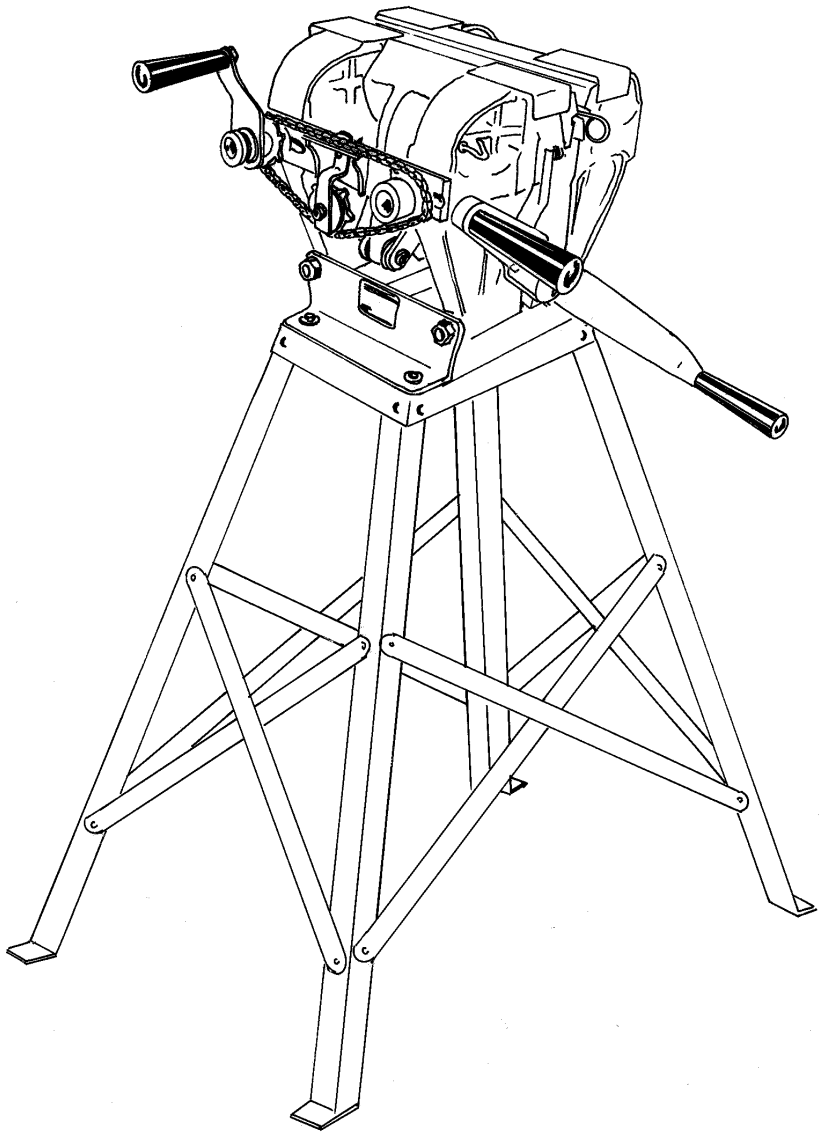
Clipper®



#12 SPEED LACER
OPERATION MANUAL

FLEXCO

Your Lacer Identification:

#12 Speed Lacer _____

Serial No. _____

Date Purchased _____

Please use the serial number when corresponding with your Flexco Distributor or with Flexco Customer Service. Proper identification will help us to quickly and efficiently answer your question or service you with repair parts.

