MAGUIRE PRODUCTS, INC.
ELEVEN CROZERVILLE RD.
ASTON, PA. 610 459-4300

MODEL MRF-8

REGRIND AUGER FEEDER
ONE INCH AUGER

INSTRUCTION MANUAL

May 25, 2000

INSTRUCTION MANUAL

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M A G U I R E P R O D U C T S , I N C .

Model MRF-8
REGRIND AUGER FEEDER

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MAGUIRE PRODUCTS, INC.
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ASSEMBLY AND INSTALLATION INSTRUCTIONS

Your unit consists of 4 separate assemblies:

1. The ADAPTOR frame assembly; 10" square, painted black.
2. The SLIDE assembly; stainless steel.
3. The HOPPER assembly; with feed auger.
4. The CONTROLLER / Drive unit.

1. A locking latch is located on each side of the SLIDE assembly. Lift these latches up and rotate them forward until they fall freely. Grasp the heavy steel cross bar in one hand and with your other hand slide the motor mount frame straight back until it stops (5 inches). Lift the HOPPER assembly up and out and put aside.

2. Bolt the CONTROLLER to the motor mount portion of the SLIDE assembly, utilizing the bolts and nuts that are already positioned in the face of the CONTROLLER. Refer to the diagram on the next page for assistance. The Stainless mounting surface goes against the controller with the square plastic block installed last, over the two longer top bolts.

3. The ADAPTOR frame mounts under your natural material hopper. In selecting the proper ORIENTATION for mounting, consider the following:

   * Clearance for the removable hopper.
   * Clearance for the controller in its pulled-back position.
   * Easy viewing and access to the controller front panel.
   * Access to the REAR calibration port near the controller.
   * Access to the FRONT calibration port near the adaptor frame.
   * Ease of removal of the hopper.

   Before drilling the bolt pattern, remember that the FEEDER will hang from the side with the square hole in the baffle plate.

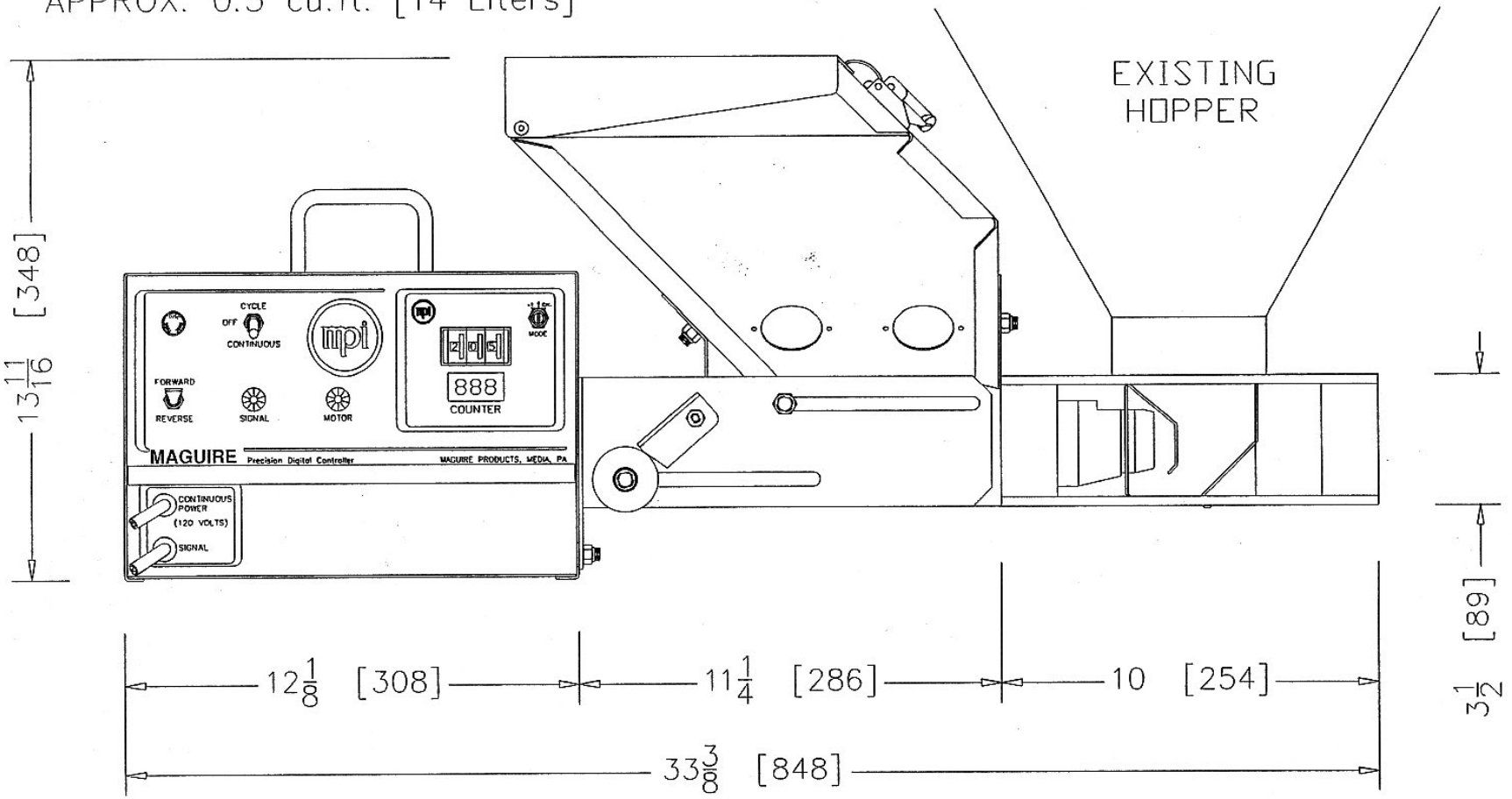
4. Remove the existing natural material hopper from your process machine. Locate and drill the proper bolt pattern on both top and bottom plates of the 10" square ADAPTOR frame. This frame will be bolted directly to the feed throat of your process machine and the natural material hopper will be bolted on top.

