OPERATIONS MANUAL

VERTICAL PLATE CLAMP

IMPORTANT SAFETY INFORMATION

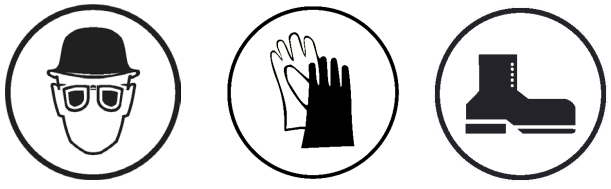
Please read, understand and follow all safety information contained in these instructions prior to the use of this clamping device. Retain these instructions for further use. These instructions are applicable for **Vertical Plate Clamps** offered by Premium Tool & Abrasives Co. Ltd.

INTENDED USE

This clamping device is designed to be used to lift a single plate or member in which the lifting force exerted by the rigging is directly above and in the line with the lifting shackle and to perform vertical turn/lifts. Only accessories specifically recommended by PTA Canada should be used with this tool. Use in any other manner or with other accessories could lead to unsafe operating conditions.

WARNING

This unit must only be used in compliance with all applicable safety regulations and standards, including ASME B30.20-2010, concerning installation, use, maintenance and inspection of below the hook lifting devices.



WARRANTY

Premium Tool & Abrasives warrants its Plate Clamps for a period of 1 year from the purchase date against manufacturing defects and will repair or replace (at its option) without charge any items returned. Repairs or replacements are warranted as described for the remainder of the original warranty period. Providing proof of purchase is strictly the responsibility of the customer. This warranty is void if the item has been damaged by accident or unreasonable use, neglect, improper service, or other causes not arising out of defects in material or workmanship. No other expressed warranty is given or authorized. Premium Tool & Abrasives disclaims any implied warranty of MERCHANTABILITY or FITNESS for any period beyond the expressed warranty and shall not be liable for incidental or consequential damages.
To obtain warranty service, please request a returned goods authorization number (RGA) from your nearest Authorized Warranty Repair Centre or from Premium Tool & Abrasives. Warranty claim items must be shipped to Premium Tool & Abrasives prepaid or delivered to 10761 - 181 ST, NW. Edmonton, AB, Canada, T5S 1N3.

