



*Quality American Motorcycles*



# OWNER'S MANUAL

605/600/500

490/350

ENDURO AND CROSS COUNTRY

## 1999/2000

Updated 02/2015



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**Congratulations on your purchase of an American-made ATK motorcycle. This manual explains operation, inspection, basic maintenance and tuning of your machine. All information in this manual is based on the latest product information available at the time of publication. If you have any questions about this manual or your machine, please contact your ATK dealer.**

**We recommend that you read this manual carefully and thoroughly before operating your new motorcycle. You should also adhere to the recommended safety checks and maintenance schedules described within this manual.**

### **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.

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.

More detailed service and parts manuals may be obtained from your local ATK dealer.

### **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 moving parts or controls of the machine.
4. For safety and reliability, the machine must be properly maintained. Always perform the pre-ride inspection 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 not to 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. Operate the machine in an area with adequate ventilation. Exhaust fumes are poisonous. The 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. Otherwise, fuel may leak out of the carburetor or fuel tank.

**CAUTION: INDICATES A POSSIBILITY OF PERSONAL INJURY IF INSTRUCTIONS ARE NOT FOLLOWED.**

*Note: Helpful Information*

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**INCLUDED SUPPLEMENT:**  
**ATK 500/600 DTKS/DTES**  
**MODEL SPECIFIC DETAILS**



VIEWS



605 Cross Country Electric Start



490 Enduro

## ATK 605/ 490/ 350

### Engine Specifications

Engine Type	Air cooled, single overhead cam, four valve, four stroke single
Displacement	598 / 494 / 348 cc
Compression Ratio	9.5:1 / 9.2:1 / 10.0:1
Carburetion	40 / 38 / 34 mm Dell'Orto
Ignition (Output)	Nippondenso (190 W)
Spark Plug	NGK D8EA
Transmission	5-speed / 5-speed / 6-speed
Starting System	Electric and/or kick
Fuel Capacity	3.6 gal (13.6 liters)
Fuel Requirement	90 + octane unleaded
Cylinder Bore	97.0 / 89.0 / 79.5 mm
Standard Piston Size	96.15 / 88.31 / 78.97 mm
Stroke	81.0 / 79.4 / 70.4 mm
Valve Sizes - Intake	36.0 / 34.0 / 30.0 mm
Valve Sizes - Exhaust	30.0 / 30.0 / 27.0 mm
Valve Clearance - Intake (Cold)	0.05 mm (0.002 inch)
Valve Clearance - Exhaust (Cold)	0.05 mm (0.002 inch)
Engine Oil Capacity	2.5 to 3.0 quarts
Oil Weight	10w/40 winter 20w/50 summer
Oil Type	Golden Spectro Motorcycle engine oil

### Motorcycle Specifications

Wheelbase	1499 mm (59 inches)
Rake (Degrees)/ Trail	27/ 119.4 mm (4.4 inches)
Seat Height	927 mm (36.5 inches)
Ground Clearance	330 mm (13.0 inches)
Weight(Wet no fuel)	Enduro 290 pounds CC electric start 282 pounds CC kick start 264.5 pounds
Front Tire	80 / 100 - 21
Rear Tire	Enduro 120 / 100 - 18 Cross Country 110 / 100 - 18
Tire Pressure	15 psi front and rear

### Front Suspension Specifications

Type	Paioli 46 mm conventional forks with internal cartridge system
Travel	284 mm (11.2 inches)
External Adjustments	Compression and rebound
Standard Compression Setting	4 'clicks' from closed
Standard Rebound Setting	10 'clicks' from closed

Fork Springs	0.46 kg/mm
Oil Level	160 mm
Optional Fork Springs	0.44, 0.48 kg/ mm

### Rear Suspension Specifications

Type	Ohlins PDS system with a 92 mm stroke
Travel	330 mm (13.0 inches)
External Adjustments	Compression, rebound and spring preload
Standard Compression Setting	15 'clicks' from closed
Standard Rebound Setting	19 'clicks' from closed
Standard Spring Preload	13 mm
Race Sag	92 mm (3.6 inches)
Shock Spring	10.0 N/ mm
Optional Springs	9.5, 10.5, 11.0, 11.5 N/ mm

### Brake Specifications

Front Brake	Brembo dual piston
Front Rotor	260 mm (10.4 inches) stainless steel
Rear Brake	Brembo single piston
Rear Rotor	220 mm (8.8 inches) stainless steel
Brake Fluid	Golden Spectro supreme DOT 4 (DOT 5.1 non-silicone specifications)
Optional Parts	Solid rotors

### Driveline Specifications

Final Drive Ratio	Enduro 15 - 44 / 15 - 46 / 15 - 48 CC 15 - 46 / 15 - 48 / 15 - 50
Optional Sprockets, Front	14, 16
Optional Sprockets, Rear	40, 42, 44, 46, 48, 50, 52
Drive Chain	D.I.D. 520 VX 120 o-ring
Links - Enduro, CC	110, 112 / 112, 114 / 114, 114

### Transmission Ratios

<b>605 / 490</b>		
Primary Drive	32 / 76	2.375
1st	32 / 11	2.910
2nd	24 / 12	2.000
3rd	21 / 15	1.400
4th	19 / 17	1.120
5th	21 / 23	0.910



## SPECIFICATIONS

350

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	1.095
6th	21 / 22	0.955

### Torque Specifications

**Fastener**                      **Torque - foot pounds (ft\*lbs)**

#### General Specifications(Bolt thread size, not head size)

10 mm Bolts	19 - 25
8 mm Bolts	10 - 13.5
6 mm Bolts	4.5 - 5.5

Triple Clamp Pinch Bolts	17
Steering Stem Nut	70
Handlebar Clamp Bolts	14
Front Axle	36
Front Axle Fork Pinch Bolts	9

Rear Axle Nut	70
Top and Bottom Shock Mounting Bolts	30
Front Caliper Bolts	17

Front Brake Rotor Bolts	9
Rear Brake Rotor Bolts	14
Rear Sprocket Bolts	20
Brake Pedal Pivot Bolt	15

### Engine Specifications

Exhaust Flange Nuts	15
Front Sprocket Nut	74
6 mm Socket Head Bolts	7
8 mm Adjuster Cam Nut	15

### Basic Tool List

Sockets, 3/8 inch Drive	6, 8, 10, 12, 14, 17, 19 mm 2 inch, 4 inch extensions Universal joint 18 mm spark plug
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Screwdrivers	Flat blade - long, short Phillips - #1, #2
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### Wrench, Large Adjustable

Wrenches, Open/Box End	6, 8, 10, 11, 12, 14, 17, 19, 22, 24, 30, 34 mm
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Wrenches, Allen(Hex)	3, 4, 5, 6, 8
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Wrench, Spoke

Wrench, Spanner - 45-50 mm

Wrench, Torque - Click style

Pliers	Standard Needle - Nose Channel - Lock
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Hammer, Soft - Plastic Head

Drift Punch

Tire Pressure Gauge

Feeler Gauge Set

Vernier Caliper

Steel Ruler

Tape Measure

Chain Breaker

Cable Lubricator

### Basic Supply List

Green Locktite

Blue Locktite

Duct Tape

Assembly Grease

Bearing Grease

WD40

Contact Cleaner

Cable Lubricant

Shop Rags



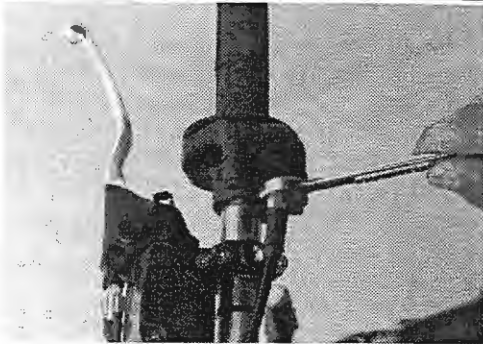


Figure 1.1



Figure 1.2

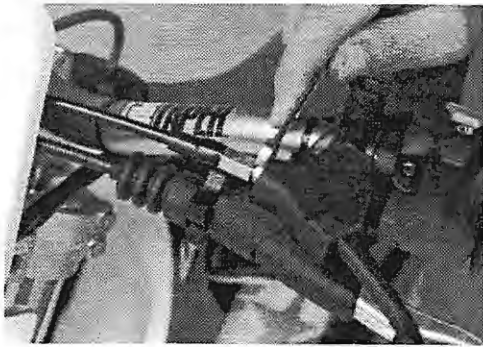


Figure 1.3

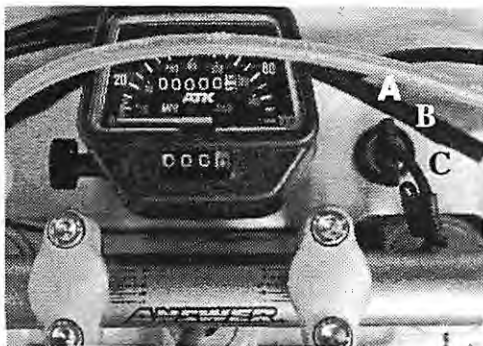


Figure 1.4

It is important to take the time to become familiar with the various controls and their adjustments prior to riding the motorcycle.

### Throttle (Figure 1.1)

The throttle should have a small amount of freeplay in the cable. If the throttle is adjusted too tight, the machine may not idle correctly and could be very dangerous to ride. To adjust the throttle freeplay, loosen the 12 mm lock nut and turn the adjuster screw by hand. The throttle should have a few degrees of freeplay so the throttle cable is not stretched taught. After adjustment is complete, turn the 12 mm locknut against the throttle housing.

*Note: If the adjuster at the throttle is at its limit, a similar adjuster exists on the carburetor itself, and can be used to control the free play.*

### Front Brake Lever (Figure 1.1)

The front brake lever has a screw type adjuster knob on its rear side that allows adjustment of the lever's engagement point. Adjust the engagement point to your preference.

### Clutch Lever (Figure 1.2)

The clutch lever should be adjusted to provide about 3 to 6 mm (1/8 to 1/4 inch) of freeplay at its ball end. To adjust the freeplay turn the adjuster located on the end of the cable at the clutch perch. The adjuster is indexed and allows for quick adjustment. No locking is necessary.

### Compression Release (Figure 1.3)

The compression release should be adjusted for 3 mm (1/4 inch) of freeplay at its end when the engine is on a compression stroke. Before checking or adjusting the compression release, kick the engine over slowly until it becomes difficult to move the kickstart lever. The freeplay can then be adjusted by the screw type adjuster with an 8 mm and a 10 mm wrench.

**Caution:** If the compression release is adjusted too tight the exhaust valve will remain open slightly after the engine starts, resulting in a burned valve. Perform this adjustment carefully, or have it done by an ATK dealer.

### Speedometer (Enduro Model Only) (Figure 1.4)

The speedometer has a trip odometer that is resettable to 000.0. Turn the adjuster knob on the left side of the speedometer away from you to reset the trip odometer to 000.0.

### Ignition Switch (Enduro Model Only) (Figure 1.4)

Your ATK four stroke comes equipped with two identical ignition keys. These keys are required for operation of the motorcycle. The ignition switch on the dash panel has three positions. (A) Ignition kill (B) Run without lights (C) Run with lights

*Note: The engine can be killed by either turning the ignition switch to position (A) or by flipping the starter/kill switch to the 'kill' position.*



## CONTROLS

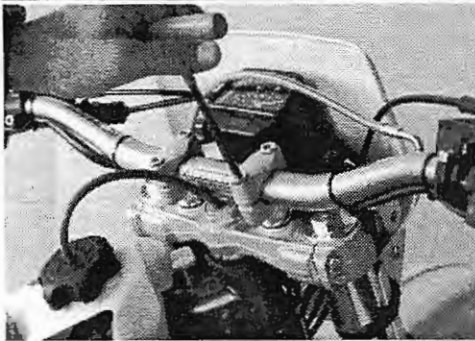


Figure 1.5

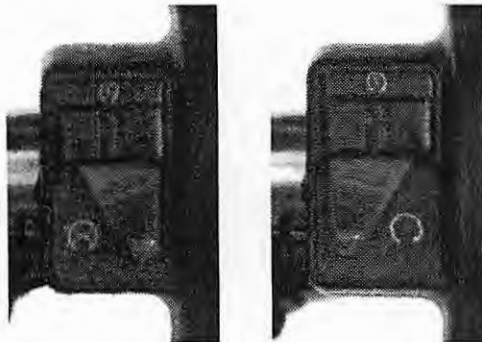


Figure 1.6 / 1.7

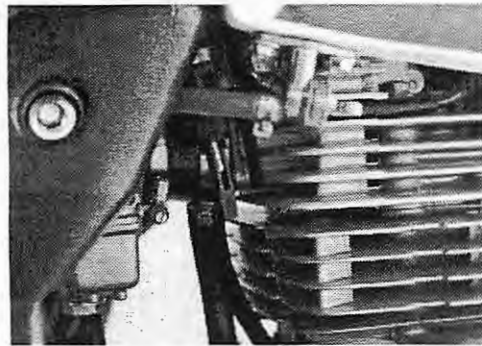


Figure 1.8



Figure 1.9



Figure 1.10

### Handlebar Adjustment (Figure 1.5)

The Answer ProTaper handlebar can be adjusted for height and reach. To adjust the handlebar, loosen the handlebar clamp screws using an 5 mm Allen wrench. Rotate the handlebar rearward to lower its height and reduce the reach. To raise the handlebar and increase the reach, rotate the handlebar forward. The handlebar has a scale for a reference. After adjustment is complete, tighten the screws and torque them to 16 foot pounds.

### Starter/Kill Switch (ES and Kick Start Models) (Figure 1.6, 1.7)

Figure 1.6 shows the switch position for the motorcycle to run. Figure 1.7 shows the position the switch must be moved to effectively 'kill' the engine. The central button must be depressed to start the engine (this button is non-functional on the kick start only models).

*Note: The engine will still turn over if the kill switch is in the 'kill' position, however it just will not start.*

### Choke (Figure 1.8)

The choke is turned on by pulling the choke switch down into the vertical position. It is turned off by snapping the lever back into its stock horizontal position. Figure 1.8 shows the choke in its 'on' position.

### Fuel Petcock (Figure 1.9)

The fuel petcock has three positions: ON / OFF / RESERVE. For normal use the bike should be ridden with the petcock in the ON position. This leaves the reserve position for emergency use only. It is good practice to turn the petcock to its OFF position when the motorcycle is not in use. Figure 1.9 shows the petcock in the ON position.

### Fuel Level

When filling your motorcycle up with fuel, do not top off the fuel tank. Leave about two inches of space below the top of the fuel filler. This allows the fuel gasses to expand during temperature increases without the risk of fuel overflowing.

### Gear Shifter

The gear shifter has the following gear pattern:

DOWN 1-N-2-3-4-5 UP

The 350 also has a gear 6.

