

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

Model MCF-E-4/8

CONCENTRATE AUGER FEEDER  
REMOVABLE HOPPER  
EXTRUSION FOLLOWING

April 17, 1998

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

Model MCF-E  
CONCENTRATE AUGER FEEDER  
with  
EXTRUSION FOLLOWING

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## ASSEMBLY AND INSTALLATION INSTRUCTIONS

Your unit consists of 4 separate assemblies:

1. The ADAPTOR frame assembly (10" square).
  2. The SLIDE assembly.
  3. The HOPPER assembly.
  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 picture in the Instruction Manual for assistance.
  3. The ADAPTOR frame mounts under your natural material hopper. In selecting the proper ORIENTATION for mounting, consider the following:
    1. Clearance for the hopper.
    2. Clearance for the control-drive unit in its pulled-back position.
    3. Easy viewing and access to the controller front panel.
    4. Access to the REAR calibration port near the controller.
    5. Access to the FRONT calibration port near the adaptor frame.
    6. Ease of removal of the hopper.

Before drilling the bolt pattern, remember that the FEEDER will hang from the side with the 1-3/4" hole in the baffle plate.

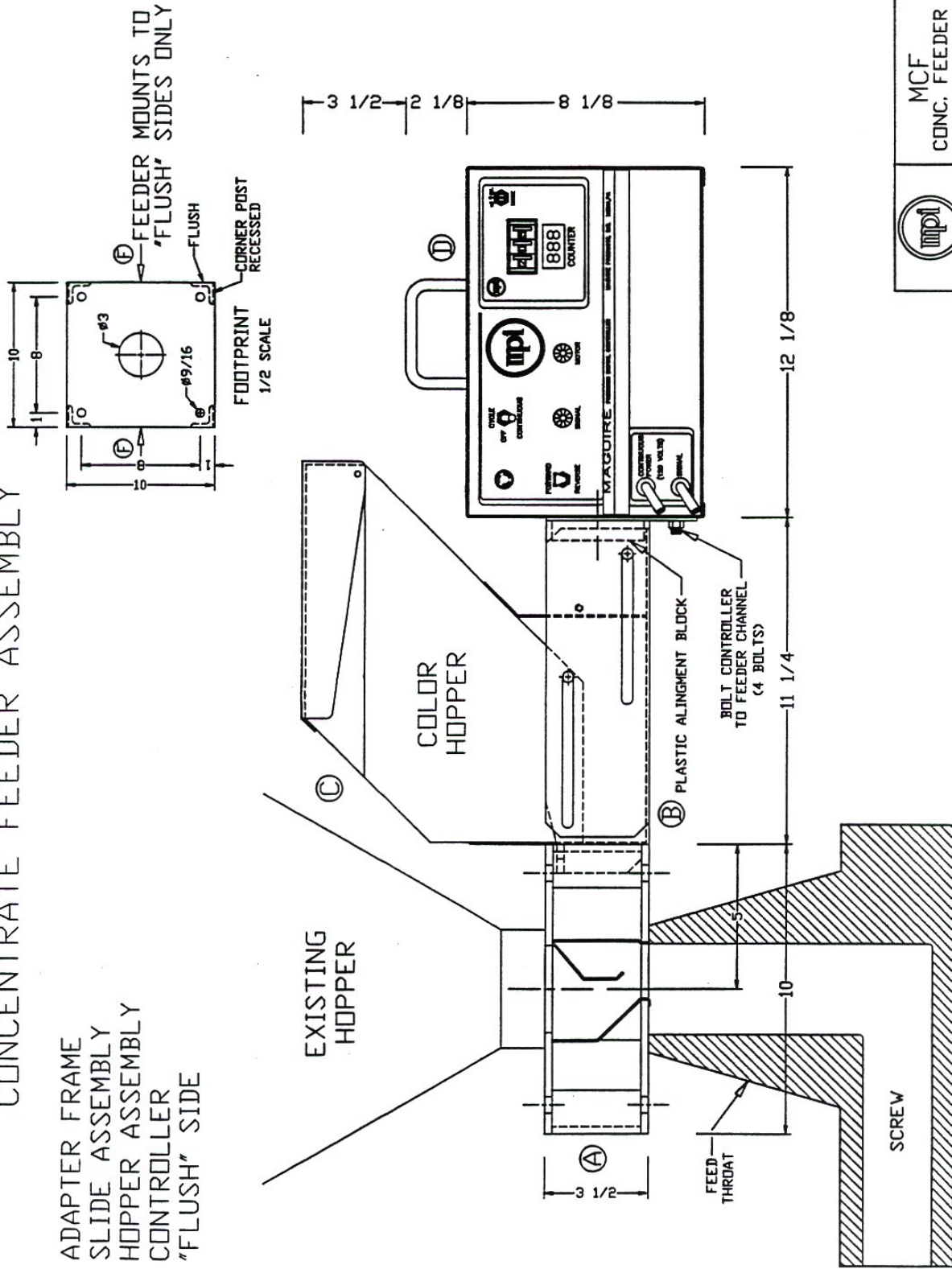
4. Remove the existing natural material hopper from your process machine. Locate and drill the proper bolt pattern on both top and bottom plates of the 10" square ADAPTOR frame. This frame will be bolted directly to the feed throat of your process machine and the natural material hopper will be bolted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

