Setup Instructions

for the

TRC Mini Cutter

Model MC2

TRC Industries
P.O. Box 485
Nevada, MO 64772

Table of Contents

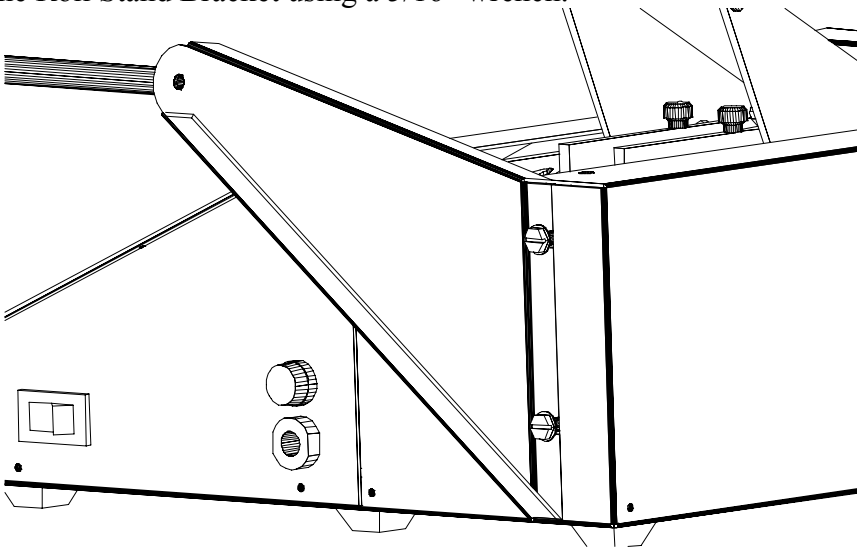
Unpacking

Unpack the machine and attachments and place on a table. You should have the following items:

Setup

Main cutting machine
Roll stand bracket with spool shaft
Two roll disks; 1 with a thumb screw and 1 without

1. Attach the Roll Stand Bracket using a 5/16" wrench.



2. Place the Roll Disk without the thumb screw on spool shaft with collar facing the roll stand bracket.
3. Place material roll on roll stand.
4. Place the other Roll Disk with collar and thumb screw facing out. Add slight pressure to the material Roll Disk to produce a little drag on the roll then tighten the thumb screw.
5. Adjust the guides to just touch each side of material.

Programming

Turn on the power switch located on the right hand side of the machine.
After the machine goes through the initialization you will be prompted to enter a feed rate, the feed rate ranges from 1 to 12 and is calibrated in inches per second.

Next, you'll be prompted to enter the length of pieces to cut, if the feed rate is too fast for the length entered, the feed rate will be reduced until the ramp curve fits the length entered.

Special Function Keys (Optional)
B1 - will allow saving and recalling of programs stored on a PC
B2-B4 - will be for other special functions

Adjusting belt tension

On the back side of the machine, remove the two phillips screws in the lower corners of the back cover. Also remove the two button head screws in the top of the back cover using a 1/8" Allen wrench and remove the back cover.

The belt tension is adjusted by moving the motor back and forth in the adjustment slots after loosening the four Allen screws securing it.
Adjust the tension so that there is about 1/8" deflection at the center of the belt.

Changing Bottom Roller

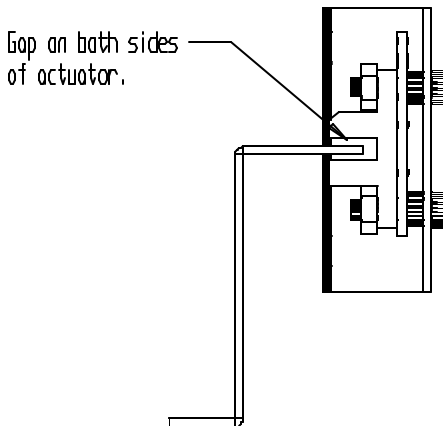
To change the bottom roller, remove the back cover as described in the "Adjusting belt tension" section. Loosen the four screws that secure the motor and slide it forward. Remove the drive belt. Loosen the set screws that hold the pulley to the bottom roller shaft and remove the pulley. Remove the two screws that hold the bearing in place and remove the bearing. Push down slightly on the end of the roller and pull it out of the bearing on the other side.

Replace with new roller. Re-install the bearing and screws. Place the pulley on the shaft and align it with the motor pulley, then tighten the set screws. One of the set screws should be in line with the flat on the roller shaft. Re-install the belt and adjust the tension.

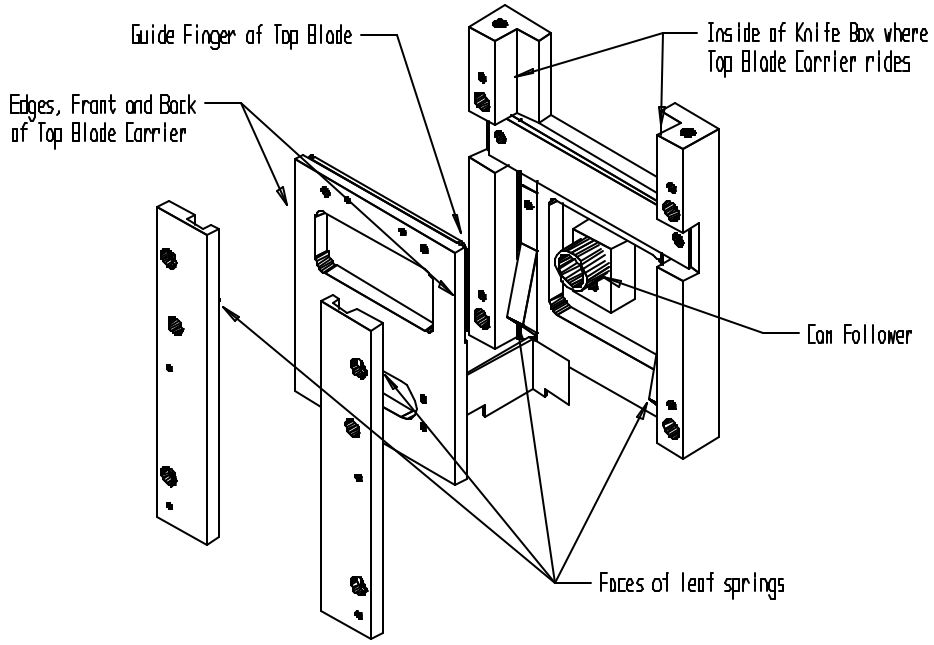
Changing blades/springs

Remove the upper guard plate from the knife box by pulling it straight up. It's a friction fit. Remove the four screws that secure the lower guard plate and remove the guard. Remove both of the Front brackets by removing the two screws securing each one. The top blade carrier can now be removed by tipping out the left-hand side first, then pulling it straight out and tipping out the left-hand side again. Be careful not to bend the limit switch actuator mounted on the back of the top blade carrier. Clean off all old grease and inspect parts for wear.

