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BILLY GOAT® *BC2403 Series Brush Cutter*
Owner's Manual

Patent Number D386768



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Go to <http://www.billygoat.com> for French-Canadian translations of the product manuals.
Visitez <http://www.billygoat.com> pour la version canadienne-française des manuels de produits



BC 2403 SERIES SPECIFICATIONS

	BC2403IC	BC2403ICF	BC2403HF	BC2403H	BC2403HEB
Engine Type	Briggs and Stratton INTEK OHV	Briggs and Stratton INTEK OHV	Honda GXV	Honda GXV	Honda GXV
Model Number	21A902-0149-E1	21A902-0149-E1	GXV390UTIDABG	GXV390UTIDABG	GXV390K1DE33
Horsepower	13.0 (9.7 kW)	13.0 (9.7 kW)	13.0 (9.7 kW)	13.0 (9.7 kW)	13.0 (9.7 kW)
Fuel Capacity	3.0 qt (2.80 L)	3.0 qt (2.80 L)	2.3 qt (2.18L)	2.3 qt (2.18L)	2.3 qt (2.18L)
Oil Capacity	1.5 qt (1.4L)	1.5 qt (1.4L)	1.2 qt (1.13L)	1.2 qt (1.13L)	1.2 qt (1.13L)
Engine Weight	58.0 lb (26.3 kg)	58.0 lb (26.3 kg)	70.5 lb (32.0 kg)	70.5 lb (32.0 kg)	72.5 b (32.9 kg)
Unit Weight	266 lb (120.7 kg)	284 lb (128.8 kg)	294 lb (133.4 kg)	278 lb (126.4 kg)	291 lb (132.3 kg)
In accordance with 2000/14/EEC standards	106 dB(a)	106 dB(a)	106 dB(a)	106 dB(a)	106 dB(a)
Sound at Operator's ear	93 dB(a)	93 dB(a)	93 dB(a)	93 dB(a)	93 dB(a)
Shipping Weight	315 lb (143.2 kg)	333 lb (151 kg)	348 lb (157.9 kg)	330 lb (150.0 kg)	340 lb (154.7 kg)
Overall Length	82.5 in (2.09 m)				
Overall Width	32.0 in (0.81 m)				
Overall Height	43 in (1.09 m)				
Maximum Operating Slope	15°	15°	20°	20°	20°

SOUND DATA



SOUND LEVEL 93 Dba at Operator's position

106 dB

Sound tests were conducted in accordance with 2000/14/EEC and were performed on 2/21/2002 under the conditions listed below.

NOTE

Sound power level listed is the highest value for any model covered in this manual. Please refer to serial plate on the unit for the sound power level for your model.

General Conditions:	Sunny
Temperature:	80°F (25°C)
Wind Speed:	2.0 mph (3.2 kph)
Wind Direction:	South
Humidity:	63.5%
Barometric Pressure:	29.98" Hg (761mm Hg)

VIBRATION DATA

VIBRATION LEVEL .5g (4.87 m/s²)

Vibration levels at the operator's handles were measured in the vertical, lateral and longitudinal directions using calibrated vibration test equipment. Tests were performed on 5/19/1995 under the conditions listed below.

General Conditions:	Sunny
Temperature:	89°F (31.7°C)
Wind Speed:	6.1 mph (9.9 kph)
Wind Direction:	West
Humidity:	49.7%
Barometric Pressure:	29.88" Hg (101.19 kPa)

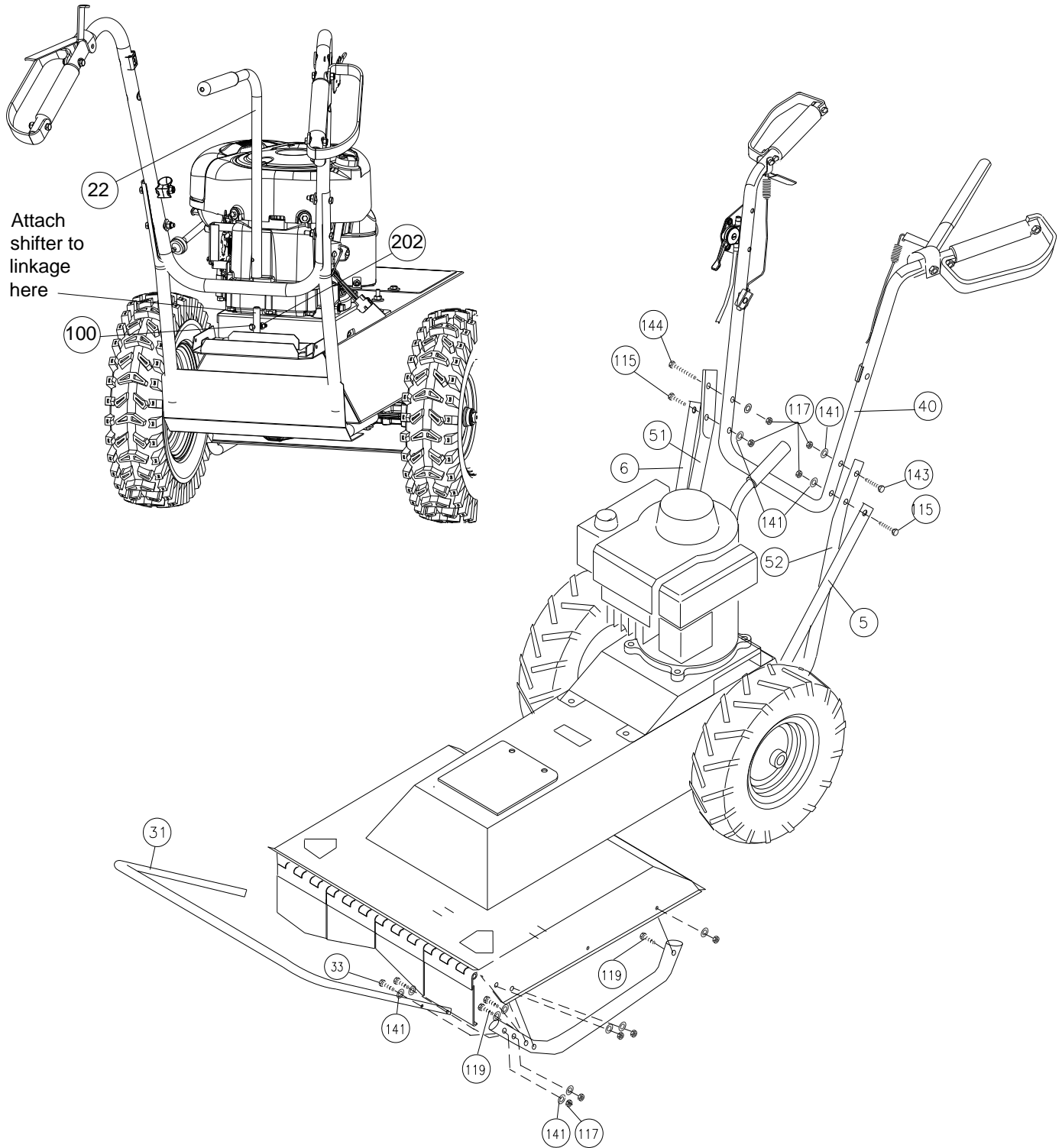
INSTRUCTION LABELS

The labels shown below were installed on your BILLY GOAT[®] Brush Cutter. If any labels are damaged or missing, replace them before operating this equipment. Item numbers from the Illustrated Parts List and part numbers are provided for convenience in ordering replacement labels. The correct position for each label may be determined by referring to the Figure and Item numbers shown.