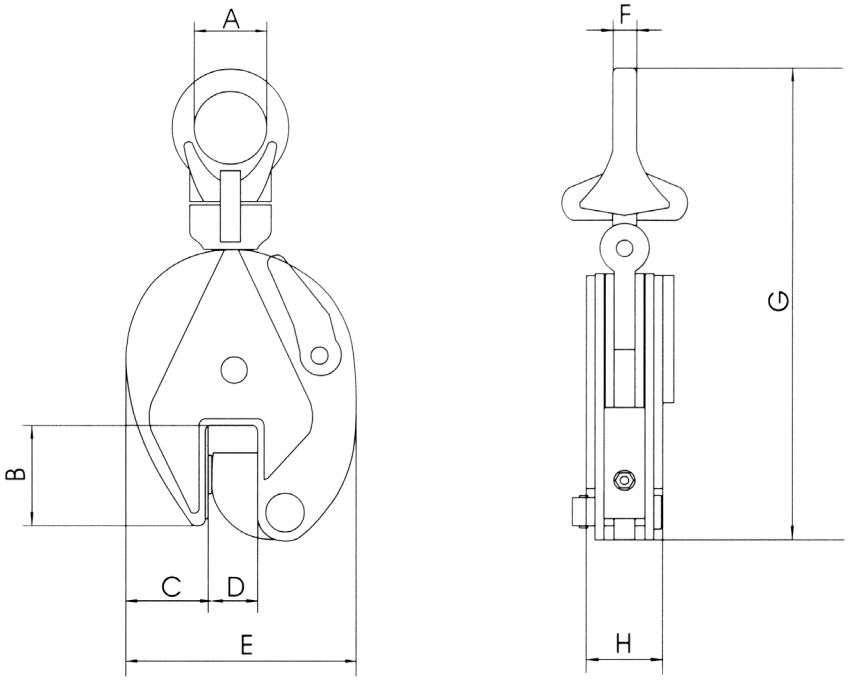
IMPORTANT SAFETY INSTRUCTIONS

- Read, understand and follow the safety information contained in these instructions prior to using this tool. Keep these instructions for further reference.
- PTA plate clamps conform to ASME B30.20-2010 Design Category A, Service Class 0 lifting classifications and marking requirements for below the hook lifting devices (BTH-1).
- Use this clamp in accordance with ASME B30.20-2010.
- Maintain a lifting clamp inspection report and inspect the clamp with a frequency compliant with ASME B30.20-2010.
- Before lifting a load, confirm that the plate clamp is in good condition and functioning properly. Never use a plate clamp when malfunction, unusual performance, damage, or extensive wear are found.
- Always keeps a safe distance when lifting and never lift over people.
- Never lift plates heavier than the working load limit (WLL) as indicated on the clamp and test certificate.
- Never lift plates which have a weight less than 10% of the WLL indicated on the clamp and test certificate.
- Never lift plates thinner than 25% of the maximum jaw opening indicated on the clamp.
- Never lift more than one plate at a time.
- Never lift a plate from the bottom of a stack of plates.
- When performing vertical turn/lifts, ensure the plate does not exceed one half the WLL indicated on the clamp.
- When using a number of lifting clamps at the same time, provide lifting slings or chains of a sufficient length to ensure that the angle between the slings or chains never exceeds 30 degrees. See Do's and Don'ts Page 6.
- Avoid lateral loading plate clamp. Never exceed more than 5 degrees of side loading. See Figure 3.
- Do not place the clamp on tapered or conical shaped sections of the plate or structure to be lifted. See Do's and Don'ts Page 6.
- Remove all grease, oil, dirt, corrosion and mill scale from the plate at the point where the clamp is to be attached.
- The surface hardness of the plate must not exceed HB 345 (37 RC).
- Never adjust or repair a plate clamp unless you are qualified to perform hoist maintenance.
- Never modify the plate clamp. Never weld on or drill through any plate clamp parts. Approval from PTA is required for all nonstandard maintenance.
- Use only genuine PTA parts when repairing the lever hoist.
- Never remove or obscure the name plate or other markings on the plate clamp.

PRODUCT SPECIFICATIONS

CAPACITY	JAW OPENING	MPT	WLL	A	B	C	E	F	G	H	SHIP WEIGHT	P/N
1 TON	0 - 13/16"	13/64"	200 lbs	1-7/8"	2-1/2"	2"	5-7/16"	1/2"	11-9/16"	2"	11 lbs	TM0461
2 TON	0 - 1"	1/4"	400 lbs	2-11/16"	3"	2-3/16"	6-7/16"	5/8"	14-9/16"	2"	14.3 lbs	TM0462
3 TON	0 - 1-3/16"	19/64"	600 lbs	2-15/16"	3-3/8"	2-5/16"	7-9/16"	3/4"	16-7/16"	3-1/16"	33.1 lbs	TM0463
5 TON	0 - 2"	1/2"	1,000 lbs	3-1/8"	3-1/2"	2-9/16"	9-7/16"	7/8"	17-11/16"	3-1/2"	54 lbs	TM0465

1) Minimum Plate Thickness (MPT) - 25% of the maximum jaw opening of a plate clamp.
2) Minimum Working Load Limit (WLL) - 10% of the maximum rated load on a plate clamp.



DEFINITIONS

VERTICAL LIFT

- The lifting of a single plate or structure in which the lifting force exerted by the rigging is directly above and in line with the lifting shackle as shown in Figure 1.

VERTICAL TURN/LIFT

- A vertical turn/lift clamp is a vertical lifting clamp specifically intended to turn over a single plate through a ninety degree (90º) arc from horizontal to vertical to horizontal in a 180º arc. During the turning operation the edge of the plate opposite to the clamp should always be in contact with something, such as a factory floor. The load to be turned should be less than one half the rated capacity of the clamp. See Figure 2.

PLATE HARDNESS

- Unless otherwise specified, lifting clamps are manufactured to lift hot-rolled steel plates whose hardness does not exceed HB 345 (37 RC).
- Finished and polished plates, such as stainless steel, are generally handled using non-marring clamps with smooth gripping surfaces.

