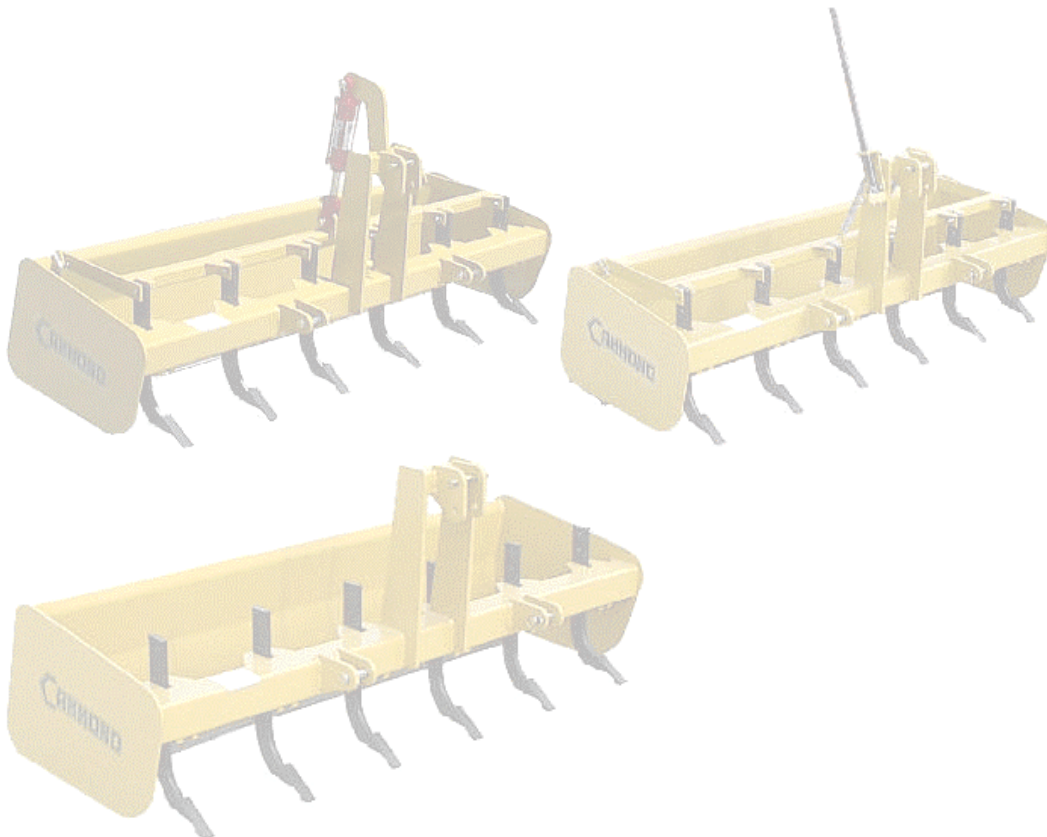




## Operation, Parts and Service Manual

### Standard Box Scraper Series Manual, Retractable and Hydraulic



Cammond Industries  
A Subsidiary of Superior Fabrication, Inc.  
902 Arlington Center, PMB 225  
Ada, OK 74820  
1-800-843-8354

# Thank you for choosing CAMMOND!

For over 17 years, CAMMOND has been designing and manufacturing implements you can rely on. Because our commitment to quality remains top priority, this durable scraper will be there when you need it. Your Box Scraper should operate smoothly and offer years of trouble free use.

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## General Safety Information

Note the use of the signal words Danger, Warning and Caution with the safety messages. The appropriate signal word 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. This signal word is to be limited to the most extreme situations typically for machine components, which, for functional purposes, cannot be guarded.

### **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. It may also be used to alert against unsafe practices.

Safety of the operator is one of the main concerns when designing and developing a new piece of equipment. You, the operator, can avoid many accidents by observing the following precautions in this section.

- Replace any CAUTION, WARNING, DANGER or instruction safety decal that is not readable or is missing.
- Do not attempt to operate this equipment under the influence of drugs or alcohol.
- Review the safety instructions with all users.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with the equipment and its operation. Do not allow persons to operate this unit until they have developed understanding of the safety precautions and of how it works.