<p>PN 400268 (Item 169)</p>	<p>PN 890254 (Item 188)</p>	<p>PN 500349 (Item 186)</p>	<p>Item No 180 - PN 400424 (Item 180)</p>
<p>Item No 184 - PN 810736 (Item 184)</p>	<p>Item No 187 - PN 890301 (Item 187)</p>	<p>PN 900327 (Item 185)</p>	<p>Item No 192 - PN 500177 (Item 192)</p>
<p>Item No 191 - PN 500176 (Item 191)</p>	<p>Item No 189 - PN 500168 (Item 189)</p>	<p>PN 500279 (Item 190)</p>	<p>PN 100252</p>

ENGINE LABELS

<p>Honda</p>	<p>Briggs and Stratton</p>	



Brush Cutter Assembly Drawing
Figure 1



ASSEMBLY INSTRUCTIONS

Your BILLY GOAT® BC Self-Propelled Brush Cutter was shipped in one carton, completely assembled except for the upper handle assembly and the front guard bar. Mounting hardware for the handle and guard bar is temporarily installed on the lower handle and the front of the deck assembly.



READ all safety instructions before assembling unit.

NOTE

A CB18, C50, SC50 or MCB50 series dry or wet battery with a 17.2 Ah rating is required when replacing the battery.

NOTE

Numbers in parenthesis () refer to item numbers in the parts list.

1. Remove unit from carton. Make sure the following items that have been packed with unit:
 - Upper Handle Assembly, P/N 500256
 - Guard Bar, P/N 500356
 - Bar Skids, P/N 500355
 - Owner's Manual, P/N 500402
 - General Safety and Warnings Manual 100296
 - Honda or Briggs and Stratton Engine Manual
 - Warranty Card, P/N 400972
 - Ty-Wraps (4 ea)
 - Tube shifter with grip, P/N 500370



WARNING: **DISCONNECT** spark plug wire before assembling unit.

2. Remove mounting hardware (143, 115, 117, and 141) from parts bag. Use this hardware to mount the upper handle (40) to the lower handle (51) and braces (5 and 6). See page 23 for bolt location. Tighten the hardware securely.
3. Tighten bolts and nuts (item 143 and 117) connecting the handle braces (5 and 6) on the transmission linkage.
4. Attach the shifter tube (item 22) with the hardware (100 and 202). Make sure the shifter moves freely.
5. Place a wood block under the deck and attach the skids (155) using the hardware (119, 141, and 117). Use the bottom two holes on the longer end to attach to the front of the deck. The bolts should run from the inside out.



Warning: When attaching the Skids be careful of the blade. Wear thick gloves and check the position of the blade before putting your hands into the deck to install the bolts through the Skids.

9. Attach guard bar (31) to Skids by installing with the hardware (33, 141, and 117) into the top two holes on the skids.
10. For electric start models secure the battery in the battery plate (164), hook one side of the strap into the hole then stretch the strap across the top of the battery and hook the opposite side into the opposing hole on the plate. Make sure the battery will not move then connect terminals.

NOTE

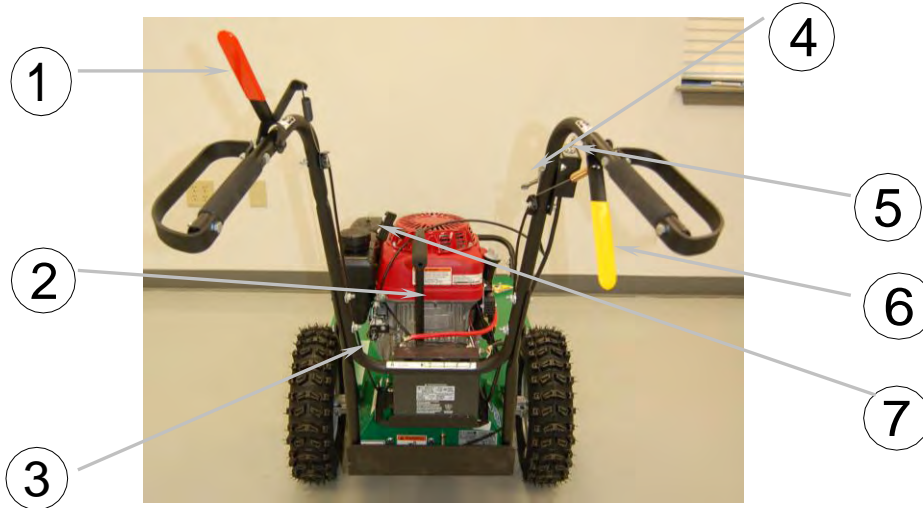
Items 117, 119 and 141 secure both front skid attachment and sides of front guard bar. Make sure both are securely attached.

11. Reconnect spark plug wire.

OPERATION

OPERATOR CONTROLS

The operator's station is at the rear of the machine between the handlebars. The operator should STAND in a position to allow both handlebars to be grasped firmly and which allows sufficient leverage to steer the machine. Operator's controls are shown below.



Operator Control Locations

- | | | | |
|---|--------------------|---|--------------------|
| 1 | Blade Clutch Lever | 5 | ON/OFF Switch |
| 2 | Gear Shift Lever | 6 | Drive Clutch Lever |
| 3 | Choke | 7 | Pull Starter |
| 4 | Throttle | | |

STARTING



CHECK engine oil level before operating machine.

1. Place equipment on a level, firm surface that is free of rocks or other debris.
2. Place throttle in START position.



Throttle

3. Pull choke out (Honda engine only).



Choke



- Units equipped with electric starters: Pull up on the ON/OFF switch until engine starts.



ON/OFF (I/O)
(Manual start shown)



WARNING: DO NOT START equipment with drive or blade clutch engaged.

- Units equipped with manual starters: Pull starter rope to start engine.



WARNING: PULL STARTER CORD slowly until resistance is felt. Then pull cord rapidly to avoid kickback.

- Push choke in (Honda engine only).
- Pull throttle control back to and allow engine to reach correct operating speed.

CUTTING

The best performance is achieved when cutting in dry conditions. The quality of the cut is directly related to ground speed during cutting. Under most conditions cutting should be done in first or second gear. Third gear should be reserved for conditions where weeds and brush are thinned out or not very tall. If the quality of the cut is not satisfactory, shift into a lower gear.

- Move shift lever to correct position (1, 2, 3 or Reverse) for desired gear.



Gear Shift Lever

2. Press blade clutch handle down to engage blade. Allow blade to spin up to normal operating speed.



Blade Clutch Lever

3. Pull drive clutch handle up to engage transaxle.



Drive Clutch Lever

SHUT DOWN

1. Release drive clutch handle to disengage transaxle.
2. Release blade clutch handle to disengage blade.
3. Pull throttle control all the way back to the STOP position.
4. Place the ON/OFF (I/O) switch in the OFF (O) position.

CLEARING A CLOGGED CUTTING DECK



WARNING: DISCONNECT spark plug wire before servicing unit.

1. Shut engine off and wait for blade to stop completely.
2. Disconnect spark plug wire.
3. Remove clog from cutting deck.



WEAR durable gloves. Clog may contain sharp materials.

4. Reconnect spark plug wire.



MAINTENANCE

PERIODIC MAINTENANCE

Periodic maintenance should be performed at the following intervals:

Maintenance Operation	Every Use	Daily or Every 5 Hours	Every 25 Hours	Every 50 Hours	Every 100-150 Hours
Inspect for worn or damaged parts.	•				
Check for excessive vibration		•			
Inspect for loose parts.		•			
Sharpen blade.			•		
Inspect belts for wear.			•		
Lubricate throttle control cable and linkage.			•		
Check blade clutch cable tension.				•	
Inspect battery for corrosion, damage or leaks (electric start units only).				•	
Apply anti-seize compound to rear axles.				•	
Check battery strap for excessive wear or rips	•				
Replace blade drive and transaxle drive belts.					•

COMMON REPLACEMENT PARTS

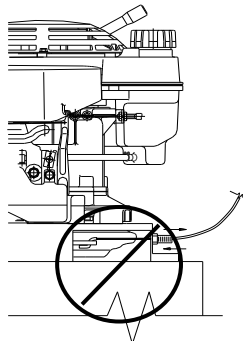
- Blade. P/N 500210. Original equipment replacement blade.
- High Lift Blade. P/N 500102. Optional replacement blade.
- Traction Drive Belt. P/N 500119. Original equipment replacement drive belt.
- Blade Drive Belt. P/N 500237. Original equipment replacement drive belt.
- Skid. P/N 500355. Side deck skid.
- Throttle Control Assembly. P/N 500213. Throttle control assembly, including cable.

