



Manual # AA07-0026

EBLING BACK BLADE

24" & 30" TRACTOR

OWNERS MANUAL





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1 INTRODUCTION

You have just purchased The Best Back Blade available in the snowplow industry today. Your new Ebling Back Blade has been designed and built to provide many years of durable service. Used properly, it will increase your productivity and allow you to plow more snow more efficiently than ever before.

This manual provides safety, operation, and maintenance information for your new Ebling Back Blade. Please read this manual before operating the unit, and follow the instructions and recommendations to keep your back blade in top operating condition all winter long. Failure to do so may affect your warranty coverage.

Ebling Snowplows and your local dealer will be your sources for replacement parts and service as they become necessary over the life of your back blade. Feel free to contact us for maintenance, service, replacement parts, or any other assistance we can provide. We are here for you!

2 SAFETY PRECAUTIONS

Improper installation or operation of your back blade could cause injury, equipment damage, and/or property damage. Please read and understand the information in this manual before installing, operating, or making adjustments to this equipment.

Throughout this manual, safety-related information and precautions are noted by one of the two safety symbols below, based on the severity of potential injury as defined.



WARNING: Indicates a hazard that, if not avoided, could result in death or serious injury.



CAUTION: Indicates a hazard that, if not avoided, may result in minor or moderate injury, or lead to equipment damage and/or property damage.



3 BACK BLADE FEATURES

3.1 Back Blade 3 Point MOUNT

The Ebling Back Blade is attached to the tractor using a 3 point plow mount, which is a welded framework that is attached to the backblades moldboard, and in turn pinned to the tractors 3 point accessory arms. Depending on blade size this mount is built to class I or class II specifications.



Figure 1

Back Blade 3 Point Mount



CAUTION: Do not cut, drill, weld, or otherwise modify the 3 point plow mount. Doing so may affect the safety integrity of the mount and will void the warranty.



3.2 Moldboard & Wings

The Ebling Back Blade moldboard is designed and constructed to be one of the most rugged in the industry. A single moldboard design will accept any size hydraulic wing to provide flexibility and future upgradeability. Each hydraulic wing includes a breakaway feature, which is based on a shear bolt that is intended to be a sacrificial “weak link” that reduces the possibility of damage to the wing, if an obstruction is hit hard enough to break the shear bolt. See Figure 3 for illustration of the shear bolt joint.

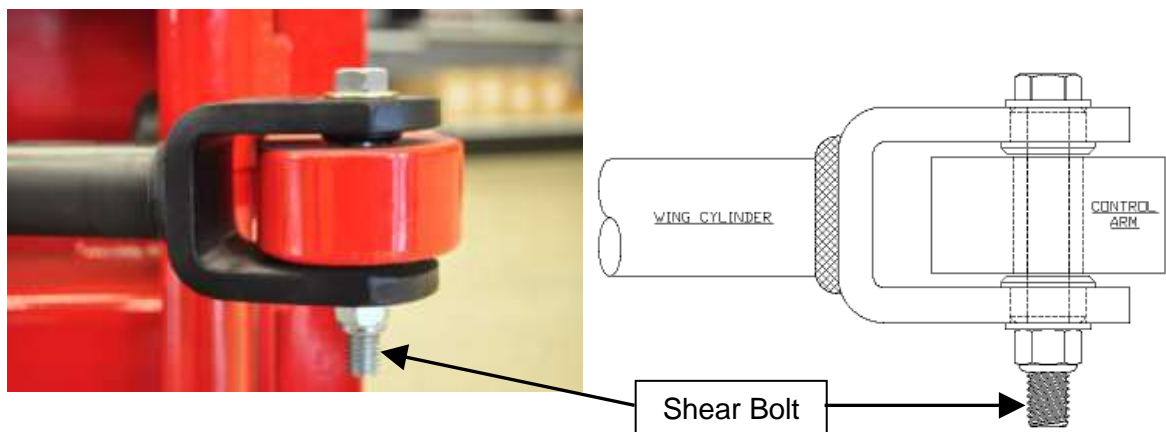


Figure 3
Shear Bolt Joint

If the shear bolt breaks, this will allow the wing to rotate backward out of the way to clear the obstruction. Plowing can be resumed immediately after replacing the shear bolt instead of heading for the repair shop. The size of the shear bolt is based on the expected snow load and frictional forces for the wing size, with a safety factor to minimize nuisance breakage.

HW24X72X10 - Uses 7/16” shear bolt (Grade 2 or less)

HW24X96X12 - Uses 7/16” shear bolt (Grade 2 or less)

HW24X72X14 - Uses 1/2” shear bolt (Grade 2 or less)

HW24X96X16 - Uses 1/2” shear bolt (Grade 2 or less)

HW30X102X16 - Uses 1/2” shear bolt (Grade 2 or less)

NOTE: Due to the many variables present in any snowplowing application, the breakaway feature is not intended nor is it guaranteed to be a 100% solution in every situation where an obstruction is hit.



3.3 Cutting Edges

Unless you ordered custom cutting edges for your back blade, the standard moldboard cutting edge is made from durable carbon steel, and the wing cutting edges are tough, durable polyurethane material as standard. To minimize snow leakage at the corners between the moldboard and wing cutting edges, a polyurethane corner edge on each wing is designed to close against a block at each moldboard corner in order to maintain a minimal gap at the corner regardless of the wing position through the entire wing travel from fully closed to fully open position (see Figure 4).

Figure 4
Corner Closure
Wing Fully Open



Maintaining proper alignment of your back blade is important to be able to get maximum life out of the cutting edges. When maintained properly, the wing cutting edges and the corner closure blocks will wear evenly along with the moldboard cutting edge. The lower 3 point arms should be adjusted at time of installation, but over the life of the cutting edges, depending on the wear you observe due to the plowing application, site conditions, and operator plowing methods, the 3 point arms may need to be adjusted to allow more even wear of the cutting edges. Refer to the *Back Blade Maintenance* section of this manual for additional details on making alignment adjustments to the back blade.



3.4 Controls

The Ebling Back Blade wings are controlled by the tractors hydraulic valving and OEM in cab levers.



Figure 5
John Deere
Hydraulic Controls

In order for the wings to work independently and correctly the tractor must be equipped with 2 sets of hydraulic valves with 4 hydraulic couplers.



WARNING: If the back blade hits you or drops on you it could cause serious injury. Be aware of the operating envelope of the blade, and stay clear of the back blade when operating the controls.



4 HYDRAULIC SYSTEM

The back blade hydraulic system is powered by the tractor's hydraulic system. Built-in flow controls on the hydraulic supply lines to the wing cylinders provide a smooth controlled opening/closing of the wings. Flow controls shown in Figure 7.



