

# The DC *Morrison* Company

*Home of The Morrison Keyseater*



## Morrison NC Keyseater

Model K – 3-Inch Capacity

## Keyseater Parts List / Service Manual

- For prompt service it is important to give serial number of machine when requesting information or ordering parts

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## Safety Notes

**CAUTION:** Only authorized and trained personnel may operate this equipment. You must always act in accordance with the Operator's manual, safety decals, safety procedures, and instructions for safe machine operation. Untrained personnel present a hazard to themselves and the machine

**IMPORTANT:** Do not operate this machine until you have read all warnings, cautions, and instruction

### CAUTION:

- When you use this machine, you must always follow basic safety precautions to reduce the risk of personal injury and mechanical damage.
- Do not operate without all guards and covers in place.
- Be sure machine is electrically grounded.
- Always follow safe machining practices when you run this machine.
- All machines present hazards from moving cutting tools, belts and pulleys, high voltage electricity, noise, and compressed air and hydraulics.
- The work area must be adequately illuminated to allow clear view and safe operation of the machine. Adequate illumination is the responsibility of the user.
- Cutting tools, workholding, workpiece and coolant are beyond the scope and control of DC Morrison / Morsco AEC LLC.
- Each of these potential hazards associated with it (sharp edges, heavy lifting considerations, chemical composition, etc) and it is the responsibility of the user to take appropriate action (PPE, training, etc).
- Cleaning of the machine is required during normal use and prior to maintenance or repair. Safe use of this equipment requires training and might require appropriate PPE and is the responsibility of the user.
- This operator's manual is intended as a reference guide and is not to be the sole source of training.

**DANGER:** Do not enter the machining area any time the machine is in motion, or at any time that machine motion is possible. Severe injury or death may result. Motion is possible when the power is on and the machine is not in [EMERGENCY STOP].

### Basic safety:

- This machine can cause severe bodily injury.
- This machine is automatically controlled and may start at any time.
- Consult your local safety codes and regulations before you operate the machine. Contact your dealer if you have questions about safety issues.
- It is the machine owner's responsibility to make sure that everyone who is involved in installing and operating the machine is fully acquainted with the operation and safety instructions provided with the machine, BEFORE they work with the machine. The

ultimate responsibility for safety rests with the machine owner and the individuals who work with the machine.

- Use appropriate eye and ear protection when you operate the machine.
- Use appropriate gloves to remove processed material and to clean the machine.

**Electrical safety:**

- The electrical power must meet the required specifications. Attempting to run the machine from any other source can cause severe damage and will void the warranty.
- The electrical panel should be closed and the key and latches on the control cabinet should be secured at all times, except during installation and service. At those times, only qualified electricians should have access to the panel. When the main circuit breaker is on, there is high voltage throughout the electrical panel (including the circuit boards and logic circuits) and some components operate at high temperatures; therefore, extreme caution is required. Once the machine is installed, the control cabinet must be locked, with the key available only to qualified service personnel.
- Do not reset a circuit breaker until the reason for the fault is investigated and understood.

**Electrical Wiring:**

In wiring motor, BE SURE the motor runs in the direction of the arrow which is located on the hydraulic pump.

Before switching on the power, the operator should insure that all obstructions around machine and cutter bar are removed. Check to make sure all enclosure doors are closed and all oil reservoirs are filled with proper oil.

**Machine Operation:**

Ensure power is on the hydraulic unit and the E-Stop button is pulled out. Depress the Green Start button on the hydraulic unit. This should power up the hydraulic unit. If the unit does not power up, check electrical supply to machine, check main fuses in hydraulic unit control panel.

At Operator Control Panel, pull Machine Stop button. The table top will retract and find "Home" Position.

Using the operator interface, select Cut Depth, Feed Distance and number of cleanup Passes. The Cut Depth and Feed Distance can be programmed in inches or millimeters.