### Rear Brake Pedal (Figure 1.10)

The static height of the rear brake pedal should be adjusted to rider preference while wearing your boots. To adjust the pedal's height, loosen the 12 mm locknut above the clevis, then turn the adjuster screw using an 10 mm end wrench. Check the position by sitting on the motorcycle before resetting the locknut.

### Gearing (Figure 1.11)

The final drive gearing was carefully chosen for your ATK 605/490/350 to provide maximum performance in a variety of riding conditions. Should your personal preference or riding conditions require a gearing change, use the GEARING CHART as a guide. All of the gearing combinations can be purchased from your local ATK Dealer. The lower the sprocket gear ratio, the higher the speed of the motorcycle.



Figure 1.11

Gearing Chart		
Countershaft Sprocket	Rear Sprocket	Sprocket Gear Ratio
14-T	40-T	2.86:1
14-T	42-T	3.00:1
14-T	44-T	3.14:1
14-T	46-T	3.29:1
14-T	48-T	3.43:1
15-T	40-T	2.67:1
15-T	42-T	2.80:1
15-T	44-T	2.93:1
15-T	46-T	3.07:1
15-T	48-T	3.20:1
16-T	40-T	2.50:1
16-T	42-T	2.63:1
16-T	44-T	2.75:1
16-T	46-T	2.88:1
16-T	48-T	3.00:1

For example, if you feel as if you are shifting the motorcycle too often, it may be advisable to go smaller on the rear sprocket by two teeth (46 → 44). If the gearing seems too 'tall' and you would prefer a bit more acceleration, try increasing the number of teeth on the rear sprocket (46 → 48).

**Note:** *Changing the sprocket size may require a longer or shorter chain, depending on the change in gearing.*

## Forks (Figure 1.12, 1.13)

The Paioli forks on your ATK have been thoroughly tested to perform exceptional in a variety of riding conditions. There are only two external adjustments that can be made to the forks. On the bottom of each fork leg, underneath the rubber cap, is the compression adjuster. It can be adjusted with a flat blade screwdriver. To ensure the best performance of the forks, each fork should be adjusted to the same setting. From the factory, the forks should be set to 4 'clicks' from closed (turn adjuster all of the way clockwise until resistance is felt, then turn back four 'clicks'). Turning this adjuster clockwise increases the compression damping, and turn it counterclockwise decreases the compression damping. Make sure to replace the rubber plug in the bottom of the fork leg. (Figure 1.12)

The rebound adjusters are on the top of the fork legs. They must also be adjusted to the same setting for each leg. From the factory, the rebound adjusters are set to 10 'clicks' from closed. Turning the adjuster to the right increases the rebound damping, and turning it counterclockwise decreases the rebound damping. (Figure 1.13)

There is also a pressure release valve on the top of each fork leg. With the motorcycle on a stand unscrew and retighten this screw after each ride to allow the built up air in each fork leg to escape. (Figure 1.13)

For specific information about suspension set up and maintenance, please refer to **Suspension Setup** in chapter 5.

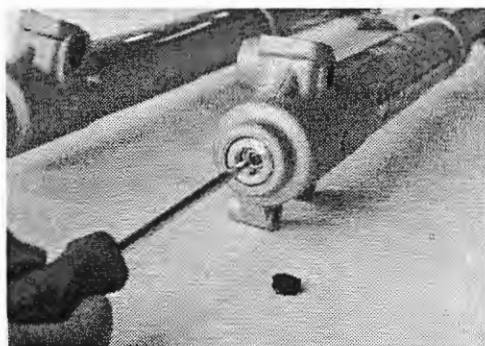
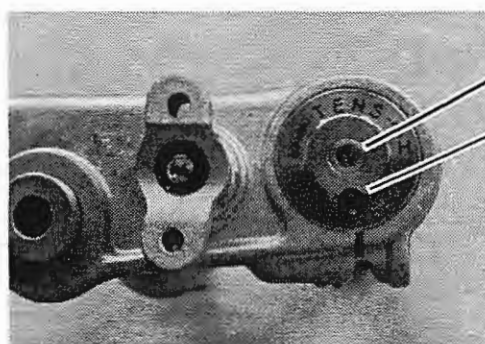


Figure 1.12

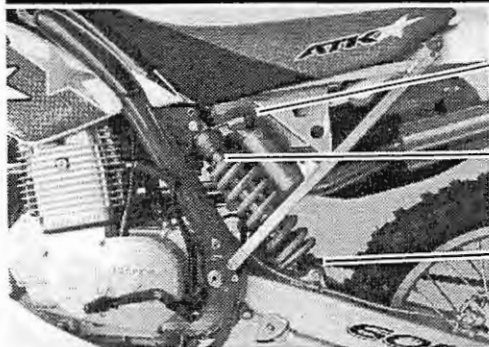


Rebound  
Pressure Release

Figure 1.13



## CONTROLS



Compression

Preload

Rebound

Figure 1.14

### Shock

The Ohlins PDS shock was designed and tested specifically for the ATK four stroke line of motorcycles. It is an extremely high performance shock absorber designed to emulate the leverage ratio of a linkage type system. This allows the suspension to be soft and compliant at the top of the suspension travel, but still have a high resistance to bottoming. This Ohlins PDS shock absorber has three external adjustments.

#### Compression (Figure 1.14)

The compression adjuster is located on the top of the shock between the shock reservoir and the main shock body. To adjust the compression, the left side panel of the motorcycle must be removed. The stock setting for the compression is 15 'clicks' from closed (full clockwise). Adjusting the compression clockwise increase the compression damping, while adjusting it counterclockwise decreases the compression damping.

#### Rebound (Figure 1.13)

The rebound adjuster is located on the shaft of the shock near the bottom shock mount. The stock setting for the rebound is 19 'clicks' from closed (full clockwise). Adjusting the rebound clockwise increases the compression damping, while adjusting it counterclockwise decreases the rebound damping.

#### Preload (Figure 1.14)

With the sidepanel removed, it is possible to adjust the shock spring preload by using a spanner wrench, or a hammer with a punch. Place the motorcycle on a stand to raise the rear wheel off of the ground. Loosen the jam nut (the top ring of the two rings that are touching). Increase or decrease the preload by rotating the spanner nut. Tighten the jam nut.

For specific information about suspension set up and maintenance, please refer to **Suspension Setup** in chapter 5.

## PRE-RIDE

The following inspection **MUST** be performed prior to each riding session:

- A thorough "walk around" of the motorcycle for visible signs of loose, broken or worn parts, nuts and bolts, tires, wheel hubs, spokes etc.
- An in-depth check of the following components using the proper tools, equipment and knowledge to perform the job.
- Engine oil level.
- Engine for oil leaks and/or case damage.
- The smooth and effective operation of the throttle, clutch, front brake, rear brake, and kill switch.
- Steering smoothness and steering head bearings for proper adjustment.
- Handlebars for proper adjustment and tightness.
- Control cable routings for binding or interference with the bike's steering and operation.
- Brake pads and brake rotors for damage or wear.
- Brake fluid levels and the hydraulic hoses for damage and their attachment bolts for tightness.
- Tire condition and inflation.
- Spoke condition and tightness.
- Wheel hubs and rims for cracks or damage.
- Suspension components(shock, forks, triple clamps) for signs of oil leakage, crash damage and general integrity.
- Exhaust system for cracks, damage and mounting hardware tightness and condition.
- Front and rear axle tightness.
- Swingarm pivot nuts for proper tightness.
- Drive chain, sprockets, chain rollers and chain rub pad for wear and/or damage.
- Check the condition of the front and rear wheel bearings by trying to rock the wheel assembly. There should be no noticeable looseness or rocking when the bearings are in good condition.
- Fuel tank, fuel cap, fuel petcock and fuel lines for leaks and/or damage.
- Carburetor clamps for tightness and the carburetor for leakage.

*Note: If any of the above checks show a need for attention, perform the necessary repair/replacement/adjustment prior to riding the motorcycle.*

## BREAK IN

Taking the time to properly break in your new ATK four-stroke motorcycle will reward you with a bike that provides maximum performance and life. It is important that the motorcycle is not ridden in any extreme circumstances during this break in period. Riding gently for the first few hundred miles will provide less maintenance worries over the motorcycle's lifetime.

### Engine and Transmission

ATK's four stroke engines require a 300 mile break in period. The most important thing to remember when breaking in your new ATK four-stroke motorcycle is to stay away from deep sand, high speed straights, extended freeway travel, and any riding situation where the engine is required to run at full power or a steady rpm for an extended amount of time. During the break in period vary the throttle setting often and shift the transmission carefully. Let the engine cool for 5 minutes after every hour of use during the first 100 miles of break in. The engine can be used more aggressively after the first 100 miles of break in, but the most aggressive riding should be avoided during the first 300 miles of use. Change the engine oil and oil filter after the first 300 miles of use.

### Brakes

The Brembo brakes on your new ATK will provide superior stopping power and longevity if you apply the brakes lightly, allowing for a cooling period, during the first hour of operation. This ensures the brake pads and stainless steel brake rotors seat properly without glazing. Your reward for taking the time to properly break in the motorcycle's brakes will be stronger, longer lasting brake components.

### Suspension

Referring to the suspension setup section, take the time to set the rear suspension's sag to 92 mm (3.60 inches) and the shock and fork damper adjustments prior to riding your new motorcycle. It will require one or two rides before the suspension seals and sliding surfaces break in enough to allow the user to adjust the suspension to their preferences. After two rides, reset the shock preload (the shock spring actually breaks in and needs adjustment to achieve the same sag), and experiment with the fork and shock compression and rebound adjuster until the desired ride settings are achieved.



## STARTING PROCEDURE

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### **Cold Engine, Kickstart Models**

1. Move the Run/Kill switch to Run (the red thumb lever to the right).
2. Turn the fuel petcock to its ON (vertical) position.
3. Position the choke control to its ON (vertical) position.
4. Pull the compression release lever and kick the engine through three times with the throttle closed.
5. Release the compression release lever and move the kickstart pedal until resistance is felt. Then pull the compression release lever and push the kickstart pedal 1 inch (at its end). This places the piston just after Top Dead Center (TDC) on the compression stroke and allows for the maximum kick for starting. Release the compression lever.
6. Let the kickstarter return to the top of its stroke, then kick the pedal briskly and completely through its entire stroke. Make sure not to open the throttle.
7. If the engine does not start, repeat steps 5 and 6.
8. After the engine warms up, return the choke control to its OFF (horizontal) position.

### **Cold Engine, Electric Start Models**

1. Turn the key switch clockwise to the second or third position.
2. Move the Run/Kill switch to Run (the red thumb lever to the right).
3. Turn the fuel petcock to its ON (vertical) position.
4. Position the choke control to its ON (vertical) position.
5. Push the Start button on the throttle assemble, being careful to keep the throttle completely closed.
6. After the engine has warmed up, return the choke to its OFF (horizontal) position.

### **Warm Engine, Kickstart Models**

Follow the same steps as outlined for starting a cold engine, disregarding steps 3 & 8.

### **Warm Engine, Electric Start Models**

Follow the same steps as outlined for starting a cold engine, disregarding step 4 & 6.

### **Engine Stop**

To stop the engine on Cross Country models, move the red thumb lever located on the throttle housing to the OFF position (to the left). On Enduro models perform the above procedure plus turn the key switch to its OFF position.

## Cleanliness

When doing maintenance on your ATK four stroke, it is very important to work on the motorcycle when it is completely clean. This makes the work more enjoyable and prevents dirt and other debris from contaminating the various motorcycle components. Refer to chapter 9 for motorcycle washing instructions.

## Periodic Maintenance Chart

Key: I – Inspect L – Lubricate R – Replace C – Clean A – Adjust

Item	After each ride	1000 miles	5000 miles or yearly
Spark plug			R
Drive chain and sprockets	I-L		I-L-R
Chain rollers	I		I-R
Swingarm rub pad	I		I-R
Chain guide block	I		I-R
Engine oil		R	
Engine oil filter			I-C-R
Air filter	I-C-L		I-C-L-R
Control cables and levers	I-L-A		
Throttle		I-C-L-A	
Brake fluid level	I		R
Brake pads	I	I-R	
Brake rotors, calipers, and hoses	I		
Brake system operation	I	I-A	
Forks	I		
Fork oil		R	
Shock	I		
Shock oil		R	
Frame	I		
Subframe	I		
Swingarm	I		
Swingarm lubrication	Not Required		
Steering head adjustment	I	I-L-A	
All nuts and bolts	I-A		
Tire condition and inflation	I-A		
Spokes, hubs, and rims	I		
Piston and rings			I-R
Valve lash		I-A	
Camshaft drive belt-normal use			I-R
Camshaft drive belt-severe use		I-R	
Carburetor			I-C-A



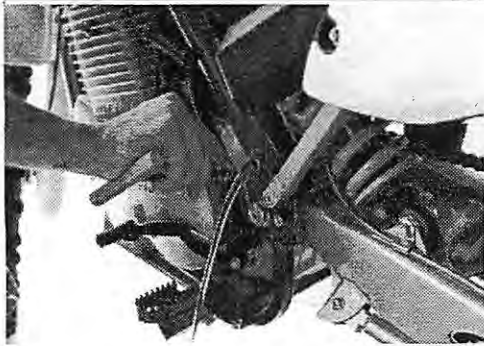


Figure 4.1

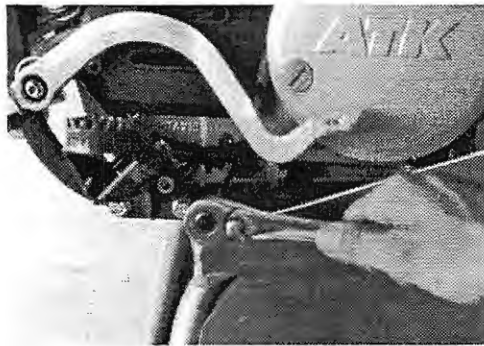


Figure 4.2

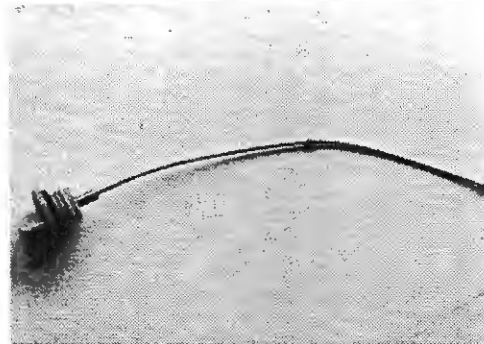


Figure 4.3

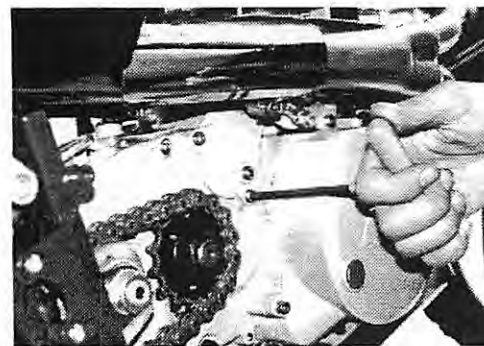


Figure 4.4

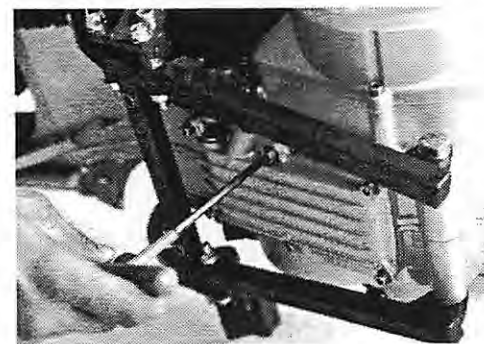


Figure 4.5

## Engine Oil Change

After the engine break in period, engine oil should be changed every 1000 miles. Both the frame reservoir and engine crankcase have to be drained when an oil change is due. About 2.5 to 3.0 quarts of oil will be required for an oil change.