CLEANING

Your BILLY GOAT® Brush Cutter should be cleaned periodically to ensure optimum performance and service life. Clogs and debris should be removed from the blade area and debris should be removed from the engine cooling fins. A garden hose or pressure washer may be used for cleaning.



DO NOT SPRAY WATER DIRECTLY ON THE BLADE CLUTCH WHEN USING A POWER WASHER. SEE FIGURE BELOW.



BLADE REMOVAL AND SHARPENING



READ all safety instructions before servicing unit.



Numbers in parenthesis (N) refers to the item number in Illustrated Parts List.

Tools required:

- 5/8" socket, 1/2" drive
- Torque wrench, 1/2" drive
- Jack stands or similar device adequate to support weight of machine.



WARNING:

DISCONNECT spark plug wire before servicing unit.

1. Disconnect spark plug wire.
2. Lift and support front of unit to allow access to underside.



WARNING:

UNIT IS HEAVY. Make sure support is adequate to support weight of machine.

3. Block blade to prevent it from rotating during removal.
4. Remove blade bolt (139), lock washer (140) and friction washer (54).

NOTE

Blade bolt (139) is a standard right-hand thread bolt.

5. Remove blade (50) and install replacement blade.

NOTE

When replacing the blade use BILLY GOAT Industries PN 500210 only.

NOTE

When sharpening blade make sure to sharpen all cutting edges.

6. Attach new blade with bolt (139), lock washer (140) and friction washer (54 removed earlier).

NOTE

Inspect fasteners for wear and replace if necessary.

7. Torque blade bolt to 55-60 ft-lbs.
8. Reconnect spark plug wire.



BLADE DRIVE BELT TENSION ADJUSTMENT



READ all safety instructions before servicing unit.



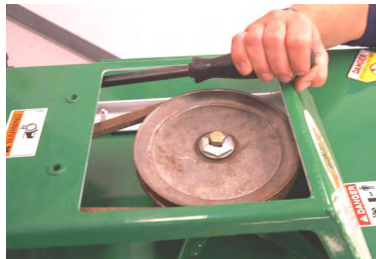
WARNING:

DISCONNECT spark plug wire before servicing unit.

NOTE

Numbers in parenthesis (N) refers to the item number in Illustrated Parts List.

1. Disconnect spark plug wire.
2. Remove two screws holding engine base door (7) and remove door.
3. Examine condition of belt and not position of idler assembly and amount of tension on belt.
4. Loosen, **but do not remove**, two nuts (116) on top on engine base.
5. Reset belt tension by reaching in through top of engine base with pry bar or long screwdriver and pushing idler pulley against belt to increase tension (see below).



Adjusting Blade Drive Belt Tension

6. While holding belt under tension tighten two nuts (116) holding idler pulley in place.
7. Replace engine base door (7) and secure with screws removed earlier.
8. Reconnect spark plug wire.
9. Check belt tension by operating unit under conditions that caused belt slippage. If belt continues to slip it may require replacement before operation may continue.

BLADE CLUTCH ADJUSTMENT



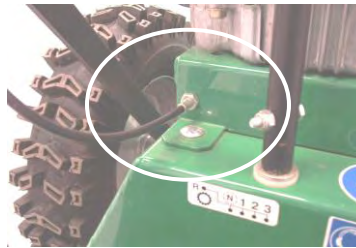
READ all safety instructions before servicing unit.



WARNING:

DISCONNECT spark plug wire before servicing unit.

1. Disconnect spark plug wire.
2. As the clutch/brake wears or begins slipping or squealing, adjustment may be required to maintain proper cable tension and clutch engagement. A properly adjusted blade clutch should require 10 lbs of force to depress the end of the clutch lever. The blade clutch cable spring should stretch 1/4" to 3/8" (6.4-9.5 mm).
3. Adjust cable tension by tightening or loosening cable adjustment nut on rear of engine base (see below). Be sure to leave enough slack in cable to allow blade brake to engage.



Blade Cable Adjustment



CAUTION:

If clutch continues to slip or squeal, do not operate equipment until adequate adjustment or repair has been performed. Improper adjustment can cause clutch to overheat and slip, greatly reducing performance and clutch life.

4. Reconnect spark plug wire.



BLADE DRIVE BELT REMOVAL AND REPLACEMENT



READ all safety instructions before servicing unit.



Numbers in parenthesis (N) refers to the item number in Illustrated Parts List.

Tools required:

- 1/2" socket, 3/8" drive
- ratchet, 3/8"
- drive extension, 3/8" drive
- universal joint, 3/8" drive
- pry bar or long screwdriver
- jack stands or similar device adequate to support weight of machine.



WARNING: **DISCONNECT** spark plug wire before servicing unit.

1. Disconnect spark plug wire.
2. Lift and support rear of unit to allow access to underside.



WARNING: **UNIT IS HEAVY.** Make sure support is adequate to support weight of machine.

3. Remove two screws (103) and washers (141) holding engine base door (7) and remove door.
4. Loosen, but **do not remove**, two nuts (116) holding idler mounting plate (26) to relieve tension on blade drive belt (29).



It may be necessary to pry idler pulley (9) away from its original position to release belt.

5. Using drive extension and universal joint, loosen, but **do not remove**, four screws (107) holding belt guides (149, 150) in place next to crankshaft drive pulley (9) at rear of machine.



If extension and universal joint are not available, remove stop bolt (110) and nuts (116, 117) to allow idler arm to swing back and allow access to screws (107).

6. Pull transaxle drive belt (10) from groove on pulley (9).
7. Pull blade drive belt (29) from groove on pulley (9) and down past pulley.
8. Pull belt back through hole in top of engine base and remove it from machine.



It will take some force to walk the belt past the front portion of the pulley.

9. Install new blade drive belt (29) on groove in pulley (9). Push remaining length of belt back through engine base toward clutch/brake drive pulley.
10. Install transaxle drive belt (10) on groove in pulley (9).
11. Reach through from rear of machine and pull new belt through and install it in the groove on the clutch/brake drive pulley.



CAUTION: Make sure blade drive belt is properly seated in clutch/brake drive pulley (23) and is not resting in gap between clutch/brake drive pulley (23) and transaxle drive pulley (46)

12. Tighten four screws (103) to secure belt guides (149, 150).



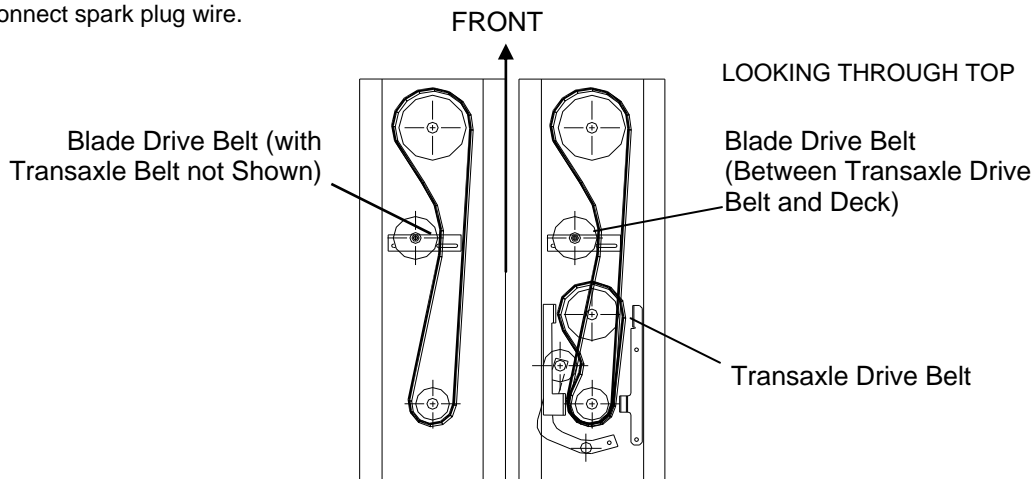
CAUTION: Make sure belt is correctly routed. (See Figure below).

