

# ***Operator's Manual***

***Box scraper 48" & 60"***

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***BS48***

***BS60***

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P.O. Box 368023  
Cleveland, OH 44136

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# **SAFETY**

Take note! This safety alert symbol found throughout this manual is used to call your attention to instructions involving your personal safety and the safety of others. Failure to follow these instructions can result in injury or death.



*This symbol means:*

**ATTENTION!**

**BECOME ALERT!**

**YOUR SAFETY IS INVOLVED!**

## **Signal Words**

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal words for each has been selected using the following guidelines:



**DANGER:** Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



**WARNING:** Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



**CAUTION:** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury

# INDEX

<b>1 - GENERAL INFORMATION</b>	4
1.01 - General	4
1.02 - Model and Serial Number ID	4
<b>2 - SAFETY PRECAUTIONS</b>	6
2.01 - Preparation	6
2.02 - Starting and Stopping	7
2.03 - Messages and Signs	7
<b>3 - OPERATION</b>	9
3.01 - Operational Safety	9
3.02 - Setup	10
3.03 - Attaching to the Tractor	11
3.04 - Start Up	12
3.05 - Scarifying	13
3.06 - Scraping	13
3.07 - Back Filling	13
3.08 - Top Link Adjustment	13
3.09 - Leveling	14
3.10 - Uneven Terrain	14
3.11 - Transport	14
<b>4 - MAINTENANCE</b>	15
4.01 - Maintenance Safety	15
4.02 - Service	16
<b>5 - PRE-DELIVERY CHECKLIST</b>	17
<b>6 - PARTS MANUAL</b>	19

# 1 - GENERAL INFORMATION

Thank you and congratulations for having chosen our implement. Your new box scraper is constructed of high quality, sturdy components and will fulfill your working expectations.

Read this manual carefully. It will instruct you on how to operate and service your machine safely and correctly. Failure to do so could result in personal injury and or equipment damage.

## 1.01 - General



**CAUTION:** All hardware is metric. Only metric tools should be used. Other tools that do not fit properly can slip and cause injury.



**CAUTION:** Right hand and left hand sides of the implement are determined by facing in the direction the implement will travel when going forward.

## 1.02 - Model and Serial Number ID

Attached to the frame is an ID plate showing the model and the serial number. Record your implement model and serial number in the space provided below. Your local dealer needs this information to give you prompt, efficient service when you order parts.

**Model #:**

**Serial #:**

Carefully read the warranty section<sup>1</sup> detailing coverage and limitations. **Warranty** is provided for customers who operate and maintain their equipment as described in this manual. Warranty registration is accomplished by the dealer by completing and forwarding the **Warranty Registration Form** to the Company, along with a copy of the invoice. It is in your best interest to insure that this has been done.

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<sup>1</sup> See chapter 8 - Warranty.

Warranty does not cover the following:

1. Cleaning, transporting, mailing and service call charge.
2. Normal wear items such as blades. Depreciation or damage caused by normal wear, accidents, improper maintenance, improper protection or improper use.
3. The use of non original spare parts and accessories.

Your local dealer has or can supply genuine parts. **Only these approved replacement parts should be used.**

This limited warranty covers defective material and workmanship. The cost of normal maintenance or repairs for accidents or improper use and related labor will be borne by the owner.

## 2 - SAFETY PRECAUTIONS

Safety is the primary concern in the design and manufacture of our products. Unfortunately our efforts to provide safe equipment can be wiped out by a single careless act of an operator.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

It is the operator's responsibility to read and understand all safety and operating instructions in the manual and to follow these.

Allow only properly trained personnel to operate the box scraper. Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tractor, before assembly or operating, to acquaint yourself with the machines. It is the box scraper owner's responsibility, if this machine is used by any person other than yourself, is loaned or rented, to make certain that the operator, prior to operating, reads and understands the operator's manuals and is instructed in safe and proper use.