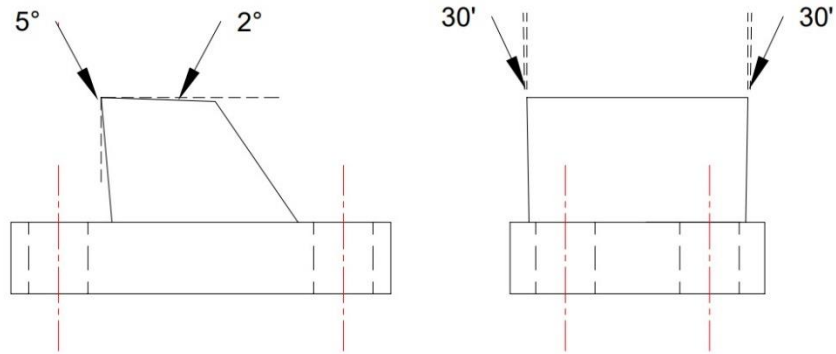
Load and center the work-piece to be cut by using the centering vee so that it clears the cutter by approximately .100" (2,5 mm). Ensure that the cutter is just touching the cutter on both sides of the cutter and the centering vee. This will ensure that the work-piece is centered on the machine. Clamp the centering vee and work-piece securely. Adjust the overhead guide as close to the work-piece as possible and lock. Adjust the guide head against the cutter bar so that the spool is riding on the cutter bar and lock it in place.

The work-piece can be moved towards and away from the cutter in small increments by using the "Feed In" and "Feed Out" buttons located on the Operator Panel. The Feed buttons move the work-piece at the selected Feed Rate. The Feed buttons do not function once the Feed Start has been selected.

Rotate the "Ram Start/Stop" switch to Start. This will start the cutter motion up and down. If the stroke of the cutter needs to be adjusted, the upper and lower limit switches are located on the side of the machine. The top limit should be adjusted so that the cutter clears the top of the part. The bottom limit should be adjusted so that the cutter clears the top of the table. For a blind keyway, the bottom limit should be adjusted to the height of the bottom of the keyway. It is advisable that the cutter be stopped using the "Ram Start/Stop" switch before making any adjustments.

With the cutter cycling up and down, move the work-piece towards the cutter by using the "Feed In" switch. Continue feeding the work-piece until the cutter is just touching the work-piece as it moves up and down.

## CUTTER DIAGRAM



Factory cutters are ground .0015 oversize on width, and as above for general purpose work.

### CUTTERS GALLING:

Lack of coolant. Use high sulfur based cutting oil. Brush on generously. Cutters ground incorrectly. For correct angles refer above. Cutters are ground with a 5 degree cutting angle and 1/2 degree side clearance. For tough materials this angle could be increased up to 15 degrees, the side clearance could be increased to 2 degrees. However this tends to shorten tool life as it becomes undersized when resharpened.

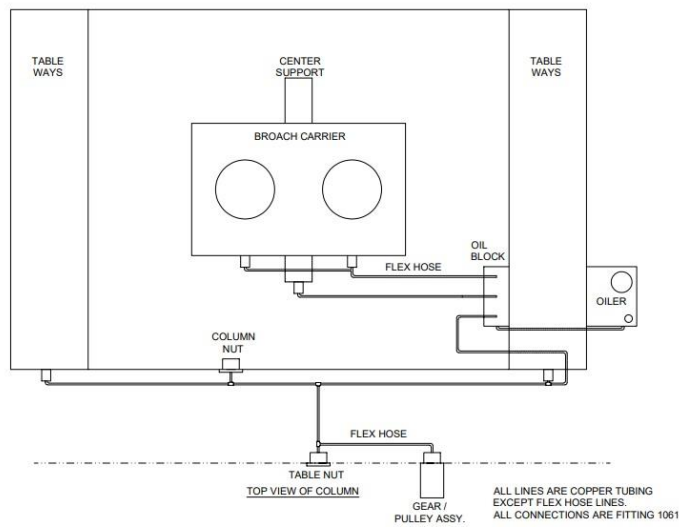
### CHATTER DURING CUTTING:

