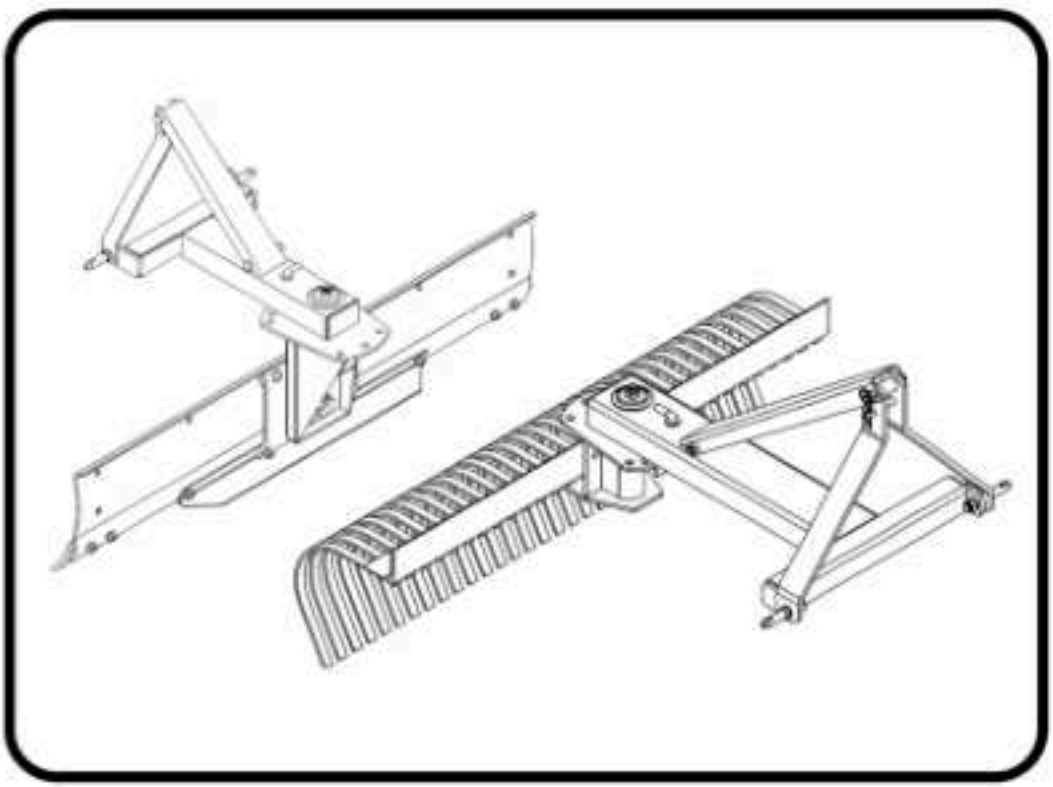
Bobcat®

Operation & Maintenance Manual
Angle Blade & Tine Rake

3AB60 - S/N A1FZ00101 & Above
3AB84 - S/N A1G000101 & Above
3AB84HD - S/N A1G100101 & Above
3AB96HD - S/N A1G200101 & Above
3TR72 - S/N A1FT00101 & Above
3TR84 - S/N A1FU00101 & Above



Ingersoll Rand
Compact Vehicle Technologies

6804725 (3-06)

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1. Standard Equipment and Specifications

