OPERATING INSTRUCTIONS
HUSTLER PULL WINDER

Hustler
TOROID WINDER

Gorman Machine Corp
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WARRANTY

GORMAN MACHINES AND COMPONENTS THREEOF, EXCEPT COUNTERS ARE WARRANTEED TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR SIX MONTHS FROM THE DATE OF INITIAL FACTORY SHIPMENT. WE WILL FULLY REPAIR EQUIPMENT OF OUR MANUFACTURE COVERED BY THE WARRANTY TERMS ON A NO-CHARGE BASIS, TO INCLUDE PARTS AND NINETY DAYS ON LABOR IF MACHINE IS SHIPPED PREPAID TO AND FROM THE FACTORY. COUNTER IS WARRANTEED BY THE COUNTER MANUFACTURER.

MISUSE AND ABUSE OF THE EQUIPMENT, OR UNAUTHORIZED REPAIRS WILL VOID THE WARRANTY AND OUR OBLIGATION TO PROVIDE NO-CHARGE SERVICES. GORMAN MACHINE CORPORATION IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES.

MARCH 2005

INDEX FOR THE HUSTLER

HUSTLER PULL WINDER

The *HUSTLER* is a new concept in pull winder technique. Its advanced design with **TILT-UP HEAD** for safety, along with adjustable Automatic Core Rotation, makes it an excellent production machine. All Air Cylinders and valves have their self contained lubrication system for long life. New **SET-UPS** are easily and quickly made with all adjustments on top.

The *HUSTLER* **Pull Winder** mounts on the front of a bench or table of at least 27 inches height, and with at least 3 inches clearance rearward beneath the bench.

You will need a 115 AC volt outlet and a supply of air of at least 1.5 cubic feet or 43 liters per minute at 100 pounds per square inch. The two air valves are solenoid operated and require at least 40 PSI to operate the pilot valves on each.

The *HUSTLER* operates with a dual pressure system for safety reasons. The pull down pressure is greater, normally set at from 50 to 100 pounds by the lower left regulator (C14). The up return stroke requires less pressure and is usually set at 15 to 20 pounds on the upper right regulator (C4). At this pressure, you should be able to stop the up motion of the cylinder with one finger.

The Main Air Cylinder (B3) is air cushioned at both ends of its stroke for quiet operation. There is a misting oil lubrication system built in which can be shut off, by valve (C16). as the Cylinders and valves require only a minimum of lubrication. Normally open the lubrication valve on the left only for about 15 minutes per shift.

The machine will arrive with a small amount of oil in the lubricator (C11) on the side of the machine, half way up the main bar supporting everything. To refill the reservoir, unscrew the glass vial, being careful not to dislodge the O ring seal around the upper rim of the vial. Fill a little more than half way with a number 10 S.A.E. or light spindle oil supplied in a jar with the machine.

All seals in the valves and air cylinders are of long lasting **VITON** which can use either natural or synthetic oils in the air supply.

The turns **Counter** (A3) is electrically operated with each down stroke of the Main Cylinder. There is a push button (A5) on the top of the **Counter** Box which will operate the core indexing Cylinder on top of the machine but will not add turns to the **Counter.**

Clamp the machine to the bench with the two clamps supplied, and plug in the AC connector. The machine is turned on by the switch on the electrical junction box (C17) at the upper rear of the main support bar. A pilot light (A4) on the **Counter** will indicate the power on.

Now connect up the air supply at the lower rear regulator with the quick disconnect coupling (C15).

Be careful: If the Cylinder is in the **DOWN** position, the Cylinder will immediately come upwards when the air connection is made.

CORE ROTATOR

The Winding Head of the *HUSTLER* uses three **Core Rotators** to hold and rotate the toroidal core while winding turns. The right two Rotators (A16) rotate the core, and the third Rotator (A17) at the left is ball bearing mounted for low friction and swings outward to accomodate the wire build-up and also to insert and remove the toroids.

The **Core Rotators** are mounted on core support arms (A15). The right driving pair are gear driven in unison and can be pivoted about their locator shafts, inward and outwards, to hold different diameter cores. The larger the core, the more outward the support arms should be set. The left Rotator can be adjusted leftward for larger cores by loosening the two holding screws (A7) in the slot in the bar. The tension for holding the core is adjusted by turning bar (A2). Generally little tension is required. If too much tension is applied, the core will resist turning.

