

MASTER CASTER INSTRUCTIONS

10/1/91

MACHINE ACCESSORIES

- A. Sprue deflector baffle to be hung from the existing baffle to help separate the sprues and bullets.
- B. Wood swivel handle to be mounted after unpacking. Screw the wood handle into the operating arm until snug then back 1/2 turn and tighten the setscrew. This allows the handle to swivel during operation.
- C. Roll pin drivers for changing molds.
- D. Four (4) extra 3/16 X 3/4" stainless steel roll pins.
- E. Silicone lube sticks for lubrication.
- F. Sample of our Magma flux. Looks like an ice cube. Add a piece the size of a small pea to your alloy. Stir in deeply. Scrape the sides and bottom of the melting pot. When the smoke stops skim the dross and discard. Dross must be disposed to a recycle center, do not send to the landfill.
- G. Sample of MASTER LUBRICANT, apply this to the mold when it is hot. MASTER LUBRICANT is also an excellent rust preventative for mold storage.
- H. Don't throw away the expanded metal snap on guard or you will end up with a hot sprue in your lap.

SETUP

The MASTER CASTER requires a sturdy bench for mounting. The bench should be bolted to the wall or floor.

There are two mounting options for the MASTER CASTER:

- A. It can be safely mounted with the center and rear bolt holes to hang the front section of the machine over the edge of the bench so that the bullets and sprues drop in front of the bench.
- B. It can be mounted using all six-bolt holes. A hole will be needed below the forward open section of the machine for the bullets and sprues to drop through and be caught below.

Plug the pot into the appropriate 120V or 240V outlet. Be sure the circuit is grounded by means of a three-wire plug, or run a separate ground wire from the machine to a good ground. The circuit you are plugged into should be fused or have a circuit breaker with a 15A capacity. Initially fill the pot with smaller pieces of lead or alloy until molten, then fill half full. It is not necessary to keep the pot full to the top. It is safer to use half full and will cast better. When half-full and cold, the pot should melt down and come to casting temperature in 15 to 30 minutes.

Ground Fault Interrupter (GFI) circuit breakers can be a problem with the MASTER CASTER pot. Try not to operate the pot on a GFI circuit. The large band heater tends to absorb moisture when cooling; this causes the GFI breaker to become sensitive. For example, if you were to plug the pot into a non-GFI circuit for even a few minutes, then plug into a GFI circuit, the pot would then melt normally. This is not a safety problem it is just the nature of large band heaters.

Re-heating a full pot of lead can cause the pour spout to leak; there is no cure for this. With the operating handle down a small size bread-baking pan placed under the pour spout will catch the drip. Once the pot is molten the drip should stop. If the dripping continues there may be foreign deposits on the valve stem and seat, a light tap on the top of the valve stem should stop the leak.

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OPERATION

Do not operate the machine cold. When the alloy is molten, move the handle to its extreme upward position until it stops, then depress the pour lever and hold until the sprues fill and join together. A large sprue helps the base of the bullets fill and aids in sprue release when cut off.

Pull the handle slowly toward you until the sprue chills enough to shear without pulling holes in the base of the bullets. Then with a rapid motion, pull the handle to its full down position. At this time the sprue and bullets should release from the mold. If a bullet should happen to stick, raise the operating handle about two inches and bring it down with a hard rap. When sprue and bullets are clear of the mold you again move the handle to the upward position and repeat the operation.

In our shop we find that a fifteen-second interval casts a 38 - 158 grain bullet without overheating the mold. A fifteen-second interval computes to 480 bullets per hour. By experimentation you will find your own ideal casting interval. Larger bullets will require a longer interval and small bullets can be cast more quickly.

CHANGING MOLDS

With the pin driver supplied, drive the two roll pins downward through the mold carrier, slide the mold out and slide your new mold back into the grooves of the carrier arms, then with the other pin driver, drive the roll pins back into the top of the carrier arms.