To prevent injury or death, use a tractor equipped with a Roll Over Protective System (ROPS). Do not paint over, remove or deface any safety signs or warning decals on your equipment, Observe all safety signs and practice instructions on them.

Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question – Don't try it.

Remember - Your best assurance against accidents is a careful and responsible operator. If there is any portion of this manual or function you do not understand, contact your local dealer or manufacturer.

If you have questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or Cammond Industries.

## Preparation

Before Operation - Carefully study and understand this manual.

- Do not wear loose-fitting clothing, which may catch in moving parts.
- Always wear protective clothing and substantial shoes.
- It is recommended that suitable protective hearing and eye protection be worn.
- The operator may come in contact with certain materials, which may require specific safety equipment, relative to the handling of such materials.
- Keep wheel lug nuts or bolts tightened to specific torque.
- Assure that agricultural implement tires are evenly inflated.
- Give the unit a visual inspection for any loose bolts, worn parts or cracked welds, and make necessary repairs. Follow the maintenance safety instructions included in this manual.
- Be sure that there are no tools lying on or in the equipment.
- Do not use the unit until you are sure that the area is clear, especially children and animals.
- Because it is possible that this equipment may be used in dry areas or in the presence of combustibles, special precautions should be taken to prevent fires and fire-fighting equipment should be readily available.
- Clear area of debris.
- Never permit any person, other than the operator, to ride on board the tractor at any time.
- DO NOT allow riders on implement at any time. Operate only in daylight or good artificial light. ALWAYS wear relatively tight and belted clothing when operating implement. Loose clothing should not be worn, as it could get caught in the moving parts or controls.
- A minimum of 20% of the tractor and equipment weight must be on the tractors front wheels with the box scraper in transport position. Without this weight, the tractor could tip over causing personal injury or death. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. When attaining the minimum 20% weight on the front wheels, you must not exceed the Roll Over Protection Structure (ROPS) weight certification. Weigh tractor and equipment. Do not guess or estimate.

Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new equipment. Practice operation of your equipment and its attachments. Completely familiarize yourself and other operators with its operations before using

## Attaching Unit

- Attach box scraper to 3-point hitch lower lift arms (using pins supplied).
- Attach 3-point hitch top link to a-frame mast on scraper (using pin supplied).
- Make sure the box scraper is sitting on the ground and the tractors' safety device is set.
- Install fittings to the hydraulic cylinder. (Dealer Supplied)
- Install quick couplers to hydraulic hoses. Connect hoses to fittings on cylinder and couple other end to tractor hydraulic valve. (Dealer Supplied)
- Crack fitting on cylinder and cycle in order to remove air from the system.
- Raise scraper off the ground with tractor 3-point hitch.
- Extend cylinder to raise shank bar to upper position.
- Retract cylinder to lower shank bar to working position. Be certain to check that the bell crank has fully engaged onto the frame lock lug to avoid pressure on the cylinder and linkage when in use.

## Operating Safety

- NO PASSENGERS ALLOWED- Do not carry passengers anywhere on, or in, the tractor or equipment, except as required for operation.
- Keep hands and clothing clear of moving parts.
- Do not clean, lubricate or adjust your equipment while it's moving.
- When halting operation, even periodically, set the tractor or towing vehicle brakes, disengage the PTO, shut off the engine and remove the ignition key.
- Be especially observant of the operating terrain. Always inspect the area prior to operation.
- Do not operate near the edge of drop offs or banks.
- Do not operate on steep slopes as overturn may result.
- Operate up and down (not across) intermediate slopes. Avoid sudden starts and stops.
- Maneuver the equipment at safe speeds.
- Do not walk or work under raised components unless securely positioned and blocked.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside or unit.
- Never leave running equipment attachments unattended.

## Operating Instructions

A box scraper's primary purpose is grading and leveling.