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

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.

CONCENTRATE FEEDER ASSEMBLY

- (A) ADAPTER FRAME
- (B) SLIDE ASSEMBLY
- (C) HOPPER ASSEMBLY
- (D) CONTROLLER
- (E) "FLUSH" SIDE



|   |                             |                         |
|---|-----------------------------|-------------------------|
|  <p>Maguire Products Inc.<br/>Harrisburg, PA<br/>610 494-3333<br/>FAX 610 494-6194</p> | <p>MCF<br/>CONC. FEEDER</p> | <p>DATE<br/>10/1/93</p> |
|   | <p>DRAWN BY<br/>JSH</p>     | <p>SHEET 1 OF 1</p>     |

SET UP INSTRUCTIONS - EXTRUSION FOLLOWING CONTROLLERS

1. The power cord must be plugged into any 110 volt continuous power outlet.
2. The RPM tachometer feed line provided must be installed from the extruder to the controller. On the extruder, this line must be connected to the tachometer output (either AC or DC) which drives the RPM gauge.
3. CALIBRATION OF ELECTRONICS - (required one time only):  
Calibration is necessary to match feeder electronics to the particular voltage output of your extruder. In the upper right corner of the front of the controller, there is a small access hole. This provides access to a small trim pot. This trim pot must be adjusted one time only for your extruder. To do this:
  1. Set the controller to 100.
  2. While your extruder is running, adjust the trim pot so that the display represents the percent (%) of full speed that the extruder is running. For example, if your extruder is capable of running 150 RPMs and is currently at 50 RPMs, adjust the trim pot until the display reads 33 (i.e., 33% of full speed).
  3. After this is done, your controller is calibrated and the formula provided will now be accurate for setting the digital counter for each particular job.

NOTE: The FOLLOW-OFF-MANUAL switch should be in the FOLLOW position for normal operation. The MANUAL position will allow you to force the controller to run even when the extruder is not running, or running very slowly. In this mode, controller speed will follow the setting of the digital counter and may be controlled accordingly. FLUCTUATION OF SPEED IS NORMAL IN THIS MODE.

NOTE: If your tach voltage is very low, you may not be able to reach a high enough motor speed even when the calibration knob is turned to its maximum position. If this happens, do the following:

1. Set calibration knob in its middle position 1/2 way between full left and full right.
2. On the back of the controller, you will note an allen head screw. This screw serves to prevent access to another adjustment pot. Remove the screw and use this adjustment to obtain the proper display as required in Step 2 above. This is a course adjustment. Replace the screw and fine tune with the calibration pot in front.

If you have calibrated your unit properly, the following should occur:

$$\frac{\text{Display number}}{\text{Setting number}} = \frac{\text{Current extruder speed}}{\text{Maximum extruder speed}}$$

At FULL SPEED, number displayed will EQUAL Counter setting.  
At HALF SPEED, number displayed will be HALF of setting.  
At REST, (0 voltage) number displayed will be 0.  
IF the controller continues to run and display a number when no extrusion voltage is present; recalibrate the electronics as follows.

