

# BALE SCALE

## OPERATOR'S, INSTALLATION, AND PARTS MANUAL

**92-053**

A Product of

**Allied Systems**  
COMPANY

Sherwood, Oregon USA

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# Revision History

Revision History		
Document #	Release Date	Revisions
92-053	1/4/2012	Initial release
92-053	5/10/2012	Updated parts pages, mounting arm direction and wire connectors
92-053	9/14/2012	Added Setup Mode info for display rate (P.11), updated parts pages, added rev history.
See <a href="http://alliedsystems.com">alliedsystems.com</a> for out most current documents.		

## Safety

### General

The following pages contain general safety warnings which supplement specific warnings and cautions appearing elsewhere in this manual. All electrical and hydraulic equipment is potentially hazardous. You must thoroughly review and understand this Safety Section before attempting to operate, troubleshoot, maintain or service this Bale Scale.

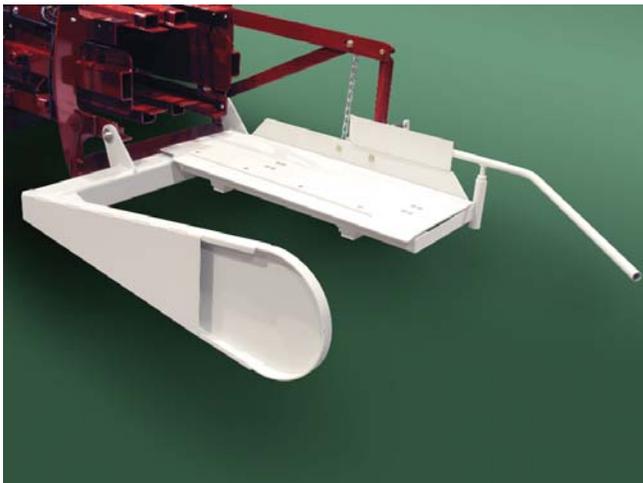
Time, money and effort have been invested in making your Bale Scale a safe product. The dividend from this investment is **YOUR PERSONAL SAFETY**.

However, it must be realized that no power-driven equipment can be any safer than the person behind the controls. If you don't operate and maintain your Freeman Bale Scale safely, our efforts will have been in vain.

The safety instructions and warnings, as documented in this manual and shipped with the machine, provide the most reliable procedures for the safe operation and maintenance of your Bale Scale. It's your responsibility to see that they are carried out.

Allied Systems Company cannot anticipate all worksite conditions, local regulations, etc. It is the responsibility of the end user to be aware of and obey any specific worksite, local, state, or national regulations or procedures that are applicable to operating this baler.

**NOTE: All possible safety hazards cannot be anticipated so as to be included in this manual. Therefore, you must always be alert to potential hazards that could endanger personnel and/or damage the equipment.**



### Safety Symbols

The following symbols/terms are used to emphasize safety precautions and notices in this manual:



## DANGER

The “**DANGER**” symbol indicates a hazardous situation which, if not avoided, will result in death or serious injury. Carefully read the message that follows to prevent serious injury or death.



## WARNING

The “**WARNING**” symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury. Carefully read the message that follows to prevent serious injury or death.



## CAUTION

The “**CAUTION**” symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury, or equipment damage. Carefully read the message that follows to prevent minor or moderate injury.

## NOTICE

The “**NOTICE**” symbol alerts to a situation that is not related to personal injury but may cause equipment damage.

### NOTE: ...

The term “**NOTE**” highlights operating procedures or practices that may improve equipment reliability and/or personnel performance, or to emphasize a concept.

### Intended Use Statement:

*This bale scale is intended to weigh and display the weight of rectangular bales as they exit a side-feed baler. Use in any other way is considered to be contrary to the intended use.*

## Operation Warnings

### **WARNING**

**Warning: Failure to observe the following safety rules may result in extreme personal injury, dismemberment or death. It is the operator's responsibility to understand the proper and safe use of this bale scale.**