	3AB60	3AB84	3AB84HD	3AB96HD	3TR72&3TR84
Max. 2-Wheel Drive Tractor HP (PTO)	20HP	35 HP	55 HP	65 HP	35 HP
Max. Front Wheel Assist Tractor (PTO)	17 HP	30 HP	47 HP	55 HP	30 HP
Moldboard Width	5'	7'	7'	8'	
Moldboard Dimension	1/4"x14"	1/4" x 14"	5/16" x16"	5/16" x16"	
Rake Width					6', 7'
Rake Height					15-1/4"
Rake Frame					4" x 4" x 3/8"
Cutting Edge	3/8"x3"	1/2" x 6"	1/2" x 6"	1/2" x 6"	
Support Stand	Std.	Std.	Std.	Std.	Std.
Hitch	CAT0 WCATI Pins	CAT I	CATI	CATI	CAT I
King Pin Diameter	2-7/8", Tubing	2-7/8", Tubing	2-7/8", Tubing	2" Solid Steel	2-7/8" Tubing
Adjustment Types	Manual	Manual	Manual	Manual	Manual Pivot
Offset (Maximum Left or Right)		12"	12"	23"	
Forward Angle		7-45 Degrees	7-45 Degrees	7-45 Degrees	7-45 Degrees
Reverse Angle		3-30 Degrees	3-30 Degrees	3-30 Degrees	3-30 Degrees
Tilt (Up and Down)	Tractor lift Arms	5-15 Degrees	5-15 Degrees	2-15 Degrees	
No. of No-Wrench Adjustments	10	15	15	22	10
Weight (Approx.):					
5'					
6'	156 lbs.				256 lbs.
7'		310 lbs.	395 lbs.		282 lbs.
8'				430 lbs.	
Tine Size					5/16" x 1"

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9. OPERATING THE TRACTOR AND IMPLEMENT

THE OPERATOR MUST COMPLETELY UNDERSTAND HOW TO OPERATE THE TRACTOR AND IMPLEMENT AND ALL CONTROLS BEFORE ATTEMPTING TO OPERATE. The operator must read and understand the Safety and Operation Sections of the implement and tractor operator's manuals. These manuals must be read and explained to any operator who cannot read. Never allow someone to operate the implement and tractor without complete operating instructions.

Before starting any operation, the operator must become familiar with the area to be worked in and any obstacles and hazards contained within to ensure safety to the operator, bystanders, and equipment. Special attention should be paid to foreign debris, rough terrain, steep slopes, and passersby and animals in the area. *OPS-U- 0015*

9.1 Operating the Angle Blade and Tine Rake

Only operate the angle blade and Tine Rake from the tractor operator's seat with the seat belt securely fastened. The tractor must be equipped with a ROPS in the raised position or a ROPS cab.

Ditching (V-Type Ditch)

Rotate Moldboard to desired angle (right or left) and place Lock Pin in desired hole of Moldboard Rear Mount. Blade point should be centered close behind or slightly to outside of tractor tire.

Tilt Moldboard to desired angle (right or left) and place Lock Pin in desired hole of Rear Mount. Maximum Blade tilt adjustment is 30 degrees; tractor implement leveling device may be adjusted if greater angle with ground line is desired.To refill a ditch, offset the mainframe to the right (left)) and rotate the Moldboard to push the dirt into the ditch while traveling forward.

Utility

To clean close to a fence or barn, offset the Moldboard 12 inches to the right or left to extend the Blade beyond the tractor tire. Be careful not to hang the Blade Tip as this could result in damage to the Blade or Moldboard. For smoothing out loose soil, a fine finish can be obtained by pushing the soil with the back of the Moldboard.

Grading

Set the Moldboard Pivot to the desired angle, lower the Blade to the ground, and then set the depth of cut with the tractor hydraulics.

Backfilling

The Moldboard can be manually rotated 180 degrees for backfilling operations. This position requires a careful setting of the Top Link allowing a Blade angle which does not tend to bury itself, but move across the top of the ground. Backfilling is a very critical operation because the Blade tends to dig into the ground. The backfilling operation should be performed with the Mainframe straight behind the tractor with the Blade set in the center position (perpendicular to the Mainframe). The work should be kept in the center of the Blade. Avoid concentrated loads on the end of the Blade. Do not ram into a load at any time as this multiplies the forces several times normal and could result in damage to your Blade. Perform all backfilling operations at slow speeds to prevent damage if the Blade hits an object. Moving snow with the Blade in the backfill position is a very delicate operation and should be performed with care. It is very easy to hit hidden objects when moving the light snow. It is also very easy to operate the Blade at too high a speed, with resulting damage.

NOTE: *The warranty shall not apply to damage caused by misuse, abuse, or contact with obstructions.*

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Proper Torque For Fasteners

The chart lists the correct tightening torque for fasteners. When bolts are to be tightened or replaced, refer to this chart to determine the grade of bolts and the proper torque except when specific torque values are assigned in manual text.

