

MAGUIRE PRODUCTS INC.

GRAVIMETRIC AUGER FEEDER®

MAGUIRE

Model MGF-ST®
Standard Controller

GRAVIMETRIC AUGER FEEDER

INSTRUCTION MANUAL

Use this space to record information about your Maguire Machines:

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Notes:

Maguire Products Inc.

Model MGF-ST GRAVIMETRIC FEEDER

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To every person concerned with use and maintenance of the Maguire Gravimetric Feeder (MGF) it is recommended to read thoroughly these operating instructions. Maguire Products Inc. accepts no responsibility or liability for damage or malfunction of the equipment arising from non-observance of these operating instructions.

To avoid errors and to ensure trouble-free operation, it is essential that these operating instructions are read and understood by all personnel who are to use the equipment.

Should you have problems or difficulties with the equipment, please contact Maguire Products Inc. or your local Maguire distributor.

These operating instructions only apply to the equipment described within this manual.

Manufacturer's Contact Information

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Maguire MGF-ST Features

MGF-ST Gravimetric Feeder

Throughput capacity:
Injection molding –
Up to 40.0 lb/hr
(18 kg/hr)

Extrusion –
Up to 120.0 lb/hr
(55 kg/hr)

Full function gravimetric
feeder for the price of a
volumetric model.



Eliminate Waste of Colorants and Additives

This compact loss-in-weight additive feeder precisely measures the amount of additive that is fed directly into the machine throat to eliminate costly waste.

Standard features:

3 Standard Modes of Operation

Cyclical, Continuous and Extrusion Following Modes. Rate (volumetric) also available.

Reduces Input Error

The easiest setup procedure in the industry: enter let-down ratio and either shot weight or lb/hr output and press start. Feeder automatically adjusts to screw recovery time and extruder output.

Fine Metering Resolution

100 rpm Stepper Motor advances at 200 increments per revolution. In combination with digital control, the 200-step rotation achieves fine metering resolution of $\pm 0.2\%$.

Automatic Re-calibration Ensures Continuous Accuracy

Automatic adjustments guarantee that feed rate is held to within $\pm 0.2\%$ of desired let-down ratio.

Dual Load Cells

Balanced load readings improve accuracy.

Torque-limiting Drive Coupling

Protects drive motor in case of jammed auger.

Easy-to-Use Microprocessor Controller Saves Time

User-friendly controller has intuitive setup procedure.

USB Port

Allows data download, data printout and software update capability.

Detailed Material Usage Documentation

Microprocessor control allows data collection via G2 networking software, or MLAN protocol via Ethernet.

Eliminates Downtime Associated with Color Change

Feeder automatically re-calibrates to new color, so no additional setup required. Spare hoppers available for faster color changes.

Exclusive 5-Year Warranty

ASSEMBLY AND INSTALLATION INSTRUCTIONS

The MGF consists of these assemblies:

1. The Adaptor Frame Assembly
2. The Bar Assembly (for the Controller).
3. The Controller
4. The Load Cell Assembly
5. The Auger Tube Assembly
6. The Hopper Assembly



Power Requirements

MGF Model	Voltage (60 hz)	FLA	Voltage (50 hz)	FLA
MGF-3/4/8	110/1/60	1.0	230/1/50	1.0

Secure voltage supply cable per the requirements of EN 60204-1, Clause 13.4.2.

MOUNT THE ADAPTOR FRAME

1. The ADAPTOR frame mounts directly to the throat under your current natural material hopper. For proper ORIENTATION, consider the following:
 - Orient the Auger Tube Assembly at 90° to the machine barrel.
 - Clearance and ease of access for removing the hopper.
 - Easy viewing and access to the controller.
 - The feeder will hang from the side of the adapter that has the opening into the flow chamber.
2. Locate and drill the proper bolt patterns (top and bottom of the adapter 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.



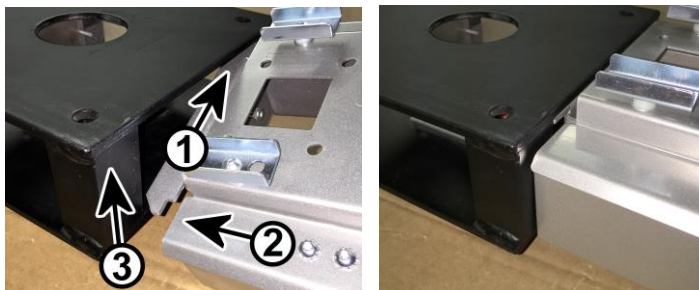
The TOP plate of the Adapter Frame has the ROUND hole.
The BOTTOM plate of the Adapter Frame has the SQUARE hole.

Mount the Controller Bar, Controller AGL (if optionally equipped)

3. The Controller and AGL will mount to the Controller Bar that bolts on the left side of the adaptor frame. You may also mount the controller in a remote location and use optional extension cables to connect the motor and load cell. If the controller is remote mounted, the Controller Bar must still be mounted if an AGL Loader is to be installed. For further instructions on installing an AGL Loader, see AGL Loader Installation on page 36.

Hang the Load Cell Assembly

4. Hang the Load Cell Assembly from the side of the frame with the opening into the chamber. (See photo) Tilt unit. (1) Slip upper ear behind the corner post. (2) Slip the lower ear behind the other corner post. (3) Raise the lower ear up and rest the load cell assembly into frame as shown.



Install the Auger Tube Assembly

5. Insert the Auger Tube Assembly into Load Cell Assembly and hang onto the two bolt heads.

Install Hopper Assembly

- Place the hopper assembly on the load cell assembly and secure with the hold downs.

Plug in all cables

- Plug the motor and load cell cables into the Load Cell Assembly.
- Plug the black power cable into a standard 120-volt (EURO, 230 VAC) outlet.

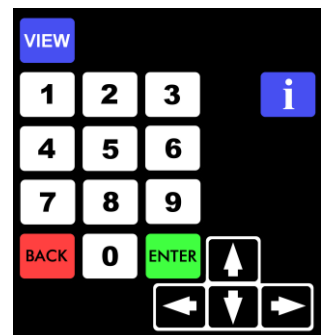
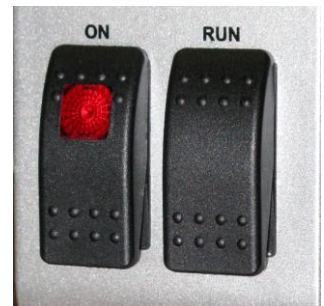


Connect Signal Cable

- Standard equipped for **contact closure** applications only, your controller will be equipped with the supplied cable lead and 5-pin connector. You will also have a 20' length of cable with a mating 5-pin connector. This cable will connect to the MGF controller using the connector, and the open end will be wired to your equipment. The open ends leads should be wired to the screw signal normally open contact closure. When the screw is retracting contacts will close and then open at the end of the retract. The time closed is used by the MGF to adjust output. This 5-pin connector is also used with an extrusion following 0-10 volt signal.
See the MGF wiring diagram on page 42.
- If optionally ordered with 24 to 120 VDC or VAC plug the "SIGNAL" (gray) cord will be plugged into outlet that is energized only when the screw is turning. Signal voltage can be from 24 to 120 VDC or VAC. The screw signal on-time can not be less than 1 second. INJECTION time or CLAMP CLOSE time are options.

Description of Controls

- POWER ON / OFF SWITCH** - Turns power on or off. Switch light is illuminated when MGF is powered ON.
- RUN / STOP SWITCH** - This switch provides a run signal to the circuit board. For the MGF feeder to run, a screw turning signal **MUST** be present, providing power to the screw signal cord, **AND** the RUN switch must be in the RUN position. The only exception is when the PRIME feature is selected. This will operate the auger without any Run signal.
- KEYPAD** – Used to enter, modify data and settings. Arrow keys are used to navigate screens. The Enter button selects menu options and the Back button cancels or takes you back one step. The View button displays totals, cycles, date and time with the option to clear totals and cycles by pressing 00 to clear. Pressing any non-zero number will cause the controller to write totals to a USB key. There must be a folder named "maguire" on the USB key for the print job to write the file printer.txt within that folder. The **i** (info) button displays the diagnostics screen with real-time data and averaged and target data. See page 35 for more details on the diagnostics screen.



MGF Menu Navigation and Overview

The MGF menu system is designed to be easy to use with quick access to commonly adjusted settings as well as a password protected Settings section for first time setup and lesser accessed settings and menu choices. The following page lists all menu sections of the MGF in the order that they appear. When navigating the menu, the currently selected item is indicated by an arrow ► to the left of the option.

```
==== MAIN MENU =====  
► SHOT WT          200  
  LDR              1.00%  
LOAD=== xxxxx =SIG:12▼
```

Main Screen of MGF

On the right side of the screen, up ▲ and down ▼ arrows indicate that there are more menu options above or below the current screen of choices. Navigation, selection and adjustment of menu options are accomplished by using the arrow buttons on the keypad to navigate and pressing the **ENTER** button to select an option. Adjustments to values are accomplished using the numeric keys on the keypad. Press the **BACK** button to go back, exit or cancel an action. On the MAIN MENU screen, LOAD at the bottom left is displayed when the loader is activated. In the lower right SIG (Signal) is displayed when in Cycle Mode and displays incrementing seconds of on-time.

MGF MENU Navigation - 5 Main Menu Options, 2 sub-menus

MODE – Configuring to run CYCLE, INTRUSION, CONTINUOUS or Extrusion Following mode	See page 10
LBS/HOUR or SHOT WT – Setting Metering Rate or Shot Weight, grams.	See page 10
LDR – Let Down Rate, Percent.	See page 10
SETUP – Password protected access to options, settings and parameters	See below ↓
FILL BIN – Enabled if Loader Operation is ON. Manual fill of the bin (hopper)	
PRIME FUNCTION – Primes and calibrates the MGF	See page 14
DIAGNOSTICS – Displays information for troubleshooting purposes	See page 35
SETUP – Password protected access to MGF Settings (default: 2222)	See page 19
SETTINGS – For changing basic setting of the MGF	See below ↓
SCALE CALIBRATION – For calibrating the MGF Scale	See page 25
COMMUNICATIONS – MLAN ID, View MAC Address, TCP/IP Address, TCP/IP Setup ...	See page 26
LOADER OPERATIONS – Loader On/Off, Loader on/off grams, Loader Alarm	See page 26
METERING RATE – Motor Factor, Weight Error, Low Weight	See page 26
PARAMETERS – List of adjustable parameters. See Parameter for more information	See page 27
PRINT OPTIONS – Parameter printout or time interval printouts to USB drive	See page 23
UPDATE FIRMWARE – For updating MGF Firmware	See page 32
UPDATE USB CHIP - For updating MGF's USB firmware	See page 32
RATE ADJ RESET – Used to reset the Rate Adjustment back to 1.0000	See page 33
VIEW/RESET TOTALS – Resets material usage totals and cycle counter	See page 34
RESTORE DEFAULTS – Restores MGF factory defaults	See page 34
SETTINGS	
CHANGE PASSWORD – Changing the MGF Password (default: 2222)	See page 19
UNITS – Display units as US (Pounds, ounces) METRIC (Kilograms, grams)	See page 20
LANG – Language: English, French, Italian, German, Polish, Czech, Spanish	See page 21
SET DATE AND TIME – Date format (USA, Europe) and RTC setup	See page 21
VOLUMETRIC - Causes the MGF to run at a fixed rate based on current values.....	See page 22
AUTO STOP – Used for extrusion and continuous. Turning on requires a constant contact closure to run. Used normally to run and stop the MGF Feeder automatically with the extruder. Only available with extrusion following models.	See page 22

MODE SETUP - FIRST TIME ONLY

Select Mode of Operation – CYCLE, INTRUSION, CONTINUOUS, EXTR FLLW

Turn the MGF Power ON. Power button located on lower left side of controller. View the LCD window. Allow controller to boot up to MAIN MENU.

Press  To scroll down to **SETUP** (using arrow key)

Press **ENTER** Display will say:
ENTER PASSWORD _ _ _ _

Enter **2222** **Default password is 2222**

Press **ENTER** **to enter SETTINGS. Display will show SETTINGS options.**

Press  **once, scrolling the display down to MODE.**

Press **ENTER** **to toggle between CYCLE, CONTINUOUS and EXTR. FLLW (Extrusion Following) Mode.**

Select Cycle for injection molding, where the MGF auger turns on and off with each cycle. In this mode the first step is to enter the **SHOT WEIGHT** of the part on the main screen. Next set the **LDR** (Let Down Ratio) on the main screen. In CYCLE mode your MGF will dispense the calculated rate (shot weight x LDR) during the length of screw recover time.

Select Intrusion When enabled, the full injection timing is used to divide up the cycle target weight between in the injection time and the recovery time. The IPC parameter is used to determine what percent of target is used under injection time.

Select Continuous for extrusion, where the MGF auger runs continuously. In this mode the first step is enter **LBS (or KILOS) / HOUR** of the extruder on the main screen. Next set the **LDR** (Let Down Ratio) on the main screen. In CONTINUOUS mode your MGF will run continuously at the calculated rate (lbs/hr x LDR). Auger speed will adjust automatically to maintain dispense rate.

Select EXTR. FLLW (Extrusion Following) for extrusion, where the MGF auger runs continuously by following the 0-10 volt reference voltage of the extruder screw. In this mode the first step is to set the XMO parameter. Setting XMO will automatically calculate extruder throughput on the main screen based on a 0-10 volt reference. See page 27 for XMO. Next set the **LDR** (Let Down Ratio) on the main screen. In Extrusion Following mode your MGF will run continuously at the calculated rate (lbs/hr x LDR). Auger speed will adjust automatically to maintain dispense rate.

With the correct mode selected...

Press **BACK** **to select the mode of operation you will use.**

Press **BACK** **Twice more to exit SETUP and back to the Main Screen**

Select Units – US or Metric

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press	ENTER	to enter SETTINGS. Display will show basic MGF SETTINGS.
Press		twice, scrolling the display down to UNITS.
Press	ENTER	to toggle between US and METRIC. US will display in Pounds and ounces METRIC will display in Kilograms and grams
With the desired UNITS selected...		
Press	BACK	to make the selection.
Press	BACK	Twice more to exit SETUP and back to the Main Screen
Re-enter:	the following settings if previously set (required when switching weight units)	
	1. LBS/HOUR (KGS/HOUR) – MAIN MENU Screen 2. LOW WEIGHT ALARM – See Parameters 3. LOADER ON WEIGHT – Setup / Loader Operations 4. LOADER OFF WEIGHT – Setup / Loader Operations	

Set Date and Time – RTC (Real Time Clock) Setup

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press	ENTER	to enter SETTINGS.
Press		to scroll the display down to SET DATE AND TIME.
Press	ENTER	The display will show the Date Format USA displays as Month/Day/Year, Europe displays as Day/Month/Year
Press		To toggle Date Format between USA and EUROPE
With the desired Format selected...		
Press	ENTER	to make the selection. The Display will show the current date and time on the MGF. To adjust:
Use the Press	keypad digits 	To adjust the blinking field. to advance to the next field. If necessary adjust the highlighted field using the keypad numbers. Do this for all fields. When you advance past the last field, the display will show Date/Time Saved!
Press	BACK	three more times to exit SETUP and go to the Main Screen

START UP PROCEDURE

1. Turn POWER ON:

The opening screen displays for 5 seconds, and shows your software version number in the lower-right and the USB Version in the upper-right. The display then shows the Main Screen of the MGF. Depending on your Mode of Operation, the Main screen will either display Shot Weight or Pounds Per Hour (or KGS/Hour).

```
=====03.68
      Maguire
      MGF
=====J0323A
```

CYCLE MODE:

```
==== MAIN MENU =====
► SHOT WT           200
  LDR               1.00%
LOAD===  xxxx  =SIG:XX▼
```

CONTINUOUS and EXTR FLLW MODES:

```
==== MAIN MENU =====
► LBS/HOUR          200
  LDR               1.00%
LOAD===  xxxx  ===== ▼
```

Adjustments

SHOT/WT or LBS/HOUR - Depending on your selected Mode, the display will show **SHOT/WT** or **LBS/HOUR**. To adjust this value, follow these instructions:

Using the Arrow buttons, select **SHOT/WT** or **LBS/HOUR** (selection indicated with the ►)

Press **ENTER** Display will highlight the value on the right.