2525 Wisconsin Avenue • Downers Grove, IL 60515-4200
Phone 630-971-0150 • Fax 630-971-1180

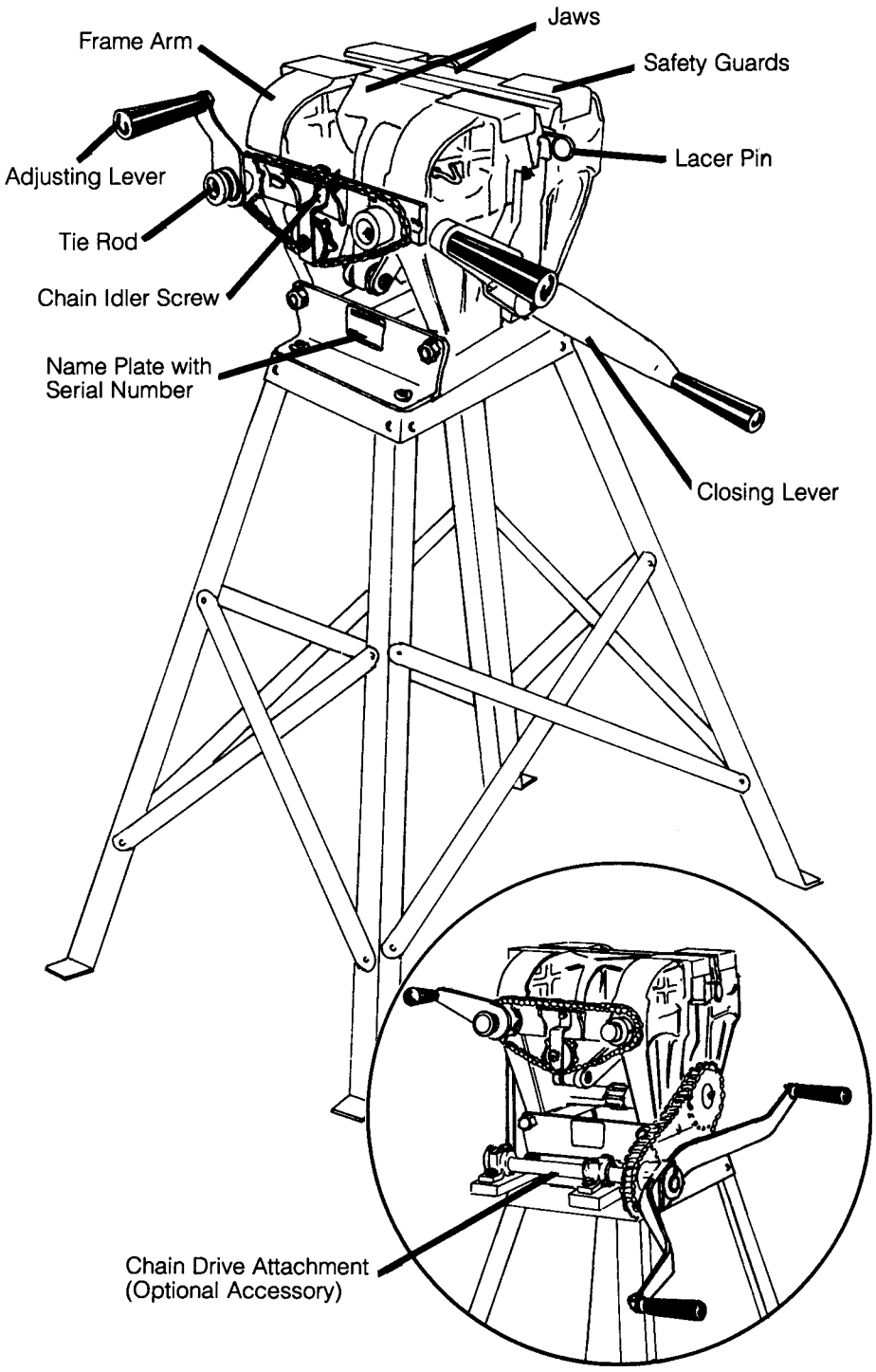
Australia: 61-2-9680-3322 • China: 86-21-33528388 • England: 44-1274-600-942
Germany: 49-7428-9406-0 • Mexico: 52 -55- 5674-5326 • South Africa: 27-11-608-4180

CONGRATULATIONS!

Congratulations on your purchase of a Clipper® #12 Speed Lacer. The Clipper #12 Speed Lacer is a fast and reliable method of handling all of your production belt lacing needs. Please read the manual carefully before attempting to use your lacer even if you are familiar with the machine. The manual provides important information regarding the lacer, maintenance tips, and proper lacing procedures.
If you have any questions about your lacer, please contact your Flexco Distributor or our Customer Service department.

Table of Contents

#12 Speed Lacer - Parts

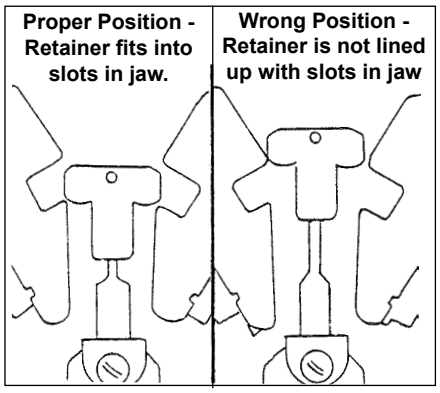


Changing the Hook Retainer

Your #12 Speed Lacer can lace any size Clipper fastener if the proper hook retainer is installed. The #12 Lacer comes standard with an HR2-12 (#2-7 and U2-U7). Hook Retainers are also available to lace hook sizes #25, #36, and #1 Series (See chart below).

Hook Retainer	Will lace hook sizes:
HR25-12	All #25 hooks
HR36-12	All #30 & #36 hooks, including UCM36 hooks
HR1-12	All #1 hooks, including UX-1 hooks
HR2-12	#2-7 and U2-U7

To change hook retainers, turn adjusting lever counter-clockwise to open jaws until retainer can be removed. Lift hook retainer off the plungers and out from between jaws. The recesses on the bottom of the retainer must be placed down over the plungers to be in proper position.



With your thumb on the hook retainer, press down until retainer is completely down on the plungers. Turn the adjusting lever to close the jaws just enough to keep the hook retainer from popping up. The retainer must fit into the slots on the jaw (see picture).