### 2.01 - Preparation



1. Before operating equipment read and understand the operator's manual and the safety signs (**see fig. 2**).
2. Thoroughly inspect the implement before initial operation to assure that all packaging materials, i.e. wires, bands, and tape have been removed.
3. Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining and/or repairing the implement.
4. Operate the box scraper only with a tractor equipped with an approved Roll-Over-Protective-System (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the tractor.
5. Clear area to be cut of stones, branches or other debris that might be thrown, causing injury or damage.
6. Operate only in daylight or good artificial light.
7. Ensure box scraper is properly mounted, adjusted and in good operating condition.
8. Ensure that all safety shielding and safety signs are properly installed and in good condition.

## 2.02 - Starting and Stopping



1. Be sure that no one is near the machine prior to operating the machine is working.
2. Be sure the tractor is in "Neutral" before starting engine.
3. Know how to stop the tractor and box scraper quickly in case of an emergency.
4. After striking an obstacle, shut the tractor down and thoroughly inspect for damage before restarting.
5. Never engage the tractor until the box scraper is in the down position and resting on the ground.

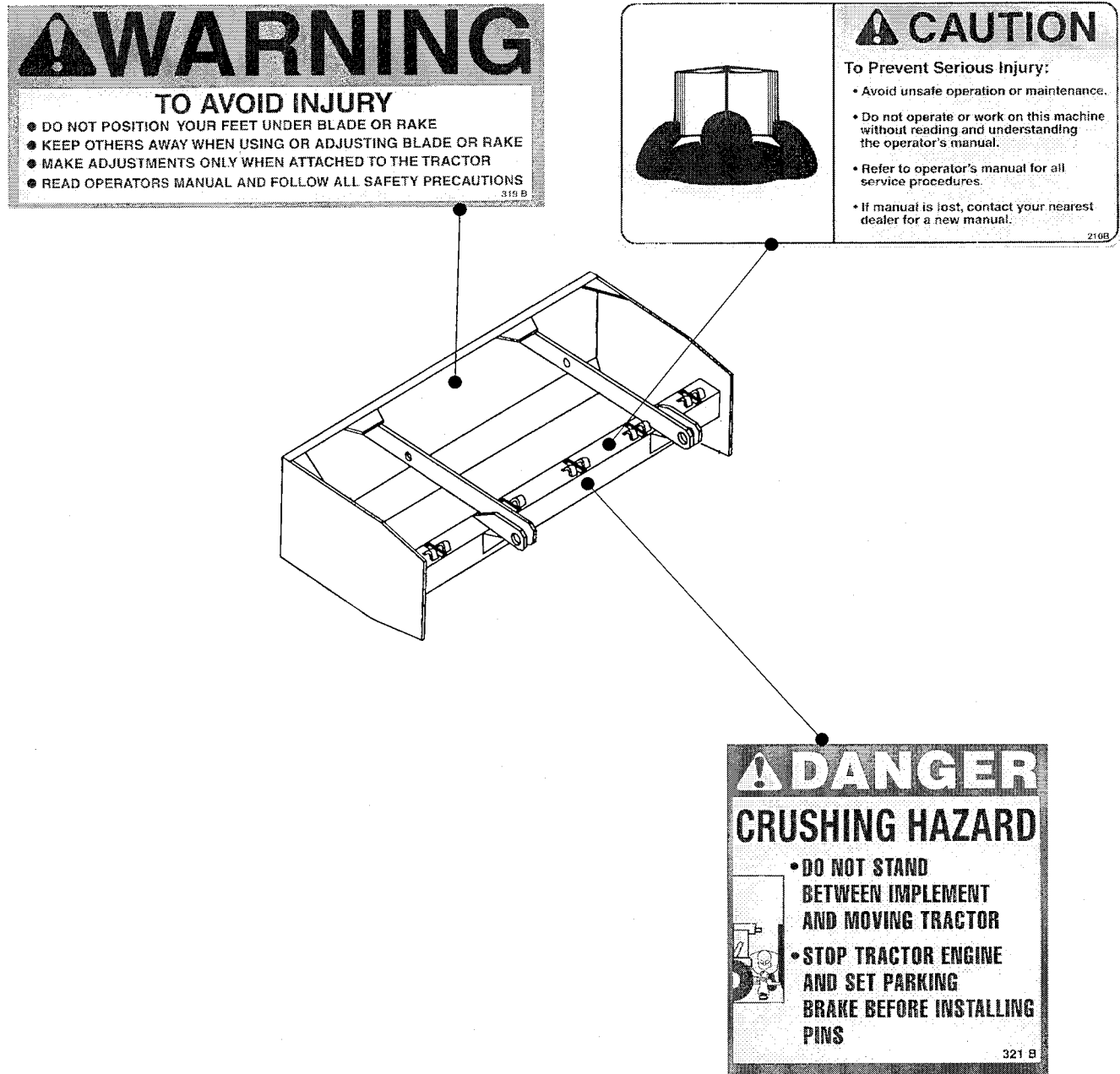
## 2.03 - Messages and Signs



1. Read and adhere to all safety and operating decals on this machine (**see fig. 2**).
2. Before dismounting tractor: allow moving parts to stop, stop engine, set brake and remove the key of unattended equipment.
3. Do not use with bystanders in area.
4. Allow no riders on tractor or box scraper.
5. Securely support box scraper before working underneath.

Additional warning and operating decals are available at no extra charge. Please specify model and serial number when ordering.

**Fig. 2 - Safety decals; replace immediately if damaged.**





## 3 - OPERATION

You have purchased a box scraper designed especially for landscaping with small and medium sized tractors (20-40 HP). It is an ideal machine for hobby farmer and landscaper. The working width is 48" or 60" depending on the model you chose.

### 3.01 - Operational Safety



**CAUTION:** Our box scrapers are designed considering safety as the most important target and are the safest available in today's market. Unfortunately, human carelessness can override the safety features built into our machines. Injury prevention and work safety, aside from the features on our box scrapers, is very much due to the responsible use of the equipment. It must always be operated prudently following with great care, the safety instructions laid out in this manual.



1. The use of this equipment is subject to certain hazards which cannot be prevented by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using.
