



EQUIPMENT SALES | PARTS | MANUFACTURING

USER'S OPERATION MANUAL

CUSTOMER: _____

S/O#: _____

SERIAL #: _____

MODEL: **GV-51**

CONTROLLER: **665 LCD 5GV 2_61.TXT**

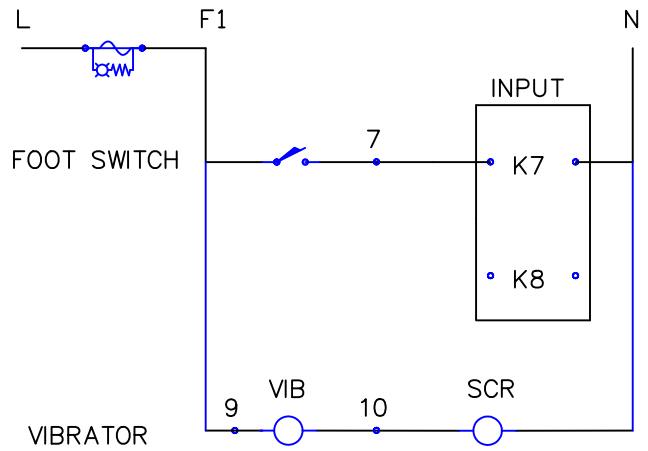
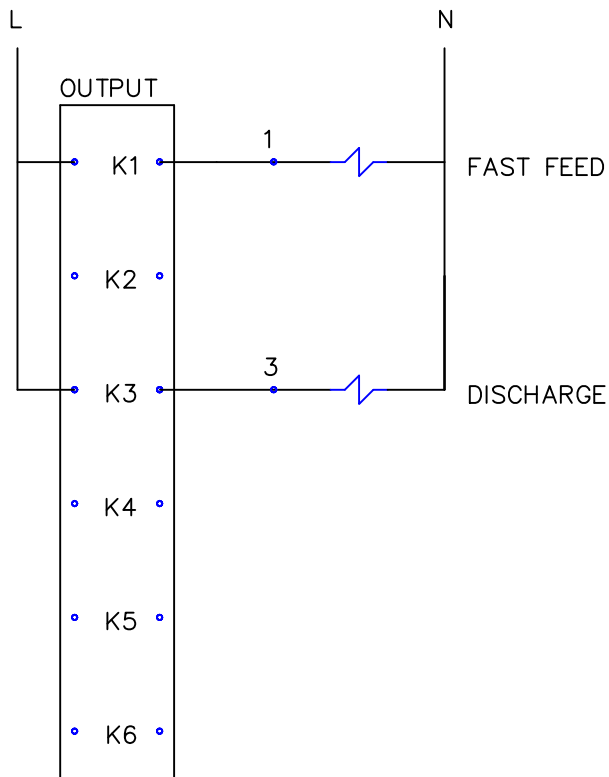
ELECTRICAL (CONTROL): _____

ELECTRICAL (MOTOR): _____

AIR PSI: _____

SPECIAL FEATURES:

JEM International Phone: 913-441-4788	6873 Martindale Fax: 913-441-1711	Shawnee, Kansas USA 66218-9354 email: info@jemscales.com
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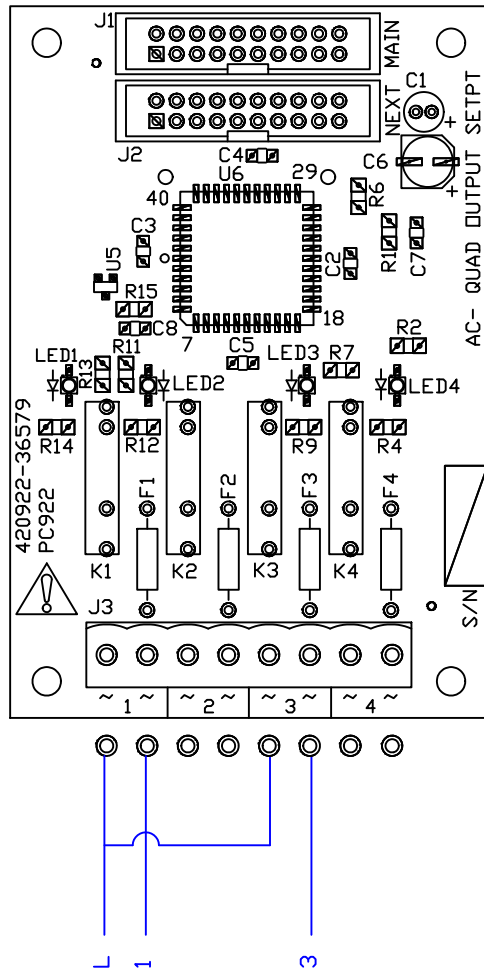
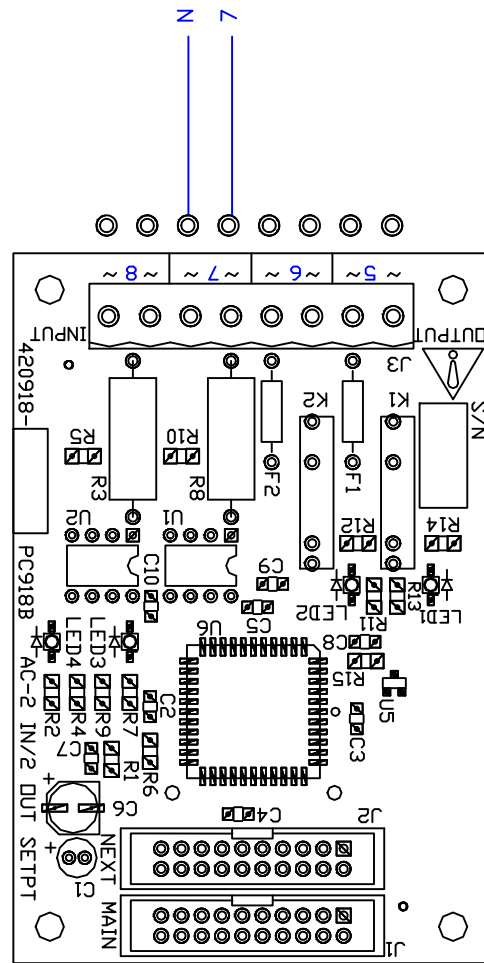
J11 TERMINAL STRIP
LOCATED ON MAIN BOARD

TERMINAL STRIP LOCATED AT
SCALE HOUSING JUNCTION BOX

SCR MODULE

<i>+5V</i>	_____	<i>A</i>	_____	<i>A</i>
<i>GND</i>	_____	<i>B</i>	_____	<i>B</i>
<i>I02</i>	_____	<i>D</i>	_____	<i>D</i>
<i>I01</i>	_____	<i>E</i>	_____	<i>E</i>
		<i>L</i>	_____	<i>1</i>
		<i>N</i>	_____	<i>2</i>
<i>BARE</i>	_____	<i>GND</i>	_____	<i>3</i>
		<i>9</i>	_____	<i>4</i>
		<i>10</i>	_____	<i>5</i>
		<i>GND</i>	_____	<i>6</i>

REV. A			
REV. B			
REV. C	NAME	GSE MODEL 600 PROCESSOR	
REV. D	FDR	INPUT/OUTPUT CHART PAGE 1 OF 2	
REV. E			
REV. F	TOLERANCE	MATERIAL	D.N.S.
			D.N.S.
REV. G	DRAWING NUMBER	BY	DATE
	EGSE268		12-06-12
			SERIAL NUMBER
			111219



REV. A
REV. B
REV. C
REV. D
REV. E
REV. F
REV. G

NAME GSE MODEL 600 PROCESSOR
FOR INPUT/OUTPUT CHART PAGE 2 OF 2
TOLERANCE
MATERIAL
DRAWING NUMBER EGSE269
PART NUMBER
D.N.S.
DATE 12-06-12
SERIAL NUMBER