Figure 7
In Line
Flow Controls

Refer to the following sections of this manual for specific information regarding the back blade hydraulic system:

1. *Schematics* section: Hydraulic plumbing connection diagrams.

5 MOUNTING BACK BLADE TO TRACTOR



WARNING: Always inspect all back blade components and fasteners for wear and/or damage before mounting back blade onto vehicle. Worn or damaged parts may fail unexpectedly, which could cause serious injury.



CAUTION: Due to limited visibility of rear of vehicle from the driver's seat, it is recommended that steps 1-3 be completed with an observer at the rear of the tractor to provide assistance, not by yourself. Make sure observer stands at a safe position to avoid pinch/drop points. If you must do this by yourself, use extreme care.

1. Back plow tractor into position close to the back blade so that the 3 point arms line up with the pin clevis's on the plow mount.
2. Route the back blade wing hoses as shown and then connect the couplers to the mating receptacles on the tractor valves. (see Figure 9).



Figure 9

3. Verify that the correct hose coupler is hooked to the correct valve coupler. Base end of the cylinder to the extend symbol, rod end to the retract symbol.
4. Back tractor up slowly and raise/lower arms until they are lined up with pin clevises. Insert pins and finish with lynch pins.
5. Now attach top link arm to top clevis with pin and lynch pin.
6. Slowly raise blade until just off the ground and adjust lower arms so the blade sits level side to side. Make sure to pin the lower arms according to manufactures specifications. (see Figure 10)



Figure 10
3 Point Hooked To Tractor Arms

7. With the blade down, adjust top link arm for the angle of the wings to the ground. A good starting place is to have the tips of the wings about 1" higher than the backs. This makes up for any play in the pins when plowing. Inspect wing cutting edge wear after plowing to see if top link needs adjusting for even wear. If there are multiple locations for the tractor side of the top link, use the center position.
8. Verify that the back blade does not block the view of the tractor's tail lights while in travelling position.



CAUTION: The back blade plow mount is designed to accommodate nearly all OEM equipment, but some after-market lighting may not fully comply with this requirement. If the view of the vehicle's tail lights is blocked, you will need to modify the lighting.



6 OPERATING THE BACK BLADE

1. All functions of the back blade are controlled by the hydraulic levers in the tractor. Consult tractor operation manual if there are any questions about functions.

7 TRANSPORTING & DRIVING CONSIDERATIONS

1. Before transporting the back blade to and from plowing jobs, always put the back blade into the proper transport condition as follows:
 - Raise the back blade to the fully-raised position to prevent the bottom of the plow from striking the pavement when encountering potholes or other road obstacles.
 - Close both wings to the fully-closed position to minimize the width of the back blade profile when traveling down the road.
2. Always drive defensively and be aware of the additional size and weight of the equipment that you are transporting with regard to turning radius, passing clearance, braking distance, etc.



WARNING: Always lower the back blade when the vehicle is parked to prevent the blade from dropping unexpectedly due to hydraulic pressure changes or damaged system components. Keep clear of the blade's drop zone at all times. Failure to observe these safety precautions could result in serious personal injury.

8 PLOWING CONSIDERATIONS



WARNING: Plowing speed should not exceed 10 mph (16 km/h). Transport speed should not exceed 45 mph (72km/h). Further reduce speed as weather conditions warrant.

1. Before plowing at a site, make sure you are aware of any obstructions that could be hidden beneath the snow, such as curbs, sidewalk edges, bumper stops, low shrubs, or other landscaping obstacles. Marking hard-to-see obstructions or other hazards before plowing season can help identify them when they are covered with snow.



WARNING: Always wear your seat belt when plowing snow. Striking a hidden obstruction could cause the vehicle to stop or swerve suddenly, which could result in serious personal injury if you are not wearing your seat belt.

2. Plow at a reasonable speed given the overall site layout and the weather conditions at time of plowing.



CAUTION: Your back blade is designed to pull snow, so using your back blade to push snow with the vehicle in reverse is not recommended. **Do not “run” curbs with wings partially open, if an obstruction is hit in this position the shear bolt will not function and damage to the hinge knuckles and cylinder will occur not covered by warranty.**

3. When plowing around obstructions, it is recommended to keep your hydraulic wings fully or almost fully closed to minimize the potential for wing damage.
4. When entering or exiting a driveway (or any other sloped surface with a valley) with the back blade raised, be aware of the difference in blade position with respect to the vehicle’s tires. The back blade may bottom out as the vehicle passes through the low spot.
5. When entering or exiting a driveway (or any other sloped surface with a valley) with the back blade lowered, it is recommended that the hydraulic wings are in the fully open or almost fully open position when possible, in order to minimize the potential for premature wear on the leading corners of the wing cutting edges, and to prevent snow escaping underneath the moldboard as the back blade passes through the low spot.

9 REMOVING BACK BLADE FROM TRACTOR

1. Move vehicle into position where back blade is to be removed. A flat area with sufficient maneuvering room is recommended for back blade removal and more importantly, for ease of re-attaching the back blade later.
2. Lower back blade until pressure is off clevis pins and remove pins.
3. Disconnect the wing hoses from the tractor valving.
4. Store clevis pins in disconnected 3 point mount.



10 OFF-SEASON STORAGE

1. Choose your off-season storage location carefully. A flat, dry, out-of-the-way surface is recommended, and storing the blade inside out of the weather is preferable to outside storage when possible.
2. Remove back blade from tractor per the procedures outlined in the *Removing Back Blade From Tractor* section of this manual.
3. Complete the steps in the *Post-Season Checklist* section of this manual.

11 BACK BLADE MAINTENANCE

11.1 Pre-Season Checklist

It is recommended that you complete the following list before the snow season to make sure your equipment is in top working condition prior to plowing:

1. Inspect entire blade assembly for worn or damaged parts, especially cutting edges, shear bolts, and moving parts.
2. Replace any worn or damaged parts.
3. Check all mounting points on back blade and vehicle, and make sure all cotter pins are still in place.
4. Check all fasteners and re-tighten as necessary.
5. Check all cutting edges for amount of wear, and replace cutting edges as necessary.
6. Touch up painted surfaces as necessary to protect the metal and maintain back blade finish and appearance. Touchup paint is available from Ebling Snowplows or your local dealer.
7. Check hydraulic system for leaks and cracked or damaged hoses, tighten fittings and replace hoses as necessary.
8. Grease wing hinge pins if needed.

11.2 In-Season Periodic Maintenance

The following items should be checked frequently during the plowing season:

1. Check all fasteners for wear; re-tighten to proper torque as necessary.
2. Check all hydraulic connections for leaks, re-tighten and repair as necessary.
3. Check hydraulic fluid reservoir and add fluid as necessary to keep full.