**Improper setup.** Work should rest solidly on table.

**Cutter too dull.** Refer above.

**Lack of coolant.** Refer above

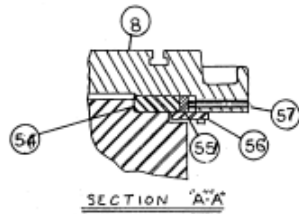
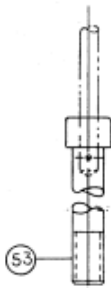
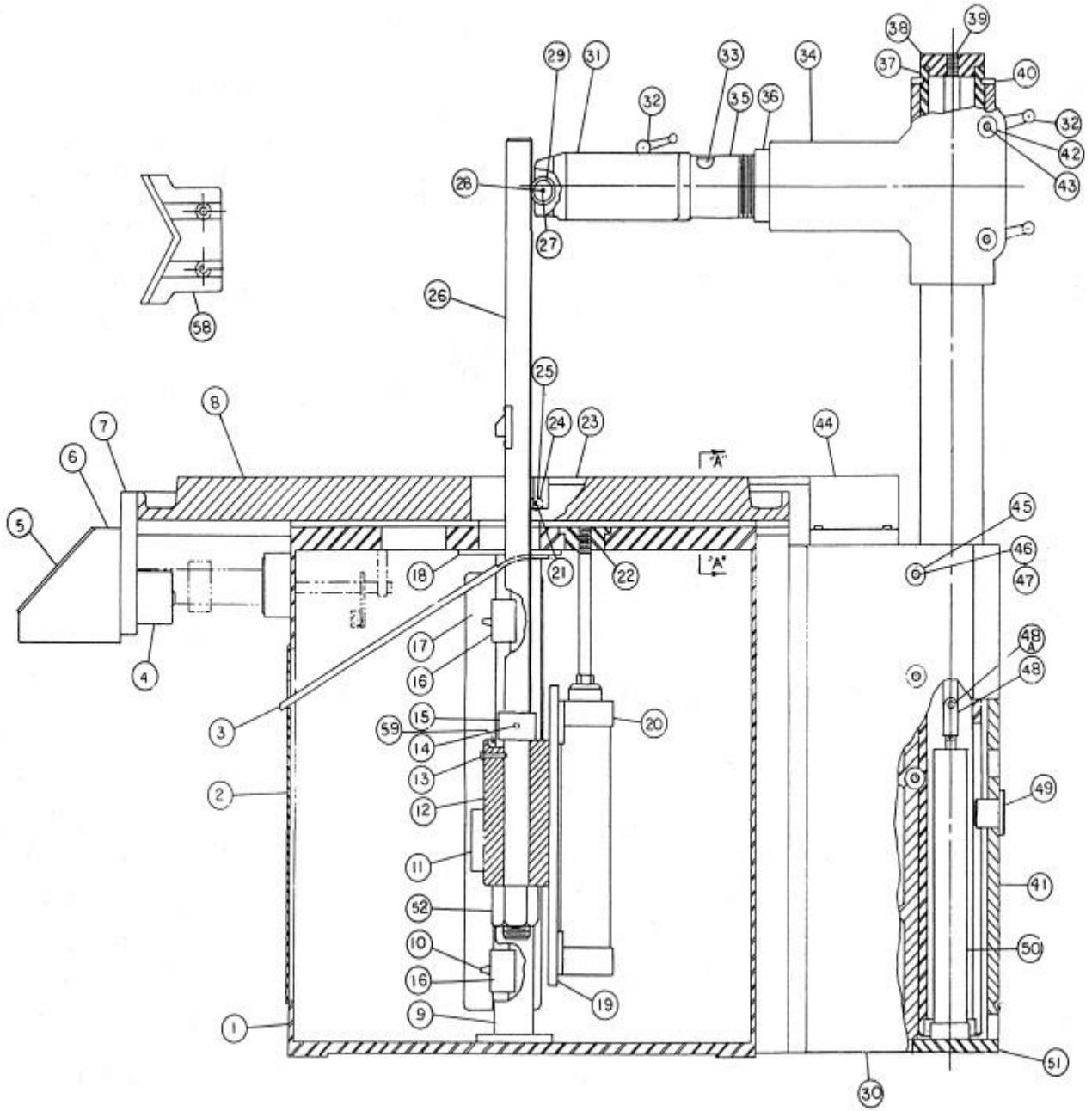
**Cutter set more than 1/8" above work piece.** See operation instructions.