CONTROL WIRE COLOR CODE

RELAY CONTROL WIRES

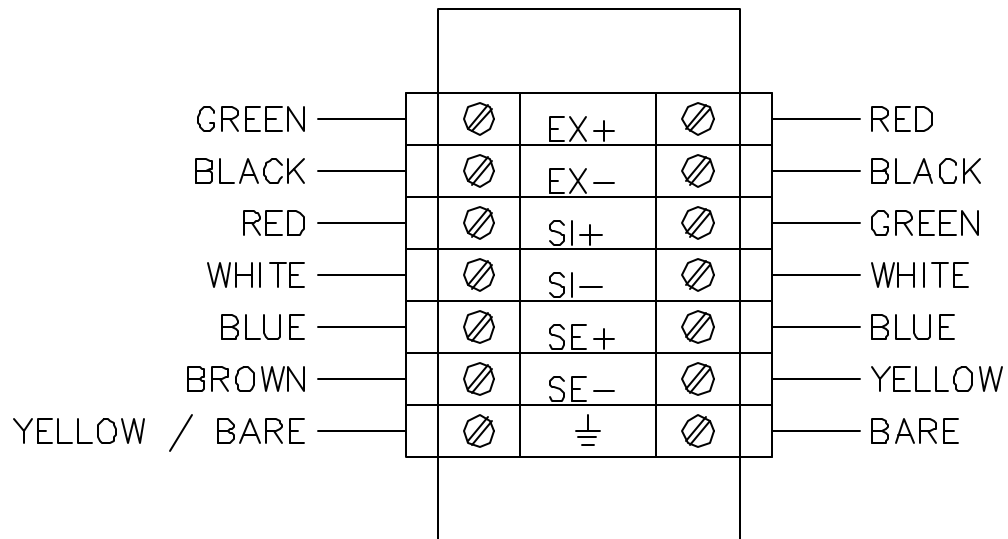
SCALE HOUSING	CONTROL PANEL
L.....	BLACK
N.....	WHITE
1.....	RED
3.....	BLUE
7.....	ORANGE
GROUND.....	GREEN

SCR / VIBRATOR CONTROL WIRES

CONTROL PANEL J11	SCALE HOUSING
+5V.....	RED.....A
GND.....	BLACK.....B
IO2.....	WHITE.....D
IO1.....	GREEN.....E

LOAD CELL

CONTROLLER



TERMINAL STRIP

REV. A				
REV. B				
REV. C	NAME 5GV LOAD CELL CONNECTION			
REV. D	FOR			
REV. E				
REV. F	TOLERANCE	MATERIAL	DNS.	PART NUMBER
REV. G	DRAWING NUMBER EXP125	DRS- -	DATE 06-12-02	PART NUMBER

5GV NET WEIGH BAGGING SCALE INSTRUCTION MANUAL

The 5GV is a net weigh bag filling device, meaning the product is weighed in the hopper contained with the unit. The scale is designed to handle between ½ lb to 11 lbs (200 grams to 5 kg) at a rate of 10 to 15 bags per minute (depending on bag weight) at plus or minus 1/2 ounce (15 grams) accuracy or better which is rated at 2 Sigma (95%)

DESCRIPTION OF SECTIONS

The scale has 4 different sections.

1. The main scale assembly and feeder assembly.
2. The weigh hopper.
3. The spout and transition.
4. Digital control panel.

Each section has a variation of options and any combination can be used together.

Section 1: The feeder section can be gravity/vibratory, single vibratory, dual vibratory or auger.

Section 2: The weigh hopper can be sized for .4 cubic foot, .8 cubic foot or 1.0 cubic foot capacity. The hopper has a single bracket attached to it and is shipped separate from the main scale assembly. The hopper is designed to be attached to the load cell by 4 ¼ inch Allen head screws provided. It is extremely important that the weigh hopper be securely tightened to the load cell after the scale has been installed.

Section 3: The spout or discharge section can vary from straight funnel design (non dust tight bag holder) or a dust tight bag holder sized to accommodate the proper bag to a transition to connect to an automatic bag placer. The dust tight spouts are measured in circumference and are referred to as SPOUT AO-25 for 25" in circumference.

Section 4: The digital control panel is shipped separate from the main scale assembly and the weigh hopper. This component needs to be connected to a clean grounded 110 volt service or a 220 volt single phase power if a transformer has been provided. The service needs to be 3 amp capacity.

The digital control panel indicator needs to be connected to the load cell through the red load cell cable provided. The control wires have been numbered and need to be connected to the terminal strip on the scale through a number to number sequence.

The digital control panel must be situated in an area where the operator working the scale can visually see the weights and make necessary changes.

Do not cut holes of any type in the top of the digital control panel. Conduit connections should be in the bottom or sides.

INSTALLATION

All 5GV scales have been fully tested at the factory prior to shipment.

A. If provided with support framework:

1. Set framework in proper position. Transition and spout should already be attached in shipment from factory.
2. Bolt framework solidly to floor to prevent any movement.
3. Install main scale assembly on top of framework utilizing bolts provided. This can be put on 180 degrees from being correct so make sure that the position of the weigh hopper sets inside the transition.
4. Connect the weigh hopper which was shipped loose to the single point load cell. The weigh hopper has a bracket and 4 Allen head bolts provided. These bolts are to be connected securely to the load cell.
5. Connect air lines to the air cylinder on the weigh hopper. These have been cut to size and generally cannot be installed incorrectly. These are installed in the push pull type fittings. Should an air leak occur here during testing, recheck that the lines have been securely placed into the fittings.
6. Install digital control panel in an area convenient for the operator.
7. Provide 110 volt or 220 volt single phase power to the control panel.
8. Provide conduit from digital control panel to scale for all control wires.
9. Provide conduit for load cell cable running from digital control panel to load cell (red wire).
10. Do not run load cell cable and control wires in same conduit.
11. Provide air to F.R. unit. Typically 50 PSI air pressure is adequate for 5GV scales. The weigh hopper doors should not slam closed or they may cause damage to the load cell. Make sure that the speed control

valve controlling the pneumatics to the weigh hopper air cylinder does not allow for slamming and that pressure is set at no more than 50 PSI.

12. Connect inlet of feeder section to surge hopper above. Check general prints for best alternative.
13. Connect foot pedal to control panel. See electrical schematics or if supplied with air operated bag clamps check schematics for this connections or if supplied with form, fill and seal or other automatic devices be sure to follow schematics as an O.K. to discharge signal must be provided for scale to operate.

B. If 5GV is not provided with leg support:

1. The main scale assembly must be connected to supports by yourself or two overhead supports by others. In these instances be sure that the scale is securely fastened and not in an area where plant vibration can be transmitted to the scale.
2. Also, be sure that in the installation the height of the spout has been accounted for. Typically 48" (1.2 meters) from floor is ideal height for workers. This height is measured from the bottom of the spout to the floor.
3. The same connections and concerns must be addressed as discussed in the previous installation instructions, steps 4-13.

FILTER REGULATOR

The water trap bowl should be monitored on a daily basis and emptied using the petcock on the bottle.

If the water trap bowl is continued to have excessive amounts of water, it should be noted that your air system is too wet and a desiccant dryer or refrigerant type dryer should be added to your air system to prevent future problems.

VALVES, LIGHTS AND PROBLEMS

All IGO valves are assembled as follows:

- Base with quick connect air line fittings.
- Speed control-screw driver adjust.
- Valves with lights (rebuildable type).

This system allows you to see if the valves are electrically energized by the light system. Opening and closing of all air cylinders can be adjusted at this point on the speed control section and in the event of a valve problem, the valve can be removed through two bolts without the need to disassemble any air line fittings.

Problems can be broken down into 4 areas.

1) Mechanical Problems

Mechanical problems are binds or misalignment of parts. If the load cell is not connected securely to its base or to the weigh hopper assembly, inaccurate weights will occur. If the weigh hopper is touching anything or if the feeding systems are not securely attached, these can also cause inaccuracies. These are all referred to as mechanical problems.

Typically if a weigh hopper contains product and is pulled down to a higher weight and released, the weight should repeat to the initial starting point. If not, this is generally a mechanical problem. Mechanical problems are easier to find than any other problems and should be looked for initially before pursuing electrical or pneumatic problems.

2) Electrical Problems

Electrical problems can be blown fuses where no power is provided to the unit to faulty indicators, where the output is not being sent by the digital controllers, to relays not providing electrical signals to the valves. Electrical signals also can be not provided by the O.K. to discharge equipment. For this reason IGO equipment provides lights on all valves. If the valve is lit, then it is receiving an electrical signal. If the light on the valve is not lit, then it is either not receiving an electrical signal or the bulb is out.

For example, if the weigh hopper does not discharge the possibilities are the electrical signal to the valve is not happening or the valve is stuck. If the valve controlling the air to the weigh hopper air cylinders is lit, then we have eliminated the electrical problem and can now concentrate on a pneumatic problem.

3) Pneumatic Problems

Pneumatic problems can be either the valves or the air cylinders. If the valves fail to shuttle then the air will not be sent to the air cylinders. Valves can become stuck through dirt or lack of lubrication. You can simply remove the air lines from the valve and check if air is, in fact, reaching the valve or if air is leaving the valve. If the valve is energized by the electrical relays and air is not passing through the valve in the correct direction, then it is in need of replacement or cleaning.

If the valve does shuttle the air correctly and the air cylinder still does not operate, the problem is possibly in the air cylinder. Again, the air can be checked at each port of the air cylinder to see if, in fact, we are receiving air and why the cylinder is not operating. Under lubrication, over lubrication and dirt are main reasons for cylinder failure.

If we are receiving air to one port of the air cylinder and the cylinder is not activating, it could be frozen shut. This can easily be checked by removing the air to the entire 5GV system and trying to operate the cylinder by hand.

