

CP514-350i, C514-350, CP512-300i, and CP512-300 High Speed Saw Trouble Shooting Guide

Date – January, 19th 2015

Always start with the basics: Air, Fuel, Spark, and Compression when trouble shooting any High Speed Saw. Verify the following first:

1. Air:

- Air Filter is clean, undamaged, and in good working order
- Check for loose or missing air system components
- Clogged or dirty Spark Arrestor
- Muffler filled with water or other materials

2. Fuel:

All Models:

- Fuel Tank is full
- Fuel is NEW. If in doubt replace the fuel.
- Fuel is a gasoline is NEW 89 Octane or higher with an ethanol content of 10% (E10) or lower. Use of fuels with an Octane rating lower than 89 will cause ANY 2-cycle engine to run lean and over heat which will lead to engine failure. Use of fuels with an Octane rating higher than 10% (E10) will cause ANY 2-cycle engine to run lean and over heat which will lead to engine failure.
- Fuel is reaching the combustion cylinder
- Clogged Fuel Filter
- Damage fuel hose
- Carburetor
 - Contamination or clogging due to bad/old fuel or fuel additives
 - Carburetor out of adjustment
 - Loose or damaged Impulse Tube

Standard Models CP514-350 and CP512-300

- Fuel is properly mixed at a 50:1 gasoline to 2-cycle oil mixture
- 2-Cycle Oil must meet the following
 - Air Cooled 2-cycle engine oil
 - Meets or exceeds one of the following specifications
 - JASCO
 - ISO-L-EGD
 - API-TC

Never use boat oils or snow mobile oils in ANY air cooled engine, as these oils will break down at the higher temperatures and will lead to engine lubrication failures.

Standard Models CP514-350i and CP512-300i

- Oil tank if filled
- Oil strainer is not clogged
- Oil strainer below oil level
- 2-Cycle Oil must meet the following
 - Air Cooled 2-cycle engine oil
 - Meets or exceeds one of the following specifications
 - JASCO
 - ISO-L-EGD
 - API-TC

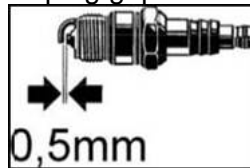
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3. Spark:

- Ignition Switch in the OFF "O" position
- Verify ignition with a Spark Tester
- Spark Plug
 - Loose Spark Plug Boot
 - Bad Spark Plug
 - Correct Spark Plug
 - Recommended Spark Plugs: NOTE: Gap is 0.02" (0.5mm)
 - BOSCH WSR6F
 - CHAMPION RCJ-6Y
 - NGK BPMR7A
 - Correct Spark plug gap of 0.020" (0.5mm)



- Ignition Coil
 - Coil to Flywheel air gap: 0.020" (0.5mm)
 - Damaged Coil Pickups
 - Damaged Spark Plug Wire or Ignition Wire
 - Loose wiring