ADJUSTMENTS

After changing a mold you may need to make some adjustments. All adjustments are simple. Be sure the guide rails are just tight enough on the mold carriers to keep the mold halves from pinching the bullets when the sprue is being sheared. Be sure the sprue cutter plate is resetting exactly to the center of the mold cavities and the lead pours exactly through the center of the holes in the sprue plate. This may be accomplished by a combination of adjustments, moving the pot from side to side. Changing the stop position on the arm and by adjusting the sprue-closing bracket under the pot and the sprue cutter stop on the front of the machine.

The lead-pouring rate is also important. Slow pour causes a stacked looking bullet and too fast a pour will cause air to be trapped in the mold causing a pinhole in the base and a rounded base on the bullet. Experiment with the lead level in the melting pot and the amount you open the valve.

During lead pouring if the lead streams appear in a vortex, (spinning) decrease the pour. Crooked streams of lead indicate oxides building up in the pour spouts (orifice plate). Eventually the orifice plate and the valve stem will need to be removed to clear any oxidation build up. All of these valve parts are made of high quality stainless steel and will not be harmed by long term oxidation. When working on the valve be very careful not to damage any sharp corners with hard tools and your pot will last indefinitely.

LUBRICATION

The lube stick supplied with your machine is for lubricating the carrier arms and the guide rails where they contact the carrier arms. No other lubrication is necessary.

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MOLD CARE

Molds must be kept in new condition. Never use metal objects on the mold in the machine. With the mold out of the machine, an industrial razor blade is the best tool for cleaning the faces of the molds. Never break any corners on the mold cavities with the razor blade. To clean the faces of the molds hold the razor blade at a steep angle to the mold and shave toward the mold cavities. Never scrape the cavities or their edges with anything harder than plastic.

Proper mold storage is also important, they rust very easily. A heated cabinet works well for rust prevention. Magma's Master Lubricant is an excellent rust preventative.

LEAD ALLOYS

Always use clean metal in the pot, but you must occasionally flux the metal to keep the pot clean. Standard paraffin or beeswax works well for this. Drop in a piece about the size of a .38 caliber bullet and stir vigorously. Use a large perforated spoon for stirring the molten lead mixture.

CAUTION: Fluxing can cause a flash fire, this is normal, but gauntlet type gloves should be worn during this operation. Once the ash and residue have risen to the top of the pot and has quit smoking, skim it off and discard properly.

VENTING

It is important in any casting operation that it be performed in a well-ventilated area. In the case of a stationary casting furnace such as the MASTER CASTER, an exhaust hood should be installed directly over the melting pot and have sufficient suction to remove smoke caused in the melting, fluxing and continued lead heating operation of the machine. No air should be flowing over the mold during the pour operation; this will cause unequal cooling of the lead streams and will cause casting problems.

Below 800 degrees lead expels no poisonous gases just smoke from whatever contaminants are in the lead. Lead poisoning is caused by improper hygiene after handling lead. Don't eat or smoke before washing your hands.

