JEM INTERNATIONAL INC.

EQUIPMENT SALES | PARTS | MANUFACTURING

USER'S OPERATION MANUAL

CUSTOMER: ————————

S/O#: ————————

SERIAL #: ————————

MODEL: **JM-FF-ED-BF BELT FEEDER**

CONTROLLER: **665 LCD**

ELECTRICAL (CONTROL): ————————

ELECTRICAL (MOTOR): ————————

AIR PSI: **80 PSI**

SPECIAL FEATURES:

JEM International 6873 Martindale Shawnee, Kansas USA 66218-9354
Phone: 913-441-4788 Fax: 913-441-1711 email: info@jemscales.com

SUMMING and LOAD CELL COLOR CODE CHART FOR CM-780 and JM scales with 600 SERIES CONTROLLERS

LOAD CELL

+EXC…….RED
-EXC…….BLACK
+SIG…….GREEN
-SIG……..WHITE
SHLD……BARE

SUMMING CABLE

+EXC…….RED
+SEN…….BLUE
-EXC…….BLACK
-SEN…….YELLOW
+SIG…….GREEN
-SIG……..WHITE
SHLD……BARE

600 SERIES CONTROLLER

+EXC…….RED
-EXC…….BLACK
+SIG…….GREEN
-SIG……..WHITE
+SEN…….BLUE
-SEN…….YELLOW
SHD…….BARE

NOTE: +SEN and –SEN ARE FOR OPTIONAL USE AND SHOULD ALWAYS BE USED WHEN THE SUMMING CABLE LENGTH IS GREATER THAN TWENTY-FIVE FEET

OHMING OF LOAD CELLS

RESISTANCE IN 1K OHMS		LOAD CELL CAPACITY IN POUNDS				
		25#	50#	150#	250#	500#
RED	BLACK	.391	.376	.384	.401	.401
RED	GREEN	.284	.276	.280	.289	.288
RED	WHITE	.284	.276	.280	.289	.288
BLACK	GREEN	.284	.276	.280	.289	.288
BLACK	WHITE	.284	.276	.280	.289	.288
GREEN	WHITE	.351	.351	.351	.351	.351

NOTE: Readings need to be taken with the load cell disconnected from summing box
and removed from its working location so that the load cell is free from any stress points.
This must be done to provide proper readings.

1. Turn power off to controller
2. Disconnect load cells from the summing box.
3. Disconnect the weigh hopper from the load cells by removing the 3/8" cap bolt form the rod-heim joint
4. Have an air gap between the load cell and the rod-heim joint
5. Follow the OHM chart for given capacity of load cell you are checking
6. Set meter to read in 1K
7. All readings must be within 10% of chart
8. The .289 readings can be within the 10% but all four should be the same

JM-600 or JMDT-2 DIGITAL GROSS WEIGH SCALE
INSTRUCTION MANUAL

The JM-600 or JMDT-2 scale is a gross weigh bagging scale meaning the product is weighed in the bag. The scale is designed to handle between 7-9 50 lb. bags per minute at plus or minus 3 oz. accuracy or better which is rated at 2 Sigma (95%).

The scale is shipped in separate components (scale housing, spout and programmable controller) and calibrated at the factory. The scale has been separated into three sections for protection during shipping. The three sections are the **scale housing, spout and programmable controller**. The first step is to hang the scale housing from the discharge bin. The inlet opening of the scale is 9" x 7" and the overall height is approximately 26 to 28.5" depending on the type spout. Generally speaking, the top of the scale should be somewhere in the area of 6' 2" from floor, thus making the bottom of the spout 4 ft. from the floor, which is ideal working height. However, if other restrictions such as longer bag sizes or height limitations apply, this 6' 2" dimension can be modified slightly. Once the scale housing is in place, the spout may be attached by using the two 1/4" cap screws. The air lines must be reattached. The programmable controller panel may be installed normally within the operators sight and reach. The programmable controller must be connected to the scale head by simply matching the control wire terminal on the scale head. Refer to the Input/Output chart of the programmable controller (this conduit and wire is not furnished as location of the control panel and other restriction vary on installation).

The load cell cable is then connected to the summing box located on the back of the scale housing. If the cable provided is short of length, you should contact our service department at 913-441-4788 as you may require a change in this connection. A

power supply of 110V-1 phase is required and 100 P.S.I. air pressure at approximately 3 to 4 CFM at maximum speed.

The air is connected into our filter regulator system. We have two regulators. One regulator controls the air pressure to the spout system which is used for clamping the bag in place. This regulator is on the left hand side and is normally set between 50 and 80 lbs. depending on the exact amount of air required to hold your bag. Circumstances that affect this are the weight of the bag and the type of material used in the bag. The second regulator needs to be set at 40 PSI. This regulator controls the PSI to the flow gate.

For example, a 50 lb. bag would require more air pressure to hold than a 25 lb. bag. The right hand regulator controls the air to the internal radial arm gate of the scale. This has been factory set at approximately 40 lbs. and really should not need to be adjusted any further. It is extremely important that you understand the two regulators and their purposes. If the internal gate is turned up to 80 or 90 lbs. to match the air pressure on the bag clamps, this can cause damage to the housing of the scale.

The air system on the JM-600 or JMDT scale consists of a complete set of valves to provide the air pressure to the air cylinders. These valves are located directly underneath the control cabinet on the right hand side of the scale. The valves are base mounted so that they can be easily removed and cleaned if necessary without having to do rewire.

The air fittings used on the entire scale are swivel type quick disconnect so that the air lines can easily be removed. The valves have speed control adjusts on their sides. This is so you can adjust the speeds of all air cylinders throughout the scale. These have been set at the factory, however, if you would like the clamps to open faster or close slower, this is a very easy adjustment that can be made with a screwdriver.

In regard to the filter systems on the face of the JM-600 scale, this is for catching water in the air line and should be checked and drained periodically.

The JM-600 scale can be supplied with either a clam shell spout which is our standard, or it can also be supplied with a dust tight spout which is referred to as DT model on your name plate. Either way the system schematic is identical. The operator places the bag on the spout. The spout is then automatically closed with either a wand hand switch or a foot pedal whichever was ordered. When the clamps start to close the start delay timer is engaged as well.

This timer (after timing out) sends impulse to open the internal gravity gate. The gate is held open through the filling cycle and closed after the final weight (less prelim) is reached.

Understanding flow characteristics of your individual product is extremely important. If you will note, the air cylinders can be adjusted so that you have more or less opening size for the slow filling stage of your product. Heavy products such as minerals will require a smaller opening and lighter products such as seed, oats, etc., will require larger openings.

Basically, a 50 lb. bag should have an overall fill time of between 4 and 6 seconds. The dribble mode or second filling should be no less than 1 second.