- Make sure that you read, understand, and obey all of the safety precautions and operating instructions in this User's Manual.
- Keep this User's Manual with the bale scale at all times.
- Do not operate the bale scale unless you are authorized and trained to do so. If it has been some time since you last operated the bale scale, re-familiarize yourself with it before starting, then proceed slowly.
- Do not operate the bale scale if you are aware of any malfunctions, needed maintenance or repairs.
- Stop the baler immediately if any problems arise.
- Do not start the tractor if the key had been marked with a "DO NOT START" or "RED" tag.
- Never operate any of the tractor's controls from anywhere other than the operator's seat.
- Each country has its own safety legislation. It is in the operator's own interest to be conversant with these regulations and to comply with them in full. This also applies to local bylaws and regulations in force on a particular worksite.
- Should the recommendations in this manual deviate from those in the user's country, the national regulations should be followed.
- Never attempt to disconnect any of the safety devices built into the baler or tractor.
- Maintain proper clearance from energized equipment, energized power lines or other power sources. High voltage electricity can discharge to ground without direct contact with the baler's or tractor's structure. If the baler or tractor contacts energized equipment, or if electrical energy does discharge through the machine—stay clear, and prevent anyone else from coming in contact with the baler or tractor. If you are on the tractor, stand fast, avoid contact with metal surfaces, and do not permit anyone to come into contact with the tractor or baler. Finally, **Do not jump off.**

## Maintenance Safety

- Maintenance, lubrication and repair of this machine can be dangerous unless performed properly. In order to ensure safety, each person working on the bale scale must have the necessary skills, information, tools and equipment, and satisfy himself that his work method is safe, correct, and meets his own company's requirements.
- Do not attempt to make adjustments, or perform repairs unless you are authorized and qualified to do so.
- Never attempt to service energized equipment.
- Never attempt servicing while the baler is moving. Shut off the tractor and secure power.
- Shut off tractor and baler engine, engage the parking brake, disengage the baler, and wait for all movement to stop before adjusting, cleaning, or servicing the bale scale.
- Tag the key switch with a "DO NOT START" sign and/or remove the key.
- Always perform all maintenance procedures with the baler on level ground, parked in a safe area.
- Block the tires to keep the machine from rolling.
- Any unauthorized modifications made to the bale scale by the customer or parties other than Allied Systems will relieve Allied Systems Company and your Freeman dealer of any liability for damage or injury.
- Replace any worn parts only with genuine Freeman parts. Call your dealer for assistance.
- Unless specified in service procedures, never attempt maintenance procedures while the baler is moving or the engine is running.
- Engine exhaust fumes can cause death. If it is necessary to run the engine in an enclosed space, remove the exhaust fumes from the area with an exhaust pipe extension. Use ventilation fans and open shop doors to provide adequate ventilation.



- Batteries contain sulfuric acid which can cause severe burns. Avoid contact with skin, eyes or clothing.
- Batteries produce explosive gases. Keep sparks, flame and cigarettes away. Ventilate when charging or servicing in an enclosed space. Always shield your eyes when working near batteries. When removing battery cables, disconnect the negative (-) cable first. When installing a battery, always connect the positive (+) cable first. This procedure will help to prevent a spark which could cause an explosion.



## Safety Equipment

- Ensure test equipment is in good condition.
- If an instrument must be held while taking measurements, ground the case of the instrument before energizing equipment.
- Do not touch live equipment or personnel working on live equipment while holding a multimeter. Some types of measuring devices should not be grounded—do not hold such devices while taking measurements.
- Prevent personal injury or equipment damage by using a lifting device with a lifting capacity greater than twice the weight of any equipment to be lifted.
- Always use personal protective equipment (PPE) appropriate to the situation. This may include the use of hearing protection, eye protection, a respirator, a hard hat, leather gloves, steel toed boots, etc.



## Electrical Hazards

- An electric shock could be fatal. Ensure power to the baler is "OFF" before opening electrical panels.
- All electrical cables and connectors must be in good condition (free of corrosion, damage, etc). Use caution in wet weather to avoid danger from electrical shock. Never attempt electrical testing or repair while standing in water.
- Do not wear electrically conductive jewelry, clothing, or other items while working on the electrical system.



## Compressed Air Hazards

- When using compressed air to dry parts, pressure should not exceed 30 psi (200 kPa).
- Air pressure penetrating your skin can be fatal. Never direct compressed air at anyone.

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# Freeman Bale Scale

## General

The Freeman Bale Scale allows the operator to monitor bale weight in real time, from the cab. This OEM designed and constructed bale scale is built to the same exacting standards as Freeman balers, and is easily mounted to any new and many existing 3-tie side-feed Freeman Baler.

The kit contains a bale chute assembly with integrated load cells that transmit the weight of the bale to a digital weight indicator, mounted in the cab. From there, the operator can observe the weight of bales as they leave the chamber, before they are dropped onto the field.

## Unpacking

Immediately upon receiving the bale scale kit, it should be unpacked, and an inventory taken. See Figure 1 for a list of items that should be included. Report any missing items to Allied Systems Company (503.625.2560) immediately.

Immediately upon unpacking the kit, all components should receive a thorough visual inspection. Check for:

- Scratched or scuffed paint
- Dents or cracks
- Damaged wire harnesses or components
- Corrosion

Report these, or any other signs of damage to Allied Systems Company (503.625.2560) immediately.