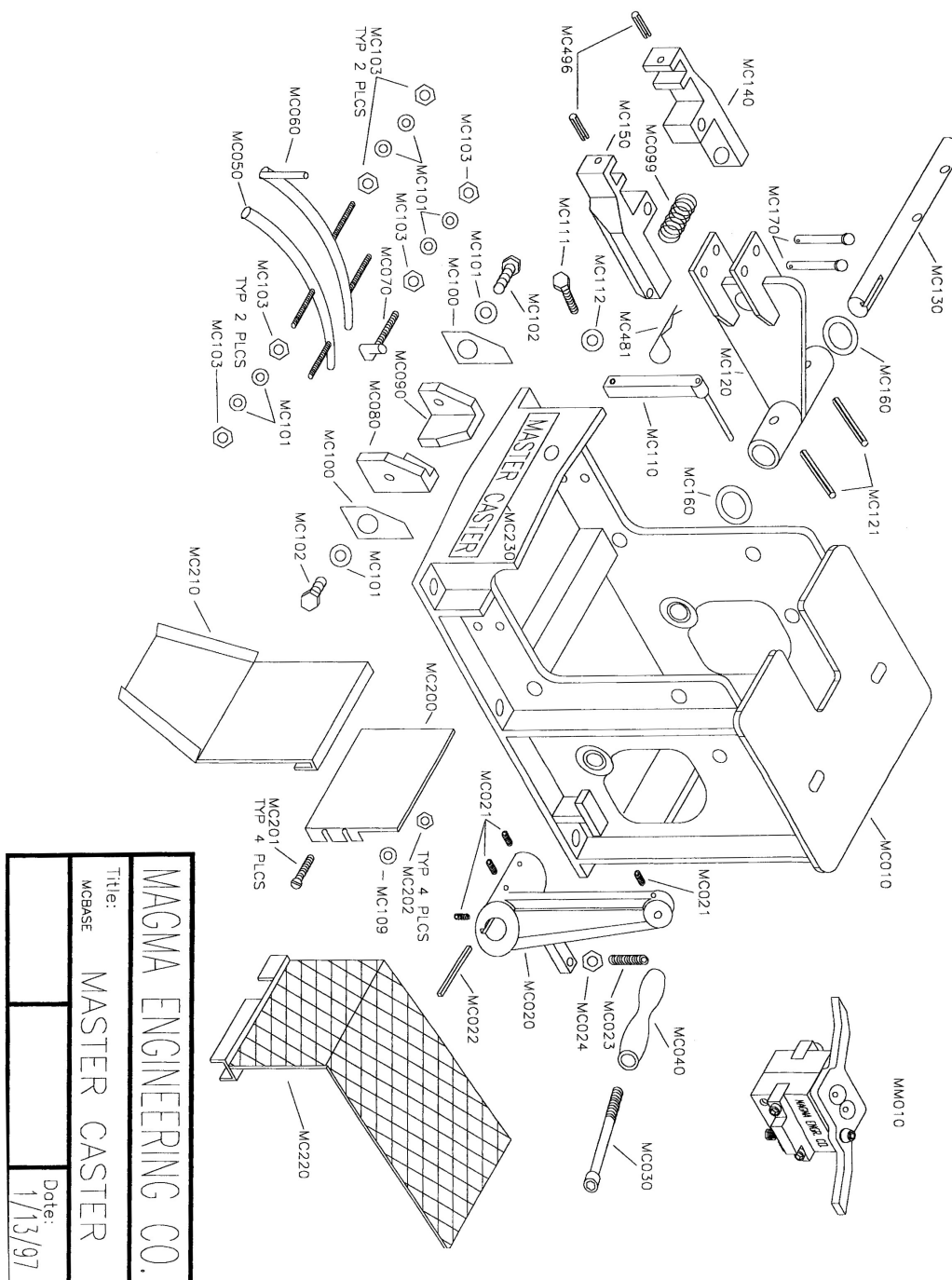
THERMOSTAT ADJUSTMENT

The melting pot has a large band heater controlled by a thermostat. The thermostat is carefully calibrated in our plant. Field calibration is seldom necessary and should not be resorted to unless the thermostat is not maintaining desired temperature. A thermometer must be used to calibrate the thermostat - overheated lead expels poisonous gases.

Increase or decrease the temperature by the following:

First, loosen the small setscrew on the thermostat knob, then remove the knob. Using a small screwdriver, insert it in the hollow stem and engage the adjusting screw. Turning the screw to the left or counter-clockwise increases the temperature. Temperature adjustments should be made in small increments. Allow the temperature to rise or lower to the new setting before making further adjustments. **MAKE ADJUSTMENTS SLOWLY IN SMALL INCREMENTS.**

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MC300 ASSEMBLY

MC480

MC470

MC500

MC450

MC460

MC510

MC490

MC470

MC450

MC530

MC540 TYP 4 PLCS

MC520

MC305

MC310 TYP 3

MC320 TYP 3

MC309 ELECTRICAL BOX COMPLETE

MC400

MC202

MC109

MC347

MC341

MC345

MC346

MC342

MC345

MC390

MC302

MC101

MC102

MC301

MC303

MC360

MC401

MC402

MC380

MC379

MC370

MC403 TYP 4 PLCS

MC330

MC458 INSULATION

MC520

WIRING

120V: L1&L3 TO CORD
L2&L4 TO THERMOSTAT

240V: L1 TO CORD
L3 TO THERMOSTAT
CONNECT L2&L4 TOGETHER

L1

L2

L3

L4

MAGMA ENGINEERING CO.