4. Check condition of all cutting edges to make sure they are wearing evenly. Re-align back blade and/or replace cutting edges as necessary. Refer to section 12.8, *Back Blade Alignment* for alignment instructions.

11.3 Post-Season Checklist

It is recommended that you complete the following preventive maintenance items prior to storing your back blade for the off-season:

1. Wash the back blade with a good automotive-grade detergent to clean off road grime and salt build-up.
2. Touch up painted surfaces as necessary to protect the metal and maintain back blade finish and appearance. Touchup paint is available from Ebling Snowplows or your local dealer.
3. Lubricate all mounting points (all clevis pins) with a general purpose lithium base grease.
4. With the back blade on the ground, remove the wing hinge pins, grease the pins, and then re-install with the washers and cotter pins.
5. Cover the back blade with a tarp to prevent dust and dirt accumulation, and to keep the back blade dry if stored outside.

11.4 Back Blade Alignment

1. Front-To-Back Alignment – The top link arm provides the proper amount of upward angle on the wing cutting edges that will offset the friction force that will work to align the blade once the cutting edges contact the pavement and the blade moves forward. Depending on the plowing application, site conditions, and operator plowing methods, over the life of the cutting edges the upper arms may need to be adjusted periodically to provide more even wear of the wing cutting edges. If you observe the front surfaces of the wing cutting edges to be “rounding off” or wearing more rapidly than the rest of the cutting edge, then the top link needs to be adjusted to compensate for the uneven wear.
2. Adjustment can also be made to the wing cylinders. With wings fully closed check if the wing is 90 degrees to the moldboard. If not, open the wing slightly and remove the clevis pin on the moldboard side of the cylinder. Loosen the jam nut and turn the threaded end of the cylinder counterclockwise to make the wing close more or counter clockwise to make the wing close less. Make adjustments in half turn increments until a true 90 is achieved when wing is fully closed. At 90 the rubber bumper will compress slightly. Open wing slightly and make sure cylinder hoses are straight up, replace clevis pin and cotter pin. Tighten cylinder jam nut. Check periodically to make sure wings stay in their 90 degree position.



12 SPARE PARTS & EMERGENCY PREPARATION

1. In addition to a kit containing the most common emergency items (flashlight, first aid kit, fire extinguisher, hand tools, etc.), it is recommended that you carry the following spare parts in case of breakdown while plowing with your back blade:
 - Shear bolt kit – one spare shear bolt kit (2 bolts with washers and hex nuts) are included with the back blade
2. The spare parts listed above are available from Ebling Snowplows or your local dealer.
3. Other spare/replacement parts may be deemed necessary based on your past experience or your particular plowing application. Make sure you are as prepared as possible before you get caught out in the middle of a snowstorm!

13 BACK BLADE SERVICE

1. If you have followed all of the guidelines and instructions in this manual and still cannot correct problems with the operation of your back blade, contact Ebling Snowplows or your local dealer for troubleshooting and repair information.
2. If service becomes necessary, it is recommended that you have your back blade serviced at Ebling Snowplows or your local dealer. Failure to use an authorized service center could affect the warranty coverage on your back blade.

14 WARRANTY

Ebling Snowplows offers a limited warranty for all snowplows and accessories. Refer to the warranty document provided with your back blade for warranty information.



15 SPECIFICATIONS

Ebling Tractor Back Blade Specifications

Model	24 x 72 x 10	24 x 96 x 12	24 x 72 x 14	24 x 96 x 16	30 x 102 x 16
Blade Height	24"	24"	24"	24"	30"
Blade Width Closed	80"	104"	80"	104"	110"
Blade Width Open	120"	144"	168"	192"	192"
3Pt Hitch Category	I	I	I	I, II	II
Moldboard Size	72"	96"	72"	96"	102"
Approx Wing Size	24"	24"	48"	48"	32"
Horse Power Min	35	40	45	50	75
Est. Weight Lbs	597	725	717	875	1058
Plow Finish	Powdercoat	Powdercoat	Powdercoat	Powdercoat	Powdercoat
Moldboard Cutting Edge	1/2x6" Steel	3/4x6" Steel	1/2x6" Steel	3/4x6" Steel	3/4x6" Steel
Wing Cutting Edges	1 1/2x6" Poly	1 1/2x6" Poly	1 1/2x6" Poly	1 1/2x6" Poly	1 1/2x6" Poly
Shear Bolt (A307A/Grd 2)	7/16"	7/16"	1/2"	1/2"	1/2"