PLATE THICKNESS

- The maximum jaw opening is specified on each clamp. The minimum plate thickness is 25% of the maximum jaw opening. Never try to lift a plate that does not fit between these values.

LOCKING CLAMPS

- Locking clamps feature a locking lever that exerts a force on the gripping cam when the lock handle is moved to the locking position (towards the clamp body). When the handle is moved towards the unlocked position (towards the jaw opening), the force is relaxed and plate can be inserted into the jaws.

NORMAL SERVICE

- Service that involves operation with various weights within the rated load limit with no more than four operations above 65% of the rated load limit per 24 hour period.

HEAVY SERVICE

- Service which involves operation within the rated load limit that exceeds normal service

SEVERE SERVICE

- Service that involves normal or heavy service with abnormal operating conditions

OVERHAUL SERVICE

- After 5 years, in Design Category A lifters, under Normal Service, and after 3 years under Heavy Service, the lifting clamp will be extensively inspected to determine the condition of the body and all parts.
- If parts need replacement, an authorized repair technician must overhaul the most critical parts, including the finger cam assembly (including spring), the round jaw assembly and the safety latch. An ASME compliant approval sticker with year and month will be affixed.

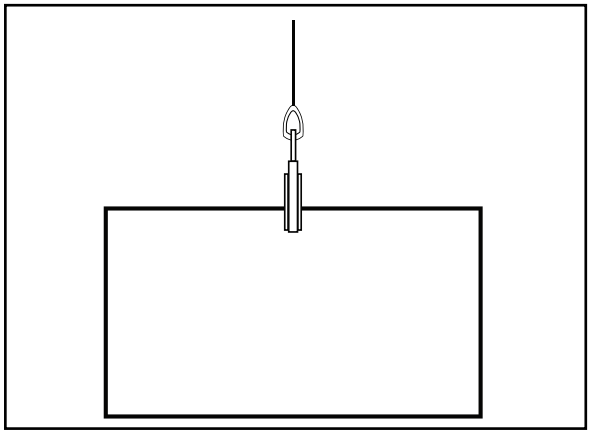


FIGURE 1

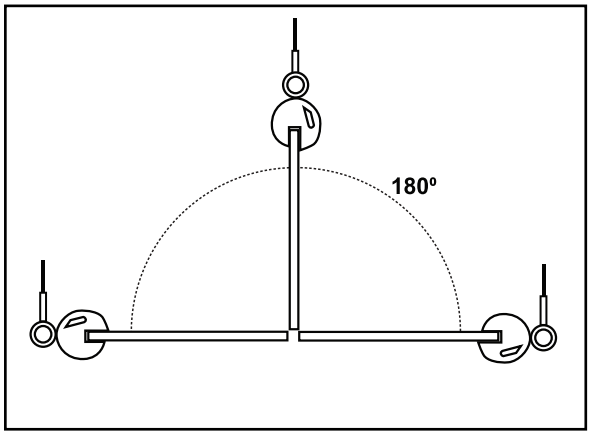


FIGURE 2

ABNORMAL OPERATING CONDITIONS

- Environmental conditions that are unfavourable, harmful, or detrimental such as excessively high or low ambient temperatures, exposure to adverse weather, corrosive fumes, dust-laden or moisture-laden atmospheres, and hazardous locations.

DESIGNATED PERSON

- A person selected by the employer or the employer's representative as being competent to perform these specific duties.

QUALIFIED PERSON

- A person who, by possession of a recognized degree in an applicable field or certificate of professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve problems relating to the subject matter at hand.

USAGE INSTRUCTIONS

1 CLAMP SELECTION
- Select the appropriate capacity and jaw opening size to meet the plate thickness. The model capacity and thickness rating are indicated on the clamp.
- Never exceed the rated capacity or use on plates that are not within the range of the plate thickness.
- Never lift a load that is below 10% of the WLL of the clamp.
- Lift only one plate on each lift.