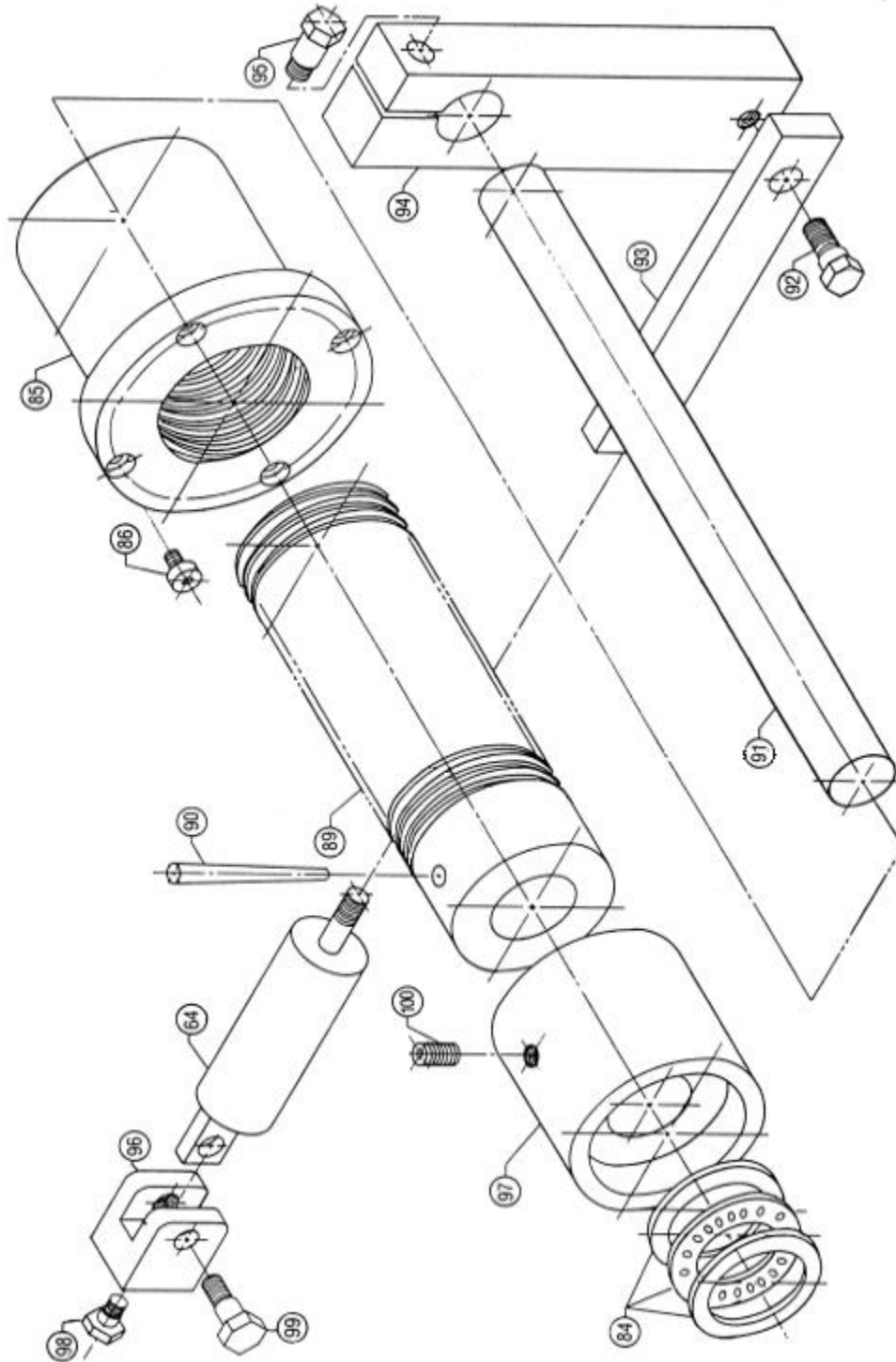
AUTOMATIC OILER

New #	Old #	Item Description	New #	Old #	Item Description
1	80	Base	62		
2	99	Door Base	63		
3	91	Chip Chute	64	46	Feed Cylinder
4	18	Stepping Motor	65	50	Nut
5	84	Cover Panel	66	1	Buttonhead Screw
6	85	Electrical Panel Box	67	2	Feed Washer
7	66	Front Plate	68	3	Thrust Washer
8	75	Table	69	4	Thrust Bearing
9	77	Slide Rod (2)	70	5	Thrust Washer
10	76	Limit Switch	71A	6	Feed Gear
11	87	Trip Dog	71B	6	Feed Worm
12	63	Broach Carrier	72	7	Soc Hd Cap Screw
13	47	Ctr Br Align Scr	73	8	Table Feed Nut
14	101	Taper Pin	74	9	Buttonhead Screw
15	62	Cutter Bar Ring	75	10	Lock Washer
16A	89A	Guide Block Ins	76	11	Washer
16B	89B	Guide Block Out	77	12	Thrust Washer
17	68	Lmt Switch Plate	78	13	Thrust Bearing
18	92	Table Support	79	14	Thrust Washer
19	65	Cyl Mount Plate	80	15	Gear&Pulley Assy
20	48	Hydra Cylinder	81	15	Bearing, Pulley Assembly
21	58	Sprt. Roller Pin	82	15	Sleeve, Jam
22	55	Cylinder Nut	83	16	Shft Pulley Assy
23	70	Backup Bar	84	17	Fd Shft Thrst Bg
24	44	Support Roller	85	19	Column Nut
25	45	Sprt Rlr Brg Ea	86	20	Soc Hd Cap Screw
26		2" Cutter Bar	87	21	Pulley Step Mtr
28	58	Sprt. Roller Pin	88	21	Belt, Pulley Assy
29	42	Spool, Guide Hd	89	22	Column Worm