With the ripper shanks raised all the way up, lower the box scraper to the ground and proceed forward. It should immediately begin shaving the soil surface and dirt or aggregate material should begin accumulating in the box. Transfer this material by dragging it to a nearby location and then raising the scraper to deposit your load. You can also achieve uniform distribution and leveling of scraped material by setting the scraper to shave off high spots allowing accumulated material to flow out under the scraper in the low spots.

Achieving the desired effect will require a little experimentation and experience in your given conditions. Box scrapers generally perform better in dry to slightly damp soil conditions.

Your Box scraper can also be used for backfilling applications. Simply lower your scraper and back the standard rear facing grader blade into the pile of dirt you are using for backfill. Continue backfilling and pushing operations until you have successfully completed the task.

With a little practice you should become a very good operator and consistently achieve the desired results you expect.

## Maintenance Safety

Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.

Before working on this machine, stop the towing vehicle, set the brakes, disengage the PTO and all power drives, shut off the engine and remove the ignition keys.

Be certain all moving parts on attachments have come to a complete stop before attempting to perform maintenance.

- Always use a safety support to block the wheels.
- Always use the proper tools or equipment for the job at hand.
- Use extreme caution when making adjustments.
- Never use your hand to locate a hydraulic leak on attachments. Use a small piece of cardboard or wood. Hydraulic fluid escaping under pressure can penetrate the skin.
- Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. If injured by the escaping hydraulic fluid, see a doctor at once. Without immediate medical treatment, serious infection can occur.
- After servicing, be sure all tools, parts and service equipment are removed.
- Do not allow grease or oil to build up on any step or platform.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.

## Servicing Instructions

Lower box scraper to the ground, set tractor locking system device, turn tractor engine off, and remove key before performing any service or maintenance. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.

- Block box scraper securely before working underneath.
- When disconnecting hydraulic lines, shut off hydraulic supply and relieve all hydraulic pressure.
- Never replace hex bolts with less than grade five bolts unless otherwise specified.
- Periodically tighten all bolts and nuts to ensure scraper is in a safe working condition.
- Before operating the scraper, always check to make sure that the lynch pins are in the lock position, so that the lift pins do not work their way out.
- Keep all persons away from operator control area while performing adjustments, service or maintenance.

### CUTTING EDGE

Cutting edges are reversible so always remember to "flip" them over before wearing the back plate. Replace the cutting edge after both edges are worn to the bottom edge of the back plate. For reversing the cutting edge:

- Remove 5/8" plow bolts.
- Remove cutting edge from moldboard and reinstall with sharp edge down.
- Replace when both edges are worn out.

### BOLTS

Keep all the bolts tight at all times by checking them periodically. Replace the bolts only with those having the same marks on the heads as on original bolt. Marks on bolt head indicate high strength.

### BOLT TORQUE

5/8" Plow Bolt  
150 Ft/lbs. min.  
180 Ft/lbs. max.

### BELL CRANK

Lubricate bell crank every 50 hours of use.

### SHANKS

Shanks have a shallow or deep setting. When changing positions, make sure the shank retainer is "seated" properly in the beam. *We have a special flat bottom retainer that should always stay in place if installed properly.*

### REPLACEABLE SHANK TIP

Make sure you replace the point before you wear the dropforged shank. Knock off the worn point and lock the new point in place by "crimping" at the recessed holes in the shank.

### **SCARIFIER CYLINDER**

The cylinder has two spring loaded internal check ball valves. These valves are set at 800 P.S.I. to prevent damage to the cylinder when operating. You should hear a "squeaking" noise when extending or retracting the valve. This tells you the cylinder is by passing properly. If you notice the scarifier beam is "drifting" down when the beam is raised, it usually means that there is some foreign material in the cylinder which is preventing the spring loaded ball from "seating" properly. Take the cylinder to your dealer for repair.

### **Shut Down and Storage**

Following operation, or when unhitching, stop the tractor or towing vehicle, set the brakes, disengage the PTO and all power drives, shut off the engine and remove the ignition keys.

