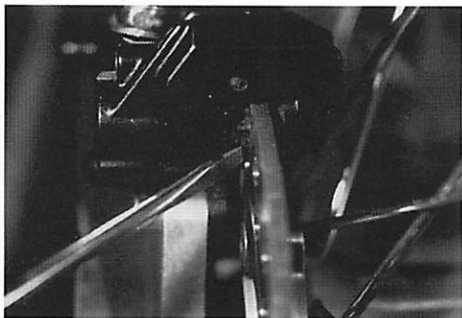


or rating is preferred, completely drain and flush the brake system first.



Brake pads:

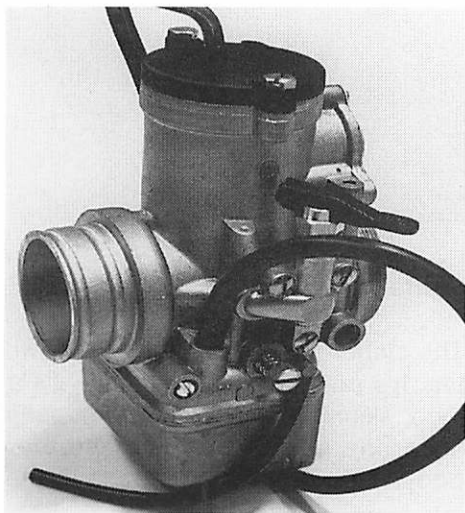
Replace the brake pads when the friction pad material is worn to 1/8 inch in thickness. The front and rear brake calipers use the same brake pads.



CARBURETION

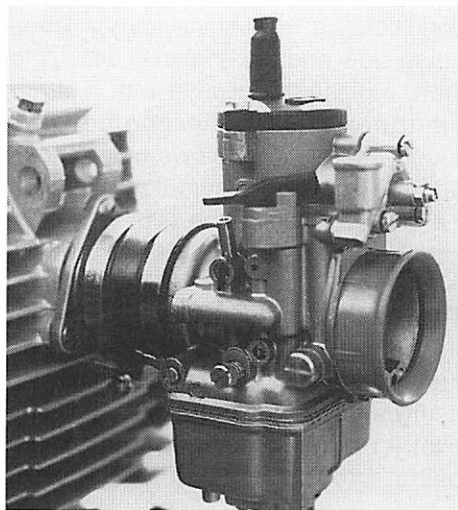
605, all models:

Type	Dell'Orto PHM40 MS
Size	40mm
Main jet	170
Starter jet	60
Pilot jet	56-60
Needlejet	AB265
Needle	K-32
Needle clip position	2
Slide	60-1
Bleed screw adjustment	1.5 turns



350, all models:

Type	Dell'Orto PHF36 BS
Size	36mm
Main jet	130
Starter jet	60
Pilot jet	60
Needlejet	AB265
Needle	K-4
Needle clip position	1
Slide	60-1
Bleed screw adjustment	3/4 turns

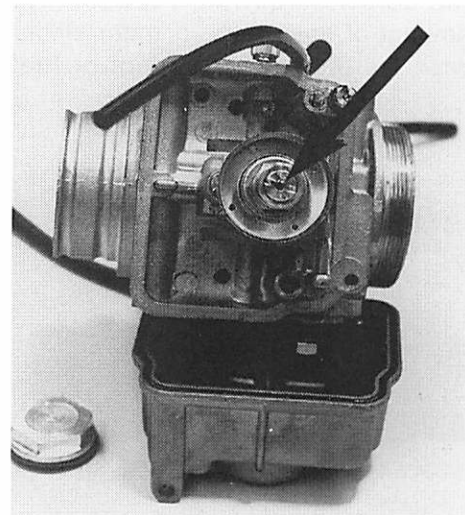


Adjusting the carburetion:

Your new ATK's carburetion is set at our Utah factory which has an elevation of around 4,000 feet. To obtain optimum performance in your riding area, we suggest that an hour or so be set aside to fine-tune the carburetor for your elevation and weather conditions.