13. Adjust blade drive belt tension by reaching in through top of engine base with pry bar or long screwdriver and pushing idler pulley against belt to increase tension (see below).



Adjusting Blade Drive Belt Tension

14. While holding belt under tension tighten two nuts (116) securing idler plate.
15. Check belt tension by applying force on side of belt opposite idler pulley. Belt should deflect 3/16" - 1/4" (4.8-6.4 mm) with force applied perpendicular to belt.
16. Replace engine base door (7) and secure with screws (103) and washers (141).
17. Reconnect spark plug wire.



Belt Routing Diagram
(Top View of Machine)
Figure 2



TRANSAXLE DRIVE CLUTCH ADJUSTMENT



READ all safety instructions before servicing unit.

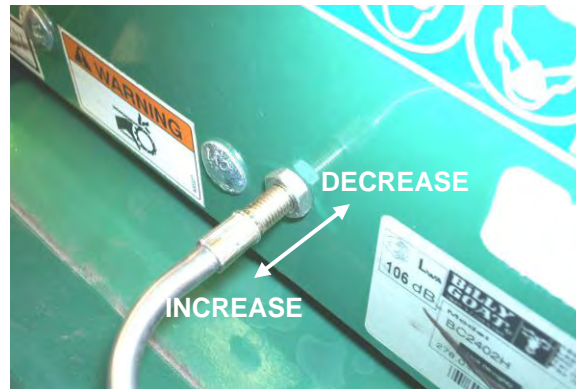


WARNING: **DISCONNECT** spark plug wire before servicing unit.

1. Disconnect spark plug wire.
2. As the belt wears or begins slipping or squealing, adjustment may be required to maintain proper cable tension and clutch engagement. A properly adjusted transaxle drive clutch should require 3 lbs of force to depress the end of the clutch lever.
3. Adjust cable tension by tightening or loosening cable adjustment barrel on rear of engine base (see below).

NOTE

Moving the cable adjustment barrel **IN** decreases clutch tension. Moving the barrel **OUT** increases tension.



Transaxle Cable Adjustment

4. Reconnect spark plug wire.

TRANSAXLE DRIVE BELT REMOVAL AND REPLACEMENT



READ all safety instructions before servicing unit.



Numbers in parenthesis (N) refers to the item number in Illustrated Parts List.

Tools required: 1/2" socket and ratchet, 1/2" universal extension bar, pry bar or long screwdriver, adequate support for machine.

- 1/2" socket, 3/8" drive
- ratchet, 3/8"
- drive extension, 3/8" drive
- universal joint, 3/8" drive
- pry bar or long screwdriver
- jack stands or similar device adequate to support weight of machine.



WARNING: **DISCONNECT** spark plug wire before servicing unit.

1. Disconnect spark plug wire.
2. Lift and support rear of unit to allow access to underside.



WARNING: **UNIT IS HEAVY.** Make sure support is adequate to support weight of machine.

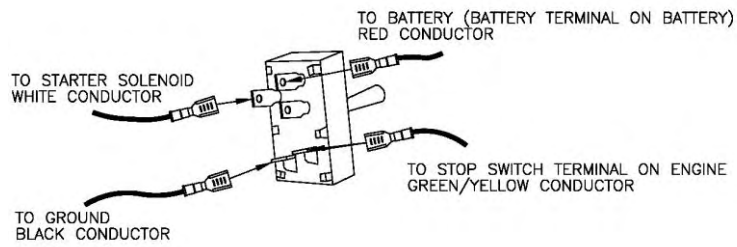
3. Using drive extension and universal joint, loosen, but **do not remove**, four screws (107) holding belt guides (149, 150) in place next to crankshaft drive pulley (9) at rear of machine.



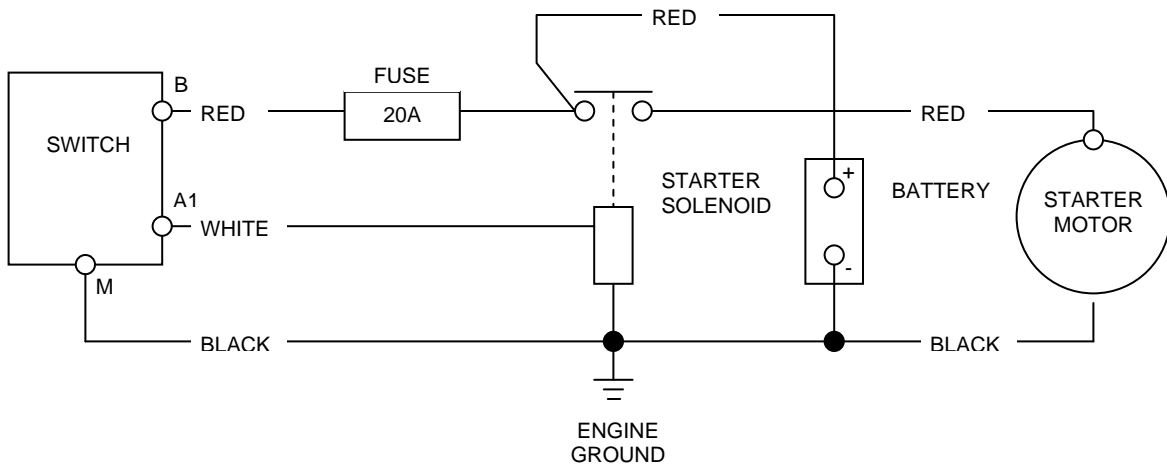
If extension and universal joint are not available, remove stop bolt (10) and nuts (116, 117) to allow idler arm to swing back and allow access to screws (107).

4. Pull belt (8-10) from groove on pulley (9) and down past pulley.
5. Slip belt (8-10) up and over pulley (9) and remove belt from machine.
6. Install new belt in grooves on pulley (46) and transaxle drive pulley (9).
7. Tighten four screws (107) to secure belt guides (149, 150).
8. Engage clutch levers and make sure belt guides do not touch belts.
9. Reconnect spark plug wire.