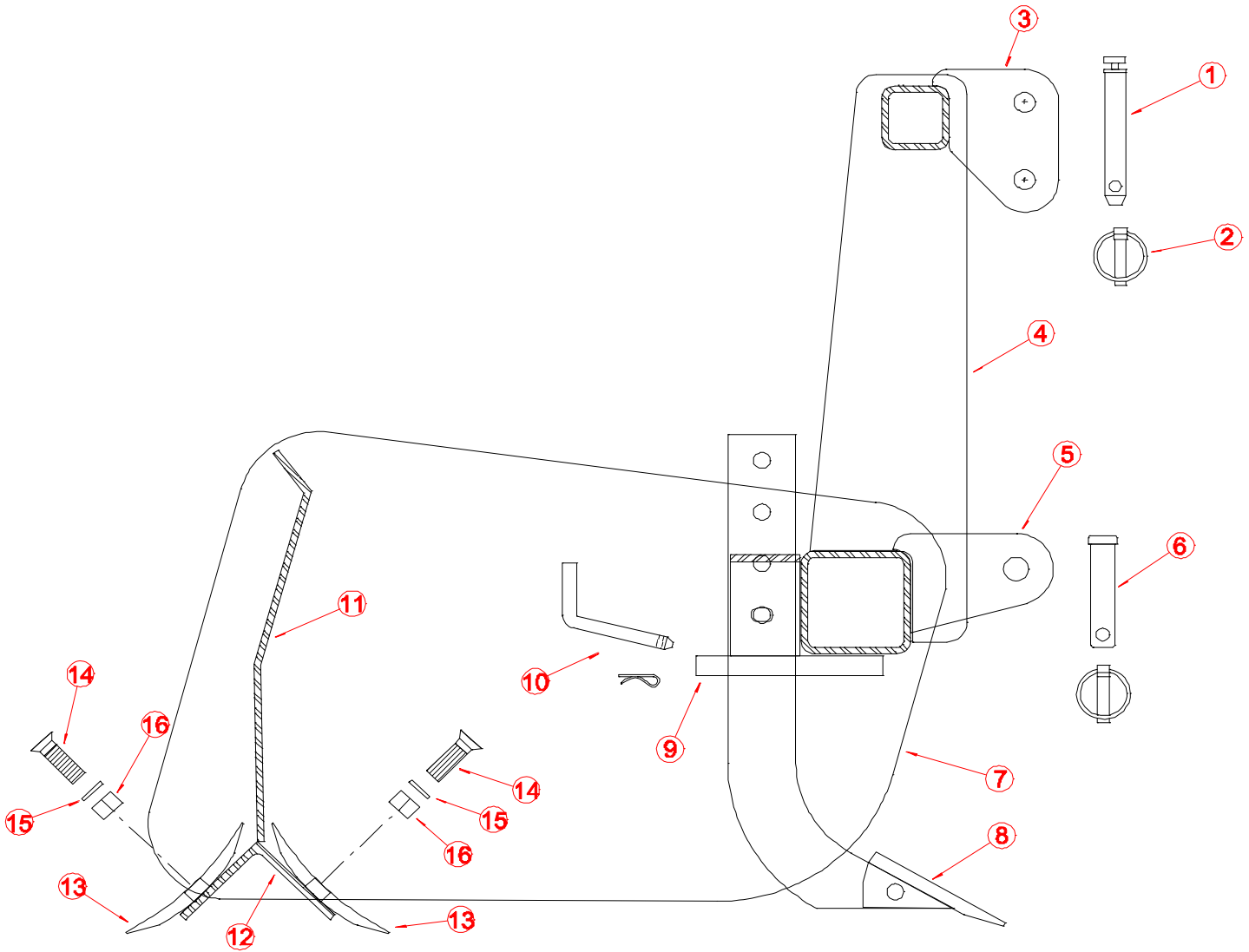
- Store the unit in an area away from human activity.
- Do not park equipment where it will be exposed to livestock for long periods of time.
- Do not permit children to play on or around the stored unit.
- Make sure all parked machines are on a hard, level surface and engage all safety devices.
- Wheel chocks may be needed to prevent unit from rolling.