4. Compression:

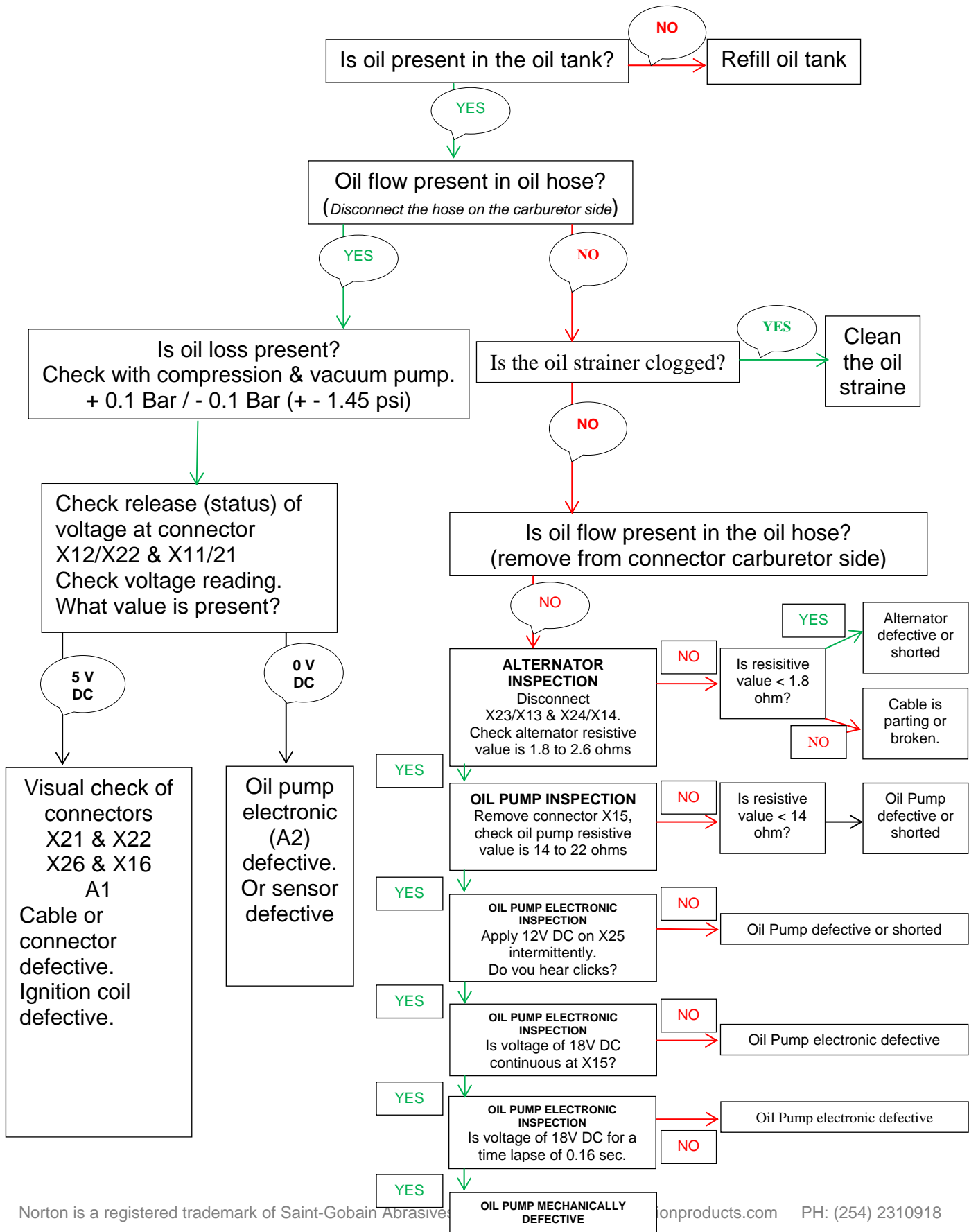
- Check compression with a compression gauge. (123.28 to 129.08 psi @ 14.7 ATM psi)

In addition to the engine basics check the following:

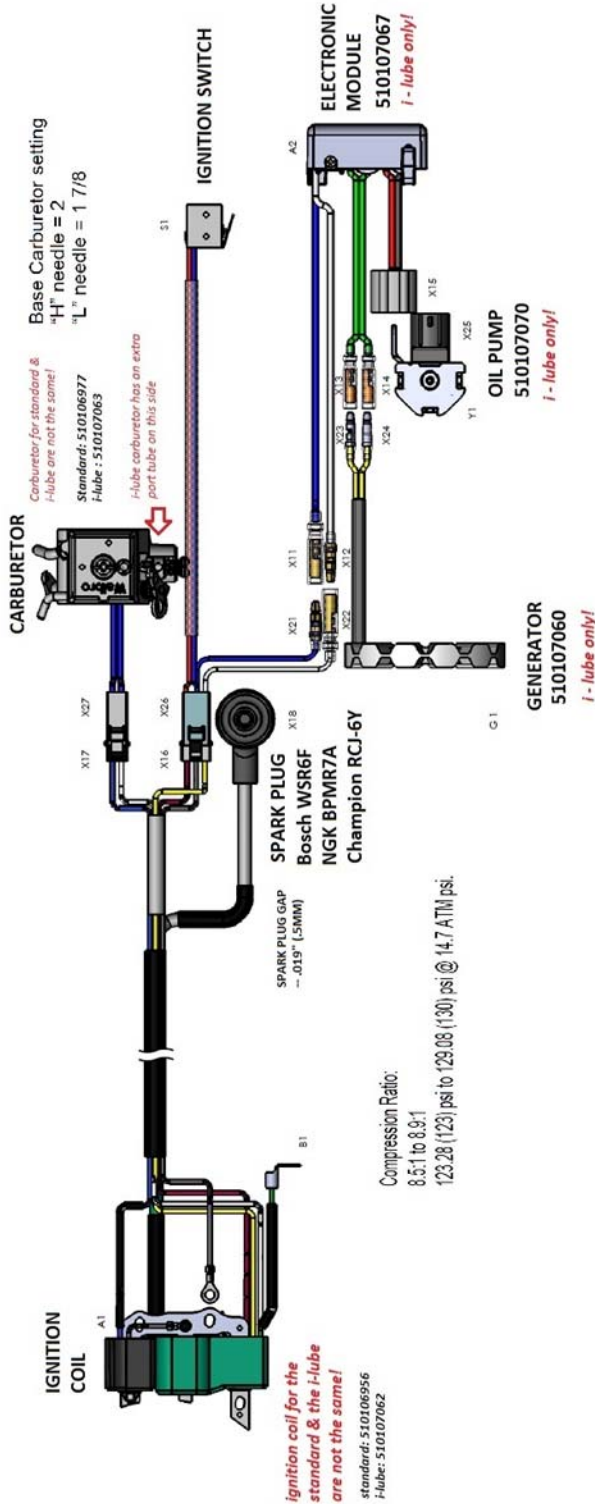
- Any physical damage or missing components
- Starter Rope or Spring for correct operation
- Clutch for damage
- Loose blade drive Belt

SYMPTOM	INSPECTION
WILL NOT START (NO FUEL)	<ul style="list-style-type: none"> • Check ignition dial is rotated to "I" position. • Check fuel level in tank. • Make sure fuel is fresh and does not smell like varnish. (Possibly flooded) Hold trigger and pull recoil rope. • Pour fresh fuel directly in carburetor and restart. No start check spark. • Check compression with gauge. (123.28 to 129.08 psi @ 14.7 ATM psi).
WILL NOT START (NO SPARK)	<ul style="list-style-type: none"> • Check ignition dial is rotated to "I" position. • Check for spark using a spark tester or grounding plug on cylinder. • Check coil for rust and excessive dust build up. Clean coil and flywheel. • Check gap between coil and flywheel magnet. (.012"). • Check flywheel for magnetic attraction. • Check wiring to spark plug for breaks or burned spots. • Check continuity of ignition switch at dial. • Replace coil.