Enter **NEW value** using the keypad. When new value has been entered, press enter or fill in all digits.

LDR – Let Down Ratio - To adjust this value, follow these instructions:

Press  once to highlight **LDR** (selection indicated with the ►)

Press **ENTER** Display will highlight the value on the right.

Enter **NEW value** using the keypad. When new value has been entered, press enter or fill in all digits. The decimal is hard coded to 100^{ths} of a %.

Prime the MGF Auger / Calibrate

It may be necessary to prime the auger prior to running. Prime will allow the MGF to run without a signal from the process machine. Prime run time is automatically limited to 30 seconds. After a successful 30-second prime "CALIBRATION SUCCEEDED" will display. During the Prime, the MGF automatically calibrates the flow rate of the material. To Prime, follow these instructions:

Press  to highlight **PRIME FUNCTION**

NOTE: Make sure Hopper Slide Gate is open.

Press **ENTER** Display will show: PRIME ON
A 30-second counter will begin to count down. During this time the MGF will self-calibrate the flow rate of your specific material and adjust the motor factor accordingly. After a successful 30-second calibration, "CALIBRATION SUCCEEDED" will display. If the expected weight for the model is not achieved during the prime calibration, the message "CALIBRATION FAILED" will display.

Press **BACK** To exit. To end the prime function before the 30-second timeout has ended press BACK.

If the calibration fails, read Manual Rate Calibration below.



Manual Rate Calibration

If the calibration fails and your material is heavier or lighter than average, you can manually enter the Motor Factor using the following procedure and calculation.

1. **Read Hopper Weight** - You will perform the prime routine again but this time, before running the prime, read the weight of the hopper (top of red hopper).
2. Press PRIME. After the 30-second prime, read the hopper weight again.
3. Subtract the second reading of weight from the first reading. This is the loss-in-weight over 30 seconds.
4. Multiple this weight by 2 then divide by the prime RPM (prime RPM is 20 for the MGF-4 and MGF-8. Prime RPM is 40 for the MGF-3).
5. Enter the PRIME RPM into the MTF parameter.
Setup, MGF Configuration, Parameters, Motor Configuration, MTF

Manual Rate Calibration example using an MGF-4:

Pre-prime weight of hopper: 2520
Weight of hopper after prime: 2460
Loss-in-weight: 60
 $60 \times 2 = 120$ (loss-in-weight over one minute)
 $120 / 20 \text{ rpm} = 6$
Enter the value 6 into the Motor Factor.
To access the Motor Factor, press Setup, MGF Configuration, Parameters, Motor Configuration, MTF

When the MGF settings are adjusted and the MGF is primed with material, it is ready for operation.

Switch to RUN using the paddle switch on the left side of the controller, located next to the power switch.



What happens during NORMAL OPERATION

The software uses the information you have entered, lbs/hr (or shot wt) and Let Down Ratio, plus the motor factor, to determine a correct percentage off-time between steps for the motor to control speed.

Two 10K load cells detect the loss of weight after each dispense. Based on this feedback, adjustments are made to the percentage off-time to maintain the correct metering rate.

In the CONTINUOUS mode the percentage off-time, (motor speed) is adjusted to hold the correct loss in weight of the hopper.

In the CYCLE mode the speed is adjusted to meter the correct amount over the full screw signal cycle time. A change in process screw signal time will result in an adjustment to motor speed.

Speed adjustment is based on the previous screw return time. If screw return time is SHORTER than the PREVIOUS time, the auger motor will continue past the end of the run signal for 1 additional second. It will run faster on the next dispense to end in time.

ALARMS and TROUBLESHOOTING

NO METERING - ALARM CODE:48

This alarm indicates that no loss in weight has been detected during the last several cycles. After clearing the alarm, metering will continue, however the alarm will not re appear until after you have remedied the problem.

The following conditions are required to generate the NO METERING ALARM

- a. Before this alarm is checked, the system needed to have been running for at least 24 seconds.
- b. If the MGF is in continuous or extrusion follow mode, the target rate needs to be more than 7.5 g/min.
- c. If the MGF is in cycle mode, the target rate needs to be more than 2 grams / cycle.

If the above conditions (a and (b or c)) are met, then the MGF will compare the current bin weight with a captured value from 24 seconds ago.

- d. If the MGF is in continuous or extrusion following mode, the difference between the two weights need to greater than 10 times the target rate.
- e. If the MGF is in cycle mode, the difference between the two weights needs to be greater than 5 times the target rate.

If the above condition (d or e) fails, then a counter is incremented

If the above condition (d or e) passes, then the counter is reset to 0.

If the counter gets incremented past 3, then the NO METERING alarm is triggered.

In cycle mode, the NO METERING alarm is checked only at the start of every cycle.

In continuous or extrusion following mode, the NO METERING alarm is checked every RTU update.

LOADING TOO SLOWLY - ALARM CODE:49

If the loading feature is enabled and it takes more than LAT (Loader Alarm Time) seconds to fill the bin to LHF (Loader High Level) grams then this alarm is triggered.

PRIME ALARM - ALARM CODE:50

This alarm indicates that the 60-second Prime cycle time has ended. The Prime function is used to prime the feeder and is accessible from the main menu. It operates by running the feeder auger for one minute to prime the feeder then alarms to alert the operator that the prime cycle has ended.

LOW WEIGHT ALARM - ALARM CODE:51

If the bin weight falls below the LWA (Low Weight Alarm) setting (Default 400g) then this alarm will be triggered. If the bin weight rises above the LWA parameter, then the alarm will shut off.

OVER WEIGHT LIMIT ALARM - ALARM CODE:52

This alarm indicates that the weight being read by the load cells exceeds the capacity of the cells. The cells are 10 Kilos each, 20 Kilos total, about 44 pounds. The hopper holds about 1/5 cubic foot, about 10 pounds. The weight of the hopper when empty is about 8.2 pounds.

MOTOR CAPACITY EXCEEDED - ALARM CODE:53

This alarm indicates that the calculated rate exceeds capacity.

The following variables effect the motor off-time calculation

MTF (Motor Factor)

LDR (Let Down Ratio)

PHR (Per Hour Rate) (continuous and extr. Follow only)

SHT (Shot Weight) (cycle mode only)

RATE ADJ

If the target rate calculates out to less than a step every 2 ms, then this alarm is triggered.

The following variables effect the motor step time calculation

MTF (Motor Factor)

RPM (Maximum RPM)

SPR (Steps per Revolution)

LDR (Let Down Ratio)

PHR (Per Hour Rate) (continuous and extr. Follow only)

SHT (Shot Weight) (cycle mode only)

RATE ADJ

BIN REMOVED - ALARM CODE:54

This alarm indicates that the hopper is not installed on the load cells. When this alarm is active, the MGF will not allow the auger to run and will not allow the loader to load material. Alarm is triggered if the bin weight falls below the NBW (Negative Bin Weight) grams.

MAX ADJUST RATE - ALARM CODE:55

Indicates Motor factor is too low which causes the MGF to dispense too much material over time, causing the rate adjust limit to reach 3.000. When the MGF makes a correction, the RATE ADJ value is re-calculated to compensate for the accumulated error. If the new RATE ADJ rises above the UBE (Upper Boundary Error) (Defaulted to 300 = 3.00), then this alarm is triggered. Doing a prime calibration is recommended and this will set your motor factor and rest rate adjust to 1.000.

MIN ADJUST RATE - ALARM CODE:56

Indicates Motor factor is too high which causes the MGF to dispense too little material over time, causing the rate adjust limit to reach .3000. When the MGF makes a correction, the RATE ADJ value is re-calculated to compensate for the accumulated error. If the new RATE ADJ falls below the LBE (Lower Boundary Error) (Defaulted to 30 = 0.30), then this alarm is triggered. Doing a prime calibration is recommended and this will set your motor factor and rest rate adjust to 1.000.

LIW TIMED OUT - ALARM CODE:57

When the MGF is configured to poll a Maguire LIW for Steady State Rate (LIW Mode), this alarm is generated when the MGF cannot poll the Steady State Rate from the LIW.

LOADCELL ERROR - ALARM CODE:58

This error is generated if there is no response from the internal analog-to-digital converter system that provides a digital measurement from the loadcells. If this error is generated, it may indicate damage to the A-to-D converter. If you receive this error, please contact technical support.

TROUBLESHOOTING CONTROLLER PROBLEMS

If you have problems, the more information you can provide us about what caused the problem, the more we can do to improve our product so that these problems cannot, and do not, occur in the future. In some cases, we may NOT be able to duplicate YOUR particular problem in our testing facility. Describe the problem as CAREFULLY and as completely as possible to help us locate and correct any design weakness that might be responsible for the problems you are having.

TROUBLESHOOTING LOSS OF COLOR

1. Check that color supply is adequate.
2. Confirm that the motor is turning. Check proper connection of the motor plug.
3. Check that the drive coupling is not slipping and is securely attached to the motor shaft. The connecting tube between the motor coupling and the auger coupling is designed to slip under high torque. If excessive loading has caused it to slip, it may have become worn, or loose, or moved out of correct position.

SETUP Menu – Password protected access to MGF Settings including: SETTINGS, SCALE CALIBRATION, COMMUNICATIONS, LOADER OPERATIONS, METERING RATE, PARAMETERS, PRINT OPTIONS, UPDATE USB FIRMWARE, UPDATE FIRMWARE, RATE ADJUST RESET, VIEW/RESET TOTALS, RESTORE FACTORY DEFAULTS.

SETTINGS - CHANGE PASSWORD, MODE, UNITS, LANGUAGE, SET DATE AND TIME.

CHANGE PASSWORD – Used to change the factory password

For security purposes, you want to change the factory password to protect setup information from modification. The default password is “2222”. Four digits (0 through 9) are required. A modified password will not reset back to factory default after a software upgrade. If you changed the password but forgot what it is, please contact Maguire Products. The following describes how to change the factory password.

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press	ENTER	to enter SETTINGS.
Press	ENTER	to select CHANGE PASSWORD
You will be prompted for a New Password.		
Enter a new 4-digit password or press BACK to exit without changing the password.		
You will be prompted to confirm the new password. Enter your new password again.		
The display will show Password Changed.		
Press	BACK	three more times to exit SETUP and go to the Main Screen

LIW Mode

The MGF can be configured to follow the rate of a Maguire LIW Loss-In-Weight Hopper. In this mode, the MGF will dispense the LDR based on the current Steady State Rate (lbs/hour, kg/hr) of the LIW. The LIW and up to two MGF's must be connected by Ethernet and the IP addresses and ID numbers must be set for LIW Mode to operate.

Press		To scroll down to SETUP
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press	ENTER	to enter SETTINGS .
Press		moving the display down to COMMUNICATIONS .
Press	ENTER	to view the COMMUNICATIONS configuration options.
Press		to move down to SETUP LIW COMM .
Press	ENTER	to view the LIW COMM configuration options.
Press	ENTER	Set the LIW ID to the ID number that was configured in the LIW.
Press		to move down to LIW IP ADDR (IP address) .
Press	ENTER	to begin editing the IP address. Using the keypad, enter the IP address that was entered into the LIW. Press BACK to exit.
Press		to move down to LIW COMM. TEST . Press Enter to test communication to the LIW.
Press	BACK	Multiple time to exit to the home screen.

Enable LIW Mode

The MGF can be configured to follow the rate of a Maguire LIW Loss-In-Weight Hopper. In this mode, the MGF will dispense the LDR based on the current Steady State Rate (lbs/hour, kg/hr) of the LIW. The LIW and up to two MGF's must be connected by Ethernet and the IP addresses and ID numbers must be set for LIW Mode to operate.

Press		To scroll down to SETUP
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press	ENTER	to enter SETTINGS .
Press		moving the display down to LIW MODE .
Press	ENTER	to turn LIW MODE ON .
Press	BACK	Multiple time to exit to the home screen.

Set Date and Time – RTC (Real Time Clock) Setup

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press	ENTER	to enter SETTINGS.
Press		to scroll the display down to SET DATE AND TIME.
Press	ENTER	The display will show the Date Format USA displays as Month/Day/Year, Europe displays as Day/Month/Year
Press		To toggle Date Format between USA and EUROPE
With the desired Format selected...		
Press	ENTER	to make the selection. The Display will show the current date and time on the MGF. To adjust:
Use the keypad		To adjust the blinking field.
Press		to advance to the next field. If necessary, adjust the highlighted field using the keypad numbers. Do this for all fields. When you advance past the last field, the display will show Date/Time Saved!
Press	BACK	three more times to exit SETUP and go to the Main Screen

LANG – Set the Language of the MGF Controller.

Languages include English, Italian, German, Polish, Czech, French and Spanish

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press	ENTER	to enter SETTINGS.
Press		to scroll the display down to LANG (Language).
Press	ENTER	to toggle through the languages. When the language you desire is displayed, press BACK to set the new language.
Press	BACK	three more times to exit SETUP and go to the Main Screen

Volumetric Mode

Volumetric operation can be used in the event of a load cell failure. When power is turned off this mode is always reset to OFF. With this mode ON, the load cells are completely ignored. Error correction and rate recalibration does not take place. The unit functions like a volumetric feeder without checking or correcting for errors. Since load cell readings are ignored, this flag allows operation even if the load cells become damaged. Dispense times will be based entirely on the last known rate adjustment. IF the metering rate is not correct see Rate Adjustment Reset on page 33.

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press	ENTER	to enter SETTINGS.
Press		to scroll the display down to VOLUMETRIC.
Press	ENTER	To toggle between OFF / ON.
With the desired Format selected...		
Press	BACK	to make the selection.
Press	BACK	two more times to exit SETUP and go to the Main Screen

AUTO STOP

Used for extrusion and continuous. Turning on requires a constant contact closure to run. Used normally to run and stop the MGF Feeder automatically with the extruder. Only available with extrusion following models.

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press	ENTER	to enter SETTINGS.
Press		to scroll the display down to AUTO STOP.
Press	ENTER	To toggle between OFF / ON.
With the desired Format selected...		
Press	BACK	to make the selection.
Press	BACK	two more times to exit SETUP and go to the Main Screen

Print Options – Send a Parameter report to the USB Drive, Print a report every X minutes.