Title: MCPOT MASTER CASTER

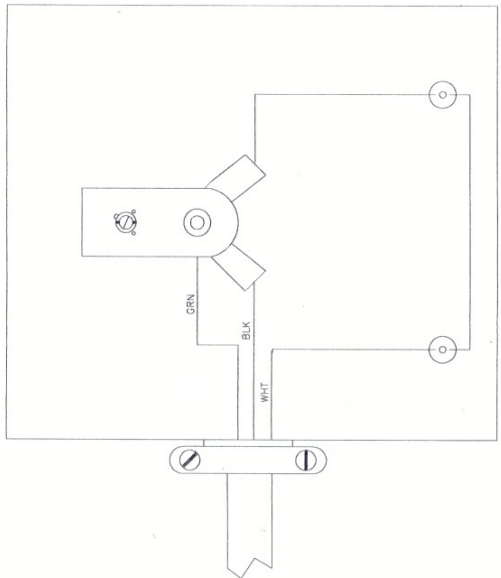
MASTER CASTER INSTRUCTIONS

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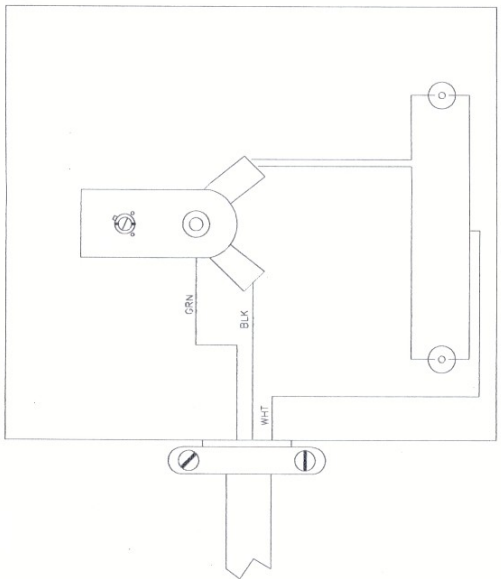
MAGMA ENGINEERING CO.

Item	Description
MC001	MASTER CASTER WITH MAGMA MOLD SN:
MC011	MASTER CASTER WITH MAGMA MOLD AND DI...
MC020	OPERATING HANDLE
MC021	1/4" SET SCREW
MC030	3/8 X 4 1/2" SOCKET CAP SCREW
MC040	WOOD HANDLE
MC050	GUIDE RAIL (RH)
MC060	GUIDE RAIL (LH)
MC070	SPRUE CLOSER
MC099	CARRIER SPRINGS
MC100	CAM SHIM
MC101	5/16 SAE FLAT WASHER
MC103	5/16 SAE NUT
MC110	SPRUE CUTTER SUPPORT BRACKET
MC111	1/4 - 20 x 3/4" BOLT
MC112	1/4" FLAT WASHER
MC140	CARRIER LH
MC150	CARRIER RH
MC170	CARRIER PINS
MC200	DISCRIMINATING BAFFLE
MC201	MACHINE SCREWS
MC202	10-32 NUT
MC210	DEFLECTOR CHUTE
MC220	SAFETY SCREEN
MC230	MASTER CASTER LABEL
MC300	MASTER POT
MC301	SINGLE HOLE ORIFICE PLATE
MC302	DOUBLE HOLE ORIFICE PLATE
MC303	10-24X3/8
MC309	ELECTRICAL BOX ASSY COMPLETE
MC310	THERMOCOUPLE TOE CLAMP
MC313	MASTER CASTER W/O POT
MC315D	MASTER POT DIGITAL TEMP CONTROLLER
MC316	MASTERPOT STAND
MC317	SANYOU DIGITAL CONTROLLER
MC330	HEAT BAND 120V OR 240V
MC335	CORD FOR MELTING POT
MC336	CORD FOR BLOWER WITH SWITCH
MC342	HI TEMP BLACK WIRE
MC345	16-14 GA BUTT CONNECTOR
MC346	HI TEMP QUICK DISCONNECT
MC347	RING CONNECTOR 16-14 GA
MC354	HI TEMP WIRE-PER FT.
MC360	THERMOSTAT MC
MC370	8-32 X 1" THERMOSTAT MOUNTING SCW
MC379	POINTER KNOB TENSION SPRING
MC380	POINTER KNOB
MC400	POT HOUSING
MC401	ELECTRICAL BOX
MC402	TEMPERATURE LABEL
MC437	HI TEMP RING CONNECTOR
MC450	MOUNTING SCREWS
MC458	INSULATION PER SQ. FT.
MC460	VALVE SPRINGS
MC470	CLEVIS PINS
MC481	5/16" HAIRPIN COTTER FOR CARRIER PIN
MC490	VALVE BRACKET
MC520	BLOWER
MC530	BLOWER MOUNTING BRACKET
MC540	MOUNTING SCREW
MC710	SILICONE LUBE STICK
MCHE	CARTRIDGE HEATING ELEMENT