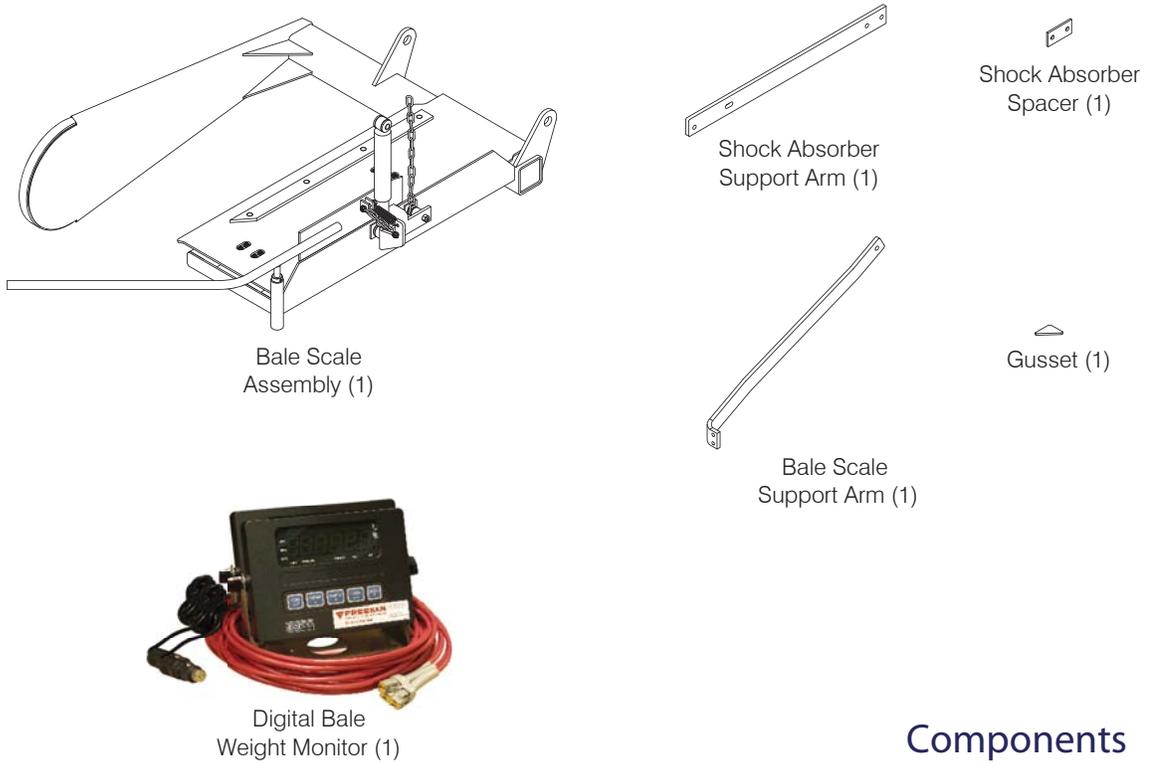


Figure 1 - Kit contents.

# Installation

## 1. Remove existing installation

Remove the existing bale chute assembly (see Figure 2). Remove the bale weight indicator assembly, if so equipped.

## 2. Drill mounting holes

New holes may need to be drilled to mount the new bale scale assembly. See Figure 3 for dimensions and locations of required holes. Depending on your installation, some of these may already exist. In that case, verify that your baler matches the dimensions shown.

## 3. Weld gusset

The bale scale is shipped with a gusset that must be welded in place as shown in Figure 4. Note that weld filler must not be within 1" of the holes drilled in step 2 for bolt clearance.

## 4. Mount bale scale and support arms

Using a forklift or similar lifting device, place the bale scale in position as shown in Figure 5. Attach with 1/2" capscrews, nuts and washers, and torque to 86 ft-lbs (117 N-m).

## WARNING

The Bale Scale assembly is heavy. Any attempt to lift into place manually could result in serious back injury. Use a lifting device, and follow all safety instructions provided with that device.



## CAUTION

When lifting the bale scale, make sure the scale is supported on the structure and not the load cells. Lifting the scale on the load measuring cells may cause damage.