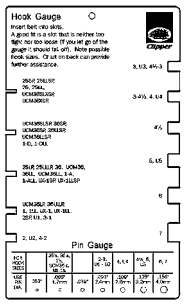
Use of lacer pin: Every hook retainer comes with a lacer pin for securing hooks in the retainer. Insert pin into the retainer. ***Note:*** To ensure proper lace, use only the Clipper lacer pin. Your lacer is now ready for lacing. Please refer to the recommended lacing procedures and safety reminders on the following pages.

Proper Lacing Procedures

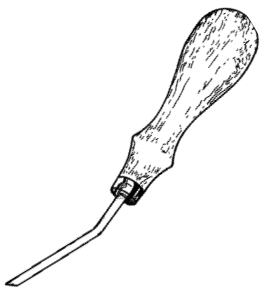
Lacing Accessories Kit

Included with your lacer is a Lacing Accessories Kit. This Kit will be referred to in the following lacing steps. We recommend their use to make lacing installation as easy and fast as possible. Other optional lacing accessories, such as a wide belt cutter, will be referred to and can be purchased from your Flexco® Distributor.

1. **Hook Gauge -** To select the proper size hook for your belt thickness.
2. **Rough Top Belt Skiver-** Removes rough top from belt for best lacing results.
3. **Carding Paper Remover -** Quick removal of carding paper from hook points. Prevents damage to hook retainer caused by using knives, screwdrivers and other sharp objects to remove carding paper.
4. **Scissors -** To cut hook cards to proper size.



1.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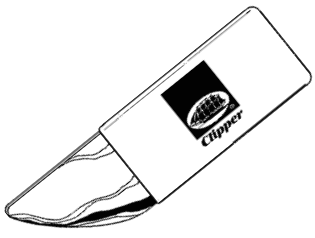

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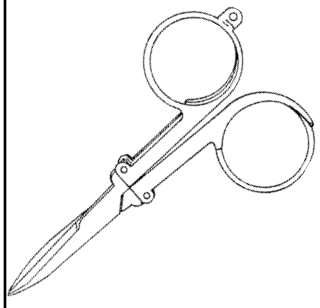

4.

Preparing the Belt for Lacing

Preparing your belt is as important as the actual lacing of the fasteners.

1. Square belt ends. The 845LD Belt Cutter aids with making a perpendicular cut to the belt edge. See Figure A. For belts with worn edges, it is necessary to find the center line of the belt. To do this, take an even measurement wider than the belt width; (Ex. 48" for a 42" belt) measure diagonally and mark the center point (Ex. 24"). See Figure B. Repeat this step four more times, moving the tape measure one foot along the belt for each position. See Figure C. On a typical belt with worn edges, the center points marked will not be in a straight line. Take a straight edge and draw a line as close to connecting the center points as possible. This will determine an average center line. Then draw a line perpendicular to the average center line. See Figure C. The belt end will be square when cut along this line. Use the 845LD Belt Cutter to cut the belt.
2. Determine hook size needed. Use your Clipper Hook Gauge to select the proper size hook for the application.
3. Determine the number of cards needed for the splice by laying cards of hooks across the belt end. ***Note:*** It is recommended that 1/4" (6-1/2 mm) on each belt edge be left unlaced. See Lacing Tips and Advice.

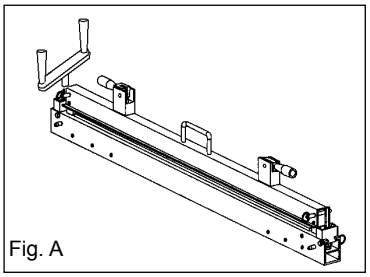


Fig. A

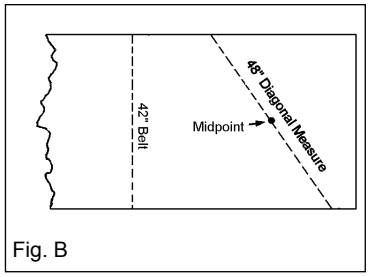


Fig. B

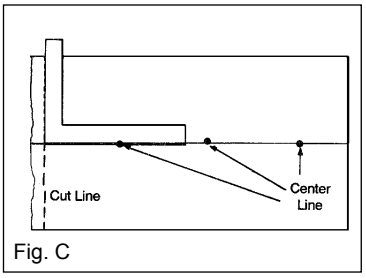


Fig. C

Loading The Hook Retainer

1. Turn adjusting lever counter-clockwise until jaws open wide enough for hooks to fit in easily.
2. Remove loading strip from card of hooks (if applicable).
3. Remove lacer pin, insert card of hooks with carding paper reading upside down (for easy removal of carding paper) (Fig. A). Reinsert lacer pin to lock hooks in place. Hooks should not be in the two Continuous Lacing Slots (last two slots on one end of the hook retainer which are extra deep).
4. Close adjusting lever until hook legs are held firmly between jaws. ***Note:*** For #1, #25, #30 and #36 Series hooks, bringing jaws up snug to hook legs may cause over-compression on some belt thicknesses. For these hooks, size belt for proper clinch before loading hooks. To do this, place belt between lacer jaws, turn closing lever until jaws will not move further. Use adjusting lever to bring jaws up snug against belt.
5. If using hooks with carding paper as shown in Fig. B, remove paper as noted below. If using hooks with carding paper as shown in Fig. C, remove after lacing.
6. Use carding paper remover to begin working the paper off the hook points located at the bottom side of the printing (Fig. D). Once the paper has been pulled free from the points, uncurl and grasp paper, then push it up and away from the opposing hook points (Fig. E).