Main jet:

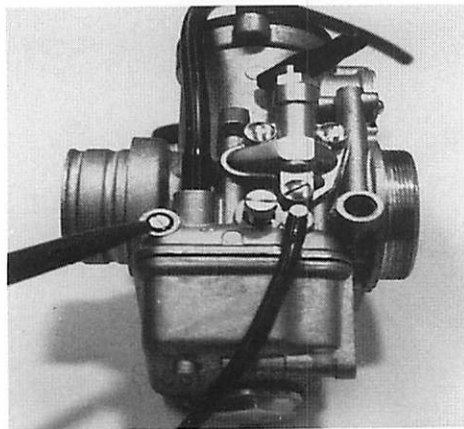
When fine-tuning the carburetor, start with the main jet. If the engine sounds



rich or lean under full throttle conditions, change the main jet size. The main jet is located under the float bowl. It can be reached after float bowl removal which requires a 21mm box-end wrench. Use a screwdriver to remove the main jet and then replace it with a smaller numbered jet if the bike is running rich, a larger jet if it is running lean.

Fuel bleed screw:

The fuel bleed screw should be adjusted for a smooth idle speed. Turning the screw clockwise reduces the amount of fuel bleed, counter clockwise increases the amount of fuel



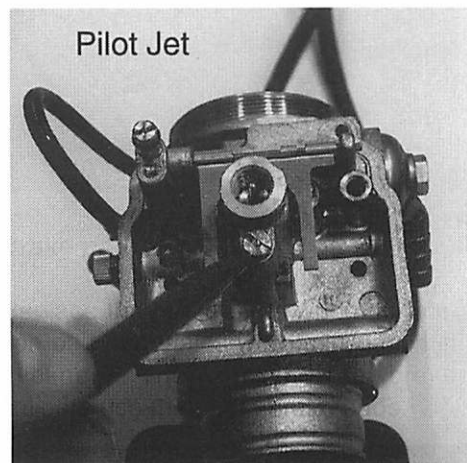
entering the engine at idle speed. Slowly move the screw a half turn clockwise and note the engine's idle speed, then return it to 1.5 turns and then rotate it counter clockwise a half turn, noting the engine speed. If the engine gained speed in one direction return the adjuster to that position.

Pilot jet:

Ride the bike at a slow speed, low throttle setting to check the pilot jet size and make a note of the ease of starting the engine under warm engine conditions. If the engine surges when going slow and the engine is difficult to start, replace the pilot jet with a larger numbered jet. If the engine runs rough, the exhaust blows blue smoke and the engine appears flooded when it's started, replace the pilot jet with a smaller numbered jet.

The pilot jet is also located under the float bowl. The main-jet holder and fuel-splash shield have to be removed using a 12mm boxend wrench. The pilot jet is removed with a small flat-blade screwdriver. The holes in pilot

jets are extremely small and plug easily, so it's good practice to remove the pilot jet every couple of rides and clean it with compressed air or contact cleaner. If your bike suddenly becomes difficult to start, clean the pilot jet.



Starter jet:

The starter jet is under the float bowl, too. It's rather obvious because it's a long, skinny, brass jet that protrudes from one corner of the carburetor body. This jet only works when the

choke is applied and its size seldom needs to be changed. It is easily removed with a small flatblade screwdriver.

Needle:

The needle is the long, thin, tapered steel part that protrudes out the bottom of the throttle slide. It is reached by removing the carburetor's top. When the top of the carburetor is

pulled away from the carburetor body, the throttle-return spring and throttle slide will be attached to it. The needle and the needle jet (the part that the needle slides up and down in) are responsible for the engine's operation between 1/4 throttle and 3/4 throttle. If the engine is running rich in this range, lowering the needle (raising the C-clip at the needle's top) will reduce the amount of fuel flow. Lowering the C-clip raises the needle and makes the engine richer in this power range.

