PNEUMATIC



CAUTION: When cutting steel, ductile iron, or cast iron, the UPC can produce sparks. When cutting PE, the UPC may cause a build-up of static electricity. Do not use the UPC saw in-line on potentially explosive or otherwise dangerous situations. The line must be verified as completely purged of any flammable vapor or liquid.



UNIVERSAL PIPE CUTTERS OPERATOR'S MANUAL



(317) 346-4110 www.drainagesolutionsinc.com



UPC616A UPC636A UPC648A UPC836APE UPC848APE UPC616AP



REED MANUFACTURING

1425 WEST EIGHTH ST. ERIE, PA 16502 USA PHONE: 800-666-3691 OR 814-452-3691 reedsales@reedmfgco.com

www.reedmfgco.com

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I. SAFETY INSTRUCTIONS & WARNING

A. Always Comply With:

- 1. General Industry Safety & Health Regulations, issued by OSHA.
- 2. ANSI Specification Nos. B186.1, B7.
- 3. State and Local Regulations.

B. Abbreviated Form of Above Regulations: These regulations are not all inclusive—study and comply with all above regulations.

- 1. Check Cutter Speed Before Mounting Cutter.
- 2. Use Tachometer Actual speed must not exceed rated speed.
- Perform Speed Checks When: a. A tool is issued for use. b. After all tool repairs.
- 4. Use Tools Only For Intended Purpose
- 5. Test & Operate Tools at 90 PSIG Maximum Only exception is if tool is marked otherwise.
- 6. Use Recommended Air Line Equipment This includes air line filters, regulators, and lubricators.
- 7. Stop Immediately If:
 - a. Unusual sound is heard, or...
 - b. Unusual vibration is experienced (Refer to Section III to check if proper assembly was followed).
- 8. Check Speed Rating Of Blade Must equal or exceed speed rating of air motor.
- 9. Mount Blade According To Regulations. Refer to Section IIIA IIIB.
- 10. Inspect Blade
 - a. Refer to aforementioned regulations. (Section IA)
 - b. Discard if chipped, cracked or otherwise damaged.
- 11. Mount Proper Blade Guard
 - a. Refer to Section IIIC.
 - b. Sample Warning Label:
- 12. Always Wear Protective Equipment When Tool is in Use

WARNING/ADVERTENCIA

HIGH SPEED ROTATING BLADE Can cause sovere personal injury. Keep hands clear of blade while saw is running. DO NOT operate this unit without blade guard in place. HOJA GIRATORIA DE AITA VELOCIDIDO Puede causar lesiones personales graves. Aleje las manos de la hoja caundo la sierra esté en funcionamiento. NO opere esta unidad si la guarda de la hoja no está en su lugar.

DO NOT use this cutter on AC pipe or FRP (GRP) pipe. Free asbestos fibers and/or fiberglass fibers may be hazardous to your health. NO use este cortador en tuberías de asbesto o tuberías reforzada:

No use este corrador en unaertas de asolesto o unuertas reitorizadas con fibra de vidrio. Las fibras de asbesto y do feibra de vidrio que se desprenden y vuelan libres pueden ser peligrosas para su salud. Reed Manufacturing, Erie, PA USA www.reedmfgco.com

- a. Refer to aforementioned regulations (Section IA) concerning goggles, face shields, and other protective clothing.
- b. Appropriate hearing protection which reduces noise to acceptable levels must be worn.

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13. Employ a Safety Program

Refer to ANSI and OSHA specifications for inspection and maintenance procedures.

WARNING: Failure to comply with all safety regulations may result in serious injury.

II. DESCRIPTION

A. Pipe Cutter Model: UPC 616A, 616AP, 636A, 648A, 836APE & 848APE

NOTE: Models UPC836APE and UPC848APE are specifically for use on PE (high density polyethylene) pipe. With a larger diameter blade (8" diameter), they can cut up to 2.65" (69 mm) wall thickness PE pipe. They can also be used on PVC plastic pipe when fitted with a PVC blade. UPC836APE and UPC848APE do not come with a pressurized water system and cannot be used on pipe requiring a water-cooled blade such as Cast Iron, Pit Cast, Ductile Iron, Clay, or Concrete.