2 INSPECTION
- Inspect the clamp before each lift. Complete inspection log if necessary.
- Do not use if in need of repair.
- Inspect gripping surfaces for wear and defects. The finger cam and round jaw assemblies teeth and rings must be sharp and undamaged and free of debris. Remove debris with a wire brush if needed.
- When the clamp is dirty or greasy it can be cleaned with diesel oil or degreasing solution, then blow dried with air or with a dry cloth at the joints and gripping surfaces. Check the body, lifting shackle and finger cam assembly for damage, cracks, or deformation - which might indicate overloading.
- Ensure the clamp opens and closes properly. If the operation of the clamp is stiff or heavy, it should be removed and repaired or replaced.
- Operate the lever to check whether the clamp opens and closes smoothly. Inspect swivel jaw mounting hole in body for elongation indicating overload or excessive wear.
- Remove any clamp showing signs of wear or damage from use.

3 PREVENTATIVE MAINTENANCE
- Under Normal Service, the lifting clamp and parts will be meticulously inspected for cracks, deformation, damage and proper functioning by a qualified person.
- During maintenance, the most critical parts (the finger cam and round jaw assemblies, including the spring) must be evaluated and any damaged parts must be replaced.
- All repairs and repair procedures must follow ASME B30.20-2010
- Repaired and maintained hoists must have an approval sticker with the year and month of service and the name and address of the repairer.

4 COMMON AREAS OF DAMAGE
- The finger cam and round jaw are the most critical parts in a plate clamp and require extra attention during inspection and service.
- For the finger cam, reject when the sharpness of one tooth has disappeared by more than 50%.
- For the round jaw, reject when the sharpness of one ring has disappeared by more than 50%.

5 OVERHAUL PROCEDURE FOR CLAMP
- Under Normal Service, the lifting clamp will be extensively inspected to determine the condition of the body and all parts every 5 years.
- During overhaul service, the finger cam and round jaw assemblies, shafts and safety latch must be replaced.
- All repairs and repair procedures must follow ASME B30.20-2010.
- Repaired and maintained hoists must have an approval sticker with the year and month of service and the name and address of the repairer.

6 RIGGING CONSIDERATIONS
- Plate clamps are components of the rigging used in the lifting or transporting of metal plates. It is important to use safe and adequate rigging. The clamp is manually held in place until the gripping mechanism of the clamp is activated by a force applied to the lifting shackle.
- Improper rigging may interfere with the operation of the clamp and its ability to maintain proper position and grip on the plate. Never attach a crane hook directly to the clamp. Instead, use sling between the hook and clamp.

7 INSTALLATION OF CLAMP
- Operate the lever towards the jaws of the clamp to open the jaws.
- Ensure area of the plate that is to have the plate clamp mounted is clean and free of lubricant, dirt and corrosion.
- Insert the plate fully into the jaw
- Operate the lever towards the body of the clamp to secure the plate.

8 POSITION CLAMP
- Position the clamp so the direction of force applied from the lifting mechanism is in line with the lifting shackle.
- Never exceed more than 5º of side loading. See Figure 3.
- If using more than one plate clamp to lift a load, ensure the force applied along the sling or chain is in line with the lifting shackle. See Figure 4.
- Make certain gripping surfaces are in full contact with the plate.

9 LIFTING
- Ensure the operator and all persons are positioned away from the plate being lifted. Do not commence lifting until all personnel are clear of the lifting area.
- Slowly apply tension to the lifting shackle until gripping surfaces of the clamp are in full contact and exerting a force in the plane of movement.
- Ensure the lifting force is constant and not jerky.

10 UNINSTALLING THE CLAMP
- After the plate is fully supported and at rest in a stable position, relax lifting force and manually move gripping cam to “open” position by operating the clamp lever toward the jaws. Remove the clamp from the plate.
- Inspect the clamp. Remove any clamp in need of service from use.

11 PROCEDURE FOR DAMAGED PRODUCTS
- Remove the clamp from service and marked “Out of Service”.
- Try to determine the cause of malfunction.
  - » Excess stress (incidental or structural)
  - » Improper use (unsuitable clamp for the load)
  - » Injudicious use (untrained personnel)
  - » Lifting of new/divergent materials (improper load hardness/dimensions)
  - » Rough or careless use

    While this cause of damage is not covered under warranty, it is important from the standpoint of worker safety to understand the cause of clamp failure.
- Give the clamp and maintenance log to your authorized repairer. The repair should be carried out and registered in the maintenance log.
- After the unit is repaired, it must be inspected according to ASME B30.20 paragraph 20-1.3.4.