**CAUTION:** Do not remove the 17 mm hex head bolt on the bottom lower left of the engine to drain the oil. This bolt holds tension on the kickstarter return spring.

1. Put motorcycle on side stand.
2. Remove the frame reservoir drain plug from the lower left side of the frame backbone tube (located behind the kickstarter), using a 6 mm Allen wrench. (Figure 4.1)
3. Inspect the copper washer on the drain plug, and replace if damaged.
4. After draining, replace the drain plug.
5. Remove the skidplate using a 10 mm socket, and a 4 mm Allen wrench.

*Note: By using a triangle sidestand (part number 020 031) it is possible to drain the oil from the engine through the hole in the skidplate without removing the skidplate. The triangle sidestand allows the motorcycle to be leaned to the right, facilitating easier oil draining from the engine. (Figure 4.2)*

6. Remove the engine oil drain plug from the bottom right side of the engine using a 6 mm Allen.
7. Remove any debris from the magnet on the drain plug.
8. Replace the engine drain screw after draining is complete.
9. Replace the skidplate.
10. Using a funnel, add 1.75 quarts of oil to the frame oil filler located between the top triple clamp and the fuel tank.
11. Replace the filler cap, start the engine and run the engine for one minute.
12. Shut off the engine and let the motorcycle sit for one minute. Remove the filler cap and check the oil level by wiping off the wire dipstick with a clean rag and dipping it back into the frame. If the oil level is between the two indicator marks, the oil level is correct. Add oil as necessary to achieve the correct level. (Figure 4.3)
13. Replace skid plate.

*Note: Do not fill the oil reservoir to its top.*

## Oil Specifications

Golden Spectro four stroke motorcycle engine oil has been tested thoroughly in ATK four stroke engines. However, any premium grade motorcycle oil should perform well under all conditions.

*Note: It is important to use a petroleum based (non synthetic) motorcycle oil in your ATK engine during engine break in. This allows the engine to break in properly without the lower friction of the synthetic oil.*

Summer	20w/50
Winter	10w/40

## Oil Filter Change

The oil filter should be changed every 2000 miles.

*Note: Change the oil filter after you have already drained the oil from backbone and the engine.*

1. Remove the sprocket cover.
2. Remove the oil filter cover using a 5 mm Allen wrench. (Figure 4.4)
3. Remove the oil filter and discard.
4. Clean the oil filter cavity with a clean shop towel.
5. Inspect the oil filter cover o-ring and replace it if it is damaged.
6. Install the new oil filter and the filter cover.
7. Place the motorcycle in a vertical position and follow the Engine Oil Change section to refill the oil.

## Engine sump screen

Clean the engine oil sump screen every 5000 miles.

*Note: Change the sump screen after you have already drained the oil from backbone and the engine.*

1. Remove the skidplate using a 10 mm socket, and a 4 mm Allen wrench.
2. Drain the oil from the engine and frame.
3. Turn fuel petcock to OFF.
4. Lay the motorcycle on its right side.
5. Remove the six sump cover screws using a 5 mm Allen wrench. Remove the oil sump screen and gasket. (Figure 4.5)(Figure 4.6)
6. Wash the sump screen in cleaning solvent.
7. Install the sump screen and the gasket.
8. Replace the sump cover o-ring. Use a light grease to hold the o-ring in place during installation.
9. Install the sump cover and tighten the attachment screws snugly.
10. Place the motorcycle in a vertical position and follow the Engine Oil Change section to refill the oil.
11. Start the engine and check for oil leaks around the sump cover.
12. Replace the skidplate.

## Spark Plug Removal (Figure 4.7)

The spark plug can easily be removed from the right hand side of the motorcycle by using a 3/8" drive socket with a 6" extension and a u-joint attached to the 18 mm spark plug socket. The spark plug can also be removed with the fuel tank removed.

## Valve Lash Adjustment

Specifications: Intake 0.05 mm (0.002 inch) Cold  
Exhaust 0.05 mm (0.002 inch) Cold

The valve lash should be checked and adjusted every 2000 miles.

1. Turn fuel petcock to OFF.
2. Remove fuel tank
3. Remove decompression cable from cylinder head. (Figure 4.8)

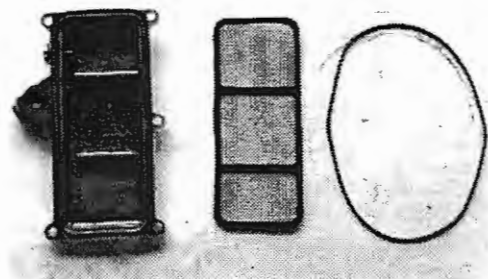


Figure 4.6

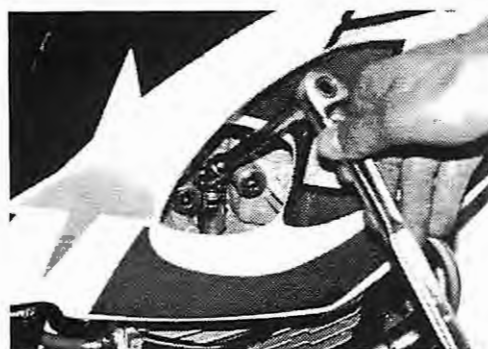


Figure 4.7

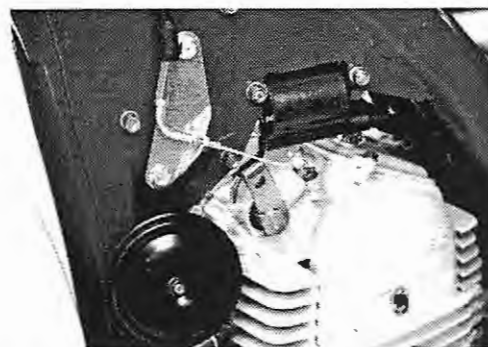


Figure 4.8

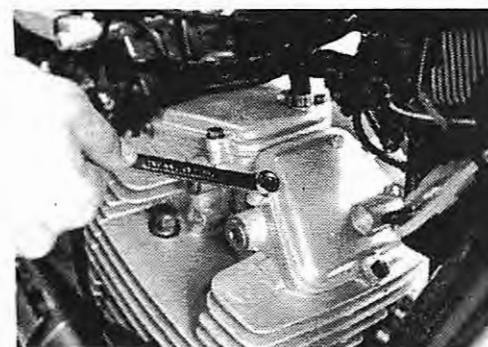


Figure 4.9

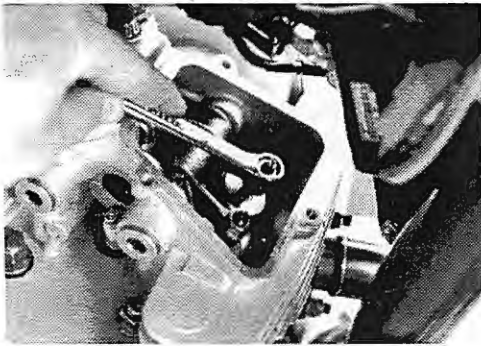


Figure 4.10

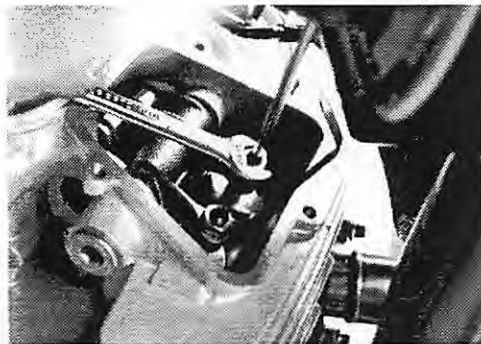


Figure 4.11

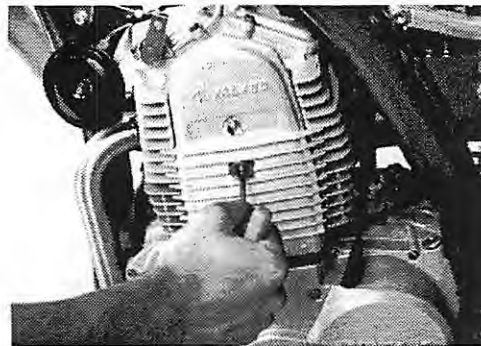


Figure 4.12

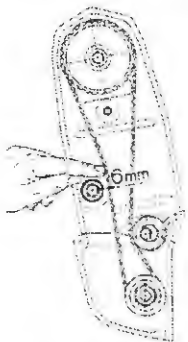


Figure 4.13

Copper Washer

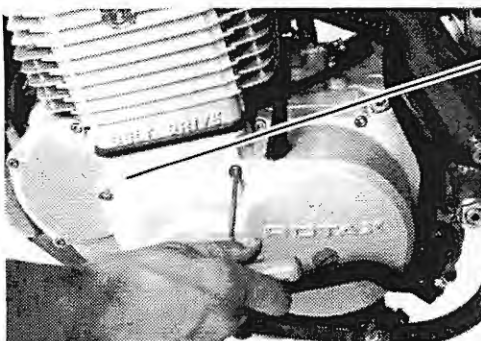


Figure 4.14

4. Using steps 3 – 5 from the cam timing belt replacement section fix the crankshaft at Top Dead Center.
5. Remove the six 10 mm hex head bolts retaining the valve covers. Remove the valve covers. (Figure 4.9)
6. Adjusting one valve at a time, loosen the 11 mm hex head lock nut with a box end wrench at the top of each valve adjuster. (Figure 4.10)
7. Insert the correct size feeler gauge between the valve top and the valve adjuster. (Figure 4.11)
8. Tighten the valve adjuster with a straight blade screwdriver until the feeler gauge provides a small amount of resistance when trying to remove.
9. Hold the valve adjuster in place with the screw driver while tightening the 11 mm hex head lock nut with the box end wrench. (Figure 4.11)
10. Repeat steps 5 – 8 for the remaining valves.
11. Reassemble the motorcycle making sure to seat the valve cover o-rings properly to prevent any possible leaks.

## Cam Timing Belt

The camshaft timing belt should be inspected and adjusted according the recommendations of the PERIODIC MAINTENANCE SCHEDULE CHART.

*Note: The timing belt can rip or break if it is dry rotted or cracked. Severe cylinder head damage can result from a broken timing belt. Inspect this belt regularly to prevent possible breakage.*

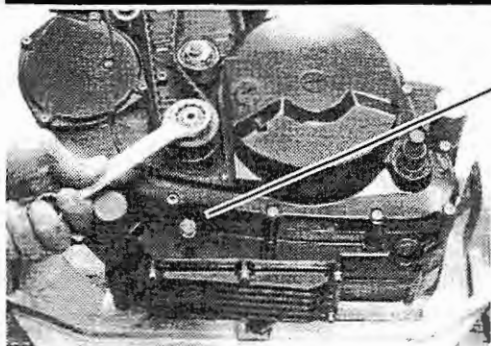
## Inspection

1. Turn the fuel petcock to OFF.
2. Remove fuel tank.
3. Remove timing belt cover with a 5 mm Allen wrench. (Figure 4.12)
4. Inspect belt for rotting or cracking.
5. Inspect the belt free play as per Figure 4.13.
6. Replace cover and fastener.
7. Replace fuel tank.

## Replacement

1. Follow the inspection instructions steps 1 – 3.
2. Remove the lower belt cover by removing the three 5 mm socket head bolts. Note: One of these bolts uses a copper washer, during reassembly ensure this bolt is placed in its correct position. (Figure 4.14)
3. Remove the 6 mm socket head bolt used for crankshaft locking. Note: This bolt has a copper washer similar to the bolt in step 2. Do not lose the washer. (Figure 4.15)
4. Using the kickstarter, move the engine through its stroke and close to Top Dead Center (TDC).
5. Thread the crank locking screw (part number 241 965) into the crank locking hole. Using a 24 mm wrench on the crank fastener, rotate the crank back and forth until the locking screw threads into the slot on the crank (the crank has a groove for the locking screw to thread into). (Figure 4.15)
6. Remove the 13 mm hex nut on the adjuster cam. Remove the adjuster cam.
7. Remove the belt.
8. Place the belt on the sprockets making sure to line





Locking Screw

Figure 4.15

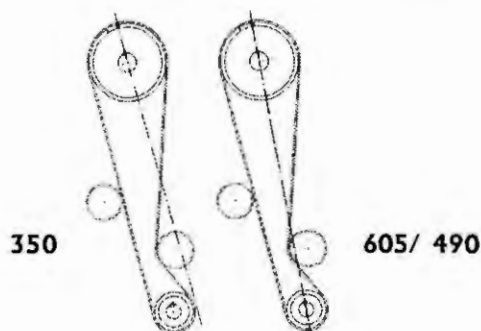


Figure 4.16



Figure 4.17



Figure 4.18



Figure 4.19

the top and bottom sprockets according to Figure 4.16.

9. Replace the adjuster cam and 13 mm nut. Adjust the cam so the tension on the belt is similar to Figure 4.13.
10. Tighten the adjuster cam 13 mm nut.
11. Replace the covers and fasteners.
12. Replace the fuel tank

## Adjustment

Follow steps in the replacement section without removing the lower cover, adjuster cam, or the timing belt.

## Clutch Adjustment

If the clutch can no longer be adjusted at the clutch lever, it can be adjusted at the clutch in the engine case.

*Note: It is very important that the clutch is adjusted properly at the engine. If the clutch is adjusted improperly, the life of the clutch will be severely limited.*

1. Adjust lever to loosest position by turning the adjustment screw completely clockwise.
2. Remove the center adjustment cover on the engine. (Figure 4.17)
3. Using the clutch adjustment tool included in the tool kit and a flat blade screwdriver, loosen the 11 mm lock nut. (Figure 4.18)
4. Turn the adjustment screw inwards (clockwise) until a slight resistance is felt, then counterclockwise by 1/2 turn.
5. Adjust the clutch lever to the specifications in the Controls section.
6. Replace the adjustment cover.

## Ignition

The electronic ignition on your ATK is not adjustable and requires no maintenance.

## Drive Chain Tension Check (Figure 4.19)

To check or adjust the drive chain, place the motorcycle on a stand with its rear wheel off the ground. Push down on the chain in the area near the end of the chain slider pad. When properly adjusted the chain should become taught and just barely touch the end of the chain slider pad. A premium quality D.I.D. o-ring chain is stock and should stretch very little after the break in period.