   NOTE: The TOP of the ADAPTOR frame has the 3" ROUND hole.
   The BOTTOM plate has the SQUARE hole in it.

5. Once the unit is bolted into place and your hopper is replaced on top of the adaptor frame, you may now hang the SLIDE assembly from the proper side (there is only ONE proper side; the side with the HOLE into the flow chamber). The SLIDE assembly must be OPEN to facilitate hanging it on the ADAPTOR assembly. Tilt unit up and slip one end of the cross bar behind a corner post. Slip other end of cross bar behind other post, center the bar, then lower to a resting horizontal position.

6. Install the HOPPER assembly and slide the CONTROLLER forward until the side latches engage and lock. Be sure the drive coupling properly engages the auger.

ADDITIVE FEEDER HOPPER IS
APPROX. 0.5 cu.ft. [14 Liters]



MRF-8
REGRIND FEEDER

DISPENSE (ONE CYCLE)	LBS/HR MAX	LBS/HR MIN	MAX RPM	AUGER SIZE	MODEL MRF-
.05 cc	58	1.8	55	1"	8-34
.08 cc	105	2.7	100	1"	8-50

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#MRF-8
REGRIND FEEDER
1" AUGER

Drawn by:	Date drawn:
JSH	3/15/96
Material:	Paint/Finish:

START-UP INSTRUCTIONS

1. Plug the "CONTINUOUS POWER" cord into a standard 110 volt continuous power source.

2. Plug the "SIGNAL" cord into outlet that is energized only when the screw is turning. Signal voltages from 24 to 240 can be handled.

3. Set the CYCLE/OFF/CONTINUOUS switch to "CYCLE".

4. Follow instructions on the FORMULA page to determine the METERING RATE for your regrind. Then, using the formula provided, set the counter to the proper setting for the particular part you are molding.

5. Select the PERCENT REGRIND that you desire by setting the small rotary knob to the proper "%" setting (5-80%).

6. Set the small Select Switch UP for automatic operation.

   If your REGRIND Auger Feeder is being used in conjunction with a MAGUIRE COLOR Feeder, plug the Color Feeder cords (both black and gray) into the outlets provided on the back of the REGRIND FEEDER CONTROLLER. This will allow for proper communication between units for proper color cut-back.

7. You may wish to verify output by making use of the calibration port to weigh the output from several cycles. Once you are certain of the proper counter setting for a particular part, it should be recorded for future reference. Your REGRIND Auger Controller will now cycle on and off each time the process machine screw is cycled. Auger speed will adjust automatically.