Replace the blades/springs as desired. When re-assembling, be sure to lubricate all wear points with grease. When replacing the top blade carrier, make sure the switch actuator is centered in the IR sensor gap and does not rub on them.



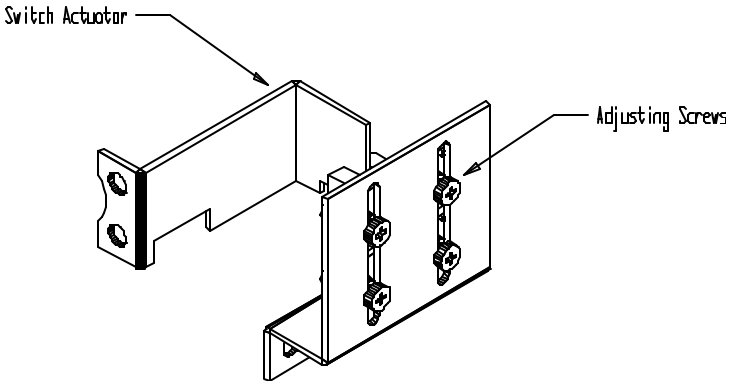
Lubrication of knife mechanism



Use a light grease to lubricate all points shown above.

Timing of knife

Timing of the knife is required to make sure the blade stops at the absolute top and bottom of its travel. Knife timing is dependent on: Blade sharpness, lubrication of knife assembly, and spring tension on blade.



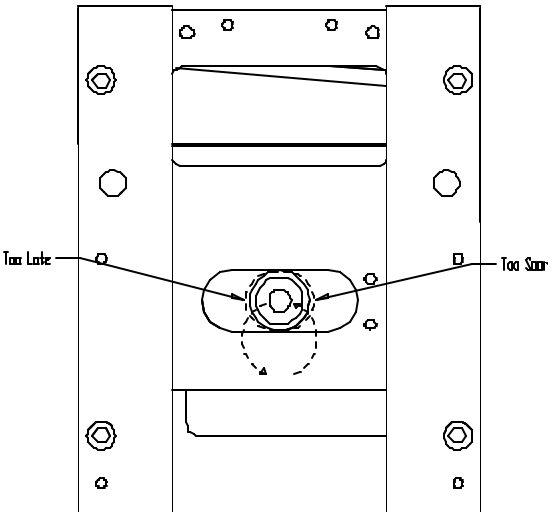
This picture shows the adjusting screws and the slots. Loosen screws just enough to allow the switches to be moved up or down.

The up position switch is on top and the bottom position switch is on the bottom.

When ever the IR switches have been adjusted or the top blade carrier has been removed. The actuator should be checked for proper gap on both sides. The actuator should not be allowed to rub on the

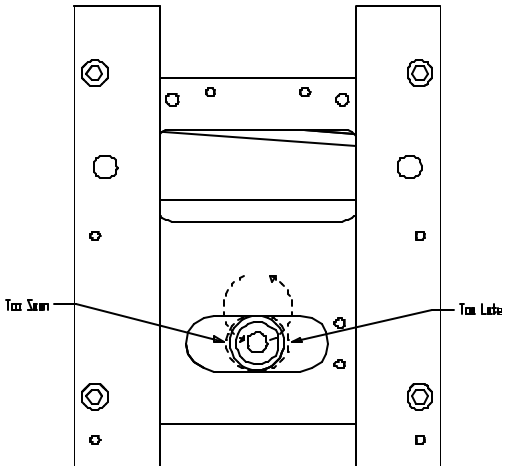
IR switches as they can be damaged.

This example shows the knife in the up position. If the knife stops too soon then the top switch needs to be moved up. Like wise, it the knife stops too late then the tops switch needs to be moved down. Only very slight adjustments should need to be made.

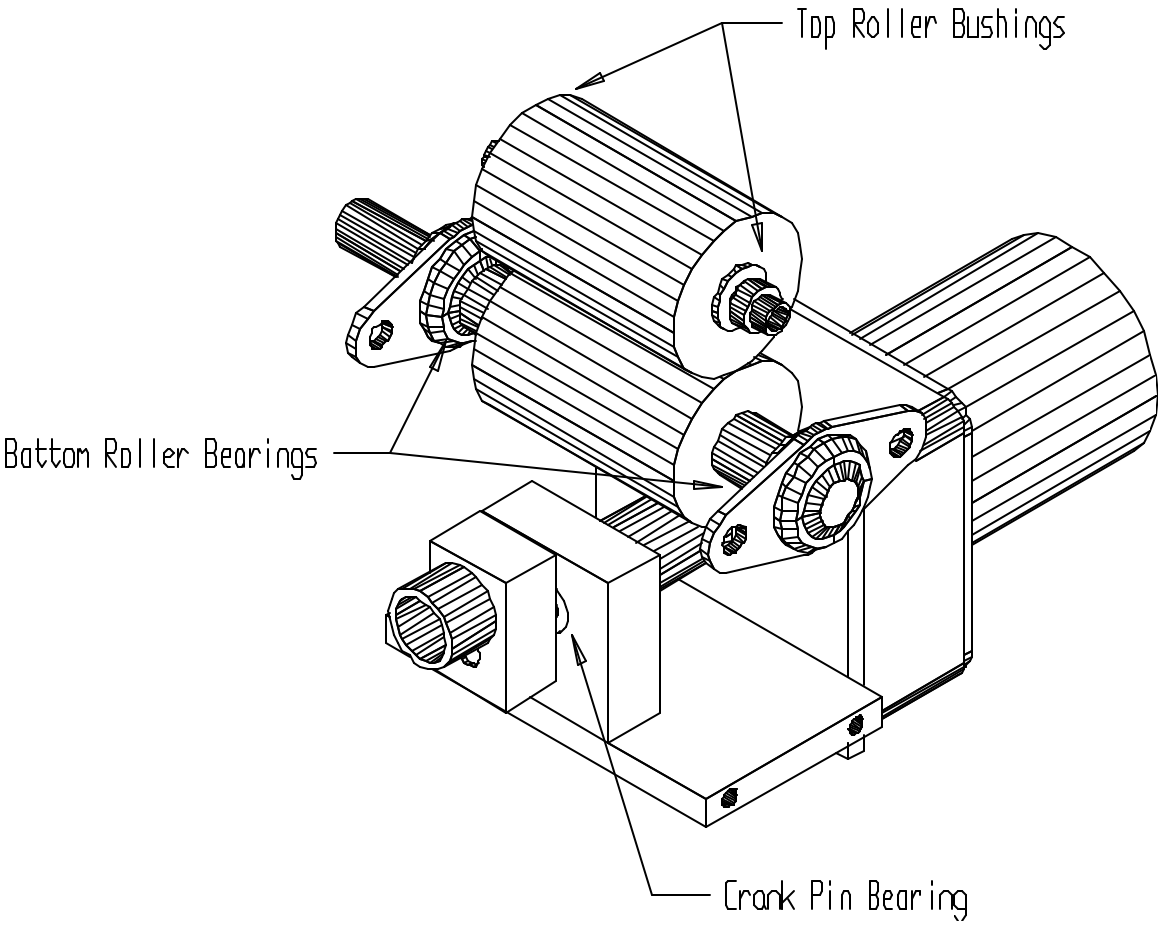


This diagram shows the knife in the down position. The timing works the same. If the knife stops too soon then the bottom switch needs to be moved down. And if the knife stops too late, then the bottom switch needs be moved up.