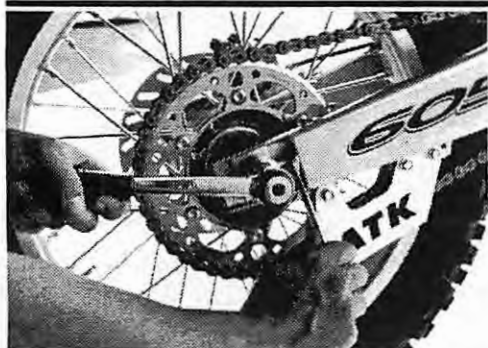


Figure 4.20

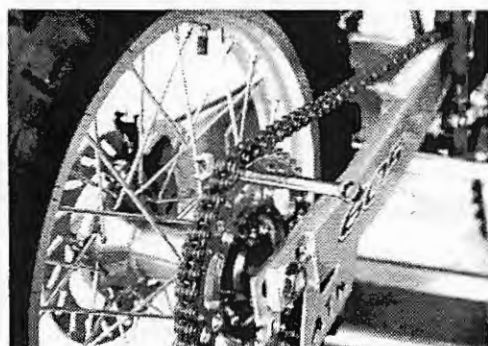


Figure 4.21

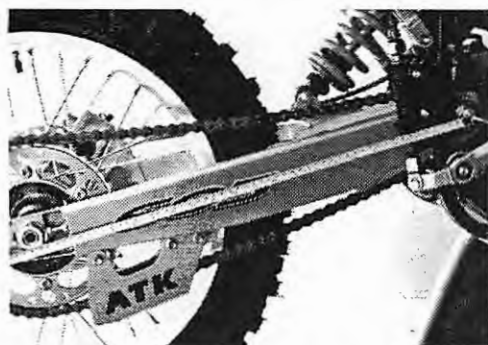


Figure 4.22

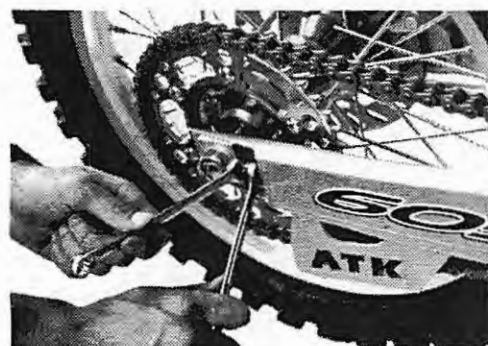


Figure 4.23

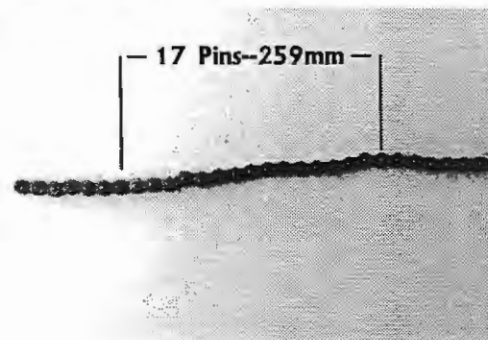


Figure 4.24

## Drive Chain Tension Adjustment

1. Loosen the 30 mm axle nut and the 12 mm locknut on each adjuster screw. (Figure 4.20)
2. Turn each adjuster screw an equal amount by counting the number of turns on each side and then recheck the chain play.
3. Place an end wrench between the top of the rear sprocket and the chain, rotate the rear wheel backward until the chain becomes taught. This pulls the rear wheel axle block tight against the adjuster screws. (Figure 4.21)
4. The best method for checking the rear wheel alignment is to measure the distance from the center of the swingarm pivot to the center of the axle using a tape measure. The rear wheel is aligned when the distance from the swingarm pivot to the rear axle is identical on both sides of the motorcycle. Fine tune the alignment of the rear wheel by turning the adjuster screws. (Figure 4.22)
5. Recheck and adjust the chain play a final time, then, with the end wrench still holding tension on the chain, torque the rear axle to 50 foot pounds. Rotate the wheel forward to remove the wrench from the chain/sprocket.
6. Ensure that the adjuster screws are tight against the adjuster blocks, then tighten the lock nut with a 12 mm wrench while holding the adjuster screw with a second 12 mm wrench. (Figure 4.23)

## Drive Chain

The o-ring chain on your ATK four stroke is lubricated at the factory and does not require initial lubrication. However, a light coat of WD40 after every ride and after each washing will assist in removing water from the chain. Also, an o-ring approved chain lubricant can be used occasionally to keep the chain lubricated. Excess chain lubricating should be avoided because it does not help extend the life of the chain and the motorcycle becomes very messy from the excess chain lubricant.

Measuring the distance between pins on the chain provides the easiest method for determining the wear on the chain. If the distance between 17 pins on the chain is greater than 259.0 mm (10.20 inches), the chain should be replaced. (Figure 4.24)

**Caution:** When replacing the drive chain, point the open end of the master link towards the rear of the motorcycle when viewing the chain on top of the swingarm. This will ensure that the masterlink will not be unfastened if it touches part of the motorcycle or some terrain. (Figure 4.25)

## Drive Sprockets (Figure 4.26)

When the sprocket teeth start looking thin, bent or curved, replace the sprockets.

**Note:** Replace the sprockets and chain at the same time. One worn component will make the other components wear much quicker. This ensures the longest possible life out of the new parts.



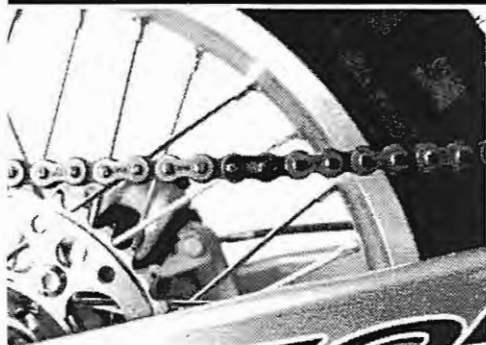


Figure 4.25

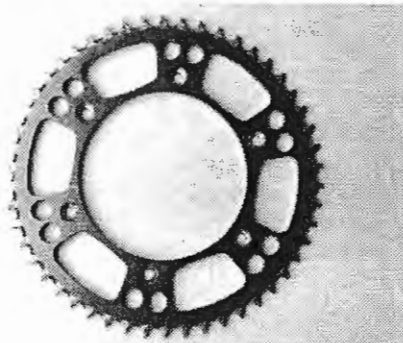


Figure 4.26

## Throttle and Control Levers

The throttle should be disassembled, all of its components cleaned and wiped dry. Lubricate the components with a light coating of WD40 or other light oil.

**Caution:** Do not use any type of grease in the throttle components. Grease can attract dirt and become thick in cold weather. This can cause loss of control of the motorcycle.

The clutch, front brake, and compression release levers should be lubricated at their pivot points and where the cable barrels rotate in the levers. A light weight grease or other lubricant may be used. The maintenance schedule for these items should be determined by the amount and severity of the motorcycle's use.

## Control Cables

All control cables should be lubricated with cable lubricant to keep them working smoothly and easily. Lubricating the cable ends where they pivot in the control levers reduces the effort required to operate the levers. This is easily accomplished by using a cable lubricating tool.

## Air Filter

A K&N fabric air filter with a foam prefilter is standard equipment on your ATK four stroke. The filter and prefilter should be checked, cleaned, and oiled(if necessary) after every ride. Follow the procedure below:

1. Remove the motorcycle seat.
2. Loosen the air filter hose clamp located at the rear of the carburetor.
3. Pull the air filter from the airbox.
4. Place a clean rag in the carburetor intake.
5. Pull the foam prefilter off of the K & N filter unit.
6. Clean the foam prefilter in cleaning solvent and let it air dry.
7. Lubricate the foam prefilter with foam filter oil.
8. Inspect the K&N filter and clean it if it appears exceptionally dirty. Note: If the prefilter is cleaned at regular intervals the K&N fabric filter will stay clean a long time.
9. To clean the K&N filter, use Simple Green, or K&N fabric filter cleaner to break down the oil and wash out the filter. Make sure to wash from the inside to force the dirt out of the filter.
10. Let the K&N filter air dry.
11. Lubricate the K&N filter with K&N fabric filter oil.

**Note:** Do not use regular engine oil or foam filter oil, it will clog the K&N filter fabric.

12. Let the K&N filter sit for a few hours so that its excess oil can drain off.
13. Clean the inside of the airbox thoroughly.
14. Slide the foam prefilter over the K&N filter.
15. Install the air filter unit into the airbox and slide the filter nose over the back of the carburetor.
16. Tighten the air filter hose clamp.
17. Check to make sure that the filter nose is properly installed over the carburetor inlet and that the hose clamp is centered and positioned properly.

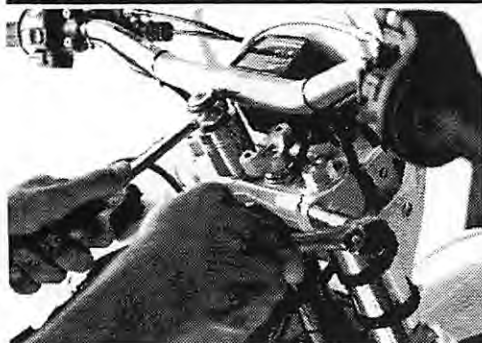


Figure 4.27



Figure 4.28

## Steering Head

To check the steering head adjustment:

1. Place the motorcycle on a bike stand so that its front tire is off the ground.
2. Push gently on one end of the handlebar.
3. When the steering head is adjusted properly, the handlebar should move all of the way to the steering stop, and not rebound from that position.
4. If the handlebar moves all of the way to the steering stop and begins to bounce back towards the center position, the steering head bearings are too loose.
5. If the handlebar never reaches the steering stop, the steering head bearings are too tight.

To adjust the steering head bearings:

1. Loosen the top triple clamp 10 mm hex head fork pinch bolts. (Figure 4.27)
2. Loosen the 34 mm hex fork stem nut. (Figure 4.27)
3. To tighten the steering head bearings, tighten the spanner nut under the top triple clamp using a 45 - 50 mm spanner wrench. (Figure 4.28)
4. To loosen the steering head bearings, loosen the spanner nut under the top triple clamp using a 45 - 50 mm spanner wrench. (Figure 4.28)
5. Tighten the fork stem nut to 70 foot pounds.

**Caution: Do not over tighten this nut.**

6. Torque the top triple clamp 10 mm hex head fork pinch bolts to 17 foot pounds. Recheck the steering head as above, then make sure that the steering moves freely and smoothly from right to left.

## Suspension Adjustment

Spending the time to properly understand how your motorcycle's suspension works, and to set it up to your own personal riding preferences will benefit you with greater performance and increased satisfaction.

### Rear Suspension Sag

Setting the rear suspension sag is the first and most important step in adjusting your new ATK's suspension for you. Setting the sag involves measuring two important, and different settings on the motorcycle: Free sag and Race sag. Free sag is the distance the rear suspensions sags under the weight of the motorcycle, and Race sag is the amount of distance the rear suspension sags under the weight of the motorcycle and the rider in full riding gear. Both of these measurements are important to getting your ATK's suspension set up correctly.

*Note: Set only the race sag when the motorcycle is new. After riding for a few hours, the suspension will be properly broken in, and the full suspension set up, including free sag, can be performed.*

To set the sag, place the motorcycle on a stand that raises the rear tire completely off the floor. Measure the distance from the center of the rear axle to the center of the seat bolt, or the edge of the rear fender where it meets the side number panel. Record this unweighted distance, because it will be the reference for all of your sag calculations. (Figure 5.1)

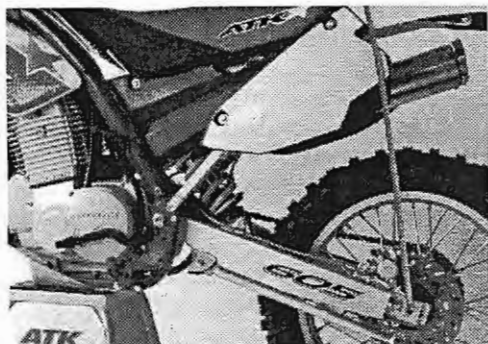


Figure 5.1

### Race Sag: Standard 92 mm (Figure 5.2)

Remove the motorcycle from the stand and place on a flat surface. It is important to set the race sag wearing all of the appropriate riding gear. Sit on the seat in a normal riding position and bounce on the motorcycle a few times to allow the motorcycle to settle to its natural position. Use the motorcycle stand to balance yourself vertically. Remain seated in your normal riding position and have an assistant remeasure the distance between the axle and top measuring point (Figure 5.2). The difference between this value and the unweighted distance is the Race sag.



Figure 5.2

If adjustment is needed, replace the motorcycle on a stand, remove the left side panel, and loosen the shock spring locking ring (the top ring of the two touching rings) with a spanner wrench or drift punch and hammer. Rotate the lower spring retainer ring using a spanner wrench to change the spring preload. If less sag is needed, turn the adjuster ring toward the spring, if more sag is desired, turn the ring away from the spring. Leave the top locking ring loose, remove the bike from its stand and remeasure the distance while the rider is sitting on the motorcycle. Repeat these steps until the race sag is correct, then tighten the top locking ring against the adjuster ring securely to keep it from moving during motorcycle operation.

### Free Sag: Acceptable Range: 18 - 25 mm (Figure 5.3)

Once again remove the motorcycle from the stand. With the motorcycle on flat ground compress the rear suspension a few times to allow the suspension to settle to its natural position, then repeat the previous measurement from axle to seat bolt (Figure 5.3). The difference between this value and the unweighted distance is the Free sag.

It is very important to understand what these measurements mean and how they affect the performance of the motorcycle.



Figure 5.3



If after setting the Race sag, the Free sag is greater than 25 mm, the spring is too stiff for your weight. If the Free sag is less than 17 mm, the spring is too soft for your weight.

It seems a bit backwards, but these rules are correct. Fortunately, the spring on your ATK allows for a variety of different weight riders, and only a few riders will need to change springs. The stock spring on your motorcycles is a 10.0 N/mm. Your dealer has softer and stiffer springs.

Additionally, the Race sag on the motorcycle can be adjusted slightly to suit the different types of riding conditions. The acceptable range for the Race sag is 90 - 100 mm. If you are anticipating very muddy riding conditions, the Race sag may need to be decreased 1-2 mm (90-91 mm Race sag) to compensate for the additional weight added by the mud. In general, running more Race sag will result in a motorcycle that is more stable, which could be helpful for higher speed desert type riding. Less Race sag will provide quicker steering which may be better for tighter, woods type riding.