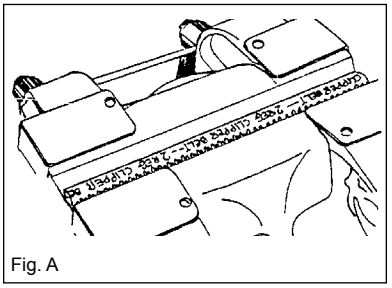


Fig. A

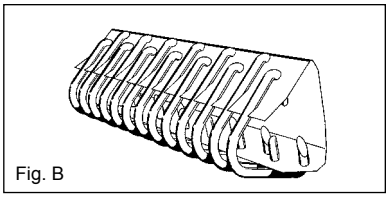


Fig. B

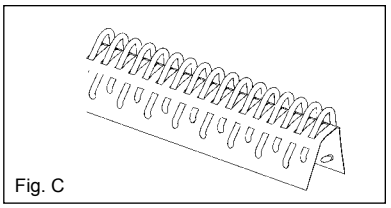


Fig. C

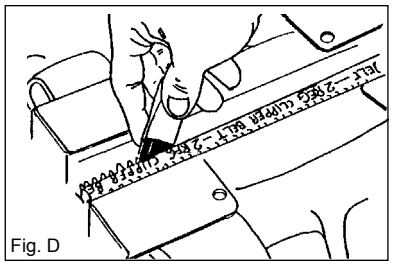


Fig. D

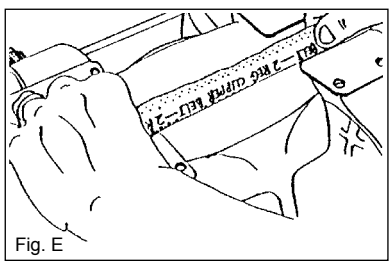
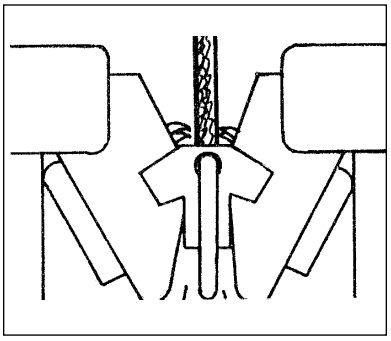


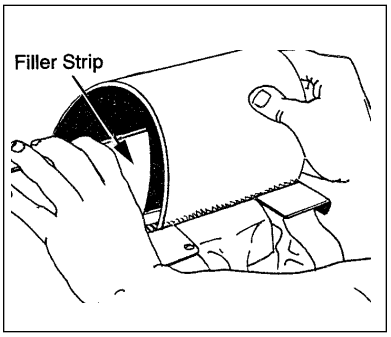
Fig. E

Lacer Operation



1. Position belt squarely over lacer. An overhead hanger or table abutting the lacer will be helpful. Leaving plenty of slack in the belt will make it easier to hold belt down on hook retainer.
2. Hold belt down flush onto hook retainer (belt end will be perpendicular to hook retainer)

   Note: *It is extremely important to have a belt across at least 3/4 the capacity of the lacer at all times when lacing.* This will help equalize the pressure exerted along the length of the jaws and keeps the jaws in proper alignment. Adjustments for narrower belts can be easily done by using a scrap piece of belting the same thickness as the belt being laced. This filler strip will ensure that no undue stress will be put on the lacer that may cause damage to its parts.



3. While holding belt in position with left hand, turn the Closing Lever with your right hand to start hooks into belt. Once hooks are started into belt, use both hands to finish turning the Closing Lever.
4. Open jaws to examine hook clinch. Hooks are properly clinched when:
   A. Hook legs are parallel.
   B. Hook points slightly penetrate opposite side of belt (.005" - .015")
   C. 1/3-1/2 of the wire diameter is embedded into the belt.
   D. 'Knuckles' of the hook should not be higher than the legs when installed.
5. If more clinch is required, turn the Adjusting Lever clockwise one eighth turn and cycle Closing Lever again. Continue this process until hooks are properly clinched.
6. Remove Lacer Pin. Pull laced belt straight up from Hook Retainer with a gentle rocking motion.