16 SCHEMATICS

Tractor Hydraulic Cylinder Symbols



Cylinder Extend
To Base End Of Wing
Cylinder



Cylinder Retract
To Rod End Of Wing
Cylinder

1.5 Flow valve in hose to rod end of cylinder

2.0 Flow valve in hose to base end of cylinder

If valves are reversed wings will not operate properly

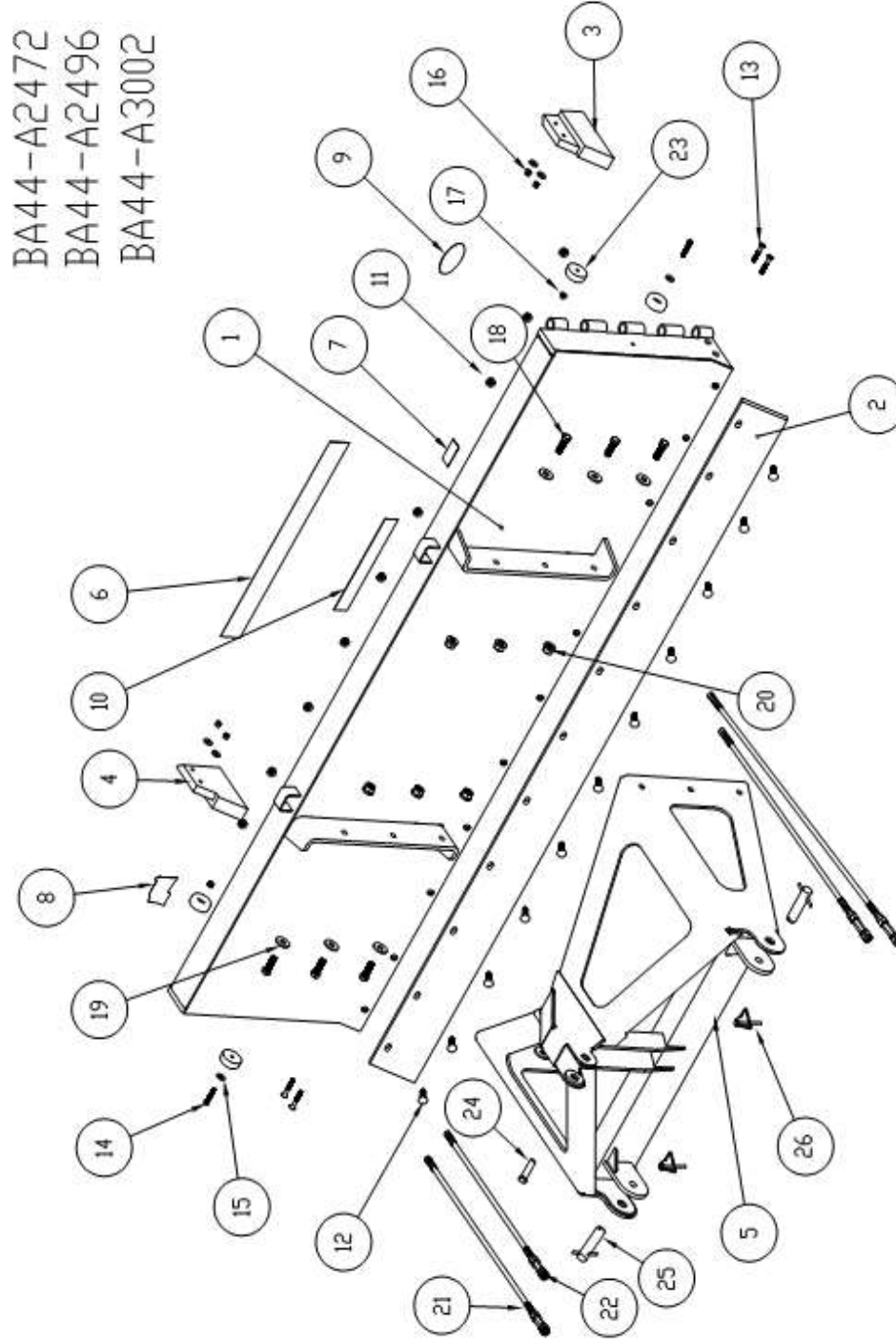


17. EXPLODED VIEWS AND PART NUMBERS

These exploded views are for parts ID only. Part numbers can change, Not all individual hydraulic parts are shown. Call for details



17.1 Exploded Views – All Tractors





Parts Listing
BA44-A2472 Moldboard & 3 Point

Item #	Part #	Description	Qty
1	AA04-0037	MB weldment 24" x 72"	1
2	AA05-0038	MB cutting edge 72"	1
3	AA05-0024	Corner closure block L	1
4	AA05-0025	Corner closure block R	1
5	BA04-C13	Cat 1 3 Point	1
6	AA07-0002	Ebling BB 3x30"	1
7	AA07-0003	Decal Serial Number	1
8	AA07-0004	Flag Decal	1
9	AA07-0011	Ebling oval Decal	1
10	KJ07-0004	Conspicuity Tape 25" W/R/W	1
11	HK03-0108	1/2 flange nuts	9
12	HK03-0036	1/2 x 1 3/4 carriage bolts	9
13	HK03-0005	3/8 x 2/ 1/2 hex drive flat	4
14	HK03-0021	3/8 x 2 hex bolt	2
15	HK03-0062	3/8 USS flat washer	6
16	HK03-0102	3/8 nylocks	4
17	HK03-0107	3/8 flange nuts	2
18	HK03-0054	5/8 x 2 hex bolts	4
19	HK03-0076	5/8 SAE flat washers	4
20	HK03-0109	5/8 flange nuts	4
21	AA02-0070	3/8" x 90" hose w/ 1.5gpm	2
22	AA02-0071	3/8" x 84" hose w/ 2.0gpm	2
23	KJ03-0006	Bumpers 2.5" dia	4
24	KK03-0003	3/4" top link pin cat 1	1
25	KK03-0004	7/8" lower link pin cat 1	2
26	KJ03-0007	3/8" lynch pins	3



Parts Listing
BA44-A2496 Moldboard & 3 Point

Item #	Part #	Description	Qty
1	AA04-0009	MB weldment 24" x 96"	1
2	AA05-0001	MB cutting edge 96"	1
3	AA05-0024	Corner closure block L	1
4	AA05-0025	Corner closure block R	1
5	BA04-C13	Cat 1 3 Point	1
6	AA07-0002	Ebling BB 3x30"	1
7	AA07-0003	Decal Serial Number	1
8	AA07-0004	Flag Decal	1
9	AA07-0011	Ebling oval Decal	1
10	KJ07-0004	Conspicuity Tape 25" W/R/W	1
11	HK03-0108	1/2 flange nuts	11
12	HK03-0037	1/2 x 2 carriage bolts	11
13	HK03-0005	3/8 x 2/ 1/2 hex drive flat	4
14	HK03-0021	3/8 x 2 hex bolt	2
15	HK03-0062	3/8 USS flat washer	6
16	HK03-0102	3/8 nylocks	4
17	HK03-0107	3/8 flange nuts	2
18	HK03-0054	5/8 x 2 hex bolts	4
19	HK03-0076	5/8 SAE flat washers	4
20	HK03-0109	5/8 flange nuts	4
21	AA02-0068	3/8" x 102" hose w/ 1.5gpm	2
22	AA02-0069	3/8" x 96" hose w/ 2.0gpm	2
23	KJ03-0006	Bumpers 2.5" dia	4
24	KK03-0003	3/4" top link pin cat 1	1
25	KK03-0004	7/8" lower link pin cat 1	2
26	KJ03-0007	3/8" lynch pins	3