### **Shock Compression Damping: 30 Positions - Standard setting 15 'clicks' from closed (clockwise)**

Compression damping controls the speed at which the shock compresses. The compression adjuster knob is located at the top of the shock reservoir. Each adjustment position is provided with a spring detent that can be felt and heard. To adjust the compression, turn the adjuster clockwise until it stops, counting the number of 'clicks'. This provides a zero point for all further adjustments. Next turn the adjuster counterclockwise to the desired setting by counting the number of 'clicks'. Once you are sure of the starting position of the adjuster, you can adjust the knob from its starting position without having to return the knob to its zero position. Try adjusting the knob only one position at a time. The effects of adjustment are very noticeable from about 12 to 18 'clicks'. Moving the adjuster knob to a lower setting stiffens the ride. Increasing the setting number will soften the ride and make the suspension more compliant over smaller obstacles.

### **Shock Rebound Damping: 30 Positions - Standard setting 19 'clicks' from closed (clockwise)**

Shock rebound damping controls the speed at which the shock returns to its extended length after being compressed. Rebound damping is adjusted via a knurled rubber ring located just above the lower shock mount. The procedure for setting the rebound adjustment is similar to the compression adjustment. Close the rebound by rotating the adjuster completely clockwise (when viewed from the bottom of the shock) and count the 'clicks'. This provides a zero reference for the position of the current setting. Then rotate the knob counterclockwise to the desired position. Once the rebound setting is known the rebound can be adjusted one 'click' at a time instead of zeroing the rebound for every adjustment. A lower setting number slows the shocks rebound. A higher setting number quickens the rebound damping. The rebound adjuster should be adjusted one position at a time until the rebound is correct for your riding style and speed. If the rear wheel kicks after hitting a sharp bump, the rebound could be too fast. If the rear suspension tends to stay down after hitting a bump, the rebound could be too slow. When riding terrain with small, closely spaced bumps at high speed (washboard roads, or closely spaced whoops), it is often

advantageous to reduce rebound damping by one increasing the setting 'click'. This allows the suspension to follow the contours of the terrain better. The opposite is the case when riding terrain with numerous G-outs and bigger jumps to prevent rear wheel kicking (change setting from 16 to 15 for example).

## **Forks**

The ATK four stroke line uses premium quality Paioli forks that feature the ultimate in performance and reliability. These forks are adjustable for both compression and rebound damping. Taking the time to understand the fork adjustments will provide a good basis for properly adjusting the suspension.

***Note: Make sure to adjust both fork legs to the same setting for both compression and rebound.***

## **Compression Damping: 28 Positions - Standard setting 4 from closed (clockwise)**

Before performing any adjustment to the compression settings, it is important to know the starting position of the adjuster. While counting the number of 'clicks', turn the adjuster clockwise until it stops. This provides a zero reference for the adjustments. Next turn the adjuster counterclockwise until the desired number of 'clicks' are achieved. A lower setting adjustment provides a stiffer ride, while a higher setting number provides a softer ride.

## **Rebound Damping: 30 Positions - Standard setting 10 from closed (clockwise)**

The rebound adjustment is set exactly the same as the compression adjustment. The setting should be set from the zero position (adjuster turned completely clockwise). To slow down the rebound damping (the speed at which the fork returns to its extended position after being compressed), reduce the setting position (for example from 10 to 9). To quicken the rebound damping, increase the setting position. Like the shock, it is often advantageous to make minor rebound damping adjustments to precisely tune the suspension to the terrain you are riding.

## **Fork Oil Rating**

Your new ATK is delivered with premium KYB 01 fork oil from the factory. The Paioli fork is designed for maximum performance using KYB oil. However, BEL RAY HVI 10 has been tested and will also result in exceptional performance.

## **Fork Oil Level**

Stock: 160 mm

Range of adjustment: 170 mm - 140 mm

## **Effects of Fork Oil Level**

Raising the fork oil level increases the forks resistance to bottoming and generally makes the fork feel firmer during the last half of its travel. Lowering the oil level softens the overall feel of the suspension. It is best to make changes to the fork oil level in 10 mm increments.

**Caution: Keep the oil level the same in both fork legs.**





Figure 5.4



Figure 5.5

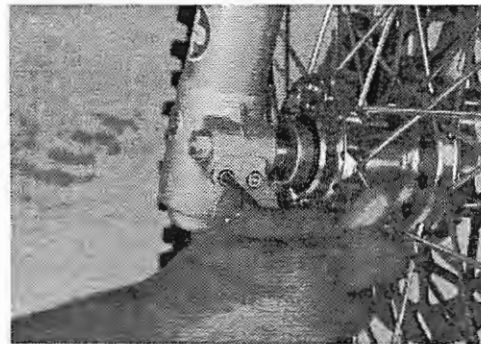


Figure 5.6

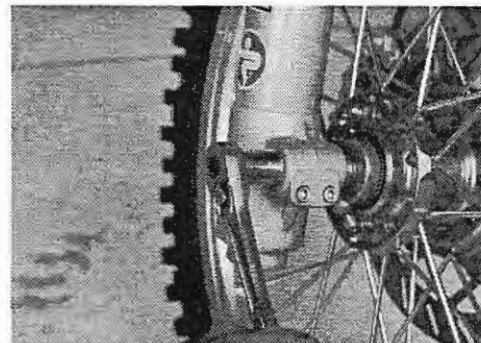


Figure 5.7

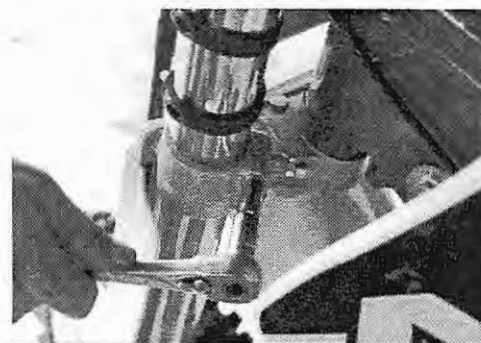


Figure 5.8

### Setting the Fork Oil Level

1. When performing any fork disassembly, cleanliness is very important. Any removed components should be placed on a clean table or a clean area.
2. Place the bike on a bike stand that raises the front tire off the ground.
3. Loosen the 4 - 10 mm head top triple clamp pinch bolts. (Figure 5.4)
4. Loosen both fork caps with a 24 mm wrench. (Figure 5.5)
5. Loosen the 5 mm Allen head axle pinch bolts on the right fork leg. (Figure 5.6)
6. Remove the front axle using a 17 mm socket or wrench. (Figure 5.7)
7. Remove the front wheel.
8. Remove the plastic fork guards from both fork legs using a #2 Phillips head screwdriver.
9. Remove the two 14 mm head brake caliper bolts, remove the caliper and let it hang.
10. Loosen the 4 lower triple clamp 10 mm head pinch bolts. (Figure 5.8)
11. Remove the fork legs from the motorcycle and lean them against a corner of a wall.
12. Hold the fork cap with a 24 mm wrench, pull down the preload spacer against the spring, and insert a 17 mm open end wrench above the preload spacer on the lock nut. Loosen the 17 mm hex lock nut on the cartridge stem. Remove the fork cap. (Figure 5.9)
13. Remove the fork spring, being careful to let the oil run down the spring and back into the fork.
14. Push the inner fork leg down until it is bottomed. (Figure 5.10)
15. Pump the cartridge stem up and down a few times until the cartridge is filled with oil.

**Note:** Keep your finger over the end of the cartridge stem to prevent the damper valve from being lost. (Figure 5.11)

16. Holding the fork leg perpendicular to the ground, insert a narrow steel ruler into the fork until it just touches the top of the oil. Measure to the top of the inner fork tube. This is the fork oil level. (Figure 5.12)
17. If a higher oil level is desired, add a small amount of oil [about 30 cc (1 ounce)], then remeasure the level.
18. If a lower oil level is needed, remove a small amount of oil from the fork, then remeasure the level.
19. Install the fork spring, spring preload spacer, and reinstall the fork cap on the cartridge stem.
20. Replace the fork cap on the inner tube.
21. Repeat steps 12 through 20 on the second fork leg.
22. Install forks onto bike and torque the triple clamp pinch bolts to 17 ft\*lbs.
23. Install the fork guards, front wheel, front axle, brake caliper, and tighten the axle to 36 ft\*lbs.
24. Remove the motorcycle from the bike stand or crate. Apply the front brake and push the forks as far into their travel as possible several times to align the fork tubes, then tighten the right fork axle pinch bolts.
25. Recheck the tightness of all bolts and the routing of the front brake's hydraulic hose.

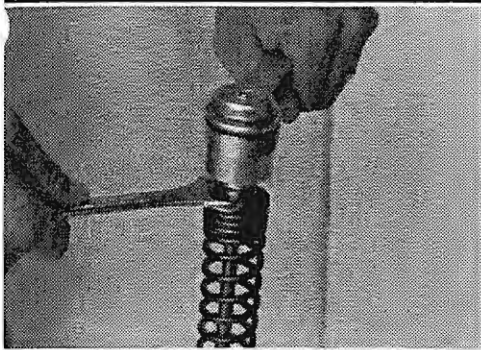


Figure 5.9

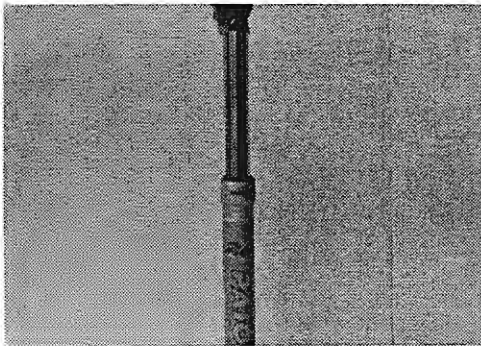


Figure 5.10

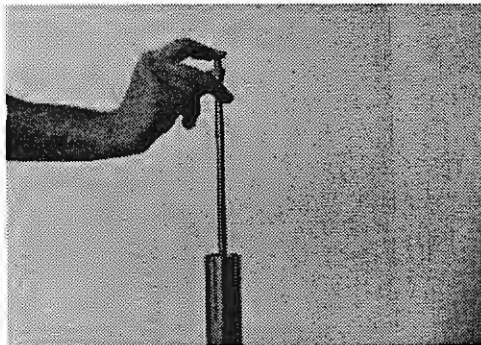


Figure 5.11

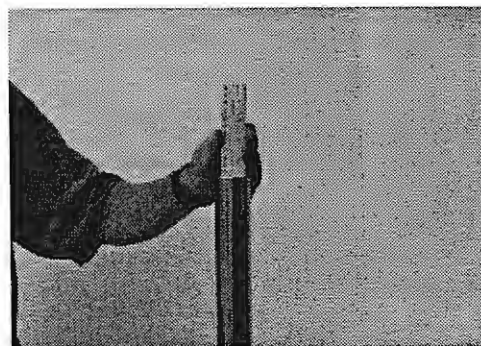


Figure 5.12



Figure 5.13

## Changing Fork Oil

Changing the oil in your Paioli forks is an important component to your motorcycle's maintenance. The fork oil should be changed after the first 3-4 hours of use, and then at approximately 20 hour intervals thereafter. If the riding conditions are extremely dusty or muddy, the oil change intervals may be lessened.

1. Follow steps 1 through 13 in the Fork Oil Level section.
2. Invert the fork over an oil drain pan. Keep your finger over the end of the cartridge stem, otherwise the cartridge valve may fall out. (Figure 5.13)
3. Compress the fork's inner tube completely. (Figure 5.10)
4. Pump the fork cartridge stem until all of the oil is removed. Keep finger on the end of the cartridge stem.
5. Place the fork vertically on the floor and compress its inner tube and cartridge stem to full compression.
6. Using the recommended fork oil, pour oil into the fork until the oil is approximately 100 mm (four inches) from the top of the fork inner tube.
7. Pump the cartridge by moving the cartridge stem up and down until the stem provides resistance indicating the cartridge is full of oil. If solid resistance is not felt, repeat this procedure one additional time.
8. Using step 16 of the Fork oil setting section as a guide, set the fork oil height.
9. Follow steps 17 through 25 of the Fork oil level section to reassemble the forks and front end of the motorcycle.

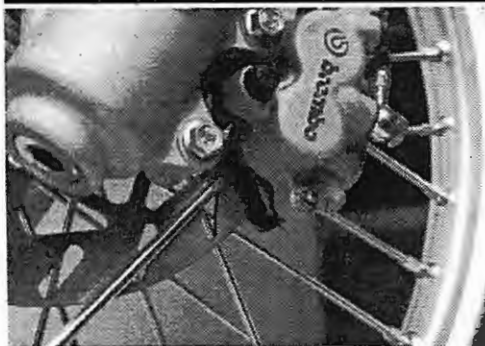


Figure 6.1

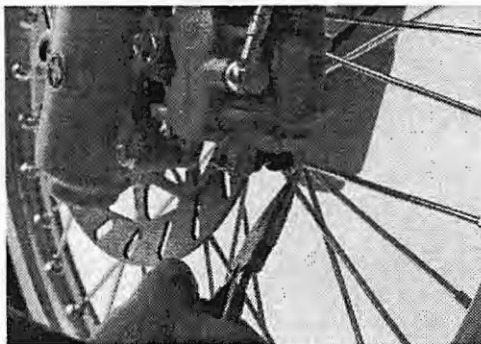


Figure 6.2

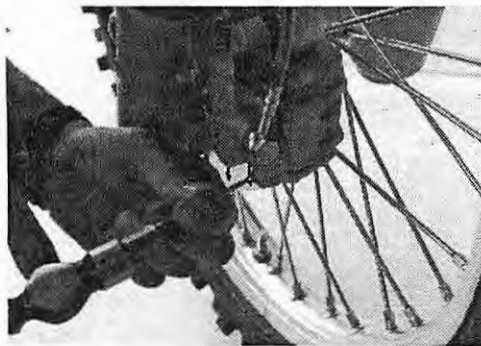


Figure 6.3

The latest model Brembo brake components are used on your new ATK. The front brake caliper is a 2-piston model, the rear caliper is a single-piston model. Both calipers feature quick-change brake pads. The brake rotors, a 260 mm front and 220 mm rear, are made of heat-treated stainless steel.

#### Brake Fluid

ATK uses premium Golden Spectro Supreme DOT 4 (DOT 5.1 non-silicone specifications), in every motorcycle built. To maintain the superior brake performance of your new ATK, continue to use premium brake fluid such as Golden Spectro Supreme DOT 4.

#### Brake Pads

Replace the brake pads when the friction material is worn to 3.0 mm (1/8 inch) thickness (not including the steel baseplate). Replacement pads in a variety of friction compounds are available from your ATK dealer. If the motorcycle will be ridden primarily in muddy conditions, and premature brake pad wear is a problem, solid (no lightening holes) front and rear rotors are available from your dealer.

#### Front Brake Pad Replacement

*Note: This procedure can be performed without removing the front wheel.*

1. Gently place a screwdriver between each brake pad and the rotor. Then using a twisting motion, force each pad away from the rotor. This pushes the caliper pistons back into the caliper and makes room for the new, thicker pads. (Figure 6.1)
2. Remove the two spring clips from the brake pad pin located in the lower rear of the caliper. (Figure 6.2)
3. Push the brake pad pin toward the wheel using a drift punch and small hammer. Pull the pin from the caliper. (Figure 6.3)
4. Remove the brake pads by hand.