HARD STARTING	<ul style="list-style-type: none"> • Dump fuel and replace with fresh fuel with no additives. Stale fuel and some ethanol additives will cause issues with carburetor flow and the fuel filter inside the fuel tank. Two-stroke mix in the i-lube can clog the fuel filter inside the tank. When replacing the fuel tank filter make sure the filter rests on the bottom of the tank. Stale fuel may require pouring fuel directly into the carburetor intake to clear the stale fuel from the hoses. • Clean the primer vent and hose and check vent valve for suction, • Damaged or stuck Clutch. • Adjust carburetor “L” setting out (CCW) $\frac{1}{8}$ to $\frac{1}{4}$ turn. • Verify that the Decompression Valve is functioning correctly.
STARTS THEN STALLS	<ul style="list-style-type: none"> • Remove air cleaner and start. If saw starts easily replace air cleaner. • Check spark arrestor screen on muffler. Carbon build-up on screen will cause the engine to sputter when starting. Too much two stroke oil in gas will cause excessive carbon build-up on the muffler spark arrestor screen. • Check spark plug. Replace if carbon build up on electrode or worn electrode • Damage or stuck Clutch.
FROM FULL THROTTLE ENGINE STALLS	<ul style="list-style-type: none"> • Remove the air cleaner and throttle up and release. If no stall replace air cleaner. • Adjust carburetor “H” setting in $\frac{1}{8}$ to $\frac{1}{4}$ turn.
ENGINE SMOKES EXCESSIVELY	<ul style="list-style-type: none"> • Standard Models - CP514-350 and CP512-300: Make sure gas is mixed properly at a 50:1 gasoline fuel mixture. • iLube Models – CP514-350i and CP512-300i: Make sure only straight gas is used in the i-lube saw. Replace fuel with clean new gasoline with an Octane rating of 89 or higher with an Ethanol content of 10% (E10) or less. • Adjust the carburetor “H” setting. Factory setting is 2 turns out for “H” setting and 1-7/8 turns out for “L” setting.
RECOIL WILL NOT REWIND	<ul style="list-style-type: none"> • Remove the recoil housing and check spring knuckle. If spring knuckle okay, remove cassette and clean housing and spring. The recoil housing requires standard maintenance to keep parts moving freely. A simple cleaning every 40 hours will prevent spring from “sticking” as a result of dust build-up inside the spring cassette. Dry lubricants will reduce oxidation on spring.
NO POWER	<ul style="list-style-type: none"> • Remove air cleaner and start. If saw starts easily and reaches full throttle replace air cleaner. • Check spark plug. Replace if carbon build up on electrode or worn electrode. • Adjust Carburetor “H” setting requires adjustment. • Using low Octane fuel. Replace fuel with clean new gasoline with an Octane rating of 89 or higher with an Ethanol content of 10% (E10) or less.
ENGINE REVS BUT BLADE STOPS WHILE CUTTING	<ul style="list-style-type: none"> • Check belt for burn or stretching. If belt is in good condition, adjust belt tensioning so that blade and engine slow at the same time. • Not running machine at full speed.
BLADE TURNS DURING PULL START	<ul style="list-style-type: none"> • Check clutch for excessive build-up of dust. Remove cover and clean clutch housing, springs and shoes. It is a sensible practice to blow off saw with dry air to minimize the collection of dust that collects on the interior components. Simple routine maintenance every 40 hours prevents excessive dust collection in the clutch housing so that parts move freely during operation. Alternating between dry and wet cutting will cause dust to collect moisture and harden. Using clean air instead of water to remove the dust build-up will provide longer tool life. • Check belt for burn or stretching. If belt is in good condition, adjust belt tensioning so that blade and engine slow at the same time. • Increase Belt tension if Belt if it is in good condition.
ENGINE WILL ONLY IDLE	<ul style="list-style-type: none"> • The i-lube saw is equipped with an oil flow sensor that prevents the engine from accelerating when the sensor does not detect oil flow. Filling the i-lube oil tank with good quality two-stroke oil will eliminate the acceleration issue resulting from no flow at the oil sensor. • Clogged Air Filter. Replace Air Filter.
SLOW ACCELERATION	<ul style="list-style-type: none"> • Check air filter and replace if dirty. • Replace fuel with clean new gasoline with an Octane rating of 89 or higher with an Ethanol content of 10% (E10) or less. • Carburetor “L” requires adjustment, $\frac{1}{8}$ to $\frac{1}{4}$ turn in (CW).