After you have the basic understanding of the scale functions, please proceed slowly in the following order:

1. Install scale on surge hopper, making sure it is level.
2. Connect electric service required.
3. Provide air into the filter regulator systems.
4. Install spout on scale. Be careful not to stress load cells.
5. Be careful not to weld.
6. Connect all electrical and pneumatic lines by schematic.
7. Turn scale on using F1 or start key on the programmable controller.
8. Set controller per programmable controller instruction manual.
9. Place bag on spout and begin operating scale.

Since the JM series scale is controlled by the programmable controller, it is extremely important that the sequence of events as described is followed. For example, if the scale is overfilling a bag, simply touch the F3 or STOP key and everything will shut down.

The JM-600 is truly a simple scale to understand and use and will provide many years of reliable service.

TROUBLE SHOOTING JM-600 & JMDT (single or two speed)

CLAMPS WON'T CLOSE	1. Power on 2. Air pressure applied 3. Bag clamp valve energized (Check light on valve) Check wire connection on valve and terminal 4. Air line restriction or blockage 5. Binding of air cylinder
CLAMPS CLOSE AND GATE WILL NOT OPEN	1. Gate valve energized (2 valves on 2 speed) Check wire connection on valve and terminal 2. Air line restriction or blockage 3. Binding of air cylinder
CLAMPS CLOSE AND GATE WILL NOT OPEN, THEN RELEASE BAG	1. Check settings on programmable controller
SCALE FILLS VERY SLOW	1. Check flow restrictor 2. Check cutoff valves 3. Check for restriction in chute area

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.

Safety is everyone’s concern. New operators should manually hang bags without product until they feel secure. Do not operate if you feel your personal skill levels do not allow you to operate this spout safely.

OPTIONAL FEEDERS

BELT FEEDER (SINGLE MOTOR-STREAM DEPTH REGULATOR) (GROSS WEIGH-D)

The belt feeder is used for semi free flowing products and is motor driven. The feeder comes complete with a stream depth regulator pneumatically operated. When the belt is in fast feed operation, the belt is running and the stream depth regulator is in the up position. When the belt is in dribble mode or slow feed, the belt feeder is running, and the stream depth regulator is in the low position. For setting the scale normally the slow feed should be set to allow no more than 5 lbs. per second of material flow. This can be easily adjusted by manually setting the stream depth regulator on top of the belt feeder. In the event some product cannot be slowed to this level, then contact the factory. When the final weight is reached, the flow gate will return to up position.

*Adjustment for slow fill should be made first. The unit should be set to run the entire cycle in slow fill. The unit should fill at approximately 5 lbs. per second (this is a guide and not a set value), size and density will effect filling rates. Using the handle attached to the flow gate, screw in to increase and out to decrease. After several bags have been run all slow fill and weights are correct, then the fast filling adjustment can be made. The fast fill adjustment is adjustable using the all thread that runs parallel with the flow gate cylinder. Screw the nut in to decrease and out to increase. The flow should be set at a slow rate and slowly increased until there is a uniform filling. Each time the fill rate is increased, an adjustment may need to be made to the PS-1 valve or time.

Note: For best accuracy, set dribble feed at no more than 5 lbs. of material per second.
Before operating scale, recheck belt tracking.

Maintenance Belt feeder

1. Lubricate 4 main bearings weekly.

2. Lubricate 2 gate bearings periodically.

3. Check gear box for proper lubrication level.

4. Periodically check gate and belt seal for wear or leakage.

BELT FEEDER (SINGLE MOTOR-STREAM DEPTH REGULATOR)
(GROSS WEIGH-D)
WITH VARIABLE SPEED DRIVE

The belt feeder is used for semi free flowing products and is motor driven.. The feeder comes complete with a stream depth regulator pneumatically operated. When the belt is in fast feed operation, the belt is running at fast speed controlled by variable speed drive, and the stream depth regulator is in the up position. When the belt is in dribble mode or slow feed, the belt feeder is running at the slow speed controlled by the variable speed drive, and the stream depth regulator is in the low position. For setting the scale normally the slow feed should be set to allow no more than 5 lbs. per second of material flow. This can be easily adjusted by manually setting the stream depth regulator or changing the rate of feed by variable speed drive on top of the belt feeder. When the final weight is reached, the flow gate will return to up position and rate of feed will return to fast on variable speed drive.

*Adjustment for slow fill should be made first. The unit should be set to run the entire cycle in slow fill. The unit should fill at approximately 5 lbs. per second (this is a guide and not a set value), size and density will effect filling rates. Using the handle attached to the flow gate, screw in to increase and out to decrease or change rate of feed by variable speed drive. After several bags have been run all slow fill and weights are correct, then the fast filling adjustment can be made. The fast fill adjustment is adjustable using the all thread that runs parallel with the flow gate cylinder. Screw the nut in to decrease and out to increase or change rate of feed with variable speed drive. The flow should be set at a slow rate and slowly increased until there is a uniform filling. Each time the fill rate is increased, an adjustment may need to be made.

Note: For best accuracy, set dribble feed at no more than 5 lbs. of material per second.
Before operating scale, recheck belt tracking.

Maintenance Belt feeder

1. Lubricate 4 main bearings weekly.

2. Lubricate 2 gate bearings periodically.

3. Check gear box for proper lubrication level.

4. Periodically check gate and belt seal for wear or leakage.

BELT TRACKING INSTRUCTIONS

The belt rides between a head and tail pulley with the head pulley in a fixed non-adjustable position and the tail pulley is adjustable through plates and bolts mounted outside the feeder assembly.
See figures 1 and 3.

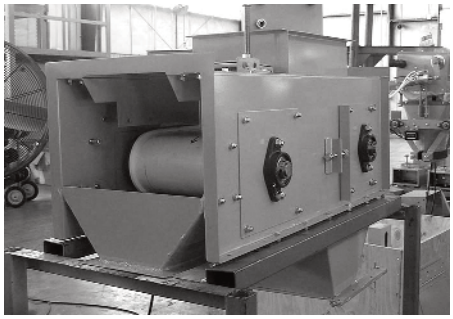


Fig 1

On one side adjust distance from the center of pulleys to 24” (60cm).

On opposite side adjust the pulleys to the same distance but leave the tail pulley loose.

Adjust for belt tracking utilizing this bolt assembly as shown in figures 1 and 3.

Fig 2

The support plate that supports the belt between the pulleys should be in its lowest position. See figure 2. Check to make sure the 4 support bolts are secure before actual running.

The 24” (60cm) between center of pulleys is critical for belt tension. This figure may vary slightly on belts as they do stretch. If the variance is too great then the belt is too tight and can cause damage to the pulleys.

The belts should be tight enough to track between the pulleys but not too tight to put excessive wear on the shafts of the pulleys.