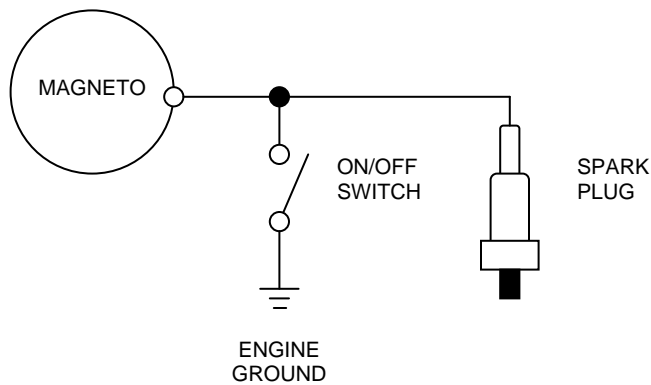
WIRING DIAGRAMS



**Starter Switch Wiring
Figure 3**



**Starter Circuit Schematic Diagram
Figure 4**



**ON/OFF Switch Circuit Schematic Diagram
Figure 5**



TROUBLESHOOTING

Problem	Possible Cause	Corrective Action
Engine will not start.	ON/OFF switch is in OFF position.	Move switch to START position.
	Out of gasoline.	Fill gas tank.
	Old or contaminated gasoline.	Drain gas tank and fill with fresh gasoline.
	Spark plug wire disconnected.	Connect spark plug wire.
	Dirty air cleaner.	Clean or replace air cleaner.
Starter does not turn. (Electric start only)	Battery low or dead.	Charge or replace battery.
	Battery cable disconnected or corroded.	Clean and secure battery terminals.
	Defective starter switch or wiring harness.	Replace starter switch or wiring harness.
	Defective starter.	Replace starter.
Will not cut or cutting performance is poor.	Blade drive belt tension incorrect.	Adjust blade drive belt tension.
	Dull blade.	Sharpen or replace blade.
	Clogged deck.	Unclog deck.
	Excessive debris built up on or blocking blade.	Clear debris from blade area.
	Engine RPM set too low.	Check engine RPM.
Abnormal vibrations.	Blade loose or out of balance.	Check blade for tightness. Rebalance if necessary.
	Engine loose.	Check engine mounting bolts.
	Blade drive belt worn.	Replace blade drive belt.
Belt slips or smokes.	Belt tension too low.	Adjust belt tension.
	Belt worn or stretched.	Replace belt.
	Pulleys worn or damaged.	Replace pulleys.
Clutch slips or squeals.	Clutch cable tension too low.	Adjust clutch tension.
	Clutch worn or damaged.	Replace worn or defective clutch assembly parts.
Blade brake will not engage.	Inadequate slack in clutch cable.	Adjust clutch cable.
	Clutch worn or damaged.	Replace clutch/brake assembly.
Transaxle will not engage.	Clutch lever not engaging clutch.	Adjust clutch cable.
	Clutch cable defective.	Replace cable.
	Belt worn or broken.	Replace belt.
Transaxle will not disengage.	Clutch cable out of adjustment.	Adjust clutch cable.
Engine will not turn over.	Defective blade clutch.	Replace clutch.
	Engine problem.	Contact an authorized servicing dealer for your engine.



Battery Care (For Electric-Starting Models)

Proper care can extend the life of a battery. Follow these recommendations to ensure your battery's best performance and long life:

- Do not allow the battery charge to get too low. If the machine is not used, charge the battery every 4 – 6 weeks. Operate the engine for at least 45 minutes to maintain proper battery charge.
- Store an unused battery in a dry area that does not freeze.
- Do not charge an already charged battery. In theory, you cannot overcharge our battery with a trickle charger; however, when a battery is fully charged and the charger is still on, it generates heat that could be harmful to the battery. A fully charged battery will read 12V-13.2V with a voltmeter.
- Do not continue to crank your engine when the battery charge is low.

Charging the Battery

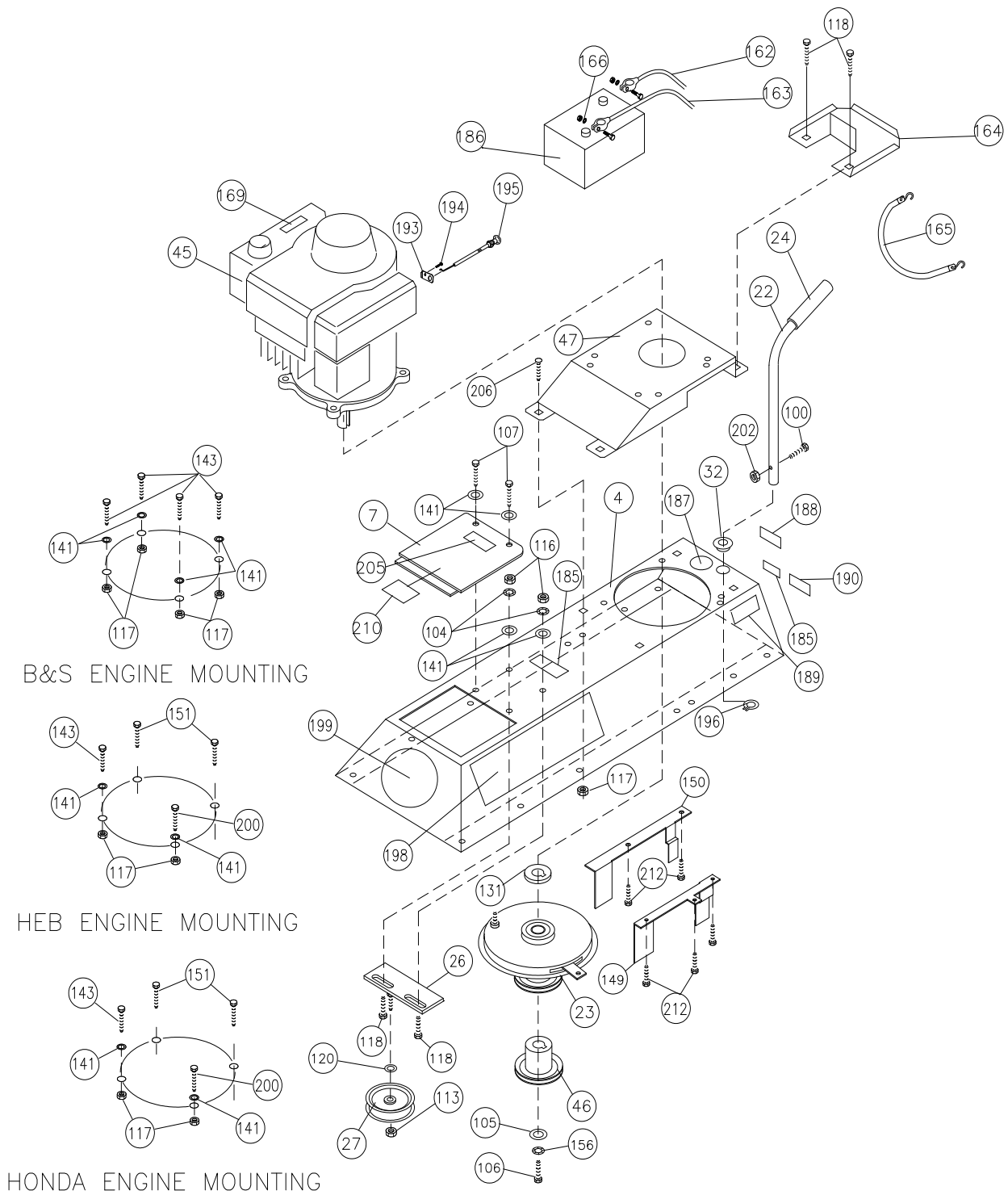
Operate the engine for at least 45 minutes to maintain proper battery charge. If the battery loses its charge, you will need to use a trickle charger to recharge it. **Caution:** The charger should have an output of 12 volts at no more than 2 amps. Using a charger with higher amps will cause significant damage to the battery.

- At 1 amp, the battery may need charging for as long as 48 hours.
- At 2 amps, the battery may need charging for as long as 24 hours.

NOTE: *Using the Recoil Starter and then running the engine will not recharge a dead or significantly discharged battery.*

WHEN YOU ARE FINISHED CHARGING THE BATTERY, DISCONNECT THE CHARGER FROM THE OUTLET FIRST, THEN DISCONNECT THE BATTERY CHARGER WIRES FROM THE BATTERY. IF YOU LEAVE THE BATTERY CHARGER WIRES CONNECTED TO THE BATTERY, THE BATTERY WILL DISCHARGE ITSELF BACK INTO THE CHARGER.