The speed of core rotation is controlled by an adjustable stroke Air Cylinder on the top right (A8). For each turn of wire placed on the core by operating the Foot Pedal, the adjustable Air Cylinder makes one stroke which turns a **One Way Clutch** which is geared to the **Core Rotators.**

The stroke of this Air Cylinder is set by the brass threaded rod protruding from the rear of the Cylinder. Loosen the large nut on it and turn the screw to a new position. If more stroke is desired, turn the threaded rod outward. The stroke can be from zero to one inch.

Core Rotators for the *HUSTLER* are supplied in nine standard sizes from ½" to 1¼" flange diameter. The Core Rotators are rubber coated for driving and cushioning the toroid. These rotators are mounted in sets of three of each size on the core support arms, two of which are driven. The core support arms (A15) come in two sizes, the smaller of which has smaller outer ends for the smaller sizes of rotators. The smaller set of core support arms will drive the toroidal core in the opposite direction from that of the larger set. If the same direction of core rotation is desired, the other one way clutch must be inserted.

The right two driven support arms can be swung outward or in until they touch each other. This adjustment accomodates the different sizes of cores from ¼" to 2" outside diameters.

The right core support arms (A15) can be removed by removing the screw and washer which holds them in position, and swinging the arm outward until the lower gear on the arm is aligned with a cut-away recess in the rounded projections below the arms which protect the driving gears from scratching the wire being wound. When the gear on the arm is aligned with the cut away area, the arm is free to be lifted up and off its locating shaft.

The left ball bearing mounted support arm is bolted on the end of the swinging member by two screws. One of the holes for these screws is oversize to allow a limited in and out adjustment of this arm.

The Core Rotators for the small set of support arms are mounted by 6-32 screws, and the larger Rotators go on the larger support arms with 10-32 screws. When you tighten them in place, you will have to hold the gears which drive the rotators, in place. There is a drill hole in the hub of each of the driving gears. Put a steel rod or the end of an Allen wrench in this hole and use it as a lever to keep the gears from turning as you tighten up the rotators. Never jam a screw driver or other metal object between the gears to stop them from turning as this will mar the gear teeth.

CLUTCHES

The **One Way Clutch** (A11) comes in two types marked **A or B** for opposite Core Rotation. If the opposite Core Rotation is desired, the **Clutch** can be changed by removing the shoulder bolt attaching it to the piston linkage, and then **loosening** the Allen cap screw in the center of the **Clutch.** ***Do not remove it.*** To loosen it, you will have to hold the gears underneath. After loosening the single screw, the **Clutch** will be free to be lifted off and replaced by the opposite clutch. Retighten the locking screw and connect up the linkage.

AIR HOSES

The hook-up of the **Air Hoses** to the adjustable indexing Cylinder determines whether the Cylinder will index with the main Pull Cylinder in its up-stroke direction or the opposite. It is best to index the core with the upstroke when there is no pressure on the core. If the core is indexing on the down stroke, just reverse the two **Air Hoses** to the indexing Cylinder. This is easily and quickly done by pushing in on the small ring around the plastic Hose where it goes into the Cylinder, and at the same time pulling the Hose out. To reconnect, just push the tube back into the hole as far as it will go.

WINDING HEAD

You have probably noticed that the whole **Winding Head** is hinged at the right end so that it is free to be pushed upward and out of the way, if anything gets in the way of the up-coming Main Air Cylinder Wire Hooker (A13). The hold down pressure on the hinged **Winding Head** is set by spring (A12). Loosen holding screw and turn bar up or down to a new position. An ALLEN Wrench in the ¼" hole in the end of the bar gives good leverage for positioning. Use the least pressure possible; just enough so that as the operator bends the wire up and around the core and Wire Hooker, the **Head** does not try to lift at the same time.

This hinged **Winding Head** is a safety feature, but it cannot guarantee 100 percent operator safety. The best prevention from injury is for the operator to keep alert and keep hands out of the way of the Cylinder on the up-stroke.