PRINCIPLE OF REGRIND CONTROLLER OPERATION

The MAGUIRE Digital Controller provides the precise speed regulation and metering control necessary to assure absolute accuracy over regrind usage. The Controller signal cord is plugged into an outlet that is energized only when the process machine screw runs. During each screw return cycle, the motor runs and regrind is metered into the throat of the process machine.

Since metering rate is directly related to motor output shaft rotation, accuracy is obtained by controlling the exact degree of rotation of the drive motor. The unique Maguire Products Digital Controller is designed to do this with precision. Our standard model divides each full motor rotation into 159 increments; each increment representing a small fraction of a gram of regrind being carefully measured out.

The digital counter located on the face of the controller provides the means for predetermining the exact degree of rotation and, therefore, the precise amount of regrind that will be added during each cycle. When the pre-set count is reached, the motor will automatically shut off, ensuring that no excess regrind is metered. To determine the proper setting for the counter, a simple formula is used based on total shot weight in grams (or pounds per hour for extrusion applications) and metering rate of the regrind.

Motor speed is automatically controlled by the internal microprocessor to allow regrind metering to occur uniformly over the entire screw return cycle. The operator need not concern himself with motor speed adjustment. Changing cycle times or fluctuations in plant voltage are automatically detected and compensated for and, therefore, will have no effect on metering accuracy.

The controller contains a 1/8 HP D.C. Permanent Magnet motor with variable speed control of from approximately 50 to 3000 RPMs. In the standard configuration, the motor is close coupled to a heavy duty gearbox with a reduction ratio of 34:1. Final output speed of the motor is, therefore, approximately 1 to 88 RPMs. As the motor turns, a "hall effect" pickup device on the motor sends 3 pulses per revolution to the microprocessor controlling it. The gearbox ratio of 34:1 means that 102 pulses (3x34) are received for every single revolution of the motor output shaft.

The purpose of the thumbwheel switch is to pre-set the exact number of pulses that the motor is going to run before stopping. The microprocessor in the controller automatically multiplies the counter setting by a factor of 10. A setting of 10 on the counter will allow the controller to receive 100 pulses or run approximately 1 revolution before stopping. Regardless of how fast or how slow the motor runs, regrind metering will stop after 1 turn.

In addition to this precise control of regrind quantity being metered, the microprocessor also controls motor speed using the same pulses for digital tachometer feedback. This ensures that motor speed is precisely regulated regardless of changing torque requirements or variations in plant voltage.

ADDITIONAL INFORMATION - REGRIND CONTROLLERS

All REGRIND controllers are equipped with a "PERCENT SELECTION" knob, Regrind LEVEL sensor, and two electrical outlets mounted into the back of the controller housing.

The PERCENT SELECTION knob allows an operator to rapidly select or change the PERCENT of regrind that he wishes to add. Since the COUNTER setting represents a quantity of regrind equal to the FULL WEIGHT of the molded part, the PERCENT knob will automatically reduce this number to the percentage of regrind that is actually requested. The L.E.D. DISPLAY will show the reduced number and the countdown will begin from there.

EXAMPLE: A 300 gram part is being molded and the proper setting for the REGRIND FEEDER is calculated to be 380. This number is set on the COUNTER. The PERCENT knob is set to 25% so that the material mix will contain 25% regrind. With each machine cycle, the controller will begin its countdown from 95 (25% of 380) and will proceed to zero. The DISPLAY will show the countdown as the feeder runs. To change to 10% regrind, simply change the PERCENT knob to 10. The controller will now begin counting from 38. Motor speed will automatically adjust to the proper slower rate to coincide with screw return time.

The LEVEL sensor is to be installed into the side of the REGRIND hopper to sense when regrind is present and when it runs out. When REGRIND RUNS OUT the feeder will NOT run starting with the next cycle. When the sensor is again covered, the feeder will resume operation beginning with the next cycle.

The two ELECTRICAL OUTLETS on the back of the REGRIND controller are provided for supplying power to a MAGUIRE PRODUCTS COLOR FEEDER or COLOR PUMP controller. The top outlet (black) is continuous 110 volt power. The BOTTOM outlet (gray) is the 110 volt signal power that is energized only when the screw is turning. However, this SIGNAL cord also carries a special code to the COLOR controller telling it when REGRIND is being metered and at what percentage. When this code is received, the amount of color being added is automatically reduced by the proper percent so as not to add color to the regrind portion of the mix.