#### Front Brake Pad Installation

1. Place each brake pad in position in the caliper and hold them in place while the brake pin is inserted.
2. Set the brake pad pin firmly in place by using a drift punch and a small hammer.
3. Install the two spring clips onto the brake pad pin.
4. Pull the front brake lever until the brake pads contact the rotor.



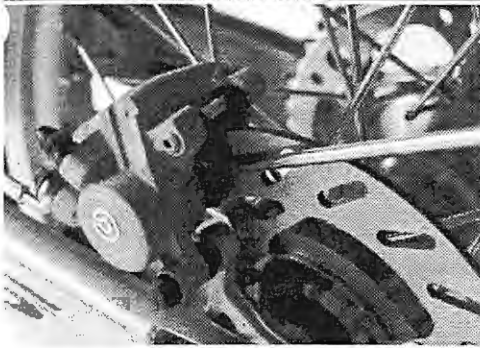


Figure 6.4

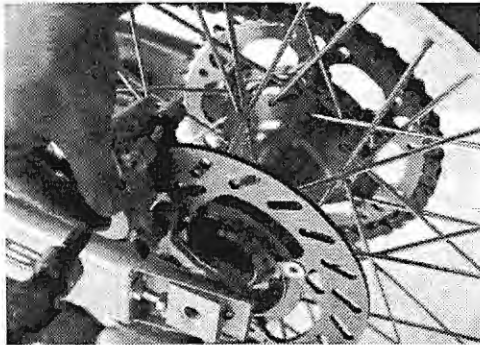


Figure 6.5

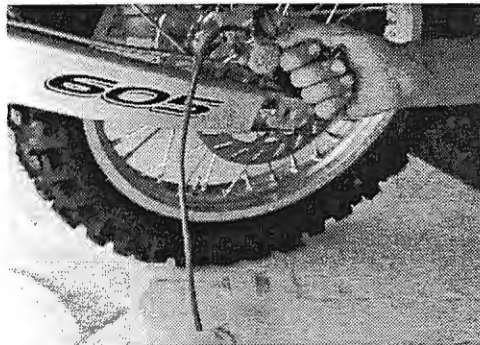


Figure 6.6

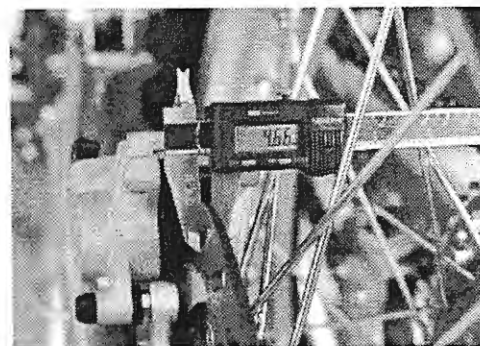


Figure 6.7

## Rear Brake Pad Removal

*Note: The procedure may be accomplished without removing the rear wheel.*

1. Gently place a screwdriver between each brake pad and the rotor. Then using a twisting motion, force each pad away from the rotor. This pushes the caliper pistons back into the caliper and makes room for the new, thicker pads. (Figure 6.4)
2. Remove the spring clip from the brake pad pin located at the top right rear of the brake caliper.
3. Push the brake pad pin toward the wheel using a drift punch and small hammer. Pull the pin from the caliper. (Figure 6.5)
4. Remove the brake pads by hand.

## Rear Brake Pad Installation

1. Place each pad in its proper position and replace the brake pad pin.
2. Set the brake pad pin firmly in place by using a drift punch and a small hammer.
3. Install the spring clip into the brake pad pin.
4. Push the rear brake pedal repeatedly until a firm brake pedal is felt.

## Brake Bleeding (Figure 6.6)

Periodic brake bleeding to remove trapped air in a brake system is good practice. A brake pedal or lever that feels spongy or inconsistent is an indication of air in the brake system. Bleeding is a necessity after replacing a brake line, rebuilding a brake cylinder or master cylinder, and after brake fluid replacement. Brake bleeding is similar for both the front and rear brake systems.

## CAUTION: DO NOT MIX DIFFERENT RATINGS OF BRAKE FLUID.

1. Place an 11 mm box end wrench over the caliper bleed valve in a position where the wrench can be turned in both directions.
2. Slide one end of a clear plastic hose over the bleed valve nipple, and place the other end of the hose into a plastic container.
3. Pour new brake fluid into the plastic container until it reaches a height that is adequate to keep the end of the plastic hose covered.
4. Remove the master cylinder cover. Access to the rear master cylinder requires the removal of the right sidepanel (3-10 mm bolts), and one 10 mm bolt to release the reservoir. Then unscrew the lid. Access the front cover by removing the two screws with a #2 Phillips head screwdriver.
5. Open the caliper bleed valve and slowly operate the master cylinder as you would during braking. Refill the master cylinder as needed, being careful to not let the master cylinder run out of fluid.
6. When air bubbles stop being released into the fluid in the plastic container, close the bleed valve.
7. Use contact cleaner to clean the brake fluid that was expelled onto the caliper, rotor and/or brake pads.



8. When refilling the front reservoir, the fluid level should be topped off. When the lid is replaced the fluid will spill over the edges. Wipe up with a clean cloth. The rear reservoir can be filled to the level indicated on the reservoir.

### Brake Rotor Condition (Figure 6.7)

The brake rotors should be inspected carefully every time the brake pads are replaced. If a rotor is bent, warped, heavily grooved, or beyond its wear limit, it should be replaced. The brake rotor thickness should be checked with a micrometer at least once a year.

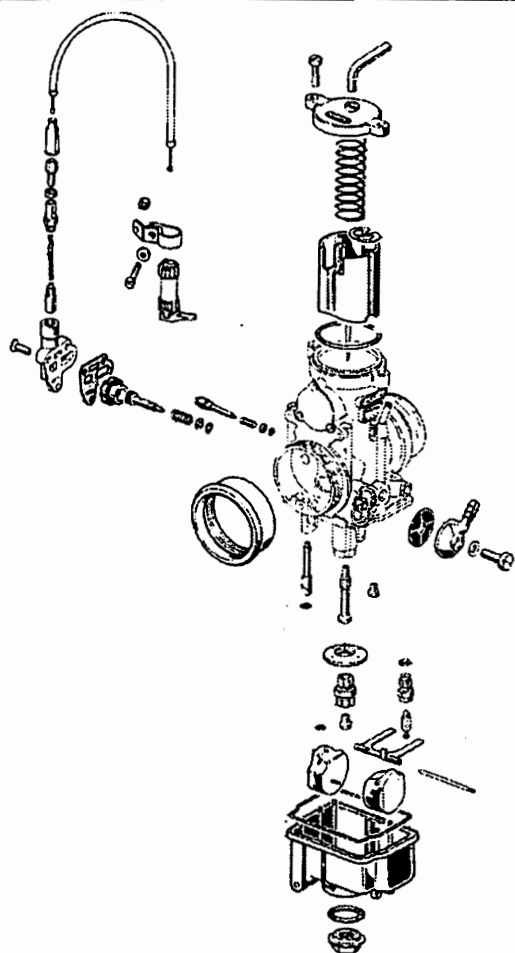
### Brake Rotor Thickness

	New	Service Limit
Front	3.18 mm (0.125 inch)	2.75 mm (0.108 inch)
Rear	4.45 mm (0.175 inch)	4.00 mm (0.157 inch)

### Brake Pad and Rotor Deglazing

Glazed brake pads and rotors can decrease braking performance significantly. If the brakes are performing poorly even though the pads are within serviceable limits, the pads and rotors are probably glazed. Glazed brake pads and rotors result from a too rapid break in of new pads and rotors, or a severe overheating of these parts. A good buffing of the brake rotor with Scotch Brite or similar abrasive should remove the rotor glaze. It may also be necessary to remove the pads and also buff them with a slight abrasive to remove the glaze.





## 605 Carburetor Specifications

Type	Dell'Orto PHM40 MS
Size	40 mm
Main jet	182
Needle	K32
Needle clip position	2
Needle jet	AB262
Fuel bleed screw	1.5 turns out
Idle jet	60
Cold start jet (choke jet)	60
Slide	50-1

## 490 Carburetor Specifications

Type	Dell'Orto PHM38ZS
Size	38 mm
Main jet	165
Needle	K9
Needle clip position	2
Needle jet	AB 262
Fuel bleed screw	2 out
Idle jet	40
Cold start jet (choke jet)	60
Slide	40 - 1

## 350 Carburetor Specifications

Type	Dell'Orto PHBE34
Size	34 mm
Main jet	130
Needle	K32
Needle clip position	1
Needle jet	AB260
Fuel bleed screw	1/2 turn out
Idle jet	52
Cold start jet (choke jet)	70
Slide	40

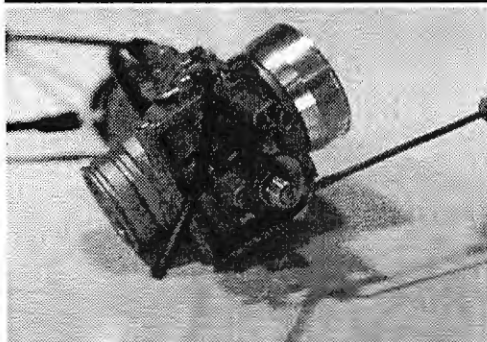


Figure 7.1

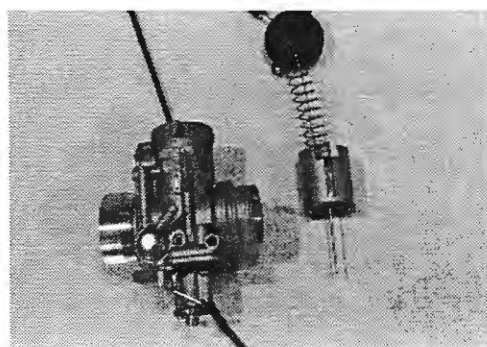


Figure 7.2

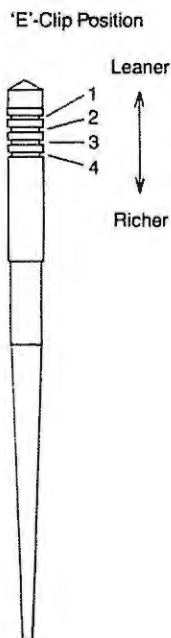


Figure 7.3

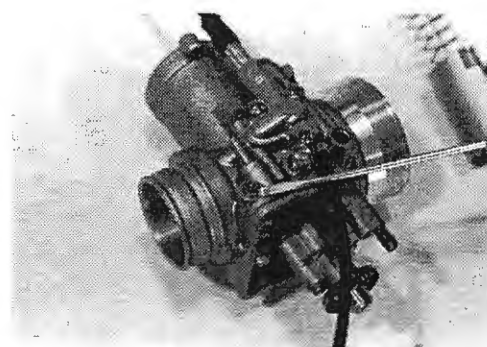


Figure 7.4

## Carburetor Adjustment

Your ATK is carbureted at our Utah factory which has an elevation of 4000 feet. Numerous test sessions at various elevations confirmed that the 605, 490, and 350 perform extremely well at a variety of elevations without need for rejetting. Rejetting may, however, be needed if you ride at extremely low or high elevations, the number of silencer discs have been changed, the camshaft has been changed, or the engine is modified to increase horsepower.

To access the top of the carburetor for changes to the slide, needle, or C-clip position, remove the seat and work on the carburetor from above.

To access the bowl of the carburetor for changes to the idle jet, needle jet, or main jet, loosen the hose clamp holding the carburetor to the rubber hose manifold with a flat blade screwdriver. Next, rotate the bottom of the bowl out.

## Main Jet (Figure 7.1)

If the engine runs too rich or too lean during full throttle operation, change the main jet. To test the main jet jetting, ride the motorcycle between 2/3 throttle and full throttle for a few minutes. Remove the spark plug. If it is a chocolate brown color, the main jet is correct. If the sparkplug electrode is wet and black, the main jet is rich. If the electrode is white and dry, the main jet is lean. If the engine is lean, install progressively higher numbered main jets until the engine runs correctly. If the engine is rich, install progressively smaller numbered main jets until the engine runs correctly at full throttle. To access the main jet, remove the carburetor's float bowl by unscrewing the 21mm nut at its bottom and use a flat head screwdriver. When the 21 mm nut is removed, the float bowl falls off. Be careful to properly place the o-ring when the bowl is replaced.

## Needle (Figure 7.2, 7.3)

The needle is responsible for fine tuning the engine's midrange operation between 1/4 and 3/4 throttle. If the engine is running rich in this range, lower the needle height by moving the C-clip one (1) notch higher on the needle. If a lean midrange condition exists, raise the needle by lowering the clip one (1) notch. To access the needle, remove the screws on the top of the carburetor with a flat head screwdriver and pull the carburetor top and slide from the carburetor body. Compress the slide return spring toward the carburetor top, then push the needle out of the slide. Reinstall the assembly in the reverse order, paying attention to the slide guide slot located on the right side of the slide body. Tighten the carburetor top screws snugly, then turn the throttle full open and let it return to its closed position. An audible click should be heard as the slide returns to its idle position. If not, recheck your work to ensure that the slide is not binding. Do not attempt to start the engine until the slide returns fully to its closed position.

