

Parts lists			
Air Bearing Parts		Base Parts	
Part No.	Description	Part No.	Description
CM-A01	Main Housing	CM-B01	Base
CM-A01B	Adjusting Screw	CM-B02	Bearing retainer
CM-A02	Sleeve	CM-B03	Handle
CM-A03	Spindle	CM-B04	Dial (inch)
CM-A03R	Retaining ring	CM-B04	Dial (metric)
CM-A06	Drawbar	CM-B05	X-axis lead screw (inch)
CM-A07	Indexing ring	CM-B05M	X-axis lead screw (metric)
CM-A07B	Blank indexing ring	CM-B06	Y-axis lead screw (inch)
CM-A08	Indexing ring set screw	CM-B06M	Y-axis lead screw (metric)
CM-A09	Stop pin	CM-B07	Dovetail way
CM-A09A	Stop pin handle (Spring pin)	CM-B08	X-axis table
CM-A10	Handle lever	CM-B09	Y-axis table
CM-A11	Handle knob	CM-B10	Y-axis gib
CM-A12	Rocker spring	CM-B11	X-axis gib
CM-A13	Rocker push pin	CM-B12	Lead screw nut (inch)
CM-A14	Pivot screw	CM-B12M	Lead screw nut (metric)
CM-A15	Pivot head	CM-B14	Transformer cover
CM-A16	Swivel base top plate	CM-B15	Transformer
CM-A17	Swivel base	CM-B16	Halogen light
CM-A17B	Buckle ring	CM-B17	Halogen light bulb
CM-A18	Guide pin	CM-B17A	Halogen light lens
CM-A19	T-bolt	CM-B20	Oil inlet
CM-A20	Square nut		
CM-A21	Stylus base		
CM-A22	Stylus bracket		
CM-A23	Screw sleeve		
CM-A24	Stylus		
CM-A25	Air inlet		
CM-50	Air filter		

**AMERICAN ROTARY TOOLS CO. (ARTCO TOOLS)**  
**250 WEST DUARTE ROAD, #E**  
**MONROVIA, CA USA 91016-7464**

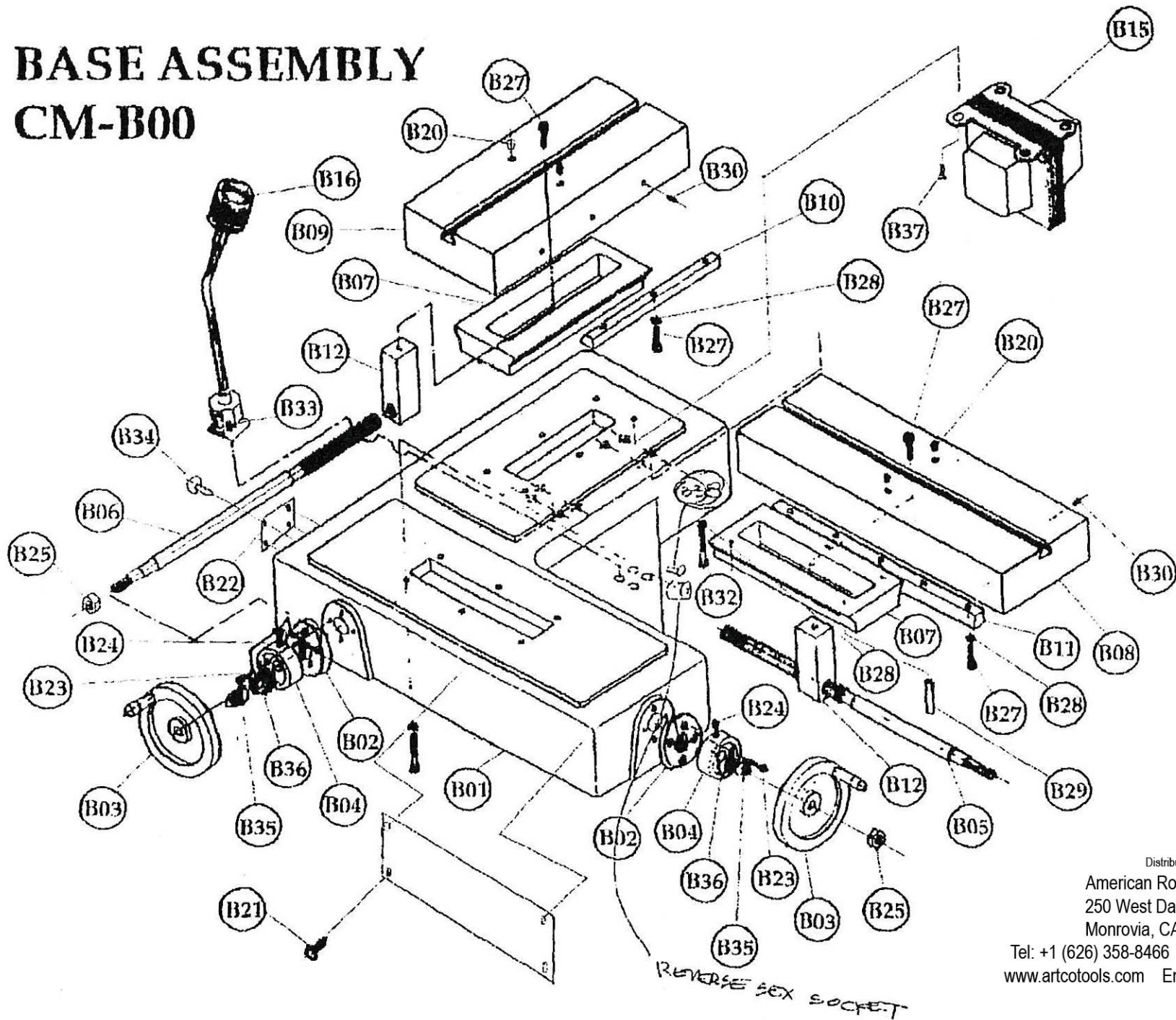
**Tel: (626) 358-8466 Fax: (626) 358-0076**  
**Toll Free USA Tel: (800) 624-2212 Fax: (800) 624-2210**  
**Email: [info@artcotools.com](mailto:info@artcotools.com)**