HIGH SPEED SAWS CP 512 & CP 514 - CP512 i & CP 514 i SHOP REFERENCE SHEET



CARBURETOR ALTITUDE ADJUSTMENT CHART

altitude over sea level	ambient air pressure [mbar]	ambient temperature		rel. Air humidity [%]	H-Needle setting	
		[°C]	[°F]		[turns]	direction
0	1013	20	68	40	0	CW
500	955	20	68	40	3/16	CW
1000	899	20	68	40	6/16	CW
1500	846	20	68	40	9/16	CW
2000	795	20	68	40	11/16	CW
2500	747	20	68	40	14/16	CW
3000	701	20	68	40	1	CW

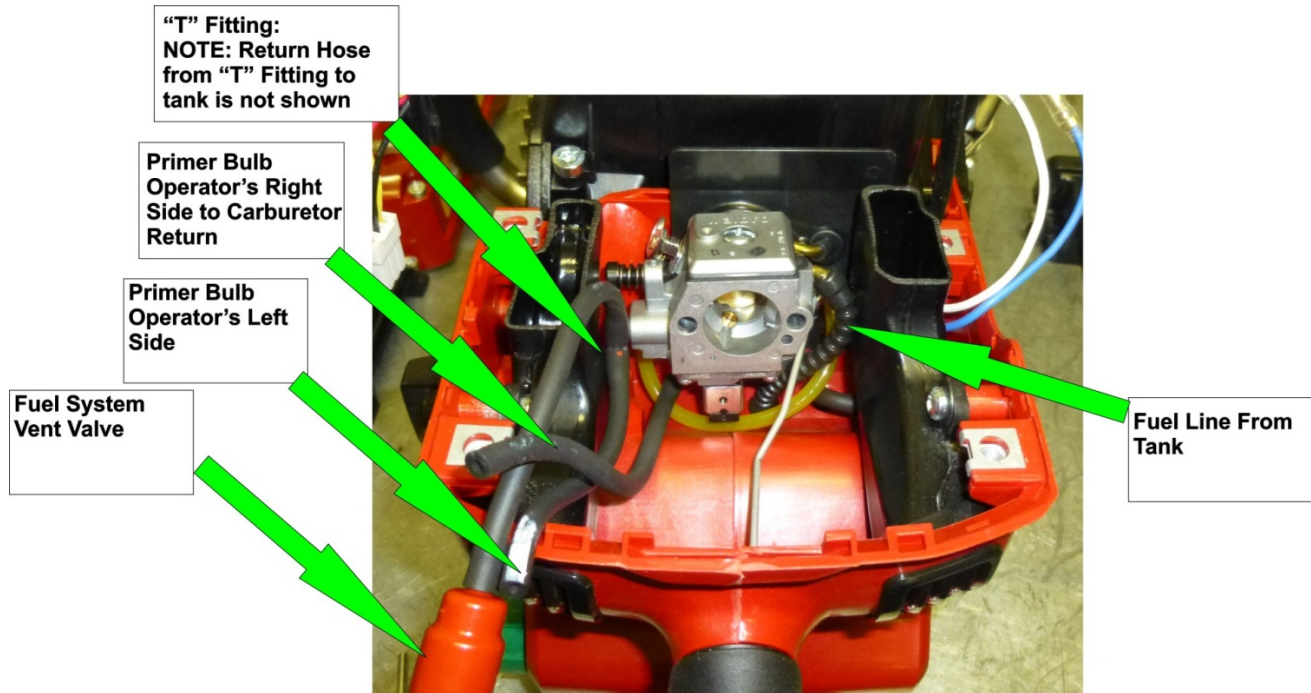
The values for the "H" needle setting are relative from the sea level orientation.



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**Check for air leaks in the hose system (cracks, slits, cuts, pin holes etc.) Be sure the oil hose is connected securely on the carburetor connector. The system works under low pressure - air in the system will be visible in the hoses if cuts in hoses are present.*



Walbro Carburetor Tool:

The Walbro Carburetor "L" and "H" settings requires a Single "D" taper proof screw driver. This tool is available from online vendors as a "Homelite Part 308535001".



Carburetor adjustment tool (Single "D")

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