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WEIGH SCALE BLENDER
with
"FOUR" COMPONENT SOFTWARE

FEBRUARY 2, 1999

TUTORIAL

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TUTORIAL

for controllers using FOUR software.

This TUTORIAL BOOKLET is designed to help FIRST TIME USERS understand and operate the CONTROLLER on the MAGUIRE WEIGH SCALE BLENDER.

We have written it for those who have never seen this unit before.

Follow the instructions, one page at a time, with the controller next to you.

Another booklet, our INSTRUCTION MANUAL, covers everything there is to know about this controller. Everything.

Here, in the "TUTORIAL", we only cover the important points, just enough to make it work for you, and to allow you to feel comfortable with the controls.

The CONTROLS that you are going to learn about consist of:

1. TOGGLE SWITCHES
2. THUMBWHEEL SWITCHES
3. KEYPAD

In the KEYPAD section we will cover:

1. keys that work in the AUTOMATIC mode, and
2. keys that work in the PROGRAM mode.

In the PROGRAM mode we will cover the keys for:

1. LOAD CELL calibration,
2. PARAMETERS,
3. STAR functions, and
4. TESTING.

After the controls, we will cover ALARMS, and how to respond to them.

You only need to know about Toggle switches and Thumbwheel switches to make the system run. However, it is helpful to know the rest and you will always be more comfortable having covered everything.

First... the Toggle switches.

Turn to the next page.

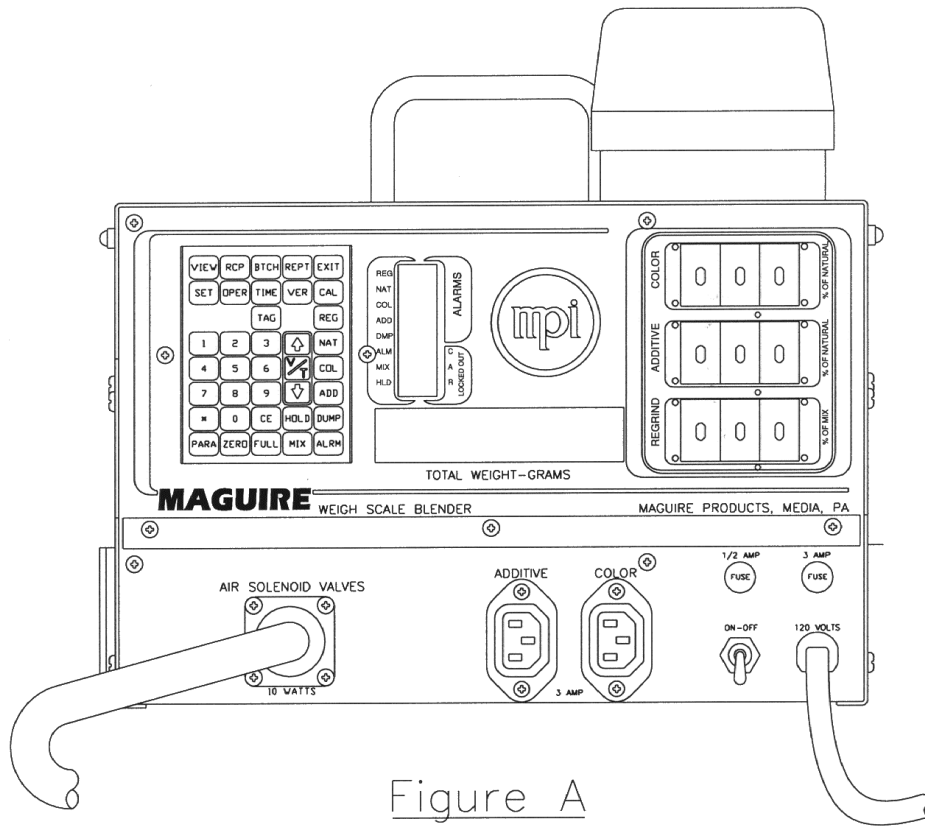


Figure A
Controller Front

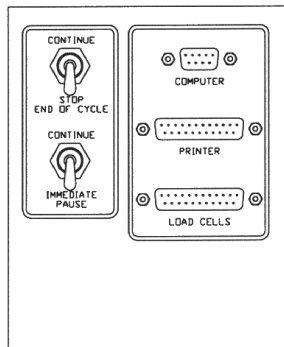


Figure B
Left Side

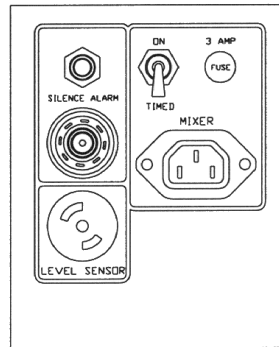


Figure C
Right Side

TOGGLE SWITCHES.