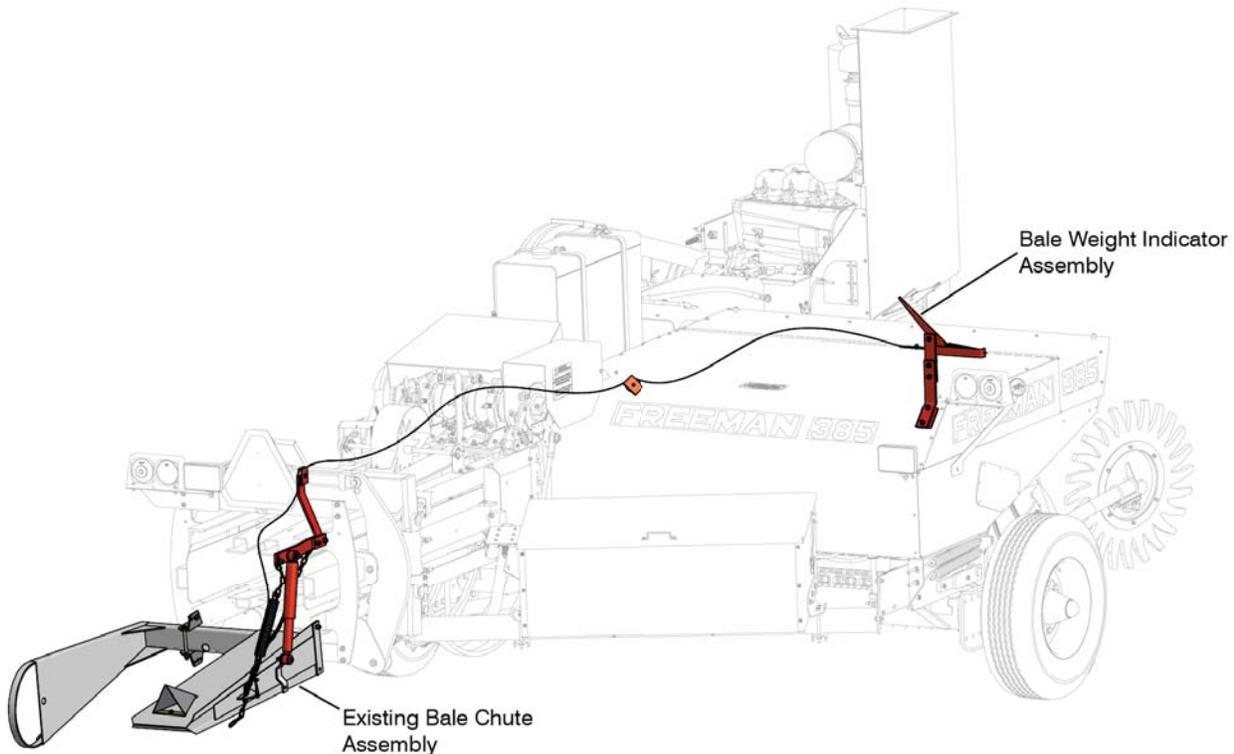


Figure 2 - Remove existing Bale Chute Assembly and Bale Weight Indicator, if so equipped.

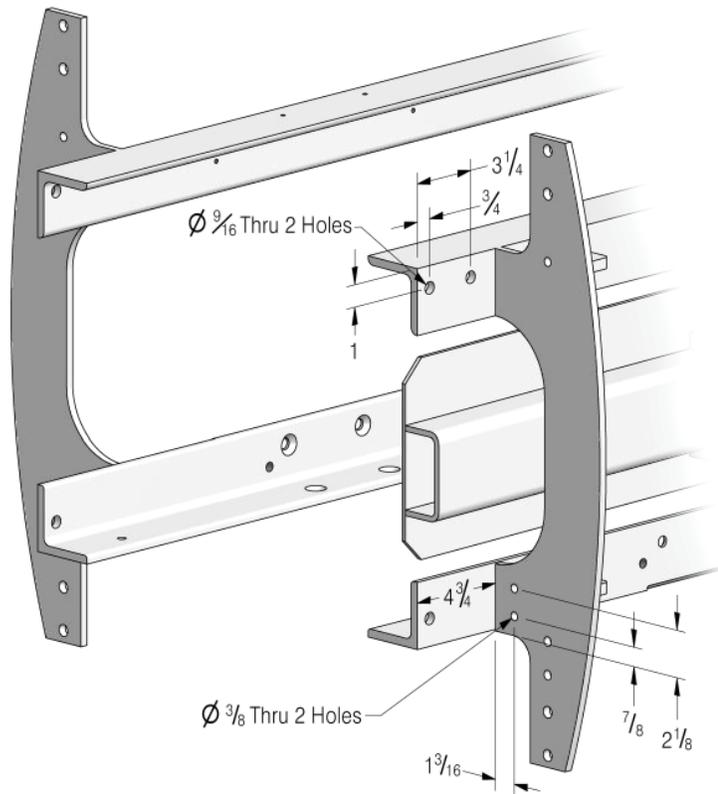


Figure 3 - Drill new mounting holes in baler frame.

