



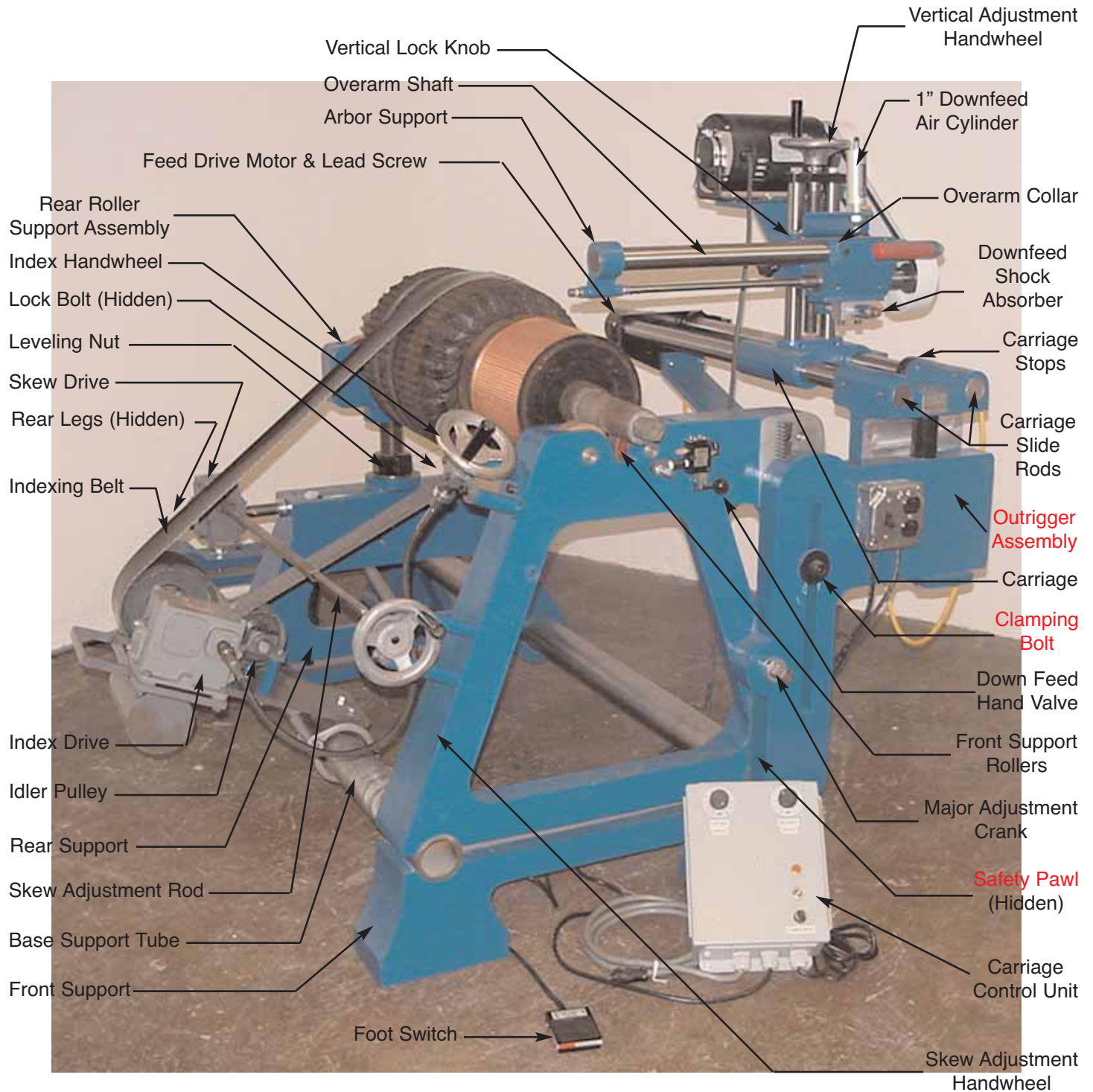
HA-2 INDUSTRIAL UNDERCUTTER INSTRUCTIONS

Caution!

The Outrigger Assembly **MUST** be supported and the Pawl Finger, on the Safety Pawl, engaged in the rack **BEFORE** loosening the two (2) Clamping Bolts.

Personal injury and / or damaged equipment may result if not followed.

MARTINDALE





UNCRATING & SET-UP:

To uncrate, remove the four fasteners that attach the wooden batten across the lower machine frame tubes. Do not remove the piece that is supporting the index mechanism at this point.

Carefully position the forks of a fork lift under the frame tubes — use soft material to protect the tubes from damage. Position the forks so as to balance the machine weight evenly. Straps should be used to secure the machine to the forks prior to lifting clear of the crate.