Recommended Torque in Foot Pounds Unless Otherwise Stated in the Manual*

NOTE: *These values apply to fasteners as received from supplier, dry or when lubricated with normal engine oil. They do not apply if special graphited or molydisulphide greases or other extreme pressure lubricants are used. This applies to both UNF fine and UNC coarse threads.*

Proper Torque values for bolts that are measured in Inches

Bolt Diameter	Head Marking No Marks Grade Two Pound - Foot Value Dry	Head Marking Three Lines Grade Five Pound - Foot Value Dry	Head Marking Six Lines Grade Eight Pound - Foot Value Dry
1/4"	6.5	9	12.5
5/16"	11	18	26
3/8"	20	33	46
7/16"	32	52	75
1/2"	50	80	115
9/16"	70	115	160
5/8"	100	160	225
3/4"	175	280	400
7/8"	175	450	650
1"	270	675	975
1-1/8"	375	950	1350
1-1/4"	530	1300	1900
1-3/8"	700	1550	2550
1-1/2"	930	2100	3350

Proper Torque values for Metric bolts

Bolt Diameter	4.8 Head Marking 4.8 Pound - Foot Value Dry	8.8 Head Marking 8.8 or 9.8 Pound - Foot Value Dry	10.9 Head Marking 10.9 Pound - Foot Value Dry	12.9 Head Marking 12.9 Pound - Foot Value Dry
6mm	4.8	8.8	12	14.5
8mm	11	20	30	35
10mm	21	40	60	70
12mm	37	70	105	120
14mm	60	110	165	190
16mm	92	170	255	300
18mm	125	250	350	410
20mm	180	360	500	580
22mm	250	475	670	800
24mm	310	600	850	1000
27mm	450	875	1250	1500
30mm	625	1200	1700	2000

*To get Newton-Meters multipy pound-foot of torque by 1.356

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ITEM	PART NO.	QTY	LEVEL	DESCRIPTION
1.	00725746	1	PELIGRO	Translate Safety Material
2.	999000	1	WARNING	Multi-Hazard, Blades
3.	999200	1	WARNING	Multi-Hazard, General
4.	03200347	*	REFLCTR	SMV Emblem
5.	7123929	1	SERIAL PLT	Serial Plate 3TR72
	7123934	1	SERIAL PLT	Serial Plate 3TR84
6.	2738332	2	REFLECT	Red Reflector - 6'
7.	7109473	2	LOGO	BOBCAT

*Furnished by Tractor Manufacturer

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When disconnecting the implement the tractor should be completely shut down and secured in position, by lowering the parking jack. Relieve hydraulic pressure by moving the control levers back and forth several times. Then extend the tractor 3-point hitch top link to remove tension on the top link hitch pin. When the pin is loose and easy to rotate, remove the pin from the implement. Next remove both lower hitch pins. . *OPS- 0052_A-BCat*



11. ANGLE BLADE AND TINE RAKE STORAGE

Properly preparing and storing the angle blade and landscape rake at the end of the season is critical to maintaining its appearance and to help ensure years of dependable service. The following are suggested storage procedures:

- Thoroughly clean all debris off the unit to prevent damage from rotting grass and standing water.
- Lubricate all grease points detailed in the maintenance section.
- Tighten all bolts and pins to the recommended torque.
- Check the unit for worn and damaged parts. Perform repairs and make replacements immediately so that the unit will be ready for use at the start of the next season.
- Store the unit in a clean, dry place.
- Use spray touch-up enamel where necessary to prevent rust and maintain the appearance of the unit. *OPS-0053_B-BCat*



⚠ DANGER Never allow children to play on or around Tractor or Implement. Children can slip or fall off the Equipment and be injured or killed. Children can cause the Implement to shift or fall crushing themselves or others. (SG-25)

12. TRANSPORTING THE TRACTOR AND IMPLEMENT

Inherent dangers of operating the tractor and implement and the possibility of accidents are not left behind when you finish working in an area. Therefore, the operator must employ good judgement and safe operation practices when transporting the tractor and implement between locations. By using good judgement and following safe transport procedures, the possibility of accidents while moving between locations can be substantially minimized. *OPS-U- 0017*

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