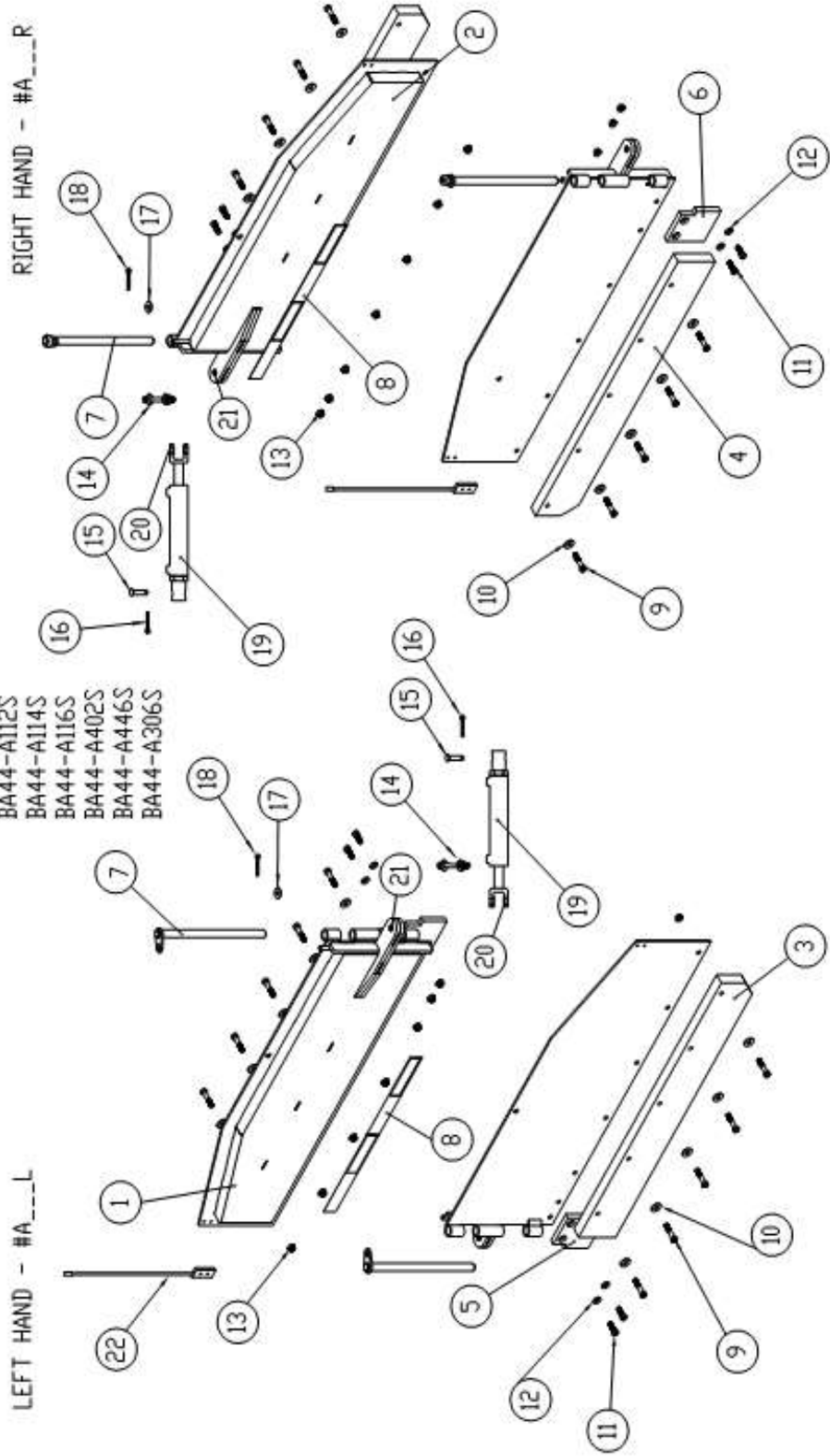
Parts Listing
BA44-A3002 Moldboard & 3 Point

Item #	Part #	Description	Qty
1	AA04-0010	MB weldment 30" x 102"	1
2	AA05-0002	MB cutting edge 102"	1
3	AA05-0024	Corner closure block L	1
4	AA05-0025	Corner closure block R	1
5	BA04-C23	Cat 2 - 3 Point Mount	1
6	AA07-0002	Ebling BB 3x30"	1
7	AA07-0003	Decal Serial Number	1
8	AA07-0004	Flag Decal	1
9	AA07-0011	Ebling oval Decal	1
10	KJ07-0004	Conspicuity Tape 25" W/R/W	1
11	HK03-0108	1/2 flange nuts	11
12	HK03-0037	1/2 x 2 carriage bolts	11
13	HK03-0005	3/8 x 2/ 1/2 hex drive flat	4
14	HK03-0021	3/8 x 2 hex bolt	2
15	HK03-0062	3/8 USS flat washer	6
16	HK03-0102	3/8 nylocks	4
17	HK03-0107	3/8 flange nuts	2
18	HK03-0050	3/4 x 2 hex bolts	6
19	HK03-0075	3/4 SAE flat washers	6
20	HK03-0110	3/4 flange nuts	6
21	AA02-0068	3/8" x 102" hose w/ 1.5gpm	2
22	AA02-0069	3/8" x 96" hose w/ 2.0gpm	2
23	KJ03-0006	Bumpers 2.5" dia	4
24	KK03-0001	1" top link pin cat 2	1
25	KK03-0002	1 1/8" lower link pin cat 2	2
26	KJ03-0007	3/8" lynch pins	3



Truck & Tractor Model Wing Sets

- BA44-A112S
- BA44-A114S
- BA44-A116S
- BA44-A402S
- BA44-A446S
- BA44-A306S





Parts Listing
BA44-A402S - Tractor Wings

Item #	Part #	Description	Qty
1	AA04-0019	Wing Weldment Left	1
2	AA04-0020	Wing Weldment Right	1
3	AA05-0041	Poly Cutting Edge Left	1
4	AA05-0042	Poly Cutting Edge Right	1
5	AA05-0030	Corner Edge Left	1
6	AA05-0031	Corner Edge Right	1
7	AA16-0017	Hinge Pin Weldment	1
8	KJ07-0003	Conspicuity Tape	1
9	HK03-0031	1/2-13x2 1/2 HHC	6
10	HK03-0064	1/2 USS Flat Washer	6
11	HK03-0028	1/2-13x1 1/2 HHC	4
12	HK03-0075	1/2 SAE Flat Washer	4
13	HK03-0108	1/2-13 Flange Nut	10
14	AA03-0002	7/16 Shear Bolt Assy	2
15	AA03-0005	Clevis Pin	2
16	HK03-0004	5/32x1 1/4 Cotter Pin	2
17	HK03-0080	9/16 SAE Flat Washer	2
18	HK03-0003	5/32x3/4 Cotter Pin	2
19	AA02-0052	Wing Cylinder 7/16 Bushings	2
20	AA16-0040	Wing Clevis Shear Bushing	4
21	AA16-0042	Control Arm Shear Bushing	2
22	AH09-0001	Marker Set	1



Parts Listing

BA44-A446S - Tractor Wings

Item #	Part #	Description	Qty
1	AA04-0038	Wing Weldment Left	1
2	AA04-0039	Wing Weldment Right	1
3	AA05-0021	Poly Cutting Edge Left	1
4	AA05-0051	Poly Cutting Edge Right	1
5	AA05-0030	Corner Edge Left	1
6	AA05-0031	Corner Edge Right	1
7	AA16-0017	Hinge Pin Weldment	1
8	KJ07-0005	Conspicuity Tape	1
9	HK03-0031	1/2-13x2 1/2 HHC	10
10	HK03-0064	1/2 USS Flat Washer	10
11	HK03-0028	1/2-13x1 1/2 HHC	4
12	HK03-0075	1/2 SAE Flat Washer	4
13	HK03-0108	1/2-13 Flange Nut	14
14	AA03-0003	1/2 Shear Bolt Assy	2
15	AA03-0005	Clevis Pin	2
16	HK03-0004	5/32x1 1/4 Cotter Pin	2
17	HK03-0080	9/16 SAE Flat Washer	2
18	HK03-0003	5/32x3/4 Cotter Pin	2
19	AA02-0054	Wing Cylinder 1/2 Bushings	2
20	AA16-0041	Wing Clevis Shear Bushing	4
21	AA16-0043	Control Arm Shear Bushing	2
22	AH09-0001	Marker Set	1