2. Do not operate the tractor and box scraper when you are tired, sick or when using medication.
3. Keep all helpers and bystanders at least several yards from a box scraper. Only properly trained people should operate this machine.
4. Always stop the tractor, set brake, shut off the tractor engine, remove the ignition key, lower implement to the ground and allow tractor to come to a complete stop before dismounting tractor. Never leave equipment unattended with the tractor running.
5. Do not allow riders on the box scraper or tractor at any time. There is no safe place for riders.
6. Before backing up, look behind carefully.
7. This box scraper is designed for use only on tractors with the power range between 16 and 65 HP.
8. Never operate tractor and box scraper under trees with low hanging limbs. Operators can be knocked off the tractor and then run over by the rotor.
9. Frequently check scraper blades. They should be sharp, free of nicks and cracks and securely fastened.
10. Stop box scraper immediately upon striking an obstruction. Turn engine off, remove key, inspect and repair any damage before resuming operation.

11. Stay alert for holes, rocks and roots in the terrain and other hidden hazards. Keep away from drop-offs.
12. Use extreme care and maintain minimum ground speed when transporting on hillside, over rough ground and when operating close to ditches or fences. Be careful when turning sharp corners.
13. Reduce speed on slopes and sharp turns to minimize tipping or loss of control. Be careful when changing directions on slopes. Do not start or stop suddenly on slopes. Avoid operation on steep slopes.
14. When using a unit, a minimum 20% of tractor and equipment weight must be on tractor front wheels. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a front end loader, front wheel weights, ballast in tires or front tractor weights. When attaining a minimum 20% of tractor and equipment weight on the front wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. Do not guess or estimate!
15. Inspect the entire machine periodically<sup>2</sup>. Look for loose fasteners, worn or broken parts, and loose fittings.
16. Pass diagonally through sharp dips and avoid sharp drops to prevent "hanging up" tractor and implement.
17. Avoid sudden starts and stops while traveling up or downhill.
18. Always use down slopes; never across the face. Avoid operation on steep slopes. Slow down on sharp turns and slopes to prevent tipping and or loss of control.

### 3.02 - Setup



**CAUTION:** Stand clear of bands when cutting as they could be under sufficient tension to cause them to fly loose. Take care in removing bands and wire, they often have extremely sharp edges and cut very easy.