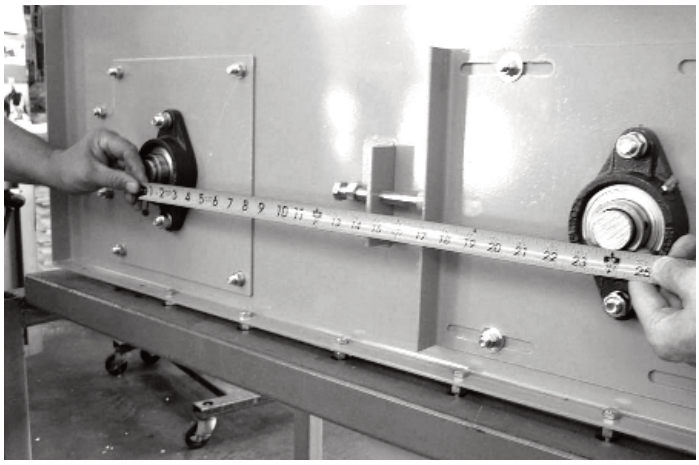


Fig 3

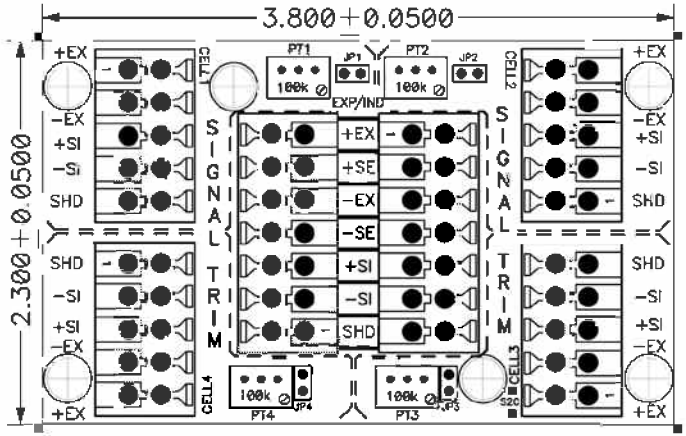
After the belt has been tracked and witnessed for at least 20 minutes of operation then be sure all of the support belt bolts are securely tightened. The adjustment bolt is not strong enough to support the tail pulley assembly during the actual operation.

FABRICATION NOTES:

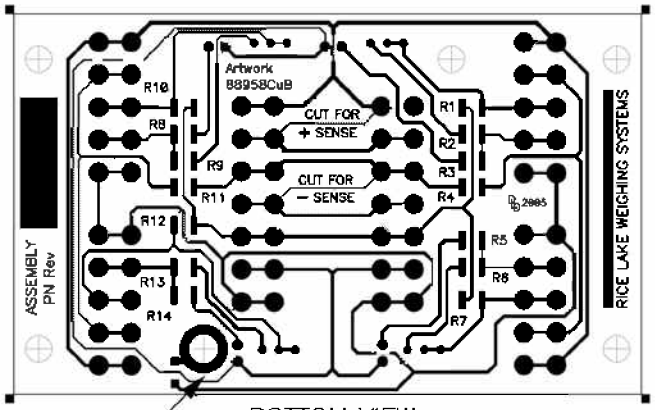
1. BASE MATERIAL SHALL BE LAMINATED EPOXY TYPE G10 OR FR4 0.062 +/- .005 THICK.
   A. MATERIAL MUST MEET UL94V-0 REQUIREMENTS.
2. CONDUCTOR MATERIAL ON BOARD (PLATED THRU) SHALL BE 1 OZ. COPPER MINIMUM.
3. THE TIN LEAD ALLOY PLATING SHALL CONTAIN 40% +/- 5% LEAD AND 60% +/-5% TIN. ALL SOLDER-PLATED AREAS SHALL BE SUBJECT TO INFRARED OR HOT OIL SOLDER REFLOW PROCESS.
4. MINIMUM PLATING THICKNESS ON TRACE SURFACE AND THROUGH HOLES TO BE .0015 +/- .0005 TIN-LEAD.
5. CONDUCTOR DEFECTS:
   A. PIN HOLES, NICKS, AND SCRATCHES: CONDUCTOR DEFECTS SUCH AS PIN HOLES AND NICKS WHICH DO NOT REDUCE THE CONDUCTOR WIDTH BY MORE THAN +/-.002.
   B. PLATING OVERHANG: THE PLATED RESIST MATERIAL OVERHANG REMAINING AFTER THE COPPER FOIL HAS BEEN REMOVED BY ETCHING SHALL NOT EXCEED .005.
   C. UNDERCUT: THE REDUCTION OF CONDUCTOR CAUSED BY ETCHING UNDER THE EDGE OF PLATING RESIST SHALL NOT EXCEED .001.
   D. EXCESS CONDUCTOR MATERIAL: ISOLATED SPOTS OF CONDUCTOR MATERIAL NO MORE THAN .010 IN DIAMETER ARE ACCEPTABLE PROVIDING SPACING REQUIREMENTS ARE NOT VIOLATED.
6. WARPAGE: WARPAGE OR TWIST OF PRINTED CIRCUIT BOARD SHALL NOT EXCEED .010 INCH PER INCH.
7. SOLDERABILITY: THE SOLDER COATING SHALL BE ADHERENT AND NON-GRANULAR IN APPEARANCE. THE BASE MATERIAL SHALL NOT SHOW EVIDENCE OF BLISTERING OR DELAMINATION, NOR SHALL CONDUCTORS OR TERMINAL AREAS SHOW EVIDENCE OF SEPARATING FROM THE BASE LAMINATE AFTER DIP SOLDERING.
8. SOLDER MASK SHALL BE GREEN IN COLOR AND APPLIED TO THE BOTTOM SIDE OF THE BOARD ONLY.
9. A WHITE SILKSCREEN SHALL BE APPLIED TO TOP SIDE OF BOARD TO PROVIDE FOR A LEGEND.
10. ARTWORK SUPPLIED BY RLWS ENGINEERING DEPARTMENT.
11. REFER TO PC BOARD ACCEPTABILITY STANDARDS DOCUMENT: ANSI/1PC-A-600D, CLASS 2. WORKMANSHIP PER ANSI/IPC-A-610A CLASS 2
12. LAYER STRUCTURE: BOTTOM SIGNAL LAYER ONLY
13. HOLE SIZES ARE AFTER PLATING WHERE APPLICABLE

ASSEMBLY NOTES:

1. APPLY CONFORMAL COATING PER MANUFACTURER'S INSTRUCTIONS TO BOTTOM SIDE OF BOARD ONLY. MINIMUM ACCEPTABLE THICKNESS IS .0005" PROTECT GROUNDING PAD AROUND MOUNT HOLE FROM COATING.
2. PLACE LABEL IN ASSEMBLY PN Rev FIELD TO INDICATE 88958-B
3. ADD INSTALLATION MANUAL RLWS PN 91909 WHEN PACKAGING FINISHED ASSEMBLY