AIR CYLINDERS

A further safety feature is the **Dual Air Cylinder** pressures for **up** and **down** strokes. The pressures can be set independently and the up stroke should not have any more push than can be held back by the pressure of one finger on the chuck at the top of the rod.

For different sizes of cores, the whole **Winding Head** can be moved left and right to center the core with the Wire Hooker by loosening screws (A6) and moving the entire head to a new position, left or right. A limited **in** and **out** adjustment of the core can be made by adjusting the two driving core support arms (A15) independently.

On the bottom of the Main **Air Cylinder,** (B3) there is a valve (B4) which can adjust the escaping air from the **Cylinder** on its down stroke without affecting the flow of air on the up stroke. This adjustment can regulate the speed of the down stroke, and is set by an Allen wrench at its outer end. An adjustment of this valve would be made with any major change of the down stroke air pressure which is adjusted by the lower pressure regulator (C14).

To change either pressure regulator, lift up on the red ring and turn the black knob clockwise for more pressure. Pushing down on the red ring will lock the knob in position.

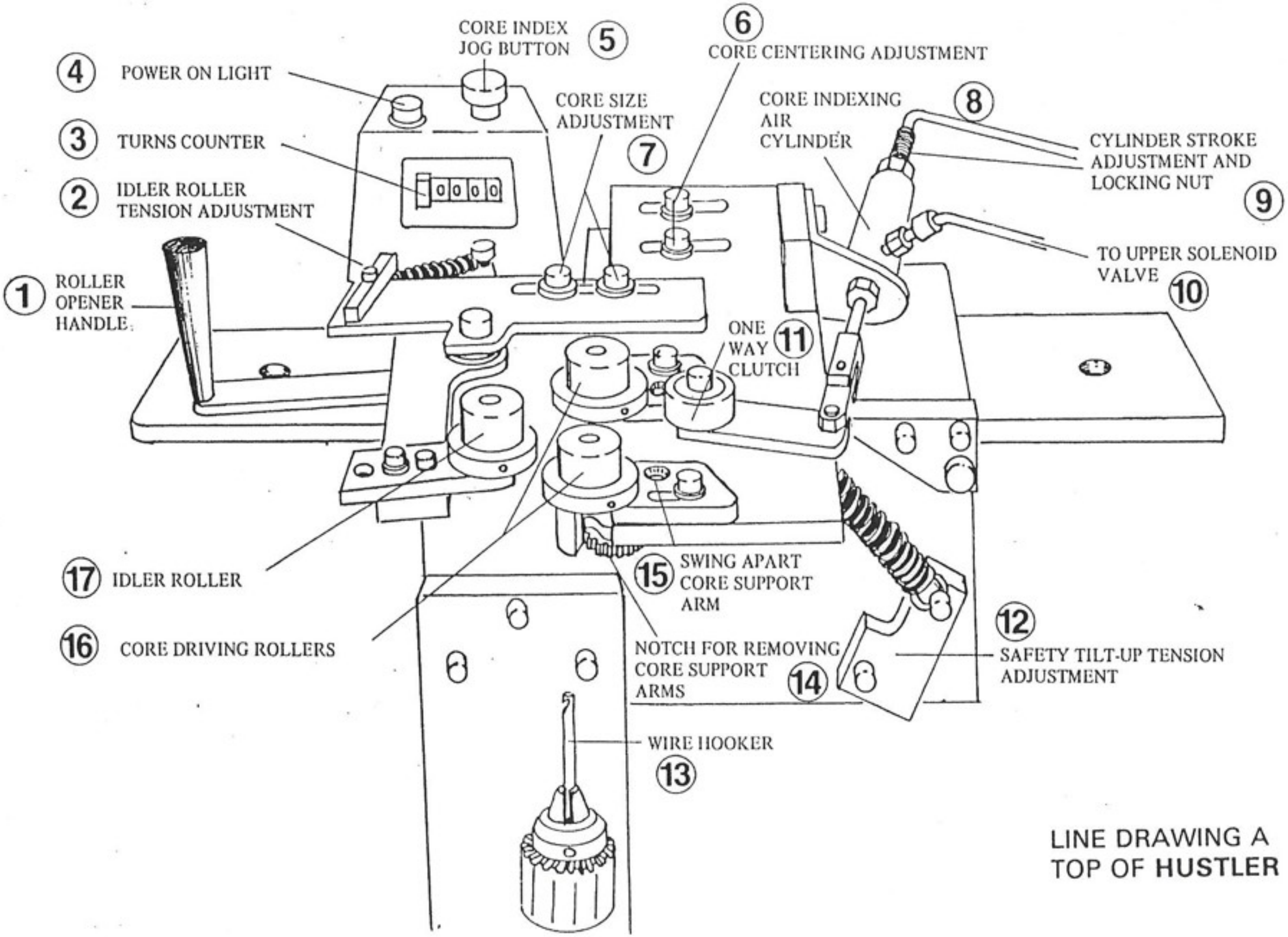
These are all the main adjustments on the machine. The operator will notice that when winding some cores, the Core Rotation will hesitate when the turns of wire will try to climb over a new drive roller, or more often, when it comes to the left idler roller which is not driven. In this case, the operator will have to give the core a little boost over the obstacle with her fingers. Separate indexing strokes can be made with the button (A5) on top of the Counter for this purpose, and also to index the core to a new position for a separate winding. This indexing will not add counts to the counter.