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220-240V



120V

NOTE

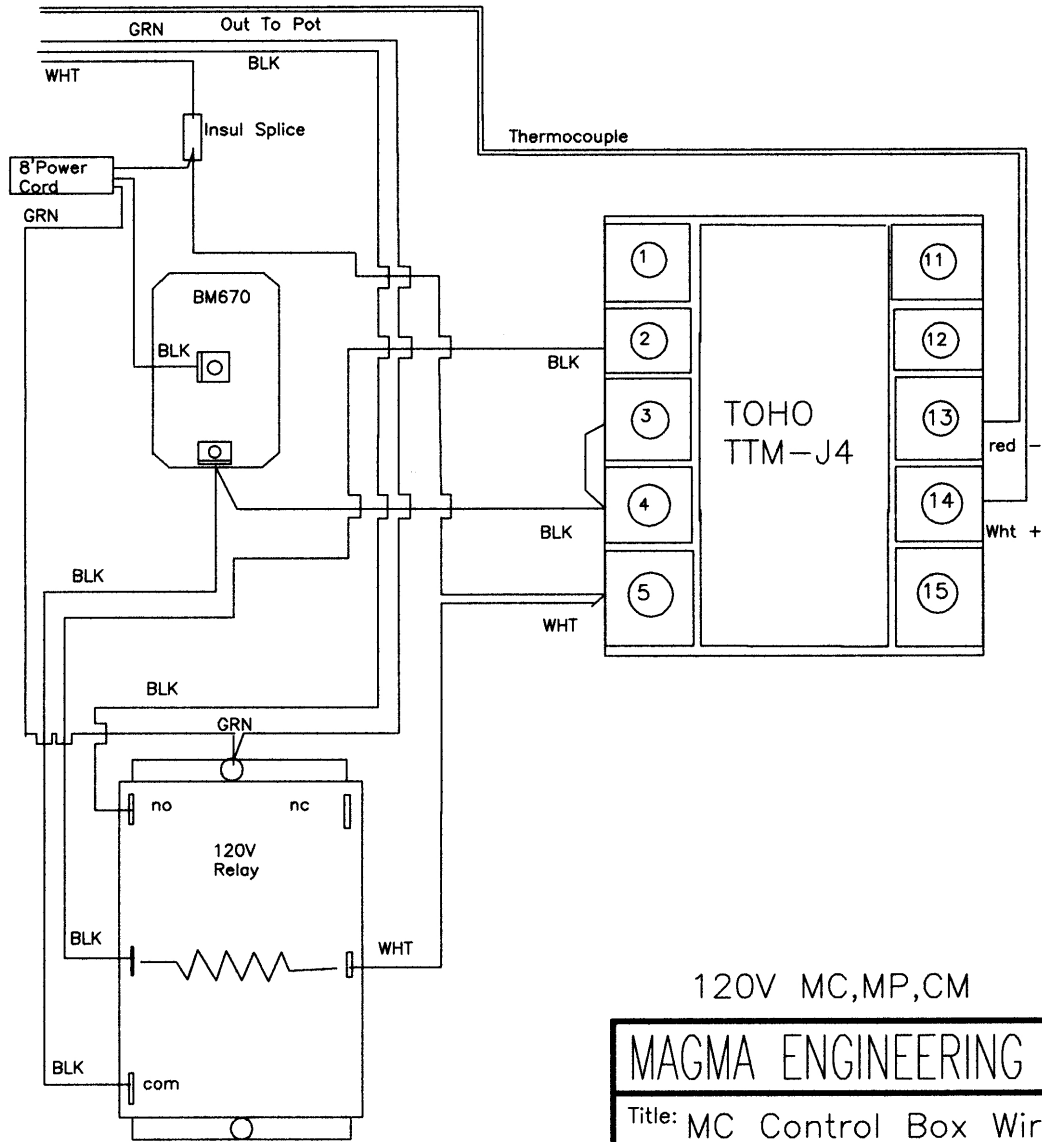
WIRE COLORS CORRESPOND TO THE
CORD WIRE COLORS