Motor/spindle parts			
Part no.	Description	Part no.	Description
CM-M01	Motor	CM-M18	Spacer
CM-M02	Spindle housing	CM-M19	Elevation screw bolt
CM-M03	Spindle	CM-M20	Motor base plate
CM-M04	Bearing spacer	CM-M21	Handle cam lock
CM-M05	Wheel hub plate	CM-M22	Handle axle
CM-M06	Wheel guard block	CM-M23	Handle axle cam
CM-M07	Wheel guard	CM-M24	Handle axle cam screw
CM-M08	Spindle side plate	CM-M25	Anchor block
CM-M09	Support axle	CM-M26	Angle vernier
CM-M10	Rear support axle	CM-M27	Motor coupling
CM-M11	Indicating support axle	CM-M28	Coupling joint
CM-M12	Elevation arm	CM-M29	Handle nut
CM-M13	Elevation arm sleeve	CM-M35	Electric power cords
CM-M14	Elevation screw	CM-M50	Complete motor/spindle assembly
CM-M14E	Etv-6 clip	CM-M52	Spindle bearing # 5205z
CM-M15	Elevation handle	CM-M62	Spindle bearing # 6205z
CM-M17	Bottom elevation arm sleeve		

## ACCESSORIES

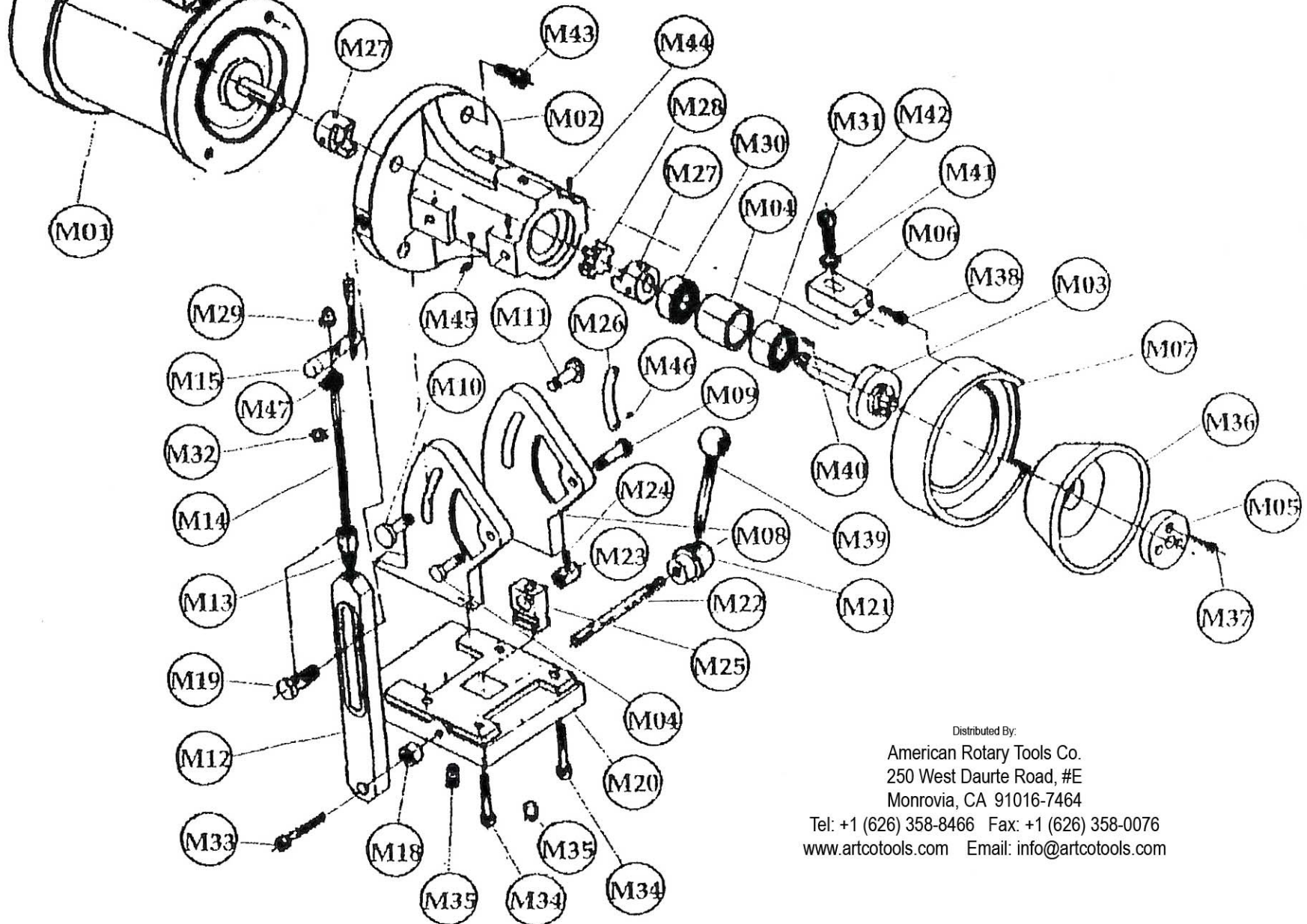
Part no.	Description	Part no.	Description
