



30AC Speed Lathe Manual

Standard Features

- 2 HP
- Air-Collet Closure
- 0-3000 RPM, Variable Speed
- Dynamic Brake
- Cast Housing
- 5C Collets
- 1 or 3 Phase / 240 Volts

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DESCRIPTION:

For those who need extra power for sanding or building a special purpose machine, we offer the Crozier Model 30AC. This is our standard head unit powered by a 2 horsepower motor. To supply power to the motor, we utilize a solid state inverter. This inverter provides the speed lathe with variable speed range of 0 to 3600 RPM. In addition, the inverter provides both soft start capabilities and dynamic braking. Standard input is 240 volt, and can be either single phase or three phase. Standard features include the Crozier designed air collet closure and Leeson motors.

SPECIFICATIONS:

Collet

Collet Type	5C
Collet Capacity	1.062 inches
Collet Closure Operation	Air

Spindle

Housing Construction	Cast
Bearing Type	Ball
Front Bearing	Double Row
Rear Bearing	Single Row
Rear Lubrication	Sealed
Standard Spindle Speed	1800 RPM
Maximum Spindle Speed	3600 RPM
Spindle through Hole	1.125 inches
Spindle Brake	Dynamic

Drive System

Motion	Multi-groove V Belt
Motor Speed	1800 RPM
Motor Horsepower	2 HP
Motor Phase	Three

General Notes

Electrical	Three Phase/240 Volts/6 Amps
Base Width	20 inches
Base Depth	17 inches
Machine Height	16 inches
Machine Weight	130 lbs.
Shipping Weight	155 lbs.

OPERATION MANUAL:

UNPACKING

The Crozier Model 30AC Speed Lathe is attached to a wooden pallet. The Speed Lathe is attached to the bottom of the container with four carriage bolts. Remove the bolts from the mounting holes. The Speed Lathe is ready for installation. Check the box for all parts. If any damage is noted call the freight company immediately. The freight company is responsible for the safe delivery of the machine and if immediate notification of damage is not reported, you might not be able to file a claim for damages.

INSTALLATION

The Crozier Model 30AC Speed Lathe must be secured to a suitable stand at all times.

LUBRICATION

The Crozier Model 30AC Speed Lathe is designed to operate with sealed bearings. No provision has been made for introducing grease into the bearings. Should it become necessary to change bearings only sealed bearings of electric motor quality C/3 fit with seals or shields on both sides should be used. No bearing spacers are required.

POWER CONNECTION

The Crozier Model 30AC Speed Lathe input requirement is 240 Volts, three-phase power. Motor rotation is counter-clockwise, looking directly at the shaft. A qualified electrician is required to install the electrical connection. The machine must have a power disconnect placed near the machine. The electrician must run the wire through conduit from the disconnect to the control box. The incoming power is hooked up to the #1, #2, and #3 terminals. Ground is terminal #4. Make sure all connections are tight before energizing the motor.

AIR REQUIREMENTS

The Crozier Model 30AC Speed Lathe requires 90 PSI dry air for proper operation. The air operates the collet closure. Never operate the Speed Lathe without the air connection hooked up. Under no circumstance should the machine be run with a part in the collet and the air off.

AIR-COLLET CLOSURE

Wait for the Speed Lathe to come to a complete stop before attempting to open the collet closure. DO NOT open the collet closure with the Speed Lathe running. Make sure the part is secured in the collet and the collet is closed under air pressure before turning the machine on. DO NOT place long parts that can whip or extremely heavy parts that are not in balance or straight.

The foot pedal activates the air closure, in the text, the valve is referred to as a foot valve. The foot pedal is normally hooked up when the machine is received. If not, it is important to make the right connection. The collet is drawn into the spindle with the foot pedal untouched. When you push down on the foot pedal, the collet is pushed off the taper and the collet opens. If the operation is backwards reverse the two (2) air lines going into the back of the machine. To load the collet, find the collet key in the spindle nose. Check the collet threads and drive slot on the collet. Make sure the collet threads



and drive slot are clean. Insert the collet in the spindle nose lining up the key. Press the collet firmly against the draw tube. Turn the draw tube hand wheel clockwise drawing the collet into the nose. When the collet is nearly in the spindle place the part in the collet. Continue turning the hand wheel until the part is tight in the collet. When the part is tight in the collet push down on the pedal at the same time turn the hand wheel two (2) detents clockwise. Release the pedal. The part should now be tight. If not push down again and repeat the procedure turning one (1) detent each time.

COLLETS

If the collet sticks or is hard to open, polish the collet surface that slides into the precision hole. Only high quality collets should be used. For best results, we recommend, Hardinge®: 5C collets. [Hardinge® Collets](#) are available from factory outlets in major cities or from reputable tool houses. If the machine is used in an abrasive environment the spindle hole should be cleaned when you change collets.

The threads on the draw tube can wear from extended use or using worn or undersized collets. If this occurs the collet will not lock into the spindle and the work piece will not be held. The draw tube must be replaced if this happens. Always check the collet threads for damage or foreign material. In an abrasive environment clean the collet threads at regular intervals. If the collet keeps working itself loose check the rotation. If the rotation is correct make sure the drive key has not sheared off. If this happens replacement of the key is necessary.

