BELT REPAIR HELP

RIDING MOWER & LAWN TRACTOR

VBELTSUPPLY.COM

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PREVENTATIVE MAINTENANCE

SPRING TUNE-UP

!DO NOT HANG BELTS!

INSTRUCTIONS:

STEP 1 - PREVENT UNINTENTIONAL STARTING

Before you change the mower belt, turn off the engine, remove the ignition key and disconnect the spark plug wire(s) to prevent accidental starting while you're working.

STEP 2 - CHANGE THE OIL ON YOUR LAWN MOWER

This should be done before mower use every spring or subsequent season. You should check your oil after the first five hours of use then every eight hours throughout the season. Follow the owner's manual for instructions on how to best do this.

STEP 3 - CHECK THE AIR FILTER

The air filter keeps your engine from collecting dirt and other debris. It should be cleaned or replaced at the beginning of each season then checked after every 25 hours of use.

STEP 4 - DRAIN FUEL TANK AND REPLACE WITH FRESH FUEL

Fuel, contrary to popular belief, does go bad and should be replaced before mower use each season. It is recommended that you drain the fuel from your lawn mower and flush the fuel lines before storage each year. If you did not do this, you can fill the mower tank with fresh fuel and fuel stabilizer then run the mower for a few minutes to circulate the stabilized fuel through the lines.

STEP 5 - REPLACE THE FUEL FILTER

The fuel filter should be replaced at the start of each season. Cleaning, rather then replacing,

STEP 6 - INSTALL A NEW SPARK PLUG IF NECESSARY

Check your spark plug at the start of every season. If it has become dirty, it may just need cleaning. However, rust and corrosion on your lawn mower's spark plug will call for replacement.

We recommend replacing your spark plug at the beginning of each season.

STEP 7 - CLEAN MOWER DECK AND ENGINE COMPARTMENT

Always disconnect the spark plug and siphon out any fuel before attempting to clean your mower deck. Using a putty knife and wire brush, thoroughly scrape the mower deck, then follow by spraying down the rest of the mowers undercarriage. It is recommended that you spray down your mowers undercarriage after each use to avoid debris build up and to keep your mower in peak operating condition. You should also clean your mowers engine compartment by lifting off the hood and brushing away any foreign debris.

STEP 8 - INSPECT BELTS FOR WEAR AND CHECK TENSION

Always keep at least one replacement belt on hand, either in your garage or shed, so you can make replacements quickly when necessary. To avoid the danger and frustration of a belt breaking during use, replace your belts if there is any significant wear or tear. Also check belt tension and re-tension if necessary, improperly or inadequately tensioned belts are likely to fail prematurely.

STEP 9 - CHECK THE BLADES

Dull blades tear, rather than cut grass. Check for bends and dents; if found, for safety purposes, replace immediately.

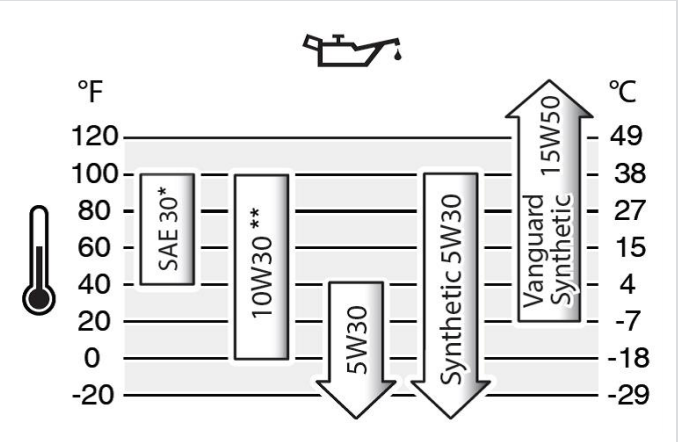
STEP 10 - CHECK TIRE PRESSURE

Check tire pressure and ensure they are aired properly. Varying tire pressures will lead to

Belts should always be stored in a cool dry place.
Improperly stored belts will lead to premature failure.

CHOOSING THE RIGHT OIL

These are general tips that are in no way specific to any year, make, or model of mower. We recommend always consulting your machines owners manual before maintenancing your equipment.



1. Outdoor Temperature – In warmer temperatures, SAE 30 is your best option. In colder areas (40° or less), you should stick with SAE 5W-30 motor oil. If you live in an area where the temperature fluctuates between 0° and 100° then you should use an SAE 10W-30 motor oil.