After adjusting the switches. Check to make sure the actuator does not rub or contact the IR sensor switches.



Other Lubrication Points



The Crank Pin and Crank Block should be removed to lubricate the Crank Pin Bearing. It should be lubricated with grease.

The Top and Bottom Roller Bushings and Bearings should be lubricated with a light machine oil. Use sparingly to avoid dripping into the base of the machine.

Calculating the calibration factor

The length is calculated off of the diameter of the bottom roller. If the roller shrinks or swells, changing the diameter, then the length that is fed out will change. Occasionally the calibration factor will have to be changed as the bottom roller changes in size.

To enter into the calibration mode:

Reset the machine, by pressing "Reset" twice.

Then when the display shows "MC Ver. 1.X" press and hold the "." key until you see "Cal. Factor = "

If cut length is short use:
Desired Length/Actual Length x present cal factor = new cal factor

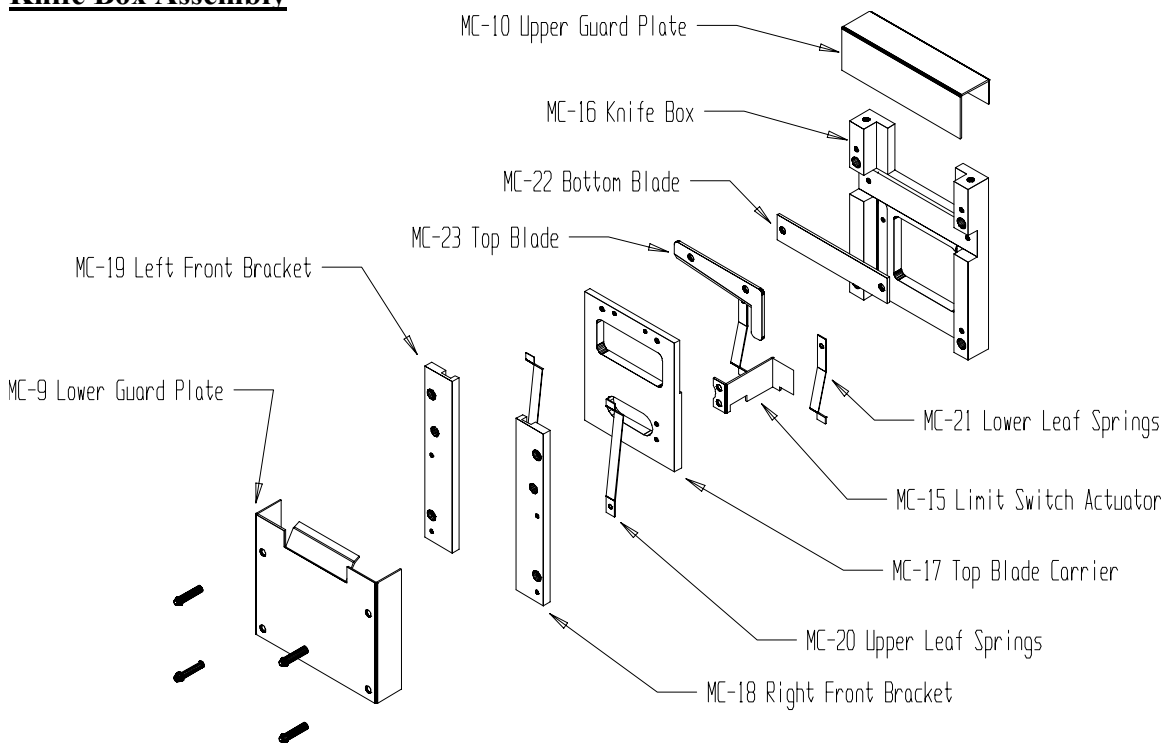
If cut length is long use:
Actual Length/Desired Length x present cal factor = new cal factor

The ability for the calibration factor to be stored permanently is an option. If you do not have the option, once power is turned off to the machine, then the calibration factor returns to the default value.

Note: *Almost all type of materials will feed differently. Different rates of slippage will occur, thereby affecting the length that is fed out. Just because the machine has been calibrated for one type of material, doesn't mean that it will be accurate for all types of materials.*