1. Leave machine banded to pallet as long as possible to avoid tipping over during assembly.
2. Remove bolts (#12) that are located in the holes along the cross members nearest to the hitch pins.
3. The A-frame of this unit is shipped partially assembled. Loosen bolts (#12) that are holding the A-frame assembly in place in the shipping position. Remove bolts(#12) that are installed in the cross members near the hitch pins of the box scraper. Lift the A-frame assembly and insert the bolts that were previously removed and slide them back through the cross members and through the holes in the A-frame straps. Then install the lock washers and nuts.
4. Check all hardware for proper torque.

**Notice to the dealer:** Pre-delivery setup and service is the responsibility of the dealer. It is up to him to assure that the machine is in perfect condition and ready to be used. It

<sup>2</sup> See chapter 4 - Maintenance.

is his responsibility to ensure that the customer is aware of all safety aspects and operational procedures for the box scraper. He must also fill out the Pre-delivery Checklist<sup>3</sup> prior to delivering the box scraper.

### 3.03 - Attaching to the Tractor

Unit may be used on tractors with HP ranging from 16 to 65 and equipped with a Cat. 1 three point hitch<sup>4</sup>.



**WARNING:** Wait for all movement from the implement and tractor to stop, engage parking brake or place transmission in "Park", shut off the tractor and remove the key before attaching the implement to the tractor.



**DANGER:** Tractor-implement combinations can create unstable unions with a chance of roll over. If necessary, front weights need to be added to the tractor in order to maintain balance. Always ensure that the tractor tire pressure is correct according to the tractor operator's manual.

**To attach the box scraper to the tractor do the following:**

1. Back the tractor up to the machine in order to slip the tractor hitch arms through the plates where the hitch pins are mounted. **Turn off the tractor engine.**
2. Lock the tractor arms to the box scraper hitch arms with the lynch pins. Stabilizers must be used to limit side swing to 2"-3".
3. Attach the top link. Adjust it so the box scraper is as near parallel to the ground as possible. A 1 to 2 degree rearward tilt is acceptable (**see fig. 14**).

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<sup>3</sup> See chapter 7 - Pre-delivery Checklist.

<sup>4</sup> See table 2, page 26.

### 3.04 - Start Up



**DANGER:** Never allow anyone around the box scraper when it is in operation.



**DANGER:** Operate the implement only at the speed and direction of rotation indicated on the machine. Serious damage can result if this is not followed.



**CAUTION:** Before starting work, clear the area of any obstacles or foreign objects.

Before beginning work always remember that the operator is responsible for:

1. Safe and correct operation of the tractor and box scraper.
2. Learning and following precise, safe operating procedures for both the tractor and the box scraper.
3. Ensuring all maintenance has been performed on the box scraper.
4. Having read and understood all safety aspects for the box scraper in the operator's manual.
5. Having read and understood all safety decals on the box scraper.
6. Checking the condition of the scraper blades. Worn or damaged blades should be changed before starting.
7. Checking to see if front weights need to be added to the tractor in order to maintain balance.
8. Checking the tractor tires for the proper pressure in accordance to the tractor operator's manual.
9. Checking that all shielding is on the machine and securely in place.
10. Making sure the proper attire is worn. Avoiding loose fitting clothing which can become entangled. Wearing sturdy, tough-soled work shoes and protective equipment for eyes, hands, ears and head. Never operate tractor or implements in bare feet, sandals or sneakers.
11. Ensuring proper lighting is available, sunlight or good artificial lighting.



**CAUTION:** For emergency reasons, learn how to stop the tractor and implement quickly. Always lock parking brake, stop engine before dismounting the tractor.

### **3.05 - Scarifying**

Adjust scarifier shank position to desired level of ground penetration. Ensure that the scarifier points are facing the tractor. Lock shanks into position with bent pins and cotters.

### **3.06 - Scraping**

Remove or raise scarifier shanks. Adjust the tractor top link to control scraper depth. Lower scraper and drive forward to remove material.