MAGMA ENGINEERING CO.

Title: MCE MASTER CASTER WIRING

Drawn by: R Clausen Jr. Date: 20 JAN 93 Page: 1 of 1

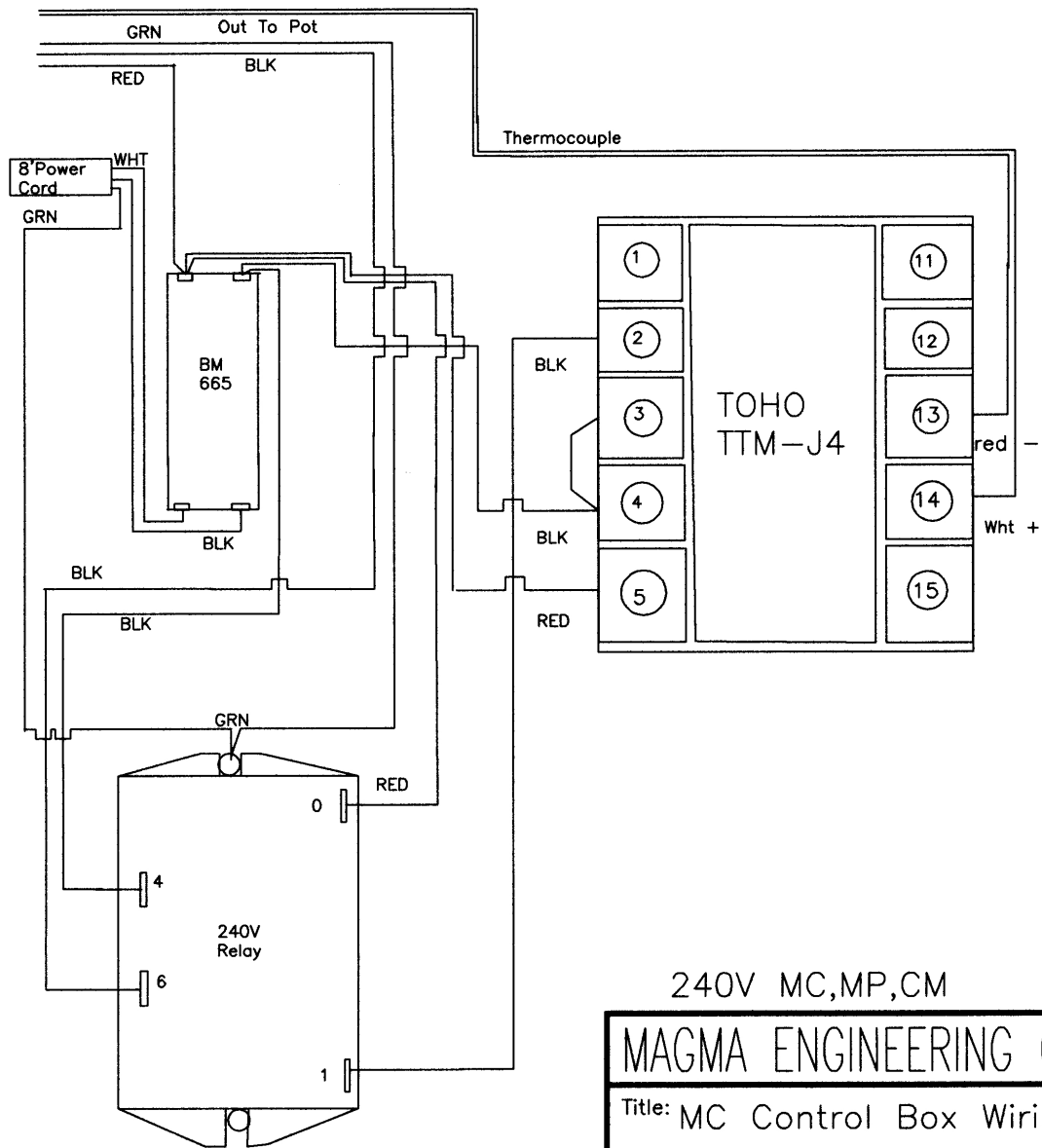
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120V MC,MP,CM