There should be a minimum of .075 inches in the opening and closing movement of the collet. The standard 5C collet can accept a work piece variance of .005 inches. Any larger variance will cause the collet to distort and not hold the part properly. Do not under any circumstance force the collet to hold a undersized part. Serious damage can result from such actions.

BRAKE

The Speed Lathe is equipped with dynamic braking. It is automatically activated when the motor is shut off. After the motor stops, the spindle will turn freely. There is no adjustment required on the brake. The motor can be cycled on and off continually without damage to the unit.

INVERTER

The Model 30AC Speed Lathe is a variable speed unit equipped with a solid state frequency inverter. Alternating Current (AC), 60 Hz voltage is converted to Direct Current (DC). This DC voltage is reconstructed to a variable (0-120 Hz) voltage. This allows the spindle speed to operate from 0-3600 RPM. Additionally, the advantage of the inverter is the ability to ramp the motor up to speed without a voltage spike associate with normal motor operation. It also stops the motor by turning the motor into a generator and dissipating the heat through a resistor pack. There is a special motor noise associated with inverters and can cause concern for those not used to it. A whine or gearshift noise is normal as is a pulsing of the spindle at low RPM (less than 100 RPM). The speed pot on the control box is for varying the spindle speed. The start and stop buttons are located on the same box.

GENERAL NOTES

As with all equipment proper care should be taken. Safety glasses must be worn at all

times while operating the Speed Lathe. It is the responsibility of the end user to determine the suitability of the Speed Lathe in their application.

This machine is a precision machine tool. The components used in its manufacture are of the highest quality and the machined parts are held to very exact tolerances. If you expect the machine tool to last, you must take proper care of it.

The Crozier Model 30AC Speed Lathe can be cycled on and off as fast as you can do the work.

PARTS LIST:

Part #	Description	Qty.	Price
PL4-01	Draw Tube	1	\$ 98.00
PL4-02	Hand Wheel	1	\$ 15.00
PL4-03	Adjusting Plate	1	\$ 135.00
PL4-05	Center Cam	1	\$ 145.00
PL4-06	Outer Cam	1	\$ 95.00
PL4-07	Operating Housing	1	\$ 275.00
PL4-08	Inner Cam	1	\$ 95.00
PL4-09	Set Screw	2	\$ 1.75
PL4-10	Spring	2	\$ 1.75
PL4-11	Steel Ball	2	\$ 1.75
PL4-12	Spindle Housing	1	\$ 800.00
PL4-13	Spindle Pulley	1	\$ 75.00
PL4-19	Collet Key	1	\$ 8.50
PL4-20	Collet Insert	1	\$ 105.00
PL4-21	Woodruff Key	1	\$ 1.75
PL4-24	Snap Ring (196)	1	\$ 6.50
PL4-26	Spindle	1	\$ 375.00
PL4-28	Detent Plate	1	\$ 75.00
PL4-32	Snap Ring (177)	1	\$ 6.50
PL4-34	Spiral Lock Ring	1	\$ 5.00
PL4-40	Base	1	\$ 175.00
PL4-45A	Drive Belt	1	\$ 25.00
PL4-46	Motor Pulley	1	\$ 75.00
PL4-50	Felt Ring	1	\$ 6.00
PL4-53	Front Seal	1	\$ 25.00
PL4-54	Front Bearing Cap	1	\$ 125.00
PL4-69	Motor Mount	1	\$ 75.00
PL4-70	Belt Guard	1	\$ 75.00

Part #	Description	Qty.	Price
A-203	Solenoid	1	\$ 65.00
A-400	"O" Ring	1	\$ 4.00
A-402	"O" Ring	1	\$ 4.00
A-404	"O" Ring	2	\$ 4.00
A-406	"O" Ring	1	\$ 4.00
B-100	Bearing-6209ZZ	2	\$ 34.00
B-102	Bearing-5210ZZ	1	\$ 65.00
E-100	Control Box	1	\$ 100.00
E-300	Motor Contactor	2	\$ 75.00
E-509	Knob Kit	1	\$ 15.00
E-510	Speed Pot	1	\$ 15.00
E-600	Start Button	1	\$ 25.00
E-601	Stop Button	1	\$ 35.00
E-606	Contact Block N/O	1	\$ 15.00
E-607	Contact Block N/C	1	\$ 15.00
E-610	Label-Start	1	\$ 4.00
E-611	Label-Stop	1	\$ 4.00
E-710	Inverter	1	\$ 125.00
F-100	Set Screw 1/4-20 x 1/4	6	\$ 1.75
F-107	Set Screw 5/16-18 x3/8	2	\$ 1.75
F-204	Allen Cap 5/16-18 x 1/2	8	\$ 1.75
F-209	Allen Cap 3/8-16 x 1/2	4	\$ 1.75
F-301	Allen Flat 8/32 x 3/4	8	\$ 1.75
F-400	Allen Hex 1/4-20 x 1/2	8	\$ 1.75
N-100	Front Nut	1	\$ 15.00
M-106	Motor	1	\$ 425.00

CONTACT INFORMATION:

New Sales - Parts - Service

Shipping & Billing Address:

Crozier Machine Tool
11808 Prairie Avenue
Hawthorne, CA 90250



Contact: **Jerry Mariam**

Phone: 310-676-3212

Fax: 310-675-0141

TOLL-FREE: 800-LATHES-1 (800-528-4371)

Email: sales@crozermachine.com or service@crozermachine.com