PRINCIPLE OF REGRIND FEEDER OPERATION

The MAGUIRE CONCENTRATE AUGER FEEDER is a rugged industrial auger feeder designed to meter precise quantities of color concentrate very accurately into the main flow of virgin material directly above the throat of your process machine. Two 10" square steel plates, separated by 4 steel corner posts, form a sturdy, low profile, adaptor assembly. This assembly must be drilled with the proper bolt pattern and then mounted to the throat of your process machine where the main material hopper is currently mounted. The material hopper is relocated on top of the adaptor assembly so that virgin plastic will pass down through the opening in the adaptor.

Fitted to the side of the adaptor frame is a wide stainless steel channel which serves as the main support for both the hopper auger assembly, and the motor drive controller. The concentrate hopper, constructed of stainless steel and weighing only 12 pounds, is designed to rest in the channel with no securing bolts necessary. It is easily removed by sliding backward several inches and lifting straight up. This ease of removal eliminates the need for a clean-out door or chute. Changing colors is done by carrying the hopper back to the material supply container and dumping the unused material back into the container.

The auger and auger tube is also fitted directly under the hopper and is removed with it during color changes. This feature means that all parts that might hold some color contamination are easily carried to a separate area for thorough cleaning. The auger tube is fabricated from 2.5 inch Celcon and contains the 1" diameter steel auger which conveys the concentrate forward into the flow of virgin material. Output can be checked directly from the front of the auger tube when the controller and hopper assembly are slid all the way back to the rear stop.

Virgin material flows through the flow chamber contained in the 10" square adaptor frame. This chamber is constructed of two 1/2-inch thick clear acrylic plastic windows and two stainless steel baffles. These baffles control and direct the flow of natural material. The material being added by the feeder is dropped into the flow from an air space and is evenly distributed over the steady and predictable flow of natural material. This assures uniform distribution of material into the natural material. The acrylic windows provide a clear view of the combined flow.

The hopper holds up to 25 pounds of regrind and contains four clear sight glasses, two on each side, providing the operator with a view of the material level. A hopper extension is available that can double this capacity.

DESCRIPTION OF CONTROLS

1. CYCLE-OFF-CONTINUOUS SWITCH

CYCLE: The controller will meter a given quantity of regrind and will shut off for the remainder of the cycle. Quantity metered is controlled by the setting of the thumbwheel switch. In this mode, motor speed is automatically adjusted by the internal microprocessor based on the time length of the previous cycle and the setting of the counter. A speed is selected that will allow the feeder to stop approximately 1/2 second before the cycle ends.

OFF: Prevents the controller from running and removes power to the computer controls.

CONTINUOUS: The controller will run continuously as long as 110 volt power is present at the controller power cord. Speed is controlled by and directly follows the setting of the thumbwheel switch. Energizing the "cycle" cord has no effect - with one exception; if the RANGE switch is in the LOW resolution position (turned to the right) the motor will ONLY run when the SIGNAL cord is energized.

2. MOTOR FORWARD/REVERSE SWITCH

This switch should be in the FORWARD position for all normal operation. Holding the switch down in the REVERSE position will cause the controller motor to run backwards. This should only be done to purge the auger tube when the dump chute is lowered for cleanup.

3. THUMBWHEEL SWITCHES

In the CYCLE mode, the thumbwheel switch setting controls the amount of regrind metered per cycle. In the CONTINUOUS mode, the setting determines the RPMs of the motor output shaft.

4. MODE SWITCH

The Mode Switch allows several SPECIAL functions. Located in the upper right corner of the control panel, it can be turned with the aid of a small screwdriver.

NORMAL (mid position)

All functions work as described elsewhere. Approximately 1/10 turn of the motor can be expected for every count on the counter or 98 turns of the motor for the maximum setting of 999. (This relationship may vary with non-standard models).