After the machine has been uncrated and placed in the operating area, remove the lift securing straps and remove the restraining strap from the indexing mechanism. Before the indexing mechanism is swung into place, the telescoping drive shaft for the skew adjustment must be moved. To do this, remove the 2 set screws from the handwheel hub. Push the 2 shaft pieces together and then rotate upward to the 12 o'clock position. Two people are needed to safely move the indexing mechanism into place on the frame tube.

For shipping safety, the cutting carriage is “parked” on the slide bars at the end closest to the front frame casting. Before applying electrical power to the machine, move the carriage travel limit switches to each end of the slide bars. The “retract” control should be turned to “0”. Apply power, turn the retract control slowly and the carriage will return to its home position.

Position the armature on the front support rollers with the commutator as close as possible to the front support. Move the rear support into place by loosening the two camlocks and pushing the long handle (only with short heavy loads is it advisable to move the rear legs in close to the rear support). Note: There are two lengths of square skew adjustment tubing furnished and it may be necessary to change the skew adjustment tube when moving the rear support forward or backward.

Slide the index drive to the desired position on the base support tube. Place the commutator indexing belt around the armature, using the proper combination of belt segments so as to allow the index drive mounting bracket to be relatively parallel to the floor.



The belt should pass over the idler pulley, as shown in the photo. Two lengths of index drive flex shaft have been furnished and it may be necessary to change the flex shaft if moving the index drive very far.

Two saw arbors are available, one for 3/16" I.D. and one for 5/16" I.D. saws. The small saws allow cuts closer to the riser. If you have both arbors they can be changed as follows: Loosen the 2 set screws on top of the arbor support and 2 set screws in the drive spindle and slide it off. Slide on the other arbor assembly. Tighten the 4 set screws.

If High Speed Steel Saws or V-Cutters are used, the pulley ratio should be 1 to 1 (a 2" pulley on both motor and saw spindles). If Tungsten-Carbide Saws or V-Cutters are used the ratio should be 2 to 1 (a 1.4" pulley on the saw spindle and a 2.7" pulley on the motor). (See Pulley Combination Sheet attached.) Note the rotation of the spindle — the teeth on the bottom of the saw should turn toward the operator.

The saw spindle head should be kept as low as possible on the vertical screw and rods. The vertical screw adjustment should be used only for final adjusting of depth of cut. Adjustment of the outrigger assembly is accomplished by loosening the two (2) 5/8-11 x 3-1/2" Socket Head Cap Screws located in the long slot in the casting. **CAUTION:** When loosening the two locking screws, engage the pawl into the rack and support the weight of the assembly as the bolts are loosened to keep the outboard arm from dropping. Using the supplied Ratchet Handle and 7/8" Socket, the outrigger can be raised or lowered by turning the Square Pinion Shaft that protrudes from the outrigger. The spring assisted Safety Pawl located at the bottom of the casting must be engaged in the rack to prevent slippage.

Next, level the commutator by adjusting the large nut on the rear support while checking with a level on the commutator.

FOR SET-UP OF THE POWERED SLIDE ASSEMBLY: The assembly is delivered with the drive motor, lead screw and ball nut, and travel limiting switch collars in place.

The electrical connections for travel limiting switches and drive motor have special plugs which prevent mis-connection.



Under no circumstances should the lead screw be removed from the ball screw nut. If this happens, the balls will fall out of position requiring dis-assembly of the unit for repair.

The drive motor and lead screw combination allow a variable linear speed range of 0 to 125 inches per minute.

The control panel houses the main power on / off switch and two rotary switches which control forward and return speeds of the slide and overload fuse. A foot switch controls motion of the slide.

From the start position, depress the foot switch to begin forward travel. The slide will move along the slide bars — as long as the foot switch is held down — until it contacts the travel limiting switch. If the foot switch is released before the slide contacts the limit switch it will stop and return to the start position. If the slide is allowed full travel to the limit switch, it will stop, only after releasing the foot switch will the slide return to the start position.

SETTING-UP TO UNDERCUT: To align the saw along the length of the bar to be undercut, a slow speed can easily be selected from the “forward” rotary switch on the control panel. Once a satisfactory alignment has been established, then an appropriate forward cutting speed can be selected. Return stroke speed is selected in a similar manner.

Using a feeler gauge, measure the “gap” between the saw and the commutator at both ends of the commutator. Lock the adjustment by “hand tightening” the lock bolt against the rear support screw.