Parts Listing

BA44-A306S - Tractor Wings

Item #	Part #	Description	Qty
1	AA04-0021	Wing Weldment Left	1
2	AA04-0022	Wing Weldment Right	1
3	AA05-0022	Poly Cutting Edge Left	1
4	AA05-0052	Poly Cutting Edge Right	1
5	AA05-0030	Corner Edge Left	1
6	AA05-0031	Corner Edge Right	1
7	AA16-0018	Hinge Pin Weldment	1
8	KJ07-0005	Conspicuity Tape	1
9	HK03-0031	1/2-13x2 1/2 HHC	10
10	HK03-0064	1/2 USS Flat Washer	10
11	HK03-0028	1/2-13x1 1/2 HHC	4
12	HK03-0075	1/2 SAE Flat Washer	4
13	HK03-0108	1/2-13 Flange Nut	14
14	AA03-0003	1/2 Shear Bolt Assy	2
15	AA03-0005	Clevis Pin	2
16	HK03-0004	5/32x1 1/4 Cotter Pin	2
17	HK03-0080	9/16 SAE Flat Washer	2
18	HK03-0003	5/32x3/4 Cotter Pin	2
19	AA02-0054	Wing Cylinder 1/2 Bushings	2
20	AA16-0041	Wing Clevis Shear Bushing	4
21	AA16-0043	Control Arm Shear Bushing	2
22	AH09-0001	Marker Set	1



18. INSTALLATION INSTRUCTIONS

These installation instructions are for the current 2019 version. Can be subject to change, Not all possible scenarios are shown. Call for any situations not covered in these instructions.



18.1 Final Assembly Instructions – ALL Tractors

Final Assembly Instructions – Tractor Hydraulic Wing Backblade

Step 1

You should receive the following for complete assembly

1 - Crate with moldboard/3-point assembly.

1 or 2 - Wing boxes specific to the size of backblade to be assembled.

Make sure all containers are accounted for and are the correct sizes for your installation.

Step 2

Disassemble top framing of crate, leaving moldboard on crate.

Remove any strapping holding moldboard to shipping skid.

Step 3

Open all other boxes and familiarize yourself with the contents to be assembled.

Step 4

Remove moldboard assm from shipping crate and set upright on level surface. You will need a floor jack or blocks to hold the 3-point mount up so the moldboard is square to the floor. Place block under bottom channel of moldboard to keep blade from accidentally falling over backwards.

Step 5

This step will require an assistant since wings are heavy and bulky.

Remove one wing from box and remove hinge pin from wing. Position wing in hinge barrels of moldboard with wing parallel to moldboard and re-insert hinge pin. Make sure there is grease coating the pin and barrels. Fasten with 9/16" SAE flat washer and 5/32" x 3/4" cotter pin (bend over pin).

Step 6

Hold base end of hydraulic cylinder to clevis on back of moldboard and insert 3/4 x 3 1/2" clevis pin and secure with 5/32" x 1 1/4" cotter pin.



Step 7

Now line up rod end of cylinder with wing arm and insert shear bolt with 1 flat washer from top down, finish with 1 flat washer and nylock on bottom. Tighten until washers are against clevis surfaces but do not overtighten.

Step 8

Remove plugs from cylinder ports and pull wing forward. You will check / adjust for 90 degrees in an upcoming step.

Step 9

Place hydraulic fittings in cylinder ports and tighten. Then connect hoses to fittings and tighten.

Step 10

Repeat steps 6 - 10 for other wing.

Step 11

Back tractor up to blade and connect the 3 point hitch arms.

Step 12

Connect AG fittings to tractor valve blocks.

Right 2.0 flow restrictor goes from right wing cylinder base end to tractor valve marked for right cylinder extend.

Right 1.5 flow restrictor goes from right wing cylinder rod end to tractor valve marked for right cylinder retract.

Left 2.0 flow restrictor goes from left wing cylinder base end to tractor valve marked for left cylinder extend.

Left 1.5 flow restrictor goes from left wing cylinder rod end to tractor valve marked for left cylinder retract.

Step 13

Pick blade up and run wings in and out to purge any air in hoses/cylinders.

Step 14

With the wings closed and the blade in the down position, with no down pressure, the tips of the wings should be approx 1" off the ground. This is to account for any play in arm pins. If arms need to be adjusted refer to tractor owners manual.



Step 15

With wings fully closed check wing alignment to moldboard. Wing should be 90 degrees to moldboard. If this needs to be adjusted, open the wing slightly and remove clevis pin. Turn the threaded end of cylinder counterclockwise to make the wing close more, clockwise to make the wing close less.

Make adjustments in half turn attempts until 90 degrees is achieved, then make sure cylinder ports and hoses are straight up and **tighten jam nut to adjustment block of cylinder. (if you tighten jam nut toward cyl body, damage will occur to cylinder not covered by warranty.)**

Make sure to bend over cotter pin when done.

Step 16

Attach wing marker flags to both wings.

Backblade is now installed and adjusted for plowing. Be sure to check cutting edge wear as using and make any adjustments necessary to prolong the life of the edges.



19. TROUBLE SHOOTING GUIDE

These trouble shooting steps are meant to be a guide for finding the source of a particular problem in an Ebling Back Blade. Can be subject to change, Not all possible scenarios are listed. Call for any situations not covered in this guide.



19.1 All 24" & 30" Tractors

Troubleshooting Guide

<u>Problem</u>	<u>Steps to take</u>
Wing cutting edges wearing on tips	<ul style="list-style-type: none">* Check for damage to wings, moldboard or 3-point mount* Adjust tractor top link
Wings not closing to 90 degrees	<ul style="list-style-type: none">* Check for damage to wings, moldboard or 3-point mount* Shear bolt partially sheared/bent?* Cylinder out of adjustment?
Moldboard not level to tractor/off to one side.	<ul style="list-style-type: none">* Check for damage to moldboard or 3-point mount* Check tractor lift arms settings
Wings not responding to tractor controls	<ul style="list-style-type: none">* Check hose connections* Check in-line flow restrictors (1.5 & 2.0) at tractor valve ports
Wing movements reversed	<ul style="list-style-type: none">* Check hose connections



20. WARRANTY DETAILS

Ebling Snowplows Warranty Guidelines

Non-Covered Wear Items

- * All Wing Edges (including corner edges)
- * All Moldboard Edges (including corner edges)
- * Moldboard Rubber Bumpers
- * Plow Markers
- * Hardware Including Shear Bolts
- * Hydraulic Hoses