FRACTIONAL (left position)

CYCLE MODE:

If very small metered amounts are required and calculated settings are 10 or less, these settings may not give you the fine resolution of control that you desire. Turning the Mode Switch to the FRACTIONAL position will shift the display left one digit with a decimal point

appearing between the middle and last digit. Display format will be (##.#) so that fractional numbers can be set on the counter. A maximum of about 10 turns will result from the maximum setting of 99.9. Thus, to accomplish the same output as before, you would use a setting such as 030 instead of 003, resulting in a display of "03.0" instead of "003".

CONTINUOUS MODE: no effect

CALIBRATION (right position)

CYCLE MODE:

The term "calibration" in not correct for this position. On regrind style controllers this position is for LOW RESOLUTION. This is the opposite of the FRACTIONAL position described above which we sometimes call HIGH resolution.

If very large parts are being molded and calculated settings are over 999, these settings are not possible with the three digit thumbwheel switches. Turning the Mode Switch to the CAL position will shift the display and will drop the least significant digit. A maximum of about 980 turns will result from the maximum setting of 999. Thus, to enter a calculated setting of 1220, you would simply enter "122" and set the mode switch to the right in the CAL position.

CONTINUOUS MODE:

The motor will ONLY run when the SIGNAL cord is energized. In the other positions, NORMAL and FRACTIONAL, CONTINUOUS mode will run the motor WITHOUT the SIGNAL cord being energized.

5. DISPLAY WINDOW

In the CYCLE mode, the window will display a numerical countdown beginning with the three digit counter setting and proceeding to zero. In the CONTINUOUS mode, the window will display motor RPMs. Flashing of this display at half second intervals indicates that the motor is not running at the speed necessary to deliver all the regrind in the time allotted (See TROUBLESHOOTING section for more information). The presence of a decimal point in the display means the mode switch is turned to the FRACTIONAL position.

6. SIGNAL LIGHT

The Signal Light indicates power is present at the signal cord; in other words, the process machine screw is turning.

7. MOTOR LIGHT

The Motor Light indicates the computer processor is outputting a D.C. voltage to the controller motor; in other words, the motor is turning.

ADDITIONAL REGRIND CONTROLS

8. PERCENT (%) SELECTION KNOB

The PERCENT knob must be set to the "%" of regrind that you desire. Since the counter setting represents the full requirements of the process machine (as if you were going to use 100 percent regrind), the "%" knob will reduce this setting to whatever percent you select.

For EXAMPLE: if your counter is set to 400, and the "%" knob is set to 25%, then the count will begin at 100 (25% of 400) and will count down from there.

9. SENSOR

The SENSOR is to be installed into the sensor MOUNTING socket located on the side of the hopper. This will signal the controller to operate ONLY when material is present.

10. DUPLEX RECEPTACLE (rear of controller)

The top (black) outlet provides a continuous source of power for the operation of a MAGUIRE Color Feeder.

The bottom (gray) outlet provides an intermittent 110 volt signal that is energized only during "screw return" time. When a MAGUIRE color controller signal cord is plugged into this outlet, it is also able to receive coded messages over this same line telling it when the REGRIND feeder is operating and at what PERCENTAGE. The color unit will reduce its output proportionately to prevent overcoloring due to the presence of the already colored regrind.

FORMULAS FOR SETTING THE COUNTER
REGRIND FEEDERS

INJECTION MOLDING (Cycle Mode):

1. Determine the WEIGHT of the entire shot IN GRAMS.
2. Determine the METERING RATE in "grams/100count" of your regrind.
3. Set the digital counter using the following formula:

(shot wt) / (grams/100count) x 100 = Setting
==========

Example: Shot Weight = 100 grams
Metering Rate = 80 grams/100count

100 / 80 x 100 = 125 -- Set Counter on 125

EXTRUSION (Continuous Mode):

1. Determine the extruder output in pounds per hour.
2. Determine the METERING RATE in "grams/100count" of your regrind.
3. Set the digital counter using the following formula:

(lbs/hr) / (grams/100count) x 71 = Setting
==========

Example: Extruder output = 120 pounds per hour
Metering Rate = 80 grams/100count

120 / 80 x 71 = 106.5 -- Set Counter on 106

DETERMINING METERING RATE

Set the counter to 200
Set the PERCENT REGRIND knob to 50%

This will cause the controller to run 100 counts.

Allow the Auger Feeder to cycle normally as would occur during production and record the weight in grams of regrind metered during every cycle for several successive cycles.

NOTE: For each cycle the display will start at 100 and count down. This is the METERING RATE in grams per 100 counts (grams/100count).