### **Highway and Transportation Operations**

- Comply with state and local laws governing highway safety and movement of farm machinery on public roads.
- Use appropriate accessory lighting flags and necessary warning devices to protect operators of other vehicles on the highway during daylight and nighttime transport.
- Various safety lights and devices are available from your dealer.

# Manual Box Scraper

For Models: BS42, BS48, BS54, BS60, BS66, BS72, BS76, BS80, BS84, BS96



## Please note:

The following illustrations are for reference only. CAMMOND reserves the right to change or correct part numbers, descriptions or dimensions at any time. If you have specific questions about parts not specified in the following illustrations, please contact your CAMMOND authorized dealer.

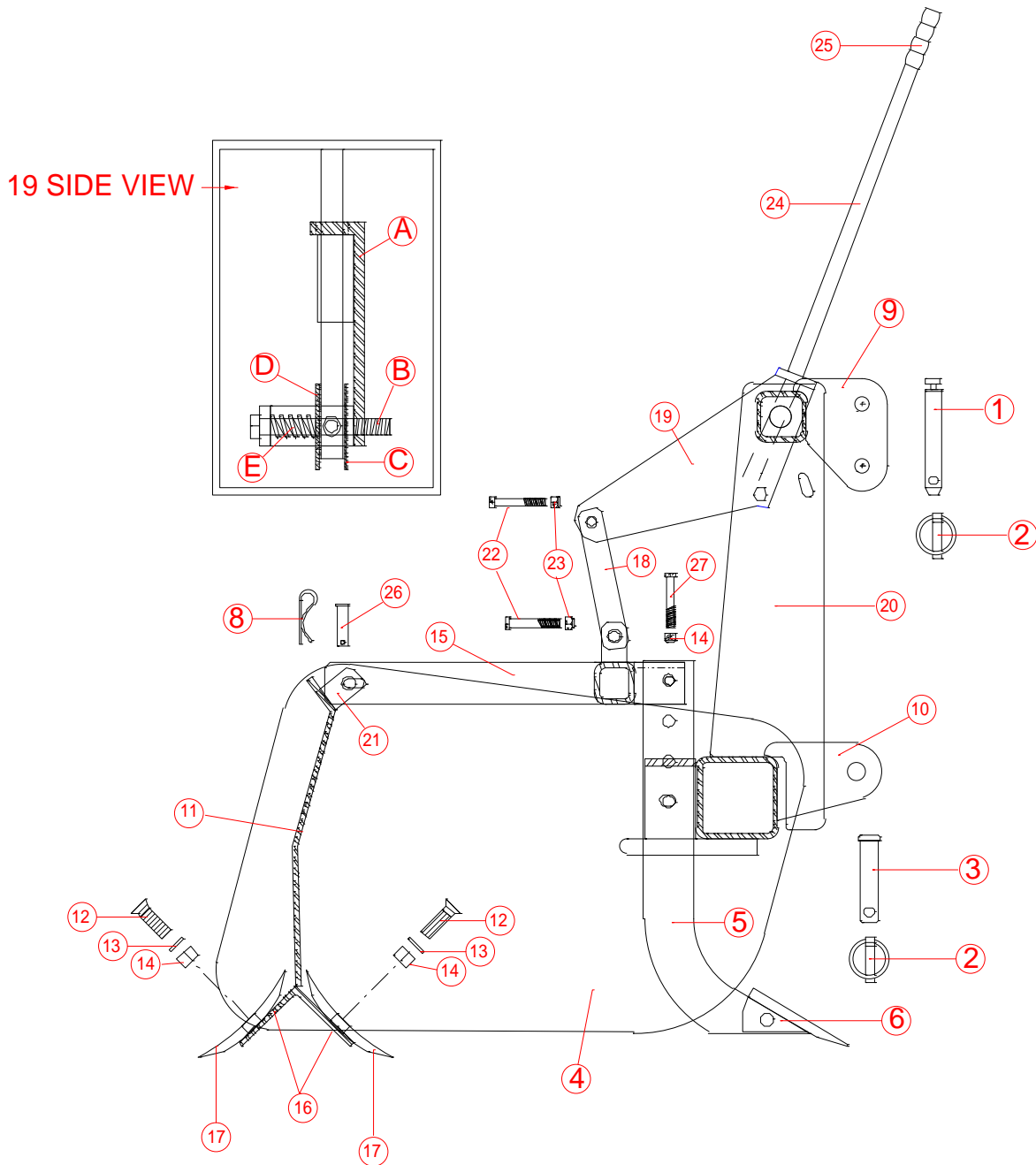
# BS Manual Parts Listing

REF#	PART#	DESCRIPTION	42"	48"	54"	60"	66"	72"	76"	80"	84"	96"
1	P075500C1TL	CAT I TOP LINK PIN	1	1	1	1	1	1	1	1	1	1
2	P716175LY	LYNCH PIN	3	3	3	3	3	3	3	3	3	3
3	P030201	TOP LINK EAR	2	2	2	2	2	2	2	2	2	2
4	P03217	MAST	2	2	2	2	2	2	2	2	2	2
5	P030191	DRAW EAR	4	4	4	4	4	4	4	4	4	4
6	P078375C1D	DRAW PIN	2	2	2	2	2	2	2	2	2	2
7	P01011	SIDE PLATE	2	2	2	2	2					