Warranty Process

- * Product Must Be Registered
- * Must Call Ebling Prior To Any Warranty Repair
- * No Diagnoses Time Is Covered, Contact Ebling To Aid In Diagnoses
- * All Repair Labor Is Subject To The Preset Labor Chart
- * Warranty Parts Will Be Invoiced To Dealers Account, Or Paid For By End User At Time Of Shipment, Credit Will Be Issued Upon Receipt Of Parts, If Required, And As Approved By Ebling
- * Ebling Will Pay For Shipment Of Warranty Parts Returned To Dealer or End User, Standard Shipping Rates Only
- * No Warranty Will Be Given For A Product Used Outside The Operating Instructions Or Any Service Bulletins Issued By Ebling Snowplows. In Addition, Back Blades Not Mounted As Recommended Or Mounted On Any Vehicle Not Listed In Ebling Manuals Or Mounted With A Custom Or Modified Mount May Not Be Eligible For Warranty
 - Contact Ebling For Any Manuals Or Applicable Service Bulletins Needed

All Ebling Snowplow Products Are Warrantied For Two Years From Date Of Purchase. Must Be Registered At Time Of Purchase. Products Not Registered May Not Be Eligible For Warranty



20.1 Commercial Warranty Details

EBLING BACK BLADE COMMERCIAL WARRANTY

THE FOLLOWING WARRANTIES ARE EXCLUSIVE IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES (EXCEPT OF TITLE), INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE.

Ebling & Son Inc. (Ebling) warrants to each purchaser of an Ebling Back Blade (including accessories and components) for other than personal, family or household use that the Back Blade will, for a period of two (2) years, after the date of the original purchase, be free from defects in material and workmanship. If within such warranty period any part thereof is proved to Ebling's satisfaction as defective, such part shall be repaired by Ebling or their authorized distributor or, at Ebling's option, replaced at Ebling's place of business without charge, including labor costs at their standard rate incurred while repairing said Back Blade. Ebling's obligation hereunder shall be limited to such repair or replacement and shall be further conditioned upon Ebling receiving written notice of any alleged defect and proof of original purchase within ten (10) days after its discovery and at Ebling's option, the return of the allegedly defective part to Ebling's place of business or to their authorized dealer.

The foregoing warranty shall not apply to parts not manufactured by Ebling or any damage caused by such parts or to parts which have been repaired or altered by anyone other than Ebling or an authorized Ebling distributor so as, in Ebling's judgment, adversely to affect the same, or which have been subject to other than normal use or service for snow removal, negligence, accident or improper installation, maintenance, care or storage. With respect to parts furnished but not manufactured by Ebling, Ebling shall pass on to their commercial customers the warranty extended to Ebling by the supplier of such parts. Ebling will not be responsible for any expense related to parts or labor which is unrelated to defects in material or workmanship of an Ebling Back Blade.

WHAT IS NOT COVERED

This warranty does not cover any parts not manufactured by Ebling or any damage caused by such parts, nor does it cover any Back Blade subjected to misuse, neglect, accident, other than ordinary use or service for snow removal, improper installation, maintenance or storage, or repair or alteration by anyone except Ebling or an authorized Ebling distributor.

Further, attachment of an Ebling Back Blade to a vehicle, including any necessary modification of the Back Blade and/or the vehicle, is entirely at the purchasers risk and expense and compliance with applicable motor vehicle regulations is the responsibility of the purchaser. Ebling will not be responsible for any expense related to parts or labor, which is unrelated to defects in material or workmanship of an Ebling Back Blade. Ebling does not assume any liability for any damage to a motor vehicle resulting from the attachment or from the use of Ebling's Back Blade, including inconvenience, motor violations, or fees. Ebling does not



assume any liability for the cost of modification of the Back Blade or the vehicle required to attach the Back Blade, if necessary.

In addition this Warranty does not cover:

- Problems caused by failure to follow the product instruction.
- Unit, Component, or Part failure due to improper maintenance or storage
- Paint / Powder Coat / Finishes of the Back Blade
- Products with missing or altered serial numbers
- Any Unit, Component, or Part which has been modified or altered in any way.

Continued from list on previous page:

- Problems caused by contamination, interference or restriction of moving parts, rust, corrosion, freezing or overheating.
- Expendable / Wear Items such as, but not limited to; pins, cutting edges, wing closure blocks & edges, and markers.
- Damage to any vehicle to which the products are mounted, or the suitability of any product for vehicles which are not fitted with the appropriate parts.
- Damage caused by usage that is not in accordance with the intended Back Blade use. (Use of the Back Blade for any purpose other than plowing snow is considered misuse and abuse)
- Any Unit, Component, or Part which has been modified or altered in any way.
- Problems caused by using accessories, parts, or components not supplied by Ebling and Son.
- Cost of Tax
- Cost of Freight (To or From Ebling or its Supplier) Including Transportation or Storage Charges such as but limited to; fuel or labor.
- Environmental charges, solvents, sealants, lubricants, or any other normal / standard shop supply or the cleanup, care, or storage of such items.
- Problems caused by collision, fire, theft, vandalism, riot, explosion, lightning, earthquake, windstorm, hail, water, flood, or any other Acts of God.
- Liability for damaged to property, or injury to, or death of any person arising out of the operation, maintenance or use of the Back Blade.
- Additional hardship or loss of income due to lack of, or inability of use of Back Blade due to Unit, Component, or Part failure, whether the failure is covered by Warranty or Denied.

REMEDY FOR DEFECTIVE BACK BLADE

Upon receipt by Ebling or an authorized Ebling distributor of any defective Back Blade Unit, Component, or Part, referred to below as “Part”, covered by this warranty, Ebling will, at its option, repair or replace the defective “Part” at its expense including labor costs as its standard rate incurred while repairing said “Part”, provided the purchaser of the “Part” has followed procedure for obtaining warranty performance set forth below. The “Part” so repaired or supplied as a replacement will be shipped to the purchaser of the defective “Part”, with transportation charges being the responsibility of the purchaser. Any damage in transit will be the responsibility of the carrier or at the risk of the purchaser. During the time of warranty evaluation of the “Part” presented to Ebling & Son or its Authorized Dealer, the customer may



choose to receive a replacement “Part”, and / or repair of “Part”. The customer will be invoiced for the “Part” or repair including the part(s) and associated labor and freight and paid to Ebling & Son, Inc. with the customers standard payment terms. Upon completion of the warranty evaluation the customer will be notified of warranty evaluation results. If the warranty evaluation results in acceptance, a credit for the “Part”, only, will be returned to the customer by check or credit to account. Note above policy in regards to labor and freight / shipping charges.