TROUBLESHOOTING CONTROLLER PROBLEMS

IF YOUR MAGUIRE PRODUCTS CONTROLLER DOES NOT WORK PROPERLY:

1. READ below about NORMAL OPERATION and compare to your problem.
2. The QUESTIONS that follow may assist you in solving your problem.
3. If you are unable to remedy the problem:
   a. ANSWER in writing as many of the QUESTIONS that apply.
   b. DESCRIBE the PROBLEM in your own words as carefully as you can.
   c. RETURN this information with the unit for repair.

========== NORMAL OPERATION ==========

With MAIN POWER cord plugged in, NO power to the SIGNAL cord, Switch on CYCLE:

The display should read zero (0)
The motor light and signal lights are OFF
The motor is NOT running.

IN CYCLE:

Nothing will run until the SIGNAL cord gets power.

The first time the signal cord gets power, the unit will start running at about 10 rpms and will count down from whatever number is set on the counter.

When the count reaches zero (0), the motor will stop.

On all successive cycles, the motor will run at whatever speed is required to finish counting in the time period of the PREVIOUS cycle.

If a cycle is SHORTER then the PREVIOUS cycle, the motor will stop before it has counted down to zero (0). The lowest number reached during the countdown will be displayed.

AT NO TIME will the display be COMPLETELY BLANK.

If you try to simulate machine cycles by turning the CYCLE switch on and off, the controller will consider every cycle as a FIRST cycle and will always run at 10 rpms.

To simulate machine cycles, plug the signal cord in and out of a wall outlet. Shortening of the 'on time' will result in the motor running faster. Lengthening of the 'on time' will result in a slow down of the motor speed.

BLINKING of the display is a WARNING that the actual motor speed is not up to "target" speed.

If the motor FORWARD - REVERSE switch is switched to OFF, the motor will stop and the display will hold at whatever number it reached in its countdown.

Switching OFF and then FORWARD again during a countdown will cause a momentary increase in motor speed as the unit tries to 'catch up'.

CYCLE TIME:

The motor will start to run about 1/3 (.3) second after a signal is received.

If the Signal is less than about 2/3 (.6) seconds long, then the motor will stop and the processor will not consider this as a valid cycle. No recalculation of motor speed will occur.

If the signal is over 2/3 (.6) seconds long, then the motor will run for at least 2 seconds even if the signal goes away. This allows time for speed adjustments to occur.

On longer cycles, the counter should count down to zero and the motor should stop within the 1/2 second before the end of the signal.

If you are simulating cycles by plugging and unpluging the signal cord, it will be difficult to produce uniform motor speed and count down rates unless you carefully use a watch to produce uniform cycle times.

If power to the signal cord ends before countdown is complete, the motor stops immediately and the number of counts remaining is held on the display.

IN CONTINUOUS:

The signal cord has no effect.

The motor runs at a speed equal to the counter setting.

If the setting is above the maximum speed possible, then the motor just runs at full speed and the display BLINKS.

Full speed will display about '65' for 2 magnet models (most 3 and 6 roller pumps) and about '90' for all other models (Extrusion following models display about 180 at full speed).

BLINKING of the display is NOT NORMAL except during speed changes.

If the FORWARD - REVERSE switch is turned OFF, a display of one (1) will result and the motor will not run.

ALL UNITS:

If at any time should the processor become confused and fail to run the motor properly or display the proper numbers, the unit will 'restart' itself after a delay of about 4 seconds.

BLINKING of the display means that actual motor speed is not up to "target" speed. This occurs normally when the motor is "ramping up" to speed or when you set too high a number on the counter resulting in a demand for a speed that the motor cannot achieve.