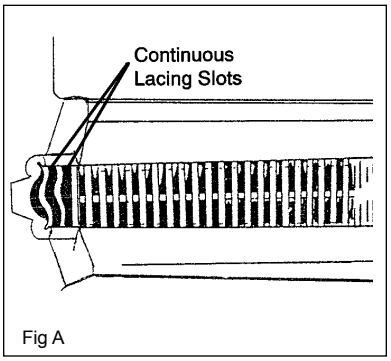
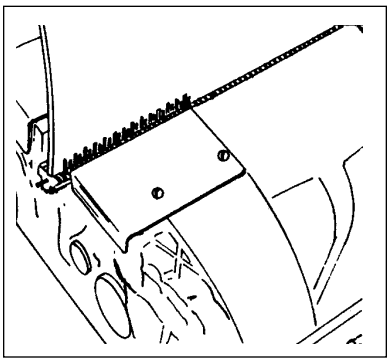
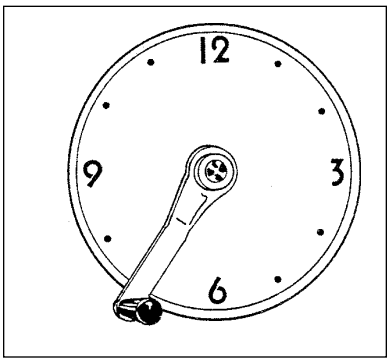


Fig A

Continuous Lacing Belts Wider than 12"



1. The Hook Retainer has two extra deep slots to assist with lacing wide belts. Position the hook retainer with the deep slots on the left end. It is necessary to lace left side of belt first. Then place the two already laced hooks in the extra deep slots (Fig. A).
2. Determine number of cards needed for entire splice prior to lacing. Then lace any section less than the capacity of the lacer first. i.e., Assume your belt is 18" wide. Using this method, there will always be belting between the full width of jaws and pressure exerted will be equalized. This will help keep lacer jaws in proper adjustment.

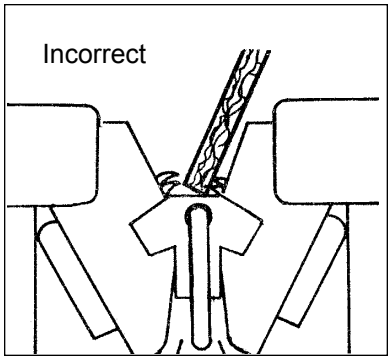


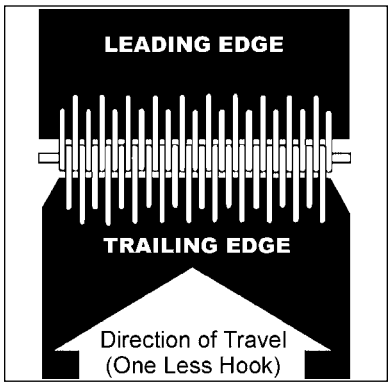
3. After first section of the belt has been laced, note position of adjusting lever. ***It is critical to complete each laced section with the adjusting lever in the same position.*** This ensures hooks are all clinched exactly the same, giving maximum strength and performance. Using the positions of the clock as a reference will make this easy to remember.
4. Now lace next section of belt. Turn adjusting lever counter-clockwise one turn to open jaws for easy insertion of hooks into hook retainer. Depending on size of hook the lacer may need to be opened further.

5. Insert hooks into hook retainer, insert lacer pin, turn adjusting lever clockwise one turn to return lever to finished position. Remove carding paper from hooks.
6. Carefully pull lacer pin back from two extra deep slots. Insert last two laced hooks into the extra deep slots. ***Do not*** push the lacer pin back into extra deep slots; this will avoid a 'step' in the splice.
7. Holding belt firmly on hook retainer, continue with the standard lacing procedure from page 6.

   Caution: If belt is not held perpendicular to hook retainer, a step in the lacing may occur between laced sections, and splice will not perform to maximum capabilities (see illustration).

   Note: Since adjusting lever is already in the finished position, do not further adjust it. Simply turn closing lever.
8. Continue this procedure until lacing is complete.





Lacing Tips and Advice

1. For best lacing results, select the proper size fastener based on belt thickness and pulley diameter. Rough tops, chevrons, etc. should be skived back 1" (26mm) from belt ends.
2. For an even belt splice, lace one less hook on trailing end of belt than on leading end.
3. Leave 1/4" (6-1/2 mm) on each edge of belt unlaced. This guards against end hooks being torn out if the belt moves against a guide or structure. Also, it is best to chamfer (notch) the corners of the belt. (See Leading Edge illustration)
4. Use proper connecting pin for the application. Connecting pin should be one continuous length and slightly shorter than belt width.

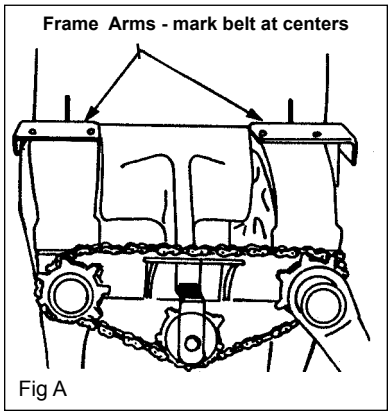


Fig A

Readjusting Lacer Jaws:

1. Lace a belt that is 12" wide.
2. Before removing lacer pin, mark belt at center of each frame arm (Fig. A).
3. Remove belt from lacer.
4. Using a micrometer, measure hook legs (preferably a long and a short leg at same time) at each mark on the belt. They should be within a tolerance of .004" (.1 mm) (Fig. B).
5. If tolerance is not within the specified amount, adjust stationary tie rod nuts. Each notch will adjust jaw .004". Adjusting nuts too far will prevent jaws from opening wide enough to allow easy removal of the hook retainer. If possible, adjust nuts out (Fig. C).
6. Make another sample lace, mark belt and mic hooks. If necessary, continue to adjust as needed.