TOP VIEW



BOTTOM VIEW

GROUNDING PAD

REVISIONS			
REV	REFERENCE	INIT	DATE
A	PROTOTYPE for test and evaluation	DLD	5/17/05
B	Change SIP resistor packages to discrete bottom mount surface mount ENGINEERING RELEASE	DLD	7/20/05

RICE LAKE WEIGHING SYSTEMS
230 West Coleman Street, Rice Lake WI 54868
Phone: 715-234-9171 FAX: 715-234-6967
Internet: WWW.RLWS.COM

TOLERANCES UNLESS OTHERWISE SPECIFIED	
Tolerance	Decimal
2 Place	N/A
3 Place	N/A

Title: ASSEMBLY DRAWING,4-CHANNEL SIGNAL TRIM LOAD CELL JUNCTION BOX JB4SS/SP

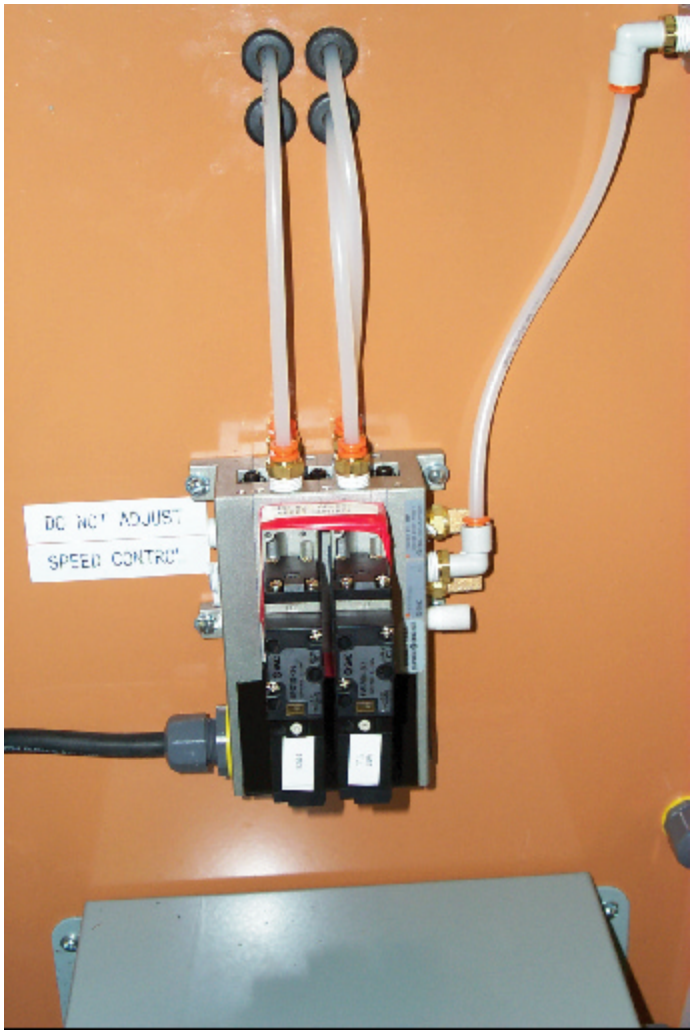
Drawn	Checked	Date	DWG No.
DLD	DLD	09/14/05	88958
	Approved DLD	Sheet 2 of 2	Revision B

	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						
?OLERANCE ON/OFF						
+TOLERANCE WEIGHT						
-TOLERANCE WEIGHT						
TOLERANCE CHECK COUNTER						
MULTI-DUMP ON/OFF						
MULTI-DUMP CYCLE COUNTER						
TOTAL BAG COUNTER						
MASTER CYCLE COUNTER						
WEIGHT SPIKE DELAY						
FAST FILTER						
SLOW FILTER						
IDLE FILTER						

FLOW CONTROLS

Flow controls are factory set.
DO NOT ADJUST

Faster speeds will cause damage to the equipment and will not increase bagging speeds. Do not remove factory tape.



600 Series

LCD

Programmable Controller

Instruction Manual

VERSION 1-28 CM-780 or 5-GV

JEM INTERNATIONAL INC.

EQUIPMENT SALES | PARTS | MANUFACTURING

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

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

Calibration Procedure For Model JM

Certified weights are required to perform a calibration. Serious inaccuracies could result from using non-certified standards for calibration.

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 (4787) 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)

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. Reverse the airlines so the spout is in the normally closed position. (see fig. A) Place calibration strap on the spout (see fig. B) and then press **[ENTER]**. As soon as **[ENTER]** is pressed, a new zero is established. 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 weight on the strap. (see fig. C) 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]**
  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 calibration strap and weight from the spout. Press **[ZERO]** to clear the negative weight of the calibration strap used during the procedure and reconnect airlines so the spout is in the normally open position. (see fig. D)

- 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

Figure B

Figure C

Figure D

Keypad Operation

F1: Toggles ON/OFF

F2: Toggles HOLD/RUN
(When HOLD is selected, bag clamp will not automatically release after weigh complete)

F3: Releases bag clamp.
(Key not functional when in the SETUP mode)

F4: Releases an out of tolerance weighment.
(An asterisk will appear to the right of [F4] TOLERANCE ACCEPT when out of tolerance)

SCALE SELECT: Brings controller out of SETUP mode and returns to main menu.

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

UNITS: Toggles through the available weighing units.
(Pounds/kilograms)

SELECT: Toggles through BAG COUNTER and DATE/TIME.
(Bag Counter 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 three 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.

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)

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.

START FILL DELAY (sec.): The amount of time allowed from when the bag switch is made to the beginning of the fill cycle.

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

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 FREE-FALL 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.

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)

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.

Changing from U.S.A. to International TIME/DATE:
504 SELECT Change can be made by pressing the ENTER key.

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
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 (gross 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)

SET-UP

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 CLAMP FROM RELEASING AUTOMATICALLY.
   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 PRELIM 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)

NOTE: FOR BEST RESULTS SLOW FILL SHOULD BE APPROXIMATELY 5 LB OR 2.5 KG PER SECOND. MANUALLY ADJUST FLOW RESTRICTOR FOR THIS SPEED. (EXAMPLE 50 LB BAG ALL ENTIRELY IN SLOW FILL SHOULD FILL IN APPROXIMATELY 10 SECONDS.

LCD CONTRAST ADJUSTMENT FOR THE DISPLAY

The contrast of the LCD changes with temperature. A contrast setting that allows good viewing at a high temperature might make the display impossible to read at a low temperature.

If the display is not visible or hard to read, at power-up you can adjust the contrast as follows:

1. Power down.

2. Hold down the left, down and right arrow keys.

3. Power up.

4. Continue to hold the left, down and right arrow keys until you can see the contrast adjustment menu on the display, then release.

5. Make fine adjustments to the contrast by pressing the up and down arrow keys.

6. Press **[ENTER]** to exit the menu and permanently store the new contrast setting.

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.