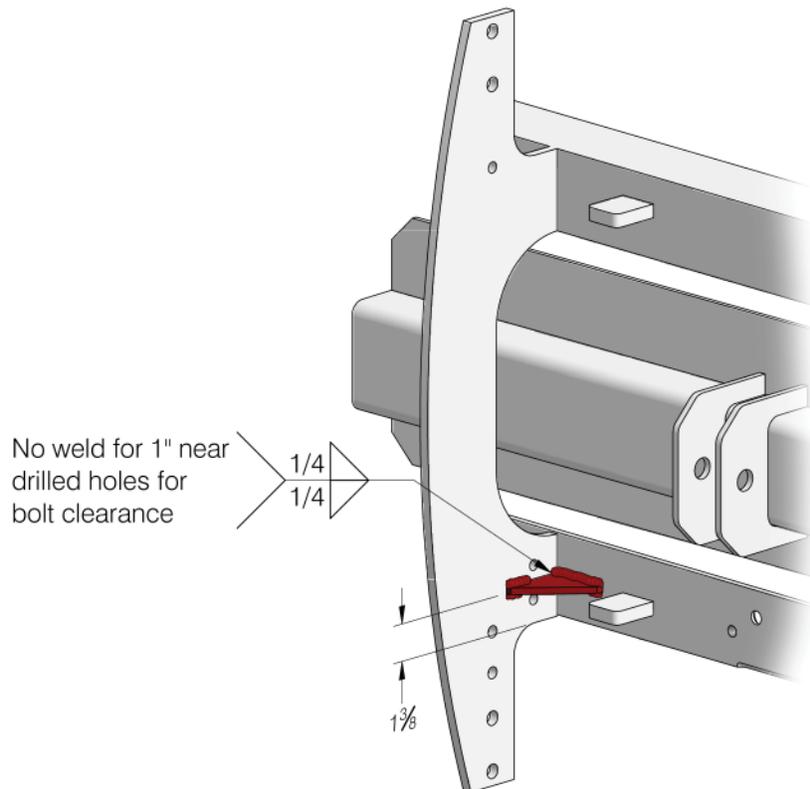


Figure 4 - Weld support gusset to baler frame.

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### 5. Mount support arms

Mount support arms as shown in Figure 5, and attach with capscrews, nuts, and washers. Leave the capscrews loose for now.

**NOTE:** The shock absorber support arm must be mounted with the shock mounting hole towards the bottom of the arm (see Figure 5).