EBLING’S LIABILITY IS EXPRESSLY LIMITED TO THE REPAIR AND REPLACEMENT OF DEFECTIVE PARTS AS HEREIN PROVIDED, EBLING SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER, WHETHER FOR BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR OTHER TORT, OR ANY STRICT LIABILITY THEORY.

This warranty is not offered to purchasers of Back Blades for personal, family, or household purposes. A separate “limited” Consumers warranty is offered to such purchasers.



20.1 Consumer Warranty Details

EBLING BACK BLADE LIMITED WARRANTY TO CONSUMERS

THIS WARRANTY IS OFFERED IN LIEU OF ANY OTHER EXPRESS WARRANTY; AND EXCEPT TO THE EXTENT OF PROHIBITED BY APPLICABLE LAW, ALL IMPLIED WARRANTIES, INCLUDING (BUT NOT LIMITED TO) THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some states do not allow limits on how long an implied warrant lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Ebling & Son Inc. (Ebling) warrants to each initial purchaser of an Ebling Back Blade for personal, family, or household use that the Back Blade will, for a period of two (2) years, after original purchase, be free from defects in material and workmanship. Ebling does not authorize any party, including its authorized distributors, to offer any other warranty on behalf of Ebling. Upon expiration of the warranty period, Ebling will have no further liability related to the Back Blade, except with respect to warranty claims arising during the warranty period. The term "Back Blade" includes accessories and components manufactured by Ebling.

WHAT IS NOT COVERED

This warranty does not cover any parts not manufactured by Ebling or any damage caused by such parts, nor does it cover any Back Blade subjected to misuse, neglect, accident, other than ordinary use or service for snow removal, improper installation, maintenance or storage, or repair or alteration by anyone except Ebling or an authorized Ebling distributor.

Further, if not performed by Ebling or an authorized Ebling distributor, attachment of a Back Blade to a vehicle, including any necessary modification of the Back Blade and/or the vehicle, is entirely at the purchasers risk and expense and compliance with applicable motor vehicle regulations is the responsibility of the operator. Ebling will not be responsible for any expense related to parts or labor, which is unrelated to defects in material or workmanship of an Ebling Back Blade.

In addition this Warranty does not cover:

- Problems caused by failure to follow the product instruction.
- Unit, Component, or Part failure due to improper maintenance or storage.
- Problems caused by contamination, interference or restriction of moving parts, rust, corrosion, freezing or overheating.



- Paint / Powder Coat / Finishes of the Back Blade
- Expendable / Wear Items such as, but not limited to; pins, cutting edges, wing closure blocks & edges, and markers.
- Damage to any vehicle to which the products are mounted, or the suitability of any product for vehicles which are not fitted with the appropriate parts.
- Damage caused by usage that is not in accordance with the intended Back Blade use. (Use of the Back Blade for any purpose other than plowing snow is considered misuse and abuse)
- Any Unit, Component, or Part which has been modified or altered in any way.
- Problems caused by using accessories, parts, or components not supplied by Ebling and Son.
- Cost of Tax
Continued from list on Previous Page:

- Cost of Freight (To or From Ebling or its Supplier) Including Transportation or Storage Charges such as but limited to; fuel or labor.
- Environmental charges, solvents, sealants, lubricants, or any other normal / standard shop supply or the cleanup, care, or storage of such items.
- Problems caused by collision, fire, theft, vandalism, riot, explosion, lightning, earthquake, windstorm, hail, water, flood, or any other Acts of God.
- Liability for damaged to property, or injury to, or death of any person arising out of the operation, maintenance or use of the Back Blade.
- Products with missing or altered serial numbers.
- Additional hardship or loss of income due to lack of, or inability of use of Back Blade due to Unit, Component, or Part failure, whether the failure is covered by Warranty or Denied.

REMEDY FOR DEFECTIVE BACK BLADE

Upon receipt by Ebling or an authorized Ebling distributor of any defective Back Blade Unit, Component, or Part, referred to below as “Part”, covered by this warranty, Ebling will, at its option, repair or replace the defective “Part” at its expense including labor costs as its standard rate incurred while repairing said “Part”, provided the purchaser of the “Part” has followed procedure for obtaining warranty performance set forth below. The “Part” so repaired or supplied as a replacement will be shipped to the purchaser of the defective “Part”, with transportation charges being the responsibility of the purchaser. Any damage in transit will be the responsibility of the carrier or at the risk of the purchaser.

PURCHASER’S REMEDIES FOR A DEFECTIVE BACK BLADE, EXCEPT TO THE EXTENT PROHIBITED BY THE APPLICABLE LAW, ARE LIMITED TO THE REMEDY PROVIDED BY THIS WARRANTY; AND, EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, EBLING WILL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGE ARISING OUT OF THE USE OF, OR INABILITY TO USE, THE BACK BLADE, WHETHER BASED ON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE OR STRICT LIABILITY.



Some states do not allow the exclusion of limitation of consequential or incidental damages, so the above limitation or exclusion may not apply to you.

PROCEDURE FOR OBTAINING WARRANTY PERFORMANCE

Within ten (10) days after defect in a Back Blade arising during the warranty period becomes known, the purchaser of the Back Blade must notify Ebling or the authorized Ebling distributor, of the claimed defect, in writing, and provide proof of original purchase including documentation of the original serial number. If Ebling or authorized distributor requests, for proper inspection of damaged "Part" the purchaser must return the "Part" with all transportation charges prepaid to the authorized distributor. Any damage in transit will be the responsibility of the carrier or at the risk of purchaser.

During the time of warranty evaluation of the "Part" presented to Ebling & Son or its Authorized Dealer, the consumer may choose to receive a replacement "Part", and / or repair of "Part". The consumer will be invoiced for the "Part" or repair including the part(s) and associated labor and freight and paid to Ebling & Son, Inc. with the consumers standard payment terms. Upon completion of the warranty evaluation the consumer will be notified of warranty evaluation results. If the warranty evaluation results in acceptance, a credit for the "Part", only, will be returned to the consumer by check or credit to account. Note above policy in regards to labor and freight / shipping charges.



NOTES





Manufactured in U.S.A. by:

Ebling Snowplows
4484 Roger B. Chaffee SE
Kentwood, MI 49548
Phone: (616) 532-8400
www.eblingsnowplows.com

Ebling Snowplows reserves the right to change the design and/or construction details of its products at any time and as such furnish equipment that may differ from the illustrations and specifications in this literature. Ebling Snowplows offers a limited warranty for all snowplows and accessories. See separate printed warranty document for warranty information. Ebling Snowplows or the vehicle manufacturer may require or recommend optional equipment on the vehicle for snow removal. Do not exceed gross vehicle weight ratings with a snowplow installed.