7	P02011	SIDE PLATE					2	2	2	2	2	2
8	H434	4 HOLE SHANK W/TIP	3	4	4	5	5	6	6	6	7	8
9	XXXXX	SHANK BAR	3	4	4	5	5	6	6	6	7	8
10	P050300BL	SHANK PIN	3	4	4	5	5	6	6	5	7	8
11	XXXXX	BACK PLATE	1	1	1	1	1	1	1	1	1	1
12	XXXXX	CUTTING EDGE ANGLE	1	1	1	1	1	1	1	1	1	1
13	CE42	CUTTING EDGE	2									
13	CE48	CUTTING EDGE		2								
13	CE54	CUTTING EDGE			2							
13	CE60	CUTTING EDGE				2						
13	CE66	CUTTING EDGE					2					
13	CE72	CUTTING EDGE						2				
13	CE76	CUTTING EDGE							2			
13	CE80	CUTTING EDGE								2		
13	CE84	CUTTING EDGE									2	
13	CE96	CUTTING EDGE										2
14	B058200P	5/8"X 2" PLOW BOLT	8	8	10	10	12	12	14	14	14	16
15	W058L	5/8" FLAT WASHER	8	8	10	10	12	12	14	14	14	16
16	N058H	5/8" HEX NUT	8	8	10	10	12	12	14	14	14	16

XXXXX CALL FOR PART NUMBER

# Retractable Box Scraper

For Models: BS42R, BS48R, BS54R, BS60R, BS66R, BS72R, BS76R, BS80R, BS84R, BS96R



**Please note:**

The following illustrations are for reference only. CAMMOND reserves the right to change or correct part numbers, descriptions or dimensions at any time. If you have specific questions about parts not specified in the following illustrations, please contact your CAMMOND authorized dealer.