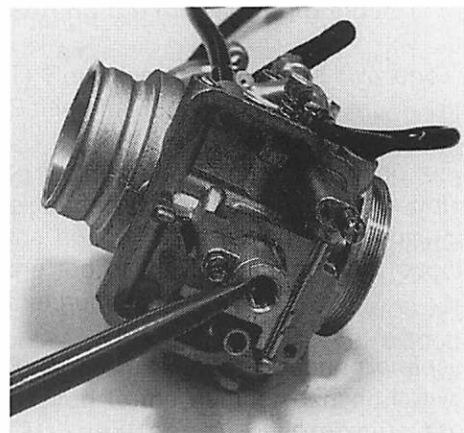
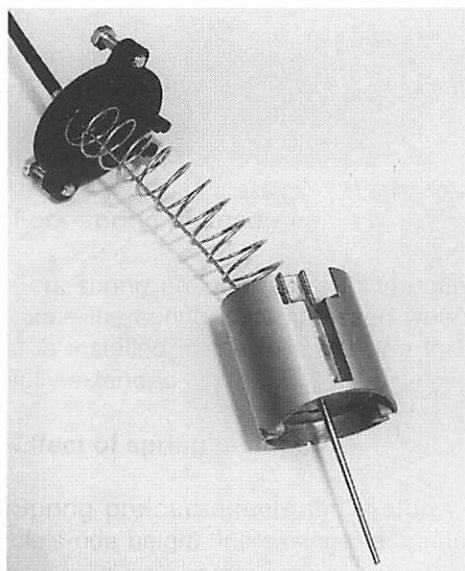
Needle jet:

The needle jet size needs to be replaced with a different jet if the engine's midrange can not be fine-tuned by moving the needle jet's clip. Unless your motorcycle's engine has been modified, this should not be necessary.

Clip position from top

← leanest
← richest

Carburetor needle



MAINTENANCE

Engine oil:

Summer	Spectro 20-50w
Winter	Spectro 10-40w
Capacity	3—3.5 quarts

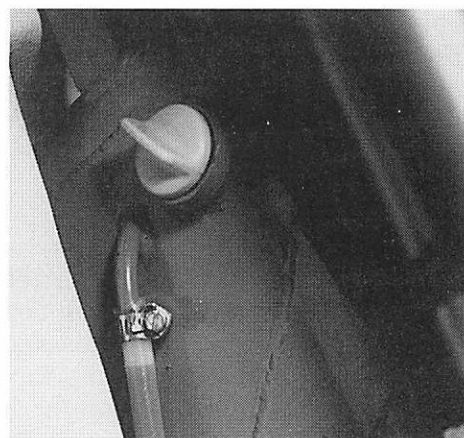
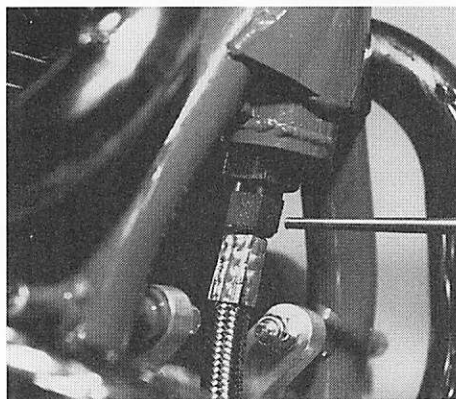
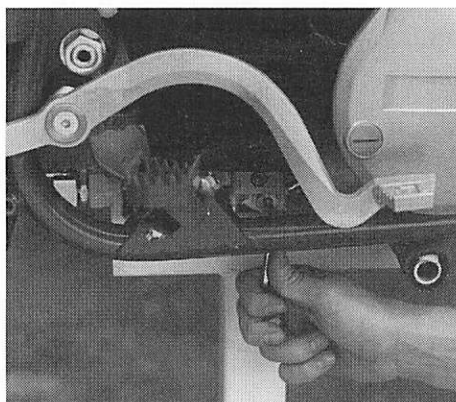
Oil level 1/4 inch below top
of sight glass on front
right side of frame.