30	73	Back Bracket	90	23	#5 Taper Pin
31	71	Guide Head	91	24	Feed Shaft
32	53	Ball Lever	92	25	Shoulder Screw
33	79	Horiz Suprt Arm	93	26	Feed Cyl. Clevis
34	72	Horiz Tube Spprt	94	27	Feed Crank Lever
35	79	And 79B	95	28	Soc Hd Cap Screw
36	79	Nut, Jam	96	94	Feed Cylinder Clevis
37	78	Vertical Tube	97		Spacer
38	82	Csp-Vert Tube	98		Button Head Screw
39		Cylinder Rod Extension	99		Shoulder Screw
40		Swivel Plate	100		Set Screw Spacer
41		Cover Plate		5	K3N05A Rat. Pawl Tip
42		Clamp Horiz Tube Support		34	Hor Tube Support
43		Clamp Screw		43	Spool Bearing Ea
44	74	B/Up Bar Block		49	Gib
45		Clamp Column Bracket		54	H/W Bck Bracket
46		Clamp Screw		57	Spprt Spool Pin
47		Hex Nut & Washer		60	Driver Board
48		Rod Clevis		61	Plc
48		Rod Clevis Pin		69	Tbl Slide Rl (2)
49		Guide Pin		73	Spur Gear
50		Hyd Cyl Vert Column		73	Worm
51		Cylinder Mounting Plate		73	Worm Gear
52	56	Cutter Bar Nut		73	Shaft
53	62	1-1/4Cutter Bar		73	Column Clamp
54	67	Table Slide Rail		73	Shaft
56	52	Table Clamp		81	Rack
57	51	Gib Screw		83	Machine Screw
58	59	Centering V		90	Lubricator
59	64	Broach Car. Seal		97	Threaded Rod
60	62	Cutter Bar 2" Diameter		102	Hydraulic Unit
61				1005	# 5 Ratchet Pawl