Press  To scroll down to **SETUP** (using arrow key)

Press **ENTER** Display will say:
ENTER PASSWORD _ _ _ _

Enter **2222** Default password is 2222

Press  to scroll the display down to **PRINT OPTIONS**.

Press **ENTER** to enter **PRINT OPTIONS**.

Press **Print Parameters**
Print Report
Print Total
Units: (GRAMS, KILOGRAMS, POUNDS)

Selecting **Parameters** and pressing **ENTER** will write a Parameters Report to the USB drive. Selecting **PRINT** Report and pressing **ENTER** will enable (ON) the print report. Print Report in Cycle Mode will generate a report every cycle. For Continuous Mode or Extrusion Following Mode it will print every minute or when an event occurs. The MGF will append a snapshot of current information to a file on the USB drive. Selecting Print Totals set a time 0-9999 in minutes that the totals will print. See below for details on the Reports. NOTE: There must be a folder named "maguire" on the USB key for the print job to write the file MGFCYCLE.TXT within that folder.

Press **BACK** two times to exit **SETUP** and go to the Main Screen

Example of a Parameters Report:

```
FIRMWARE: V0819A
GRAVIMETRIC FEEDER ID# 000 WO 000000 RECIPE 00000 OP 000 MODEL 50
IP ADDRESS:192.168.0.1 SUBNET:255.255.255.0 GATEWAY:0.0.0.0
MODE: CYCLE
```

GENERAL PARAMETERS

NAME	RAM	ROM
LDR	500	200
SHT	500	200
PHR	2	200
FUL	3500	3500
PRT	1	0
KDF	6	6
LCZ	583	583
MTF	136	75
XCV	2	0
XRC	40	40
XAL	5	5
XUL	200	200
XMO	1000	1000
LBE	30	30
UBE	300	300
NBW	100	100
LWA	400	400
ATP	50002	51005
RTU	305	305
ADJ	3005	3005
LLF	500	500
LHF	2000	2000
LAT	120	120
STL	10	10
NWA	100	100
XMR	0	0

To the left is an example of a parameters report. This report prints the current parameter settings loaded into RAM (those that are currently in use) as well as parameters in ROM (factory defaults), current firmware version, MGF model, current mode of operation, and communications specific settings (ID#, IP address, subnet, gateway). Also available is work order number, recipe number and operator number which are set via the MLAN protocol.

Below are the output reports produced during the preset time interval. These reports display a date / time stamp, the MGF ID number, Work Order #, Operator #, and Recipe #, the current settings, current hopper content weight, on-time, dispensed weight, rate adjustment, target, total weight dispensed in 10ths of grams, error %, cycle count (cycle mode) refill of the hopper count, and signal indicator with a signal count in seconds.

Interval Report in Cycle Mode

```
07/27/2013 15:40:56
GRAVIMETRIC FEEDER ID# 000 WO 000000 RECIPE 00000 OP 000
LDR: 5.00% SHOT WT: 69.0g TOT: WT: 37.2
WEIGHT: 3402.1 ON TIME: 171ms TOT. CT: 12
AVG. DISP 2.98 RATE ADJ: 0.8145
TARGET: 3.45 ACC. WT: 17.89
ERROR: -2.8 (3) ACC. CT: 6
SIG ON: 8.07s
```

07/27/2013 15:40:56
Date and Time of this cycle printout.

Interval Report in Continuous Mode

```
07/27/2013 15:40:56
GRAVIMETRIC FEEDER ID# 000 WO 000000
RECIPE 00000 OP 000
LDR: 2.00% LBS/HR: 200
WEIGHT: 1784.7 ON TIME: 360ms
DISPENSED: 30.9 RATE ADJ: 1.0281
TARGET: 30.2 TOTAL: 429.8
ERROR: +0.6 (2%) REFILL CT: 157
```

07/27/2013 15:40:56
Date and Time of this cycle printout.

Interval Report Description

GRAVIMETRIC FEEDER ID# 000 WO 00000 RECIPE 00000 OP 000

ID#, WO, RECIPE, and OP are for tracking and identification only. These TAGS may be entered by the operator or downloaded by MLAN communication.

LDR: 5.00%

The percentage that you have entered as the desired target percentage.

WEIGHT: 3402.1

The current weight reading at the end of the dispense cycle. This is the total weight of the color that remains in the hopper.

AVG. DISP 2.98

The average dispense since the last rate error correction has occurred, or since the hopper was last refilled. It is the accumulated weight dispensed, divided by the accumulated cycles count.

TARGET: 3.45

The amount, in grams, that the feeder is targeting to dispense based on your entries of color percent, (LDR), and SHOT WEIGHT. Shot weight times LDR (percent of color) will give you the target dispense.

ERROR: -2.8 (3)

The total error that has occurred to this point, since the last rate correction or since the hopper was last filled. In this example, we have metered 1.9 grams more than we want, since the last correction. This is the "total" error. not one cycle, but all cycle errors combined. The (3) is the trip point. If total error exceeds 3 grams, then a recalculation of rate will occur.

SIG ON: 8.07s

The length of the screw return time that was recorded on this cycle. This number is used to determine how fast we need to run the auger to meter the required color uniformly over this time period.

SHOT WT: 69.0

The Gram weight number that you enter to tell the software how large a shot is being molded. It will include runners, and all parts if this is a multi-cavity mold. In this example, $69 \times 5\% = 3.45$ grams, shown above as the TARGET weight.

ON TIME: 171ms

On models using our 24 volt DC motor, we control motor speed by pulsing the motor every second for a portion of that second. In this example, we will pulse the motor for 171 milliseconds, and then leave it off for the balance of the second, which is 829 ms off. The software adjusts this number based on the metering rate it has learned, coupled with the machine screw ON TIME. As On-Time varies, this number will also adjust. On models using a stepper motor, the off time between steps is adjusted to vary the metering rate.

RATE ADJ: 0.8145

We begin all metering rate calculations using certain assumptions. We do not know the bulk density of the color being metered, and we do not know the exact flow characteristics of the pellets which, together, will change the gram weight metered per revolution of the auger. We start with a standard formula that assumes certain base numbers for these values. In the formula we also have a factor, a multiplier, that starts with a value of 1.0000. At this value, it has no effect. As we learn of an error in our dispense rate, we adjust this factor. In this example, we have adjusted it from 1.0000 downward to 0.8145, which tells us that either the bulk density is higher than our standard assumption, or the pellets flow better than our standard assumption. In any case, the software uses this number to keep the metering rate exactly correct, based on actual dispense rate learned from the loss-in-weight load cell readings over time. This is the number that you will see adjust as the unit learns the exactly correct metering rate.

ACC. WT: 17.89

The accumulated weight since the last correction, or the last hopper refill.

ACC. CT: 6

The cycle count since the last correction, or the last hopper refill. These two values, (accumulated) WEIGHT and CYCLE Count, are used to check on how close we are to our target. The ERROR is based on these numbers as compared to what we would expect if we run at a Perfect rate. TARGET per cycle times CYCLE CT is compared to (accumulated) WEIGHT, and the difference is the ERROR.

TOT. WT: The total weight dispensed since the last time this value was cleared to zero. This can be used to track total usage in your plant.

TOT. CT: The total cycle count since last cleared to zero. This number also are useful for keeping print-out pages in order, and to reference cycles by number when highlighting problems or questions. These last two numbers are for convenience only. They do not enter into control calculations.

Scale Calibration

Periodic zero and full calibration ensures that the MGF is weighing correctly. Calibration is also necessary if a load cell is replaced or if the controller is replaced. Before doing a calibration, you will need a known weight that can be rested on top of the hopper lid. The known weight must weigh approximately 4000 grams and you must know exactly how many grams it actually weighs. This weight in grams will be entered into the MGF. Also be sure of the following:

BE SURE the material hopper is **EMPTY**.

BE SURE the load cell connector is plugged into the side of the controller.

BE SURE the **LOADER** material hose is connected to the hopper lid.

Calibration Sequence:			
Turn the MGF on. View the Main Menu screen on the LCD window.			
Press		To scroll down to SETUP (using arrow key)	
Press	ENTER	Display will show:	ENTER PASSWORD _ _ _ _
Press		To scroll down to SCALE CALIBRATION	
Press	ENTER	Display will show:	ZERO CALIBRATION FULL CALIBRATION
ZERO CALIBRATION is selected and should be done first, followed by a FULL CALIBRATION			
Press	ENTER	Display will show:	WARNING - If this calibration is not performed properly it may disable your scale.
Press	ENTER	Display will show:	LOAD CELL ZERO, WAIT followed by, CALIBRATION SUCCESSFUL
Press		To scroll down to FULL CALIBRATION	
FULL CALIBRATION - Place your known calibration weight on top of the hopper lid.			
Press	ENTER	Display will show:	WARNING - If this calibration is not performed properly it may disable your scale.
Press	ENTER	Display will show:	LOAD CELL FULL, Enter Weight: Enter the weight in grams of your calibrated weight.
Enter	the weight in whole grams of your calibration weight. NOTE: The MGF field has 5 digits, use a leading zero when entering a 4-digit value.		
Press	ENTER	Display will show:	LOAD CELL FULL, WAIT followed by, CALIBRATION SUCCESSFUL
Press	BACK	three times to return to the Main Menu. Main Menu screen should display 0 (zero) at the bottom of the display. If the display does not show 0 (zero), repeat ZERO and FULL calibration routine. With the weight still on the hopper, the display should read the correct weight value in whole grams.	

COMMUNICATIONS

Communications to and from the MGF use the MLAN Protocol and allow control of settings and parameters as well as data and totals collection from the MGF.

MLAN ID

Sets the MGF's Identification Number

Select this option to enter an identification number for this particular feeder. If you are using communications to automatically gather data, then each controller must have a unique address. Valid numbers are 001 to 254. All communication commands (MLAN Protocol) use this I.D. number. For more information on communications, contact Maguire Products, Inc. or see the Maguire MLAN Protocol manual available online at www.maguire.com.

VIEW MAC ADDRESS

View the MGF's Ethernet MAC Address

VIEW TCP/IP ADDR

View the MGF's TCP/IP Settings

Use the arrow keys to toggle through IP Address, Network Mask and Default Gateway.

TCP/IP SETUP

Set the Blender TCP/IP Settings

Used to set the IP Address, Network Mask and Default Gateway. Press the ENTER key to toggle between DHCP and static IP Address. To set a Static IP Address, use the keypad to enter the static IP address you wish to assign the controller and use leading zeros when necessary. After entering the IP, the display will go to Network Mask (Subnet), then to Default Gateway. After entering the Default Gateway, the display will return to Static IP. When you are finished entering the network information, press BACK to save settings and BACK 3 more times to go back to the main screen.

LOADER OPERATIONS:

LOADER

ON / OFF – Enable or Disable use of the Loader

LOADER ON WT

Loader On Weight, Grams – Weight in grams to turn on the loader

LOADER OFF W

Loader Off Weight, Grams - Weight in grams to turn off the loader

LOADER ALARM

Alarm in seconds – Alarm after the elapse of seconds if loader off weight is not satisfied.

LOADER PAUSED

When the AGL is loading, pressing the "back" button will pause loading and will say "paused" on the LCD screen. To continue loading, press ENTER

METERING RATE:

MOTOR FACTOR:

Motor factor works in combination with auger size and the motor rpm and represents grams per revolution. If you change the auger size, you must also change the motor factor.

MGF-3	3/8-inch Auger	0.50
MGF-4	1/2-inch Auger	3.00
MGF-8	1-inch Auger	12.50

ADJUST. TRIP:

This is the trip point of percentage deviation from target grams per minute dispense in a trend that triggers a readjustment of motor speed (5% default). Same as ATP parameter.

WEIGHT ERROR:

If hopper weight has not dropped at all after this amount of expected metering, the NO METERING alarm will sound. This number should not be set too low as false alarms may occur.

LOW WEIGHT:

This is weight, below which you want to receive an alarm. For example, set to 2 pounds, the alarm will begin when remaining weight falls below 2 pounds. When set to 0, this alarm is disabled.

PARAMETERS

All Maguire MGF controllers operate according to certain internal PARAMETERS. Because customer requirements vary widely, we have made parameters accessible for change through the keypad. In most cases, these parameters will never need to be changed. Some parameters that are routinely adjusted values are adjustable from the main display.

LDR	Let Down Ratio	NWA	No Weight Adjustment
SHT	Shot Weight	XMR	Extruder Minimum Rate
PHR	Per Hour Rate	SPR	Steps Per Revolution
FUL	Full Bin Weight	RPM	Maximum Revolutions Per Minute
PRT	Report Interval	PMR	Prime Motor Rate
KDF	Stable Weight	LCT	Load Cell Tolerance
LCZ	Load-cell Zero	BFS	Bin Full Settle
MTF	Motor Factor	RCP	Recipe Number
XCV	Extruder Voltage	WKO	Work Order Number
XMO	Extruder Max Output	OPR	Operator Number
LBE	Lower Boundary Error	NMA	No Meter Alarm
UBE	Upper Boundary Error	LIW	LIW Polling Rate
NBW	Negative Bin Weight	RAP	Rate Adjust Percentage
LWA	Low Weight Alarm	LLC	LIW Lower Cap
ATP	Adjustment Trip Point	TAT	Target Adjust Threshold
RTU	Run Time Update	XFT	Extrusion Voltage Filter
ADJ	Adjustment Limit	LCL	Loadcell Low
LLF	Loader Low Level	LCH	Loadcell High
LHF	Loader High Level	HRT	High Rate Trip Point
LAT	Loader Alarm Timeout	ECT	Error Count Tracking
STL	Loader Settle Time	IPC	Injection Color Percent
		ISP	Injection Screw Time Percent

LDR	Let Down Ratio – Percent Factory Default – MGF-3: 00000, MGF-4: 00000, MGF-8: 00000 Percentage of SHOT WEIGHT or PER HOUR RATE in 1/100 th percent
SHT	Shot Weight – Grams Factory Default - MGF-3: 00000, MGF-4: 00000, MGF-8: 00000 Shot weight dispensed during cycle mode in whole grams
PHR	Per Hour Rate – Counts Per Hour Factory Default - MGF-3: 00000, MGF-4: 00000, MGF-8: 00000 Value used to hold LB / HR or KG / HR depending on US / METRIC flag in whole units
FUL	Full Bin Weight – Grams Factory Default - MGF-3: 10000, MGF-4: 10000, MGF-8: 10000 Weight of bin (hopper) when full, in whole grams. (Intended for future use)
PRT	Report Interval – Minutes Factory Default - MGF-3: 00001, MGF-4: 00001, MGF-8: 00001 Used to generate reports while running. In Continuous or extrusion following: reports are generated every X minutes. (00005 = every 5 minutes) In Cycle Mode 00001 will enable printout of every cycle.
KDF	Stable Weight – Number Factory Default - MGF-3: 00200, MGF-4: 00200, MGF-8: 00200 Used in load-cell calibration routine. Difference between raw count updates use to get a stable reading. raw counts
LCZ	Load-cell Zero Threshold – raw counts number Factory Default - MGF-3: 20015, MGF-4: 20015, MGF-8: 20015 Lowest possible raw count value from loadcells for zero calibration. The LCZ parameter has 2 parts: xx.yyy xx = zero calibration high threshold yyy = zero calibration low threshold

If the raw count reading divided by 65535 is less than yyy, ZERO TOO LOW will be displayed. If the raw count reading is greater than xx% of the zero default calibration, ZERO TOO HIGH is displayed.