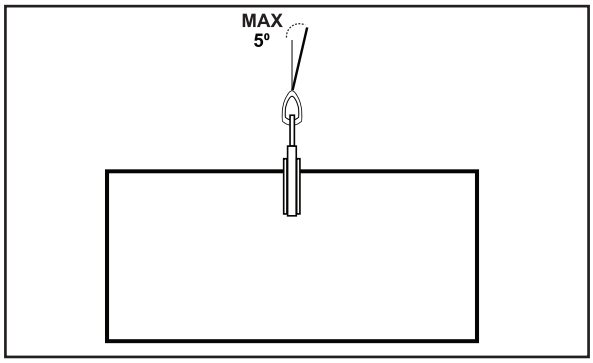


FIGURE 3

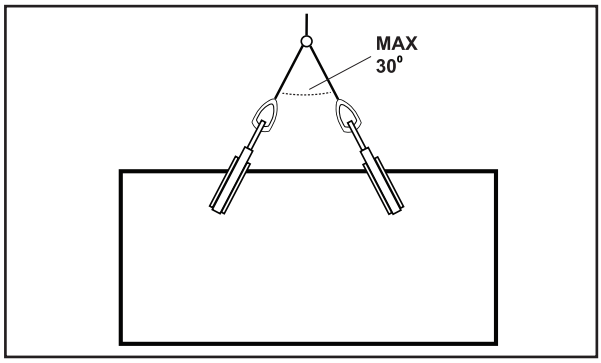
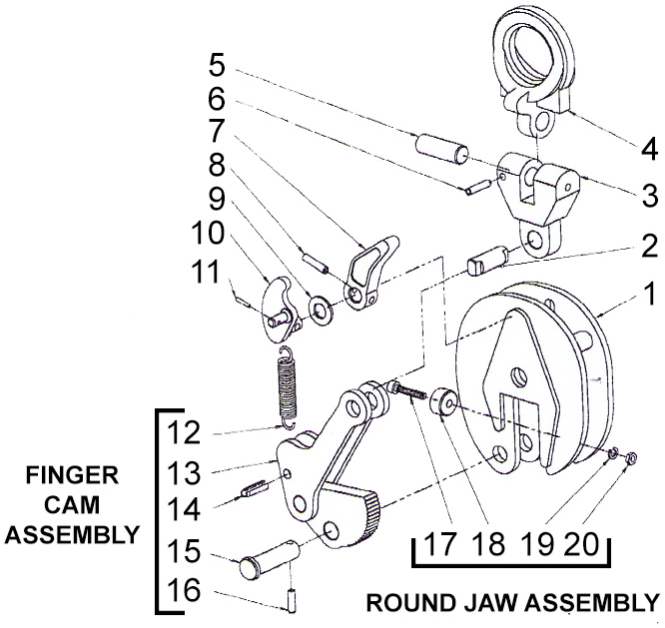


FIGURE 4

TROUBLESHOOTING

CONDITION	PROBABLE CAUSE	ACTION
Load is slipping	1. Load is dirty 2. Pivot is dirty 3. Pivot and/or gripping cam is blunted 4. Jaws are bent open	1. Clean the load 2. Clean the clamp 3. Overhaul clamp or reject clamp 4. Reject clamp
Lifting shackle is pivoting badly	1. Lifting shackle was overloaded	1. Reject clamp
Body is bent	1. Clamp overloaded	1. Reject clamp
Lifting shackle oval shape	1. Clamp overloaded	1. Reject clamp
Spring defective	1. Spring is worn out	1. Overhaul clamp
Shackle pins are bent	1. Clamp overloaded	1. Reject clamp
Clamp difficult to open or close	1. Moving parts are dirty 2. Clamp worn out 3. Clamp is contaminated	1. Clean clamp 2. Reject clamp 3. Clean the clamp