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JM MAIN SCALE AND HOUSING PARTS LIST

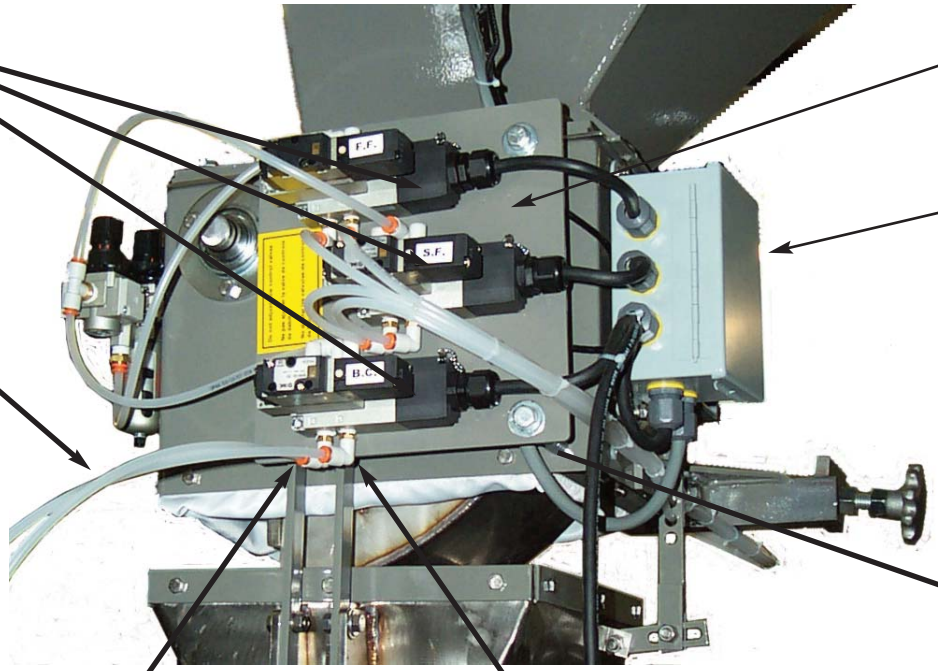
	PART #	D E S C R I P T I O N	CODE	
1	1425194	Muffler 1/8 NPT		
2	0015480000	Beam clevis		
3	0024257910	Chute seal	R	1
	0024257909	Chute seal white	R	1
4	0024257911	Chute seal plate MS		
	0024257913	Chute seal plate SS		
	0034053626	Valve plate spacer on models without control box		
5	0098363801	"V" block bearing		
6	0270063801	Pivot		
7	0379823601	Slide bar MS		
	0379823602	Slide Bar SS		
8	0379833601	Slide bar spacer MS		
	0379833602	Slide bar spacer SS		
9	0379943601	Gate stop bar MS		
	0379943602	Gate stop bar SS		
10	0397083501	Shipping clip MS		
	0397083502	Shipping clip SS		
11	0418176601	Regulator Slide handle MS		
	0418176602	Regulator Slide handle SS		
12	0418183501	Regulating slide plate MS		
	0418183502	Regulating slide plate SS		
13	0423943603	Sway Link MS		
	0423943604	Sway Link SS		
14	0423955501	Sway Bracket MS		
	0423955502	Sway Bracket SS		
15	0447973601	Dust skirt bar MS		
	0447973602	Dust Skirt bar SS		
16	0467603501	Restrictor plate MS		
	0467605501	Restrictor plate SS		
17	2795900000	Switch MS	R	1
	0279590001	Switch SS	R	1
18	3600500000	Rod, gate adjust MS		
	3600500001	Rod, gate adjust SS		
19	3700510000	Foot switch		
20	3700560112	Male plug		
21	3770180002	Air cylinder bracket (1 speed) MS		
	3770180003	Air cylinder bracket (1 speed) SS		

	PART #	D E S C R I P T I O N	CODE	
22	3770190000	Air cylinder bracket (2 speed) MS		
	3770190001	Air cylinder bracket (2 speed) SS		
23	3770330041	Regulator		
24	3770330040	Filter Regulator	R	1
25	3770330039	FR bowl	R	2
26	3770330046	Whole FR assembly		
27	3770340000	Control box MS		
	3770340001	Control box SS		
	3770340005	Valve plate (replaces control box on some models		
28	3770700000	Housing MS		
	3770720000	Housing SS		
29	3770710000	Feedgate handle MS		
	3770710001	Feedgate handle SS		
30	3770800000	Weight rod MS		
	3770800001	Weight rod SS		
31	3770840000	Prox switch bracket complete MS		
	3770840002	Prox switch bracket complete SS		
32	3770840001	Proximity bracket		
33	3770870000	Valve	R	1
34	3770920000	2 Speed control, terminal strip		
35	3799990000	Bag clamp	R	2
	3799990001	Bag clamp DT White 48"	R	2
36	3900140000	Rear clevis (2 speed only) MS		
	3900140001	Rear clevis (2 speed only) SS		
37	4425120000	Special washer		
38	4425150000	Wingnut		
39	5418150001	Top chute MS		
	5418150002	Top chute SS		
40	5418220001	Regulating slide MS		
	5418220002	Regulating slide SS		
41	5423910001	Chute gate MS		
	5423910002	Chute gate SS		
42	5448200004	"L" bracket MS		
	5448200006	"L" bracket SS		
43	5448200005	Spring		
44	5448200035	Hex coupling nut MS		
	5448200036	Hex coupling nut SS		
45	5454480002	"H" bracket MS		
	5454480004	"H" bracket SS		
46	5460180001	Beam stop bracket MS		
	5460180002	Beam stop bracket SS		
47	6000420000	Main beam MS		

	PART #	D E S C R I P T I O N	CODE	
	6000420003	Main beam SS		
48	6000470001	Dashpot		
49	7052250000	Feed gate bearing		
50	7061150000	Rod end bearing (2 speed)		
51	7061400000	Rod end 1/4 RH		
52	7061490000	Rod end bearing (1 speed)		
53	7623140002	Spout bearing MS		
	7623140004	Spout bearing SS		
54	7675400003	Flow decal		
55	7791780000	Dust skirt fabric	R	1
56	7800510000	Proximity switch	R	1
57	7800550150	Load Cell #150, Canadian series		
58	7800550250	Load Cell #250, standard series	R	1
59	7800550604	Summing box		
60	7800552003	Fuse 3 AMP	R	10
61	7800650001	Knob		
62	7800700000	Timer	R	1
63	7800800003	Socket Timer/relay		
64	7800800110	Relay	R	1
65	8282500000	Brass fittings elbow or straight	R	15
66	8282504444	1/4" airline	R	30'
67	8282509999	Vent dust port		
68	8332850000	Gate cylinder (1 speed) MS	R	1
	8332850001	Gate cylinder (1 speed) SS	R	1
69	8333260000	Spout cylinder MS		
	8333260003	Spout cylinder SS		
70	83NC1A200-PS	Seal kit, spout MS	R	1
	83CG5N50SRPS	Seal kit, spout SS	R	1
71	8333260002	Clevis spout		
72	83NQ250GDF145	Gate cylinder (2 speed) MS	R	1
73	83US19149	Gate cylinder (2 speed) SS	R	1
74	9250400000	Weight box cover		
75	9267080000	Weight box		
76	9500150000	Bulb	R	10
77	9500150100F	Selector switch		
78	9500150131F	Red cycle light		
79	9500150134F	Green "on" pilot		
80	9500380000	Terminal block		
81	9500410000	Terminal ground		
82	9500440000	Terminal fuse holder		
	83CQ2B50-PS	Seal kit 2 speed gate cylinder MS or SS	R	2