========== ANSWER QUESTIONS as they apply ==========

YOUR COMPANY NAME:_____ DATE:_____

NAME of PERSON who saw or knows the problem:_____

CONTROLLER SERIAL NUMBER: _____

Time in service: (new, 1 hour, 1 week, years, etc.) _____

========== IF PROBLEM IS WITH OUTPUT ==========

SPECIFICATIONS as they apply:

Injection molding, Shot weight: _____

Extrusion, lbs/hour: _____

Liquid color lbs/gal: _____

Desired output (%): _____

Tube size (or color): _____

Viscosity of liquid color (thin, thick, etc.): _____

Supply and delivery tube sizes and lengths, if not standard: _____

========== IF PROBLEM IS ELECTRONIC FAILURE ==========

CIRCUMSTANCES of failure:

During storm: _____

On Monday morning start up: _____

Same time as another malfunction in plant such as a fuse blowing on a nearby piece of equipment: _____

Possibility of incorrect voltage (220): _____

Possibility of low voltage condition (below 100): _____
On power-up: _____
OR after running for how many hours: _____
Is problem intermittent: _____
How often: _____

TESTING results:
Do other controllers fail under same circumstances: _____
Does controller work when tested in another location: _____
Does problem come and go: _____
After how much time: _____

========== IF PROBLEM IS ERRATIC OR INCORRECT OPERATION ==========

If running in CYCLE:
What is the COUNTER SETTING: _____
SCREW RETURN (signal) TIME in seconds: _____
Are screw return times consistent from cycle to cycle: _____
If not, list some consecutive screw return times:
_____
Is the problem only at certain settings: _____
Does display start at the full counter setting
at the start of each cycle (it should): _____
Does the display BLINK during count down: _____
Does it reach zero (0) before end of cycle: _____
How long before: _____
Does display ever go completely blank (it shouldn't): _____
(it should always show a number or a zero except when blinking)
Is the SIGNAL light lit during screw return time: _____
Is the MOTOR light lit during this period of time: _____
Is it counting down smoothly at a steady speed: _____
If running too slow: what is actual motor output RPMs: _____
What count is displayed when it stops: _____
If running too fast:
How many seconds does it take to count down to zero: _____

If running in CONTINUOUS:
What is the COUNTER SETTING: _____
EXTRUSION RATE: _____
Does the display show the full counter setting: _____
Does the display BLINK while running: _____
Does the display drift: _____
Over what range: _____
Is the SIGNAL light lit: _____
Is the MOTOR light lit: _____
Is motor speed erratic: _____

========== DESCRIBE the PROBLEM ==========

Most problems are apparent and easy to fix. However, the more information we have about what caused the problem, the more we can do to improve our product so that these problems do not occur in the future.

In some cases we may NOT be able to duplicate YOUR particular problem in OUR testing facility. Describing the problem as CAREFULLY and as completely as possible will help us locate and correct any design weakness that might be responsible for the problems you are having.

IN HOUSE REPAIRS

1. If a controller fails to respond properly to counter settings, cycle input signal, or on/off signals properly, you may make an inspection of the internal electronics.

   Work only in a relatively clean environment. Inspect all cable connections to be sure each is tight and that proper connection is being made by each individual wire and clip within each connector; individual wire clips can sometimes pull loose from the connector. Inspect all solder connections for broken wires or improper solder connections.

   Inspect the magnet holding cup on the rear of the motor. If this assembly should loosen, this will adversely affect motor control. Take care not to disturb or damage the electronic hall effect device that is attached to the rear of the motor. Repairs to printed circuit boards should not be attempted. Generally, if a component fails it indicates a condition that may have caused other components to fail as well. Boards should be returned to the factory for repair. A blown fuse on a circuit board usually indicates that other problems are present. A new fuse of similar size and rating may be substituted but if it blows again, the board should be returned to our factory for service. DO NOT EXCEED 5 AMPS on the board.

2. Flashing of the number display indicates that the motor is unable to run at the proper calculated speed. One reason for this may be that the counter setting is too high and the cycle time too short for the motor to complete the metering even at full rated speed. The other cause for the flashing display is that an obstruction is slowing the output shaft and the automatic torque limiting feature is slowing the motor intentionally.

3. NO DISPLAY NUMBER at any time is usually a failed power supply. Be sure there is power to the unit. Check the fuse. There is a fuse on the circuit board; however, this fuse usually will not blow unless some other component on the board has failed. Replace only with a fuse of the same amp rating.

4. DISPLAY of ONE (1) in the CONTINUOUS MODE indicates that the processor is attempting to run the motor but is not picking up any RPM feedback from the armature. Check (a),(b),(c) and (d) below if the motor does not run. Check (e) if it does run .

(a) Components may be blown out on the circuit board. A reading of zero (0) VOLTS at the motor FORWARD - REVERSE switch would indicate this.