ILLUSTRATED PARTS LIST

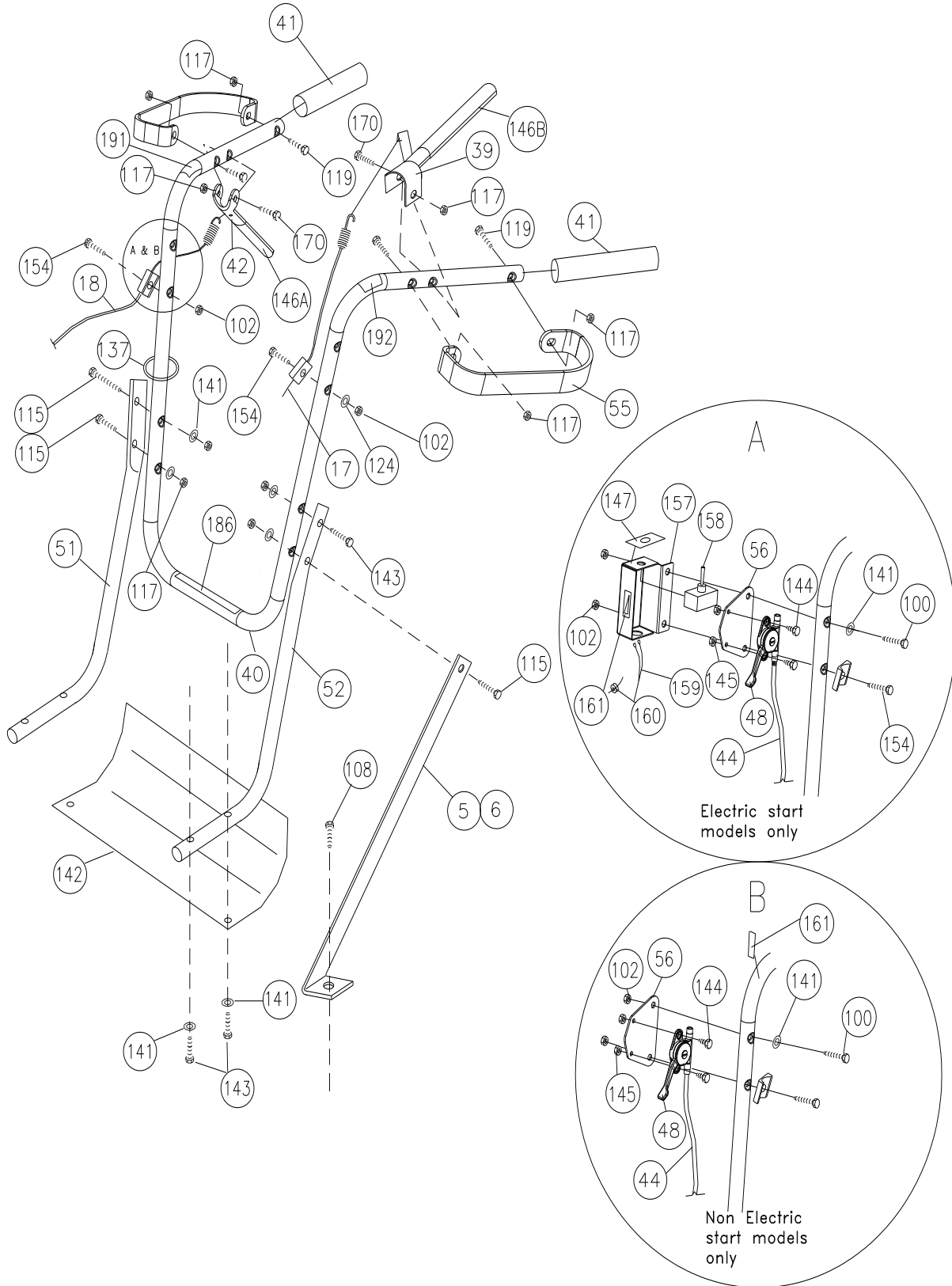


Engine and Engine Base Assembly
Figure 6



BC2403 Series Brush Cutter Owner's Manual

ITEM NO	DESCRIPTION	BC2403HEB		BC2403H		BC2403IC	
		Part No	QTY	Part No	QTY	Part No	QTY
4	Base Assembly with labels	500240	1	500240	1	500240	1
7	Door Base Engine	500233	1	500233	1	500233	1
22	Tube Shift With Grip	500404	1	500404	1	500404	1
23	Clutch Brake	500338	1	500338	1	500338	1
24	Grip 3/4 ID - Black	610102	1	610102	1	610102	1
26	Plate Mount Idler WA	500228	1	500228	1	500228	1
27	Pulley Idler 4.5" OD X 3/8"	500270	1	500270	1	500270	1
32	Bushing Shifter	500130	1	500130	1	500130	1
45	13 HP Honda GXV390 Electric Start	500333	1	-	-	-	-
45	13 HP Honda GXV390	-	-	500334	1	-	-
45	13 HP OHV B & S	-	-	-	-	520046	1
46	Pulley Drive Traction BC	500238	1	500238	1	500238	1
47	Spacer Engine WA 2401	500262	1	500262	1	500262	1
100	Screw cap 1/4-20 x 1 1/4	8041007	1	8041007	1	8041007	1
104	Washer Split Lock 5/16"	*8177011	2	*8177011	2	*8177011	2
105	Plate Impeller Washer	850443	1	850443	1	850443	1
106	Screw Cap 7/16-20 X 2 3/4"	440285	1	440285	1	440285	1
107	Screw cap 5/16" - 18 x 1" HCS ZP	8041028	6	8041028	6	8041028	6
113	Nut Lock 3/8-16	*8160003	1	*8160003	1	*8160003	1
116	Nut Jam 5/16-18	*8142002	2	*8142002	2	*8142002	2
117	Nut Lock 5/16-18	*8160002	8	*8160002	8	*8160002	10
118	Bolt Carriage 5/16-18 x 1"	*8024040	2	*8024040	2	*8024040	2
120	Washer 3/8 FC	*8171004	1	*8171004	1	*8171004	1
131	Spacer Engine	830113	1	830113	1	830113	1
141	Washer 5/16" FC	*8171003	8	*8171003	8	*8171003	8
143	Screw Cap 5/16-18 x 1-3/4"	*8041031	1	*8041031	2	*8041031	4
149	Guide Belt LH	500230	1	500230	1	500230	1
150	Guide Belt RH	500231	1	500231	1	500231	1
151	Screw Cap 5/16-24 x 1"	*400164	2	*400164	2	-	-
156	Washer lock 7/16" ST Med	8177013	1	8177013	1	8177013	1
162	Cable Battery Red W/Charge	500304	1	-	-	-	-
163	Cable Battery Black 10"	790133	1	-	-	-	-
164	Bracket Battery Rear	500347	1	-	-	-	-
165	Strap Hold Down	790303	1	-	-	-	-
166	Washer 1/4" SAE	8172007	2	8172007	2	8172007	2
169	Label Fuel EN/SP	-	-	-	-	100261	1
185	Label Guards	900327	2	900327	2	900327	2
186	Battery 12v w/ Label and hardware (Hardware can be found at hardware store)	520200	1	-	-	-	-
187	Label Read	890301	1	890301	1	890301	1
188	Label Ear Eye Breathe	890254	1	890254	1	890254	1
189	Label Chock Wheels	500168	1	500168	1	500168	1
190	Label Patent No	500279	1	500279	1	500279	1
193	Plate Choke Mount BC	500325	1	-	-	-	-
194	Screw Machine 10-32 x 3/4"	430248	1	-	-	-	-
195	Control Cable Choke BC	500326	1	-	-	-	-
196	Ring Retaining External 3/4"	520176	1	520176	1	520176	1
198	Label Outback BC	500293	2	500293	2	500293	2
199	Label Product Decal	890456	1	890456	1	890456	1
200	Screwcap 5/16 - 18 x 2	8041032	1	-	-	-	-
202	Nut lock 1/4-20 2 way	8142004	1	-	-	-	-
205	Label Spark Arrester	100252	1	100252	1	100252	1
206	Carriage bolt 5/16"-18 x 3/4" ZP	8024039	4	8024039	4	8024039	4
210	Label Made in U.S.A	520116	1	520116	1	520116	1
212	Screwcap 5/16"-18 x 3/4"	8041026	5	8041026	5	8041026	5