2. Oil capacity is typically ***48oz*** or ***64oz****.
   *Do not over fill your engine with oil. Use the Oil Finder tool above or check your operator's manual for the proper amount of oil recommended for your engine.

3. Use high-quality detergent oils classified for service ***SF, SG, SH, SJ or higher.*** Do not use special additives.

4. Riding Mowers - **ALWAYS** change engine oil annually, then depending on use, every 25-50 hours throughout the season.

5. Zero-turn "ZTR" Mowers have a hydraulic steering system, requiring you to change the hydraulic fluid and filter occasionally (typically every 300 hours).

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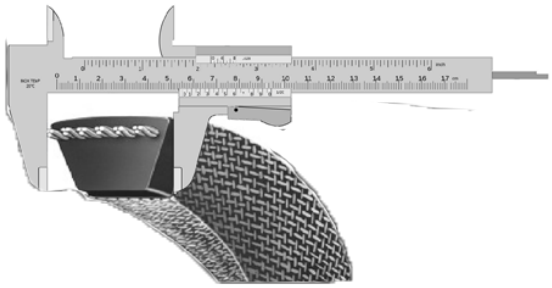
LAWN MOWER BELT REPLACEMENT

HOW TO MEASURE A V-BELT

1 Measure the width of the belt.



2 Measure the internal length of the belt.

3 Put together the part number:

XYY

- Internal length
- V belt width:
  - A (1/2”)
  - B (21/32”)
  - C (7/8”)
  - D (1 ¼”)
  - E (1 ½”)

Measuring Belt Length with an Old V Belt

1. Place a mark on the side of an old V belt with a white paint marker.
2. Set the flat outer edge of the V belt on a flat surface. Rotate the V belt to place the paint mark against the flat surface. Draw a mark on the flat surface with a pencil to designate the starting point of the measurement.
3. Roll the V belt along the flat surface until the paint mark rolls back to the flat surface. Place a second pencil mark on the flat surface to designate the contact point of the paint mark with the flat surface.
4. Measure the distance between the two pencil marks to determine the circumference of the V belt.

Measuring Belt Length without an Existing V Belt

1. Wrap 1/4 inch nylon rope around both pulleys. Overlap 4 inches of the nylon rope.
2. Draw a line across the nylon rope with a black permanent marker. Make sure the mark crosses both sections of overlapped nylon rope.
3. Lay the marked nylon rope on a flat surface.
4. Measure the distance between the two marks with a tape measure to determine the circumference of the needed V belt.

LAWN MOWER BELT REPLACEMENT

TROUBLE SHOOTING

PROBLEM	MOST LIKELY CAUSE	OTHER CAUSES
Clean break	Extreme shock load. Foreign material in grooves.	
Stack is misplaced	Belt squeals or slips. Sidewall repeatedly worn.	Cracked underside.
Belts rubs the guard	Damaged tie band. Sidewall repeatedly worn.	Cover is worn.
Backside idler	Cover is worn.	Cracked underside.
Improper storage, stored too long	Cracked underside. Sidewall repeatedly worn.	
Not enough tension	Belts excessively vibrate. Belts comes off pulley. Sidewall repeatedly worn.	Belts or squeals or slips.
Improper installation of pulley	Edge cord failure	Wobbling pulley. Bushings are cracked.
Too much tension	Belts excessively vibrate. Repeated breakage.	Hot bearings. Shaft bends.
Pulleys are misaligned	Belts excessively vibrate. Damaged tie band. Sidewall repeatedly worn.	
Pulleys are damaged	Hot bearings. Wobbling pulley. Cracked underside. Belts excessively vibrate. Bushings are cracked. Shaft bends.	Belts bottom out. Damaged tie band. Belt squeals or slips.
Harsh operating conditions	Sidewall repeatedly worn.	

PROBLEM	MOST LIKELY CAUSE	OTHER CAUSES
Insufficient belt on small pulley	Belt comes off pulley.	Cover splits.
Too much heat	Sidewall repeatedly worn.	Cracked underside.
Bearing too far from pulley	Hot bearings. Shaft bends.	
Poor bearing or shaft worn	Hot bearings. Wobbling pulley. Shaft bends.	
Belt has reached end of service life	Belts bottomout.	
Belts matched up wrong	Belts excessively vibrate. Sidewall repeatedly worn.	
Wrong type of belt	Belt rides too high. Belts bottom out. Belts squeals or slips. Belt comes off pulley.	
Machine induced impulse	Repeated breakage.	Belts excessively vibrate. Belt comes off pulley.
Too much oil or grease	Belt swells, is soft. Hot bearings. Belt squeals or slips. Sidewall repeatedly worn.	
Grooves of pulley dirty (particles in them)	Cracked underside. Belt comes off pulley. Repeated breakage.	
Too much moisture	Belt comes off pulley. Repeated breakage.	