B. Motor Specifications:

Horsepower Generated by UPC = 1.7 H.P. (1.3 kW) Maximum R.P.M. = 3675 Air Consumption = 50 cu. ft./min. (1.4 cu. m/min.) Pressure = 90 P.S.I. Maximum (6 BAR) Shut -Off = 3/4" Ball valve Air Supply Fittings = 3/4" Dixon "Air King" Coupling

C. Pipe Cutting Range:

UPC616A 6" - 16" nominal (150 - 450 O.D. mm) UPC636A 6" - 36" nominal (150 - 1000 O.D. mm) UPC648A 6" - 48" nominal Pipe (150 - 1300 O.D. mm) UPC836APE 8" - 36" nominal PE pipe ONLY (200 - 1000 O.D. mm) UPC848APE 8" - 48" nominal PE pipe ONLY (200 - 1300 O.D. mm)

D. Beveling:

Bevel determined by Bevel Cutter used. Available by special order.

E. Maximum Cutting Depth

4" Blade = $\frac{23}{32}$ " (18.3 mm)

6" Blade = $1^{23}/32$ " (43.6 mm)

4" Blade Steel = ½" (12.7 mm)

6" Blade Steel = ½" (12.7 mm) 8" Blade PE = 2 ²³/₃₂" (69 mm)

F. Standard Equipment

Standard Equipment	UPC616A	UPC636A	UPC648A	UPC836APE	UPC848APE
Power Cutter with 1.7 H.P. Motor	YES	YES	YES	YES	YES
Chain/Turnbuckle Assembly	YES	YES	YES	YES	YES
	cut up to 16"				
Connecting Frames & Chain to cut up to	NO	36"	48″	36"	48″
Filter/Regulator/Lubricator with Stand	YES	YES	YES	YES	YES
Water Tank	3 gallon	6 gallon	6 gallon	NO	NO
		w/Cart	w/Cart		
Carrying Case	YES	YES	YES	YES	YES
Air Line Oil	YES	YES	YES	YES	YES
Grease Gun w/Gear Grease	YES	YES	YES	YES	YES
Hex Key Wrench Set	YES	YES	YES	YES	YES
Open End Wrenches	YES	YES	YES	YES	YES
Wedges	YES	YES	YES	YES	YES
UPCSTEEL6 6" blade	NO	NO	NO	YES	YES
UPCPE8 8" blade	NO	NO	NO	YES	YES

G. Optional Accessories/Blades

Use BLADE SELECTION CHART to choose the best blade for the application. (see below)

H. Auxiliary Equipment Required:

Air compressor capable of sustaining 50 SCFM @ 90 psi. Hoses equipped with compatible fittings. If fittings other than those supplied with the motor are used, they should be a full bore type to maximize motor speed.

III. ASSEMBLY

A. Blade Installation

- 1. Select a Blade from the Chart Below
- 2. Install Blades

a. Standard Arbor - Install the blade on the ⁵/₈ diameter arbor shoulder (Fig. 2). Install the flange with the relieved side toward the blade and screw on the locknut. While holding a wrench (supplied) on the ⁷/₈ arbor flats, tighten the arbor locknut. The blade must seat fully on the arbor shoulder and flush against the face of the arbor.

NOTE: To cut PVC only, <u>without bevel</u>, use standard arbor #97617 that ships installed with the unit.

b. Long Arbor for Cutting & Beveling PVC

To cut and bevel at one time, install bevel cutter (small edge toward motor) over Long Arbor #97561. Next, install selected blade on 5/8 diameter arbor shoulder (Fig. 3). Install flange washer with relieved side toward blade and then screw on locknut. While holding a wrench (supplied) on 7/8 arbor flats, tighten arbor locknut using 3/4" wrench (supplied). Blade must seat fully on arbor shoulder and flush against bevel cutter. See Cut & Bevel PVC Set-up, Fig. 7 for full details.

c. Guideline for depth when beveling:
6" blade plunge an additional 1.7" after blade contacts pipe
4" blade plunge an additional 1.1" after blade

contacts pipe

NOTE: Blade life depends on weather conditions, type of pipe and pipe diameter, and exterior pipe treatments.

CAUTION: Air Motor rotates COUNTERCLOCKWISE as viewed from the arbor end. Blades stamped with rotation arrow must be installed so they rotate counterclockwise.