Repeat low tach voltage calibration steps 1 and 2 above this time setting the controller to 500 instead of 100. This means that if you were operating at 100% voltage your controller will display 100 while set at 500. All formulas mentioned in this manual will be multiplied by (5).

$$\frac{\text{Display number X 5}}{\text{Setting number}} = \frac{\text{Current extruder speed}}{\text{Maximum extruder speed}}$$

FORMULA FOR SETTING THE COUNTER  
EXTRUSION FOLLOWING CONTROLLERS

1. Determine the MAXIMUM extruder output in pounds per hour,  
(at 100% of full rated RPM), (max lbs/hr).
2. Determine the POUNDS per 100 of color required (lbs/100).
3. Determine the color METERING RATE; GRAMS / MIN @ display of 40;  
(gr/min@40), see below.
4. Set the digital counter using the following formula:

$$(\text{max lbs/hr}) \times (\text{lbs/100}) \times 3 / (\text{gr/min@40}) = \text{Setting}$$

x15 for low voltages

=====

Example: Extruder output = 900 pounds per hour  
lbs/100 required = 4.5  
METERING RATE = 130 gr/min@40

$$900 \times 4.5 \times 3 / 130 = 93.46 \quad \text{-- Set Counter on 93}$$

METERING RATE - EXTRUSION FOLLOWING MODELS

=====

METERING RATE equals the GRAMS of material metered in ONE MINUTE when the display is "40".

To determine METERING RATE for a given material:

1. Switch the controller to the MANUAL SPEED position.  
Set the counter to "040".  
The display should also read 40. If necessary, adjust the counter up or down until the display reads 40.
2. Carefully collect and weigh the output over 1 minute (60 seconds).  
This weight in grams will equal the METERING RATE for this material (gr/min@40)

Example: Your controller is running and the display shows 40.  
Over a 60 second period you meter 320 grams of material.

Your METERING RATE for this material is 320 (grams/min@40).

PRINCIPLE OF CONTROLLER OPERATION  
EXTRUSION FOLLOWING

Controllers equipped with our EXTRUSION FOLLOWING option differ from our standard controllers in several important ways.

1. A "CYCLE" power cord is not provided. Instead, an extruder speed signal cord is provided to carry the extruder RPM tachometer voltage to the controllers computer logic. The color controller then follows this signal exactly as extruder RPMs and related tachometer voltages change.
2. An additional calibration adjustment must be made to allow the controller to function properly for the particular voltage range and output characteristics of your extruder.

PRINCIPLE OF OPERATION

A tachometer that currently exists on your extruder provides either an AC or DC voltage output which varies with extruder RPMs. This signal drives the RPM gauge of your extruder and, in some cases, provides sophisticated tach feedback to your Extruder Drive Controller.

When this signal (either AC or DC) is fed into the MAGUIRE extruder-voltage pre-processor, it is converted into a digital pulse-train whose frequency is linear with the incoming voltage. Through an optical coupler, this pulse train is passed on to the main processor. The Optical Coupler provides complete electrical isolation, ensuring that extruder circuits will not interfere with the controller circuitry and vice-versa.

A calibration pot allows each pre-processor to be exactly tuned for your particular extruder. The main computer is programmed to expect a pulse-train of a given frequency at full extruder RPMs. At this frequency, the micro-processor will run the controller drive motor at the full 100% of the speed that is set on the digital counter. At any lower frequency, motor speed will be cut back proportionally. The calibration pot, then, is provided to tune your particular pre-processor to output the full-speed frequency at the full rated speed of your extruder.

Calibration is required only once. After calibration is complete, you need only set the digital counter for the proper controller metering rate for FULL extruder speed. Anything less than full speed will automatically be reflected in a correspondingly reduced metering rate.



## ADDITIONAL CONTROLLER INFORMATION

The MAGUIRE Digital Controller provides the precise speed regulation and metering control necessary to assure absolute accuracy over color usage.

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 color being carefully measured out.

The digital counter located on the face of the controller provides the means for predetermining the exact degree of rotation per 1.1 seconds and, therefore, the precise amount of color that will be added in this time period. To determine the proper setting for the counter, a simple formula is used based on percent of color required and the pounds per hour of the extrusion process.

Motor speed is automatically controlled by the internal microprocessor to allow color metering to occur uniformly at a speed directly proportional to the speed of your extruder. The operator need not concern himself with color motor speed adjustment as the extruder speed changes. Changing extruder drive speed or fluctuations in plant voltage are automatically detected and compensated for and, therefore, will have no effect on metering accuracy.

The controller contains a 1/27 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 53:1. Final output speed of the motor is, therefore, approximately 1 to 56 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 53:1 means that 159 pulses (3x53) 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 every 1.1 seconds. A setting of 159 will one turn every 1.1 seconds.

In addition to this precise control of color 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.