Shortening the top link when scraping will transfer more weight on the front of the scraper and will raise the cutting blade to provide a more shallow cut.

When the top link is adjusted properly, the bowl of the scraper should fill easily and material can be pulled to the desired location.

To change the level of the scraper, shorten or lengthen the tractor lift arm tilt link to provide the correct slope. Material may be spread by gradually raising the box scraper as the tractor moves forward. Loose or previously scarified material will require a different top link adjustment than hard or compacted material.

### **3.07 - Back Filling**

Raise or remove scarifier shanks. Lower the scraper to the ground, back up to the fill material. Adjust the top link to raise the cutting blade and control how much the blade digs in.

### **3.08 - Top Link Adjustment**

By adjusting the tractor's top link, the box scraper's level can be adjusted. Shortening the top link will increase scarifier tooth penetration, while lengthening the top link will provide better scraping and leveling action.

### 3.09 - Leveling

Raise or remove scarifier shanks.

Shorten the top link so the cutting edge clears the ground. Drive forward in this position to level loose material.

### 3.10 - Uneven Terrain



**DANGER:** Be careful when operating tractor and machine over uneven ground to avoid roll-over. In extremely uneven terrain rear wheel weights, front tractor weights and/or tire ballast should be used to improve stability.

When working over uneven terrain, observe the type of terrain and develop a safe travel pattern.

Operate the machine up and down steep slopes, not across slopes, to prevent the tractor from tipping. Avoid sudden stops and starts and slow down before changing directions on a slope. Pass diagonally through sharp dips and avoid sharp drops to prevent hanging up the tractor and machine. Slow down on sharp turns and slopes to prevent tipping or loss of control. Avoid tipping the machine while working. Watch for holes, roots or other hidden objects. Do not work near the edge of a gully, ditch or stream bank.

### 3.11 - Transport



**CAUTION:** All transport operations are to be done respecting all local traffic rules and regulations.

During transport or when the machine is lifted from the ground, it is advisable to adjust the tractor lift arms in order to be able to raise the machine 14"-16" from the ground (see fig. 15).

## 4 - MAINTENANCE



**DANGER:** Stop engine, lock parking brake and remove key before performing any service or maintenance.

Never rely on the tractor lift system. Install blocks or stands under the machine to prevent it from falling. Always use personal protection devices, such as glasses or gloves when performing maintenance.

Keep fingers out of slots to prevent injury.

### 4.01 - Maintenance Safety



1. Good maintenance is your responsibility.
2. Keep service area clean and dry. Be sure electrical outlets and tools are properly grounded. Use adequate light for the job at hand.
3. Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
4. Make no repair or adjustments with the tractor engine running. Before working on the machine, shut off the engine, set the brakes, and remove the ignition key.
5. Never work under equipment unless it is blocked securely.
6. Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance.
7. Frequently check blades. They should be sharp, free of nicks and cracks and securely fastened.
8. Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
9. After servicing, be sure all tools, parts and service equipment are removed.
10. Never replace hex bolts with less than grade five bolts unless otherwise specified, i.e. shear bolts<sup>5</sup>.
11. Where replacement parts are necessary for periodic maintenance and servicing, genuine replacement parts must be used to restore your equipment to original specifications. The company will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.
12. Unauthorized modifications to the machine may impair the function and/or safety of the machine and reduce its life. If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.

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<sup>5</sup> Refer to table 1 - Torque Specifications, for head identification marking.

## 4.02 - Service

1. **Scarifier Shank Replacement:** The scarifier shanks have 4 operating positions or they may be removed entirely if not needed. To remove or adjust shanks, block up the scraper with 4 x 4 's laying flat under each side plate. Pull cotter pin from the shank keeper pin, remove keeper pin, adjust or remove shank, reinstall keeper pin and cotter. Periodically check hardware to ensure proper positioning..
2. **Scraper Blade Replacement:** Our Box Scrapers use reversible scraping blades. The blades may be rotated to give a fresh cutting edge. To remove the blades, block up the unit with 4 x 4's laying flat on the side plates. Remove the nuts from the plow bolts which attach the blades to the frame.
3. **Scarifier Shank Tooth Replacement:** Drive off worn tool with hammer and chisel. Install replacement tooth,peen the locking tab of the new tooth onto the shank using a hammer and punch.