Check the saw / mica alignment while the saw is at the rear and make any necessary skew adjustment with the skew handwheel while the saw is still at the rear. Check and readjust until the saw follows the mica for the entire length of travel.

When alignment of the saw is satisfactory, the travel limiting switch collars can be positioned as required.



CAUTION: It should be noted that although carbide saws are harder than high speed steel, they are extremely brittle. Carbide saws should enter the slot slowly to avoid breakage from shock loading. As a precaution against breakage, the hydraulic (Klin-Check) check valve can be adjusted to cushion the travel into the slot.

TO SET THE DEPTH OF CUT: Use the index handwheel to align the saw with the mica and depress the down feed hand valve entering the saw into the mica. Set the depth of the cut with the vertical handwheel on the top of the carriage. (Note: 1 turn = approximately 1/16") Lock the vertical travel with the knob on the carriage behind the overarm shaft.

TO UNDERCUT: Start at the riser and use your eye to align the saw with the mica. Depress the down feed hand valve and once the saw has entered the mica, step on the foot switch to actuate the carriage. After the cut has been completed, release the hand valve and then the foot switch.

Index the armature to align the next mica strip and repeat the cutting procedure.

As an optional feature, at additional cost, a 2 position saw spindle block is available which allows the spindle overarm to be used in 2 different positions. This feature allows cutting up close to the riser or, with the overarm in the further position, up close to a shoulder at the front of the commutator. To change position, loosen the 2 set screws in the arbor support, then loosen 2 set screws holding the overarm in the block. Slide the overarm into the other hole, re-set the cutter arbor into the drive spindle, and re-tighten the 2 set screws.

MAINTENANCE:

Keep carriage slide rods clean and apply a few drops of light general purpose oil periodically.

The saw arbor bushings are oil impregnated but will require a few drops of light oil occasionally.



Pulley Combinations

HA2.

	DRIVER	DRIVEN	SPINDLE RPM.
$2\frac{1}{2} \times \frac{1}{2}$	OK 20 $\frac{5}{8}$	OK 20 $\frac{1}{2}$	3500
$2\frac{1}{2} \times \frac{5}{8}$	OS 27	$1\frac{1}{4} \times \frac{1}{2}$ OS 14	7000
<u>WITH 60HZ. MOTOR.</u>			3450 RPM

	DRIVER	DRIVEN	SPINDLE RPM.
	OK 25 $\frac{5}{8}$	OK 20 $\frac{1}{2}$	3600.
	OK 30 $\frac{5}{8}$	OK 12 $\frac{1}{2}$	7500
<u>WITH 50HZ. MOTOR.</u>			2850



*HA-2 Industrial Undercutter
Parts*

Quantity	Description	Part No.
1	Housing, Spindle, Saw, 5/16"	HA2U4326
1	Bushing Set (Set of 2)	HA2UAA52110
2	Screw, 3/8-16x5/16", Socket Hd., Set	HA2U43850
1	Spindle, Saw, 5/16"; w/ collar	HA2U4328
1	Nut, Saw Retaining, 5/16"	HA2UD772
2	Wrench, End, 7/16"	HA2U27914
1	Complete 5/16" assembly (all of above parts)	HA2U43516
1	Housing, Spindle, Saw, 3/16"	HA2U4327
1	Bushing Set (Set of 2)	HA2UA363
2	Screw, 3/8-16x1/4", Hollow Hd., Set	HA2U43755
1	Spindle, Saw, 3/16"; w/ collar	HA2U4329
1	Nut, Saw Retaining, 3/16"	HA2UD358
2	Wrench, End, Stamped 1/4"	HA2U27915
1	Complete 3/16" assembly (all of above parts)	HA2U43316
1	Belt, "V"	HA2U1340
1	Belt, "V"	HA2U1370
2	Bearing	HA2U87502

Martindale Industrial Undercutter Model HA-2

Has "Power" Down-Feed and Improved Power Traverse Controls. Makes Undercutting Faster and Easier than Ever!



- **Power-Operated: Makes Undercutting Faster and Easier.**
- **Uses Tungsten-Carbide or High Speed Steel Saws.**
- **Heavy, Rigid Construction for Industrial Use.**

Specifications:

Handles Armatures:
Up to 44" diameter (this will depend upon relative diameters of armature and commutators. Send us your requirement).
From 150 to 10,000 lbs.

Handles Commutators:
10" to 44" diameter.
Up to 21" length.

Base Length:
Up to 58" between roller supports. Additional length available at slightly higher cost.

Motor:
3/4 h.p.; 3450 r.p.m.
Extra pulley and belt are supplied to give spindle speeds of 3450 r.p.m. for High-Speed Steel Saws or V-Cutters, or 6900 r.p.m. for Tungsten-Carbide Saws or V-Cutters.