The cylinders are not rebuildable type and need to be replaced.

4) Load Cell Problems

The load cell is a sensing device which transmits a signal to the digital indicator. If the load cell is faulty, generally the digital controller will not be stable. The quickest way to check this is to leave the weigh hopper full of product, record the weight and then return to the scale in 5 or 10 minutes and see if the weight has varied. If the weight has varied in this period of time, typically the load cell is faulty.

TROUBLE SHOOTING 5GV

Power On-Scale will not start to fill

1. On light not lit (check power source).
2. Error light on processor (cycle power)
3. Hopper already has complete weightment (weigh complete light on)
4. Fault or error code on variable speed drive display pad.
(Refer to variable speed drive manual)

Scale On-Fast feed light on scale will not fill

1. Valve to gate not operating correctly.
2. Air supply to gate valve obstructed

Scale On-No lights

1. Check control voltage
2. Check fuse
3. Error light on processor, contact factory 913-441-478:
4. Processor not in run position, contact factory 913-441-478:

Weight erratic

1. Flow rate too fast
2. Prelim not adjusted correctly (not enough slow fill)

Scale on weigh complete won't discharge

1. Scale in hold position
2. Check signal from foot pedal.

INITIAL SEQUENCE OF OPERATION

The following is a simple sequence of operation and will be more detailed later in the manual.

Connect air to the F.R. system. When connected check for leaks and verify that the weigh hopper door should be closed.

Electricity should be provided to the panel. The power light should be “ON” on the digital panel and the weight should be displayed in the digital indicator. With nothing in the weigh hopper, the weight should be equal to zero.

Set digital indicator per instructions. Simply, the “target weight” is the desired weight. “Prelim weight” means slow fill weight. For example, if target weight equals 5, prelim equals 1, then fast fill equals 4.

PRELIM EQUALS SLOW FILL

Free fall is a value that can be entered after actual weight product has been run. Free fall is the amount of overage that must be adjusted for. For example, if target weight equals 5, actual weight is 5.12 then free fall is .12 or the final cutoff will be at 4.88.

Turn scale from “Off” to “On” position. The feeder should run fast until the first preset value is reached. At which time the scale should automatically go from fast fill to slow fill. When the second preset value is activated, the scale will go from slow fill to “Off”. The product will be held in the weigh hopper until an O.K. to discharge signal is provided from either the foot pedal or through other automatic devices.

Once the O.K. to discharge signal is provided, the weigh hopper doors will automatically open, remain open through a discharge timer and close. Once closed the filling cycle will begin again.

OPTIMIZING SPEED AND ACCURACY

All scales are designed to obtain an optimum speed and accuracy for each product. It is extremely important to remember that each product has different flow characteristics and the settings for one product will not necessarily match the settings for another product. For this reason the 5GV scale is designed with 100 set points so that each product has its' own set of values.

Understanding the values. First you must obtain accuracy before we address speed. The easiest way to find ideal accuracy is to run the scale in slow fill mode. Therefore, target weight and prelim should be set nearly identical. For example, a target weight of 5 and a prelim of 4 will have all slow filling. The slow fill will either be with a vibrator or the low speed of an auger if provided. These feeders have variable speed frequency drives. Adjust the feeder until an ideal slow feed is obtained on the pot controlling the speed.

Once your slow speed is a uniform product flow then you will set the free fall. For example, if target weight is 2 and actual weight is 2.04 then the free fall must be adjusted to .04. This will, in effect, provide a final cutoff at 1.96.

After you have obtained accuracy then proceed for a higher rate of speed.

The fast fill is monitored by the cycle light on the control panel. The sequence of operation is fast fill, one second of stabilization while dribble is running then dribble feed. During the one second when a stabilization time is occurring, the second cutoff or final cutoff is inactive. Once this cutoff becomes activated, the cycle light is illuminated. For optimum results the cycle light should be on no more than one second per cycle.

Monitor the cycle light and decrease preliminary weight value until the cycle light comes on one second. At this point you will have obtained optimum speed and accuracy for one individual product.

These values will be maintained in memory through the set points provided. There are 100 set points provided with the 5GV control panel.

Hints

The cycle light must come on each cycle or else filling is not being done by weight but by time.

Too long a cycle light will not affect the accuracy but will affect the speed of the operation. Too short of a cycle light will cause inaccuracies.

Fast and slow fill rates are adjusted on the pots or controls provided. Fast fill should be set at a higher value than slow fill.

If the vibrating pan fails to operate, it is possible that the speed settings on the pot are out of range and need to be rechecked.

WELDING

The 5GV load cell and digital control panel utilize low voltage. Welding causes more problems to load cells than all other problems combined. Make sure that if welding is being done on the 5GV scale or in an area where the voltage could be transmitted to the scale through hoppers, support bins, or other structures, the load cell needs to be completely removed to avoid damage.

FEEDERS

GRAVITY GATE/VIBRATORY FEEDER

The gravity gate feeder (fast feed) is used for free flowing products and is air operated. The gravity system works on a single radial gate controlled by an air cylinder. Product flow rate can be manually adjusted by turning the 5/16" thumb screw located above the gate on the inner side of the pant leg diverter. The slow feed vibrator feeder side can be adjusted by a knob on the operator station marked VIBRATOR. This will run until the final cutoff is reached.

Maintenance.

1. See instruction on vibrator assembly.
- 2 Mechanical limited adjustments - grease lightly to prevent rusting in place.

DUAL VIBRATORY FEEDER

The dual vibrator feeder is used for semi free flowing products. With the unit in fast feed, both vibrators will run. When the unit goes into slow feed, the fast feed vibrator stops, the slow speed vibrator continues to run. When the scale reaches weigh complete, the vibrator stops. The flow rate can be adjusted by speed adjustments on the operator station.

Maintenance.

1. See instruction on vibrator assembly.
2. Mechanical limited adjustments - grease lightly to prevent rusting in place.

SINGLE VIBRATORY FEEDER (2 SPEED)

The single vibrator feeder is used for semi free flowing products. With the unit in fast feed, the vibrator will run fast. When the unit goes into slow feed, the vibrator slows down to a dribble. When the scale reaches weigh complete, the vibrator stops. The flow rate can be adjusted through speed adjustments on the operator station.

Maintenance.

- 1 See instruction on vibrator assembly.
- 2 Mechanical limited adjustments - grease lightly to prevent rusting in place.

DUAL SPEED AUGER FEEDER

The two speed auger is used most generally on powders that a vibrator cannot move in a consistent manner. In most instances, the auger speeds are adjustable by use of an AC variable speed drive with Leeson Speed Master

key pad face mounted on the control panel. Please refer to the AC variable speed drive operation and setup manual.

In initial installations on auger feeders it is imperative that the direction of the auger be checked before product is provided. The auger must run to the discharge end. If the auger is running in reverse and product is provided it can cause severe damage to the equipment.

Be certain to check the rotation of the auger prior to providing product.

Maintenance.

- 1 Lubricate bearings periodically.
- 2 Check gear box for proper lubrication level.
Change annually with 80-90 wt gear oil.
- 3 Empty water trap bowl regularly.

BAG CLAMP SAFETY

Bag clamps (spouts)

The most ergonomically correct height for the spout is 48 inches (1.2 meters) to the floor. Exception to this rule is that the bag closing conveyor should not be lower than 12 inches (305 mm) to the floor. If the bag is taller than 36 to 37 inches (914 to 940 mm) then height will have to be adjusted upward to ensure a gap to allow the bag to fall and clear the spout.

Bags are placed on the spouts manually by operators. The clamps are operated by a foot pedal, hand wand switch or special order push buttons. Normally in plants where fertilizer, salt or other corrosive products are handled, foot pedals are not recommended. But foot pedals seem to be the most operator friendly device.

Hanging the bags safely is critical to a successful operation.

Bags manufactured of paper or laminated poly propylene have excellent rigidity and are the easiest to work with. Poly woven, cloth and low density poly ethylene bags have the least rigidity and are more difficult for the operator to hang.

Bags with rigidity are generally placed by the operator in the following manner.

1. Grab the bag with right hand approximately 12" (304 mm) from the top.
2. Slide the bag over the right end of the spout, allowing the shape of the spout to open the bag.
3. When bag is approximately 4" (101 mm) on the spout, activate the clamping assembly.
4. Operator's right hand will now be approximately 8" (203 mm) below the clamps.

On bags with less rigidity the operator's hand or hands will need to be closer to the top of bag. Subsequently, closer to the bag clamps and more care needs to be taken by the operator.

On cloth and low density poly propylene bags two hands may be required to hang the bag. The operator needs to make sure his/her hands are clear of the spout assembly before activating the clamp switch/foot pedal.