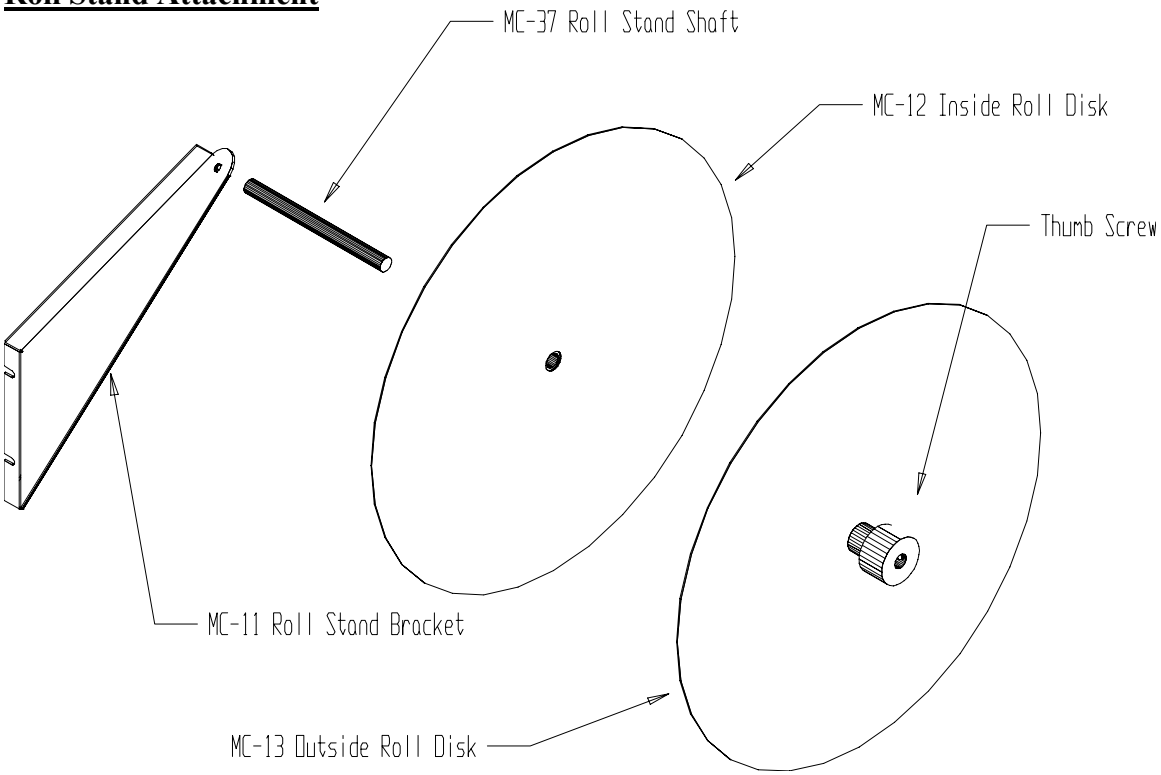
Parts Diagrams

Knife Box Assembly



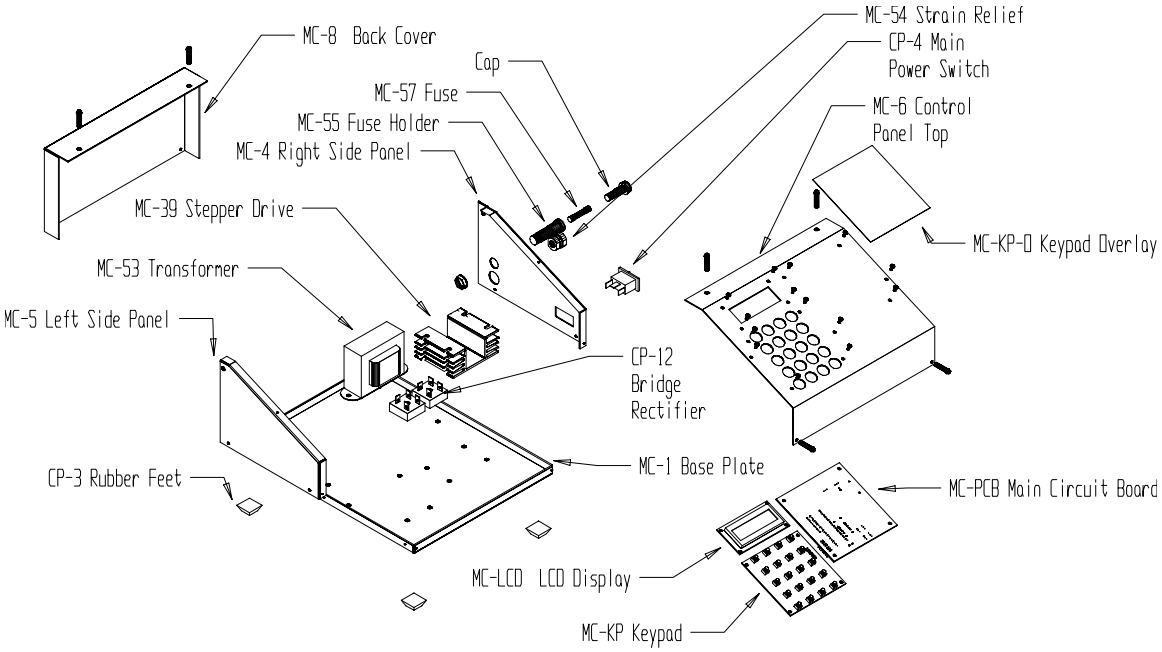
MC-9	Lower Guard Plate	(4) 10-32 x ¼" Button Head Screws
MC-10	Upper Guard Plate	None
MC-15	Limit Switch Actuator	(2) 10-32 x ¼" Button Head Screws
MC-16	Knife Box	(4) ¼-20 x ¾" Socket Head Screws
MC-17	Top Blade Carrier	None
MC-18	Right Front Bracket	(2) 10-32 x ½" Socket Head Screws
MC-19	Left Front Bracket	(2) 10-32 x ½" Socket Head Screws
MC-20	Upper Leaf Springs	(2) 10-32 x 1/8" Button Head Screws
MC-21	Lower Leaf Springs	(2) 10-32 x ¼" Button Head Screws
MC-22	Bottom Blade	(2) 10-32 x ¼" Button Head Screws
MC-23	Top Blade	(2) 10-32 x ¼" Button Head Screws

Roll Stand Attachment



MC-11	Roll Stand Bracket	(2) 10-32 x ½" Hex Screws
MC-12	Inside Roll Disk	None
MC-13	Outside Roll Disk	(1) ¼-20 x 5/8" Thumb Screw
MC-37	Roll Stand Shaft	(1) 10-32 x ½" Button Head Screw