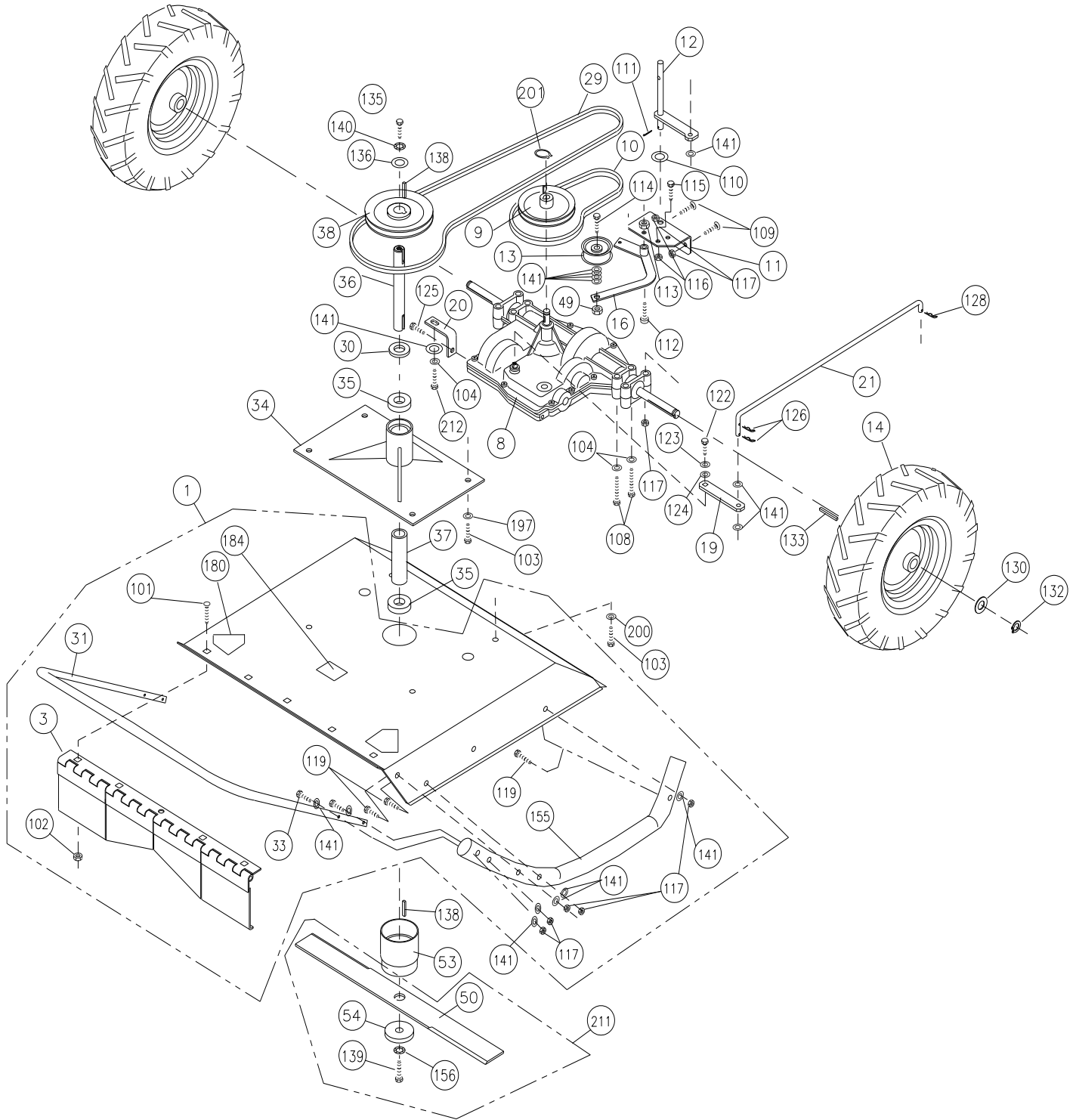


Handlebar Assembly
Figure 7



BC2403 Series Brush Cutter Owner's Manual

ITEM NO	DESCRIPTION	BC2403HEB		BC2403H		BC2403IC	
		Part No	QTY	Part No	QTY	Part No	QTY
5	Handle Brace Left	500196	1	500196	1	500196	1
6	Handle Brace Right	500200	1	500200	1	500200	1
17	Cable Clutch Blade BC2402	500259	1	500259	1	500259	1
18	Cable Clutch Drive BC2402	500327	1	500327	1	500327	1
39	Lever Control Blade	500312	1	500312	1	500312	1
40	Handle Upper BC2403	500383	1	500383	1	500383	1
41	Grip Handle 1" ID x 7.5"	500267	2	500267	2	500267	2
42	Lever Control Clutch	500406	1	500406	1	500406	1
44	Cable Throttle Control 36.0"	440178	1	440178	1	440178	1
48	Control Throttle	440013	1	440013	1	440013	1
51	Handle Lower RH BC2402	500141	1	500141	1	500141	1
52	Handle Lower LH BC2402	500140	1	500140	1	500140	1
55	Guard Hand BC2402	500339	2	500339	2	500339	2
56	Throttle Plate BC2403	500385	1	500385	1	500385	1
100	Screw cap 1/4-20 x 1 1/4	8041007	1	8041007	1	8041007	1
102	Nut Lock 1/4-20	*8160001	4	*8160001	4	*8160001	4
108	Screw Cap 5/16-18 x 2-3/4"	*8041035	2	*8041035	2	*8041035	2
115	Screw Cap 5/16-18 x 2"	*8041032	2	*8041032	2	*8041032	2
117	Nut Lock 5/16-18	*8160002	10	*8160002	10	*8160002	10
119	Screw Cap 5/16-18 x 1-1/2"	*8041030	4	*8041030	4	*8041030	4
124	Washer 1/4" FC	*8171002	1	*8171002	1	*8171002	1
137	Ty Wrap	900407	2	900407	2	900407	2
141	Washer 5/16" FC	*8171003	9	*8171003	9	*8171003	9
142	Bracket Clutch Cable Guard	500321	1	500321	1	500321	1
143	Screw Cap 5/16-18 x 1-3/4"	*8041031	6	*8041031	6	*8041031	6
144	Screw Mach Flat HD Phil #10-24	830514	2	830514	2	830514	2
145	Nut Lock LT #10-24	8164005	2	8164005	2	8164005	2
146A	Grip Lever Yellow	500378	1	500378	1	500378	1
146B	Grip Lever Orange	500379	1	500379	1	500379	1
147	Label Start/Stop Toggle	500329	1	-	-	-	-
154	Screw Cap 1/4-20 x 1 3/4"	8041009	1	8041009	1	8041009	1
157	Switch box BC2403	500384	1	-	-	-	-
158	Switch Toggle, ON/OFF	500307	1	-	-	-	-
159	Harness Assy	500306	1	-	-	-	-
160	Bushing Strain Relief	500282	1	-	-	-	-
161	Label Throttle Pull Start BC	501314	1	501314	1	501314	1
170	Bolt Shoulder 3/8-16 x 1-1/2"	501313	2	501313	2	501313	2
186	Label Shift BC2402	500349	1	500349	1	500349	1
191	Label Clutch Drive	500176	1	500176	1	500176	1
192	Label Clutch Blade	500177	1	500177	1	500177	1

