

**O. S. WALKER MICROPROCESSOR CHUCK CONTROL
MODEL MSB SERIES**

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THIS MANUAL USES TWO SYMBOLS TO ATTRACT YOUR ATTENTION TO IMPORTANT INFORMATION:



SAFETY WARNING

Failure to heed a safety warning can result in injury to yourself or others.

The purpose of the safety symbol is to attract your attention to possible hazards. The symbol and the explanation with it deserve your full attention and understanding. A safety warning alone does not eliminate a hazard, and the instruction or warning it gives is not a substitute for proper accident prevention measures.



NOTE:

This symbol highlights information useful to the proper operation of equipment.



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The O. S. Walker Microprocessor Chuck Control, Model MSB, has four functions: Full Holding; Variable Holding; Residual Holding; and Release. Each function has its own pushbutton switch and light. The controller comes equipped with 115 volt line cord and chuck cord attachments, a potentiometer that adjusts the Variable current from 0-100%, and adjustments for the length and number of pulses per Release cycle. Model MSB1 will power any chuck that requires 150 watts or less; MSB3 will power any chuck that requires 300 watts or less; MSB5 will power any chuck that requires 500 watts or less.

When power is first applied to the control, or if AC power is interrupted while the control is running, the control returns to the mode of operation selected just prior to loss of power. This allows easy resumption of machining after an AC line dropout. See Page 7 for a diagram of the control panel.

FULL HOLDING

In the Full Holding position, full voltage is supplied from the control as soon as the operator selects this function on the front panel. The indicator light for the Full holding function is illuminated when the selection is made.



NOTE: : Full holding has equivalent holding force to 100% on the Variable holding control knob.

VARIABLE HOLDING

When the operator presses the Variable holding button, the output voltage of the control can be adjusted from zero to full with the Variable control knob. When switching from Variable holding to Release, the number of release pulses decreases proportionately.

A varying amount of Residual hold can be achieved by turning the Variable control knob to zero from its previous holding position without pressing the Residual button.

RESIDUAL HOLDING

The output of the control is reduced to zero when the operator puts the control in the Residual position. The chuck control turns the magnet fully ON for a short period of time, thus leaving recognizable residual holding power in the chuck; this is called True Residual. During this brief pulse, the indicator light will be OFF, but otherwise will be ON until the operator selects another function.


RELEASE

Selecting the Release function initiates an automatic demagnetization cycle. During the demagnetization cycle, the output voltage produced by the control is reduced from full to zero in a pre-determined number of decreasing pulses (see page 4). The polarity of these pulses alternately reverses from negative to positive as the magnitude of the voltage decreases. The Walker Microprocessor Chuck Control can generate a maximum of 16 pulses per Release cycle, but is set at the factory for eight. The Release light will flash on and off to indicate that demagnetization is taking place, and will remain OFF when the cycle is complete. Because it takes almost as long for the magnetic field of a chuck to decay as it does to build up, the control delivers output voltage to the chuck for only a percentage of the duration of a pulse.

The duration or period of each pulse is controlled by a potentiometer that is accessible without disassembling the unit, and can be adjusted by the operator with a small, straight blade, insulated screwdriver. Clockwise adjustment of this potentiometer, VR2, which is located next to the AC input cord (see Page 7), will result in more complete release of larger workpieces. Counter-clockwise adjustment will decrease the cycle time and will allow for the most efficient use of the magnetic chuck.

The time between pulses is automatically adjusted by the control for the optimum Release cycle time (patent pending).

O. S. Walker's Model MSB also has an internal adjustment for the number of pulses per Release cycle. This adjustment is provided so that the operator can determine the right amount of pulses it takes to get the fastest, most complete release of a part (in general, magnetically soft parts can be released with 3 to 5 pulses, while magnetically hard parts may require 6 to 12 pulses for a complete release).

 **SAFETY WARNING:** THIS ADJUSTMENT MUST BE MADE BY QUALIFIED SERVICE PERSONNEL ONLY. TO AVOID ELECTRIC SHOCK, WHILE THE CONTROL IS OPEN THE OPERATOR SHOULD NEVER TOUCH ANY PART OF THE CIRCUITRY OTHER THAN THE POTENTIOMETER.

To adjust the number of steps per Release cycle, first remove the four screws (size 8-32) from the bottom of the unit and pull the unit halfway apart, which exposes potentiometer VR1 on the left side of the control. Turn VR1 clockwise with a small, straight blade insulated screwdriver to increase the number of pulses, counter-clockwise to decrease the number of pulses. When the adjustment has been made to the operator's satisfaction, push the unit together and replace the four screws.