**Note:** It is possible to change the needle number to obtain proper jetting.

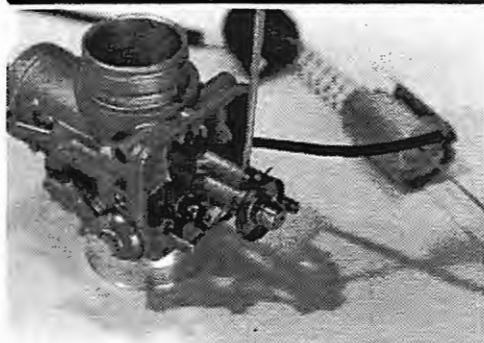


Figure 7.5

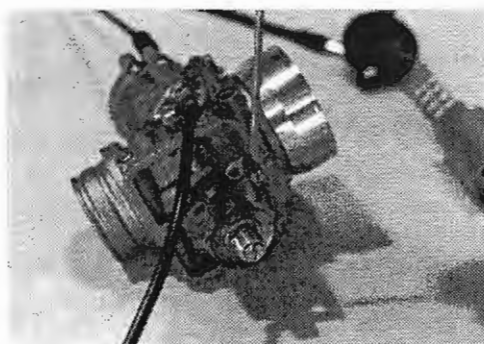


Figure 7.6

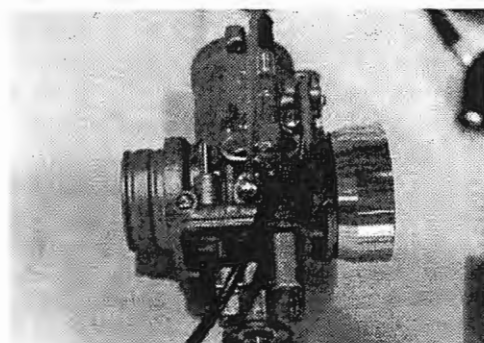


Figure 7.7

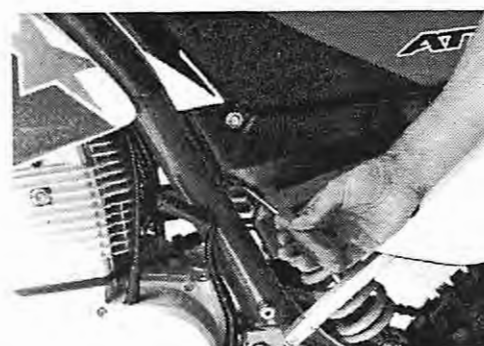


Figure 7.8

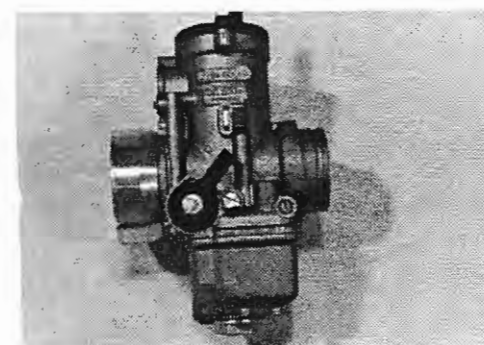


Figure 7.9

## Needle Jet

The needle jet is the long brass jet that the needle slides through. The needle jet size has been carefully chosen to perform well in a variety of conditions and elevations. Should you be unable to adjust the engine's midrange power performance to your satisfaction by adjusting the needle, try a richer or leaner needle jet. The needle jet is located in a cavity under the main jet. After removing the main jet and the fuel-splash pan, remove the needle jet using a medium flat blade screwdriver.

## Fuel Bleed Screw (Figure 7.4)

To set fuel bleed, warm the engine to operating temperature. Adjust engine to a fast idle (about 1500rpm). Adjust the fuel bleed screw until the bike runs best. Then, adjust the idle to normal. If the setting is 0-1/2 turns out, the idle jet is too rich. If the setting is over 2 1/2 turns out, the idle jet is too lean.

## Idle Jet (Figure 7.5)

If the idle mixture can not be adjusted correctly using the bleed adjuster, change the idle jet. When the bleed screw adjuster and idle jet are correctly adjusted and sized, the motorcycle will start easily, run smoothly at low throttle settings, idle at a consistent rpm, and the acceleration from idle into the midrange will be smooth and fluid. If the engine surges when riding at slow speeds and it is difficult to start when it is warm, install a larger numbered idle jet. If the engine runs rough, the exhaust blows black smoke and the engine sounds rich when it is started, install a smaller-numbered idle jet. The fuel bleed screw should be readjusted after changing the idle jet. The idle jet is located just behind the main jet, under the fuel splash pan. Remove the main jet holder using a box end 12 mm wrench and the fuel splash pan for access.

## Cold Start Jet (Choke Jet) (Figure 7.6)

The cold start jet controls the fuel supply when the choke lever is activated. If a richer (larger numbered) jet, or leaner (smaller numbered) jet is desired, remove the float bowl, and locate the cold start jet in the corner of the carburetor body. Remove and replace it with a flathead screwdriver.

## Idle Speed (Figure 7.7, Figure 7.8)

The idle speed adjuster screw is located on the left side of the carburetor (Figure 7.7). The adjuster screw can be reached by using a long-shank flat blade screwdriver through the sidepanel (Figure 7.8). Turning the screw adjuster clockwise increases the idle speed, turning it counterclockwise slows the idle speed. Set the idle speed to your preference.

## Idle Configuration (Figure 7.9)

It is possible that some of the 605 and 490 models are equipped with a carburetor that have the air screw and idle adjust on the right hand side. If the carburetor on your model looks similar to the carburetor in Figure 7.9, the idle and air screw can be adjusted from the right hand side of the motorcycle.



## CARBURETOR

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### Float Level

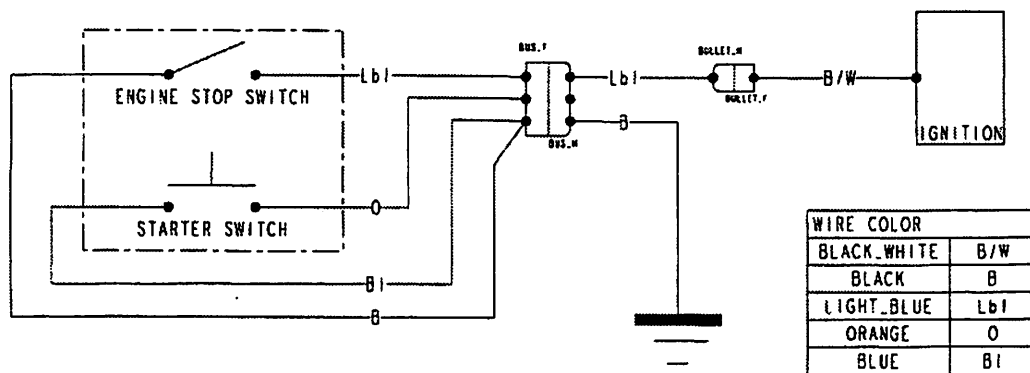
The carburetor float level is preset at the factory but it should be readjusted if the carburetor leaks fuel while the petcock is on, or the general performance indicates a rich running condition at all engine speeds. Follow these steps to set the float level:

1. Turn the fuel petcock to off.
2. Remove the carburetor.
3. Remove the 21 mm nut at the bottom of the float bowl.
4. Remove the float bowl.
5. Invert the carburetor.
6. If the float arms are parallel to the carburetor body where the float bowl seats, the float level is correct. If the float arms are too high or low, bend the float arms until they are parallel.

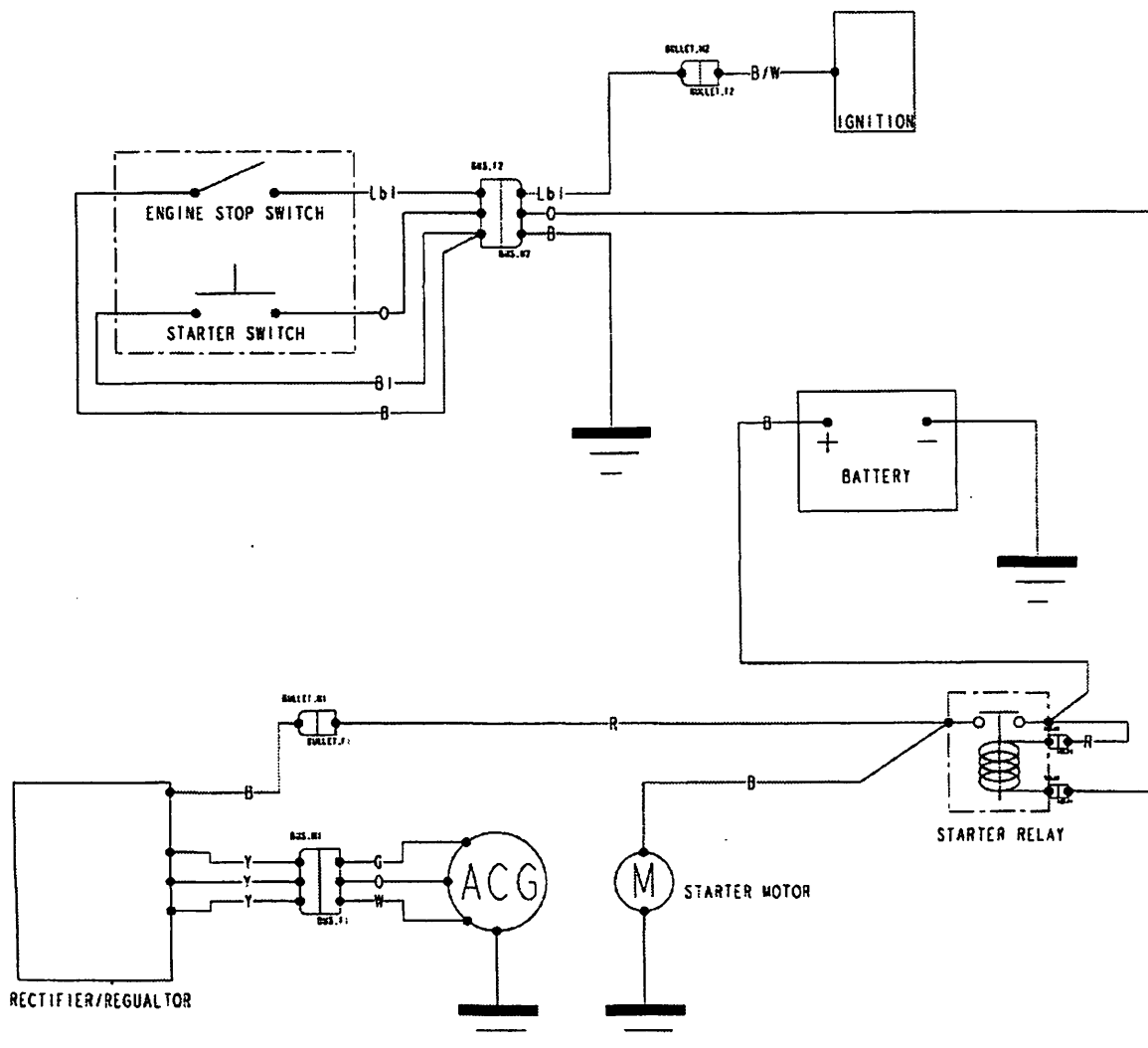
### Float Needle and Seat

The float needle and seat valve regulates the flow of gasoline to the float bowl. A worn needle and seat, or one that is contaminated by foreign objects will cause carburetor flooding and poor engine performance. To check the needle and seat valve, follow the procedure below:

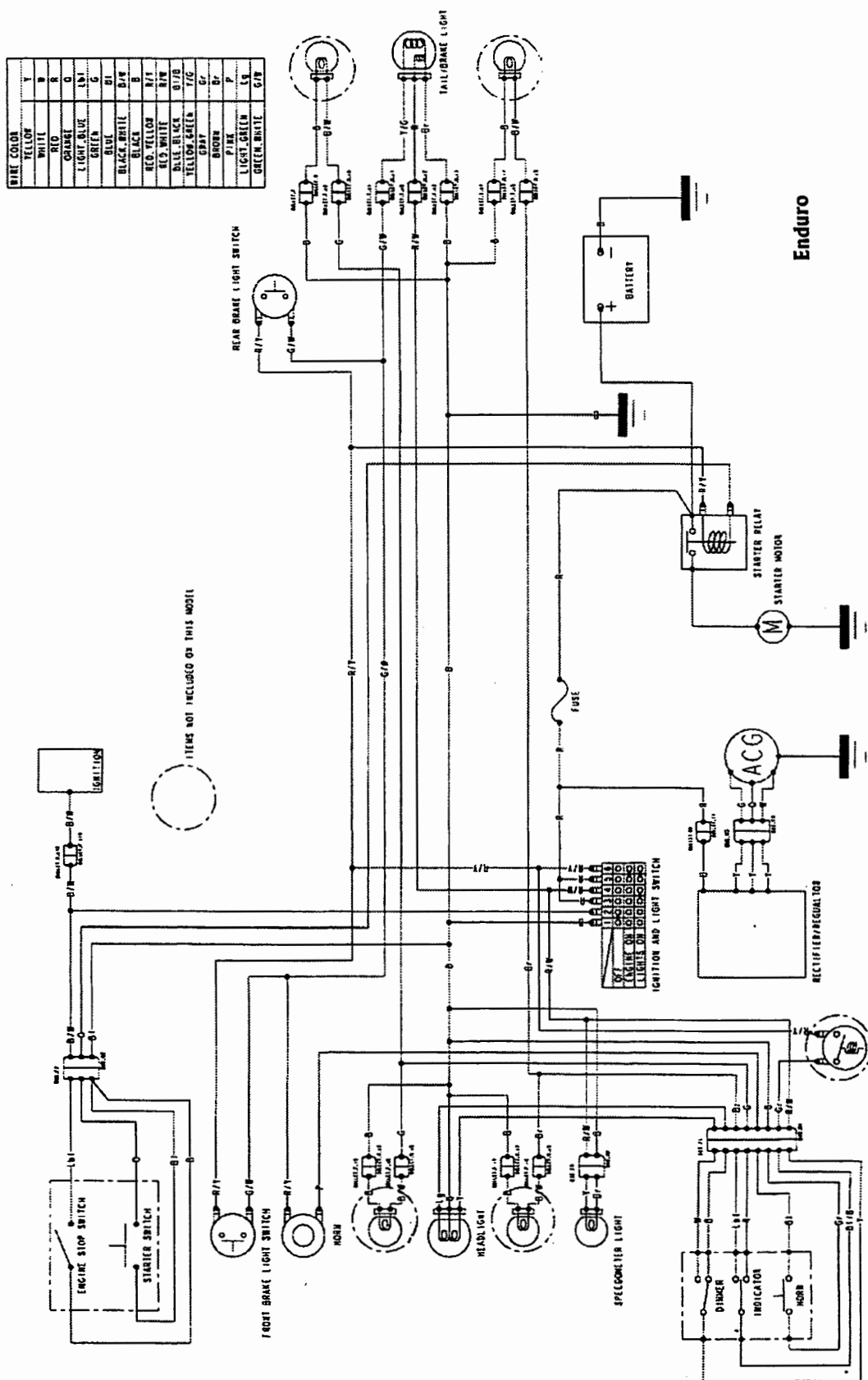
1. Remove the float bowl.
2. Remove the float arm pivot pin using a pair of pliers or dikes.
3. Remove the float arms.
4. The float needle will fall out of the seat when the float arms are removed.
5. Remove the seat using a 9 mm box end wrench.
6. Inspect the needle and seat using a magnifying glass.
7. If the needle's tapered end appears worn or grooved, it and the seat must be replaced (the needle and seat are sold in matched pairs).
8. Inspect the gasket located between the seat and carburetor body, and replace if necessary.
9. Reassemble the unit and set the float level.



Cross Country Kick Start



Cross Country Electric Start





## Washing Your Motorcycle

- It is good practice to thoroughly wash your ATK motorcycle after each ride. An exhaust plug or plastic bag should be placed over the end of the silencer before washing to keep water from entering the exhaust system and engine. Wash the bike using water and liquid dish soap, or if preferred, use a high-pressure washer. Avoid spraying the pressure washer at the steering head and all engine mating surfaces. Use the pressure washer to remove big pieces of dirt and mud. Next spray Simple Green or a similar cleaning product on the motorcycle. This will assist in breaking down the dirt. Let the cleaning solution sit for a few minutes, and then spray off.
- After washing and drying the bike, spray a light coat of WD40 on all of the frame parts where the paint has worn off to prevent rusting. After washing the machine, ride the bike slowly and apply both brakes gently to dry them of condensation.
- Lubricate the chain with WD40 or chain lube to prevent rust.
- A light coat of plastic polish will restore the shine to plastic components and make the bike easier to wash after the next ride.