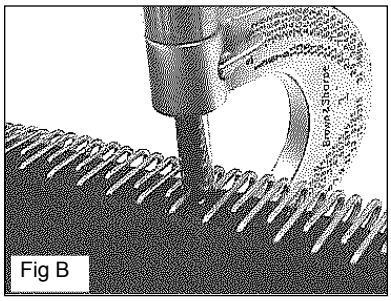


Fig B

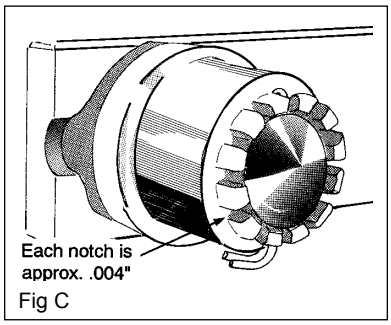


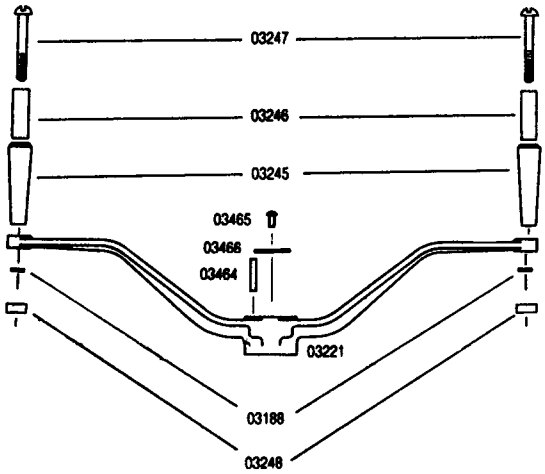
Fig C

Parts List

G0657	5/8 Retain Ring 5/8 E Clip
03040	LH Top Guard
03042	RH Top Guard
03172	Aligning Bar Front/Rear #12
03177	LH Guide Plate
03178	RH Guide Plate
03179	Pivot Washer
03180	Flat Pressure Plate
03188	3/8 Lock Washer
03190	Guide Plate Screw
03196	3/32 x 1-1/2 Cotter Pin
03198	Stationary Tie Rod Nut
03201	Lower Stay Bolt
03203	Upper Tie Rod
03206	RH Frame Arm Assy includes: 03178, 03180, 03271, 03190, G1180
03207	LH Frame Arm Assy includes: 03177, 03180, 03271, 03190, G1180
03218	Frame Angle
03248	3/8-16 Hex Nut
03257	3/16 x 3/4 Spring Pin
03271	3/16 x 1/2 Spring Pin
03456	Chain Assy, Long
03489	Oval Pressure Plate
G0538	5/8-18 Hex Nut
G0302	Toggle Link Pin
G0544	Adjusting Tie Rod Nut Assy
G0576	Adjusting Lever Assy
G0578	Idler Sprocket Carrier
G0526	Idler Bushing
G0527	Serial Number Plate
G0530	Danger Label
03227	Washer, Flat, 3/8" N, .812 OD
03245	Plastic Lever Handle
03246	Plastic Knob Sleeve
03247	3/8-16 x 3 Zinc Rd Hd Screw
03015	Washer, Spring Lock #10
03205	LH Center Frame Assy
03204	RH Center Frame Assy
G1180	Screw, Allen Hd 10-32x1/2
03182	Small Equalization Spring Washer
03183	Large Equalization Spring Washer
03184	Plunger Clip
03185	Screw, Slotted 10-32x5/16 Fil
03186	Plunger Spring
03187	Plunger
03192	Toggle Shaft Rollers
03199	Rack, #12 Lacer
03200	Toggle Links #12
03204	RH Center Frame Assy includes: 03015, 03184, 03185 03186, 03187
03205	LH Center Frame Assy includes: 03015, 03184, 03185 03186, 03187
03208	Toggle Shaft #12
03209	Pinion Shaft
03459	Pinion Shaft Collar
03489	Oval Pressure Plate
03454	#12 Jaw Assy
G0534	Rack Support Roller
G0550	Toggle Shaft Collar
G0552	Rack Support Roller Shaft
G0657	Retaining Ring E-Clip
G0269	Tie Rod Spring
G0549	Rack Support Spacing Roller
G0577	Idler Sprocket
03256	Bolt, Hex Hd Cap, 3/8-16 x 1-1/4
G0187	Spring Pin, 1/8 x 3/4
G1252	Screw, Allen Hd 5/16-24 x 5/8
P2556	Washer, Spring Lock, 5/16 Reg
P1420	Caution Label
02987	Washer, Flat, 5/8 Narrow
03926	Screw, Pan Hd, 8-32 x 1/2 Phillips Hd
G4985	Toggle Link Ext Stop Washer