The bag clamps not only support bags during the filling but also some models (GBAO, JMDT and CMDT) are designed to control dust. To control dust the spout assembly and brackets that hold the bag must be of very close tolerance.

Close tolerance also means pinch point. All dust tight spouts are designed with spring loaded brackets that hold the belting material. This minimizes the risk to the operator's hand but the dust tight design is more cumbersome to most operators than the center grip or clam shell spout.

Clam shell spouts (JM600 or JMCS) are designed for bags with a minimum 28" (711 mm) circumference. This fits the industry standard rule that spout circumferences need to be at

least 5” (127 mm) smaller than the circumference of the smallest bag being used. If the circumference of the spout and the circumference of the bag are 5” (127 mm) or less it is cumbersome for the operator to place the bag on the spout assembly.

The dust tight spouts (DT) and center grip spouts (CG) are available in a variety of sizes so these are basically customized to the bags being used in normal operations. The normal shape is pecan or US football shaped. This helps in opening the bag during placement and does not misshape the bag during the filling operation. It is important that the bag not be misshaped to ensure an easier motion of the operator to close the bag after it has been filled and discharged.

Not all spouts are identical in size or shape. Some products pass through round spouts more easily. Round spouts, however are generally harder for operators to use than pecan shaped spouts.

A separate air regulator is provided for all bag clamps. Each pneumatic system valve cylinder includes speed control. The amount of air pressure required is trial and error. The amount of air used should only be enough to firmly hold the heaviest bag without any slippage. The speed controls are factory set and clearly marked “do not adjust” in three languages; English, Spanish and French. Do not adjust the speed controls.

On GB model scales (GBAO) operators can operate the bag clamp without the possibility of the product passing through. On JM gross weigh scales, CM-780 net weigh scales and 5GV net weigh scales a “hold/run” switch is provided. In run mode the operation of the clamp will activate the product flow. In hold the clamps can be operated without activating product flow. Operators who want to test their skill on spouts using the JM, CM-780 or GV models must put the scale in “hold” first or risk discharging product unwanted. By placing the scales in “hold” will eliminate the possibility of spillage.

If a finger would get caught in the spout assembly, don’t panic. We are not aware of any broken bones in 30+ years of manufacturing these products.

Most damage is done by pulling out. The clamps require 50 to 80 lbs of air pressure normally to hold a standard 50 lb bag. Operators normally cannot pull out of this clamp assembly with said pressure. By pulling out the skin can be torn or a fingernail can be lost, depending on the position of the hand when clamped. Generally it is far better for the operator not to panic and wait for the release of air pressure.

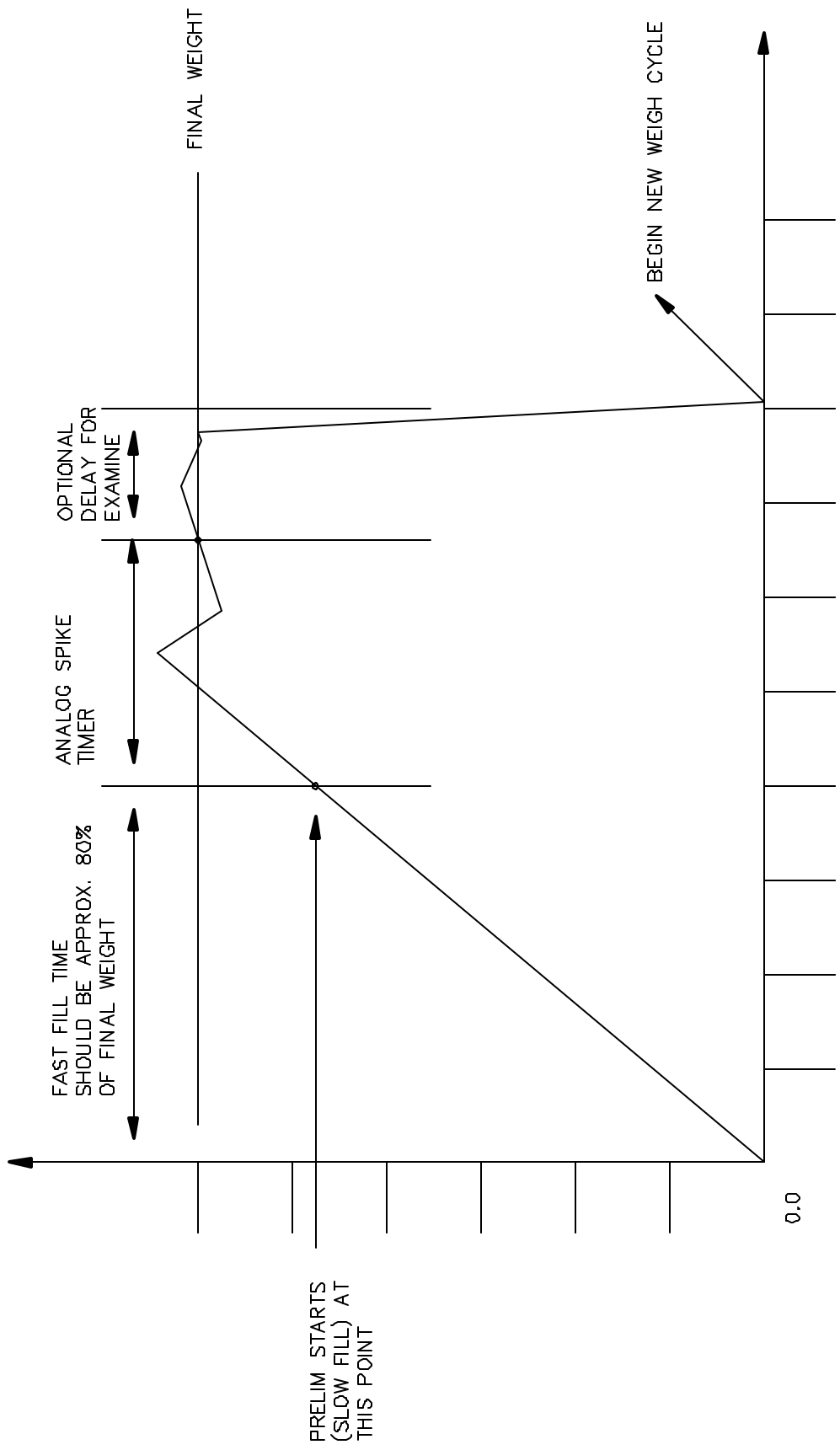
If the scale has an automatic release, bag clamps will automatically open in a few seconds, releasing the operator. For quicker release please refer to the following.

GB scales: depress foot pedal and hold foot pedal. The clamps will automatically open.

JM and CM digital scales: F1 key turns the bag clamps off. The clamps will automatically open.

JM non digital models: turn on/off push button to “off” position.

On any model scale, “quick disconnect” air has been supplied. Disconnect air and all pressure will be released.



NOTES -

1. SET FINAL TARGET WEIGHT. SET PRELIM. SAME AS FINAL WEIGHT.
2. SET FREE FALL AT 0.00 .
3. RUN ONE WEIGHMENT, CHECK SPEED OF SLOW FILL, WEIGHT SHOULD INCREASE NOT MORE THAN 5 lbs/sec. ADJUST SLOW SPEED TO THIS.
4. AFTER SCALE HAS GONE WEIGHT COMPLETE RECORD WEIGHT AND ENTER THE OVERAGE INTO THE FREE FALL.
5. THEN BEGIN RUNNING SCALE AND DECREASING PRELIM UNTIL YOU DO NOT GET THE SAME ACCURATE READING.
6. ADJUST DISCHARGE TIME SO THAT LIGHTEST DENSITY PRODUCT JUST ESCAPES HOPPER BEFORE DOORS CLOSE. APPLYS ONLY TO NET WEIGH BAGGERS NOT TO THE JM SERIES SCALES.

