



CHAINSAW MAINTENANCE AND FIELD OPERATIONS

Kentucky Baptist Disaster Relief Training Guide



With this guide, you will be equipped with the knowledge and skills needed to:

- Maintain chainsaws safely and effectively in the field.
- Reduce downtime and prevent equipment damage.
- Improve cutting efficiency and operator safety.

SAFETY FIRST. Before beginning any maintenance, you must ALWAYS:



1. Shut off the engine.
2. Engage the chain brake.
3. Disconnect the spark plug boot.
4. Allow the saw to cool completely.
5. Wear gloves (cut resistant preferred).
6. Work on a stable surface.



NEVER
ATTEMPT MAINTENANCE ON
A HOT OR RUNNING SAW!

DAILY ROUTINE AND MAINTENANCE CHECKLIST



AIR FILTER

- Inspect daily or after a few tanks of fuel.
- Remove cover and filter.
- Tap gently to remove dust.
- If oily or packed:
 - Wash with warm soapy water.
 - Rinse and dry completely before reinstalling.
- Replace if torn or excessively dirty.

Replacement interval: Annually for average use.



A dirty air filter causes reduced power, high fuel consumption, and hard starting.



SPARK PLUG

Inspect for:

- Improper gap.
- Carbon fouling.
- Oil residue.
- Cracked insulator or worn electrodes.

Typical Stihl Specs:

Standard gap: 0.020" (0.5mm)
Some models (e.g. MS250): 0.040"
Common replacement plug:

BPMR7A

Use a feeler gap to set proper gap.



Check the spark plug if the saw is hard to start or runs rough or poorly.



BAR, CHAIN AND GUIDE BAR

GUIDE BAR

Inspect for:

- Uneven rails.
- Burrs along edges.
- Clogged oil holes.

Flipping the Bar:

- Stihl recommends flipping every 20-25 hours of use.
- **Disaster Relief best practice:** flip every chain change.

Replacement:

- After 4-6 chains
- If the groove is worn too shallow
- **Typical life span:** 1-5 years, depending on use.

CHAIN INSPECTION AND TENSION

Inspect chain for:

- Dull or chipped cutters.
- Proper direction.
- Correct lubrication.
- Correct tension.

Tension Rule:

- Chain should sit snug on the bar.
- No sag under the bar.
- Drive links may lift.
- Drive links may lift slightly but must not fully disengage.

SHARPENING THE CHAIN (FIELD METHOD):

When to Sharpen:

- When wood chips turn into sawdust
- After every 1-3 tanks of fuel
- Roughly every 30 minutes to a few hours of cutting

Tools Needed:

- Round file (correct diameter)
- File guide
- Flat file
- Depth gauge tool

Sharpening Steps:

1. Engage chain brake.
2. File each cutter at proper angle (typically 25° - 30°).
3. File from inside toward the cutter tip.
4. Count strokes (3-5) to keep cutters even.
5. Every 2-3 sharpenings, check depth gauge (rakers).

Most chains can be sharpened 10+ times before replacement.



A sharp chain produces long, thin chips, not dust.



DRIVE SPROCKET INSPECTION

- Inspect using the proper gauge.
- Replace if:
 - Grooved
 - Sharp-edged
 - Uneven wear
- Rule of thumb: replace after 2-3 chains.
- **Replace if wear depth reaches 0.5 mm.**
 - Stihl recommends flipping every 20-25 hours of use.
 - **Disaster Relief best practice:** flip every chain change.
- Inspect sprocket bearing:
 - Needle of bronze bushing type.
 - Lubricate or replace as needed.



FUEL, OIL AND FILTERS

FUEL

- Mix ratio: 50:1
- Use 93 octane
- Ethanol fuel acceptable
- Prefer 90 octane ethanol free if available
- Use quality 2-cycle oil
- Recommended additive: Sea Foam (2 oz per gallon)
- **Field best practice:**
 - Use fresh fuel when possible
 - Discard old fuel after 30-45 days in high use field conditions

BAR OIL

- Always use quality bar and chain oil
- Keep topped off at all times.
- **Check oiling by running saw briefly:**
 - Aim bar tip at stump or ground.
 - Look for oil spray pattern.
- **Oil flow adjustment:**
 - Most Stihl saws have an adjustment screw underneath.
 - Clean debris to access screw.
 - Turn arrow indicators:
 - More oil for larger bars.
 - Less oil for smaller bars.

FUEL AND OIL FILTERS

- All Stihl gas saws have fuel and oil filters inside tanks.
- **Best Practices:**
 - Brush debris away from filler ports before opening.
 - Remove, inspect and clean filters.
 - Replace when clogged or damaged.



FUEL FILTER IS MORE CRITICAL THAN OIL FILTER



DAILY SAFETY CHECKS

BEFORE EACH WORK SESSION:

- ☐ Chain brake engages instantly.
- ☐ Throttle lockout functions.
- ☐ Stop switch works.
- ☐ Anti-vibration mounts intact.
- ☐ Chain catcher installed.

END OF DAY SHUTDOWN & STORAGE

- ☐ Brush or blow off saw exterior.
- ☐ Clean clutch and sprocket area.
- ☐ Check chain tension as saw cools.
- ☐ Relieve tank pressure in high heat.
- ☐ Store in a dry, shaded location.



PROPER CHAIN TENSIONING

STANDARD TENSIONER

1. Engage chain brake.
2. Loosen side cover.
3. Lift bar tip.
4. Turn tension screw clockwise until snug, no snag.
5. Tighten side cover.
6. Release chain brake.
7. Rotate chain by hand - must move freely.

QUICK TENSIONING SYSTEM (QTS)

1. Flip wing nut.
2. Loosen.
3. Turn adjustment dial forward.
4. Hold bar tip up.
5. Tighten and rotate by hand.



COOLING SYSTEM & STARTER HOUSING

- Remove recoil starter housing every 10-20 hours.
- Clean out chips and sawdust.
- Blocked cooling causes overheating, contributes to hard restarting, and shortens engine life.



SEASONAL SETTINGS

WINTER MODE



Marked with snowflake symbol.
Use at 40° F or below.
Prevents carburetor icing.

SUMMER MODE



Marked with sun symbol.
Use above 40° F.
Prevents overheating.

SPARK ARRESTOR

- Clean at least once per season.
- Replace only if torn or damaged.



OPERATING A CHAINSAW CORRECTLY

- Allow saw to warm up for 30-60 seconds at idle.
- **Always cut at FULL throttle.**
- **Cutting guidance:**
 - **Buckling & Felling:** FULL throttle.
 - **Small limbs (1-2 inches):** Slightly less than full throttle acceptable.
 - **Never lug the engine.** Approach wood at full throttle to prevent binding.



TWO STROKE ENGINES ARE DESIGNED FOR HIGH RPM OPERATION.



BE SAFE!

A well maintained saw cuts faster, runs cooler, last longer, and keeps operators safe during disaster relief operations.



KYBAPTIST.ORG/DR

(502) 489-3401