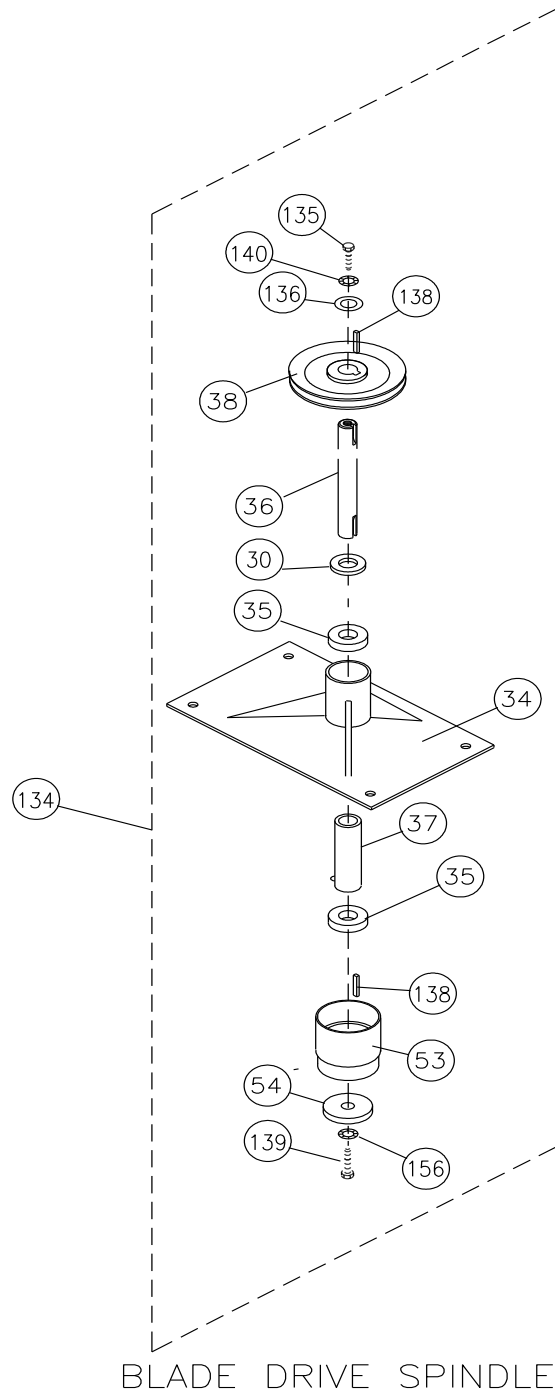


Transaxle and Blade Deck Assembly
Figure 8



BC2403 Series Brush Cutter Owner's Manual

ITEM NO	DESCRIPTION	BC2403HEB		BC2403H		BC2403IC	
		Part No	QTY	Part No	QTY	Part No	QTY
1	Deck Assembly with Labels	500407	1	500407	1	500407	1
3	Deflector Front BC2402	500125	1	500125	1	500125	1
8	Transaxle 3 SPD BC2402	500365	1	500365	1	500365	1
9	Pulley 5.0" OD 'A' Section	830180	1	830180	1	830180	1
10	Belt Traction Drive	500119	1	500119	1	500119	1
11	Plate Pivot Idler/Shifter	500122	1	500122	1	500122	1
12	Shifter Pivot WA	500368	1	500368	1	500368	1
13	Pulley Idler	800260	1	800260	1	800260	1
14	Wheel & Tire 16" SP LH	500366	1	500366	1	500366	1
	Wheel & Tire 16" SP LH Xtrac No flat BC2403HF and ICF only	-	-	500371	1	500371	1
16	Arm Idler WA	500170	1	500170	1	500170	1
19	Bar Shift T-axle	500121	1	500121	1	500121	1
20	Angle Support T-axle	500127	1	500127	1	500127	1
21	Rod Link Shifter	500144	1	500144	1	500144	1
29	Belt Blade Drive	500237	1	500237	1	500237	1
30	Spacer Spindle BC2402	500232	1	500232	1	500232	1
31	Bar Guard BC2403	500356	1	500356	1	500356	1
33	Screw Cap 5/16-18 x 1 3/4"	8041031	4	8041031	4	8041031	4
34	Spindle WA BC2402	500174	1	500174	1	500174	1
35	Bearing 7/8" ID Sealed Press	500101	2	500101	2	500101	2
36	Shaft Drive Blade	500107	1	500107	1	500107	1
37	Spacer Spindle Bearing	500115	1	500115	1	500115	1
38	Pulley 7" OD x 7/8" Bore	500253	1	500253	1	500253	1
49	Nut Lock 3/8-16 Thin	8161042	1	8161042	1	8161042	1
50	Blade 24" BC2402	500210	1	500210	1	500210	1
53	Adapter Blade WA	500191	1	500191	1	500191	1
54	Washer Friction Blade	500108	1	500108	1	500108	1
101	Bolt Carriage 1/4-20 x 3/4"	8024021	5	8024021	5	8024021	5
102	Nut Lock 1/4-20	*8160001	5	*8160001	5	*8160001	5
103	Screw Cap 5/16-18 x 1-1/4"	*8041029	6	*8041029	6	*8041029	6
104	Washer Split Lock 5/16"	*8177011	5	*8177011	5	*8177011	5
108	Screw Cap 5/16-18 x 2-3/4 "	*8041035	4	*8041035	4	*8041035	4
109	Bolt Carriage 5/16-18 x 3/4 "	8024039	2	8024039	2	8024039	2
110	Washer Flat 1/2"	900230	1	900230	1	900230	1
111	Pin Cotter 3/32 x 3/4"	*8197016	1	*8197016	1	*8197016	1
112	Bolt Shoulder 1/2 x 1"	500114	1	500114	1	500114	1
113	Nut Lock 3/8-16	*8160003	1	*8160003	1	*8160003	1
114	Bolt Idler	800888	1	800888	1	800888	1
115	Screwcap 5/16"-18 x 2" HCS ZP	8041032	1	8041032	1	8041032	1
116	Nut Jam 5/16-18	*8142002	1	*8142002	1	*8142002	1
117	Nut Lock 5/16-18	*8160002	15	*8160002	15	*8160002	15
119	Screw Cap 5/16-18 x 1-1/2"	*8041030	6	*8041030	6	*8041030	6
122	Screw Cap 1/4-28 x 1/2" GR5	850408	1	850408	1	850408	1
123	Washer lock 1/4" S/T Med	8177010	1	8177010	1	8177010	1
124	Washer 1/4" FC	*8171002	1	*8171002	1	*8171002	1
125	Screw Self Tap 5/16"	*8123128	1	*8123128	1	*8123128	1
126	Pin Hair Cotter	900471	2	900471	2	900471	2
128	Pin Cotter 3/32 x 3/4"	8197016	1	8197016	1	8197016	1
130	Washer 0.765 x 1.250 x 0.060"	850238	2	850238	2	850238	2
132	Ring Snap 0.750"	850230	2	850230	2	850230	2
133	Key 3/16 x 2-1/8"	9201087	2	9201087	2	9201087	2
135	Screw Cap 7/16-20 x 1-1/4" GR8	800554	1	800554	1	800554	1
136	Washer 7/8 SAE	350153	1	350153	1	350153	1
138	Key Sq 3/16 x 5/8"	9201072	2	9201072	2	9201072	2
139	Screw Cap 7/16-20 x 2" GR8	500188	1	500188	1	500188	1
140	Washer Lock 7/16"	850132	1	850132	1	850132	1
141	Washer 5/16 FC	*8171003	22	*8171003	22	*8171003	22
155	Bar Skid BC2403	500355	2	500355	2	500355	2
156	Washer lock 7/16 S/T Med	8177013	1	8177013	1	8177013	1
180	Label OPEI	400424	2	400424	2	400424	2
184	Label Flying Debris	810736	1	810736	1	810736	1
197	Washer Lock 5/16 twisted tooth	800177	2	800177	2	800177	2
200	Washer Lock 5/16 twisted tooth heavy	430298	4	430298	4	430298	4
201	Snap ring	850233	1	850233	1	850233	1
211	Blade kit	500210-S	1	500210-S	1	500210-S	1
212	Screwcap 5/16"-18 x 3/4"	8041026	1	8041026	1	8041026	1



Blade Drive Spindle Assembly Detail Drawing
Figure 9



BC2403 Series Brush Cutter Owner's Manual

ITEM NO	DESCRIPTION	BC2403HEB		BC2403H		BC2403IC	
		Part No	QTY	Part No	QTY	Part No	QTY
134	Spindle Assembly Complete	500242	1	500242	1	500242	1
30	Spacer Spindle BC2402	500232	1	500232	1	500232	1
34	Spindle WA BC2402	500174	1	500174	1	500174	1
35	Bearing 7/8" ID Sealed Press	500101	2	500101	2	500101	2
36	Shaft Drive Blade	500107	1	500107	1	500107	1
37	Spacer Spindle Bearing	500115	1	500115	1	500115	1
38	Pulley 7" OD x 7/8" Bore	500253	1	500253	1	500253	1
53	Adapter Blade WA	500191	1	500191	1	500191	1
54	Washer Friction Blade	500108	1	500108	1	500108	1
135	Screw Cap 7/16-20 x 1-1/4" GR8	800554	1	800554	1	800554	1
136	Washer 7/8 SAE	350153	1	350153	1	350153	1
138	Key Sq 3/16 x 5/8"	9201072	2	9201072	2	9201072	2
139	Screw Cap 7/16-20 x 2" GR8	500188	1	500188	1	500188	1
140	Washer Lock 7/16"	850132	1	850132	1	850132	1
156	Washer lock 7/16 S/T Med	8177013	1	8177013	1	8177013	1