WIRE PULLERS

The *HUSTLER* **Wire Pullers** come in several sizes from the smallest which are made of polished steel to the larger ⅜" diameter sizes which are made of plastic for its gentleness with the wire insulation which is all important.

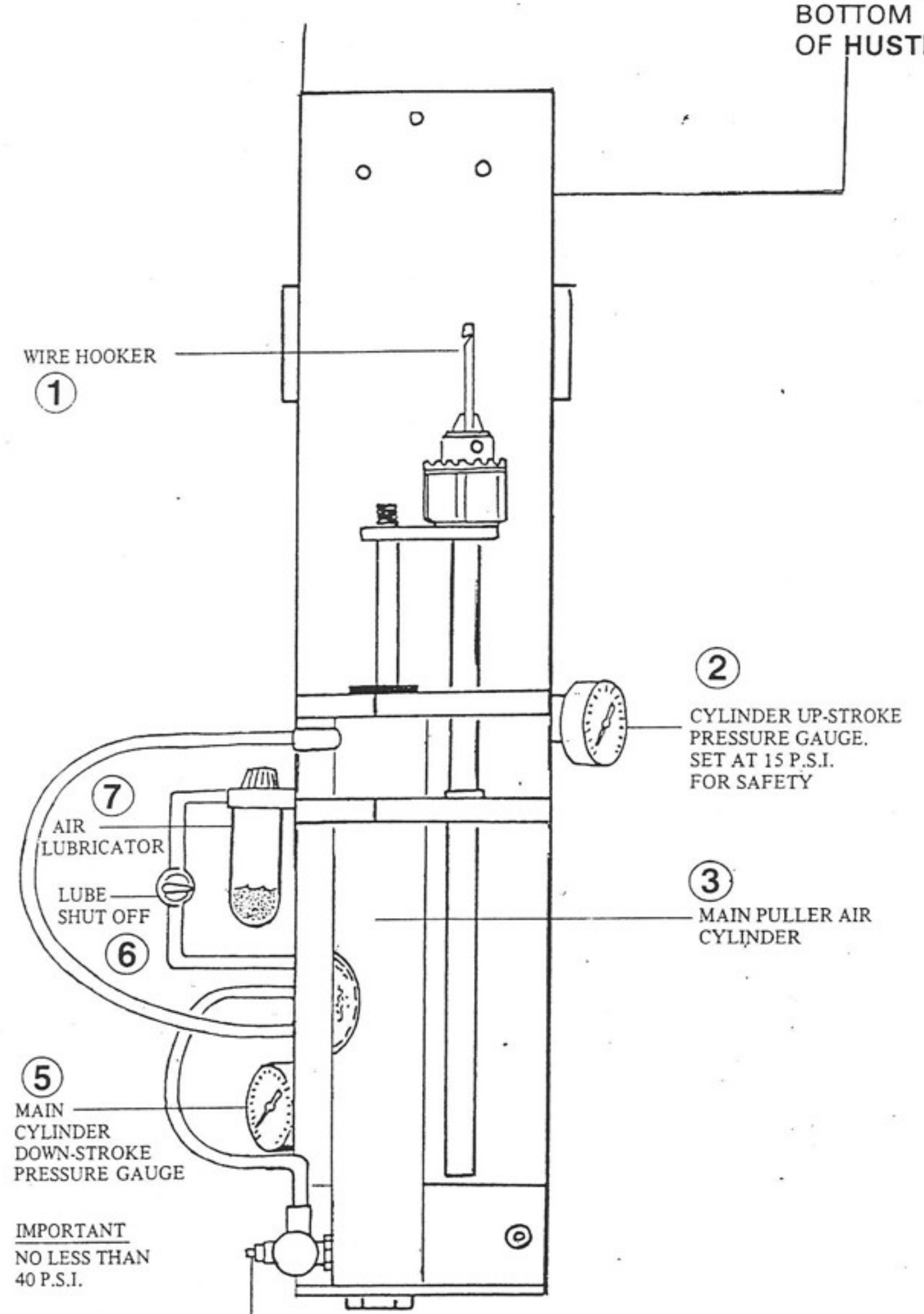
The **Pullers** are mounted in the ¼" drill chuck on the piston rod. Set the hook at the end of the **Puller** so that it is above the top of the core in a sideways position, sort of lined up with the wire as it is pulled up and around the core for the next turn. Bring the excess wire over and across the machine before operating the foot pedal.