DO

CHECK SHEAVES BEFORE REPLACING V-BELTS

1. Worn groove sidewalls
2. Shiny sheave groove bottom, a sign of belt “bottoming” out.
3. Wobbling sheaves
4. Damaged sheaves
5. Check pulleys for rust, oil, grease, dust, dirt and other foreign materials
6. Clean the pulleys

DO

CHECK SHEAVES ALIGNMENT

1. Use a straightedge to check drive alignment. All four points of the straight edge should contact the pulley. Use the straightedge in different positions to check for all kinds of misalignment.
2. Drive shafts and sheaves should be aligned parallel, horizontally and vertically
3. Driver and driven sheaves must be in a straight line
4. Both sheaves must be properly mounted and as near to the bearings as practical

DON’T

INSTALL BELTS THAT ARE NOT ALL THE SAME

1. Do not mix belt constructions. (Such as cogged, wrapped, single and banded)
2. Do not mix new and used belts.
3. Do not mix used belts from different drives.
4. Any mixed belts will cause the load to be carried unevenly, causing the belt carrying the majority of the load to fail rapidly, followed by the remaining belts.

DON’T

PURCHASE WRONG REPLACEMENT BELT

1. Never mix new and used belts on a drive
2. Never mix belts from more than one manufacturer
3. Remember that the replacement must be with the right type of V-belt.
4. Always observe the manufacturer’s V-belt matching limits.

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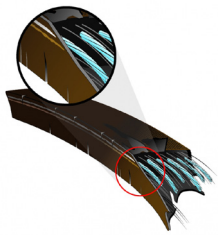
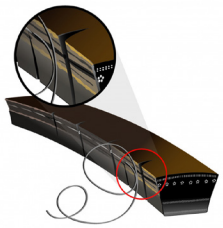
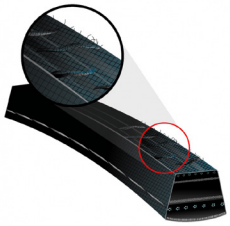
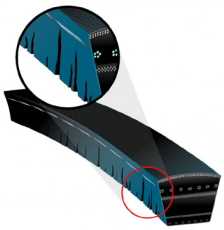
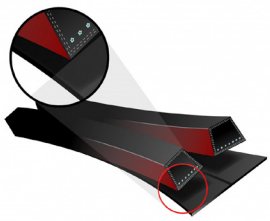
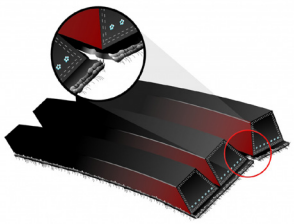
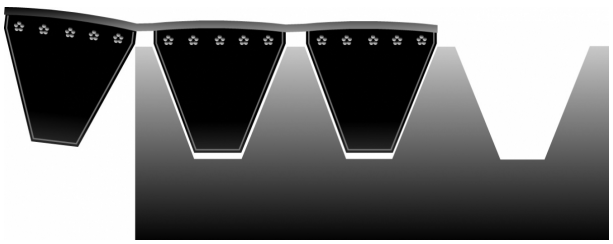
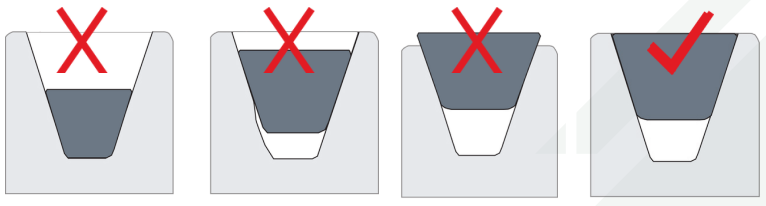
LAWN MOWER BELT REPLACEMENT