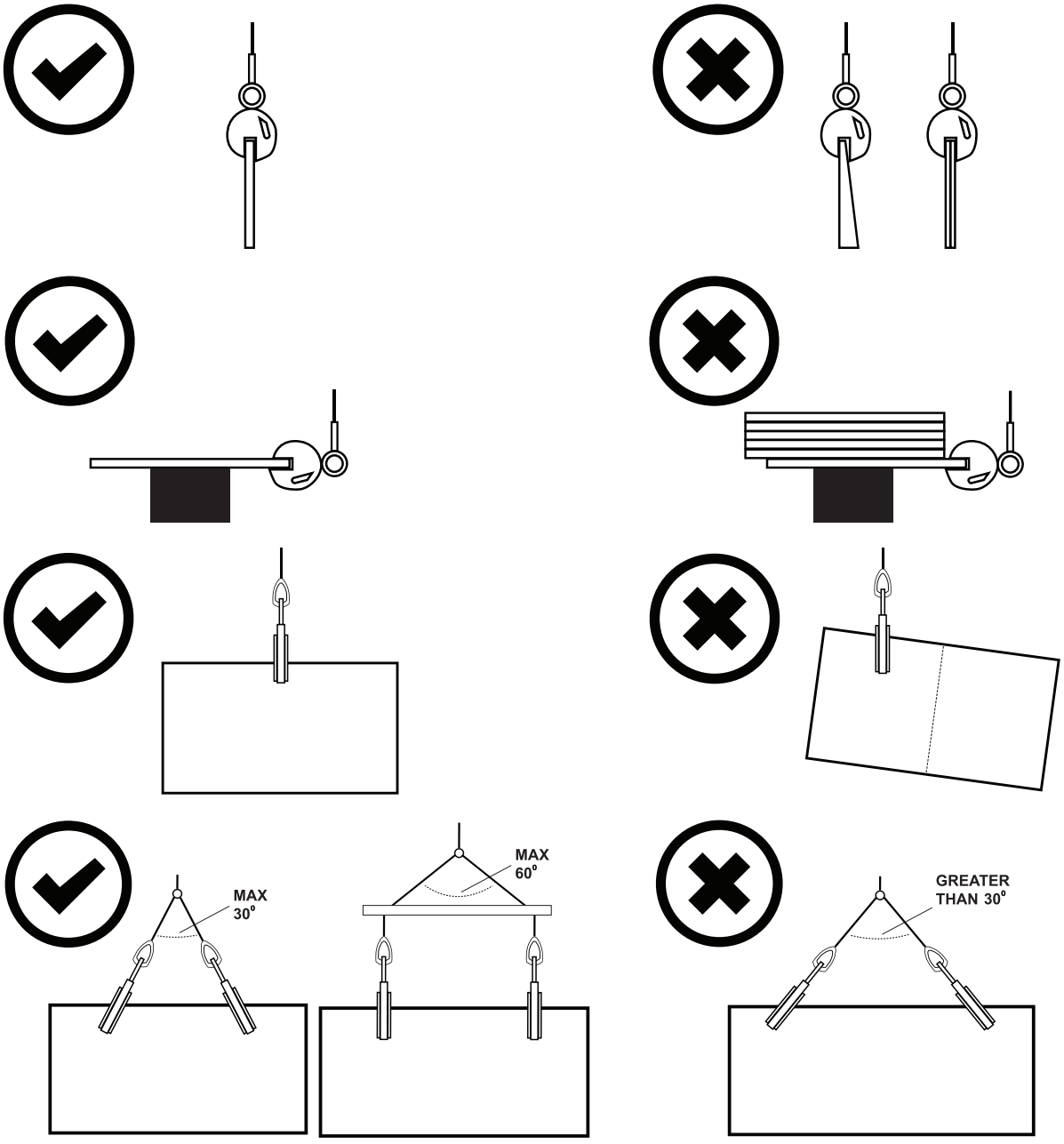
PRODUCT PARTS



ITEM	DESCRIPTION	P/N
1	Body	
2	Connecting Block Pin	
3	Connecting Block	
4	Pivoting Shackle	
5	Pivoting Shackle Pin	
6	Roll Pin	
7	Function Lever	
8	Roll Pin	
9	Washer	
10	Function Block	
11	Roll Pin	
12	Spring	
13	Connecting Plate	
14	Roll Pin	
15	Jaw Pin	
16	Roll Pin	
17	Screw	
18	Ring	
19	Lock washer	
20	Screw	
12+13+14+15+16	Finger Cam Assembly	
17+18+19+20	Round Jaw Assembly	