MTF Motor Factor – Grams per Revolution – Motor factor represents grams per revolution and works in combination with auger size and the motor rpm. If you change the auger size, you must also change the motor factor. Model (auger size) Dependent - 1st gen analog motor sold pre-2012, 2nd gen stepper motor sold after 1st quarter 2012. Implied decimal after 3rd digit.

Model	Auger Size	1 st Gen (Analog Motor)	2 nd Gen (Stepper Motor)
MGF-3	3/8-inch Auger	n/a	00050
MGF-4	1/2-inch Auger	00075	00300
MGF-8	1-inch Auger	00500	01250

XCV Extruder Voltage – Volts

Factory Default - MGF-3: 00000, MGF-4: 00000, MGF-8: 00000

Current incoming voltage. Used in extrusion following, 1/100 volt. Automatic adjustment occurs to throughput based on XMO parameter.

XMO Extruder Max Output – Pounds or Kilograms / hour – 01000

Factory Default - MGF-3: 01000, MGF-4: 01000, MGF-8: 01000

For Extrusion Following, this parameter stores the maximum extruder throughput based off of the XCV parameter at the maximum 10 volts. A manual entry of extruder throughput on the main screen will automatically set the XMO parameter and will be scaled from the current incoming voltage. **Example:** Incoming voltage is 5 volts. An Entry of 300 lbs. will set XMO to 00600 (lbs or kg). Entering a 1 in the first digit (1xxxx) will only allow changes to extruder throughput on main screen while in program mode (password protected).

LBE Lower Boundary Error – Number

Factory Default - MGF-3: 03000, MGF-4: 03000, MGF-8: 03000

Error rate lower limit in 1/100th number

UBE Upper Boundary Error – Number

Factory Default - MGF-3: 30000, MGF-4: 30000, MGF-8: 30000

Error rate upper limit in 1/100th number

NBW Negative Bin Weight – whole grams

Factory Default - MGF-3: 00100, MGF-4: 00100, MGF-8: 00100

Negative weight read from the bin (hopper), which will disable loader, whole grams

LWA Low Weight Alarm – whole grams

Factory Default - MGF-3: 00400, MGF-4: 00400, MGF-8: 00400 (0 = disabled)

Weight of hopper that triggers the low weight alarm

ATP Adjustment Trip Point – grams

Factory Default - MGF-3: 00005, MGF-4: 00005, MGF-8: 00005

The fourth and fifth digits are the accumulative gram error that will force a readjustment of motor speed (5 grams default).

RTU Run-Time Update – intervals, seconds

Factory Default - MGF-3: 00303, MGF-4: 00303, MGF-8: 00303

This parameter holds two values; the first three digits are the successive number weight readings that must be above (+) or below (-) the ATP parameter value before making an adjustment to the motor off-time. The 4th and 5th digits are amount of adjustment in seconds that will be made. Controlled by ADJ parameter.

ADJ Adjustment Limit – Percent

Factory Default - MGF-3: 03005, MGF-4: 03005, MGF-8: 03005

Adjustment threshold and percentage when learning rate. This parameter holds two values. The 2nd and 3rd digits represent two things, percentage threshold (default 30%) and percentage adjustment (also 30%). If actual is equal to or greater than the threshold value, adjustments will be made by this amount (30% by default). If actual is less than this value, the adjustment will be made by the amount represented in the 4th and 5th digits (10% by default).

LLF	Loader Low Level – whole grams Factory Default - MGF-3: 00500, MGF-4: 00500, MGF-8: 00500 Weight of hopper that triggers the loader to turn on, whole grams
LHF	Loader High Level – whole grams Factory Default - MGF-3: 02000, MGF-4: 02000, MGF-8: 02000 Weight of hopper that triggers the loader to turn off, whole grams
LAT	Loader Alarm Timeout – whole seconds Factory Default - MGF-3: 00120, MGF-4: 00120, MGF-8: 00120 if the loader runs for this many seconds, the loader running too slowly alarm is tripped
STL	Loader Settle Time – Seconds Factory Default - MGF-3: 00010, MGF-4: 00010, MGF-8: 00010 Number of seconds after loader finished before correction accumulators are readjusted and error checking resumes. Whole seconds
NWA	No Weight Adjustment – Grams Factory Default - MGF-3: 00100, MGF-4: 00100, MGF-8: 00100 If the material in the hopper goes below this value in grams, stop making adjustments to error correction.
XMR	Extruder Minimum Rate – Grams/Second Factory Default - MGF-3: 00000, MGF-4: 00000, MGF-8: 00000 For Extrusion control only – When a value is specified, this is the minimum rate (grams per second) that the MGF will run when the extruder slows down.
SPR	Steps Per Revolution – Number - DO NOT CHANGE THIS PARAMETER Factory Default - MGF-3: 06400, MGF-4: 06400, MGF-8: 06400 Stepper motor micro steps per revolution. With a current MGF motor, there are 200 step per revolution and 32 hardwired micro steps or 6400 (200 x 32).
RPM	Maximum Revolutions Per Minute - Number - DO NOT CHANGE THIS PARAMETER Factory Default - MGF-3: 00100, MGF-4: 00100, MGF-8: 00100 Software defined maximum number of revolutions per minute based on hardware capabilities.
PMR	Prime Motor Rate Factory Default - MGF-3: 00040, MGF-4: 00020, MGF-8: 00020 Software defined maximum number of revolutions per minute when running the Prime Function. A slower speed is used during PRIME to prevent overfills.
LCT	Load Cell Tolerance - GEN5 only. GEN6 does not use this parameter. Factory Default - MGF-3: 00505, MGF-4: 00505, MGF-8: 00505 This parameter has 2 parts, xxx.yy. The left three digits (xxx) are the number of sequential raw count readings before snapping to the new value (00505 = 5 sequential readings). The right two digits (yy) are the difference between 2 sequential raw count readings (00505 = 5 raw counts) if the latest raw count reading is less than yy, then continue to use the previous reading however, if xxx readings in a row are the same value, then use to the latest reading.
BFS	Bin Full Settle - stepper motor only Factory Default - MGF-3: 00020, MGF-4: 00020, MGF-8: 00020 If the bin weight spikes $\pm$ BFS grams beyond the target rate, then LOAD will appear and error correction is halted until the bin weight settles again.
RCP	Recipe Number - Number Factory Default - MGF-3: 00000, MGF-4: 00000, MGF-8: 00000 Recording purposes only, set the MGFs recipe number returned in the MLAN commands. This field stores a 5-digit number 00000-99999.
WKO	Work Order Number - Number Factory Default - MGF-3: 00000, MGF-4: 00000, MGF-8: 00000 Recording purposes only, set the work order number returned in the MLAN commands. This field stores a 5-digit number 00000-99999.

OPR	Operator Number - Number Factory Default - MGF-3: 00000, MGF-4: 00000, MGF-8: 00000 Recording purposes only, sets the operator number returned in the MLAN commands. This field stores a 5-digit number 00000-99999.
NMA	No Metering Alarm - Continuous mode only Factory Default - MGF-3: 55100, MGF-4: 55100, MGF-8: 55100 This parameter has 3 parts: x.y.zzz Leftmost digit (x) is the number of times the rate is below the threshold before the alarm is turned on (33500 = 3 counts). Second digit from the left (y) is the number of times the rate is above the threshold before the alarm is turned off (33500 = 3 counts). The rightmost 3 digits (zzz) are the percentage of target rate (1/10th of a percent) (33500 = 50.0%).
LIW	LIW Polling Rate - LIW Mode only Factory Default - MGF-3: 05005, MGF-4: 05005, MGF-8: 05005 The number of seconds between each poll of the LIW's steady rate. Faster rates may cause issues with the ethernet stack. Slower rates may cause issues with the MGF detecting changes in the LIW's steady rate.
RAP	Rate Adjust Percentage - Extrusion Following Only Factory Default - MGF-3: 05050, MGF-4: 05050, MGF-8: 05050 This parameter has 2 parts, xx.yyy The leftmost two digits (xx) are the number of seconds between each rate adjustment check (10050 = 10 seconds). The three rightmost digits (yyy) are the lower threshold in grams per minute (10050 = 5.0 g/m). If the target g/m rate falls below the yyy threshold, the time between rate adjustment checks will change to xx. If the target g/m rate rise back above yyy threshold, the time between rate adjustment checks will revert back to its original setting.
LLC	LIW Lower Cap Factory Default - MGF-3: 00010, MGF-4: 00010, MGF-8: 00010 Used for MLAN commands and LIW polling for continuous mode only. Stored as 1/10th LBS or KGS per hour (depending on the weight units setting) (00010 = 1.0 lb/hr). When a new target rate is received, it is checked against the LLC parameter. If the rate is equal to or below LLC, then the PHR parameter will snap to zero.
TAT	Target Adjust Threshold - Cycle mode only Factory Default - MGF-3: 00000, MGF-4: 00025, MGF-8: 00025 Stored as 1/100th grams per second (00025 = 0.25 g/s) When a cycle starts, the target grams per second rate (Shot weight / cycle time) is checked against TAT. If the rate is below TAT, then the running motor time is halved, and the target motor speed is doubled. This will continue until the target rate is above TAT. Example: TAT = 00025 (0.25 g/s) Shot Weight = 9 grams Cycle Time = 88 seconds this will result in a target rate of 0.102 g/s Before the cycle starts, the MGF will see that the rate is below 0.25 g/s and adjust the run time and motor speed to compensate for this. When the MGF runs it will have targeted a 0.409 g/s rate over a 22 second period.
XFT	Extrusion Voltage Filter Factory Default - MGF-3: 02003, MGF-4: 02003, MGF-8: 02003 Used for filtering incoming extrusion voltage. The parameter is separated into 2 parts: vvv.ff vvv = cap to zero voltage in 1/100th of a voltage ff = fluctuation filter in 1/100th of a voltage. NOTE: ff is capped at 0.50V or xxx50

LCL	Loadcell Low - Loadcell High
LCH	LCL Factory Default - MGF-3: 03000, MGF-4: 03000, MGF-8: 03000 LCH Factory Default - MGF-3: 08000, MGF-4: 08000, MGF-8: 08000 LCL and LCH are used for full weight loadcell calibration. The LCL and LCH parameters ensure that the calibrated weight falls with a reasonable slope. If the full weight slope is outside the LCL and LCH defined slopes, then an error message: *** BAD LOAD-CELL *** will be displayed.
HRT	High Rate Trip Point - Continuous and Extrusion Following only Factory Default - MGF-3: 10100, MGF-4: 10100, MGF-8: 20100 HRT controls the adjustment to the ATP parameter. HRT is separated into 2 parts: xx.yyy xx = new value for ATP yyy = trip point for changing ATP in grams / minute 1. If the current rate is above HRT (yyy) then adjust the ATP to HRT (xx) 2. If the current rate falls below HRT (yyy) then revert ATP back to previous setting.
ECT	Error Count Tracking Factory Default - MGF-3: 03020, MGF-4: 03020, MGF-8: 03020 ECT is used to specify the delay in error tracking when first starting as well as after an error correction is made. This parameter is broken into 2 parts: xx.yyy where xx = number of cycles (Cycle mode) yyy = number of seconds (Continuous mode)
IPC	Injection Color Percent Cycle Mode Factory Default - MGF-3: 00025, MGF-4: 00025, MGF-8: 00025 (25%) Percent of the color target that should be added during the injection time. Typically, material is dispensed only during screw recovery. This parameter allows for a percentage of the overall color target to be dispensed during the beginning of the cycle's injection. The injection time is controlled by the ISP parameter. This feature requires an injection signal (see MGF-STI Wiring Diagram). Intrusion Mode: Factory Default - MGF-3: 00025, MGF-4: 00025, MGF-8: 00025 (25%) Percent of the color target that should be added during the intrusion time. Typically, material is dispensed only during screw recovery. This parameter allows for a percentage of the overall color target to be dispensed during the cycle's intrusion.
ISP	Injection Screw Time Percent – Cycle Mode only Factory Default - MGF-3: 10030, MGF-4: 10030, MGF-8: 10030 (enabled at 30%) This parameter has two parts. The first digit (1xxxx) enables or disables this feature. 1=enabled, 0=disabled. ISP is the Percent of Recovery Time used to calculate a time (in seconds) to dispense an amount of additive (IPC parameter) at the beginning of the overall Injection Time. This parameter uses a percentage of the recovery time (30% by default) to calculate how much time the MGF will dispense material during the beginning of the injection stroke.
SFT	Signal Filter Threshold Factory Default - MGF-3: 00205, MGF-4: 00205, MGF-8: 00205 This parameter is broken up into 2 parts. The first 3 digits (111xx) represent the injection or intrusion signal threshold in 1/10th of seconds, the last 2 digits (xxx11) represent the recover signal threshold in 1/10th of seconds.
MTL	Motor Torque Limit Factory Default - MGF-3: 01000, MGF-4: 01000, MGF-8: 01000 This parameter is only assessable through Modbus and shouldn't be changed.
LRT	LIW Rate Threshold Factory Default - MGF-3: 00010, MGF-4: 00010, MGF-8: 00010 This parameter is used as the threshold for filling the filter with a new value.

Updating MGF Firmware

When the MGF is turned on, the first screen displayed will show the current MGF firmware version (lower-right) as well as the MGF's USB's firmware, labeled CHIP in the menu (upper-right). The MGF firmware versions can be updated if necessary, using the USB port on the controller. The following instructions detail how to do both firmware updates. Each update is run separately. Maguire can supply the latest MGF firmware versions.

Copy	the new firmware update into a folder named " maguire " on a USB flash drive.	
Insert	the USB Flash drive into the USB port on the MGF.	
Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press		to scroll down to: UPDATE FIRMWARE
Press	ENTER	The display will show: Reading from USB WAIT and then display the update version found on the drive.
NOTE: If the MGF is not able to read from the Flash Drive you will see this message: Error: No Files Found. Press BACK and try again or try a different Flash Drive.		
Press	ENTER	to select the firmware update.
The MGF Controller Firmware update file for Gen5 is GSxxxxxx.BIN . The Gen6 file is GSxxxxxx.XUF . The display will show any available firmware versions on the USB drive and display: Update To: (GSxxxxxx.BIN or GSxxxxxx.XUF) Press Any Key to Update Firmware		
Press	ENTER	to start the update.
The display will show progress in transferring to the internal SD card, then The display will show progress in Verifying the update file, then The display will show progress in Reflashing to the new Firmware, and then The display will show: REFLASH COMPLETE! The Controller will then reboot.		