REV. 1									
REV. 2									
REV. 3	NAME	TYPICAL FILLING CYCLE							
REV. 4	FOR	FOR PROGRAMMABLE CONTROLLER							
REV. 5									
REV. 6	TOLERANCE	MATERIAL	SCALE	PART NUMBER					
REV. 7	DRAWING NUMBER	DATE	D.N.S.						
	SXP042A	02-19-00							

PARAMETER VALUES

	Product #		Product #		Product #	
	Scale 1	Scale 2	Scale 1	Scale 2	Scale 1	Scale 2
FINAL TARGET WEIGHT						
PRELIM WEIGHT						
FREE FALL WEIGHT						
FAST FILL BELT/AUGER SPEED						
SLOW FILL BELT/AUGER SPEED						
FAST FILL VIBRATOR SPEED						
SLOW FILL VIBRATOR SPEED						
START FILL DELAY						
DISCHARGE DURATION						
CLAMP RELEASE DELAY						
AUTO FREE-FALL ON/OFF						
AUTO FREE-FALL START COUNTER						
AUTO FREE-FALL FREQUENCY COUNTER						
AUTO ZERO ON/OFF						
AUTO ZERO START COUNTER						
AUTO ZERO FREQUENCY COUNTER						
TOLERANCE ON/OFF						
+TOLERANCE WEIGHT						
-TOLERANCE WEIGHT						
TOLERANCE CHECK COUNTER						
MULTI-DUMP ON/OFF						
MULTI-DUMP CYCLE COUNTER						
TOTAL BAG COUNTER						
MASTER CYCLE COUNTER						

600 Series
LCD
Programmable Controller
Instruction Manual

VERSION 1-28

CM-780 or 5-GV



EQUIPMENT SALES | PARTS | MANUFACTURING

6873 Martindale Road
Shawnee, Kansas 66218
U.S.A

Phone: (913) 441-4788
Fax: (913) 441-1711
info@jem scales.com

Calibration Procedure For Model 5GV

Certified weights are required to perform a calibration. Serious inaccuracies could result from using non-certified standards for calibration. Also before getting started remove any product out of the weigh hopper by performing a manual discharge and clean product build up off of the weigh hopper.

Non-Passcode Protected Calibration Entry

From the MAIN MENU screen press [SETUP] then press [F4]

Passcode Protected Calibration Entry

From the MAIN MENU screen press [F5] and key in the password (4789) then press [F4].

ID = CALIBRATION will appear on the lower part of the display. Pressing [ID] on the keypad puts controller in the CALIBRATION mode. (Follow the prompts on the upper display, remembering [ENTER] = YES and [CLR] = NO)

If multiple scales are enabled, the controller will prompt you with **Keyin Scl #**. Key in the scale number being calibrated and press [ENTER]. After the scale number is entered the **New Zero?** prompt will be displayed.

If multiple scales are not enabled, the **New Zero?** prompt will be displayed.

New Zero?

New Zero? is the selection for establishing the first or a new calibration. The controller displays the dead load (which might not be in precise units) that is present on the scale. The controller assumes a "NO LOAD" condition. Press [ENTER] to establish a new zero. This is reflected on the main display with the prompt **Adj'g Zero** followed by the prompt **Keyin CalWt**.

At this point, the controller is waiting for the actual calibration value to be entered. Place the calibration weights on the weigh hopper. (see fig. A) Key in the weight value, and press [ENTER].

If you key in a cal weight and press [ENTER] without adding any weight since the last calibration weight, the controller will prompt you to add CalWT. Add the weight and press [ENTER].

Entering Numeric Values

Where appropriate, you can use the numeric keypad to enter numeric values. If an error is made while entering data, press **[CLR]** before you press **[ENTER]**. The controller will perform the calibration, display the value of the calibration weight, and prompt **CAL OK?**.

At this point, you can check the accuracy of the calibration by weight without leaving the Calibration Mode.

- If the calibration was accurate, press **[ENTER]**

DUPLEX AND TRIPLEX SYSTEMS ONLY: When finished with the last scale **Scl #** will appear, press **[CLR]** before proceeding.

The controller will prompt you to save the new calibration plus any other changes you have made. Press **[ENTER]** twice to save and exit. Wait for the MAIN MENU to be displayed then remove the calibration weights from the weigh hopper.

- If the calibration is not accurate, press **[CLR]**
The controller will return to the **New Zero?** prompt. Repeat the above steps to calibrate.

If the calibration weight was less than 5% of capacity, or if there was a large change in the calibration, the controller prompts **ReCal Req'd**. Press **[ENTER]** and repeat the calibration, or press **[CLR]** to obtain the **CAL OK?** prompt as described above and override the re-calibration requirement.

Cal Reset

Cal Reset may be necessary when an over-load or under-load condition exists, preventing the completion of the calibration process. Calibration Reset adjusts the zero and gain factors of the A/D amplifier to factory default values for maximum sensitivity.

After performing a calibration reset, a complete recalibration is required. The effects of a calibration reset do not take effect until the indicator is recalibrated and calibration information has been saved.

If **Code 02** (under-load) or **Code 03** (over-load) is displayed during calibration, press **[CLR]** to perform a calibration reset.



Figure A

Keypad Operation

F1: Toggles ON/OFF

F2: Toggles HOLD/RUN

(When HOLD is selected, weigh hopper will not discharge)

F3: Manually discharges scale selected.

(Key not functional when in the SETUP mode)

F4: Accepts and discharges an out of tolerance weighing.

(An asterisk will appear to the right of [F4] TOLERANCE ACCEPT when out of tolerance)

SCALE SELECT: Toggles through the available number of scales. See upper right hand of display

(This key only performs the operation while viewing the MAIN MENU)

ZERO: This key will zero off any unwanted weight value displayed.

UNITS: Toggles through the available weighing units.

5-GV: (Pounds/kilograms/ounces/grams)

CM-780: (Pounds/kilograms)

SELECT: Toggles through BAG COUNTER and DATE/TIME.

(Bag Counter combines all scale totals and counts only weigh complete and in tolerance discharges.

Can be cleared by pressing the CLR key and then the ENTER key)

TARE: Performs an auto-tare. (Normally, only used on a GROSS weighing system to tare off

the value of the bag weight)

ENTER/yes: When a change is made in the SETUP mode the new value must be entered.

(Also doubles as a YES command)

CLR/no: When an unwanted value is keyed in, it can be cleared before pressing the ENTER key.

(Also doubles as a NO command)

PRINT: When the PRINT key is pressed two printing options appear on lower display. (OPTIONAL)

[F1] Prints SUBTOTALS of individual Product #'s.

[F2] Prints GRANDTOTALS of all Product #'s.

**NOTE: AUTO FREE-FALL MUST BE TURNED ON AND WILL ONLY
CAPTURE WEIGHMENTS ACCORDING TO THE AUTO FREE-FALL START
AND AUTO FREE-FALL FREQUENCY COUNTERS**

SETUP: Puts controller in the setup mode where a number of changes can be made to the Main Menu and determine how the controller will operate. (SCALE SELECT takes the controller out of the SETUP mode)

F1 will scroll through the Main Menu forwards.

F4 will scroll through the Main Menu backwards.

**NOTE: THE FOLLOWING HAVE CHANGEABLE ENTRY CAPABILITIES AND WILL ONLY
MAKE CHANGES TO THE PRODUCT AND SCALE NUMBER SELECTED!!!**

PRODUCT NUMBER: There are 100 available product numbers and are set at a range between 00-99.
(These numbers are used to setup different products and/or different FINAL TARGET WEIGHT'S
for the same product)

FINAL TARGET WEIGHT: Displays the final weight.

PRELIM WEIGHT: Displays how much of final weight will be slow fill.

FREE FALL WEIGHT: Determines the slow fill cut-off to allow for product in suspension.

AUTO ZERO: Automatically zeros the weight display after first discharge and is controlled by the
AUTO ZERO START and AUTO ZERO FREQUENCY counters.

AUTO FREE-FALL: Automatically adjusts the free fall after first discharge and is controlled by the
AUTO FREE-FALL START COUNTER and AUTO FREE-FALL FREQUENCY counters.

TOLERANCE: Will only discharge the weighment if it is within the positive and negative settings
for TOLERANCE WEIGHT. (Refer to the F4 key)

+TOLERANCE WEIGHT: Weight that is acceptable above FINAL TARGET WEIGHT.

-TOLERANCE WEIGHT: Weight that is acceptable below FINAL TARGET WEIGHT.

FAST FILL VIBRATOR SPEED: Speed control for vibrator from 1-100%. (OPTIONAL)

SLOW FILL VIBRATOR SPEED: Speed control for vibrator from 1-100%. (OPTIONAL)

FAST FILL BELT SPEED: Speed control for belt feeder from 1-100%. (OPTIONAL)

SLOW FILL BELT SPEED: Speed control for belt feeder from 1-100%. (OPTIONAL)

FAST FILL AUGER SPEED: Speed control for auger feeder from 1-100%. (OPTIONAL)

SLOW FILL AUGER SPEED: Speed control for auger feeder from 1-100%. (OPTIONAL)

FAST FILL GATE POSITION: Sets the gate opening position for fast fill from 1-100%. (OPTIONAL)

SLOW FILL GATE POSITION: Sets the gate opening position for slow fill from 1-100%. (OPTIONAL)

MULTI DUMP: Enables or Disables the MULTI-DUMP CYCLE COUNTER. (OPTIONAL)
(When enabled F4 Key will stop MULTI-DUMP and TOLERANCE should be set to the OFF position)

START FILL DELAY (sec.): The amount of time allowed from when the hopper doors
start to close to the beginning of the fill cycle.

DISCHARGE DURATION (sec.): The amount of time the signal is given to open the weigh hopper doors.