Electronic Protective Circuits:

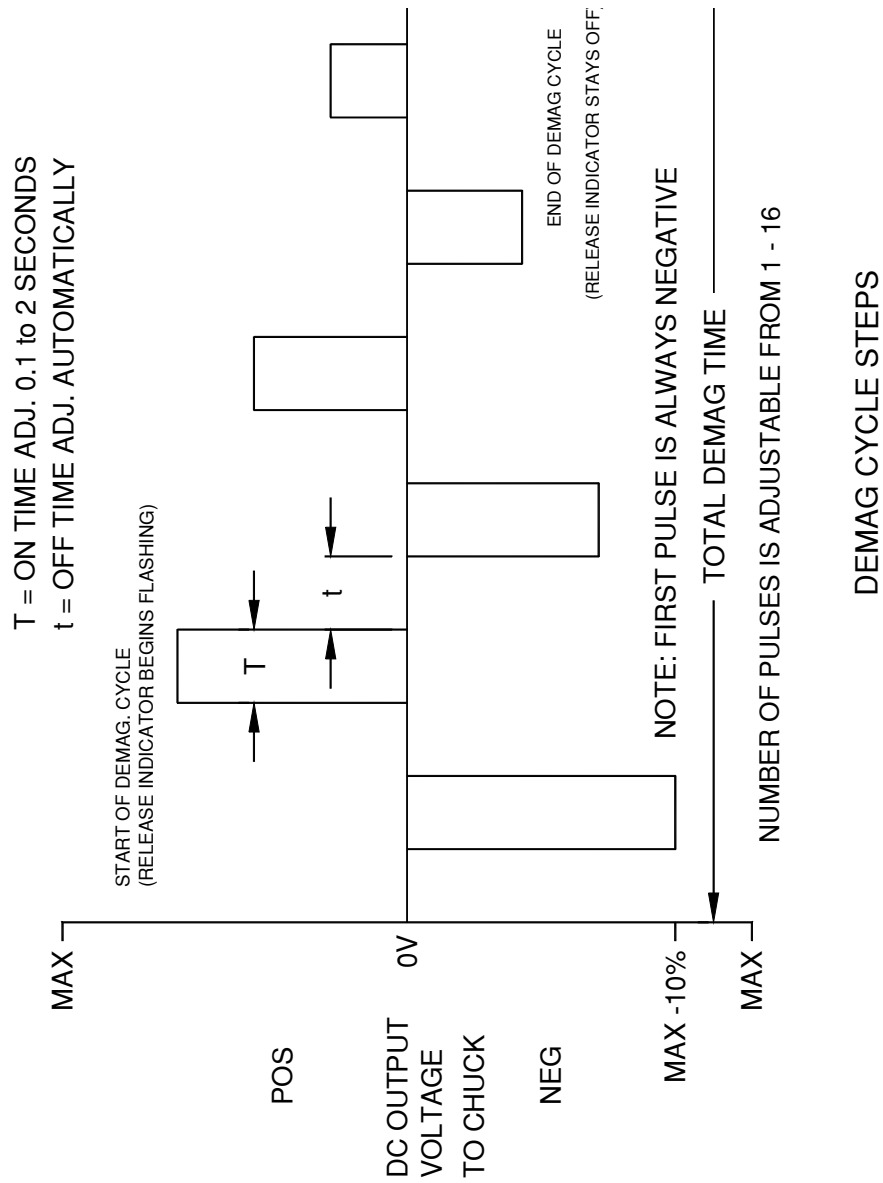
If the Chuck Control is overloaded by a short circuit or a chuck too large for this control's rating, the control will sense this condition and will attempt to protect itself. The DC output power will be turned off, all indicator lights will flash on and off, and the control will not respond to any function selection. This will continue until AC power is removed from the control and the problem is corrected. If the control is switched into sudden high power operation with too large a load, the AC fuse may blow before the electronic protective circuits can function.

GROUNDING AND SHIELDING

The base of the chuck is to be grounded through the ground wire of the DC chuck cable. All electrical chassis' must be safety grounded.

On all units operating from 115VAC power, it is also assumed that one side of the 115V AC line will be connected to the safety ground at the AC source. This is normally done in the wiring of the building. If the 115VAC is provided through an isolation transformer in the machining equipment, then one side of this 115VAC should be tied to safety ground in the equipment. If not, the control may be subject to interference from electrical noise on the floating AC input. Grounding either side is satisfactory.