(b) The FORWARD - REVERSE switch may be turned off or may be faulty.

(c) Brushes on the motor may not be making proper contact with the armature. Sometimes brushes stick in their holders. A DC voltage at the motor leads without corresponding motor rotation would indicate this may be the problem. Removal of the brushes and light sanding of the brush sides will fix this.

(d) The armature may be burned out. This will occur only with continuous overloading and subsequent overheating. Circuit boards are designed to prevent this through a torque limiting feature. Armatures that burn up leave a distinct odor in the control box.

(e) If the motor is running but the display is still one (1), check the magnet holding disk on the motor armature shaft. It should be secure and there should be about 1/16 inch space between the magnet holder and the electronic "hall effect" device on the back of the motor housing. Also check this electronic device for proper location. It must be positioned under the magnet cup and have no broken wire leads.

TROUBLESHOOTING - SERVICE

1. Check that the auger is rotating the proper number of revolutions per cycle:

   For Model 8-34: 16 counts equals 1 turn of the auger.
   For Model 8-51: 10 counts equals 1 turn of the auger.

   Remember that the Range Switch can alter this relationship so that 10 counts will equal 1/10 as many auger turns.

   An incorrect relationship between counts and revolutions indicates an internal electronic problem.

2. Check that the steel drive coupling is securely locked to the motor shaft. The set screw should be checked for tightness.

REGRIND AUGER FEEDER - MAXIMUM OUTPUT SPECIFICATIONS

Model # MRF-	Auger size	Max RPMs	Continuous Output-lbs/hr Min.	Output-lbs/hr Max.	Min Dispense (one cycle)
8-34	1"	55	1.8	58	.05 CC
8-50	1"	90	2.7	95	.07
8-109	1"	130	4.0	138	.1 CC
16-50	2"	100	5.3	533	.4 CC
16-94	2"	188	10.0	1000	.8 CC
16-160	2"	320	17.0	1700	1.3 CC

To select proper auger size and motor size:

1. Determine maximum extrusion rate in pounds per hour. For injection molding, extrusion rate is approximately equal to tons of clamping pressure; i.e., a 500-ton press extrudes material at about 500 lbs/hour. Very large presses (over 1000 ton) generally don't exceed 1000 lbs/hour extrusion rate.

A more accurate estimate may be made using shot weight and screw return time for any molded part:

(shot wt in grams) / (screw return time in seconds) x 8 = (lbs/hr)

2. Determine maximum expected regrind percent usage and multiply this times extrusion rate for maximum expected lbs/hour of regrind required.

3. Select the standard unit (Model 16-50) if this unit meets your requirements, otherwise select the auger with the LOWEST metering rate that meets your MAXIMUM requirements.

Examples:

```
  50 lbs/hr x 20% =  10 lbs/hr max. regrind -- Select model 8-34
 100 lbs/hr x 80% =  80 lbs/hr max. regrind -- Select model 8-50
1200 lbs/hr x 60% = 720 lbs/hr max. regrind -- Select model 16-94
```

Model MRF-8-50 is STANDARD for 1" auger regrind feeders.

WARRANTY

MAGUIRE PRODUCTS offers one of the MOST COMPREHENSIVE WARRANTIES in the plastics equipment industry. We warrant each Regrind Feeder manufactured by us to be free from defects in material and workmanship under normal use and service; our obligation under this warranty being limited to making good AT OUR FACTORY any Regrind Feeder which shall within FIVE (5) YEARS after delivery of such Regrind Feeder to the original purchaser be returned intact to us, transportation charges PREPAID, and which our examination shall disclose to our satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities on our part, and MAGUIRE PRODUCTS neither assumes nor authorizes any other persons to assume for it any other liability in connection with the sale of its products.

This warranty shall not apply to any Regrind Feeder which shall have been repaired or altered outside MAGUIRE PRODUCTS factory, unless such repair or alteration was, in our judgment, not responsible for the failure; nor which has been subject to misuse, negligence or accident, incorrect wiring by others, or installation or use not in accord with instructions furnished by Maguire Products.

Our liability under this warranty will extend only to Regrind Feeders that are returned to our factory in Media, Pennsylvania PREPAID.

It should be noted, however, that we strive to satisfy our customers in whatever manner is deemed most expedient to overcome any problems they may have in connection with our equipment.

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