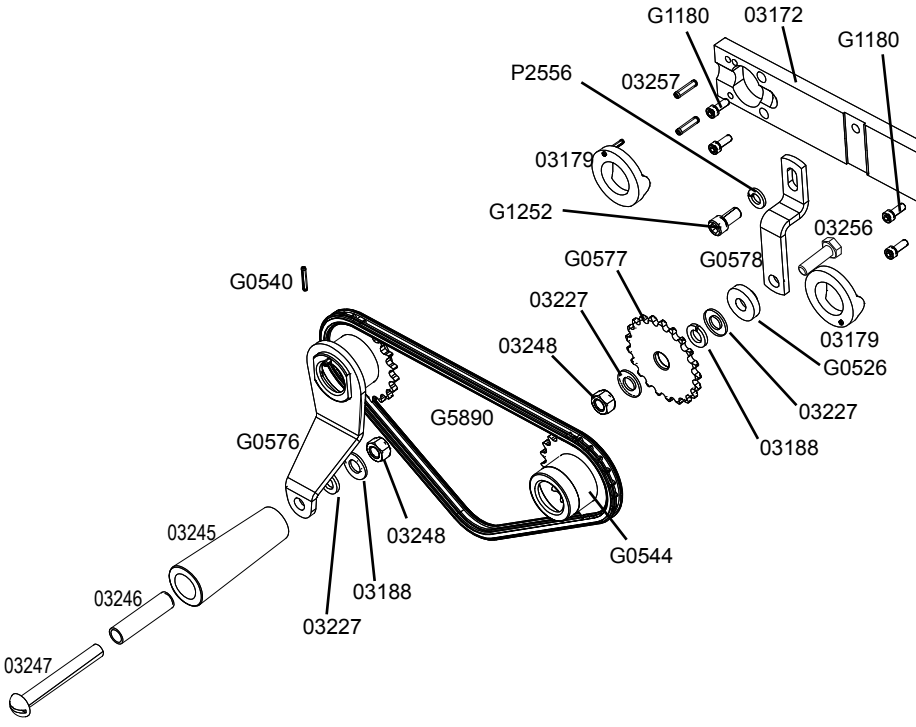
Closing Lever Parts

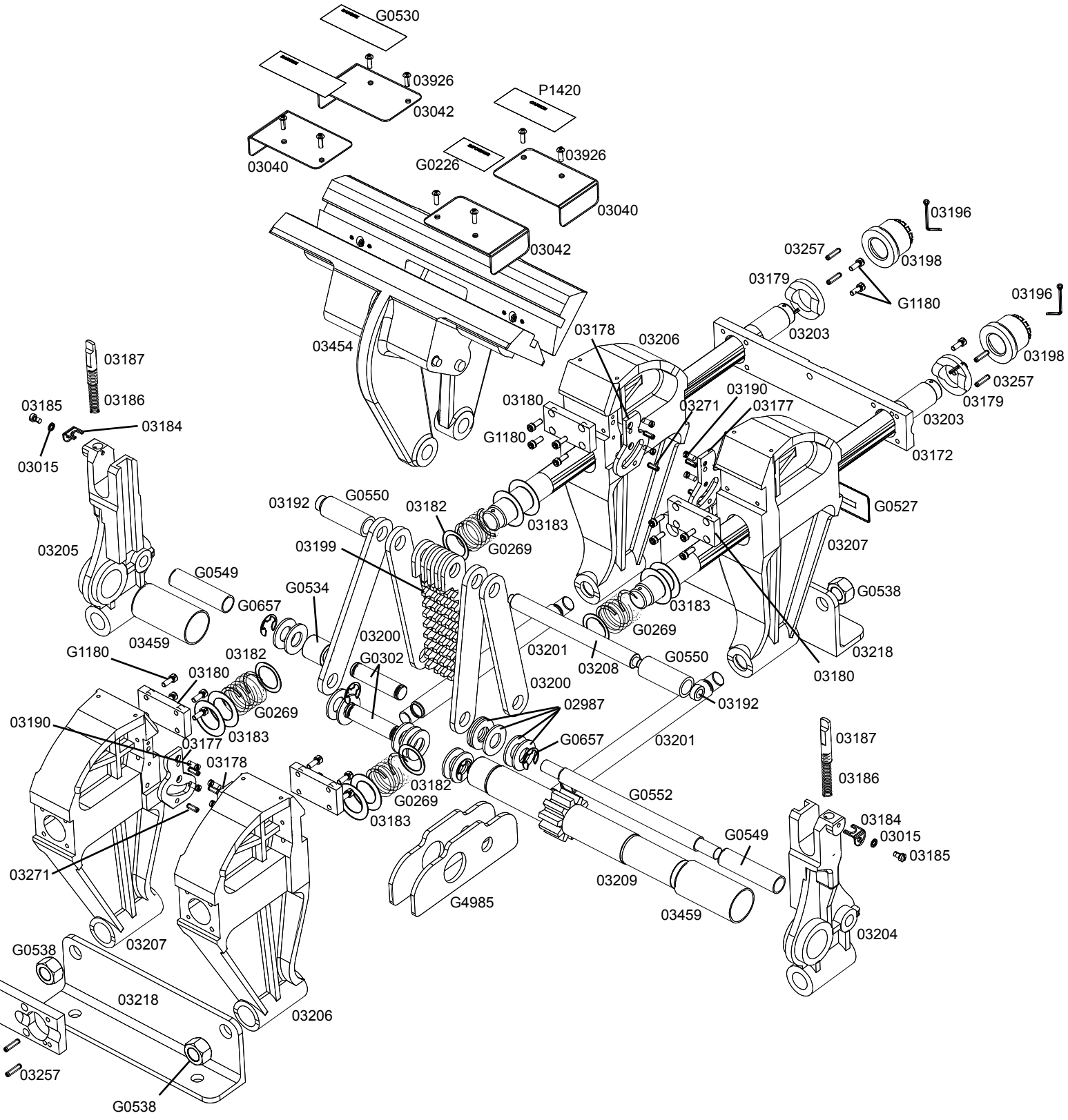
03188	3/8 Lock Washer
03221	#12 Closing Lever
03245	Plastic Lever Handle
03246	Plastic Knob Sleeve
03247	3/8-16 x 3 Zinc Rd Hd Screw
03248	3/8-16 Hex Nut
03464	#12 Lacer Key
03465	1/4-20 x 1/2 Rd Hd Mach Screw
03466	Fender Washer