The chuck control's DC power output leads may be routed with other 115V level power leads in the machine. They must not be routed in the same wire bundle with 400V or other high voltage leads.



See Page 7 for a dimensional diagram of the control.

1. Remove the two 8-32 screws that hold the wall bracket to the control.
2. Mount the wall bracket to a vertical surface using the set of mounting holes.
3. Slide the control onto the wall bracket and fasten using the two 8-32 screws.
4. Connect the chuck cord to the chuck with the twist lock connector.
5. Connect the power cord to the 115V AC outlet.

 **SAFETY WARNING:** NEVER DISCONNECT THE CHUCK WHILE POWER IS APPLIED TO THE UNIT, SINCE SHOCK FROM INDUCTIVE VOLTAGE MAY OCCUR.

 **NOTE:** MSB Controls are not designed for use with a Remote Interface.

SPECIFICATIONS - MSB SERIES

Input Voltage: 115V AC Nom. (100-130V AC) 50/60Hz
(**MSB1** - 200VA **MSB3** - 400VA **MSB5** - 600VA)

Output Voltage: 115V DC
MSB1 - 150W **MSB3** - 300W **MSB5** - 500W

Ambient Temperature: 120 degrees Fahrenheit, maximum

Size: **MSB 1 & 3** - 7.25" W x 7.25" D x 10" H
MSB 5 - 7.25" W x 9.25" D x 10" H

Weight: **MSB1** - 11 lbs. **MSB 3** - 13 lbs. **MSB 5** - 16 lbs.

Mounting Holes: .31" dia.; 5.5" vertical spacing (2 holes)

Release Cycle: Number of Release Steps: 1-16, factory set to 8.

Release Pulse Time: 0.1- 2 seconds, factory set to 1 sec.

