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WEED EATER

SERVICE UPDATE

Poulan PRO

SB#GB060630-1

To: All Service Facilities and Distributors

Subject: Stratified Air Scavenged (SAS) Chainsaws

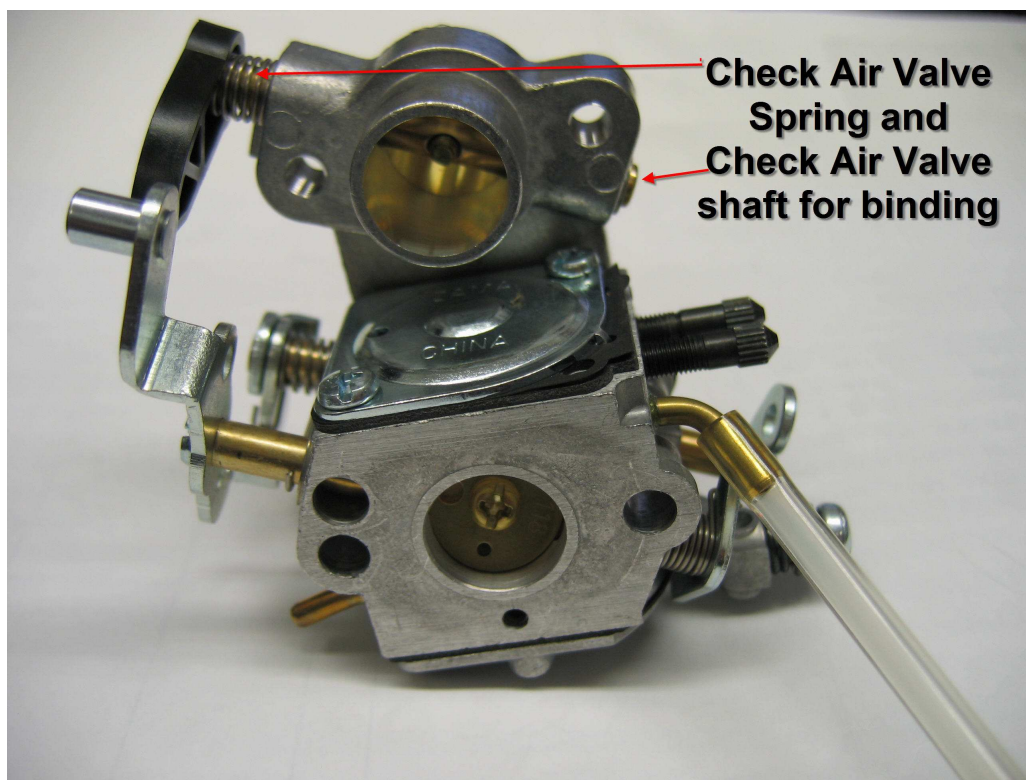
June 30/2006

Models Affected: Poulan P3314, P3416, P3818AV, P4018

Poulan Pro PP3516, PP3816, PP3816AV, PP4018, PP4218, PPB3416, PPB4018, PPB4218

If you are not familiar with these new Chain Saws, please see the notes that were sent out in the 2005 Service Update on the second page of this update

It has come to my attention from calls from our servicing dealers that there have been some failures of the return spring mechanism on the air valve shutter. This causes hard or non starting symptoms or a no idle condition. If you have a saw with this situation, please replace the carburetor assembly (part # 545-070601).



POULAN/POULAN PRO “SAS” SERIES OF CHAIN SAWS

Poulan is pleased to announce the next generation of “clean” saws. They will incorporate the Stratified Air Scavenged (SAS) induction technology for reduced hydrocarbon emissions. This technology (see below for an explanation of how it functions) will incorporate a new 2 barrel carburetor, specialized transfer port dividers, all on a brand new cylinder design. It will be sold in 33cc to 42 cc models and will feature an onboard chain brake mounted on the chassis, a pro style outboard spur sprocket/clutch arrangement, an all new oil pump arrangement and on select models a new easy start recoil assembly.

Stratified Air Scavenged Engines (SAS)

These two-stroke engines (also called air heads) uses air to purge the combustion chamber and reduce raw HC emissions without sacrificing power. The basic design is similar to a third port (piston port) engine with a slightly more complicated intake system. The intake is divided roughly into 2/3 carbureted fuel/air and 1/3 fresh air by a two-barrel carburetor. The fuel/air is fed into the crankcase through a piston ported opening as in a standard 3rd port engine. The main difference comes from the air side delivery. The air ports are connected via a piston channel to the tops of the transfer ducts. The transfer ducts are filled from top-down with the fresh air, while the crankcase retains the rich fuel-air mixture. The piston has a pair of channels in the skirt to connect the cylinder port and the transfer ducts. This piston channel is timed to open the connective passage much like a standard 3rd ported intake. When the air port is opened the crankcase vacuum draws the air into the transfer ducts while the crankcase is filling with fuel. Once this process is finished the piston starts its downward travel, and the downward movement of the piston opens the transfer ports allowing the fresh air to scavenge the combustion chamber. The rich fuel delivery then will enter the combustion chamber only after the air has been allowed to exit the transfer ducts. This separation of fuel rich and fresh air can be describe as "stratified" much like the earth's atmosphere has different layers of air. The advantage of an air-head over the former Low Emission 2strokes is performance. Air-heads tend to have improved low end torque, power and run cooler. This is primarily due to an unrestricted exhaust system and increased intake size for better delivery.

SAS Engine Diagnostics

All normal 2-stroke diagnostics apply with the following new items...

Engine will not start or is hard to start

Check for stuck carburetor air valve. The engine can't be "choked" if the air valve is stuck open, or if the throttle is held open during starting (throw starting). The air valve should be fully closed at idle and fast idle settings. **Please note: the throttle must be in the closed position to start**, so therefore this unit cannot be dropped or throw started (at least, not as the normal method, that is with the throttle in the open position)

Engine Misses While Under Load

Wide open throttle RPM is not a good indicator for rich-lean carburetor adjustment. The proper high speed Carburetor mixture can NOT be achieved by setting to a WOT rpm. The best technique is to set for just-clean while in a cut or under load.

Engine Surges or Runs Unevenly

The idle speed screw could be turned in too far. This will cause the carburetor to start feeding off the high speed nozzle due to the small venturi size on air-heads which will results in over-rich idle. Reset the low speed fuel mixture needle and back off the idle speed screw setting.

Increased carburetor adaptor complexity has a greater likelihood of air leaks or misassembled o-ring seals. Check for air leaks around the carburetor adaptor sealing faces.

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