Further software update information

MGF firmware updates can be supplied electronically, via email or by download. Firmware updates are named according to their date of release. For instance the MGF Controller Firmware update **GFI0517A.BIN (.XUF)** can be interpreted as GF=Gravimetric Feeder w/ Stepper, L=2012 (K=2011), 05=May, 17=March 17th, A=the first revision for that day. During the update process detailed above, new firmware found on the USB flash drive is first copied to an internally mounted SD card. From the SD card, the firmware is then loaded into the MGF. If there is ever a problem with the MGF and the USB port cannot be used or the MGF firmware is corrupted and cannot load, new firmware can be acquired from Maguire and renamed **UPDTFILE.BIN** for Gen5 or **GSUPDATE.XUF** for Gen6. This renamed firmware can be loaded onto the SD card and re-inserted into the slot inside the MGF controller. When the MGF is turned on, this **UPDTFILE.BIN** or **GSUPDATE.XUF** file will be automatically loaded into the MGF, restoring the firmware.

RATE ADJ RESET

Used to reset the Rate Adjustment back to the default value of 1.0000. This can be helpful if changing materials and the new material has a different consistency than the original material. When reset it may help the MGF to re-learn the rate quicker than if it adjusted the rate from the previously learned value.

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press		9 times to scroll the display down to RATE ADJ RESET
Press	ENTER	to display the Rate Adjust Reset screen. This screen will display the OLD ADJ and the NEW ADJ. OLD ADJ is the Rate adjustment that the MGF learned based on the material that was running through the MGF. NEW ADJ is the base number of 1.0000. Resetting this number back to 1.0000 when new material is used may help the MGF re-learn the Rate Adjustment quicker. If the new material has the same consistency as the original material, this step is not necessary.
Press	ENTER	to reset the Rate Adjustment back to 1.0000.
Press	BACK	three more times to exit SETUP and go back to the Main Screen

SET MODEL (MGF-3, MGF-4, MGF-8)

Used to set the model and auger size. MGF-3 is used a 3/8 inch auger, MGF-4 is used for a 1/2 inch auger, MGF-8 is used for a 1 inch auger. PRIME FUNCTION is required after a model Change.

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	9753	Password to set the model. Display will show the current model.
Press	ENTER	to change the model. Model options are: MGF-3 – 3/8 inch auger MGF-4 – 1/2 inch auger MGF-8 – 1 inch auger
Press	BACK	three more times to exit SETUP and go back to the Main Screen

Power off, then power on the controller to verify that the model has been changed.

IMPORTANT: After a model change a PRIME FUNCTION is required to calibrate the MGF. See page 14 for Prime Function Instructions.

NOTE: For older controllers that do not respond to the password 9753, model change is access under **SETUP / SETTINGS / MODEL**. Press **ENTER** to change the model and **BACK** to exit.

VIEW / RESET TOTALS

Note that if you are retrieving totals through the MLAN Protocol or the G2 Software, resetting totals is not recommended unless you are factoring in a reset of this value back to zero.

Totals can be viewed or reset from two locations. Pressing the VIEW on the keypad key will display current totals and cycle count. Pressing 00 from this screen will attempt to write totals to a USB flash drive and then reset totals and cycles back to zero. Pressing any other non-zero value will cause the controller to write totals to a USB drive. There must be a folder named "maguire" on the USB key for the print job to write the file printer.txt within that folder. Totals can also be viewed or reset from the menu system.

Press		To scroll down to SETUP (using arrow key)
Press	ENTER	Display will say: ENTER PASSWORD _ _ _ _
Enter	2222	Default password is 2222
Press		down to VIEW / RESET TOTALS
Press	ENTER	to display the View / Reset Totals screen. This screen will display current totals and cycle count. Press BACK to exit without clearing totals and cycles.
Press	00	to reset the Totals (total grams dispensed since the last clear) and Cycle Count back to zero. If no key is detected, the controller will display "Failed to print, Continue Clearing Totals?" Press ENTER to confirm.
Press	BACK	three more times to exit SETUP and go back to the Main Screen

RESTORE DEFAULTS

The MGF can be restored back to factory defaults by entering SETUP and scrolling down to RESTORE DEFAULTS, highlight and press enter.

Standard 1" Diameter Feeder and Standard ½" Diameter Feeder WITHOUT Loader Option

Defaults for Standard 1" Diameter Feeder	
MOTOR FACTOR	Stepper motor: 15.00, 1st Gen 26 RPM: 300 or 41 RPM: 500
ER FACTOR	1.0000
WEIGHT ERROR	20 g
LOW WEIGHT	0 LB
PASSWORD	2222
MODE	CONTINUOUS
UNITS	US
Defaults for ½" Diameter Feeder	
MOTOR FACTOR	Stepper Motor: 02.50, 1st Gen 26 RPM: 77 or 41 RPM: 75
ER FACTOR	1.0000
WEIGHT ERROR	20 grams
LOW WEIGHT	0 LB
PASSWORD	2222
MODE	CONTINUOUS
UNITS	US

Standard 1" Diameter Feeder and Standard ½" Diameter Feeder WITH Loader Option

"MAIN MENU" SET-UP with Loader Option	
LBS / HOUR	200
LDR	2 %
LOADER SETTINGS	
TURN "ON" AT	2 LBS (907 grams)
TURN "OFF" AT	5 LBS (2268 grams)
ALARM TIME	120 seconds
"EQUIPMENT MENU" SET-UP with Loader Option	
MOTOR FACTOR with 1" Diameter Feeder	Stepper motor: 15.00, 1st Gen 26 RPM: 300 or 41 RPM: 500
MOTOR FACTOR with ½" Diameter Feeder	Stepper motor: 2.50, 1st Gen 26 RPM: 77 or 41 RPM: 75
ER FACTOR	1.0000
WEIGHT ERROR	20 gram
LOW WEIGHT	0 LB
PASSWORD	2222
MODE	CONTINUOUS
LOADER	ON
UNITS	US

DIAGNOSTIC SCREEN

From the main screen, you may select the diagnostic screen for display by scrolling down to **DIAGNOSTICS**, pressing the **i** button or by entering **501** using the number keys. Operation will not be interrupted. Press the **BACK** key again to return to the main screen.

WEIGHT	123.4
DISPENSED	0.0
TARGET	0.1
ERROR	-0.1 (5) ▼

CYCLE CT	0 ▲
RATE ADJ	1.0000
TOTAL	0
OFF TIME	655ms

- WEIGHT:** The current weight reading of material in the hopper, 1/10th of grams.
- DISPENSED:** The actual grams of material dispensed in the previous cycle while in cycle mode, or in the past one minute while in continuous or extrusion following modes.
- TARGET:** The targeted grams of material that should be dispensed in one cycle while in cycle mode, or in one minute while in continuous or extrusion following modes.
- ERROR:** Accumulated Error difference between target and dispensed (-0.1 in example), Loss-in-weight Trip Point (5 in example) see ATP parameter on page 27.
- CYCLE CT:** Number of cycles since last rate adjustment or refill.
- RATE ADJ:** The amount of rate adjustment that has occurred to maintain correct output. Initial speed is based on a specified motor factor and grams per second, determined by the auger size. Bulk density errors, as well as auger drift, and pellet configuration can result in metering rate errors. This number shows how much adjustment has occurred based on weigh feed back. Reset this number to 1.0000 when new material is used (unless it is of the same consistency as the original material). See RATE ADJ RESET on page 33.
- TOTAL:** Total amount metered since turnover or reset of totals. Totals can be reset. VIEW / RESET TOTALS on page 34.
- OFF TIME:** The number of milliseconds of off-time per second, of the stepper motor, to meter the correct rate.

AGL Loader Installation

1. Prior to installation of the AGL Loader, the MGF Controller Bar must be installed on the MGF Adapter Frame. The MGF clear material hose and aluminum cam lock must be secured to the Controller Bar for proper load cell operation.
2. Assemble the red hose and fitting that is shown in figure 1 and secure to the Controller Bar. Secure the upper u-clamp to the metal fitting as shown for proper grounding. See AGL Loader diagram for correct hose arc.
3. The other end of the red hose is connected to the vacuum generator as shown in figure 3. Secure hose with the provided hose clamp.
4. Connect the aluminum lance to the other end of the vacuum generator as shown in figure 3.
5. Press the clear material hose onto the tube located on the lid of the feeder hopper. If the tube goes on with resistance, a little water can be used to lubricate it. Do not use any other lubricant. Figure 2.
6. Connect the clear 3/8" diameter tubing to the vacuum generator as shown in figure 3, and connect the other end to the push-in fitting at the solenoid.
7. Connect the air supply to the brass 45° X 1/4" NPT fitting at the input side of the solenoid mounted on the control bar.
8. The air supply should be set and regulated at a pressure between 60 and 80 PSI.
9. Connect the feeder motor cables to the matching connectors on the controller, motor and solenoid.
10. After the MGF Feeder Loader is installed, the MGF should be re-calibrated using the procedure found on page 25.

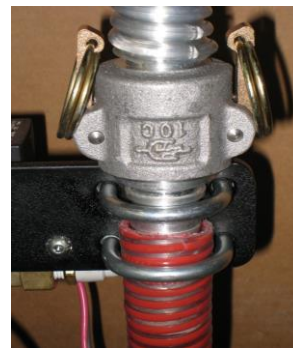


FIGURE 1

Secure the red material hose under the supplied u-clamp as shown in figure 1. It is important that the upper u-clamp is secured to the metal fitting as shown for proper grounding. The solenoid should be affixed to the controller bar.



FIGURE 2

Install the end of the clear material hose to the top of the feeder lid as shown.



IMPORTANT!

It is important that the feeder assembly is properly grounded through the process equipment.



FIGURE 3

Mount vacuum aluminum lance to the vacuum generator. Attached and clamp the red hose to the vacuum generator using the included hose clamp.



FIGURE 4

Use the natural arc of the hose to loop above the hopper to the location where the u-bolts are attached.



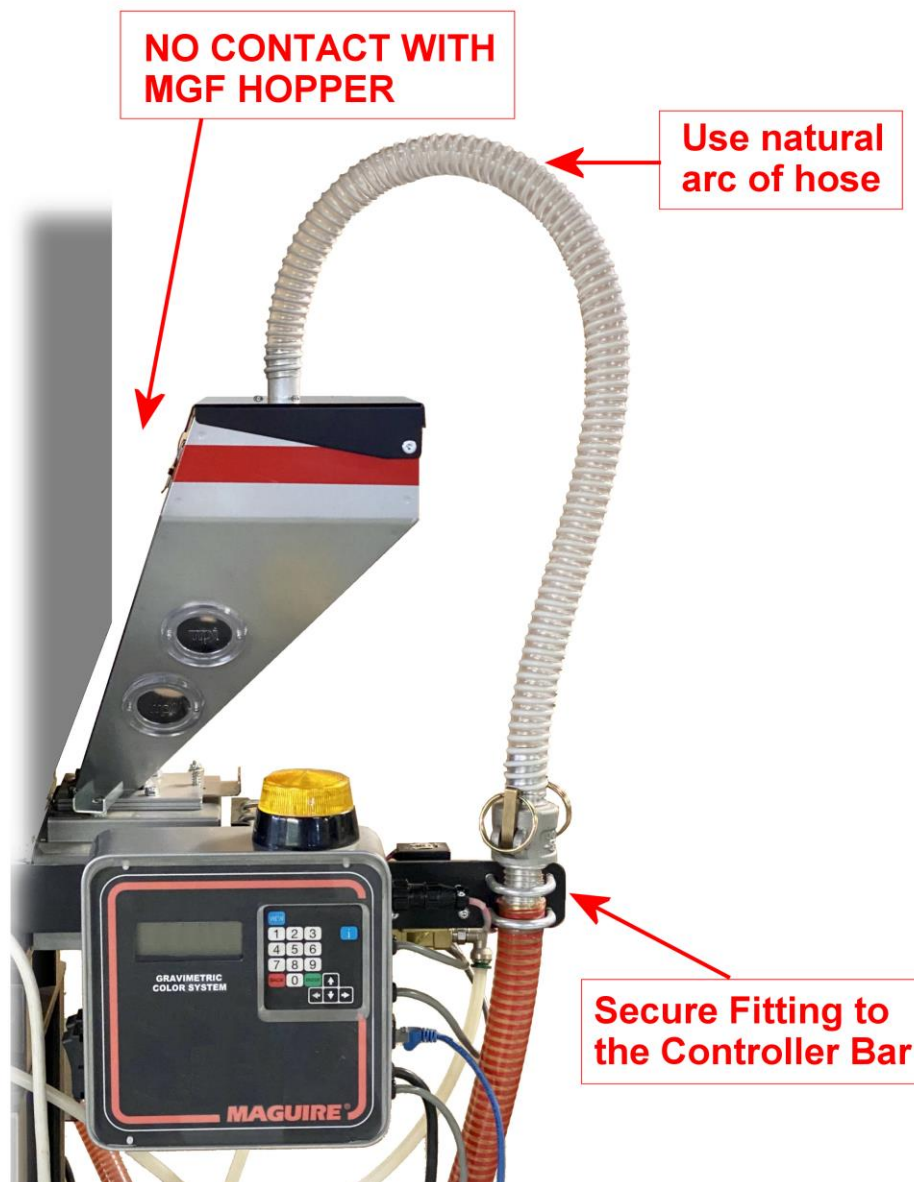
For accurate weigh readings of the load cells, it is important to follow these guidelines:

IMPORTANT!

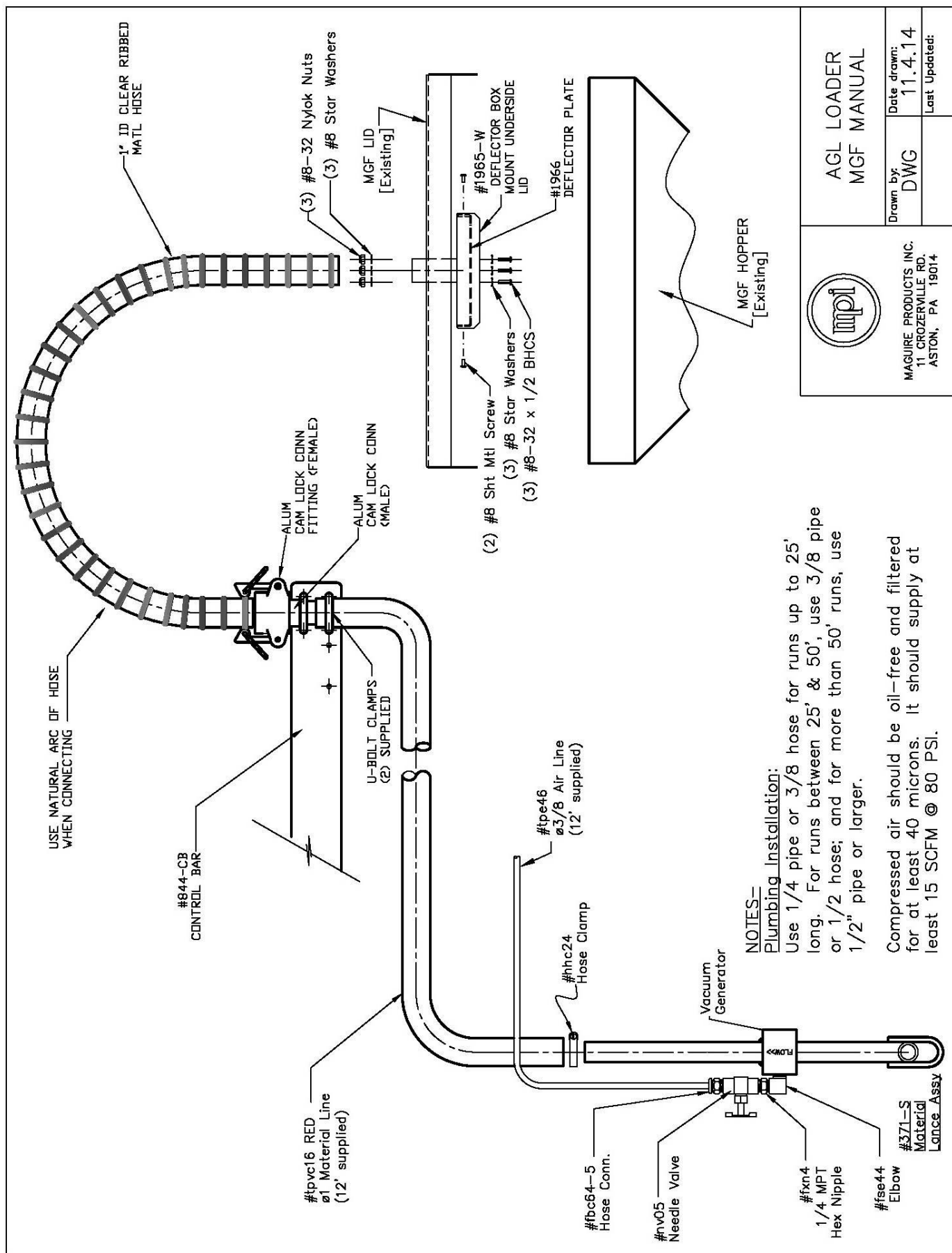
To ensure accurate weight readings nothing should make contact with the MGF hopper.