	PART #	D E S C R I P T I O N	CODE	Simplex
		GSE Controller		
	13-10-7050	Fuse 600 series main PCB	R	5
	24660B-122A0	I/O Module 2 input/2 output R	R	1
	24660B-130A0	I/O Module 4 Position SBM. AC	R	1
	24660B-102C0	SCR CONTROL 660	R	1
	95HBC25DS10	Crydom Relay, DC control SC	R	1

R=RECOMMENDED SPARE PARTS
When ordering parts be sure to advise scale
construction (ex. Mild steel, stainless) and serial number
Some part pictures may differ from your scale as we do update parts occassionally



Valves
3770870000
Valve 220
3770870220

Valve Plate
3770340005

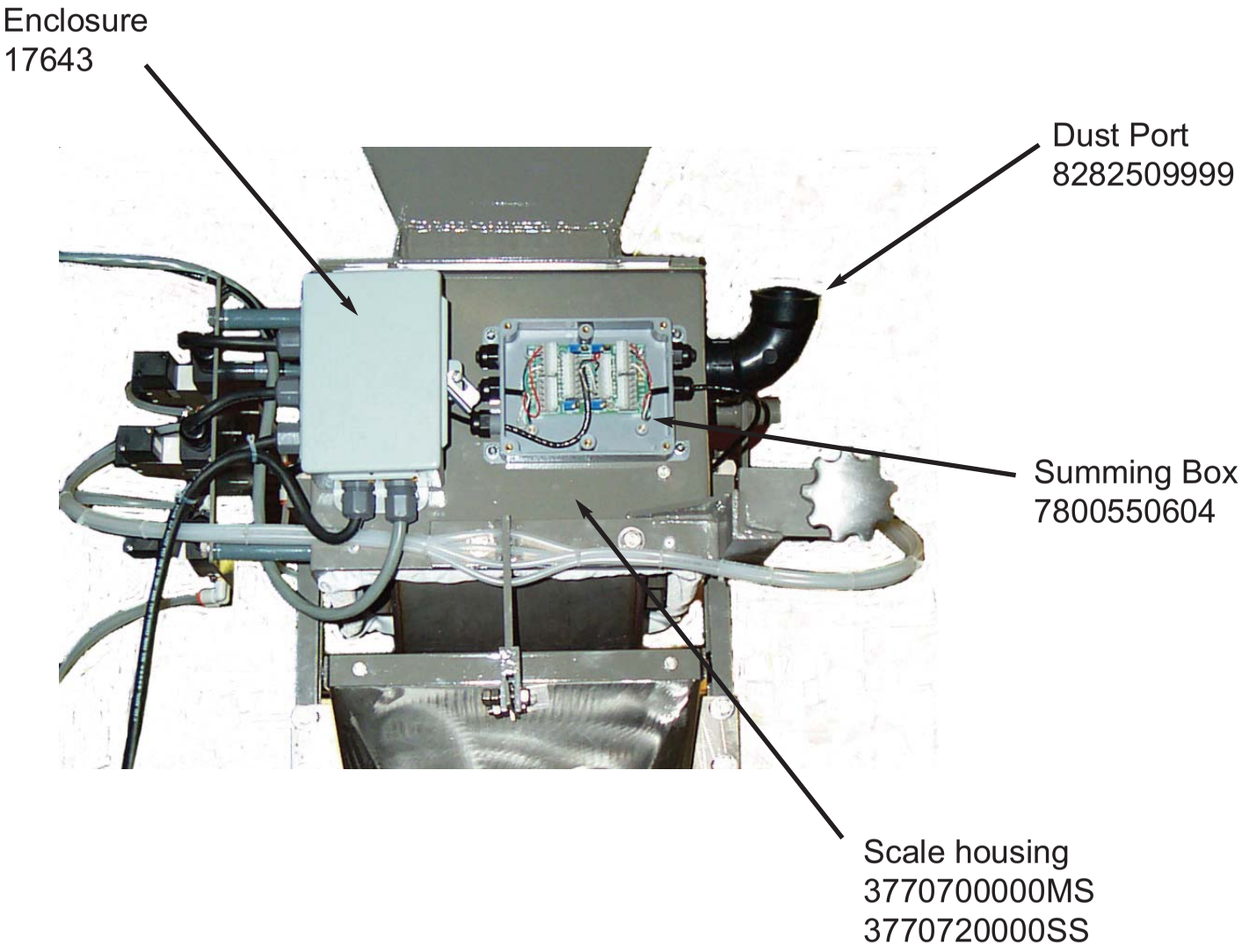
Enclosure
17643

1/4” air line
8282504444

Lower spacer
0034053626

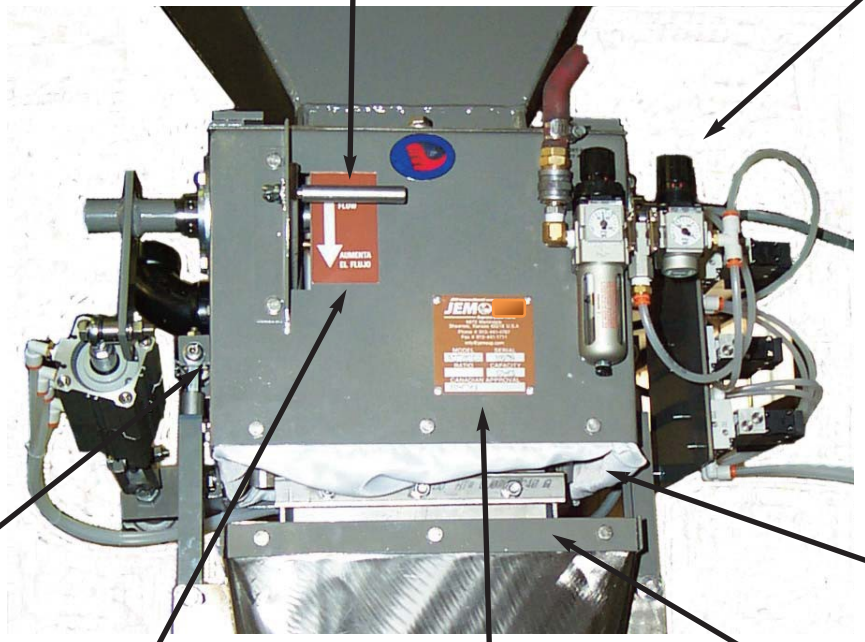
Muffler 1/8 NPT
1425194

1/4 x 1/8 NPT
Elbow & straight fittings
8282500000


Enclosure
17643
Dust Port
8282509999
Summing Box
7800550604
Scale housing
3770700000MS
3770720000SS