Oil change 1,000 miles
Oil filter change 3,000 miles

Changing the oil:

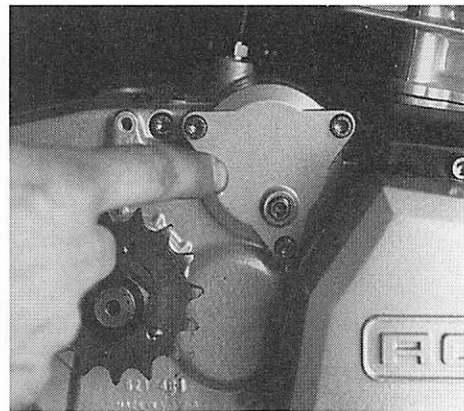
Remove the oil-drain plug from the bottom right side of the engine using an 8mm allen wrench. When drained, replace the plug snugly. Then remove the oil-feed line from the bottom of the frame's front downtube. Replace the oil-feed line after draining is complete. After draining is complete, slowly pour 2.5 quarts of oil into the frame via the filler plug on the right front of the frame. Start the engine and run it for a couple of minutes then shut it off. Let

the bike set for a minute or so—the oil level in the sight tube will drop considerably—then add additional oil to bring the oil in the sight tube to a point about 1/4 inches below the tube's top.



Oil filter:

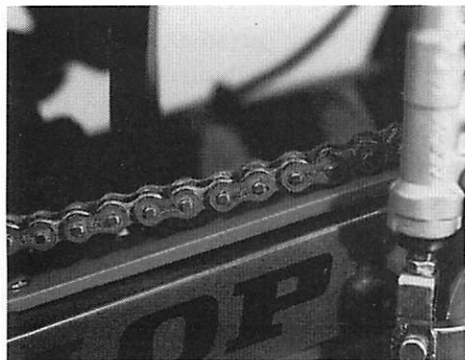
Change the oil filter and clean the engine's sump screen every 3,000



miles. After draining the oil, remove the exhaust system, then remove the oil filter cover plate and replace the filter with a new one. Replace the cover and remove the sump cover on the bottom of the engine. Clean the sump screen in solvent, then replace the screen and cover and refill the bike with oil.

Drive chain:

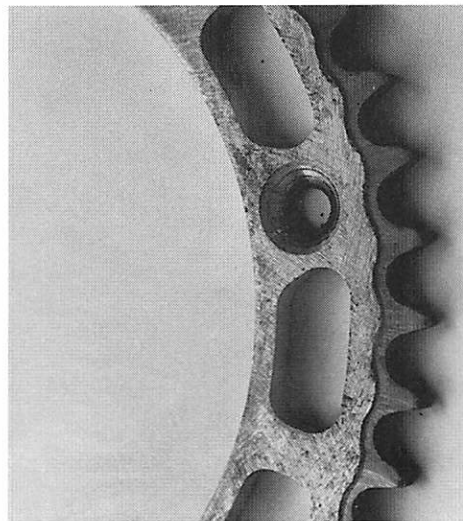
Except for an occasional chain tension adjustment, little chain care is required. As long as the chain's O-rings are in good condition, the lube trapped inside the chain can not escape and lube applied to the outside of the chain can not get into the chain



to lubricate its critical parts. A light lubricant to the outside of the chain to keep it from rusting may be desirable, but not absolutely necessary. The stock chain used on all ATKs is a premium model and should last a long time. When the chain reaches a point where side play is obviously excessive, it should be replaced.

Drive sprockets:

ATK rear sprockets, like the drive chain, are the highest quality available



and should provide long life. When the sprocket teeth start looking bent, it's time for a new sprocket. The drive chain should be inspected closely for excessive side play at the same time and replaced if bad. A worn drive chain can wear out a new rear sprocket in one ride.