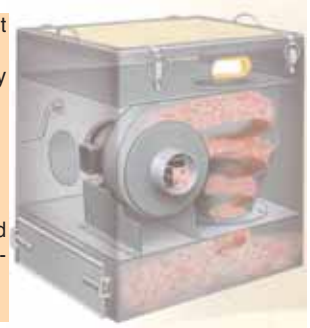
Air Supply:
About 90 lbs., controlled by pressure regulator with oiler and filter.

Saws and V-Cutters:
1/2", 7/8", or 1" O.D. Saws or V-Cutters. (See table below.)

Features:

- **Power Traverse — With Improved Electric Motor Variable Speed-Drive Control**
An improved traverse system powered by an electric motor driven ball screw-drive, actuated by a foot pedal connected to a variable speed drive control. This system provides enhanced smooth vibration free undercutting with minimal maintenance requirements.
- **Power Down Feed — Hand-Valve Actuated**
Holds the saw in the slot while cutting, lifts it from the slot while returning and indexing.
- **Magnifier Lamp —**
Illuminates and magnifies work area for accurate and easy saw alignment.
- **Simple Indexing —**
A hand wheel, connected by a flexible shaft to 100 to 1 speed reducer with a flat belt around the armature, combine to give quick positive indexing with no override or inertia problems. Belt segments of various lengths are furnished to fit any armature. Belt drive may be positioned anywhere along base.
- **Depth of Cut —**
Fine adjustment is made with hand wheel on top of carriage. Rack and gear on frame are for major adjustments.
- **Supports —**
Armatures shafts rest and rotate on 4 large phenolic rollers; assures no marking of shafts.
- **Adjustable Rear Support —**
Vertically (on thrust bearing) for unequal shaft-sizes or tapered commutators. Sideways (on "Teflon" ways) from front of machine - for skewed bars. Length - rear support slides and locks into place to accommodate various armature lengths.
- **Carriage —**
Slides on "Oilite" bushings over hardened steel rods. Adjustable stops at each end of stroke.
- **Saw Spindle —**
1-1/2" hardened over-arm supports outer end of spindle. Two spindles available; one for 1/2" diameter saws (3/16" arbor hole) and the other for 7/8" and 1" diameter saws (5/16" arbor hole). Specify which one desired when ordering. An optional 2-position saw spindle block is available (at extra cost) which allows cutting up close to the riser in one position, and up close to a shoulder at the front of the commutator when in the other position.

Dust Collector removes mica dust quickly; comes with two hoods for use in a wide variety of dusty jobs.
Has paddle-wheel type fan driven by 1/3 h.p., 3450 r.p.m. motor. Plugs into outlet box on undercutter.
The Dust Collector is self-contained and easily portable to other locations where dust collection is desirable.



Model HA-2 Undercutter complete:	Catalog Number
115 V., 50/60 Hz., with 3/16" spindle	HA2UA3
115 V., 50/60 Hz., with 5/16" spindle	HA2UA5
230 V., 50/60 Hz., with 3/16" spindle	HA2UB3
230 V., 50/60 Hz., with 5/16" spindle	HA2UB5
Extra 3/16" Saw Spindle Assembly	HA2U43316
Extra 5/16" Saw Spindle Assembly	HA2U43516
Net Weight 750 lbs., Shipping Weight 1,020 lbs.	
Dust Collector with 2 hoods, 115 V., 60 Hz.	DSCLCA
Dust Collector with 2 hoods, 230 V., 50 Hz.	DSCLCB
Net Weight 58 lbs., Shipping Weight 65 lbs.	

Saws and V-Cutters			
High-Speed Steel	O.D.	I.D.	Catalog Number
16-HS Saws	1/2"	3/16"	HSMS16
17-VHS Cutters	1/2"	3/16"	HSMSV17
75-HS Saws	7/8"	5/16"	HSMS75
75-VHS Cutters	7/8"	5/16"	HSMSV75
85-HS Saws	1"	5/16"	HSMS85
85-VHS Cutters	1"	5/16"	HSMSV85
Tungsten-Carbide	O.D.	I.D.	Catalog Number
16-TC Saws	1/2"	3/16"	TUNSV16
17-VTC Cutters	1/2"	3/16"	TUNSV17
75-TC Saws	7/8"	5/16"	TUNSV75
75-VTC Cutters	7/8"	5/16"	TUNSV75
85-TC Saws	1"	5/16"	TUNSV85
85-VTC Cutters	1"	5/16"	TUNSV85

For further specifications see pages 16 and 17.