## BS Retractable Parts Listing

REF#	PART#	DESCRIPTION	42"	48"	54"	60"	66"	72"	76"	80"	84"	96"
1	P075500C1TL	CAT I TOP LINK PIN	1	1	1	1	1	1	1	1	1	1
2	P716175LY	7/16 X 1 3/4" LYNCH PIN	3	3	3	3	3	3	3	3	3	3
3	P078375C1D	CAT I DRAW PINS	2	2	2	2	2	2	2	2	2	2
4	P01011	SIDE PLATE	2	2	2	2						
4	P02011	SIDE PLATE						2	2	2	2	2
5	H434	SHANK W/TIP	3	4	4	5	6	6	7	7	7	8
6	H434T	REPLACEABLE TIP	3	4	4	5	6	6	7	7	7	8
8	P11	HAIR PIN	5	5	5	5	5	5	5	5	5	5
9	P030201	CAT I TOP LINK EAR	2	2	2	2	2	2	2	2	2	2
10	P030191	CAT I DRAW EAR	4	4	4	4	4	4	4	4	4	4
11	XXXXXX	BACK PLATE	1	1	1	1	1	1	1	1	1	1
12	B058200P	5/8" PLOW BOLT	8	8	10	10	12	12	14	14	14	16
13	W058L	5/8" LOCK WASHER	8	8	10	10	12	12	14	14	14	16
14	N058H	5/8" HEX NUT	8	8	10	10	12	12	14	14	14	16
15	XXXXX	SHANK BAR	1	1	1	1	1	1	1	1	1	1
16	XXXXX	CUTTING EDGE ANGLE	1	1	1	1	1	1	1	1	1	1
17	CE42	CUTTING EDGE	2									
17	CE48	CUTTING EDGE		2								
17	CE54	CUTTING EDGE			2							
17	CE60	CUTTING EDGE				2						
17	CE66	CUTTING EDGE					2					
17	CE72	CUTTING EDGE						2				
17	CE76	CUTTING EDGE							2			
17	CE80	CUTTING EDGE								2		
17	CE84	CUTTING EDGE									2	
17	CE96	CUTTING EDGE										2
18	F03004	TALL MAST LIFT ARM LINK	2	2	2	2	2	2	2	2	2	2
19	P02BSR01	"L" BRACKET	1	1	1	1	1	1	1	1	1	1
19A	F1101	"L" BRACKET	1	1	1	1	1	1	1	1	1	1
19B	B050600RT	1/2 X 6" BOLT	1	1	1	1	1	1	1	1	1	1
19C	P11	HAIR PIN	1	1	1	1	1	1	1	1	1	1
19D	W050F	1/2" FLAT WASHER	1	1	1	1	1	1	1	1	1	1
19E	S050250C0M	COMPRESSION SPRING	1	1	1	1	1	1	1	1	1	1
20	P03217R	TALL MAST	2	2	2	2	2	2	2	2	2	2
21	F11002	LIFT ARM EAR	4	4	4	4	4	4	4	4	4	4
22	B05175	1/2 X 1 3/4" BOLT	2	2	2	2	2	2	2	2	2	2
23	N050L	1/2" NYLOCK	2	2	2	2	2	2	2	2	2	2
24	X01001	RETRACTABLE HANDLE	1	1	1	1	1	1	1	1	1	1
25	14505S	HANDLE GRIPS	1	1	1	1	1	1	1	1	1	1
26	P050150CL	1/2 X 1 1/2" CLEVIS PIN	2	2	2	2	2	2	2	2	2	2
27	B038250S	3/8 X 2 1/2" SHANK BOLT	3	3	3	3	3	3	3	3	3	3