Regulator slide handle
0418176601MS
0418176602SS

Filter Regulator Assembly
3770330046
Components
Regulator 3770330041
Filter regulator 3770330040
3/8 x 1/4 elbow fitting
8282500000
3/8 x 1/4 straight fitting



Rod end bearing
7061400000

Flow Decal
7675400003

Name Plate
9300030000

Dust Skirt
7791780000

Dust Skirt bar
0447973601MS
0447973602SS

Rear Clevis
(2 speed only)
3900140000MS
3900140001SS

Feed gate cylinder
Two speed
83NQ250GDF145MS
83US19149SS

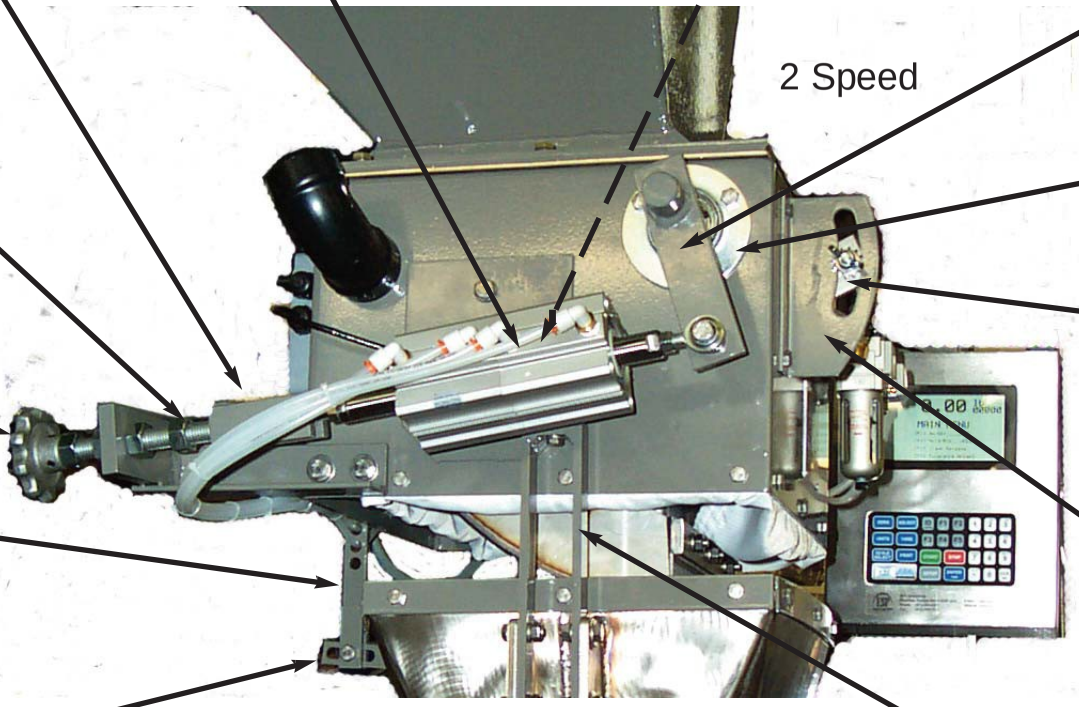
Load Cell behind cylinder
7800550250
Canadian
7800550150

Feed gate handle
3770710000MS
3770710001SS

2 Speed

Feed gate bearing
7052250000

Rod, gate adjust
3600500000MS
3600500001SS



Regulator slide
5418220001MS
5418220002SS

Adjust knob
7800650001

Sway Link
0423943603MS
0423943604SS

Regulating slide plate
0418183501MS
0418183502SS

Sway Bracket
0423955501MS
0423955502SS

H Bracket
5454480002MS
5454480004SS

Single Speed

Load Cell
7800550250
Canadian
7800550150

Feed gate cylinder
Single speed
8332850000MS
8332850001SS

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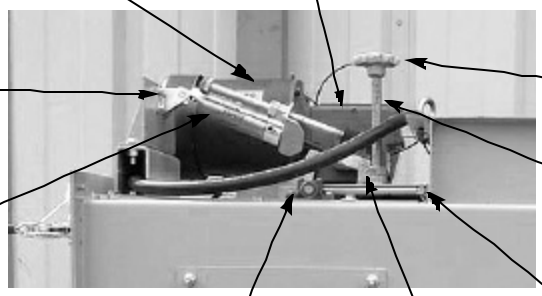
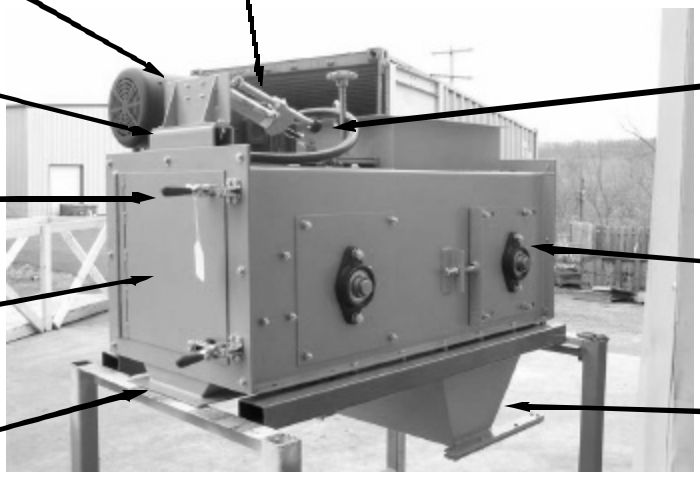
JM BELT FEEDER PARTS LIST