CLAMP RELEASE DELAY (sec.): The amount of time, after discharge, before the bag is released.
(OPTIONAL)

AUTO ZERO START COUNTER: The number of times the controller will ZERO the weight display, after
first discharge, when selected scale is set from the OFF to ON setting.

AUTO ZERO FREQUENCY COUNTER: How often the controller will ZERO the weight display after
AUTO ZERO START COUNTER is completed.

AUTO FREE-FALL START COUNTER: The number of times the controller will adjust the FREE FALL weight, after first discharge, when selected scale is set from the OFF to ON setting.

AUTO FREE-FALL FREQUENCY COUNTER: How often the controller will adjust the FREE FALL weight after the AUTO COMP. START COUNTER is completed.

TOLERANCE CHECK COUNTER: The number of times the controller will check the weighment to determine whether it is within positive and negative TOLERANCE.

MULTI-DUMP CYCLE COUNTER: The number of times the weigh hopper will discharge continuously without having to reset bag switch. (OPTIONAL)

TOTAL BAG COUNT: Total discharges made from selected scale. (Re-settable)

MASTER CYCLE COUNT: Total discharges made from selected product number history. (Non re-settable)

FAULT RESET: Pressing ID on the keypad will reset the fault on the drive for the servo motor. (OPTIONAL)

CALIBRATION: Pressing ID on the keypad puts controller in the CALIBRATION mode.
(See CALIBRATION PROCEDURE)

ACCESS TO THE CONTROLLER: Hold the CLR key for 10 seconds while powering-up the controller.
100 SELECT/23640 ID ENTER

Changing TIME:

502 SELECT (Make sure P502 is set for "Enbld". This can be done using the ENTER key)

500 SELECT The new TIME is entered by keying in "HH.MM.SS" (ENTER) Leading zeros need not be entered.

Changing DATE:

502 SELECT (Make sure P502 is set for "Enbld". This can be done using the ENTER key)

501 SELECT The new DATE is entered by keying in "MO.DA.YR" (ENTER) Leading zeros need not be entered.

Viewing mv/V output of load cells:

61099 SELECT Specifies the scale number from which to view the information.

61100 SELECT Displays an approximation of the current mv/V output of the connected load cell.

Viewing the voltage of the battery on the database memory board:

60018 SELECT If this voltage falls below 2.5 volts, this message and a warning message display alternately indicating that the battery should be replaced.

The warning message is also displayed during power-up. When the voltage is above 2.0 volts then data in memory will be retained. The voltage on a new battery should be slightly above 3.0 volts. A battery should last several years minimum, possibly over 10 years, depending on conditions.

EXITING THE ACCESS MODE: PRESS THE **ZERO** KEY

If the display reads Code 39 check A/D Cal press CLR key

If the display reads Setup ENTER = CAL press CLR key

If the display reads Setup ENTER = SAVE press the ENTER key

If the display reads Setup ENTER = EXIT press the ENTER key

When the following appears on the lower display you are finished:

MODEL OF SCALE
PROGRAM and SERIAL NUMBER

COMMUNICATION CABLE CONNECTIONS FOR DATA OUTPUT STRING

P.C. (9 PIN CONNECTOR) PROCESS CONTROLLER (COM 3)

PIN# 5.....GND
PIN# 3.....RX1
PIN# 2.....TX1

BAUD RATE - 19200
DAT BITS - 8
PARITY - NONE
STOP BITS - 1
FLOW - Xon

Data is sent out through the RS-232 communication port 3 of the controller.
The tolerance parameter must be on and will only send data out according to the tolerance check counter.

The data will be sent as a comma delimited string as follows:

Product Number,Scale Number,Weight

0,1,50

600 Series Process Controller Set-Up Procedure (net weigh)

PRODUCT #: - 100 DIFFERENT PRODUCT NUMBERS MAY BE STORED USING CODES 00 - 99. CODES CAN BE SELECTED BY PRESSING THE **SETUP** KEY, TYPE IN THE DESIRED PRODUCT NUMBER, THEN PRESS ENTER.

NOTE: SCALES MUST BE IN THE OFF POSITION TO CHANGE PRODUCT #:

FINAL TARGET - ACTUAL WEIGHT OF BAG DESIRED (EXAMPLE 50.00)

SLOW FILL - SLOW FILL WEIGHT (EXAMPLE 12.00)

FREE FALL - WEIGHT OF PRODUCT IN SUSPENSION (EXAMPLE 0.90)

SETUP

1. SELECT PRODUCT #: CODE WHERE VALUES WILL BE STORED.
2. SET FINAL TARGET TO DESIRED BAG WEIGHT (EXAMPLE 50.00).
3. SET FREE FALL 0.00 AND SLOW FILL THE SAME AS FINAL TARGET (EXAMPLE 50.00).
4. RUN ONE BAG WITH SCALE IN THE HOLD POSITION TO PREVENT THE HOPPER FROM DISCHARGING. NOTE WEIGHT (EXAMPLE 50.70)
5. ENTER EXCESS INTO FREE FALL (EXAMPLE 0.70). THE EXCESS WEIGHT IS PRODUCT THAT IS IN THE AIR WHEN THE WEIGHT IS REACHED AND MUST BE COMPENSATED FOR.
6. RUN A SECOND OR THIRD BAG TO BE SURE THAT WEIGHT IS CORRECT. AT THIS POINT WE HAVE RUN ENTIRE BAG IN SLOW FILL TO ACHIEVE THE CORRECT WEIGHT. ONCE THE CORRECT WEIGHT HAS BEEN SET BY ADJUSTING FREE FALL, WE CAN NOW START INCREASING THE SPEED OF FILLING.
7. THE SPEED IS SET USING THE CYCLE LIGHT AND SLOW FILL. THE CYCLE LIGHT IS USED TO ASSIST THE OPERATOR IN ADJUSTING THE SLOW FILL AS FOLLOWS. LONG CYCLE LIGHT SLOW FILL TOO HIGH - VERY SHORT OR NO CYCLE LIGHT SLOW FILL TOO LOW. DEPENDING ON PRODUCT AND SPEED OF CYLINDERS SLOW FILL CAN VARY GREATLY FROM PRODUCT TO PRODUCT. NORMALLY PRODUCTS DO NOT CHANGE WITH SIZE. (EXAMPLE)
FINAL 50.00 - FREE FALL .70 – SLOW FILL 10.00 CODE 00 (50# PELLETS)
FINAL 25.00 - FREE FALL .70 – SLOW FILL 10.00) CODE 01 (25# PELLETS)

GSE Regenerate Program for C Base

Shut the power off to the controller, and then power-up the controller while holding the CLR key until Macro Disbl appears. When Disbl Comm1 appears press ENTER. Then key in 100 SELECT 23640 ID ENTER. This puts the controller in the access mode. The upper display should read P108.01 Scale 1 and the lower display should be blank. At anytime you feel that a mistake has been made, power down the controller and start over from the beginning of this process.

Key in 65002 SELECT and the upper display should read P65002. Deflt -Cal

Press the TARE key two times and the upper display should read P65002. UserC Gen

Press the ENTER key three times and the controller will start loading the program.

When the display shows the Main Menu screen the controller is done loading the program.

***This will set the controllers set-up parameters back to factory defaults, so it is advisable to write down all of the controllers set-up parameter values before performing this procedure.

ERROR CODES and MESSAGES

- CODE 02 Bad Load Cell
Load Cell installed upside down
Green and White Load Cell wires connections reversed
- CODE 03 Bad Load Cell
Load Cell installed upside down
Green and White Load Cell wires connections reversed
- CODE 04 The number to be displayed is greater than 125.00 lb or kg
More than 125 lb or kg of product in the bag on gross weigh
scales or more than 125 lb or kg of product in the weigh
hopper on net weigh scales.
Re-Calibrate scale
- CODE 08 Check all Load Cell and Summing Cable wire connections
and Re-Calibrate
- CODE 26 When the controller is powered-up the main board checks the
data in the database and vise versa, if the information does
not check with each of the components a checksum error
will occur. Try powering down the controller then power-up
again, if this does not work the program will need to be re-
loaded.