On the FRONT of the controller,

There is a single toggle switch:

```
POWER:  +-----+
        | ON / OFF |
        +-----+
```

It controls all power to the controller and the weigh scale blender. Because the computer memory chip inside contains a small battery, all the information that the unit has learned while running will NOT be lost when you turn the unit off. You can turn power off in the middle of a run, if you like, and then turn it on again and the blender would just start right up without any problems.

Turning power off in the middle of a batch might cause one batch to be blended incorrectly, but it will not cause any other problems. Never be afraid to just turn the unit off at any time. When you turn it back on, it will work just fine.

On the LEFT SIDE of the controller:

There are two switches:

```
+-----+
| STOP - END OF CYCLE |
+-----+
```

and

```
+-----+
| IMMEDIATE PAUSE   |
+-----+
```

These provide two ways to STOP the blender.

The "IMMEDIATE PAUSE" switch stops the unit IMMEDIATELY. The "STOP - END OF CYCLE" lets the blender finish a full cycle before stopping.

BOTH must be UP for your blender to run.

Only use the PAUSE switch if you want to make some change or adjustment in the middle of a cycle. Most of the time you will want the cycle to finish first.

When you use the STOP - END OF CYCLE switch, the blender will complete the batch it is currently blending and then stop at the end of that cycle.

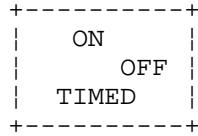
SO.....

Use the "STOP - END OF CYCLE" switch to start and stop the blender.

Leave the PAUSE switch "UP" in the CONTINUE position.

On the RIGHT SIDE of the controller:

The one switch on this side controls the MIXER motor.



The ON position will cause the mix motor to run CONTINUOUSLY.

In the middle position, the MIX motor will NOT run.

In the TIMED position, the mix motor will run for a short time (10 seconds) at the end of each blend cycle.

Continuous mixing is not always a good idea. Often the best blend occurs within a short time and then additional mixing only serves to separate the dissimilar materials. Mixing can also add a static charge to the material.

Running for only a short time is the proper way to mix the blend.

Leave the MIX MOTOR switch DOWN in the TIMED position.

The unit is set to MIX for ten seconds at the end of each cycle. It is also set to run one second, about every half minute, to keep the pile in the mix chamber level.

You can change these times later if you want, but for most customers, these times are correct.

Next..... The THUMBWHEEL SWITCHES.

Turn to the next page.

Page 5
THUMBWHEEL SWITCHES

There are three. All controllers (that use "FOUR" software) are designed to control up to FOUR components.

We could have called these components 1, 2, 3, and 4. But instead we decided to call them:

```
+-----++-----++-----++-----+  
| REGRIND || NATURAL || COLOR || ADDITIVE |  
+-----++-----++-----++-----+
```

Everyone uses NATURAL.
Most customers use REGRIND.
Most use COLOR, and some use another ADDITIVE.

Of course "Color" is an additive. We could have called them ADDITIVE 1 and ADDITIVE 2, but we decided that since most customers use a color, we would just name one COLOR and the other ADDITIVE.

While there are FOUR components, you only enter THREE settings. These are for COLOR, ADDITIVE and REGRIND.

There is NO setting for NATURAL. The computer knows that NATURAL will be ALL of the blend, except for the space required for the other three.

So the settings for Regrind, Color, and Additive indirectly tell the computer how much Natural to dispense.

To put it another way, you only have to think about how much Regrind, how much Color, and how much Additive you want. The Computer figures out the Natural for you.

NEXT..... entering the CORRECT settings.

Turn to the next page.

The FIRST component to be dispensed is REGRIND.

If you want TWENTY PERCENT of your blend to be REGRIND, set the "Regrind" THUMBWHEEL switch to 20 percent.

```
          +-----+
This will be: | 20.0 |
          +-----+
```

If you want fifty percent of the blend to be Regrind,

```
          +-----+
set the Regrind switch to: | 50.0 |
          +-----+
```

That is all you need to do for Regrind.