**CAUTION: Do not use protective conditioners on the seat cover. This will make the seat cover slippery and may cause physical injury.**

- Lubricate the footpeg pivots, shift lever folding tip and kickstarter folding joint with WD40 or a light weight oil.

**CAUTION: Never use a plastic or rubber conditioner on the tires. Doing so makes them look great. It also makes them slippery and may cause physical injury.**

## Motorcycle Storage

If your ATK is going to be stored for an extended period of time, the following preparation should be performed:

- Wash the bike following the procedures outlined above.
- Clean and oil the air filter.
- Change the oil.
- Drain ALL of the fuel from the fuel tank, fuel lines and carburetor.
- Place the motorcycle on a stand that raises both wheels off the ground.
- Put a plastic bag over the end of the silencer to keep foreign objects and moisture from entering.
- Inflate the tires to 20 psi (they will lose pressure while sitting).
- Lubricate all control cables using a cable oiler and appropriate lube.
- Cover the motorcycle with a motorcycle cover.

## Removing a Motorcycle from Storage

If you have properly followed the instructions for storing your motorcycle, you can prepare your motorcycle to ride by following these steps.

- Remove the motorcycle cover.
- Remove the plastic bag from the exhaust silencer.
- If the motorcycle has been stored for more than three months, change the oil.
- Inflate the tires to 14 psi.
- Fill the fuel tank with fresh 90-plus octane unleaded fuel.
- Turn on the fuel petcock and check the fuel lines, carburetor, fuel tank and fuel petcock for leakage. Correct any fuel leakage problems which may occur before proceeding further.
- Start the motorcycle and let it run for a few minutes.
- If the motorcycle has been stored for over one year, drain the brake fluid from both brake systems and replace it with fresh fluid. Bleed the brake systems carefully to remove all of the air.
- Perform the PRE-RIDE INSPECTION CHECK LIST in the **Pre-Ride/ Break In** section.
- Put on protective riding gear(helmet, boots, gloves, pants, jersey, chest protector, and goggles).
- Start the motorcycle and carefully and slowly ride the bike, checking for correct function of brakes, throttle, clutch, shifting, steering and kill button.
- Correct any problems that the test ride may have indicated.
- Go ride.



# ATK 500/600 DTKS/DTES SUPPLEMENT

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THIS INFORMATION IS TO BE USED AS A SUPPLEMENT TO THE ATK 4-STROKE OWNER'S MANUAL FOR OWNERS OF ATK DIRT TRACK MOTORCYCLES, BOTH BUMP START (KS) OR ELECTRIC START (ES) AND 500 OR 600 CC'S. THE INFORMATION PROVIDED IN THIS SUPPLEMENT REPRESENTS ONLY THE INFORMATION THAT IS DIFFERENT FROM THE 4-STROKE OWNER'S MANUAL. PLEASE REFER TO THE 4-STROKE OWNER'S MANUAL FOR ANY INFORMATION THAT IS NOT CONTAINED IN THIS SUPPLEMENT.

## Specifications

Wheelbase	1397 mm (55 inches)
Rake	25°
Trail	92.6 mm (3.65 inches)
Seat Height	889 mm (35 inches)
Weight	
DTES	275 pounds
DTKS	257.5 pounds
Front tire	Goodyear 27.0 x 7.0 - 19
Rear tire	Goodyear 27.5 x 7.5 - 19 (compound - 5)
Tire pressure	20 psi front/rear
Front suspension	
Type	WP ROMA Up Side Down forks
Travel	140 mm (5.5 Inches)
External adjustment	Compression and Rebound
Compression setting	3
Rebound setting	13 clicks from closed
Fork springs	0.70 kg/mm
Oil level	100 mm
Rear suspension	
Type	WP adjustable damper
External adjustment	Compression, Rebound, Spring preload, Shock length (±5 mm)
Compression setting	3
Rebound setting	6
Spring preload	13 mm
Spring	10.0 N/mm
Stock shock length	323±5 mm
Brakes	
Front brake	Brembo Gold Line four piston
Front rotor	320 mm (12.6 inches) stainless steel
Drive ratio	15 - 46
Optional rear sprockets	43, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52
Stock number of links	114

## Controls

Front brake lever position can be adjusted by the screw behind the brake lever.

## Forks

- Rebound adjustment at top of fork legs
- Compression at the bottom on the side of the axle clamps

**Make sure to use the same rebound and compression settings on both legs**

The forks are designed to be able to be raised in the triple clamps up to 25 mm before any interference will occur between the tire and the lower triple clamp. This feature can be utilized extensively to tune the



handling of the DT 500/600. Altering the position of the forks in the triple clamps effectively changes the steering head angle, and thus affecting the handling and high speed stability of the motorcycle. The stock setting for the position of the front forks is 20 mm above the top triple clamp. This is measured from the edge of the anodized outer leg, not from the top of the leg where the rebound adjustment is located. A simple instruction sheet is included to help service the forks.

## **Shock**

- Compression adjustment on top of damper
- Rebound adjustment on the bottom

The shock length is adjustable by means of the adjustable eye on the bottom of the shock. To adjust the eye, the bottom shock bolt needs to be removed from the motorcycle, and the lock nut on the adjustable eye needs to be loosened. The shock length can then be adjusted by rotating the eye. A groove is machined on the threads of the eye to represent the longest safe position of the shock. Do not adjust the shock long enough to show this groove past the lock nut! There is a chance of failure if the shock is adjusted too long!

## **Rear Hub**

- Quick change and reversible

The rear hub is completely reversible except for the hub spacers on each side of the hub. Pay close attention because some DT units have a longer spacer on the right (sprocket) side of the bike. The spacer should be marked, but it may not be.

The button head bolts used to hold the hub together, and used for mounting the disk and sprocket are secured by green Locktite. Nonetheless, these Allen bolts should be checked regularly for tightness, and adjusted and Locktite as necessary. Also, the 17 mm head nuts used to secure the sprocket and disk, are locked with blue Locktite. Just to be secure, it is a good idea to use blue Locktite whenever changing the wheel to secure the nuts. The nuts should be tightened to 50 ft/#. The best tools to use are a T-handle, or a cordless electric impact wrench.

## **Headtube Cups**

The aluminum cups used in the head tube of the DT 500/600 are completely reversible. They utilize a 12 mm offset, thus allowing the wheelbase of the DT to be changed that same amount. This adjustment can be used for wheelbase changes, or if it seems a weight distribution change would help.

The easiest way to change the cups is to simply remove the front end by removing the top triple clamp, and just sliding the front forks/wheel/brake out of the headtube. Make sure to support the rear of the bike with something before this is done. Using a long drift or 1/2" tube and a soft hammer, gently tap the lower cup out of the headtube through the hole in the top cup. Make sure not to loose the small hardened steel pin in the frame that locates the cup. Now, working from the bottom of the headtube, tap out the top cup. Now the cups can be reversed and gently tapped back into place with the soft hammer. Make sure to align the hole in the cup with the pin in the headtube.

## **Tuning the DT 500/600**

The most important thing to remember when doing testing to setup your ATK DT is to write everything down in a log book. It is also very important to make only one change at a time. For instance, it is very difficult to determine whether it was the reversing the headtube cups, or the change in the shock length that affected the handling of the machine. If you have a day at a track where you can do some testing, the best advice is too get you and the machine warmed up, and begin to change one of the adjustments. For example, get warmed up, and then adjust the height of the forks by 3 mm. Do a few laps and see how the machine handles compared to the previous setting in the log book. Write down these comments next to the setting. Next, adjust the front fork height another 3 mm, and do the same test laps. Keep doing this until you have tested the entire range of motion of the adjustment. Then move on to the next adjustment. By the



## ATK 500/600 DTKS/DTES SUPPLEMENT

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end of the day, you will have a well documented notion of how all of the adjustments affect your riding style and the way the DT handles for you. Obviously combinations of all of these adjustments affect the bike in different way also, but you have the rest of your racing career to figure out those combinations. On the first day you just want to determine the outline of the adjustments. Remember that the tire pressure is another variable that can be used to tune the bike. Typical dirt track tire pressures range from 18-22 psi.

This bit of information is just a suggestion to get started. A three volume set could be filled with information on dirt track settings; this info is just a start, we hope it helps.

Also, any comments, questions, or information about a podium finish is always enthusiastically welcome. Call 800 ATK USA4, or better yet, drop us a line at [tech@atkusa.com](mailto:tech@atkusa.com)  
Have fun and ride safe...

ATK Research and Development



## SUSPENSION INFORMATION

### Fork oil rating:

Your new ATK is delivered with premium 5w WP fork oil from the factory. The WP fork is designed and valved to use 5 weight oil, although 7.5w fork oil may be used if a firmer overall ride is desired.

### Fork oil level:

Minimum oil level 6.77 inches (172mm)

Maximum oil level 4.72 inches (120mm)

Stock oil level 5.10 inches (130mm)

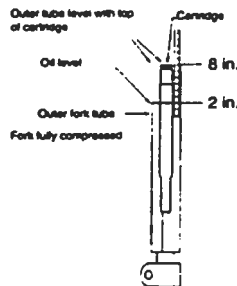
### Effects of oil level:

Raising the fork oil level increases the forks resistance to bottoming and generally makes the fork feel firmer during the last half of its travel. Lowering the oil level softens the overall feel of the suspension.

### 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 fork caps should be loosened a couple of turns (after loosening the top triple clamp's pinch bolts). When setting the fork's oil level, cleanliness is imperative.

- 1) Place the bike on a bike stand or crate that raises the front tire off the ground.
- 2) Loosen the axle pinch bolts on the right fork leg.
- 3) Remove the axle pinch bolts and hydraulic brake hose clamp from the left fork leg.
- 4) Remove the plastic fork guards from both fork legs.
- 5) Remove the front axle and front wheel from the bike.
- 6) Remove the front brake caliper's mounting bolts.
- 7) Remove the front brake caliper from the fork leg. Leave the hydraulic hose attached to the caliper and let the caliper hang.
- 8) Loosen the top triple clamp's pinch bolts.
- 9) Loosen the fork caps a couple of turns.
- 10) Loosen the lower triple clamp's pinch bolts.



- 11) Remove the fork legs from the motorcycle and lean them against a corner of a wall.
- 12) Remove the fork cap from one of the fork legs.
- 13) Push the outer tube down a couple of inches and remove the spring-retainer clips and the plastic spring-preload spacers.
- 14) Slowly remove the fork spring from the fork leg.
- 15) Slowly pull the fork cartridge (the part the fork spring clips fit into) to its full extension, then to its fully bottomed position. Repeat this procedure three times to insure the damper is filled with oil.
- 16) Push the damper cartridge and the outer tube to the bottom of their travel.
- 17) Holding the fork leg perpendicular, insert a narrow steel ruler into the fork between the cartridge tube and the wall of the outer tube, stopping the ruler at its 8-inch mark.
- 18) Carefully remove the ruler and note the oil height on it. Subtracting the oil level mark on the ruler from 8 gives the oil level within the fork.
- 19) If a higher oil level is desired, add a small amount of oil (1 ounce or so), then remeasure the level.
- 20) If a lower oil level is needed, remove a small amount of oil from the fork, then remeasure the level.
- 21) Install the fork spring, spring preload spacers (after checking the spring preload—see Fork spring preload:) and spring retainer clips.

- 22) Replace the fork cap (do not over tighten!).
- 23) Repeat steps 11 through 21 on the second fork leg.
- 24) Install forks onto bike and torque the triple clamp's pinch bolts to 20 foot pounds.
- 25) Install the fork guards, front wheel, caliper, hydraulic brake hose clamp and axle pinch bolts but DO NOT tighten the axle pinch bolts yet.
- 26) Remove the motorcycle from the bike stand or crate. Apply the front brake and push the forks as far into their travel as possible several times to align the fork tubes, then tighten the axle pinch bolts.
- 27) Recheck the tightness of all bolts and the routing of the front brake's hydraulic hose.

### Changing fork oil:

- 1) Follow steps 1 through 14 in the Fork oil level: section.
- 2) Invert the fork over an oil drain pan.
- 3) Compress the fork's outer tube completely.
- 4) Pump the fork cartridge until all of the oil is removed.
- 5) Place the fork vertically on the floor and extend its outer tube and damper cartridge to full extension.
- 6) Pour 16 ounces of a HIGH QUALITY suspension fluid (WP, Bel Ray HVI, Spectro, etc.) 5 weight or its equivalent, into the fork.
- 7) Compress the outer fork tube, then pump the damper cartridge until heavy resistance is noticed, indicating that the damper cartridge is full of oil.



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- 8) Refer to the Setting the fork oil level: chapter and follow steps 16 through 27.

## Fork oil level:

Minimum oil level 3.15 inches (172mm)

Maximum oil level 4.72 inches (120mm)

Stock oil level 3.94 inches (130mm)

## Fork spring preload:

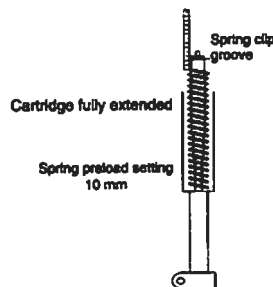
Fork spring preload refers to the distance the fork spring is compressed when it is installed in the fork with the fork fully extended.

## Effects of fork-spring preload:

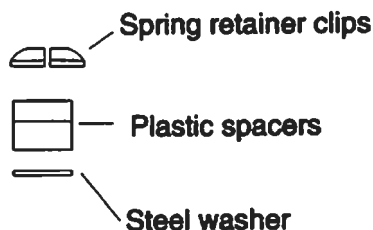
Fork spring preload effects the motorcycle's ride height and the bikes suspension compliance to bumps. Increasing the spring preload raises the front of the bike and makes the fork feel stiffer. Decreasing the spring preload softens the fork and lowers the ride height. Fork spring preload between 5mm and 20mm is acceptable, but our testing has determined 10mm of preload to be ideal for most situations. The factory-set spring preload on all models of ATK motorcycles is 10mm. Note: The fork spring preload should be same for both forks.

## Setting the fork spring preload:

- 1) Follow steps 1 through 13 in the section titled Setting the fork oil level:



- 2) Holding the damper cartridge fully extended, measure the distance from the bottom spring clip groove on the damper cartridge to the top of the spring. Record that measurement on a note book.




- 3) Add the amount of fork spring preload desired to the figure derived in 2 above to determine the length of preload spacer that is needed.

**NOTE:** Spring preload spacers are available from ATK dealers or White Bros. Or they can be made cheaply by cutting measured lengths of Schedule 40 PVC sprinkler pipe. A tubing cutter makes nice square cuts. If making your own preload spacers, always debur the inside and outside ends of the plastic pipe, then wash the finished product to get rid of chips that could foul the damper shims.

- 4) Follow steps 22 through 27 in the Setting the fork oil: section of this manual.





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