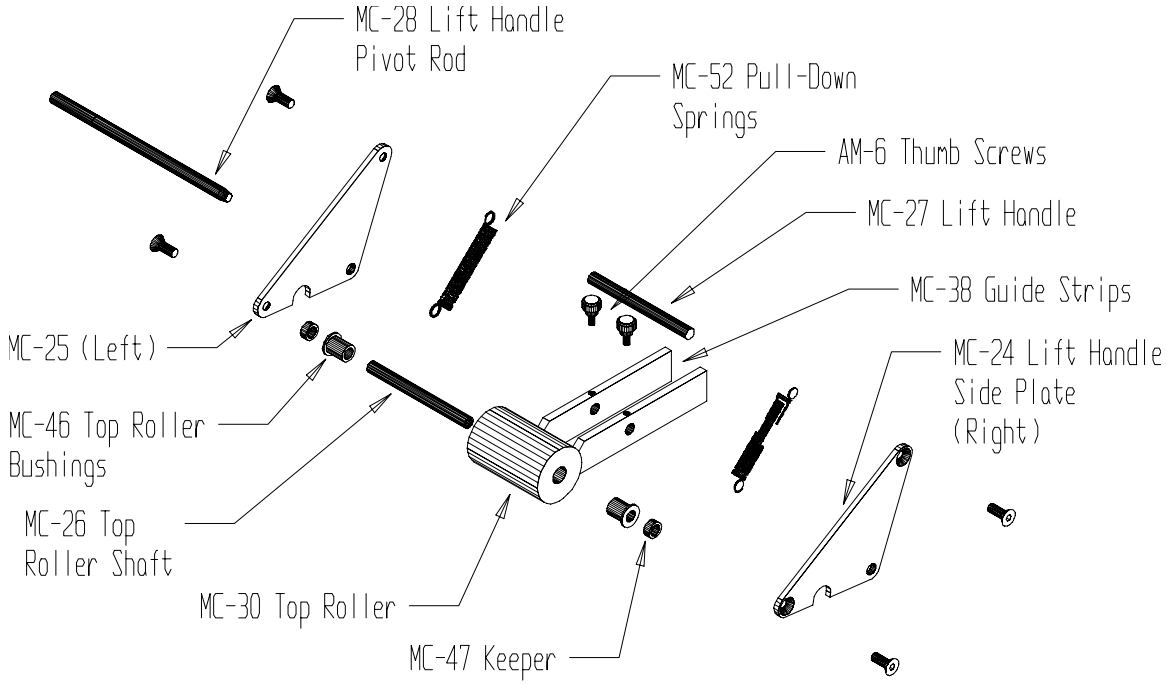
Enclosure and Electronics



MC-1	Base Plate	None
MC-4	Right Side Plate	(2) #4 Phillips Head Sheet Metal Screws (1) 10-32 x 3/8" Button Head Screws
MC-5	Left Side Plate	(2) #4 Phillips Head Sheet Metal Screws (1) 10-32 x 3/8" Button Head Screws
MC-6	Control Panel Top	(4) #4 Phillips Head Sheet Metal Screws (2) 10-32 x ¼" Button Head Screws
MC-8	Back Cover	(2) 10-32 x ¼" Button Head Screws (2) #4 Phillips Head Sheet Metal Screws
MC-39	Stepper Drive	(4) ¼-20 x 3/8 Button Head Screws
MC-53	Transformer	(2) 10-32 x 3/8" Button Head Screws
MC-54	Power Cord Strain Relief	Friction Fit
MC-55	Fuse Holder and Cap	Panel Mount
MC-57	Fuse	None
MC-KP	Keypad	(4) 4-40 x ½" Button head Screws (4) 4-40 hex spacers (4) 4-40 nuts
MC-KP-O	Keypad Overlay	Adhesive
MC-PCB	Main Circuit Board	(4) 4-40 x ½" Button head Screws (4) 4-40 hex spacers (4) 4-40 nuts
MC-LCD	LCD Display	(4) 4-40 x ½" Button head Screws (4) 4-40 hex spacers (4) 4-40 nuts

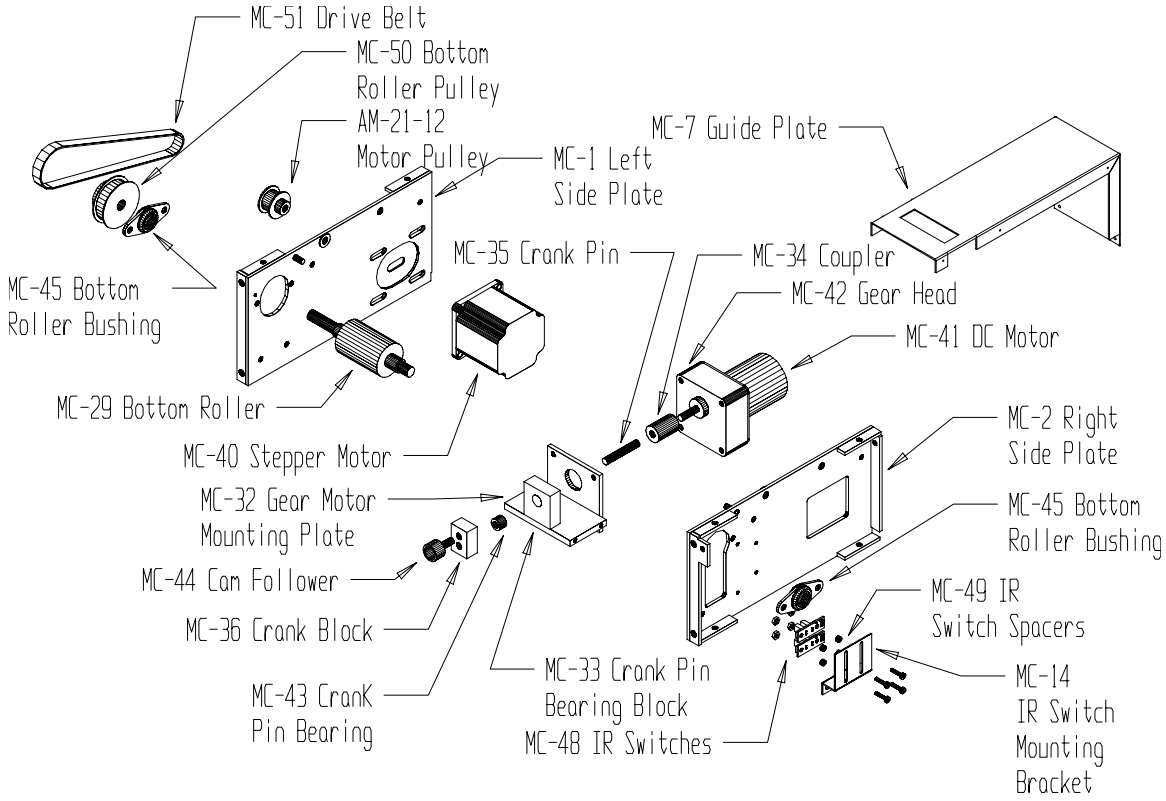
CP-3	Rubber Feet	Adhesive
CP-4	Main Power Switch	Panel Mount
CP-12	Bridge Rectifiers	(2) 10-32 x 5/8” Button Head Screws
		(2) 10-32 nuts

Top Roller Lift Set



MC-24	Lift Handle Side Plate Right	None
MC-25	Lift Handle Side Plate Left	None
MC-26	Top Roller Shaft	(2) 10-32 x ½" Flat Head Screws
MC-27	Lift Handle	(2) 10-32 x ½" Flat Head Screws
MC-28	Lift Handle Pivot Rod	None
MC-30	Top Roller	None
MC-38	Guide Strips	(2) AM-6 Thumb Screws
MC-46	Top Roller Bushings	Friction Fit
MC-47	Keepers	Friction Fit
MC-52	Pull Down Springs	None