If you run out of Regrind, the blender is set to just continue and fill the space with the other components. You can change this so the alarm will sound when regrind runs out, but most customers don't care.

```
          +-----+
If you do NOT use any Regrind, just set Regrind to: | 00.0 |
          +-----+
```

NATURAL is dispensed next.

Since there is no setting for Natural, you don't have to think about this.

Natural will always be the entire batch, less the room needed for the Regrind, Color, and Additive. The computer will figure this one out for you.

Color and Additive settings..... are on the next page.

Next is COLOR.

If your color supplier says that you should mix color to natural at a RATIO of 1 to 25, that is 1 part color to 25 parts Natural, this makes color 4 percent of the Natural.

You will set FOUR percent

```
+-----+
| 04.0 |
+-----+
```

 on the COLOR switches.

If your supplier recommends a ratio of 1 part color to 50 parts

natural, this is TWO percent, or a setting of:

```
+-----+
| 02.0 |
+-----+
```

This is all you have to do for COLOR. Set the percentage that the Color is of the Natural.

The computer does NOT add Color to any Regrind that you may have dispensed. Color is added only to the Natural.

If you do not use any Color, just set Color to:

```
+-----+
| 00.0 |
+-----+
```

Last to be added is ADDITIVE.

Additive is set just like the Color. It is a percent of the NATURAL only. For example, if you use 1 part additive to 100 parts Natural,

set the switch to:

```
+-----+
| 01.0 |
+-----+
```

If you do not use any Additive, just set Additive to:

```
+-----+
| 00.0 |
+-----+
```

That is all there is to the THUMBWHEEL SWITCHES.

You can, at this point, just turn the unit on and it will work. Many customers go no further than this.

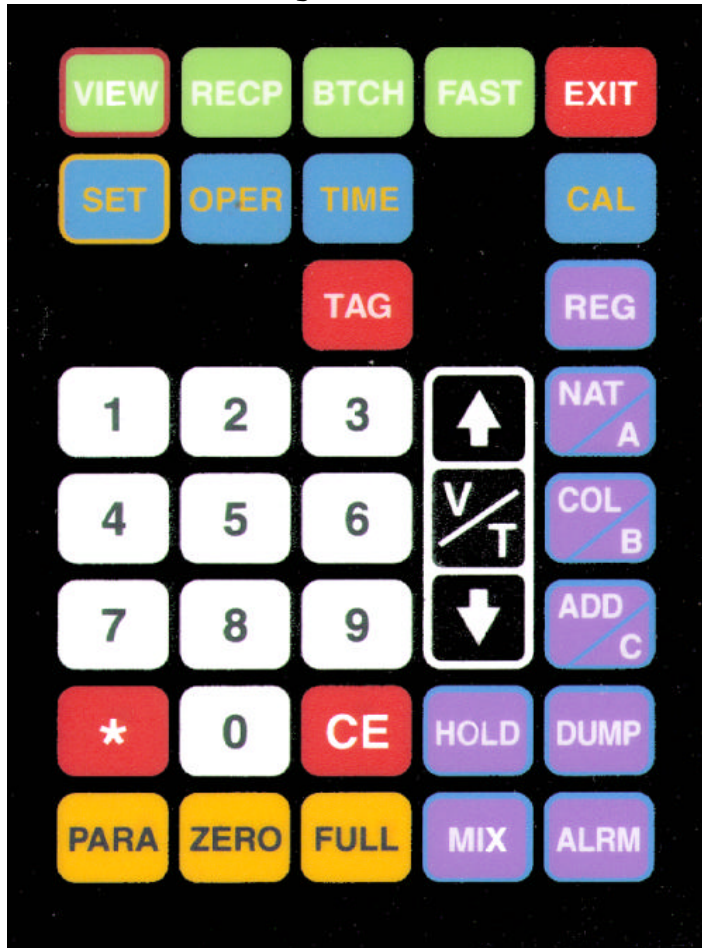
You don't need the keypad to make the unit run, but.... the Keypad offers many additional features.

To feel like a WEIGH SCALE BLENDER professional, you should go through the rest of this booklet. It will allow you to feel very comfortable with the entire controller and will put the many additional features within easy reach.

For the KEYPAD...

...turn to the next page.

Page 8



KEYPAD

MAGUIRE
WEIGH SCALE BLENDER
CONTROLLER

Your WEIGH SCALE BLENDER has TWO modes of operation:

AUTOMATIC, and PROGRAM.