**TABLE 1 - TORQUE SPECIFICATIONS**

Diameter	Class 8.8		Class 10.9	
	N.m	lb.ft	N.m	lb.ft
M 8	25	18	35	26
M 10	50	37	70	52
M 12	90	66	125	92
M 14	140	103	200	148
M 16	215	155	305	225
M 18	295	217	420	309
M 20	420	302	590	438

When using locking nuts, increase torque values by 5%.



## 5 - PRE-DELIVERY CHECKLIST

To the dealer: Inspect the machine thoroughly after assembly to assure it is functioning properly before delivering it to the customer. The following checklist is a reminder of points to cover. Check off each item as it is found satisfactory or after proper adjustment is made.

- ☐ All hardware properly tightened.
- ☐ All decals properly located and readable (see fig. 2).
- ☐ Blades properly installed, blade, bolts, & nuts tightened.
- ☐ Overall condition (touch up scratches, clean and polish).
- ☐ Test run, check for excessive vibrations or overheating of bearings.
- ☐ Operator's Manual.

Review the operator's manual with the customer. Explain the following:

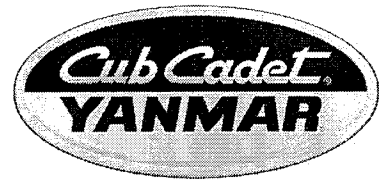
- ☐ Warranty.
- ☐ Safe operation and service.
- ☐ Correct machine installation and operation.
- ☐ Daily and periodic maintenance and inspections.
- ☐ Troubleshooting
- ☐ Operational procedures and storage.
- ☐ Parts and service.
- ☐ Remove and fill out the Delivery and Warranty Registration form.
- ☐ Give customer the operator's manual and encourage the customer to read the manual carefully.

**IMPORTANT: Warranty is not valid unless Delivery and Warranty Registration Form in operator's manual is completed in detail and mailed to the Company.**

