

What's New?

Carburetor Settings

Over the past several years carburetors have been refined to enhance engine performance. We have seen mid-range circuitry added to make the engine accelerate and run at the proper A/F (air/fuel) ratios at part throttle, accelerator pumps for quick throttle responses, and most of all a switch from adjustable to non-adjustable and back to adjustable carbs. All of these changes -- especially the return to adjustment screws -- has enhanced the performance of the engines.

With the refining of these tiny atomizers, there has also been quite a change in the adjustment screws themselves. Take a look at the thread design on some of these screws and you will see a much finer pattern than in days past. This means that we can tune the HI and LO settings much closer to make the engine run at the optimum A/F ratio for better performance.

On the new 4-MIX® machines the old basic settings of 1 and 1, which may not have been the optimum but would get the engine running, aren't even close. Listed below are the recommended settings for these units that will 'fine tune' the engine to the optimal A/F ratio.

FS 90, FC 90, FC 95, KM 90:

H = 3 ½ turns L = 1 ¼ turns (C1Q-S110)

FS 100, FS 110, HL 100, HT 100, HT 101, KM 110, FC 100:

H = 2 turns L = 3 turns (C1Q-S72, S81, S88)

H = 3 ½ turns L = 1 ¼ turns (C1Q-S110)

FS 130:

H = 4 turns L = 2 ½ turns (C1Q-S98)

BR 500, BR 550, BR 600:

H = 3 ½ turns L = 2 turns (BR 500 C1Q-S99, BR 550 C1Q-S101,
BR 600 C1Q-S100)

Source: STIHL Specification Chart for Current Carburetor Settings and Adjustments

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Tech Service Tips

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How to... 4-Mix® Cam Timing Check

Verifying that the cam timing is correct on the STIHL 4-MIX® engine is a simple procedure. If the cam timing is off just one tooth, the unit may run but will likely be sluggish during acceleration from idle, or the high speed RPM may be reduced. If it is off more than one tooth, the unit will probably not start at all.

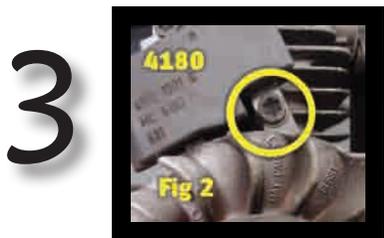
As with any diagnosis, using the STIHL Engine Check presented and used in the STIHL Service Advantage training is the best way to check all operating systems and the following procedure may be used in conjunction with that check.

Note: This procedure will not show accurate results if the flywheel key is already sheared. This procedure may also be used to verify a sheared flywheel key.

Cam Timing Quick Check Procedure

1 Remove spark plug. On the 4180 series 4-MIX® shafted units; remove the cylinder shroud. For the 4282 series 4-MIX® backpack blowers, remove the air filter cover and filter, starter assembly and cylinder shroud.

2 Remove the valve cover retaining screw and cover as pictured in Figure 1.



Rotate the flywheel until the engine reaches TDC (Top Dead Center) on the **compression** stroke. When TDC is found on the 4180 series engine, the arrow cast into the flywheel will point directly at the lower, right-hand mounting screw of the ignition module as shown in Figure 2. For the 4282 series blower engine, refer to Figure 3 for TDC.

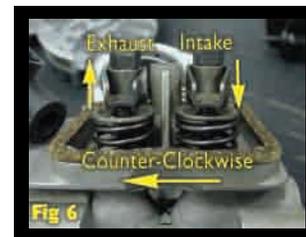
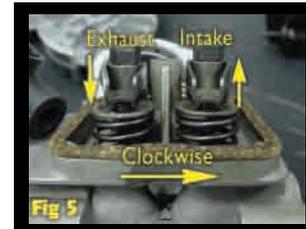


4 Check the intake and exhaust valve clearance with Setting Gauge 4180 893 6400 as shown in Figure 4. The proper setting is 0.1mm or 0.004”.



5 Now rotate the flywheel one complete revolution to reach TDC on the **exhaust** stroke. The flywheel should once again be positioned just as shown in figures 2 and 3. Both valves are now slightly open as this is the “valve overlap” position where the exhaust valve has not quite closed completely and the intake valve is beginning to open helping to “scavenge” the combustion chamber.

6 While carefully watching both rocker arms/valves, rotate the flywheel back and forth approximately one inch past the TDC marks. On the 4180 series engine, if the cam timing is correct, as you move the flywheel clockwise one inch you should see the intake valve on the right continue to close and the exhaust valve on the left will continue to open as shown in Figure 5. Rotating the flywheel counter-clockwise will have the opposite effect, the exhaust valve will continue to close and the intake valve will continue to open as shown in Figure 6. Repeat this procedure several times.



Note that the valves are on opposite sides on the 4282 series blower engine, but the same procedure may be used to verify correct cam timing.

7 If you see equal movement of the rocker arms/valves while rotating the flywheel back and forth in this procedure, you can be confident the cam timing is correct and you may proceed with any other repairs. If the unit fails this procedure, you must reset the cam timing before moving on to other repairs or diagnostics.

For more detailed information, refer to the STIHL 4180 Service Manual (English version: 0455 933 0123; Spanish version: 0455 933 0323); the 4282 Service Manual (English: 0455 0452 0123; Spanish 0455 452 0323) and Technical Information Bulletins 01.2002 and 08.2005.

...this and that... Spark Plugs

All Spark Plugs Gapped at .020”

009 L thru MS 880 FS 45 thru FS 55 FS 75 thru FS 85 FS 120 thru FS 550 FC 55 thru FC 85 KM 55 thru KM 85 HT 70 thru HT 75 HT 250 HL 45 thru HL 75	HS 45 thru HS 85 MM 55 KW 85 TS 400 thru TS 800 BT 45 thru BT 121 BG 55 thru BG 85 SH 55 thru SH 85 BR 340 thru BR 420 SR 420	Bosch WSR6F 1110 400 7005 or NGK BPMR7A (not available from CDC•BME)
MS 200 thru MS 200 T	Bosch WSR6F	1110 400 7005
FS 90 thru FS 110 FC 90 thru FC 110 HL 90 thru HL 100 HT 100 thru HT 101 KM 90 thru KM 110 HS 81 thru HS 86	Bosch USR7AC	0000 400 7009
BR 500 thru BR 600 FS 130 HT 130 thru HT 131	NGK CMR6H	0000 400 7011