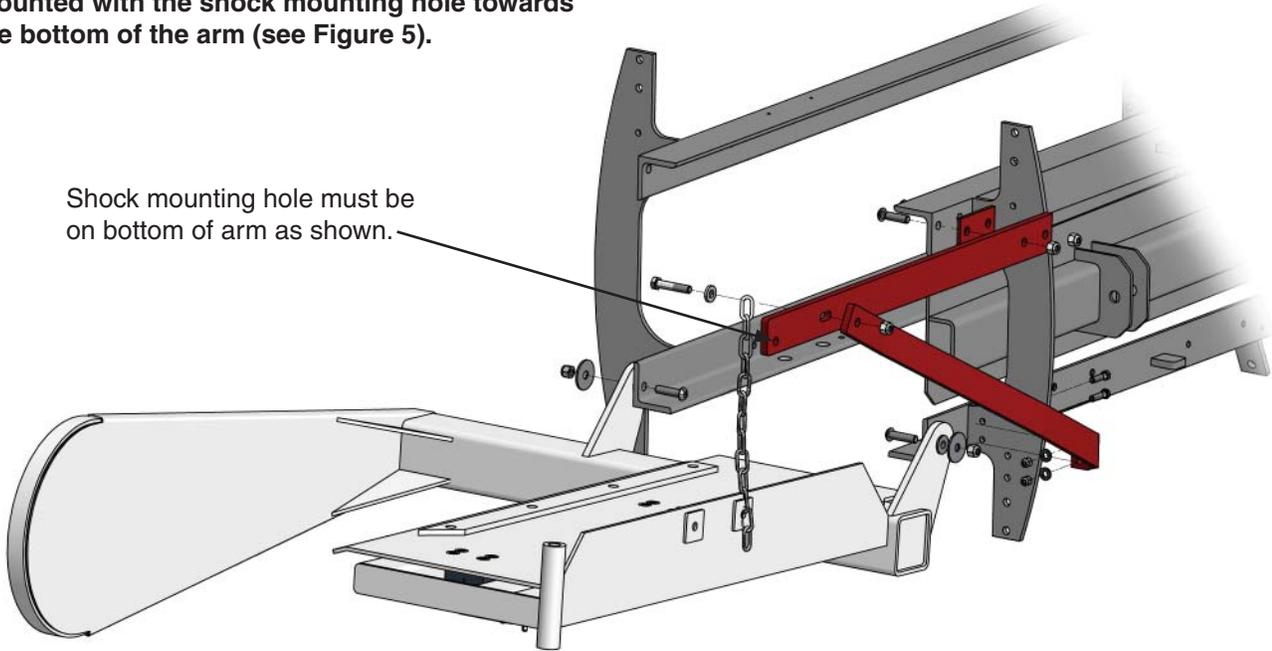


Figure 5 - Mount bale scale and support arms.

### 6. Mount bracket and shock absorber

Mount the bracket and shock absorber as shown in Figure 6, and attach with capscrews, nuts, and washers. Leave the capscrews loose for now.

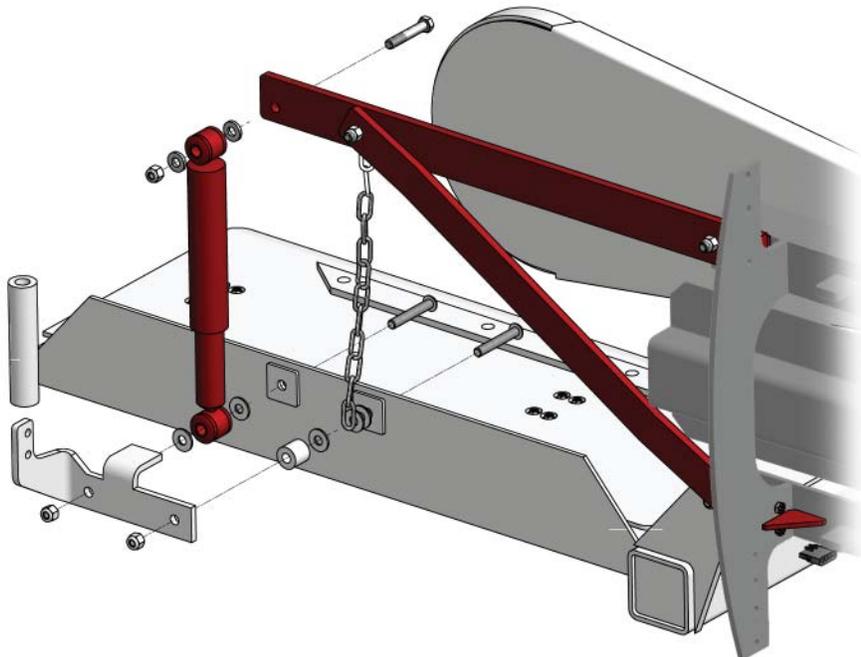


Figure 6 - Mount bracket and shock absorber.

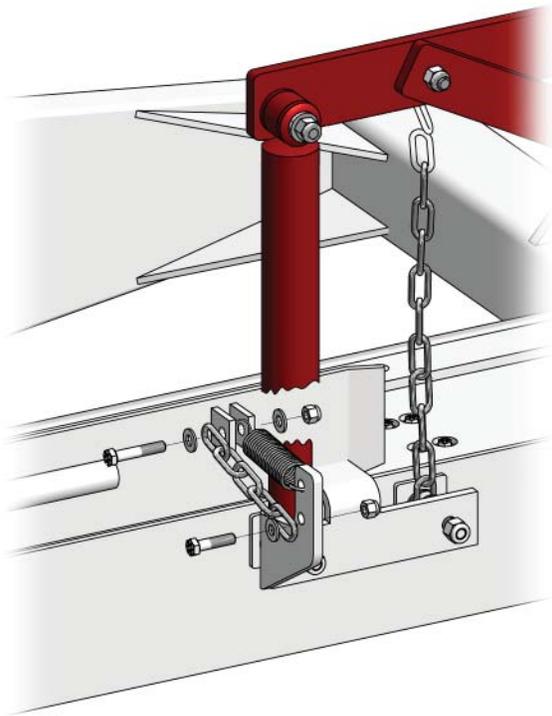


Figure 7 - Mount kicker, spring, and chain.

### 7. Mount kicker, spring, and chain

Mount the kicker arm assembly, spring, and short chain section as shown in Figure 7.

### 8. Torque mounting bolts

Torque the 3/8" capscrews to 35 ft-lbs (47 N-m), and torque the 1/2" capscrews to 86 ft-lbs (117 N-m).