B. Installing Bevel Cutters (Fig. 1) Optional

 Check motor tightness by tightening motor clamp screws (2) on the underside of unit. (Fig. 1)



BLADE SE		CHART		
Catalog No.	Item Code	Description	Pipe Diameter	Pipe Material
UPCARB4	97510	4" BLADES cut up to 23/32" (18.3 mm) wall thickness	6" (150 mm)	PVC
UPCBPVC*	97511	PVC Bevel Cutter	6"- 48" (150-1300 mm)	PVC
UPCARB6	97514	6" BLADES cut up to 1 23/32" (43.7 mm) wall thickness	8"- 48" (200-1300 mm)	PVC
UPCSTEEL4	97519	4" BLADES cut up to 1/2" (12.7 mm) wall thickness	6" - 8" (150-200 mm)	Steel
		4" BLADES cut up to 23/32" (18.3 mm) wall thickness	6" - 8" (150-200 mm)	PE
UPCSTEEL6	97520	6" BLADES cut up to 1/2" (12.7 mm) wall thickness	8" - 48" (200-1300 mm)	Steel
		6" BLADES cut up to 1 23/32" (43.7 mm) wall thickness	8" - 48" (200-1300 mm)	PE
UPCPE8**	97521	8" BLADES cut up to 2 23/32" (69 mm) wall thickness	26" - 48" (660-1300 mm)	PE
UPCDIA4	97529	4" BLADES cut up to 23/32" (18.3 mm) wall thickness	6"-8" (150-200 mm)	Cast Iron, Pit Cast, Ductile Iron, Clay, Concrete
UPCDIA6	97525	6" BLADES cut up to 1 23/32" (43.7 mm) wall thickness	8"- 48" (200-1300 mm)	Cast Iron, Pit Cast, Ductile Iron, Clay, Concrete

* Used with UPCARB4 or UPCARB6 cut-off blades. Long arbor #97561 is required since this bevel cutter has 1¼" blade thickness.

** This blade works only with UPC836 and UPC848 models.

- 2. Rotate exhaust collar until ports are in downward position. Position rear set screws (2) to lightly touch the exhaust collar. Tightening the rear set screws will damage the motor and warp the motor bracket.
- 3. Remove blade guard, by loosening 2 screws at top of guard. (Fig.1)
- 4. Remove locknut and flange washer and any blade from the arbor. (Fig. 7)

WARNING:

Do not use the unit without the blade guard.

- C. Reinstall blade guard and tighten mounting screws.
- **D.** Select Chain and Connecting Frames to match outside Diameter of Pipe.

NOTE: UPC616 uses Motor Frame and 19 Link Chain/Turnbuckle Assembly.

E. Assembly of Unit on Pipe

- 1. Loosen motor bracket locking knob. (Fig. 4)
- 2. Retract motor bracket to uppermost position, by turning feed knob counterclockwise. (Fig. 4)
- Connect 13 link chain and turnbuckle assembly to motor unit with release pin. Extend turnbuckle to outermost position. (Fig. 5)
- 4. Connect chain hook with release pin to other side of motor unit. Assemble hook in upward position.



PHOTO #1





PHOTO #2

NOMINAL PIPE DIAMETER	MOTOR FRAME	13 LINK CHAIN ASSEMBLY WITH TURNBUCKLE	11 LINK CHAIN ASSEMBLY	CONNECTING FRAME
6 — 12 IN.	1	1	_	_
14 — 26 IN.	1	1	1	1
28 — 36 IN.	1	1	2	2
40 — 48 IN.	1	1	3	3

 Place the unit on the pipe being sure to firmly hold the motor unit while wrapping the chain around to connect to the hook on the motor frame (Photo #2). Tighten turnbuckle so unit is snug but can be rotated (Photo #2). Cutter should always be mounted on the section of pipe not being removed.





FIG. 4

6. If cutting pipe where connecting frames and 11 link chains are needed, (UPC636 & UPC648) pre-assemble chain hooks to the aluminum connecting frames, with the chain hooks in the downward position. Return to Step 5, being sure to space the connecting frames equidistant to the motor unit. (Fig. 5)



Rotate unit around pipe (one revolution). To check tracking accuracy, mark the pipe at one of the motor unit rollers and rotate the

unit again and note off/on track condition. By tapping or resetting the chain and/or connecting frames, the unit can be aligned.