If an AGL loader is installed, the material hose attached to the hopper should have a gradual arc and should not have contact with anything around it.

The AGL material hose quick disconnect fitting should be c-clamped to the Controller Bar and the upper c-clamp should contact the bare metal of the fitting to discharge static buildup. The lower c-clamp should secure tightly to the red hose.



AGL Loader Diagram

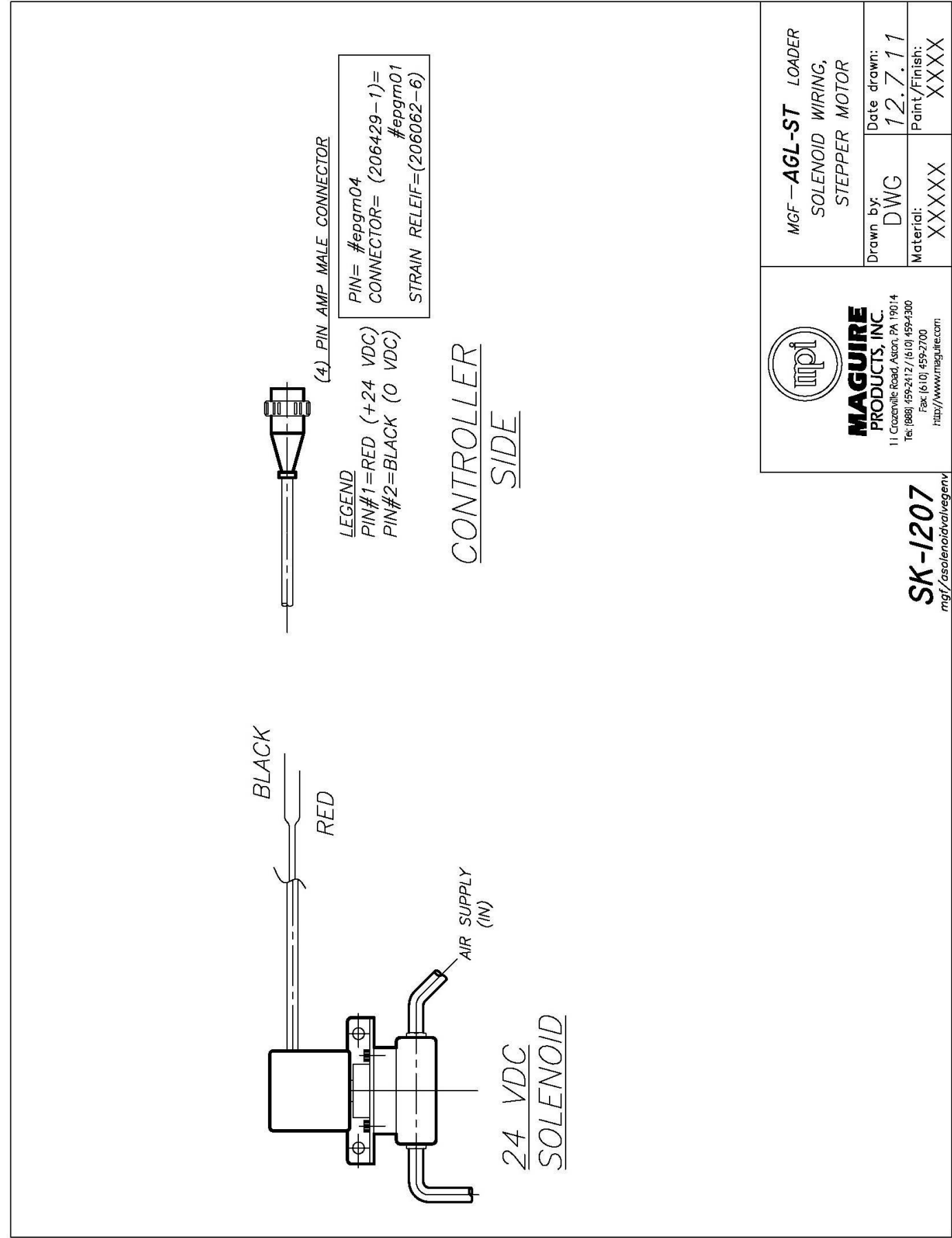


MAGUIRE PRODUCTS INC.
11 CROZERVILLE RD.
ASTON, PA 19014

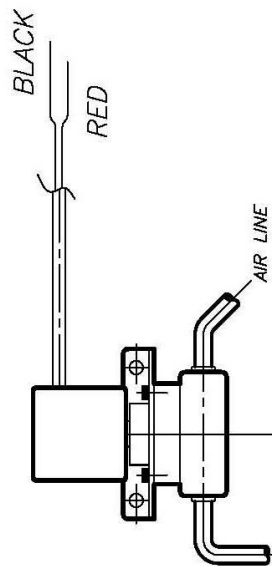
AGL LOADER MGF MANUAL

Drawn by: DWG
Date drawn: 11.4.14
Last Updated:

AGL Loader Solenoid Wiring Assembly



CONTROLLER
SIDE



24 VDC
SOLENOID

(4) PIN AMP MALE CONNECTOR

LEGEND

PIN#1=WHITE
PIN#2=BLACK / RED(SOL)
PIN#3=BLACK (SOL)
PIN#4=BLUE

PIN= #epgm04
CONNECTOR= (206429-1)= #epgm01
STRAIN RELIEF= #epgm11

NOTE -
WIRES SPliced AT
THE CONNECTOR

MOTOR
SIDE

(4) PIN AMP FEMALE
CONNECTOR

LEGEND

PIN#1=WHITE
PIN#2=BLACK
PIN#3=NOT USED
PIN#4=BLUE

SOCKET= #epgm05
CONNECTOR= (206430-2) #epgm06
STRAIN RELIEF= #epgm11

GEN 3



MAGUIRE
PRODUCTS, INC.

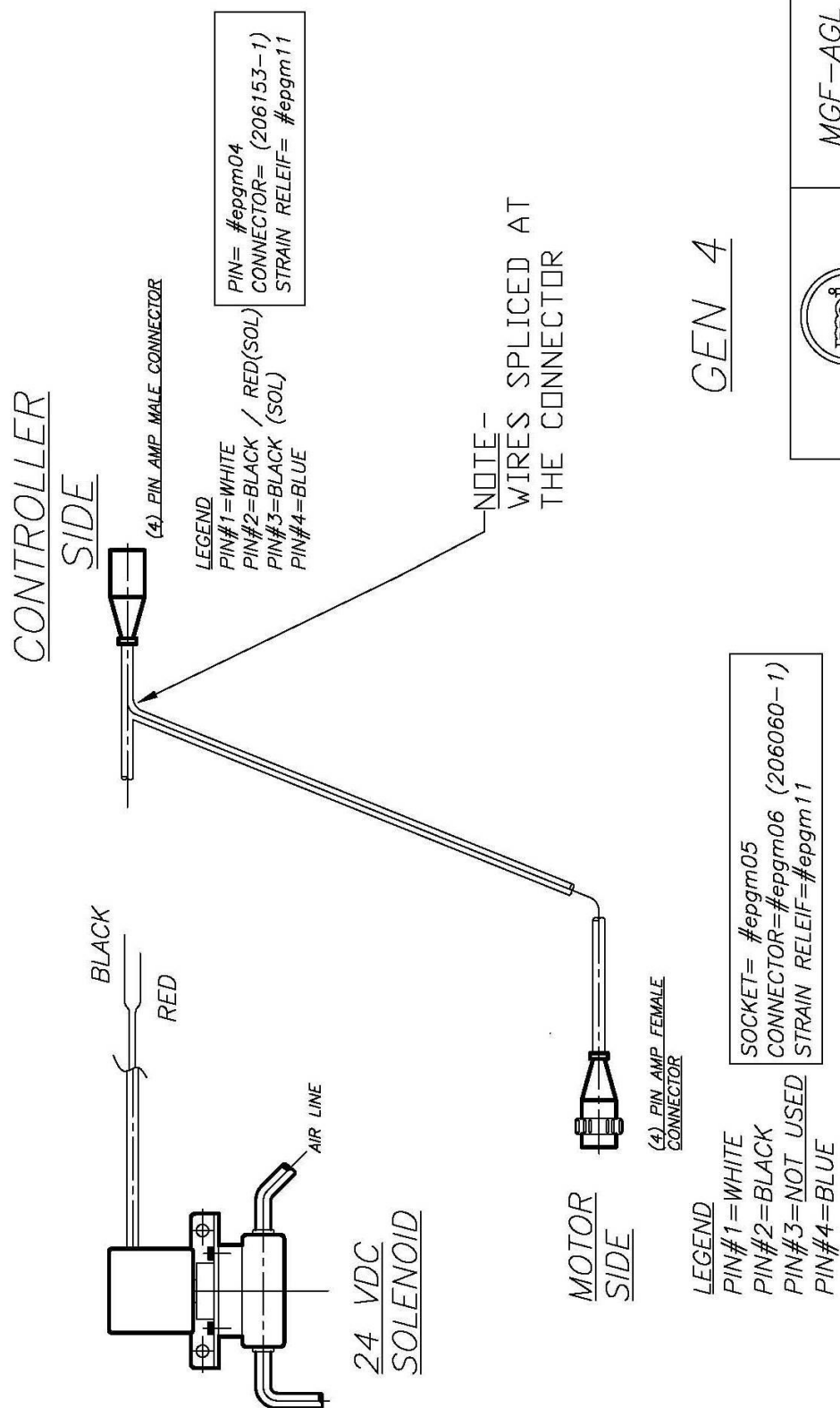
11 Crozerville Road, Aston, PA 19014
Tel: (888) 459-2412 / (610) 459-4300
Fax: (610) 459-2700
<http://www.maguire.com>

MGF-AGL LOADER
GEN-3, SOLENOID
WIRING ASSY

Drawn by:	Date drawn:
DWG	5.21.13
Material:	Paint/Finish:
XXXXX	XXXX

SK-0521

mgf/asolenoidvalveassygen3



GEN 4



MAGUIRE
PRODUCTS, INC.

11 Crozer Avenue, Aston, PA 19014
Tel: (888) 459-2412 / (610) 459-4300
Fax: (610) 459-2700
<http://www.maguire.com>

MGF-AGL LOADER
GEN-4, SOLENOID
WIRING ASSY

Drawn by:

Date drawn: 5.20.13

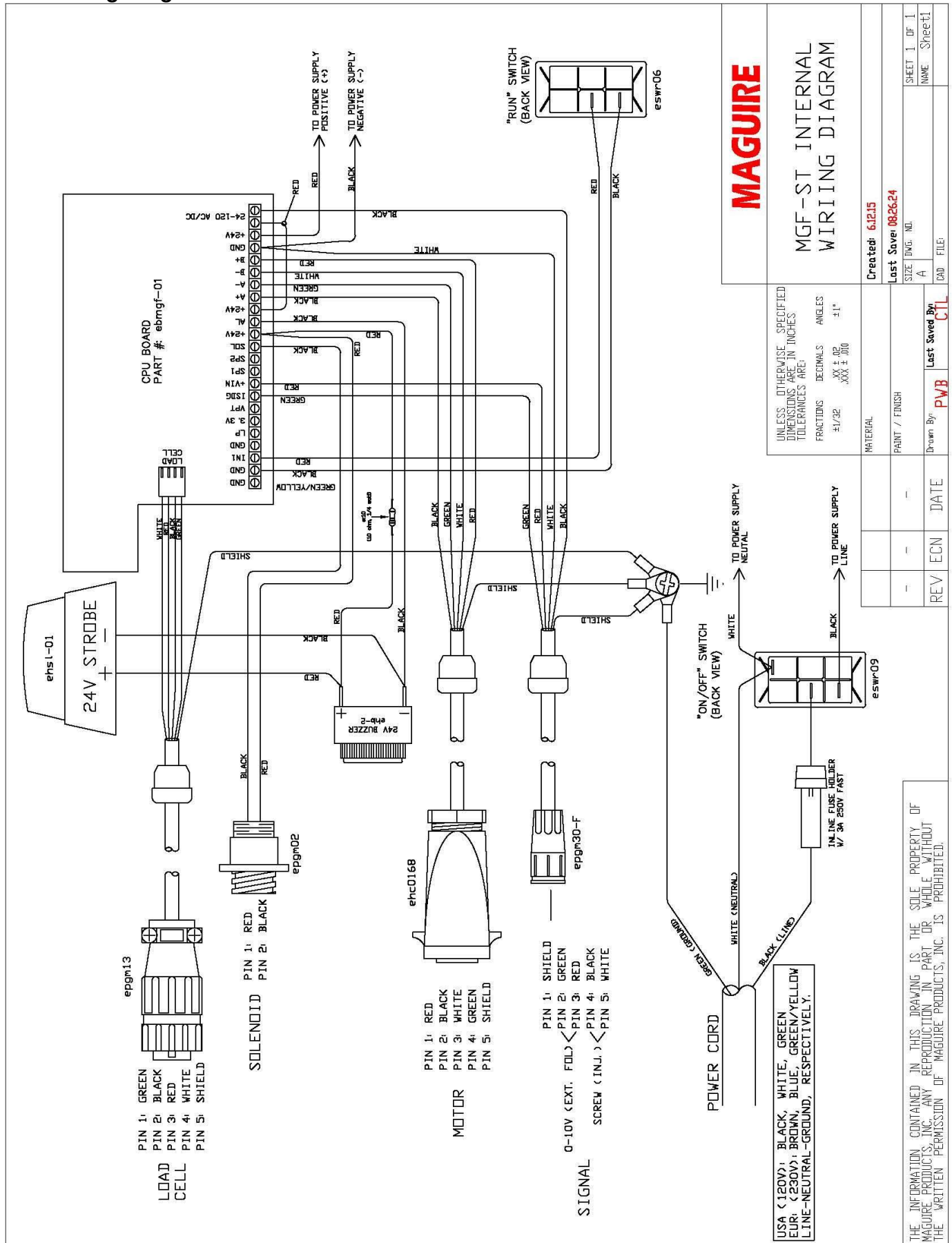
Material:	Paint/Finish:
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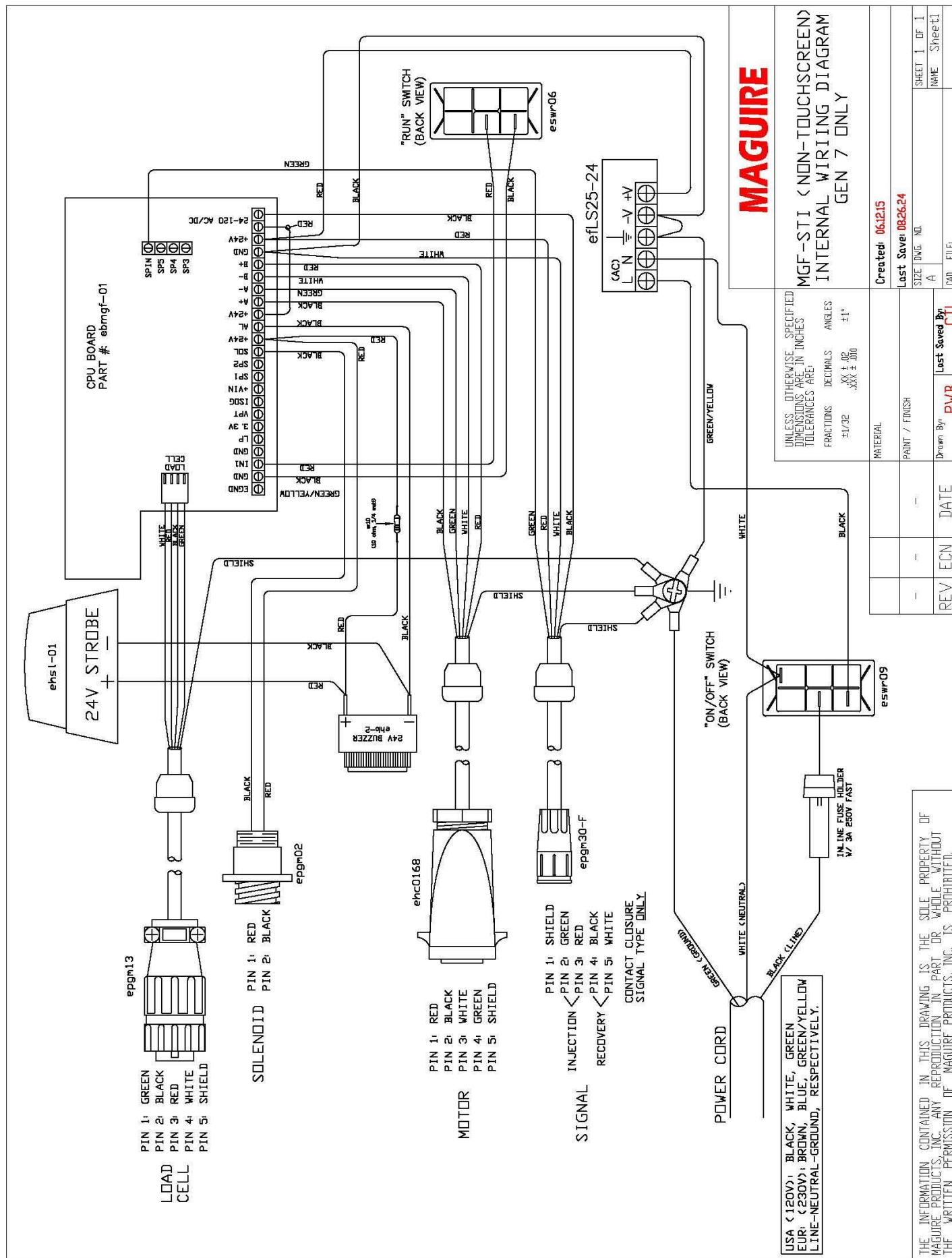
Start/Finish: XXXXX