XXXXXX CALL FOR PART NUMBER



# BS Hydraulic Parts Listing

REF #	PART #	DESCRIPTION	42"	48"	54"	60"	66"	72"	76"	80"	84"	96"
1	P05006	TOP CYLINDER EAR	2	2	2	2	2	2	2	2	2	2
*2	C26	2"X 6" HYD CYLINDER	1	1	1	1	1	1	1	1	1	1
3	P075500C1TL	CAT I TOP LINK PIN	1	1	1	1	1	1	1	1	1	1
4	P716175LY	LYNCH PIN	3	3	3	3	3	3	3	3	3	3
5	P030201	TOP LINK EAR	2	2	2	2	2	2	2	2	2	2
6	P03217	MAST	2	2	2	2	2	2	2	2	2	2
7	P030191	DRAW EAR	4	4	4	4	4	4	4	4	4	4
8	P078375C1D	DRAW PIN	2	2	2	2	2	2	2	2	2	2
9	P01011	SIDE PLATE	2	2	2	2	2					
9	P02011	SIDE PLATE						2	2	2	2	2
10	H434	4 HOLE SHANK W/TIP	3	4	4	5	5	6	6	6	7	8
11	H434T	REPLACEABLE SHANK TIP	3	4	4	5	5	6	6	6	7	8
13	XXXXX	BACK PLATE	1	1	1	1	1	1	1	1	1	1
14	XXXXX	CUTTING EDGE ANGLE	1	1	1	1	1	1	1	1	1	1
15	CE42	CUTTING EDGE	2									
15	CE48	CUTTING EDGE		2								
15	CE54	CUTTING EDGE			2							
15	CE60	CUTTING EDGE				2						
15	CE66	CUTTING EDGE					2					
15	CE72	CUTTING EDGE						2				
15	CE76	CUTTING EDGE							2			
15	CE80	CUTTING EDGE								2		
15	CE84	CUTTING EDGE									2	
15	CE96	CUTTING EDGE										2
16	B058200P	5/8 X 2" PLOW BOLT	8	8	10	10	12	12	14	14	14	16
17	W058L	5/8" FLAT WASHER	8	8	10	10	12	12	14	14	14	16
18	N058H	5/8" HEX NUT	8	8	10	10	12	12	14	14	14	16
19	XXXXX	SHANK BAR	1	1	1	1	1	1	1	1	1	1
20	F11002	LIFT ARM EAR	1	1	1	1	1	1	1	1	1	1
21	P050150CL	1/2 X 1 1/2" CLEVIS PIN	2	2	2	2	2	2	2	2	2	2
22	P11	HAIR PIN	3	3	3	3	3	3	3	3	3	3
23	B038250S	3/8 X 2 1/2" SHANK BOLT	3	5	5	6	6	7	7	7	8	9
24	N038L	3/8 NUT	3	5	5	6	6	7	7	7	8	9

XXXXX CALL FOR PART NUMBER

## CAMMOND INDUSTRIES PRODUCT WARRANTY

Cammond Industries warrants its new equipment to be free of defects in material and workmanship at the time of delivery to the first retail purchaser. All equipment is warranted for six (6) months from the date of purchase by the first retail customer. Cammond will repair or replace, at its option, without charge for parts and labor, any defective part of the equipment during the six (6) months. All warranty work will be done by an authorized dealer or at the factory. Any work performed by the dealer must be authorized by the factory and charges will be determined based on the factory-approved rate. This warranty does not include transportation of equipment to the dealer or the factory, or the removal or replacement of any products attached to Cammond equipment. It is the responsibility of the owner, at the owner's expense, to transport the equipment to the service shop or an authorized dealer or alternatively to reimburse the dealer for any travel or transportation expense involved in fulfilling this warranty.

**EXCEPTIONS TO THIS WARRANTY:** This warranty will not apply in the following cases:

1. Warranty registration card is not completed and returned to Cammond Industries, 902 Arlington Center, PMB 225, Ada, OK. 74820
2. Normal wear of components and structure.
3. Damage caused by accident, fire, flood, abuse, negligence, alterations, lack of performance or lack of required maintenance.
4. Replacement of maintenance items such as hoses, hydraulic cylinders, etc. is not covered
5. Any unauthorized alteration of equipment or use of unauthorized parts.
6. Use of equipment in rental fleets.

This warranty is in lieu of all warranties of merchant ability, fitness for a purpose or other representations, warranties on conditions, expressed or implied. The remedies of the owner set forth herein are exclusive. Cammond Industries neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale of covered equipment. Correction of defects in the manner and for the applicable period of time provided above will constitute fulfillment of all responsibilities of Cammond Industries to the owner and Cammond will not be liable for negligence, under contract or in any other manner with respect to such equipment. **IN NO EVENT WILL THE OWNER BE ENTITLED TO RECOVER FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS LOSS OF CROPS, PROFITS, REVENUE OR RENTAL COST.**

If you have any warranty claim contact your dealer within 30 days of the occurrence. Your dealer will contact Cammond Industries and together they will determine the manner that it will be handled. DO NOT HAVE UNAUTHORIZED REPAIRS COMPLETED AND THEN CLAIM A WARRANTY REIMBURSEMENT.

*If equipment has been altered in anyway from original design, Cammond does not accept any liability for warranty.*