UPC616 Shown

G. Connect Air Supply

Unit is supplied with Street Ell, Ball valve and Dixon coupling, however, any combination of piping to the unit can be used as long as all fittings are full flow to ensure maximum motor RPM. Always connect to warm air side of compressor if so equipped. This will provide best tool performance.

H. Adjust Filter, Regulator, Lubricator (FRL)

Note: It is imperative the filter, regulator, lubricator be employed when running the UPC Pneumatic. The air should be clean, dry, and lubricated to maximize motor life and performance.

- 1. Before pressurizing, fill the oiler with the oil provided, by removing the large black cap on the top. (Do not exceed the maximum fill line) Replace cap.
- 2. Set air pressure to 90 PSI maximum. Loosen wing-nut on bottom of regulator, and turn large knob clockwise until pressure is attained.
- 3. Turn the small set screw to set the oil drip. The oiler should be set of 5-8 drops per minute.

I. Fill and Attach Water Tank (not required for cutting plastic pipe) to Blade Guard

Water is used to help cool the diamond blades when cutting cast iron, ductile iron and clay pipe. In cold temperatures, low-level heat may be applied to the water tank, or a non-toxic, environmentally safe, anti-freeze may be added to the water.

IV. OPERATION

A. Position the Cutting Blade

- 1. Loosen blade guard locking knob until swing guard rests on pipe.
- Turn cutter feed knob clockwise. (Fig.4) Lower motor and cutter close to, but not touching the pipe. Motor bracket locking knob should be tight, yet allow the bracket to slide.

B. Pressurize Water Tank by Following Instructions Provided with Tank

Open valve on tank. Continue to repressurize tank during use.

Special instructions for cutting Steel Pipe and PE Pipe on next page.

C. Turn Motor On

After ensuring air line is clear of dirt and debris, connect air hose to motor. Open ball valve on motor.

WARNING: Blade is now rotating, keep hands clear.

D. Slowly Feed the Blade into the Pipe.

Note: Fast feeding can result in tracking off.

- 1. Note position of depth gauge pointer (divided in tenths of inches with MM references). (Photo #3)
- 2.* Knowing the thickness of pipe to be cut, turn the feed knob clockwise, (Fig. 4) until the pointer indicates the desired depth of cutter. Allow at least ¹/₄" of blade beyond depth of cut.

*Exception to this would be if the bevel cutter was being used for plastic, then the cutter would be engaged until the bevel cutter began cutting. At this point the depth gage pointer could be used to determine amount of bevel. Full engagement produces a ¹⁵/₁₆" bevel. (Fig. 4)



- FIG. 0
- 3. Tighten motor bracket locking knob. (Fig. 4)
- Tighten blade guard locking knob approximately ¹ 8" from pipe. (Fig. 4)
- 5. Rotate unit in direction of arrow on top of motor bracket.
- 6. Space wedges every 9-12 inches.
- 7. The unit will cut under water, however, if it is stalled, rotate it back up through its cut and exhaust the water before cutting again.
- 8. When beveling plastic pipe, overlap the start/finish point of cut to ensure a complete bevel.
- 9. If the blade is pinched in the cut:
 - a. Disconnect air supply line from unit.
 - b. Open ball valve to ensure complete bleed off through motor.
 - c. Remove blade guard.
 - d. Remove locknut, flange from arbor.
 - e. Disconnect chain.
 - f. Pull motor unit out of blade.
 - g. Remove blade from pipe by lifting the pipe. Inspect the blade for damage.
- 10. If the motor will not be used again in the same day, open the ball valve, pour about a teaspoon of air line oil into the air inlet port and close the ball valve.

For Use on Steel Pipe:

There are going to be sparks whether or not water is used with the UPC to cut steel. It is easier to make the cut without water because the chips tend to fall away from the work area. However, using water reduces the amount of sparks.



Water keeps the blade cooler, but it causes the chips to gather into the blade cutting space. This makes more work for the blade as it may "recut" those same chips that fall into the workspace.

For Use On PE:

It is a 100% dry cut for PE. Turn the exhaust collar on the back of the UPC straight up so the exhaust is blowing straight up and not onto the pipe. Use a new hose from the compressor to the FRL and a new hose from the FRL to the UPC itself. By using a new hose, oil coming through can be significantly reduced. Users should also wipe off the exhaust collar on a regular basis so there is not a build-up of oil or dripping oil.