### 9. Adjust bale scale height

Check to make sure the Bale Scale is level with the bale frame rails. If the Bale Scale is not level, remove the top 1/2" bolt holding the chain and fasteners and twist the chain 1/2 turn to shorten or lengthen the chain and reinstall.

### 10. Mount Digital Weight Indicator

Install the digital weight indicator using the provided hardware in the cab where it is easily visible by the driver. See Figure 8 for mounting dimensions. Display should be placed close to a 12V auxiliary power outlet.

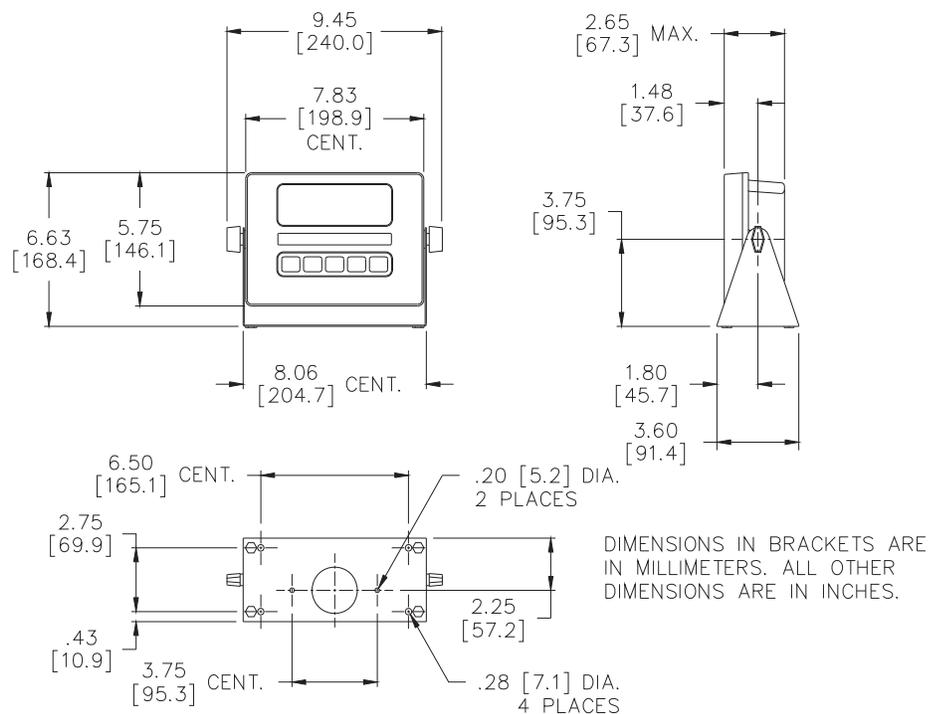


Figure 8 - Mounting dimensions of Digital Weight Indicator.

## 11. Connect wire harness

Connect wire harness to the load cells. Run the harness along the existing light harness (see Figure 9 for suggested routing.) Secure with the included clips and cable ties. Make sure to keep harness away from moving parts, sharp corners and transitions, high temperature sources and high electrical sources.

The clips already on your baler can be replaced with the larger clips included in this kit to accommodate both harnesses.

Do not splice, shorten or lengthen the bale scale wiring. Doing so will result in inaccurate weights and require recalibration.