When you turn it on, it is in the AUTOMATIC mode and is ready to go. If the switches on the left side are UP, your unit will begin to blend immediately.

You don't have to do anything to be in this mode, just turn it on.

BUT.... if you want to make changes to internal settings, print out information, or do other things using the KEYPAD you will have to be in the PROGRAM mode.

ALL KEYS work in the PROGRAM mode.
Only a FEW KEYS work in the AUTOMATIC mode.

In any case, the system MUST be between cycles, (at the end of a cycle) for any keypad entries to be made.

So You will always switch to "STOP - END OF CYCLE"
before you use the KEYPAD.

Look at the KEYPAD.

The TOP row of keys are the only ones that work without being in the program mode.

The top row is:

```
+-----+  
| VIEW | RECIPE | BATCH | FAST | EXIT |  
+-----+
```

Most customers never use the middle three keys, RECIPE, BATCH, and FAST; so these are "turned OFF". They will NOT work unless you intentionally turn them on by changing a parameter in the PROGRAM

mode. The INSTRUCTION MANUAL covers this.

Since you probably will not use these keys, we will not even discuss them here.

The VIEW and EXIT keys are covered...

... on the next page.

Page 10

```
+-----+
The | VIEW | key:
+-----+
```

The VIEW key simply displays some information for you. You can press it at any time. You don't need this information to operate the machine, but you should know how to retrieve it.

Try it now.

Each time you press the VIEW key, a new piece of information is displayed.

First the current DATE, then the TIME, then the date and time that all totals were last cleared to zero. Then you will see the number of cycles run, followed by the total material used, in pounds, for Regrind, Natural, Color, and Additive. The grand total follows this and then the message (00=CLEAR) is displayed for 5 seconds. If you want, press 00 within 5 seconds to clear all fields.

```
+-----+
The | EXIT | key:
+-----+
```

This is IMPORTANT. EXIT always works, in all modes.

It is always the key to press to GET OUT of whatever it is you are doing. It's a good key to know.

Now for the rest of the KEYS.

ALL the OTHER KEYS work only in the PROGRAM mode.

So lets get into the PROGRAM mode.

Turn to the next page.

Page 11
The PROGRAM MODE:

To enter the PROGRAM mode:

Press the "*" key. The display will say (PASSWORD).

The Password is 22222.

You can change it later if you want, but most customers never do.

Press: +-----+
| 2 || 2 || 2 || 2 || 2 | (the 2 key 5 times).
+-----+

The display will now have a "P" at the left. This is your indication that you are in the PROGRAM mode: (P x.x).

From this mode you can do four things:
Calibrate LOAD CELLS.
Change PARAMETERS.
Use the STAR (*) functions.
Do TESTING.

CALIBRATE LOAD CELLS:

+-----+ +-----+
The | ZERO | and | FULL | keys are used for this.
+-----+ +-----+

We already did this at the factory. But if something BAD happens, you may have to recalibrate sometime in the future.

The TARE weight, the weight displayed when the bin is empty, should be close to zero. If it is below -50 or above 100, then the unit will not operate. If this is the case, then you will have to ZERO the load cells.

After the initial installation, or if you move a controller from one blender to another, you may want to re ZERO the load cells.

The INSTRUCTION MANUAL explains this in detail, but here are brief instructions:

The sequence of keystrokes is as follows:

```

+-----+
| Press: *          Display will say: (PASSWORD) |
| Press: 22222      Display will say: (P  x.x)   |
| Press: *99        Display will say: (CAL OFF)   |
| Press: *          Display will say: (CAL ON )   |
| Press: EXIT       Display will say: (P  x.x)   |
| Press: ZERO WT    Display will say: (--WAIT--)  |
|                  followed by: (P  0.0)        |
| Press: EXIT       Display will say: (  x.x)     |
+-----+

```

The ZERO point of the load cells is now set properly.

Please continue...

...on the next page.

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PARAMETERS:

```

+-----+
The | PARA | key is used to change PARAMETERS.
+-----+

```

Every time you press it, the next parameter is displayed. The INSTRUCTION MANUAL explains all of these in detail. If you want to change one, just remember, you must be in the PROGRAM mode and then press the PARA key until you see the one you want to change. (If you accidentally pass the one you want in the list, press the * key to back up.)

There are over 60 parameters. Each one has a 3 letter identification code followed by a 5 digit number. The number keys are used to enter or change any parameter.