## PRINCIPLE OF CONCENTRATE 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 3" high 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 concentrate supply container and dumping the unused concentrate 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 polypropylene and contains the 1" diameter steel auger which conveys the concentrate forward into the flow of virgin material. When the drive motor is run in reverse, concentrate is transported backwards and discharged out a sample port opening for the convenience of checking output from time to time. Output can also 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 concentrate 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 concentrate into the natural material. The clear acrylic sides provide a clear view of the combined flow.

The hopper holds up to 25 pounds of concentrate and contains four clear sight glasses, two on each side, providing the operator with a view of the material level.

## DESCRIPTION OF CONTROLS and OUTPUTS

### 1. FOLLOW-OFF-MANUAL SWITCH

EXTRUSION FOLLOW: The controller will follow the speed of the extruder based on the voltage signal that it receives from the extruder into the special receptacle located on the back of the controller.

OFF: Will prevent the controller from running and will remove power to the computer controls. If a voltage spike or transient power surge should cause the processor to become "confused", switching to OFF may be necessary to re-start the processor.

MANUAL: 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.

The FOLLOW-OFF-MANUAL switch should be in the FOLLOW position for normal operation. The MANUAL position will allow you to force the controller to run even when the extruder is not running, or running very slowly. In this mode, controller speed will follow the setting of the digital counter and may be controlled accordingly. SOME FLUCTUATION OF SPEED IS NORMAL IN THIS MODE.

### 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. Color in the auger tube will be metered backwards toward the 'sample' port opening. This is done if you wish to verify color quantity being metered by weighing the actual metered sample. To assure an accurate reading, allow sufficient time to purge before weighing.

### 3. THUMBWHEEL SWITCHES

In the FOLLOW mode, the thumbwheel switch setting determines the MAXIMUM rate of speed of the controller. This is the rate of speed you would expect when your extruder is running at 100% of full rated speed. In the MANUAL mode, the setting directly controls the RPMs of the motor output shaft.

### 4. DISPLAY WINDOW

The window will display motor RPMs. Flashing of this display at half second intervals indicates that the motor is not running at the full speed that is necessary to deliver the quantity of color requested by the counter setting.

### 5. SIGNAL AND MOTOR LIGHTS

The Signal Light indicates power is present at the signal cord; in other words, the process machine screw is turning. The Motor Light indicates the computer processor is outputting a D.C. voltage to the controller motor; the motor is turning.

## CHANGING COLORS

1. If a loader is in use, remove pickup line from the color container and allow to 'dry' cycle one time to clear the line. Turn loader off.
2. A locking latch is located on each side of the Color Feeder. Lift these latches up and rotate them forward until they fall freely forward to a straight down position.
3. Slide the controller-drive unit straight back until it stops (5 inches). There is no need to turn the controller off.
4. Slide the hopper and auger assembly back a few inches. Grasp the hopper handle in one hand, and with the other hand under the back side of the hopper, lift straight up and back.
5. Dump the unused portion of color back in the color container it came from.
6. Slowly remove the auger out the rear of the auger tube, allowing color pellets to fall into the recovery container.
7. Once auger is fully removed, tilt the hopper back slightly until all color runs out the rear of the auger tube opening.
8. Inspect that all pellets and traces of color are completely removed from the hopper. If necessary, blow out the hopper and auger tube with an air gun.
9. Re-insert auger and hand tighten locking screw. Hopper is now ready for next color.
10. Seat the clean hopper assembly properly in position, then slide the drive unit forward until the side latches fall into their locked position.

NOTE: Difficulty may be encountered if the drive coupling does not engage properly. If necessary, rotate the auger coupling slightly or wait for a machine cycle to cause the motor to run.

11. Fill hopper with new color.

NOTE: You may find it more convenient to fill the hopper with color before re-installing on process machine.

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 voltage to the signal following cord, Switch on FOLLOW:

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

IN FOLLOW:

AT NO TIME will the display be COMPLETELY BLANK.  
 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.  
 Switching to OFF and then to FORWARD again will cause a momentary increase in motor speed as the unit tries to 'catch up'.