MAGMA ENGINEERING CO.
Title: MC Control Box Wiring

MASTER CASTER INSTRUCTIONS
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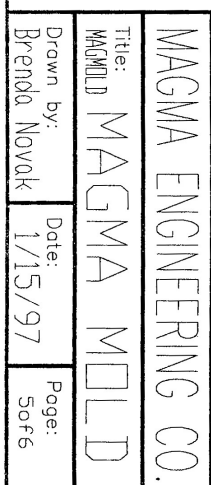


240V MC,MP,CM

MAGMA ENGINEERING CO.

Title: MC Control Box Wiring

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MAGMA ENGINEERING CO.

Item	Description
MM	CASTING MOLDS
MM010	MAGMA MOLD COMPLETE
MM020	MAGMA BLANK BLOCK W/O HARDWARE
MM022	BLANK BLOCK/HANDLES W/O HARDWARE
MM025	MAGMA BLANK BLOCK W/HARDWARE
MM030	MAGMA MOLD W/O HARDWARE
MM031	MOLD HARDWARE
MM032	MOLD W/O SPRUE CUTTER ASSY
MM033	LYMAN MOLD HARDWARE
MM034	RCBS MOLD HARDWARE
MM040	SPRUE CUTTER ASSEMBLY
MM050	DOUBLE HOLE SPRUE CUTTERS
MM051	COATED SPRUE CUTTER ELECTROLYSES NI
MM055	SINGLE HOLE SPRUE CUTTER
MM060	SPRUE BOLT
MM070	SPRUE LOCK NUT
MM080	SPRUE TENSION SPRINGS
MM090	ALIGNMENT PIN (2 REQUIRED)
MM100	ALIGNMENT BUSHING (2 REQUIRED)
MM110	MOLD KEY
MM115	LYMAN MOLD KEY (2 REQUIRED)
MM120	KEY MOUNTING SCREWS
MM130	SAECO MOLDS
MM140	LYMAN MOLDS
MM150	RCBS MOLDS
MM170	WOOD MOLD STORAGE BLOCKS-LONG
MM171	WOOD MOLD STORAGE BLOCK-SHORT
MM172	STYROFOAM MOLD STORAGE TRAY SHORT
MM173	STYROFOAM MOLD STORAGE TRAY LONG
MM180	MOLD SHIMS (RCBS ONLY)
MM190	CONVERT SAECO MOLDS
MM196	CONVERT BALLISTICAST MOLD FOR MAGMA M...
MM200	CONVERT LYMAN MOLDS
MM210	CONVERT RCBS MOLD
MM800	CONVERT MAGMA MOLDS FOR HANDLES
MM810	MAGMA MOLD FOR HANDLES
MM815	MAGMA MOLD WITH RCBS HANDLES
MM835	MODIFIED RCBS HANDLES
MMRB	ROUND BALL MAGMA MOLD