CAUTION: When cutting steel, ductile iron, or cast iron, the



When cutting steel, ductile iron, or cast iron, the UPC can produce sparks. When cutting PE, the UPC may cause a build-up of static electricity. Do not use the UPC saw in-line on potentially explosive or otherwise dangerous situations. The line must be verified as completely purged of any flammable vapor or liquid.

V. MAINTENANCE

A. Motor

- Lubrication: Grease the planetary gears after each day's use with the gear grease and grease gun provided. (APEX Tool Group Grease No. 45-0983 is recommended). A 1/4" hole at the front on the motor exhaust collar reveals a grease fitting. The fitting should be facing up when turning the motor unit upside down. Refer to UPC Service Bulletin #50498. The motor should also be oiled before and after each days use (Sec. IV, D. Item 10).
- Service: Refer to the service notice on underside of carrying case lid.
- Note: In the event of experiencing motor problems, (i.e. - leakage, loss of power, etc.) do not disassemble the motor. This will void the motor warranty. Send motor back to Reed Manufacturing for service.
- **B.** Cover Air Port with Cover Coupling When Unit is not in Use
- C. Dress (Sharpen) Diamond Blades
- 1. See UPC Service Bulletin #50498.
- D. Clean Carbide Grit Blade if it Becomes Loaded
- 1. Use wire brush or appropriate solvent.
- 2. Direction of blade may be reversed for longer life.
- E. Sharpen Steel/PE Blades/Bevel cutter Should be performed by a professional tool grinding service.
- F. Occasionally lubricate the release pins, chain links, main frame screw, roller pins and turnbuckle assembly with a water displacing lubricant (WD-40 or equivalent).

[®]WD-40 is a registered trademark of the WD-40 Company.

PHOTO #3

Cut & Bevel PVC Set-up, Fig. 7.