FACTORY SET PARAMETERS

WEIGHT SPIKE DELAY	1.1 Second for JM and CM 0.5 Second for 5GV
FAST FILTER	2
SLOW FILTER	3
IDLE FILTER	5

PASSCODE PROTECTION FORMAT
FOR 663 AND 665 PROCESS CONTROLLERS

THE FOLLOWING PARAMETERS WILL NOT BE PROTECTED AND WILL BE AVAILABLE TO THE OPERATOR:

- PRODUCT NUMBER
- FINAL TARGET WEIGHT
- SLOW FILL WEIGHT
- FREE FALL WEIGHT

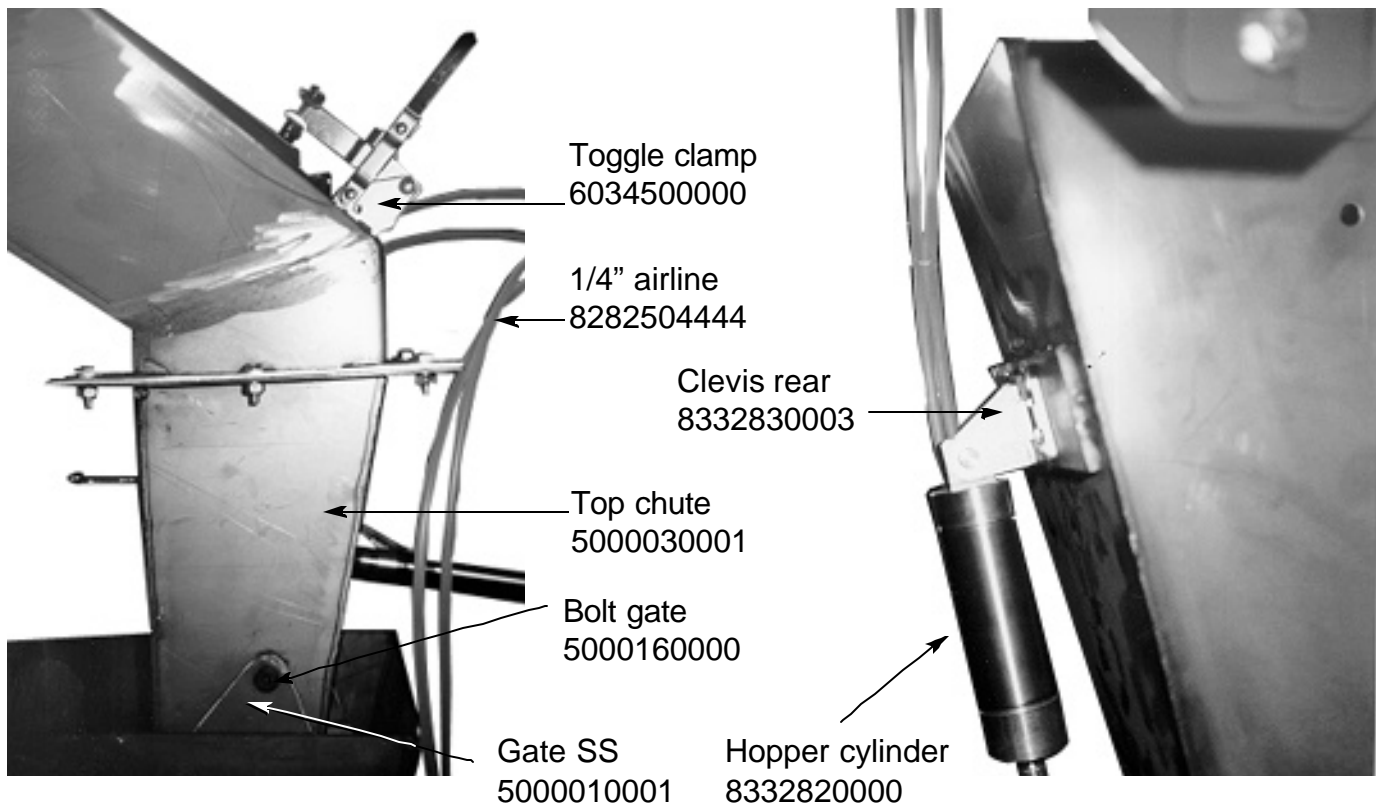
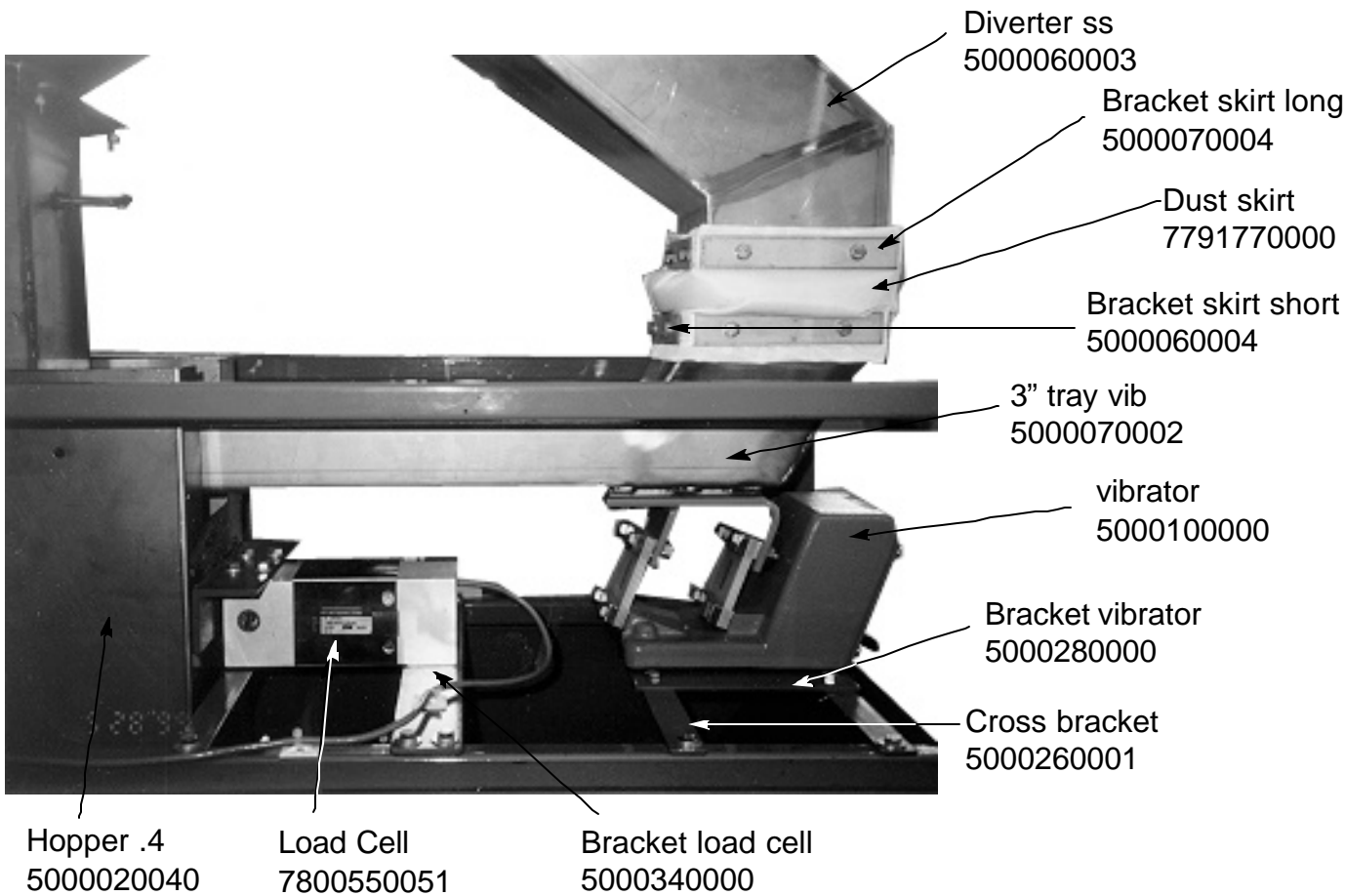
THE FOLLOWING PARAMETERS WILL BE PROTECTED AND WILL NOT BE AVAILABLE TO THE OPERATOR:

- START FILL DELAY
- AUTO FREE-FALL ON/OFF
- AUTO FREE-FALL START COUNTER
- AUTO FREE-FALL FREQUENCY COUNTER
- AUTO ZERO ON/OFF
- AUTO ZERO START COUNTER
- AUTO ZERO FREQUENCY COUNTER
- TOLERANCE ON/OFF
- + TOLERANCE
- - TOLERANCE
- TOLERANCE CHECK COUNTER
- MASTER CYCLE COUNT

THE FOLLOWING PARAMETERS WILL BE PROTECTED AND WILL NOT BE AVAILABLE TO THE OPERATOR. PARAMETERS THAT WILL BE DISPLAYED, DEPENDS ON THE MODEL OF SCALE PURCHASED:

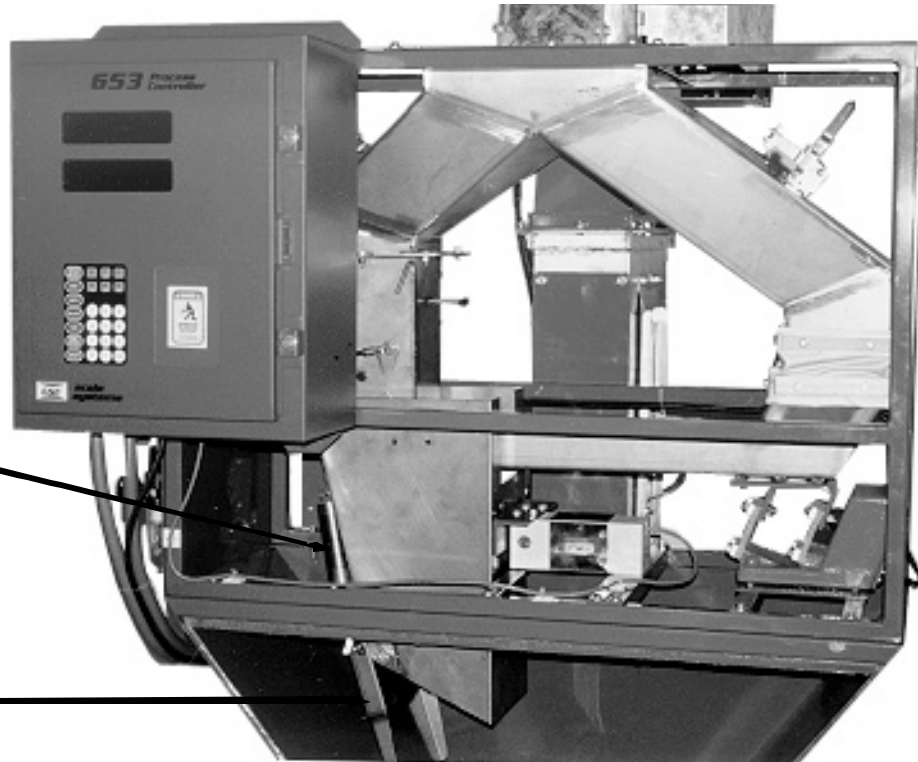
- FAST FILL BELT SPEED
- SLOW FILL BELT SPEED
- FAST FILL AUGER SPEED
- SLOW FILL AUGER SPEED
- FAST FILL GATE POSITION
- SLOW FILL GATE POSITION
- DISCHARGE DURATION
- CLAMP RELEASE DELAY
- MULTI-DUMP ON/OFF
- MULTI-DUMP CYCLE COUNTER

To access the protected parameters from the MAIN MENU screen, press F5 and key in 4787. The MASTER PASSWORD is 4787 and will always allow access to the PARAMETERS. You can create a four digit user password by typing in “9999” at the password prompt and following the on screen instructions. Use “4787” as the OLD PASSWORD.



(Controllers shown may vary)

Size and model number may vary with each scale. Please advise model when requesting spare parts.



Hopper cylinder
8332820000

Hopper Door
5000080001

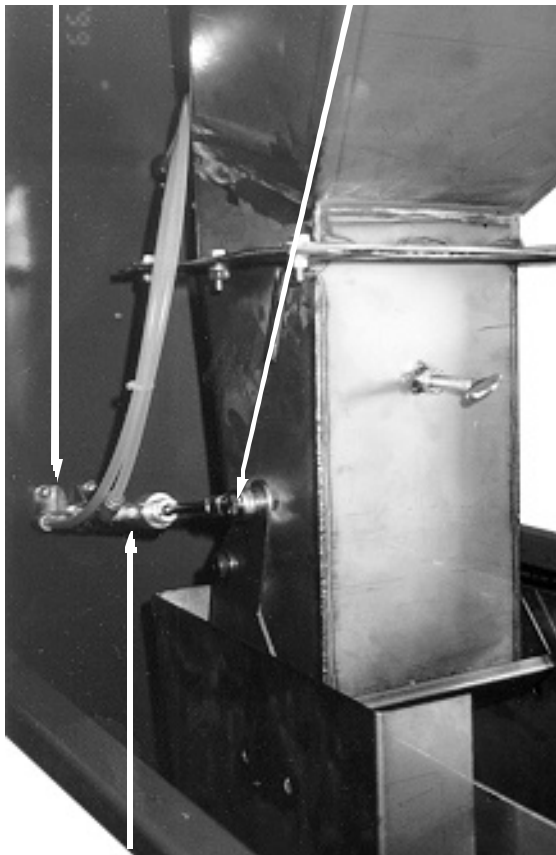
Clevis rear gate
8332810003

Rod end 1/4"
7061400000

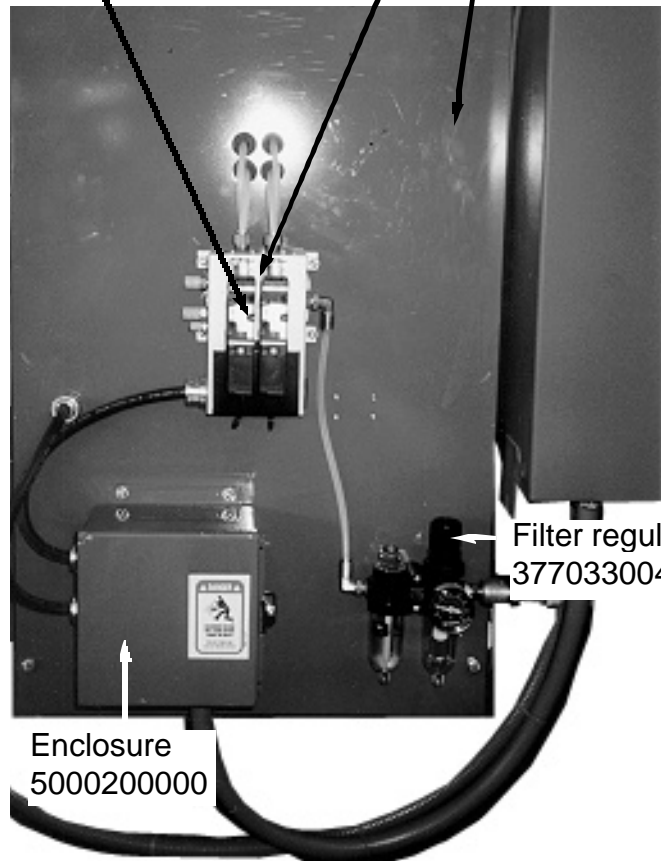
Solenoid replacement
3770870001

2 station valve
3770870002
Ass'y

End panel
5000260005



8332810000



Enclosure
5000200000

Filter regulator
3770330040

CENTER GRIP SPOUT MS and SS

BEARINGS
7623140002 MS
7623140004 SS
Recommended 2

Fitting for MS Cylinder
17KQ2L1136S
Fitting for SS Cylinder
17KQ2L1135S



HAND SWITCH
3770320000 MS
2795900010 SS
Recommended 1

CYLINDER SPOUT AO
8333260000 MS
OR 8333260003 SS
Recommended 1

MICRO SWITCH
2795900000 MS
2795900005 SS
Recommended 1

JEM INTERNATIONAL, INC.
PHONE: 913-441-4788 FAX: 913-441-1711

PART #	DESCRIPTION	CODE	Simplex
3700510000	Switch foot 700	R	1
3770330040	Filter regulator GJC5	R	1
3770330057	Bowl FR	R	1
3770330056	Spring, pressure limiter 50 lbs.	R	1
3770870001	Valve replacement, single valve	R	1
3770870002	Valve 2 JM		
3770880001	Bushing for Hopper 5GV	R	2
3770900000	Bushing for Gate 5GV	R	2
5000100000	Vibrator GV		
5000160000	Gate shoulder bolt GV		
5000200000	Enclosure 6x6x4 5GV		
5000240000	Stand GV-51 (.4 or .6 cubic foot)		
5000260035	Housing side frame GV		
5000260036	Cross Brace for .4 or .6 hopper		
5000260005	End panel 5GV		
5000280000	Bracket vibrator mount GV		
5000340000	Bracket, single load cell 5GV		
6034500000	Toggle Clamp GV		
7061400000	Rod end 1/4 RH		
7791770000	Dust Skirt GV	R	1
7800013665	Controller model 660		
7800550051	Load Cell single point GV	R	1

PART #	DESCRIPTION	CODE	Simplex
8282500000	Brass Fittings straight or "L"	R	10
8282504444	Airline 1/4"	R	30'
8332810000	Cylinder Gate 5GV	R	1
8332810003	Clevis Rear Gate GV		
8332820000	Cylinder Hopper GV	R	1
8332820002	Clevis Front hopper GV		
8332830003	Clevis Rear Hopper GV		
13-10-4500	Fuse for relay board	R	5
13-10-7050	Fuse, main PCB	R	5
19-30-0310	Output relay 12-140V @3A Mode	R	3
19-20-0314	Relay #1781 Ro5S Output. DC	R	1
19-30-1910	Input relay 90-140V	R	3
24660B-102C0	SCR control 660	R	1
24660B-122A0	I/O Module 2 input/2 output	R	1
24660B-130A0	I/O Module 4 position SBM AC	R	1
95HBC25DS10	Crydom relay, DC control SC	R	1

R=Recommended Spare Parts