There is very little maintenance on the **HUSTLER PULL WINDER.** There are no points which require periodic lubrication. The exhaust air mufflers on the solenoids will become clogged after extended use and should be replaced. The turns counter has a rated life of about 10 million counts. The wire pullers are expendable items and not warranteed. The smallest sizes can have a relatively short life, while the larger sizes could last for months of hard usage.

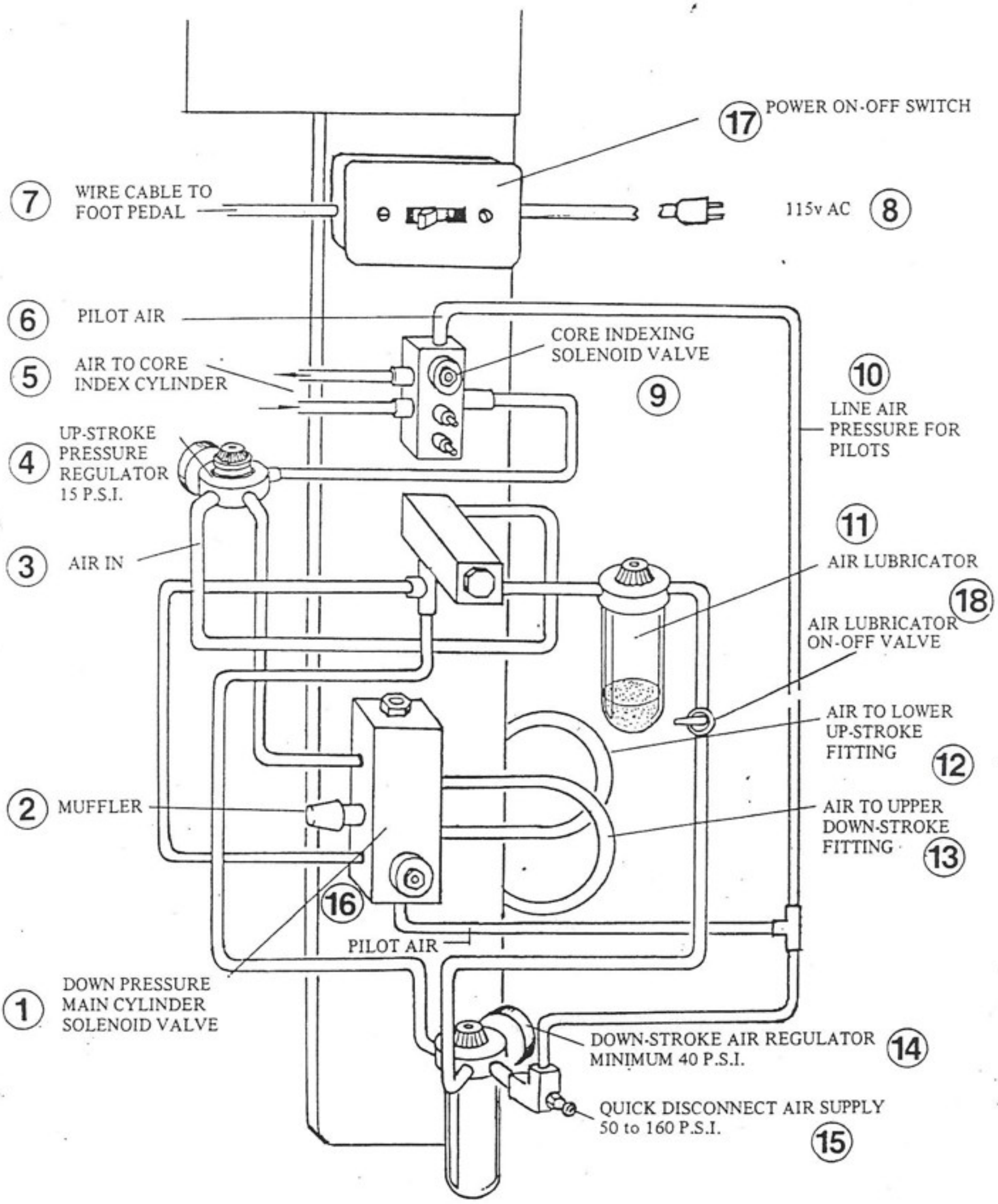


LINE DRAWING A
TOP OF **HUSTLER**

LINE DRAWING B
BOTTOM
OF **HUSTLER**



LINE DRAWING C
BACK OF **HUSTLER**



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PARTS FOR THE HUSTLER

ACCESSORIES:

Part #	Description
UAK1	Complete Accessory Kit (contains all accessories we manufacture except booster cylinder, less standard equipment items)With new machine orders only.
UAK2	Bench Clamps - 3"

CLUTCHES:

UCL1*	Clutch/One-way-CW - Right Hand - D93C-RH
UCL2	Clutch/One-way-CCW - Left Hand
	* Right hand only, used on machines with reversing lever.

CORE ROTATORS:

(Set of three)

		Dia. of flange		Height above flange	