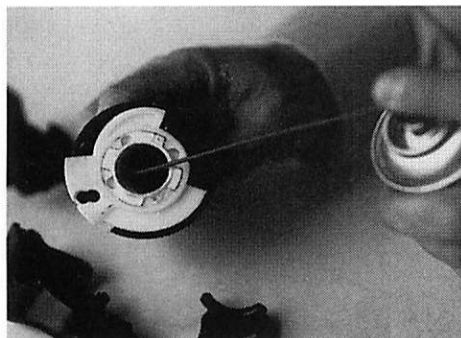
Control cables:

The control cables should be lubricated periodically with cable lube to keep them working smoothly.



Throttle/control levers:

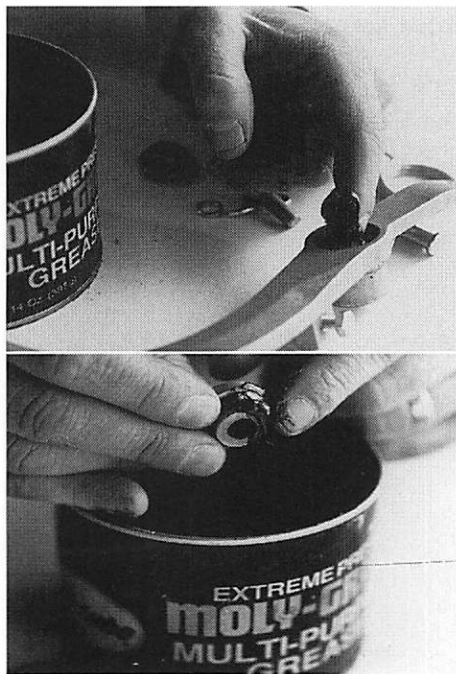
The throttle should be disassembled, cleaned in cleaning solvent, then all moving parts lubricated, including the holder for the throttle-cable's end. The clutch, front brake and decompression levers should also be cleaned and lubricated at their pivot points and where the cable ends are held. The maintenance schedule for these parts should be determined by the amount and severity of the bike's use.



Rear brake pedal:

The rear brake pedal should be cleaned and greased with a light, waterproof grease when performing

other maintenance chores. The rear brake pivot is sealed with an O-ring at each end of its pivot to help retain lubricant and keep water and dirt out. Be sure these O-rings are in good condition and properly positioned before reassembling the brake pedal. A drop of thread sealant should be applied the brake-pedal pivot bolt when it is reassembled.



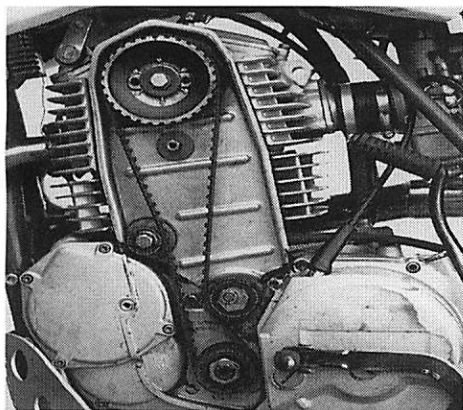
Brake pads:

The brake pad's thickness should be checked after each ride. The pads should be replaced when they are 1/8 inch thick. The front and rear brake pads are identical.