Time between pulses ("OFF" Time): Auto. adjusted

MSB1 PART NUMBER: DXM-9459

MSB3 PART NUMBER: DXM-9460

MSB5 PART NUMBER: DXM-9455, DXM-9461, DXM-9525

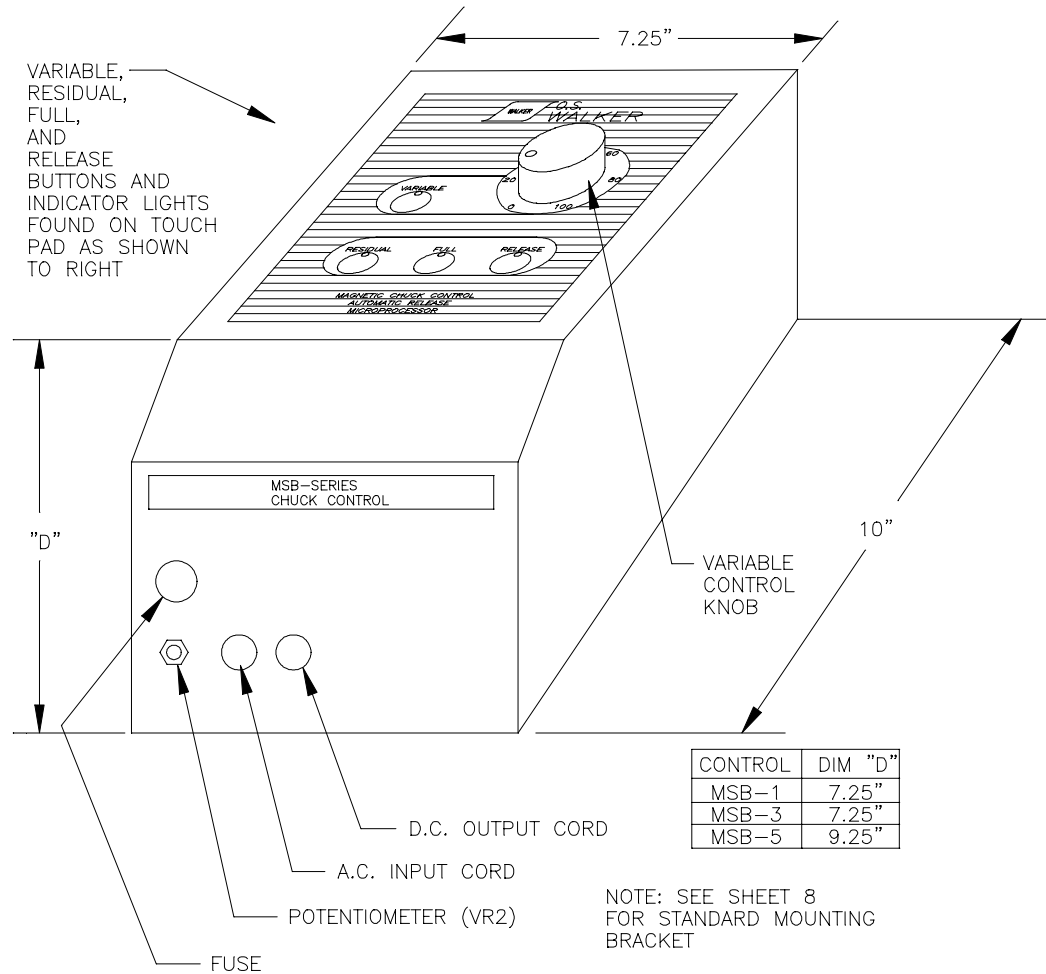


FIGURE 1
MODEL MSB SERIES – 115 VAC, 115 VDC

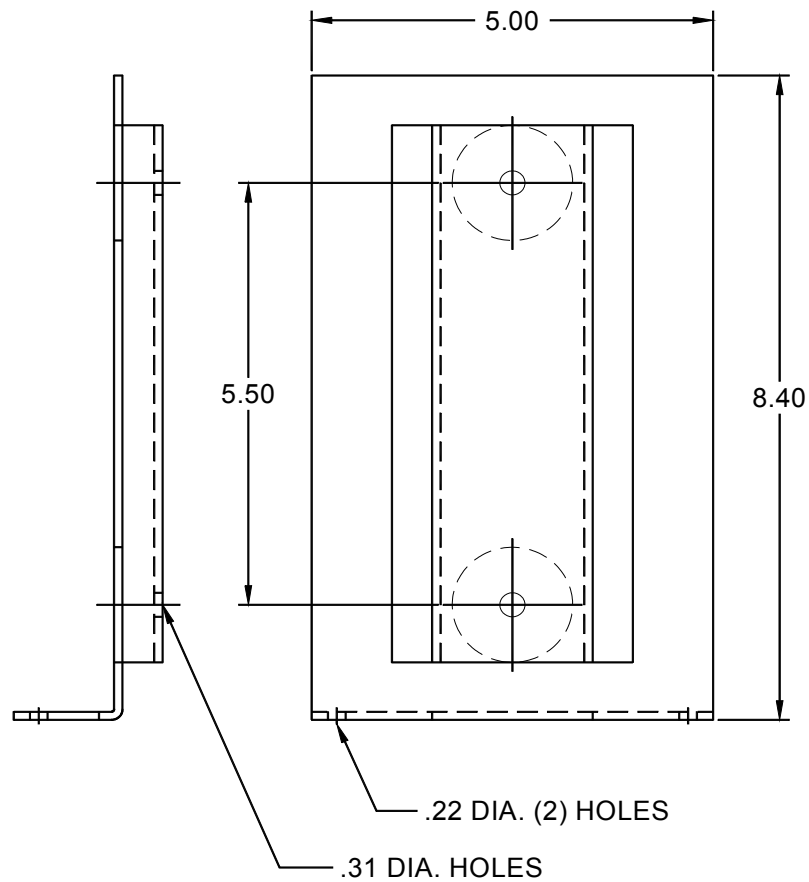


FIGURE 2
STANDARD MOUNTING BRACKET
FOR MSB SERIES CHUCK CONTROLS

SPARE PARTS LIST

DESCRIPTION	MSB-1	MSB-3	MSB-5
Control PC Board	39-DD14401	39-DD14328	39-DD14328
Fuse	18-1124	18-1219	18-1219
Transformer (T2)	-----	12-0267	12-0267
Ribbon Cable	10-5418	10-5418	10-5429
Switch Panel Membrane Assembly	56-DD14591	56-DD14591	56-DD14591

RETURN AND REPAIR INSTRUCTIONS

For warranty and non-warranty repairs on any part of your chuck system, contact O.S. Walker Company TOLL FREE at 1-800-W-MAGNET. A return authorization number will be issued along with any applicable packaging and shipping instructions. After receipt of the components to be repaired, O.S. Walker Company will perform an inspection and provide an estimate of the repairs costs at no charge to the customer. Authorization from the customer must be obtained by O.S. Walker Company before repairs are made. Transportation charges, both to and from the factory, are the sole responsibility of the customer.