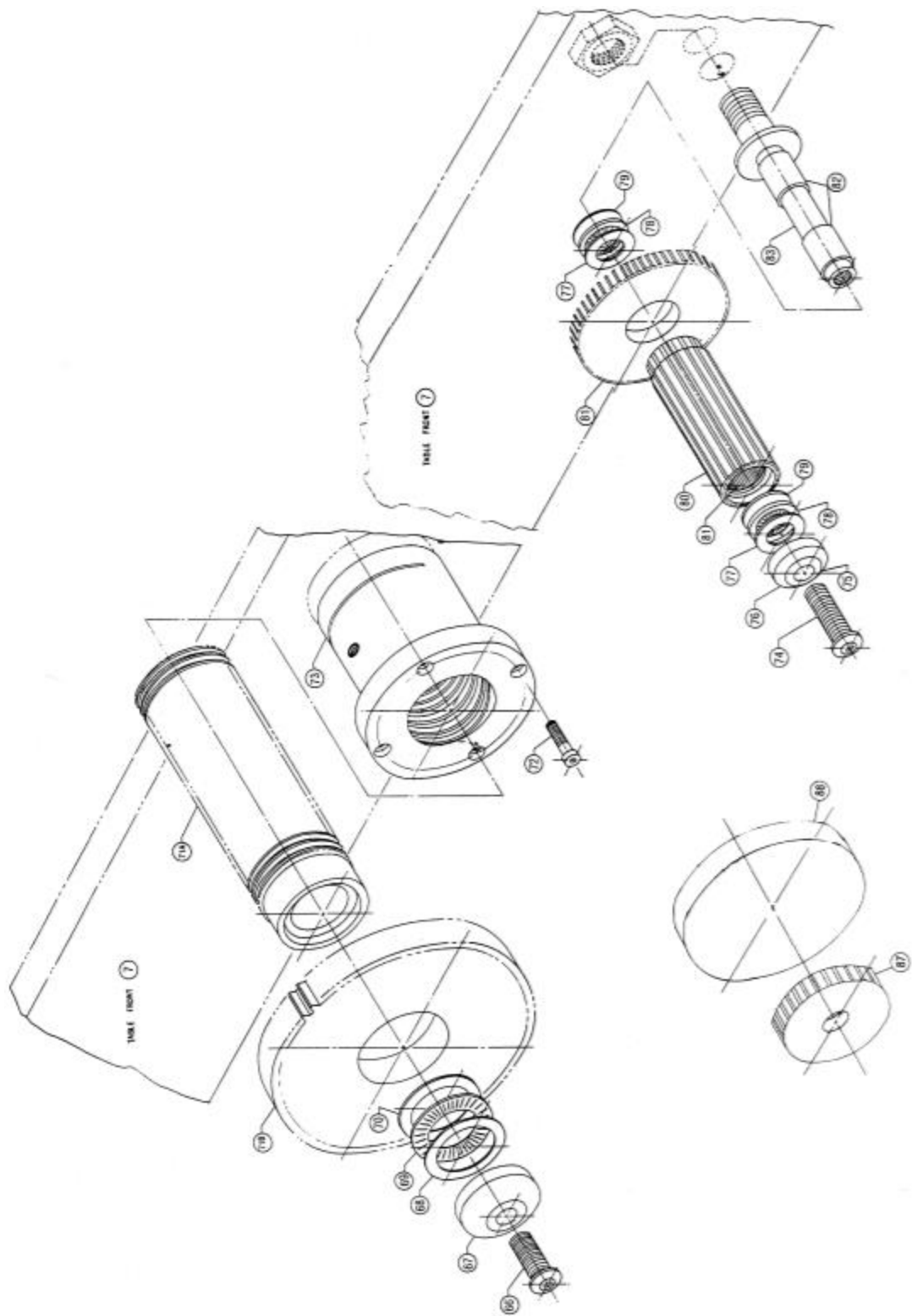
# MACHINE LAYOUT



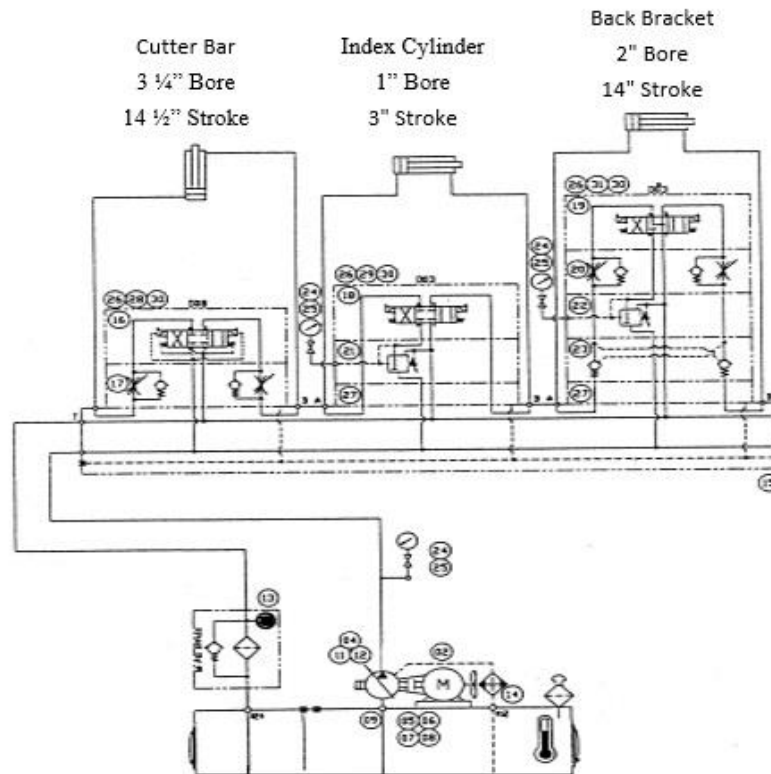
# AUTOMATIC FEED DIAGRAM







## HYDRAULIC SCHEMATIC



Hydraulic Unit Parts		
Item #	Description	Qty
1	Reservoir, 60 Gal, 48" x 27" x 20 9/16"	1
2	Motor, 20Hp 1750RPM 256TEFC	1
3	Starter, MOTOR Sized for both 230 / 460 VAC	1
4	Pump, Hydraulic	1
5	Hub, Coupling, Motor	1
6	Hub, Coupling, Pump	1
7	Insert, Hytrel Coupling	1
8	Adapter Motor/Pump	1
9	Flange, Suction Line, 2"	1
10	Strainer, Suction, 2"	1
11	Flange, Socket Weld, SAE 32	1
12	Flange, STR THD, SAE 16	1
13	Filter, Visual Indicator, 50 PSI Bypass, SAE 24	1
14	Heat Exchanger, Case Drain, Rear Mount	1
15	Manifold, DO8, 3 Station	1
16	Valve, DO8, Directional	1
17	Valve, DO8, Modular Flow Control	1
18	Valve, DO3 Dir, Dbl Sol, 3 Pos, 120 VAC, APB	1
19	Valve, DO3 Dir, Dbl Sol, 3 Pos, 120VAC, ABT	1
20	Valve, DO3 Flow Control, Dual	1
21	Valve, DO3 Reducing, P Port, 22-928 PSI	1
22	Valve, DO3 Reducing, P Port, 44-2320 PSI	1
23	Valve, Dual PO Check	1
24	Snubber Gauge	3
25	Gauge, 3000 PSI	3
26	Connector	6
27	Adapter, DO3 - DO8	2
28	Bolt Kit, BK121	6
29	Bolt Kit, 3K243	4
30	Cordset, 120 VAC 5 METER	6
31	Bolt Kit, BK244	4