Hook Retainers & Lacer Pins

03145	#25 Hook Retainer Assy
03147	#25 Lacer Pin
03168	#1 Hook Retainer Assy
03169	#1 and #36 Lacer Pin
03170	#36 Hook Retainer Assy
03211	#HR-12 Hook Ret Acusteel w/ Pin 03222
03222	#LP2-12 Lacer Pin .106

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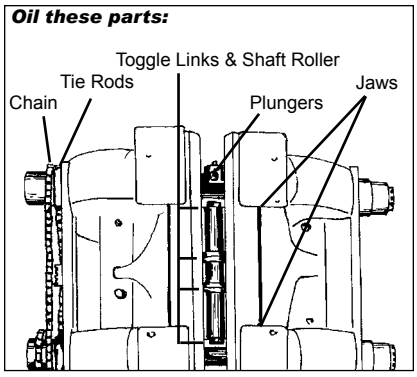
Maintenance



To keep your lacer in top working condition some regular maintenance is required.

Oiling:

It is very important to oil the lacer frequently. Oil lacer parts as indicated. See illustration.

Cleaning:

1. Blow lacer with an air hose to free built up dust and dirt.
2. Keep lacer covered when not in use.

Adjusting:

Adjust jaws as indicated on page 5.

Optional Accessory - Chain Drive Attachment

If you are lacing a fair amount of belts wider than 12" you may want to purchase a Chain Drive Attachment for your #12 Lacer. This attachment moves the closing lever away from the center of lacer jaws, letting the operator completely close the lever without interfering with the belt. The closing action stays the same with no loss of clinching force.

Instructions to install the Chain Drive Attachment:

1. Remove bolts that fasten lacer to stand and remove lacer head.
2. Place mounting bars on lacer stand extending to where adjusting lever side of lacer will be. Replace lacer head on bars and stand.
3. Using flat washer on top, flat washer and split lock washer underneath, fasten lacer with $^{7}/_{16}$" bolts to the mounting bars. Tighten by hand - do not tighten completely.
4. Remove closing lever by removing screw, handle washer and key. Set aside for later use.
5. Place pillow block on left mounting bar extension (bar under adjusting lever handle) and fasten it loosely to the bar using first the external tooth washers then flat washer with $^{5}/_{16}$" x 1" bolts. Hand tighten - do not tighten completely.
6. Place pillow block assembly shaft in place so shaft fits into pillow block and also extends to closing lever side of lacer. Fasten lightly as with pillow block, using external tooth washer, flat washer and $^{5}/_{16}$" x 1" bolts.
7. Put sprocket shaft collar on $^{3}/_{4}$" shaft. Place outboard sprocket hub assembly (one with key welded in) on shaft so that sprocket is inside against collar. Place closing lever on shaft and use $^{3}/_{4}$" x 2" flat iron washer and cotter pin to secure closing lever on shaft.
8. Place first the key that was set aside earlier, then $^{15}/_{32}$" collar, then lacer hub assembly on the pinion shaft from which the closing lever was originally removed. Using washer and screw that were set aside earlier, secure sprocket onto pinion shaft.
9. Place chain on sprockets and install master link.
10. Go to back of lacer. Pull sharply on aligning bar to back up lacer as far as possible. Tighten bolts that secure lacer to bars and stand.
11. Go to adjusting lever side of lacer, pull sharply forward on sprocket shaft and securely fasten the bolts securing pillow block and pillow block assembly. Your chain drive attachment is now ready for use.