Inside Frame Assembly

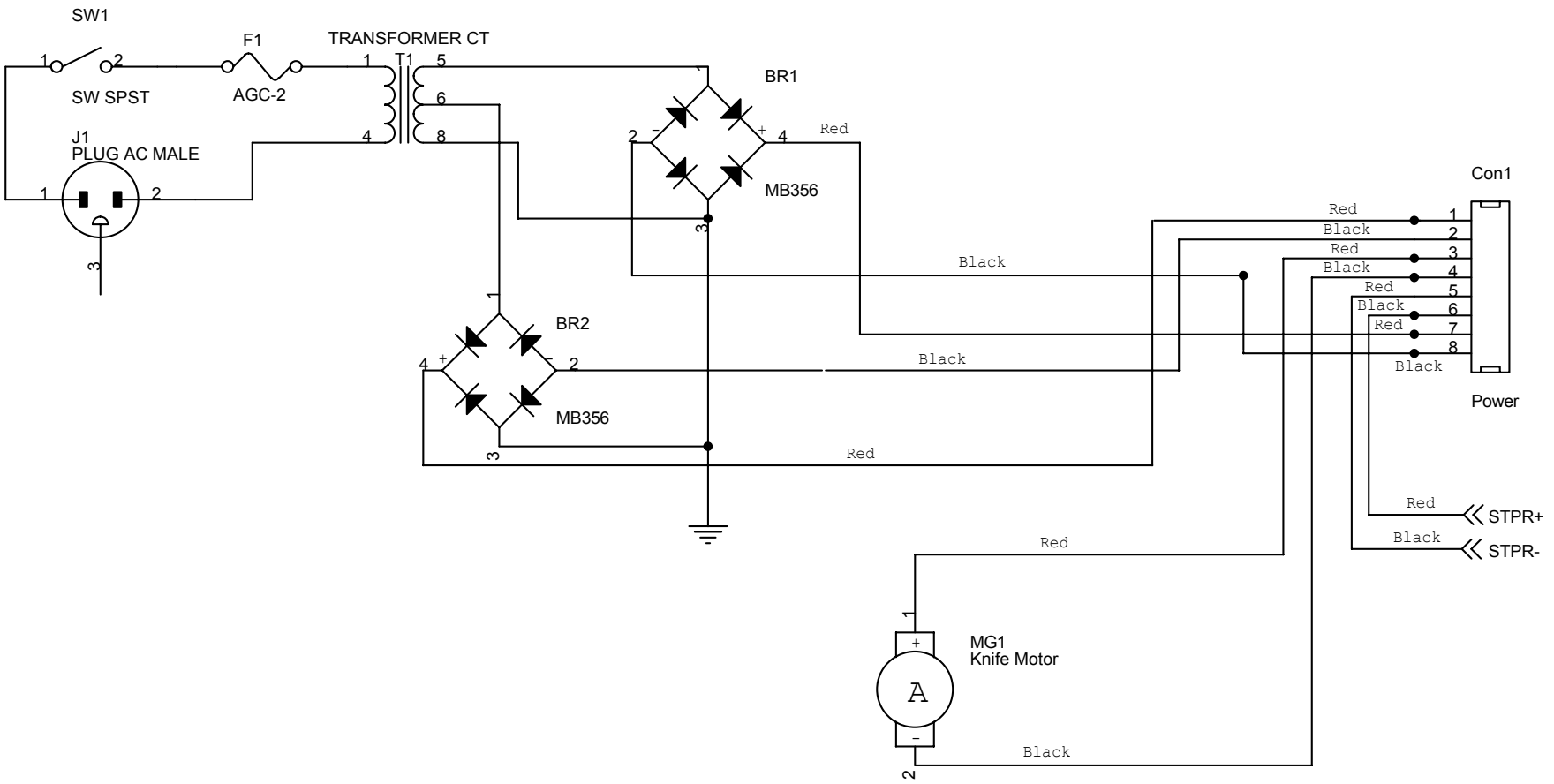


MC-2	Right Side Plate	(2) 10-32 x 3/8" Button Head Screws
MC-3	Left Side Plate	(2) 10-32 x 3/8" Button Head Screws
MC-7	Guide Plate	(6) #6 x ½" Sheet Metal Screws
		(2) #4 x ¼" Sheet Metal Screws
MC-14	IR Switch Mounting Bracket	Gear Motor Mounting Plate Screws
MC-29	Bottom Roller	None
MC-32	Gear Head Mounting Plate	(4) 10-32 x ½" Button Head Screws
MC-33	Crank Pin Bearing Block	(2) 10-32 x ½" Button Head Screws
MC-34	Coupler	(2) 10-32 x ¼" Set Screws
MC-35	Crank Pin	None
MC-36	Crank Block	(2) 10-32 x ¼" Set Screws
MC-40	Stepper Motor	(4) ¼-20 x ½" Button Head Screws
MC-41	DC Motor	(4) 10-32 x 1 ½" Screws
		(4) 10-32 nuts
MC-42	Gear Head	above
MC-43	Crank Pin Bearing	Friction Fit
MC-44	Cam Follower	(1) 10-32 nut
MC-45	Bottom Roller Bushings	(2) 10-32 x 1/4" Button Head Screws ea.
MC-48	IR Switches	(4) 4-40 x ½" Phillips Screws
		(4) 4-40 nuts

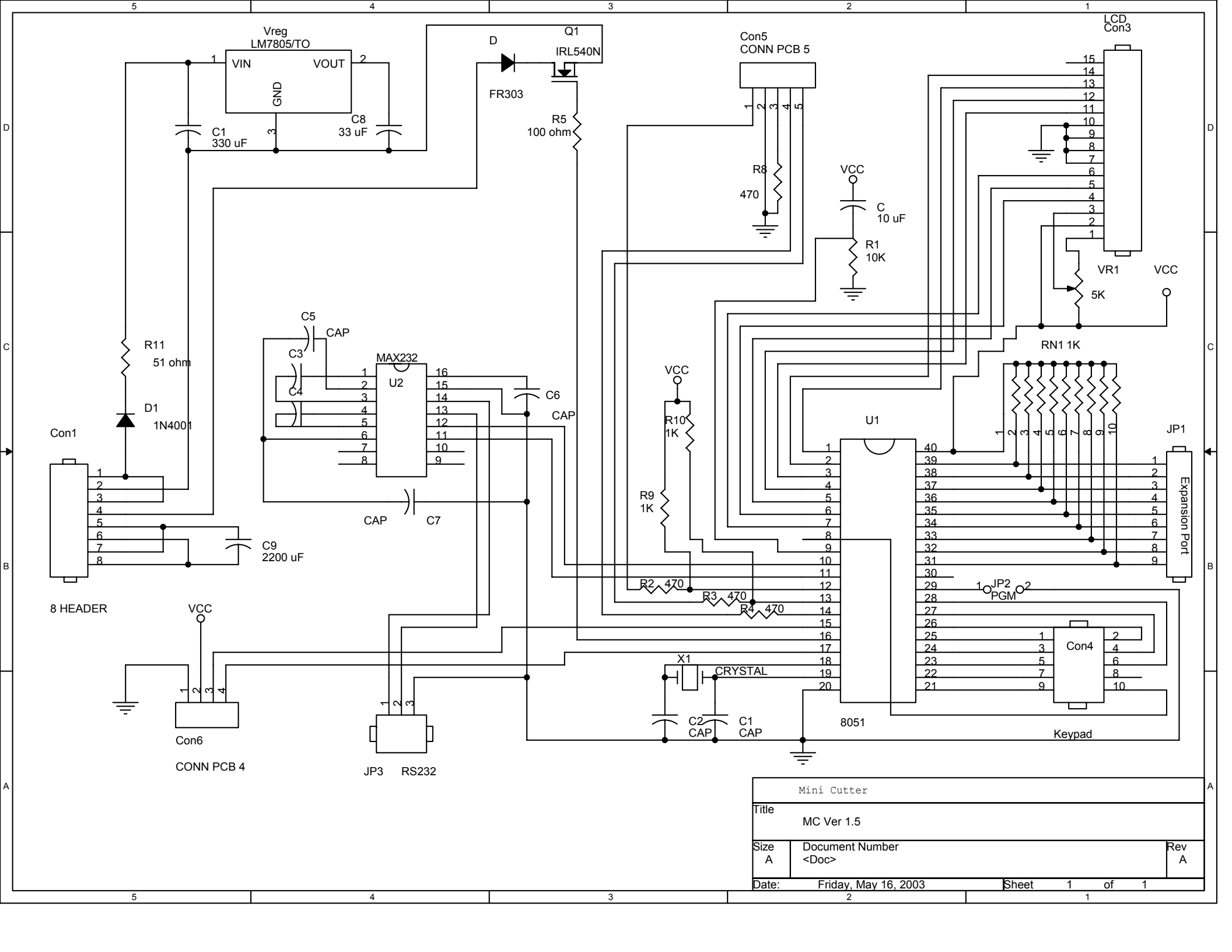
MC-50	Bottom Roller Pulley	Set Screws
MC-51	Drive Belt	None
AM-21-12	Motor Pulley	Set Screws