CM-02	Cuttermaster air bearing	CM-22	5" cup blue ceramic wheel
CM-03	Radius attachment	CM-23	5" cup pink alum. oxide wheel with 3/4" face
CM-04	Center finder	CM-25	6" dish blue ceramic wheel
CM-05P	Pneumatic finger	CM-26	6" dish pink alum ox. wheel
CM-06	Drill attachment	CM-30	5" cup diamond wheel
CM-08	Taper attachment	CM-31	5" cup CBN wheel
CM-10	Deluxe 2 door cabinet	CM-32	5" cup CBN wheel with 3/4" wide face
CM-11	Workholding fixture	CM-33	6" dish diamond wheel
CM-12	Diamond dresser	CM-34	6" dish CBN wheel
CM-15	Z-axis	CM-C1	Cam attachment, for uniflute countersinks
CM-20	5" cup pink aluminum oxide wheels	CM-C1P	Cam attachment, for countersinks & taps
CM-21	5" cup alum. oxide wheel with 3/4" face	CM-M70	Spindle extension

# BASE ASSEMBLY CM-B00



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 American Rotary Tools Co.  
 250 West Daurte Road, #E  
 Monrovia, CA 91016-7464  
 Tel: +1 (626) 358-8466 Fax: +1 (626) 358-0076  
 www.artcotools.com Email: info@artcotools.com