A typical parameter looks like this:

```

+-----+
| MIX 03010 |
+-----+

```

This particular parameter tells us the MIX motor will run for 10 seconds at the end of a cycle. It also tells the computer to JOG the mix blade every 30 seconds. Thus the numbers 10 and 30 are part of the parameter.

You may need to adjust some particular parameter for some special problem or circumstance.

But for now, you can leave all of them alone.

In fact, IF YOU ARE NOT SURE WHAT YOU ARE DOING.....

PLEASE.... leave them alone.

Before you change any, READ THE INSTRUCTION MANUAL.


```

+-----+
| Press:  *           Display will say:  (PASSWORD) |
| Press:  22222       Display will say:  (P   x.x)  |
| Press:  *           Display will say:  (INSTR --) |
| Press:  23          Display will say:  (SAVING  ) |
| Wait:   when done,  Display will say:  (P   x.x)  |
| Press:  EXIT        Display will say:  (   x.x)  |
+-----+

```

You only need to do this once. All correct data is now saved in case you have a problem later.

Please continue...

... on the next page.

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TESTING:

Look at the second row of keys:

```

+-----+-----+-----+-----+
|   SET   | OPERATE |  TIME  |           | CALIBRATE |
+-----+-----+-----+-----+

```

These keys work only when followed by a "device" key. "Device" keys are down the right edge of the keypad, as shown here:

```

+-----+
| REGRIND |
+-----+
| NATURAL |
+-----+
|  COLOR  |
+-----+
| ADDITIVE |
+-----+
|  HOLD   |  DUMP  |
+-----+
|  MIX    |  ALARM |
+-----+

```

For example: Press "OPERATE" followed by "NATURAL" and the Natural slide gate will open.

The OPERATE key is good for testing that all devices work. This is part of the CHECK OUT procedure for each new blender.

The other keys have little use in normal operation. If you just must know what they do, see the INSTRUCTION MANUAL.

For now, you can forget them.

That is all for the PROGRAM mode.

Remember: Press the | EXIT | key to get out of the PROGRAM mode.
+-----+
+-----+

Please continue...

...to the next page.

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ALARMS:

The ALARMS are: the STOBE light flashing,
the BEEPER sounding.

There are only a few things that can cause an ALARM:

1. If a component runs out of material, or for any other reason is not feeding correctly.
2. If you try to operate the unit with the weigh bin removed.
3. If you try to operate the unit with material stuck in the weigh bin.

NUMBER 1:

Running out of material, will cause the display to flash with the letter R, N, C, or A in the first position.

The letter indicates which material is not feeding,
"N" for NATURAL and "C" for COLOR.

Just add material and the unit will recover by itself. The blender never stops trying to meter it in.

NUMBER 2:

This is caused by the TARE weight being too low (below -50). If the bin is not in its place, then the display will shown minus about 1200 grams. The blender will not start with this low tare weight.

So just put the weigh bin back in place.

NUMBER 3:

This is caused by the TARE weight being too high (above 100). Check the bin and see what the problem is. There may be something stuck in the bin.

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PROBLEMS:

All the information to run your blenders correctly, has been SAVED in a part of the circuit board called the EEPROM.

If a blender is not running correctly, you can clear its MEMORY and have it start over by doing a CLEAR.

This is explained on the LABEL on the LEFT SIDE of the controller.

It is done this way:

```
Switch:      Power OFF.
              +-----+
Hold:        the | CE | key down.
              +-----+
Switch:      Power ON.
              +-----+
Release:     the | CE | key
              +-----+
Display will say: +-----+
                  | CLEAR |
                  +-----+
```

If you do not see CLEAR on the display, do it again.

CONCLUSION:

This completes our brief outline of ALL the CONTROLS.

As you read through the INSTRUCTION MANUAL, you will now have a better idea how all the software parts fit together and how you can make changes and add features.

A few important points to help you feel comfortable:

- . The | EXIT | key always gets you OUT.
+-----+
- . As with any computer, turning power off also gets you out.
- . Turning power off will never hurt.
- . Pressing keys on the keypad will never change anything as long as you are NOT in the program mode.
- . Parameters DO effect operation.
Do not change them unless you understand them.
- . If you are confused or have questions, call us.
610 459 4300. Ask for service.

Thank you for taking the time to complete this booklet.
We hope your Maguire Weigh Scale Blender serves you well.