BELT WEAR SYMPTOMS

PREMATURE V-BELT FAILURE	EDGE CORD FAILURE	TOP CORDER WEAR	SIDEWALL WEAR
			

BOTTOM CORNERS	BOTTOM SURFACE	UNDERCOARD CRACKING	SIDEWALL BURNING
			

SURFACE IS HARD OR STIFF	SURFACE IS SWOLLEN OR STICKY	TIE-BAND SEPARATION	DAMAGED TOP OF TIE-BAND
			

ONE OR MORE RIBS RUNNING OUTSIDE THE SHEAVES	WORN SHEAVES
	

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LAWN MOWER BELT REPLACEMENT

BELT INSTALL CHECKLIST

- [ ] **1. DISCONNECT AND LOCK OUT POWER SOURCE**

- [ ] **2. OBSERVE ALL SAFETY PROCEDURES**
  - Be sure to review and comply with all safety codes

- [ ] **3. FOLLOW RECOMMENDATIONS OF THE EQUIPMENT MANUFACTURER**

- [ ] **4. REMOVE BELT GUARD**

- [ ] **5. LOOSEN MOTOR MOUNTS**

- [ ] **6. SHORTEN CENTER DISTANCE**
  - Loosen the drive take-up and move the sheaves closer together to facilitate the removal of the old belts and to insure installation of the new belts without damage

- [ ] **7. REMOVE OLD BELTS**

- [ ] **8. INSPECT BELT WEAR PATTERNS FOR POSSIBLE TROUBLESHOOTING**

- [ ] **9. INSPECT AND CLEAN DRIVE ELEMENTS**
  - Inspect and replace faulty or damaged machine elements such as worn bearings or bent shafts

- [ ] **10. INSPECT SHEAVE GROOVES FOR WEAR AND CLEAN - REPLACE IF NECESSARY**
  - Sheave condition and alignment are vital to v-belt life and performance
  - Never install new belts without a thorough inspection of the sheaves
  - Look for worn groove sidewalls, shiny sheave groove bottom, wobbling sheaves and damaged sheaves
  - Sheaves should be mounted as close to the bearing as possible to reduce overhung load
  - Sheaves should be cleaned of rust and foreign material
  - Cleaning sheaves will reduce sheave wear

- [ ] **11. CHECK SHEAVE ALIGNMENT (PRELIMINARY)**
  - V-belt sheave alignment should be within a tolerance of 1/16" per 12" of drive center distance
  - Use a string, straight edge or alignment tool to check alignment

- [ ] **12. SELECT PROPER REPLACEMENT BELTS**
  - Never mix new and used belts on a drive
  - Never mix belts from more than one manufacturer
  - Always replace with the right type of belt
  - Always observe belt matching limits

- [ ] **13. INSTALL NEW BELTS**
  - Place the new belts on the sheaves
  - Do not force the belts on the sheaves
  - Do not use a pry bar
  - Do not roll belts onto the sheaves
  - The above will damage the cords and lead to premature belt failure
  - Move sheaves apart until the belts are seated in the grooves
  - Pull slack to the same side or rotate the drive by hand a few revolutions

- [ ] **14. TENSION BELTS**
  - Proper tensioning is the single most important factor necessary for long, satisfactory operation
  - Too little tension will result in slippage, causing rapid belt and sheave wear and loss of productivity
  - Too much tension can result in excessive stress on the belts, bearings and shafts
  - Use a tensioning tool to properly install the belt
  - Never apply belt dressing. It may damage the belt and cause early failure

- [ ] **15. RECHECK THE ALIGNMENT AND CONTINUE RECHECKING TENSION AND ALIGNMENT UNTIL BOTH ARE PROPERLY SET AFTER THE MOTOR HAS BEEN LOCKED DOWN.**
  - Tensioning device can be used at the same time to make the process quicker and easier
  - Along with proper tensioning, alignment is critical to satisfactory belt life and performance
  - Properly aligned drives reduce wear, reduce vibration and increases energy savings

- [ ] **16. REPLACE BELT GUARD, CONNECT POWER SOURCE, START DRIVE AND OBSERVE**
  - Operate the drive for a few minutes to seat the belts in the sheave grooves
  - Observe the operation of the drive under the highest load condition
  - Look and listen for any unusual noise or vibration
  - A slight bowing of the slack side of the drive is normal
  - If the slack side remains taut during the peak load, re-check the tension with a tensioning device

- [ ] **17. RE-TENSION AFTER 24 HOURS**
  - Check the tension on a new drive after 24 hours of operation
  - Belts relax after seating fully into the pulleys. Checking them after 24 hours can often expose installation issues that were not obvious after they were first installed.

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