Cam belt:

The overhead camshaft in your bike is driven by a cog-belt. The belt should be checked for fraying, deterioration, cracking and adjustment every 3,000 miles. Two covers on the left side of the engine require removal for this job. The tall upper cover is held in place by one screw, the lower cover requires the removal of three screws. After cover removal, check the condition of the belt and replace it if necessary. These belts are extremely durable and should last many thousands of miles under normal use, providing their adjustment is maintained. The belt tension should be checked while the engine is cold (room temperature) as it gets shorter when warm. When properly adjusted, the belt can be pushed 1/4 inch away from the its front roller pulley with the engine at top dead cen-

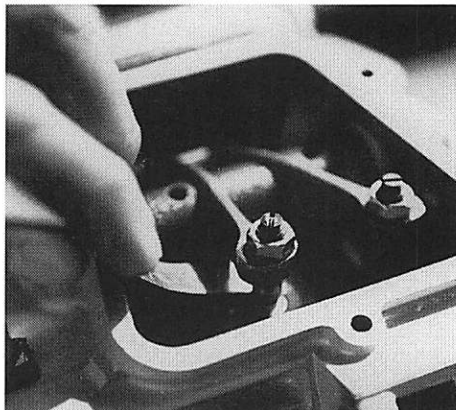
ter (TDC). Belt adjustment is made by loosening and rotating the rear eccentric roller. Be sure to retighten the eccentric pulley's lock screw when adjustment is complete. NOTE: If the cam-belt is adjusted tighter than specified, it will break after the engine reaches normal operating temperatures.



Valve adjustment:

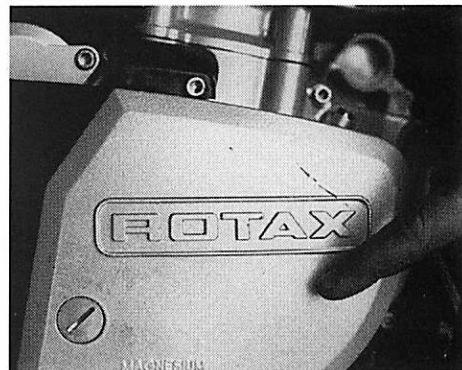
Valve clearance requires checking at 3,000 miles. After removing the fuel tank, remove the three screws holding each valve adjustment cover and remove the covers. With the engine at

top dead center (TDC), the valve lobes pointing down, use a feeler gauge to set the clearance at .002 inches (.05mm). Recheck the clearance after the adjuster locknuts have been tightened. After valve clearance adjustment is complete, inspect the O-ring seals on the valve covers and replace if necessary. Replace valve covers and the fuel tank.



Ignition:

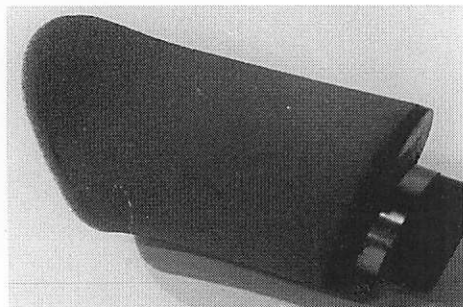
The electronic ignition is preset at the factory and needs no maintenance.



Air filter:

The air filter should be cleaned in solvent after every ride and re-oiled. To perform this maintenance, remove the seat, then loosen the hose clamp on the back of carburetor and pull the air filter from the airbox. Regular engine oil or special foam air filter oil may be used to oil the filter. Before installing the air filter into the airbox, clean the inside of the airbox and apply heavy waterproof grease to the front of the sealing flange on the air filter carrier.

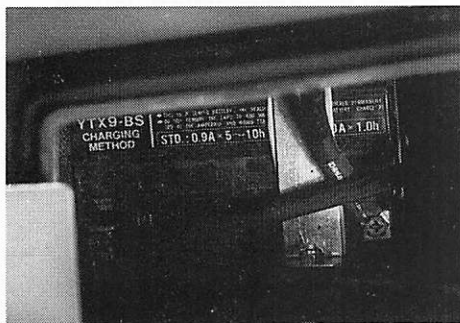
Then reinstall the filter, pushing the sealing flange tightly against the front of the airbox while tightening the filter carrier hose clamp to the back of the carburetor.



If this happens, recharge the battery with a trickle charger at LOW amperage until recharged fully.

Battery:

The battery on electric start models is sealed and should require no maintenance unless it becomes discharged.





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