UCRF1	C/R Small	1/2"	X	1/4"	Takes Tubing OD 3/8" – ID 1/4"
UCRF2	C/R Small	11/16"	X	1/4"	Takes Tubing OD 1/2".-.ID 5/16"
UCRF3	C/R Small	11/16"	X	7/16"	
UCRF4	C/R Large	3/4"	X	5/16"	
UCRF5	C/R Large	3/4"	X	7/16"	
UCRF6	C/R Large	1"	X	7/16"	Takes Tubing OD 3/4" – ID 1/2"
UCRF7	C/R Large	1"	X	11/16"	
UCRF8	C/R Large	1-1/4"	X	1/2"	Takes Tubing OD 7/8" – ID 5/8"
UCRF9	C/R Large	1-1/4"	X	3/4"	

(Small core rotators mounted with 6-32 screws)
(Large core rotators mounted with 10-32 screws)

UCRFW1	Rubber Washer	1" Diameter
UCRFW2	Rubber Washer	1-1/4" Diameter
UCRFW3	Rubber Washer	1/2" Diameter
UCRFW4	Rubber Washer	11/16" Diameter
UCRFW5	Rubber Washer	3/4" Diameter
UCRFT1	Rubber Tubing (OD 3/4" – ID 1/2")	for 1" Core rotators UCRF6, UCRF7
UCRFT2	Rubber Tubing (OD 7/8" – ID 5/8")	for 1-1/4" Core rotators UCRF8, UCRF9
UCRFT3	Rubber Tubing (OD 3/8" – ID 1/4")	for 1/2" Core rotators UCRF1
UCRFT4	Rubber Tubing (OD 1/2" – ID 5/16")	for 11/16" Core rotators UCRF2, UCRF3
UCRFT5	Rubber Tubing (OD 1/2" – ID 5/16")	for 3/4" Core rotators UCRF4, UCRF5
UCRFS1	Core rotator Tension Arm Spring Or Reversing Lever Spring	E40C

CYLINDERS:

UCYL1	Booster Cylinder Kit (with Bimba 173-D-V)
UCYL2	Core Index Cylinder/Bimba 091-RA-V
UCYL3	Main Cylinder/Allen Air A-1 + 1/8 X 10 - BCHTP
UCYL4	Allen repair kit for main cylinder
UCYL5	Main Cylinder Speed Adjuster
UCYL6	Cylinder/Bimba 173-D-V

(Cont'd)

ELECTRICAL:

Part #	Description	Ref #
UE1JB	Core Index Plastic Jog Button	
UE2LC	Line Cord	
UE3RC	Redington Turns Counter	P2-4904-115AC
UE4LT	Off/On Light	1050C1
UE5TS	220 to 110 Volt Transformer for Overseas	

SWITCHES:

USW1FS	Clipper Foot Switch	632-S
USW2PW	Switch - Power ON/OFF	
USW3IX	Indexing Switch (Push button)	516-P-CRD-4

HOOKS: (Delrin)

UHD1	5/32" Diameter (.156)
UHD2	3/16" Diameter (.1875)
UHD3	1/4" Diameter (.250)
UHD4	5/16" Diameter (.3125)
UHD5	3/8" Diameter (.375)
UHD6	1/2" Diameter (.500)
UHD7	Set of Hooks - 1 of each size (6 Hooks)
UHDR1	8-32 Steel Rods for .156", 3/16", 1/4" Hooks
UHDR2	10-32 Steel Rods for 5/16", 3/8" and 1/2" Hooks

KNOBS:

UK1BK	1" Diameter Black Knob on Core Reversing Lever
UK2BH	Tapered Black Handle

SUPPORT ARMS: (Set of 3)

USF1	Small
USF2	Large

VALVES:

UV1	Regulator (Upper)	R07-200-RGKA
UV2	Lubricator	L07200MPAA
UV3	Filter Regulator	B07-202MIKA
UV4	Down Stroke/Flow Control Valve	F2
UV5	Flow Valve on Bottom of Air Cylinder	7785-56-11
UV6	Core Indexing Solenoid Valve 1800 Series	Fabco GS4XV
UV7	Down Pressure Solenoid Valve for Main Cylinder valve 1400 Series	Fabco GS4XV
UV8	Plastic Bowl for UV2 lubricator	
UV9	Spring for UV6	1800-5

MISCELLANEOUS:

UM01	1/4" Drill Chuck	
UM02	Air Coupler Assembly	1X919
UM03	Quiet Air Silencer (Upper)	MM001A
UM04	Quite Air Silencer (Lower)for UV7)	MM002A

(Cont'd)

MISCELLANEOUS: (Cont'd)

Part #	Description	Ref #
UM05	1/4" Diameter Plastic Tubing	
UM06	Bushing/Ball & Retainer Assembly	HB1108P
UM07	Bushing	B810-6
UM08	Small Gear	NSS3220
UM09	Large Gear	NSS3240
UM10	Aluminum bracket for clutch	
UM11	Idler Roller Assembly	
UM12	Pinion wire gear (10 tooth) 32 pitch with shaft	
UM13	Pinion wire gear (14 tooth) 32 pitch	
UM14	1/2" Threaded shaft	
UM15	Core reversing lever (No bushing)	
UM16	Core reversing lever (With bushing)	
UM17	Aluminum Top Support Plate	
UM18	Mounting Bracket for Chuck	
UM19	Triangle Bracket	
UM20	Bearing-NTA613	
UM21	Washer TRB613	
UM22	Washer TRA613	
UM23	Heavy Spring for Top Plate Assembly Hinge	SE15063072
UM24	Shaft for Clutch 3/8"	
UM25	Bushing B56-5	
UM27	Chuck Key	
UM28	Bracket – Main Cylinder Upper	
UM29	Bracket – Main Cylinder Lower	
UM30	Bracket – Main Cylinder Bottom	
UM31	Coupler D166-1 for C/R	
UM32	Coupler Aluminum Extension	
UM33	Idler Roller Tension Adjustment Bar	
UM34	Idelr Roller Tension Adjustment Spring	
UM35	Aluminum Swing Away Support Bar	
UM36	Socket Head Cap Screw 3/8-24X1"Long	
UM37	Aluminum Swing Away Arm	