WARNINGS AND PRECAUTIONS

DO	DO NOT
1. DO read and understand the operator's manual before using clamp.	1. DO NOT lift loads over anyone at anytime.
2. DO consult Operator's manual or PTA when in doubt.	2. DO NOT use a clamp that has been overloaded or damaged.
3. DO lock clamp closed when fitted with a lock.	3. DO NOT side load with a straight shackle clamp.
4. DO use correct clamp for the job.	4. DO NOT lift plates from the bottom of a stack.
5. DO use an adequate number of clamps to balance a load.	5. DO NOT lift more than one plate with a plate clamp.
	6. DO NOT pull plates horizontally with a vertical plate clamp.
	7. DO NOT grind, weld or modify the clamp in any way.
	8. DO NOT attach clamp directly to a crane hook. Use flexible connection between crane hook and clamp shackle.



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ASME/ANSI/OSHA INSPECTION COMPLIANCE

- New and reinstalled lifters shall be inspected by a designated person prior to initial use to verify ASME B30.20 compliance.
- Inspection procedures are divided into three categories based upon intervals of inspection.
- Definitions of Normal, Heavy and Severe Service are on Page 3 - Definitions.
- Refer to Page 4 - Usage Instructions and the ASME table below for inspection guidelines.
- **Every lift**: Visual inspection by the operator before and during use. No written record necessary. Visual inspection shall include:
  a) Surface of the load or clamping parts for scale, grease, oil, paint, water, ice, moisture, dirt and/or coatings
  b) Refer to Page 4 - Usage Instructions - Part 2, 4 - Inspection
- **Frequent Inspection**: Visual inspection by operator or designated person depending on use. Records not required.
  a) Normal service - Monthly
  b) Heavy service - Weekly to monthly
  c) Severe service - Daily to weekly
- Frequent Inspection shall include visual inspection of:
  a) Inpsect in accordance with Every Lift guidelines
  b) Structure members for deformation, cracks or excessive wear on any part of the lifter
  c) Loose or missing guards, fasteners, covers, stops or nameplates
  d) All functional operating mechanisms for misadjustments interfering with normal operation
  d) Refer to Page 4 - Usage Instructions - Part 2, 3, 4 - Inspection

  Periodic inspection: Visual inspection by a qualified person making dated records or apparent external conditions to provide the basis for a continuing evaluation.
- Inspection frequency based on use:
  a) Normal service - Yearly
  b) Heavy service - Semi-annually
  c) Severe service - Quarterly
- Periodic inspection shall include visual inspection of:
  a) Inspect in accordance with Every Lift and Frequent Inspection guidelines
  b) Loose bolts or fasteners
  c) Cracked or cams, jaws, springs, and/or body pieces
  d) Excessive wear of friction pads, linkages
  e) Excessive wear at hoist hooking points and load support clevises or pins
- Equipment not in use for more than 1 month must be inspected in accordance with Frequent Inspection criteria.

ASME MINIMUM INSPECTION FOR BELOW THE HOOK DEVICES

	Normal Service		Heavy Service		Severe Service	
	Visual Monthly (1)	Record Yearly (2)	Visual Weekly to Monthly (1)	Record Semi annually (3)	Visual, Daily to Weekly (3)	Record Weekly (3)
Frequent Inspection - structural deformation, cracks or excessive wear of any part of the lifter	x		x		x	
Loose or missing guards, fasteners, covers, stops or nameplates	x		x		x	
All functional operating mechanisms and automatic hold and release mechanisms for misadjustments interfering with operation	x		x		x	
Periodic Inspection - loose pins, washers and screws		x		x		x
Cracked or worn cams, jaws springs and body pieces		x		x		x
Excessive wear of linkages, hooking points, support clevises and other mechanical parts		x		x		x
Removed or obscured identification and specification plates or stickers		x		x		x

1) By operator or designated person with records not required.
2) Visual inspection by designated person making records of apparent external conditions to provide the basis for a continuing evaluation.
3) As in Note 2, unless external conditions indicate that disassembly should be done to permit detailed inspection.

PTA CANADA®

OPERATIONS MANUAL

VERTICAL PLATE CLAMP

PRODUCT INFORMATION

Part Number: _____

Serial Number: _____

Date of Purchase: _____

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