Installation of REED bevel cutter and blade for PVC





97561 UPCLA Long Arbor



97511 UPCBPVC PVC Bevel Cutter



1. Start with base motor unit



2. Tighten Long Arbor onto motor unit



3. Tighten PVC Bevel Cutter onto Long Arbor



4. Add blade for PVC



5. Slide on 97066 Flanged Washer and then tighten 97543 Flexloc Nut







6. Add Blade Guard Assembly







		UPC616A		UPC636A		UPC648A		UPC836APE		UPC848APE	
P/N	DESCRIPTION	QTY	CAT NO	QTY	CAT NO	QTY	CAT NO	QTY	CAT NO	ΩΤΥ	CAT NO
1	MOTOR FRAME ASSEMBLY*	1	97067	1	97067	1	97067	1	97067	1	97067
2	ROLLERS, MOTOR FRAME, SET	4	97541	4	97541	4	97541	4	97541	4	97541
3	ROLLER PIN	2	97542	2	97542	2	97542	2	97542	2	97542
4	LOCKNUTS, ROLLER PIN	4	97543	4	97543	4	97543	4	97543	4	97543
5	SET SCREWS, ROLLER PIN	4	97544	4	97544	4	97544	4	97544	4	97544
6	RELEASE PIN	2	94477	6	97545	8	97545	6	97545	8	97545
7	CHAIN HOOK	1	97546	5	97546	7	97546	5	97546	7	97546
8	FEED SCREW	1	97547	1	97547	1	97547	1	97547	1	97547
9	BUSHING, FEED SCREW	1	97548	1	97548	1	97548	1	97548	1	97548
10	SET SCREW, COLLAR	2	40083	2	40083	2	40083	2	40083	2	40083
11	COLLAR	1	93140	1	93140	1	93140	1	93140	1	93140
12	KNOB, FEED	1	97551	1	97551	1	97551	1	97551	1	97551
13	KNOB, MOTOR LOCK	1	97552	1	97552	1	97552	1	97552	1	97752
14	WASHER, NYLON	1	97553	1	97553	1	97553	1	97553	1	97553
15	INDICATOR	1	97554	1	97554	1	97554	1	97554	1	97554
16	MOTOR BRKT. ASSEMBLY	1	97555	1	97555	1	97555	1	97555	1	97555
17	SCREWS, BLADE GUARD	2	30004	2	30004	2	30004	N/A		N/A	
18	BLADE GUARD ASSEMBLY	1	97559	1	97559	1	97559	1	07509	1	07509
19	MOTOR, AIR 1.7 H.P.	1	97560	1	97560	1	97560	1	97560	1	97560
20	ARBOR, STD	1	97617	1	97617	1	97617	1	97617	1	97617
21	FLANGE	1	97066	1	97066	1	97066	1	97066	1	97066
22	LOCKNUT, ARBOR	1	97543	1	97543	1	97543	1	97543	1	97543
23	NIPPLE 1/2	1	97564	1	97564	1	97564	1	97564	1	97564
24	REDUCING ELBOW 1/2 X 3/4	1	97565	1	97565	1	97565	1	97565	1	97565
25	BALLVALVE 3/4	1	97566	1	97566	1	97566	1	97566	1	97566
26	COUPLING	1	97567	1	97567	1	97567	1	97567	1	97567
27	END CAP	1	97568	1	97568	1	97568	1	97568	1	97568
28	CONNECTING FRAME ASSEMBLY	N/A		2	04481	3	04481	2	04481	3	04481
29	ROLLERS, CONNECTING FRAME										
	W/LOCKNUTS SET	N/A		4	97570	4	97570	4	97570	4	97570
30	CHAIN, 11 LINK ASSEMBLY	N/A		2	97572	3	97572	2	97572	3	97572
31	CHAIN, 13 LINK ASSEMBLY	N/A		1	97573	1	97573	1	97573	1	97573
32	CHAIN, 19 LINK ASSEMBLY	1	97576	N/A		N/A		N/A		N/A	
33	LABEL, WARNING	1	97574	1	97574	1	97574		97574		97574
34	LABEL, ARROW	1	97575	1	97575	1	97575		97575	1	97575
35	KNOB & SCREW ASSEMBLY		97578		97578		97578		97578		97578
36		1	97580	1	97579	1	97579	1	97579	1	97579
37			40177		40159		40159	N/A		N/A	
38	WATER SYSTEM HOSE W/FITTINGS		97581		97581		97581	N/A		N/A	
39	HANDLE, ALUM. 12"		97582		97582		97582		97582		97582
40			97583		97583		97583		97583		97583
41	FILTER-REG-LUBRICATOR W/STAND		97591		97591		97591		97591		97591
42			40156		40156		40156		40156		40156
43			40384		97586		97586		97586		97586
44	GREASE GUN		97587		97587		97587		97587		9/58/
45	WEDGES BOX #9010	1	9/588	1	97588		97588		97588	1	97588
40	WEDGES, BOX #8010		97589		97589		97589		97589		97589
4/	WHENCH, 3/4 X //8 2 97590 DDESSING STICK (DIAMOND BLADE) 2 97590		2	97590	2	97590		97590	2	97590	
48	DRESSING STICK (DIAMOND BLADE) 97595		97595		97595		97595			N/A	
49			9/501		9/501		97501	N/A	47506	N/A	47506
50		NI/A	47506		47506		47506	1	47506	1	47506
51		N/A				N/A			97520	1	97520
52		IN/A	07511	N/A	07511	IN/A	07511		9/521		9/521
53	FVG BEVEL GUTTER"		9/511		97511		97511	IN/A		IN/A	

SHADED AREA - NOT SHOWN

Reed Warranty

REED will repair or replace tools with any defects due to faulty materials or workmanship for one (1) year or five (5) years from the date of purchase, as applicable. This warranty does not cover part failure due to tool abuse, misuse, or damage caused where repairs or modifications have been made or attempted by non REED authorized repair technicians. This warranty applies only to REED tools and does not apply to accessories. This warranty applies exclusively to the original purchaser.

One (1) year warranty: Power units for pneumatic, electric, hydraulic and battery-powered tools have a one year warranty. This includes, but is not limited to REED pumps, universal pipe cutter motors, power drives, power bevel tools, threading machines, cordless batteries and chargers.

Five (5) year warranty: Any REED tool not specified under the one (1) year warranty above is warrantied under the REED five (5) year warranty.

NO PARTY IS AUTHORIZED TO EXTEND ANY OTHER WARRANTY. NO WARRANTY FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY. No warranty claims will be allowed unless the product in question is received freight prepaid at the REED factory. All warranty claims are limited to repair or replacement, at the option of REED, at no charge to the customer. REED is not liable for any damage of any sort, including incidental and consequential damages. This warranty gives you specific legal rights, and you may also have other rights which vary by state, province or country. Warranty Effective December 1, 2018