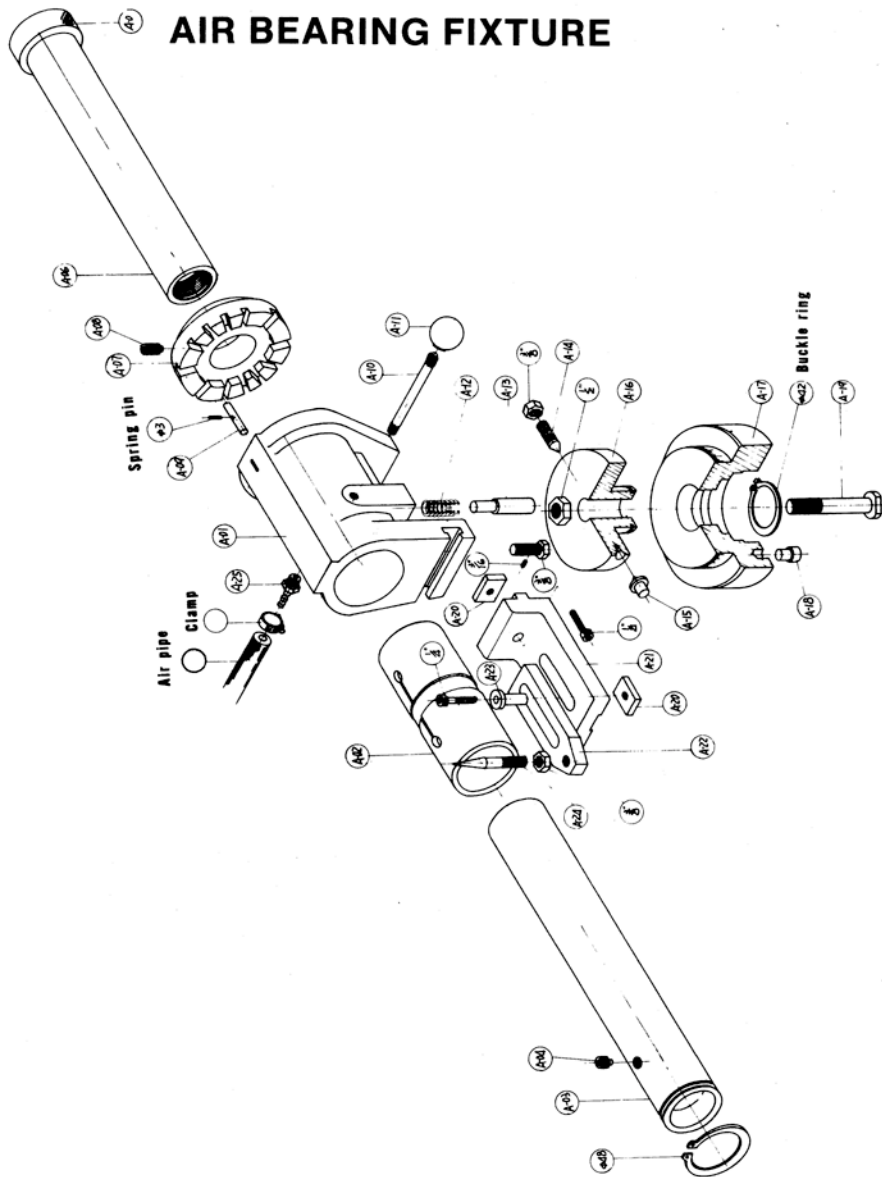
# MOTOR & WHEEL SPINDLE CM-50



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American Rotary Tools Co.  
250 West Daurte Road, #E  
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Tel: +1 (626) 358-8466 Fax: +1 (626) 358-0076  
www.artcotools.com Email: info@artcotools.com



## General Troubleshooting

Problem	Cause	Solution
End mill does not cut properly	<ol style="list-style-type: none"> <li>1. The stylus height is not set to the centerline of the air spindle</li> <li>2. The clearance angles need to be adjusted to the material you're cutting.</li> </ol>	<p>Reset stylus height</p> <p>If you're cutting harder materials, use 1-2 degrees less clearance. If softer materials, use 1-2 degrees more.</p>
End mill is not concentric	<ol style="list-style-type: none"> <li>1. Inner air spindle area where the collets seats are not clean.</li> <li>2. Machine components may be loose, causing movement during the grinding process.</li> <li>3. Collet is not concentric.</li> </ol>	<p>Clean both the collet, and the inner air spindle.</p> <p>Check the air bearing pivot screws, gib screws (backside of the table), and the bolts in the middle of the t-slots; adjust or tighten as needed.</p> <p>Check the runout of the collet, and replace it as necessary.</p>
Air Spindle movement is not free	<ol style="list-style-type: none"> <li>1. Dirty air bearing</li> <li>2. PSI lower than 90.</li> <li>3. Too cold</li> </ol>	<p>Clean it <b>regularly</b> !!</p> <p>Increase the air pressure</p> <p>Warm the air bearing up, or relocate it to a warmer climate.</p>
Machine vibration	<ol style="list-style-type: none"> <li>1. Wheel out of balance</li> </ol>	<p>Replace the wheel</p>
Flutes have chatter marks when grinding, or poor finish.	<ol style="list-style-type: none"> <li>1. The end mill is being pulled past the wheel too fast when ground.</li> <li>2. The wheel needs dressing</li> <li>3. Machine components have come loose, causing movement during grinding.</li> <li>4. Need a better wheel</li> </ol>	<p>Use a steady, slow, smooth movement.</p> <p>Dress the wheel</p> <p>Check components as shown above</p> <p>CBN wheels provide the best finish.</p>