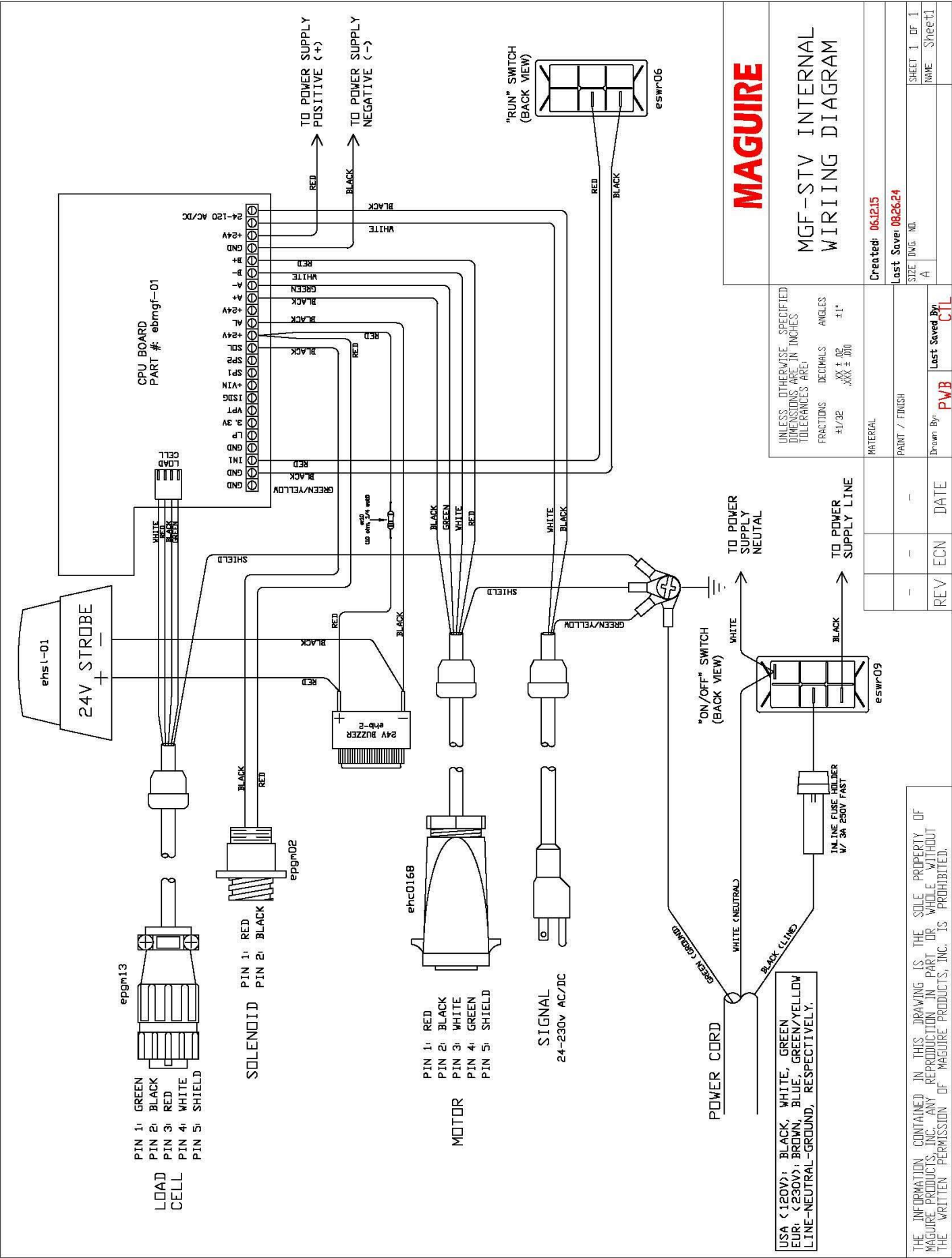
SK-0520
mgf/asolenoidvalveassy

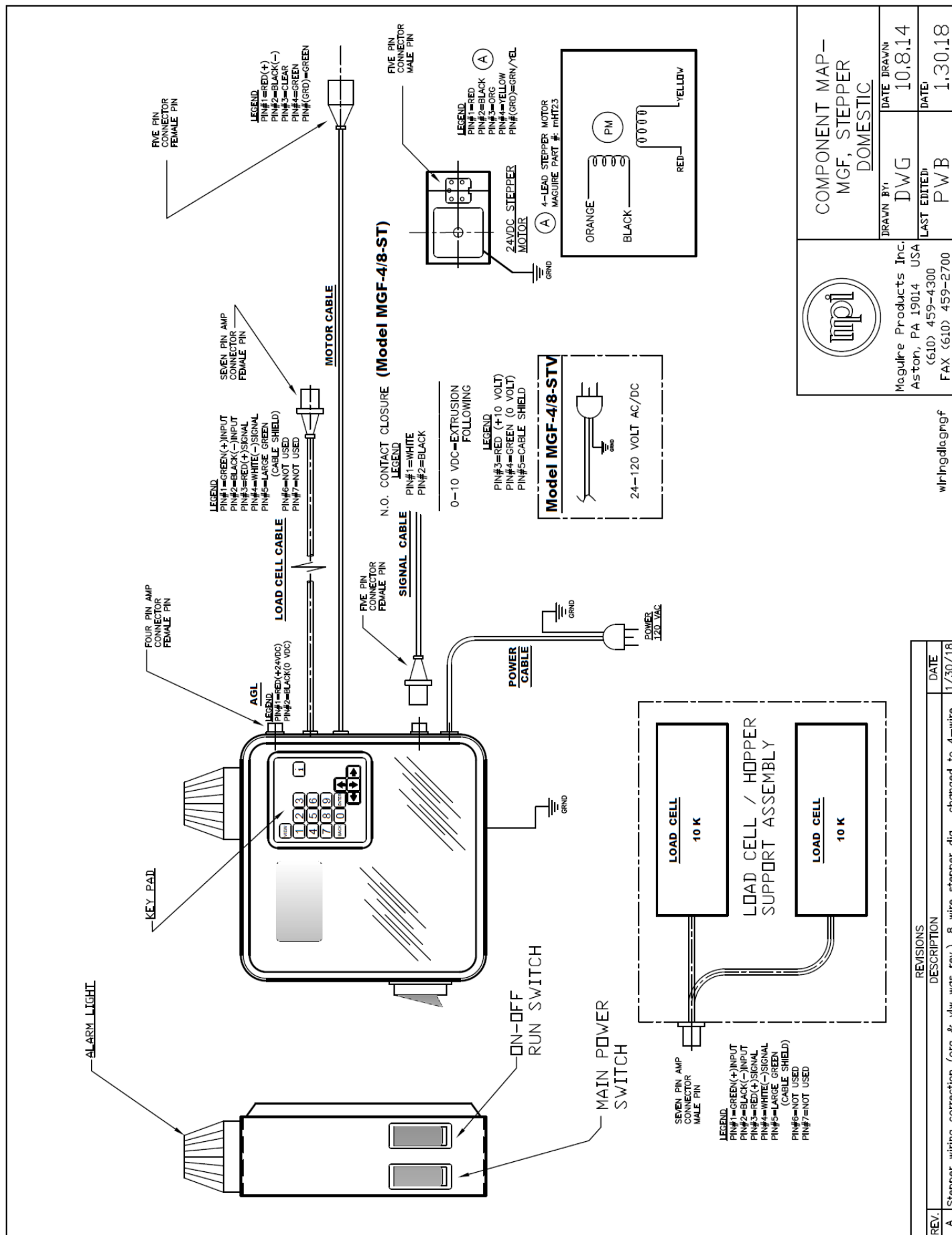
mqf/asolenoidealveasy

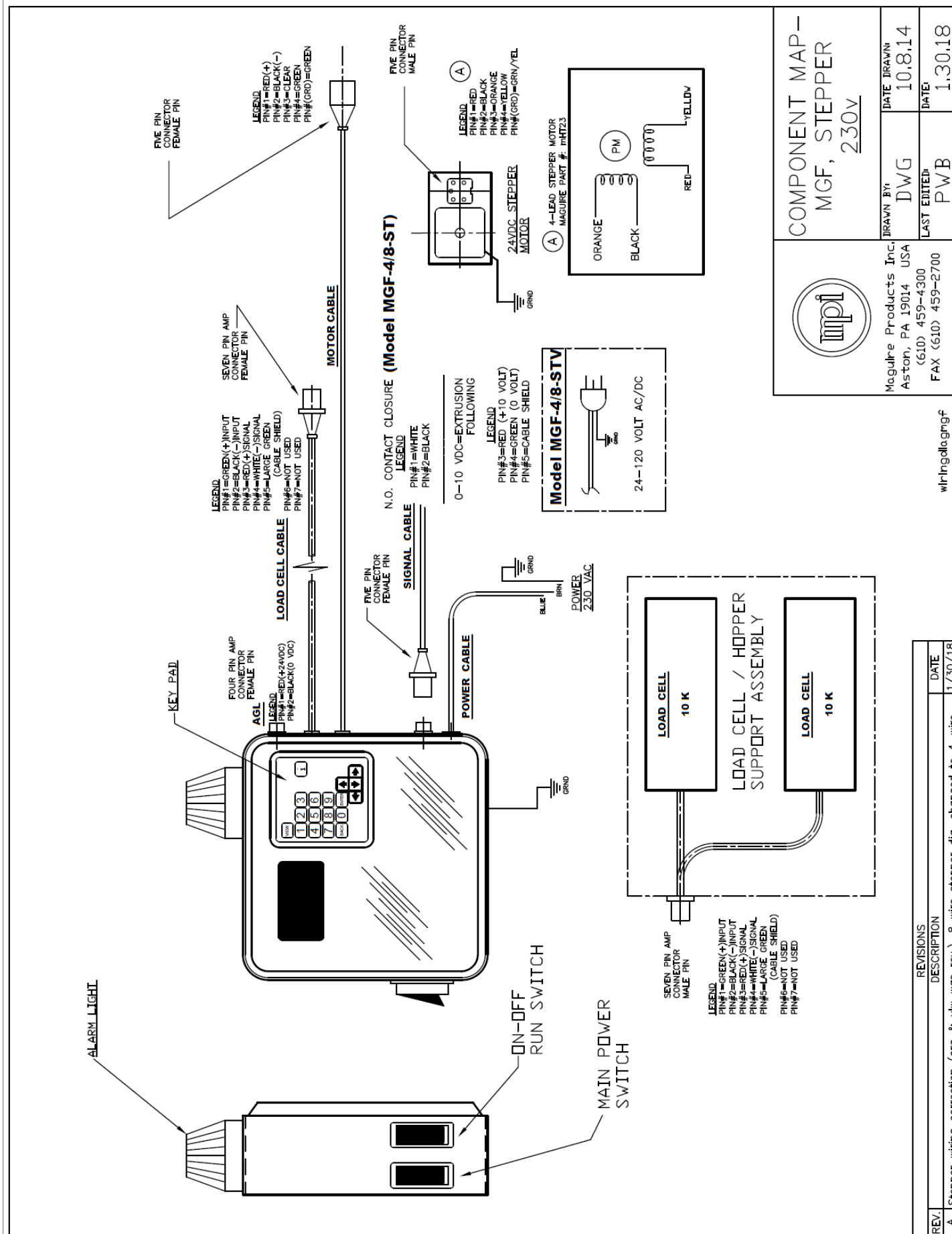
MGF Wiring Diagrams



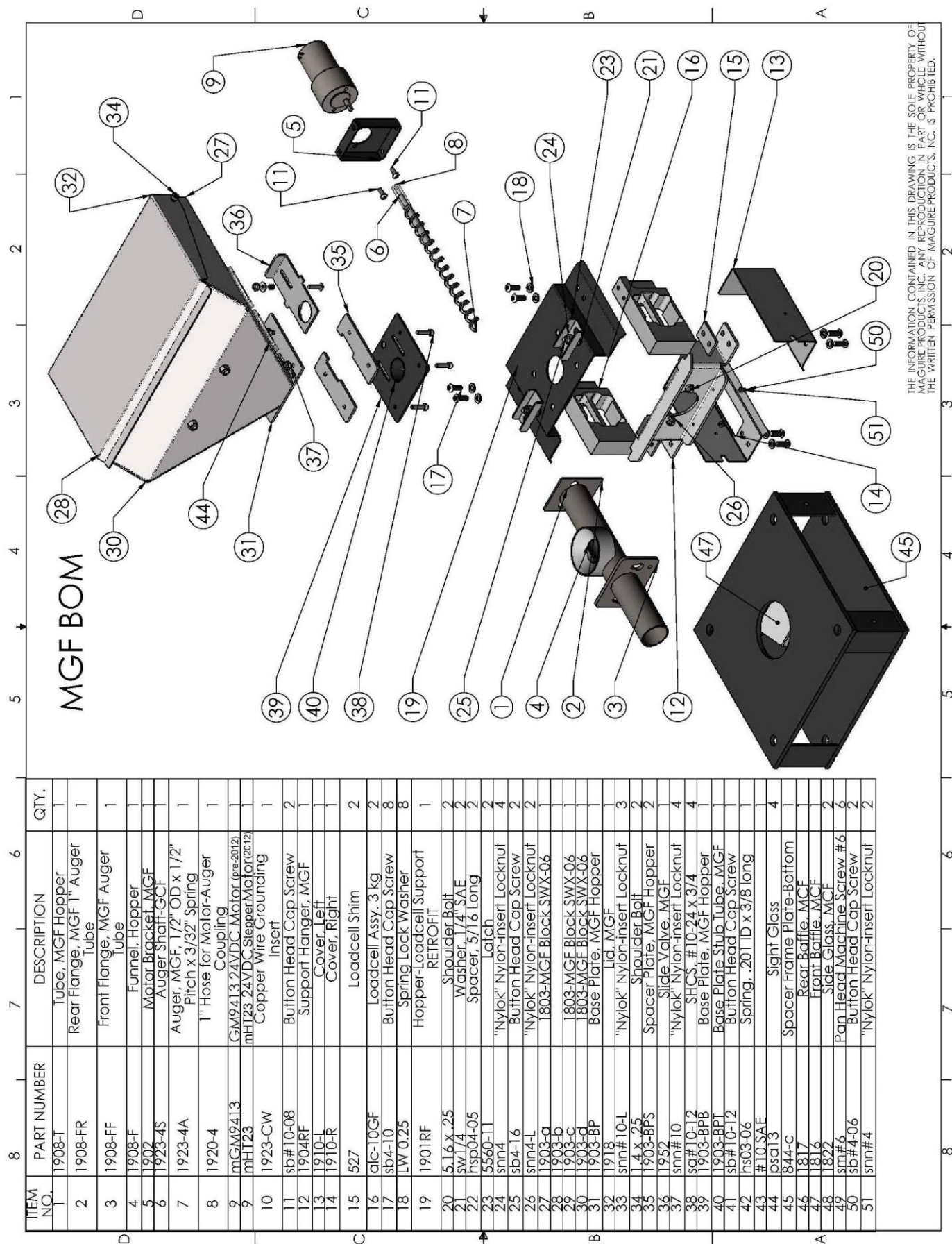


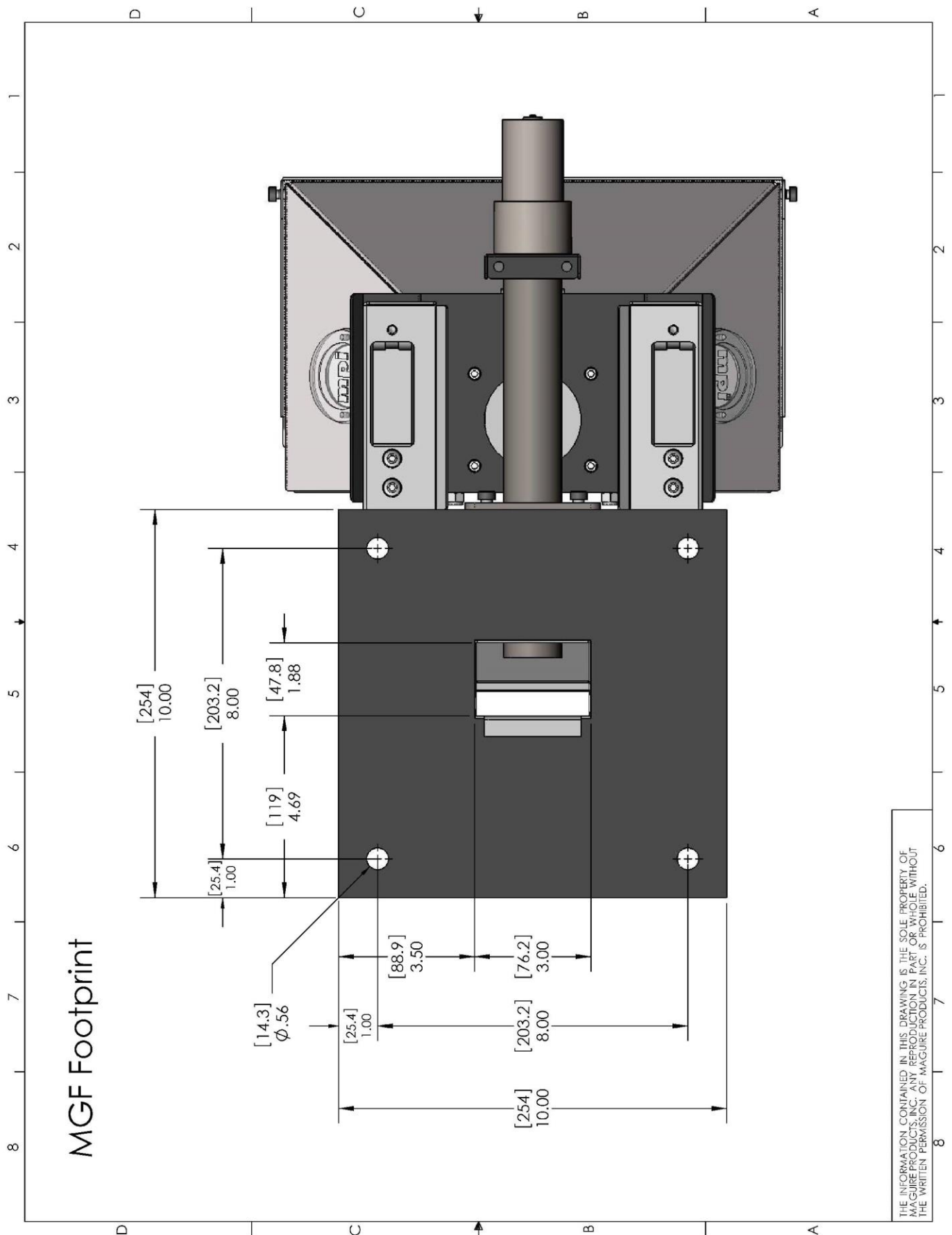


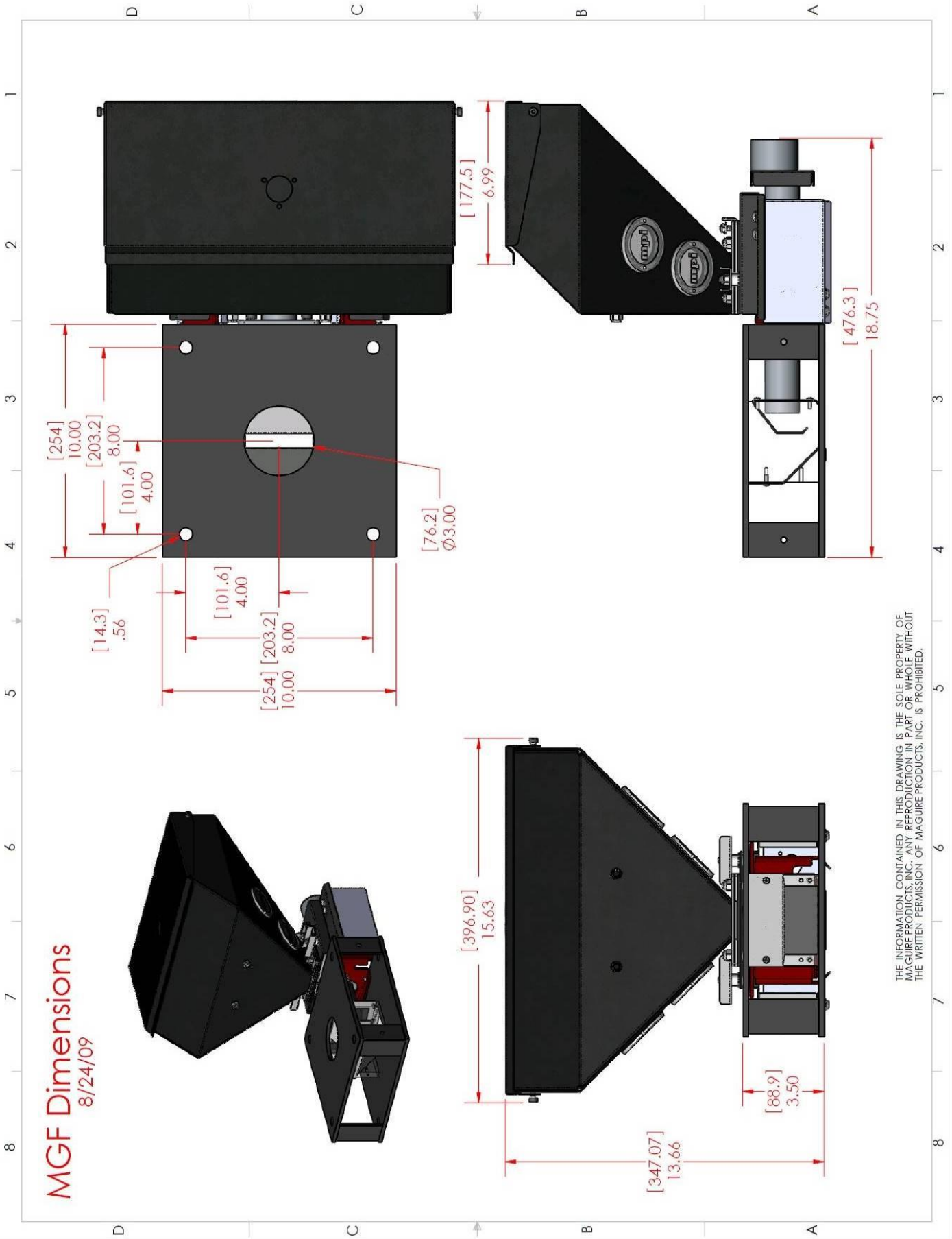




Parts Diagram and Dimensions Drawing







PRINCIPLE OF FEEDER OPERATION

The MAGUIRE GRAVIMETRIC 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. The two 10" square steel plates, separated by 4 steel corner posts, form a sturdy, low profile adaptor assembly. This assembly is drilled with the proper bolt pattern and mounted to the throat of your process machine under the main material hopper. Natural material flows through the adaptor.

On this adaptor frame, we hang the weighing platform, which then, in turn, supports the hopper and auger assembly. To ensure accurate weight readings, the hopper assembly does not contact any stationary part. The ease of removal allows for easy clean-out of the hopper for color changes. Two butterfly latches allow easy removal of the auger / motor assembly for complete access to all areas for 100 percent cleanout.

Virgin material flow is visible through the flow chamber, which uses clear acrylic plastic windows and stainless steel baffles. The baffles direct the flow of natural material so that color is dropped into the flow from an air space and is evenly distributed over a steady and predictable flow of natural material. This assures uniform distribution of color into the natural material. The windows provide a clear operator view of the combined flow.

The hopper holds up to 10 pounds of concentrate. Four sight glasses provide a view of the material level.

PRINCIPLE OF CONTROLLER OPERATION

The MAGUIRE Gravimetric Controller coupled with two loss in weight load cells, provides the precise speed regulation and metering control necessary to assure absolute accuracy over your color usage. Metering rate is directly related to motor speed or motor run time. Accuracy is obtained by controlling the exact degree of off-time of the motor. Feed back from the load cells confirms the actual dispense and motor off-time is then adjusted to assure perfect dispense weights over time.

Though use of a stepper motor, RPM is precisely controlled in increments of 200 steps per revolution, allowing metering to occur uniformly over the entire screw return cycle (for injection molding applications) or through continuous operation (for extrusion applications). The metering rate is constantly monitored and adjusted to maintain accuracy. Changing cycle times or fluctuations in plant voltage are automatically detected and compensated for with no effect on metering accuracy.

DECOMMISSIONING AND DISPOSAL

Decommissioning the unit: Disconnect the unit from the power supply. Disconnect the compressed air supply. Cut all Electrical cables & Pneumatic Hoses to decommission the equipment. Disposal: Remove air hoses and inspection glasses and dispose of with plastic refuse. Remove electric motor dispose of with metal. Remainder of unit dispose of with metal. Controller: Remove battery and dispose of battery with hazardous waste. Remainder of controller dispose of with electronic waste. Re-cycle any hazardous materials/substances in accordance with the Local & National regulations of the End User e.g. Lithium batteries etc, specific attention should be paid to the European RoHS & WEEE Directives; remove any 'sharps' and dispose of in accordance with Local & National regulations.

WARRANTY - Exclusive 5-Year

MAGUIRE PRODUCTS offers one of the MOST COMPREHENSIVE WARRANTIES in the plastics equipment industry. We warrant each 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 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 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 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.

Technical Support and Contact Information**Maguire Products Inc.****11 Crozerville Road****Aston, PA 19014****Tel: 610.459.4300****Fax: 610.459.2700****Email: info@maguire.com****Web: www.maguire.com****Maguire Europe****Tame Park****Tamworth****Staffordshire****B775DY****UK****Tel: + 44 1827 265 850****Fax: + 44 1827 265 855****Email: info@maguire-europe.com****Maguire Products Asia PTE LTD****Main Office****15 Changi North Street 1****#01-15, I-Lofts****Singapore 498765****Tel: 65 6848-7117****Fax: 65 6542-8577****E-mail: magasia@maguire-products.com.sg**