Model Number: \_\_\_\_\_ Serial Number: \_\_\_\_\_

Delivery Date: \_\_\_\_\_ Dealer's Signature: \_\_\_\_\_





## **6 - PARTS MANUAL**

### **Box Scraper 48" & 60"**

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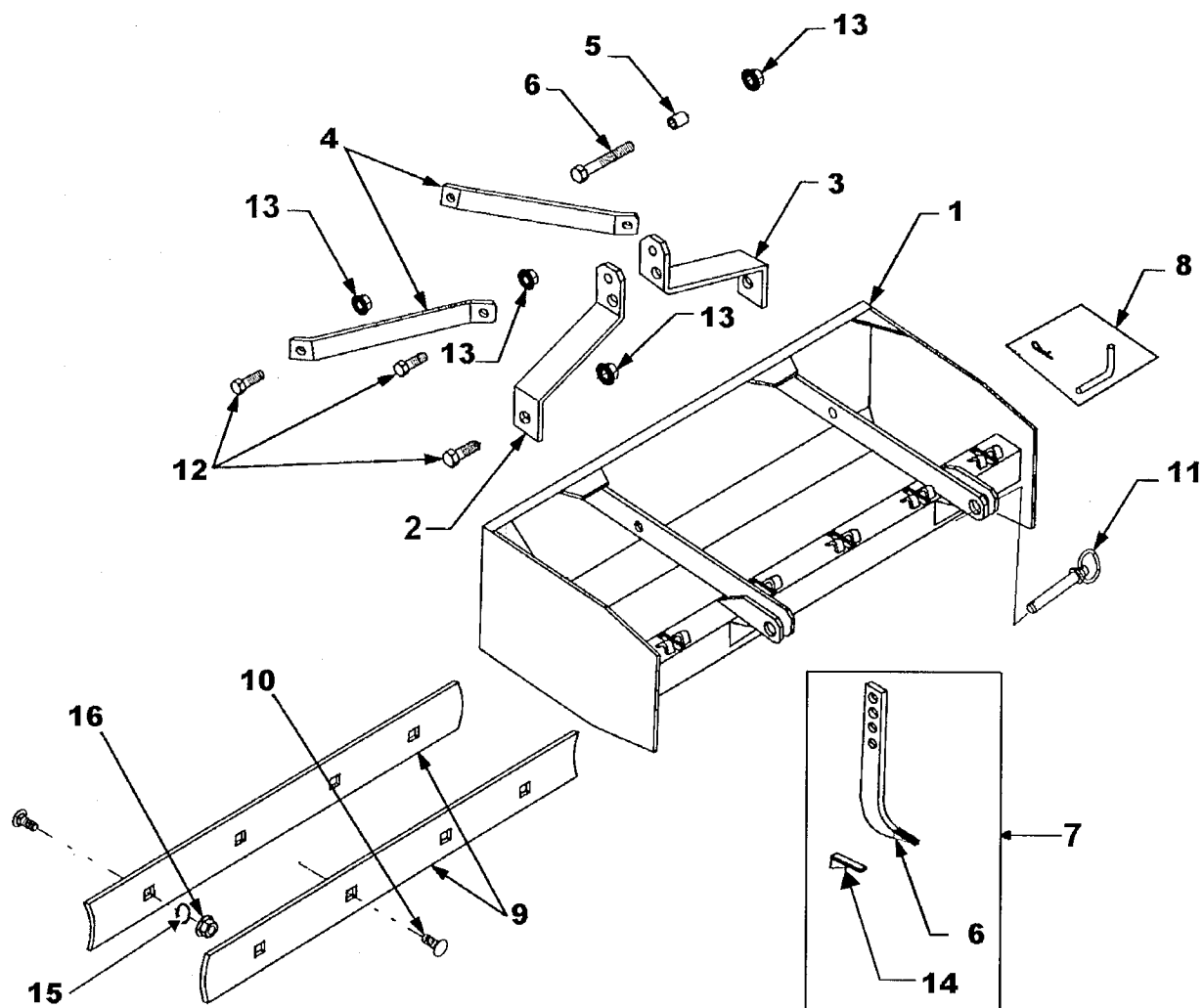
# ***BS48***

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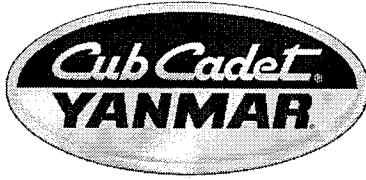
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Code No.:769-03314



Ref.	Part Description	Part #	Qty.
1	Frame (BS48)	503-934B	1
	Frame (BS60)	016-9000	1
2	Vertical Support <b>Right</b> (BS60)	006-9034	1
	Vertical Support <b>Right</b> (BS48)	503-935B	1
3	Vertical Support <b>Left</b> (BS60)	006-9033	1
	Vertical Support <b>Left</b> (BS48)	503-936B	1
4	Horizontal Support (BS60)	006-9014	1
	Horizontal Support (BS48)	016-9014	1
5	Inner Spacer (BS60)	006-9016	1
	Inner Spacer (BS48)	503-937B	1
	Bolt, 3/4" X 5" (BS60)	006-9021	1
6	Bolt, 3/4" X 4" (BS48)	006-9610	1
7	Scarifier Shanks, (BS48)	006-9017	4
	Scarifier Shanks, (BS60)		5
8	Bent Pin w/ Cotter (BS60)	503-683B	4-7
	Bent Pin w/ Cotter (BS48)	503-639B	4
9	Scraper Blade, (BS48)	056-9019	2
	Scraper Blade, (BS60)	016-9019	2
10	Plow Bolt	503-651B	8-14
11	Hitch Pins	943-008B	2
12	Bolt, 3/4" X 1 3/4" (BS48)	006-9611	4
	Bolt, 3/4" X 2 1/2" (BS60)	006-9022	4
13	Stover Nut, 3/4"	006-9024	5
14	Scarifier Tooth	006-9026	1/SHANK
15	Lockwasher 5/8"	502-866B	8-14
16	Hex Nut 5/8"	502-865B	8-14







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