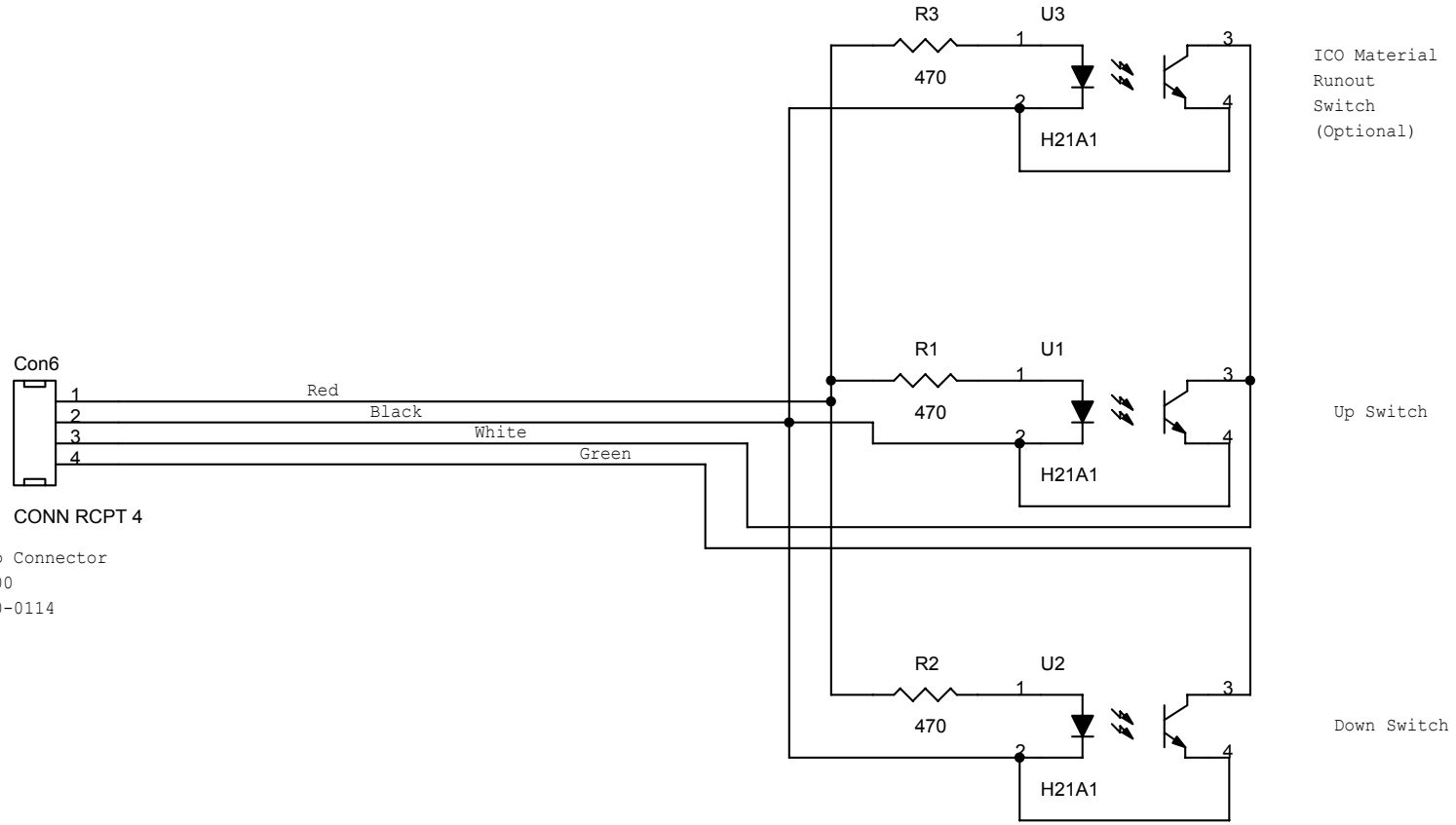
Other Parts Not Listed

MC-56	6 Pos Terminal Block
MC-58	Power Cord
MC-59	Main Power Harness
MC-60	Stepper Drive Control Cable
MC-61	IR Switch Cable
MC-62	Keypad Cable