IN MANUAL:

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 '180'.  
 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:

Extrusion, lbs/hour: \_\_\_\_\_  
Desired color output (%): \_\_\_\_\_

===== 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 =====

What is the COUNTER SETTING: \_\_\_\_\_  
Is the problem only at certain settings: \_\_\_\_\_  
Does the display BLINK: \_\_\_\_\_  
Does display ever go completely blank (it shouldn't): \_\_\_\_\_  
(it should always show a number or a zero except when blinking)  
What is the actual motor output RPMs: \_\_\_\_\_  
EXTRUSION RATE: \_\_\_\_\_  
Does the display show the full counter setting: \_\_\_\_\_  
What count is displayed when it runs: \_\_\_\_\_  
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) 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 LOSS OF COLOR

1. Check that color supply is adequate.
2. Check that the auger is rotating the proper number of revolutions per cycle:

For Model 8-34 with EXTRUSION FOLLOWING:

Display of 180 equals about 1 turn/second

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

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

CONCENTRATE AUGER FEEDER - MAXIMUM OUTPUT SPECIFICATIONS  
(Metering Rate for ABS Color @ 50 lbs./cu.ft.)

| Model #<br>MCF/QCC | Auger size | Max RPMs | Continuous Output-lbs/hr<br>Min. | Max. | Min Dispense<br>(one cycle) |
|--------------------|------------|----------|----------------------------------|------|-----------------------------|
| 4-18               | 1/2"       | 30       | .05                              | 4    | .003 CC                     |
| 4-34               | 1/2"       | 55       | .1                               | 7    | .006 CC                     |
| 8-34 Std.          | 1"         | 55       | .7                               | 58   | .050 CC                     |
| 8-50               | 1"         | 90       | 1.1                              | 85   | .075 CC                     |
| 16-50              | 2"         | 90       | 8.0                              | 600  | .540 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:

$$(\text{Shot Wt.} - \text{Grams}) / (\text{Screw Return Time in Seconds}) \times 8 = (\text{lbs/hr})$$

2. Determine maximum expected color percent usage and multiply this times extrusion rate for maximum expected lbs/hour of color required.
3. Select the standard unit (Model 8-34) 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 2% = 1 lbs/hr max. color -- Select model 8-34  
 250 lbs/hr x 3% = 7.5 lbs/hr max. color -- Select model 8-34  
 1100 lbs/hr x 4% = 44 lbs/hr max. color -- Select model 8-34  
 1300 lbs/hr x 6% = 78 lbs/hr max. color -- Select model 8-50

RECOMMENDATIONS

| MODEL           | INJECTION MOLDING | EXTRUSION             |
|-----------------|-------------------|-----------------------|
| 4-18            | Up to 50 tons     | Up to 75 lbs./hour    |
| 4-34            | Up to 175 Tons    | 15 to 175 lbs./hour   |
| 8-34 (standard) | 50 to 3000 Tons   | 100 to 1200 lbs./hour |
| 8-50            | Not Recommended   | 300 to 2000 lbs./hour |
| 16-50           | Not Recommended   | 1000 lbs./hour and up |

## FEATURES

1. STAINLESS STEEL CONSTRUCTION
2. LOW PROFILE adaptor (only 3-1/2 inches high) keeps your virgin material hopper as low as possible.
3. REMOVABLE HOPPER allows for easy cleanout and rapid color changes.
4. CLEAR VIEWING WINDOWS allow visual confirmation of color metering and virgin material flow right at the mixing point.
5. BAFFLE CHAMBER allows color to fall into the flow of virgin pellets from an air space. These baffles also assure a predictable flow pattern and, therefore, uniform mixing of the color into the virgin material.
6. UNIQUE "KEYWAY" SLOT in the auger tube prevents unwanted bridging of material between the auger and auger tube, thus assuring a continuously uniform metering rate.
7. Special HANGER design of the entire feeder assembly allows easy removal for maintenance or for interchangeability from machine to machine.
8. Automatic AUGER TUBE SHUTOFF prevents color pellets from spilling when unit is removed for color changes.
9. FOUR CLEAR SIGHT GLASSES for visual check of material in hopper.
10. ONE PIECE AUGER ground from a SOLID STEEL BAR; no welded flights.
11. FLIP UP latches, self engaging drive coupling, slide back controller; everything comes apart without tools and without difficulty.

## WARRANTY

MAGUIRE PRODUCTS offers one of the MOST COMPREHENSIVE WARRANTIES in the plastics equipment industry. We warrant each Concentrate 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 its factory any Concentrate Feeder which shall within FIVE (5) YEARS after delivery 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 Concentrate 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 Concentrate Feeders that are returned to our factory in Aston, 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.

3/22/90 gm  
2/19/93 jw