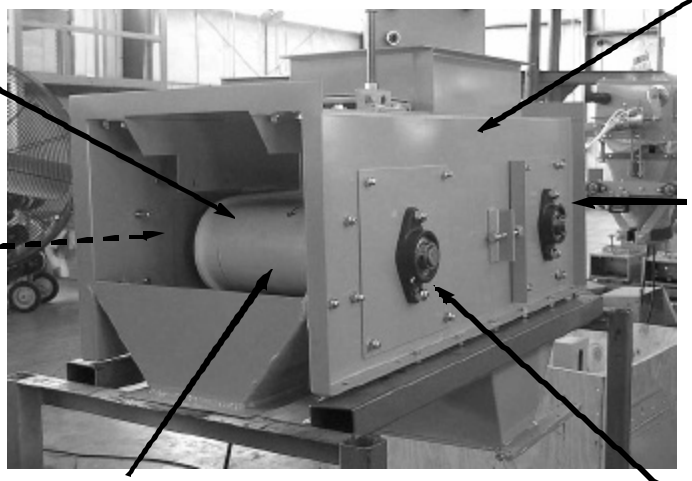
	PART #	D E S C R I P T I O N	CODE		
	0012003542	Motor 3/4HP 3 Phase			
	0020401914	Sprocket			
	0020000003	Sprocket			
	0023487924	Belt BF-14 endless white	R	1	
	0498437801	Belt seals	R	3	
	0498437815	Seal BF-14 side UHMW 2 3/4	R	2	
	0498437820	Seal BF-14 end UHMW 2 3/4	R	1	
	3600000000	Housing			
	3600010000	Housing SS Contact BF			
	3600080000	Spring			
	3600160000	Scraper			
	3600160002	Scraper SS			
	3600160001	Scraper bracket			
	3600160003	Scraper bracket SS			
	3600170006	Drip pan			
	3600180000	Bracket rear bearing			
	3600190000	Bracket front bearing			
	3600260000	Chute			
	3600310000	Belt support plate			
	3600310001	Belt support plate SS			
	3600490000	Space tube			
	3600500000	Handle adjust			
	3600510000	Bracket flow adjust			
	3600510002	Bracket ff gate stop			
	3700581401	Gear Box			
	5022640000	Belt	R	1	
	5422120000	Access door			
	5422150001	Flow gate			
	5422150006	Flow gate SS			
	6034500000	Toggle clamp			
	78PBF068	Bearing flow gate			
	7144050000	Bumper	R	2	
	7623180000	Bearing			
	7800650001	Knob			
	8332820002	Front Clevis			
	8332830003	Rear Clevis			
	8332850000	Cylinder gate single speed JM	R	1	

R=RECOMMENDED SPARE PARTS
When ordering parts be sure to advise scale construction (ex. Mild steel, stainless)

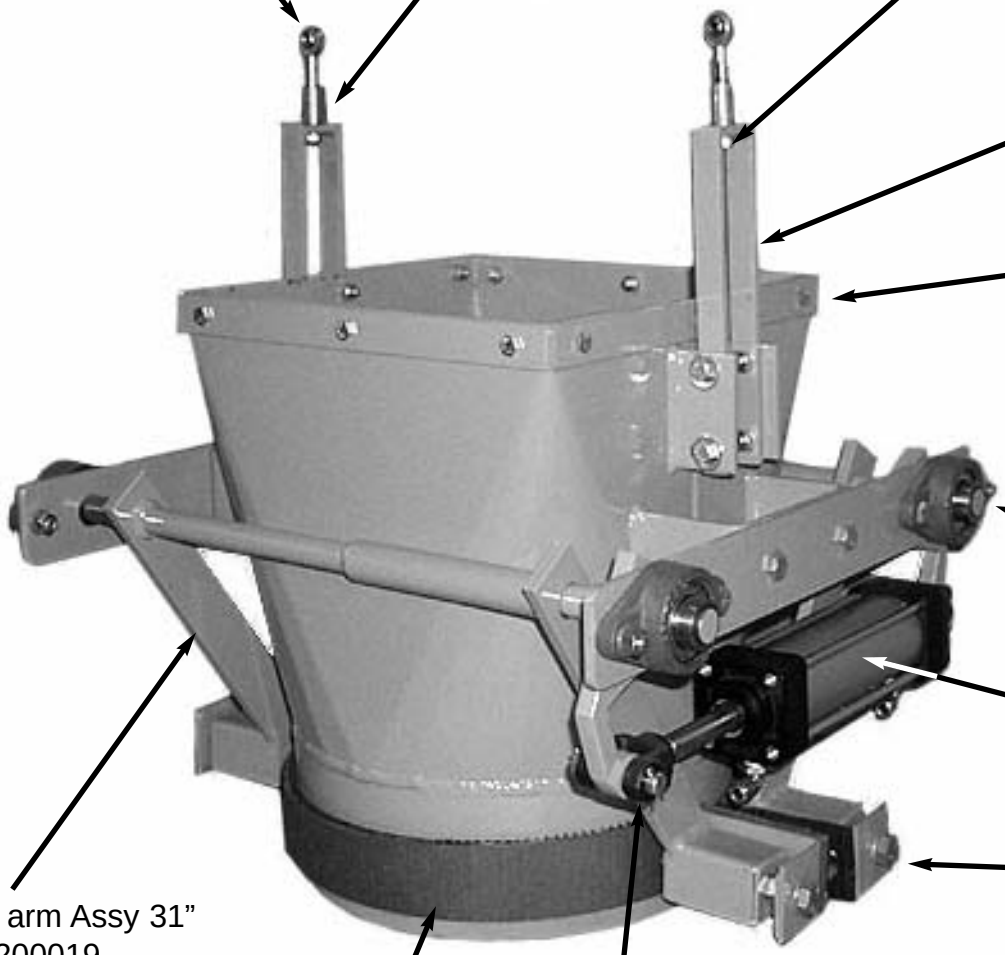
BELT FEEDER


Motor 3/4HP 3 Ph
0012003542
Gear box
3700581401
Not Shown
Sprockets
0020401914
0020000003
Rear Clevis
8332830003
Knob
7800650001
Handle adjust
3600500000
Cylinder gate
single speed JM
8332850000
Flow gate
5422150001
Bearing flow gate
78pbf068
Front Clevis
8332820002


Bracket flow adjust
3600510000
Bracket ff gate stop
3600510002
Space tube
3600490000
Bumper
7144050000
Toggle clamp
6034500000
Bearing
7623180000
Access door
5422120000
Drip pan
3600170006
Chute
3600260000


Belt
5022640000
Housing
3600000000
NOT SHOWN
Scraper
3600160000
Scraper bracket
3600160001
Spring
3600080000
Belt seals
0498437801
Bracket rear bearing
3600180000
Belt support plate
(not shown)
3600310000
Bracket front bearing
3600190000

AO by Circumference
DUST TIGHT SPOUT



Rod ends
7061400000

Spacers
5454480007

Bolt
1/4 x 28 x 1 HHCS

H Bracket
5454480008

Dust skirt bar
0447973601

Dust skirt (NS)
7791780000

Bearings
7623140002MS
7623140004SS

Cylinder
8333260000MS
8333260003SS

L Bracket
5448200004
Spring
(not shown)
5448200005

Front arm Assy 31”
5448200019

Rear arm Assy 31”
5448200025

Bag grip
3799990000

Clevis, spout
8333260002

Switch wand not shown
metallic 3770320000
non-metallic 2795900010

CENTER GRIP SPOUT