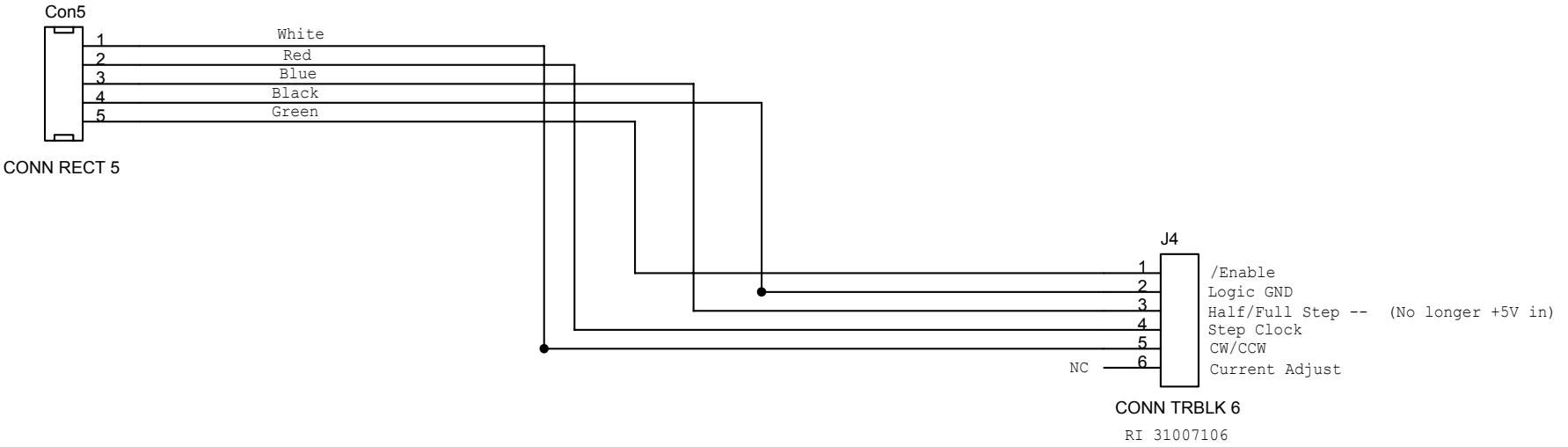


Mini Cutter		
Title: Power Supply		
Size: A	Document Number: <Doc>	Rev: A
Date: Thursday, May 15, 2003	Sheet 1 of 1	

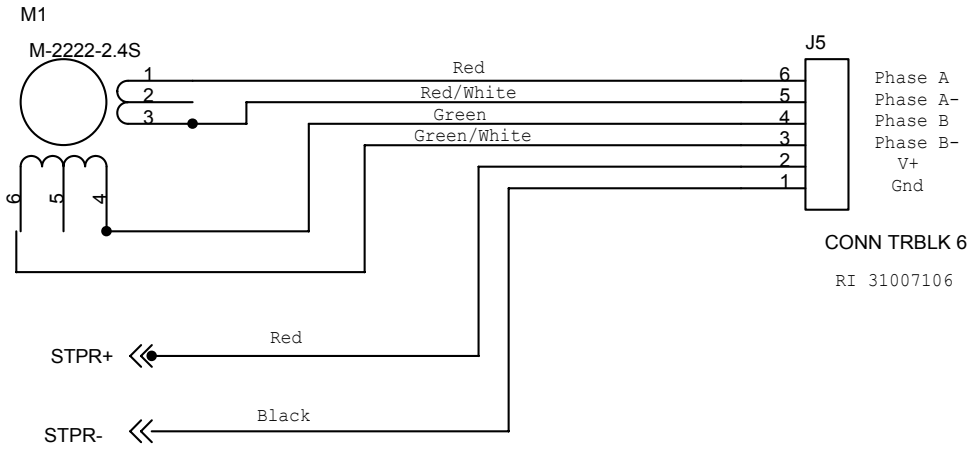

Vreg
LM7805/TO
VIN
VOUT
GND
C1
330 uF
C8
33 uF
D
Q1
IRL540N
FR303
R5
100 ohm
Con5
CONN PCB 5
R8
470
VCC
C
10 uF
R1
10K
LCD
Con3
VR1
5K
VCC
RN1 1K
R11
51 ohm
D1
1N4001
C5
CAP
C3
C4
MAX232
U2
C6
CAP
CAP
C7
Con1
8 HEADER
C9
2200 uF
VCC
R10
1K
R9
1K
U1
JP1
Expansion Port
R2 470
R3 470
R4 470
JP2
PGM
Con4
X1
CRYSTAL
C2
CAP
C1
CAP
8051
Keypad
VCC
Con6
CONN PCB 4
JP3
RS232
Mini Cutter
Title
MC Ver 1.5
Size
A
Document Number
<Doc>
Rev
A
Date:
Friday, May 16, 2003
Sheet
1
of
1



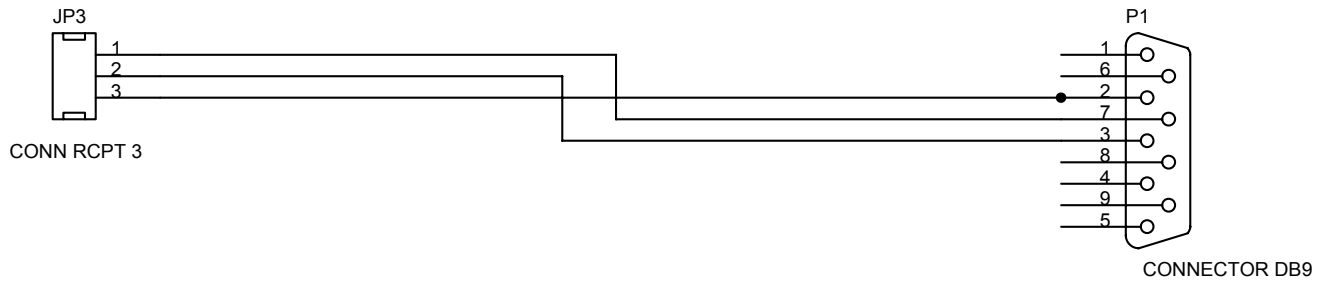
Title	IR Cable for Knife and ICO	
Size A	Document Number <Doc>	Rev A
Date: Wednesday, May 14, 2003	Sheet 1 of 1	



	Mini Cutter	
Title	Stepper Drive Control Cable	
Size A	Document Number <Doc>	Rev A
Date: Thursday, May 15, 2003	Sheet 1 of 1	



	Mini Cutter	
Title	Stepper Motor Cable	
Size A	Document Number <Doc>	Rev A
Date: Thursday, May 15, 2003	Sheet 1 of 1	



Mini Cutter		
Title: RS232 Cable		
Size: A	Document Number: <Doc>	Rev: A
Date: Thursday, May 15, 2003	Sheet 1 of 1	

Contacting TRC

TRC Industries can be reached via:

Telephone (417) 667-4477
Fax (417) 667-4039
Email sales@trcind.com

The best place to get technical information and helpful troubleshooting is our web site on the internet. http://www.trcind.com
Our website is constantly changing, so please visit often.

Firmware Revisions

MC Ver.

1.0 Is the initial release in May 2003
1.1 This version fixed the "Out of Material!" error when the knife was not in the up position when starting the feeding cycle. If the knife is not in the up position, it will ask you to press any key to continue and then cycle the knife. 09/17/03