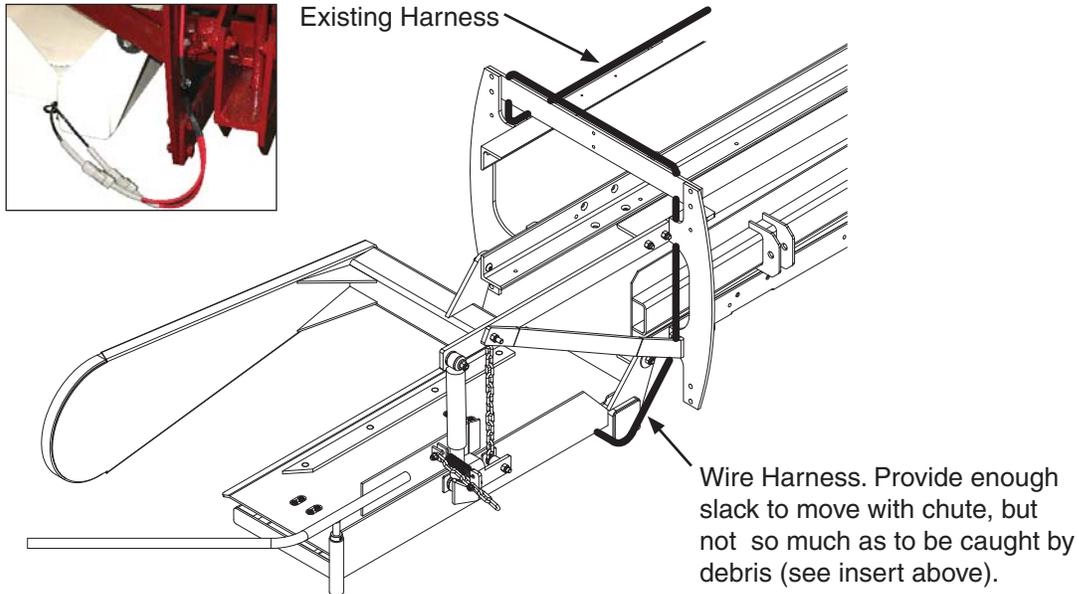


Figure 9 - Suggested wire harness routing.

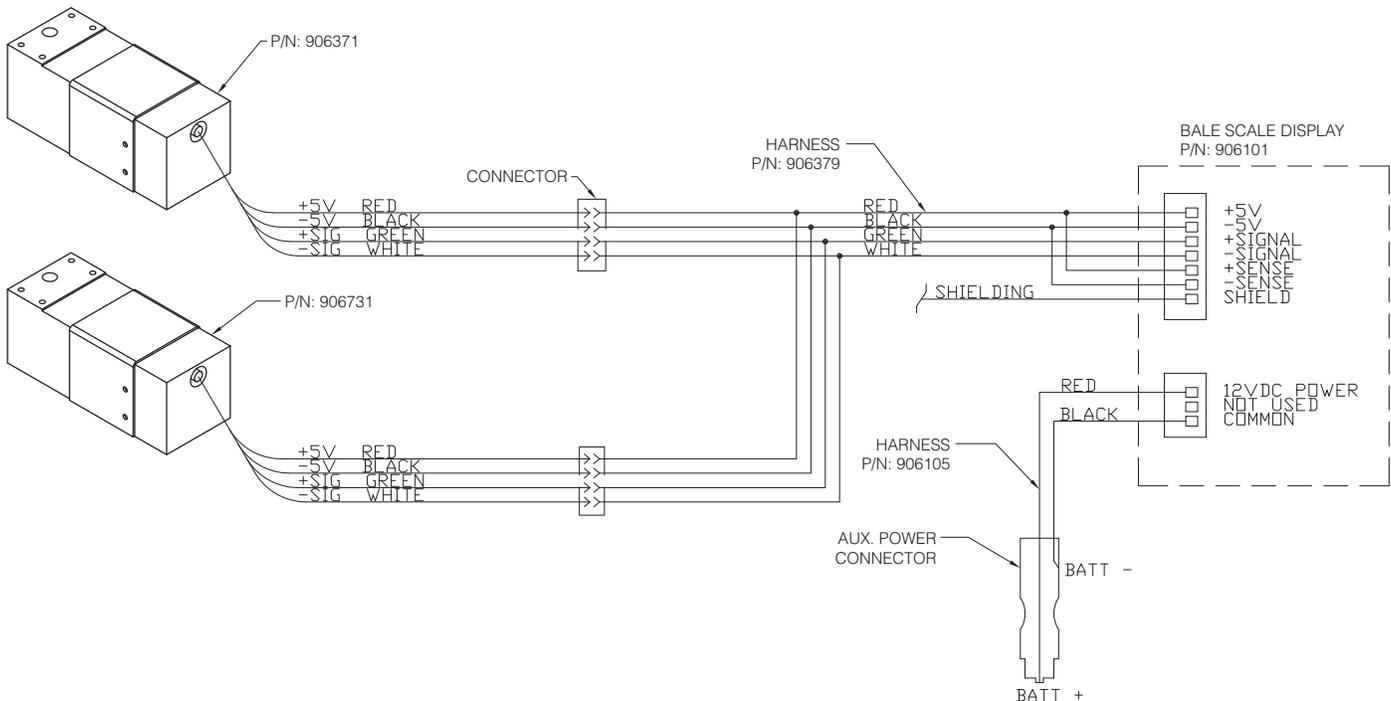


Figure 10 - Schematic.

# Digital Weight Indicator

## General

The Digital Weight Indicator shown in Figure 11 is mounted in the cab, allowing the operator to monitor bale weights in real time during baling operations.

## LED Display

See Figure 12. The LED display is a six digit, 7-segment bright green LED screen. Note that several LED indicators are not used in this application (weight shown is always in gross lbs).

## Keypad

A sealed 5-button elastomer keypad is used for operator input. See Figure 13. Each key is assigned two distinct functions. Various key combinations are also used. See Table 1 for keys and combinations used in this application.



Figure 11 - Digital Weight Indicator.



Figure 12 - LED display.

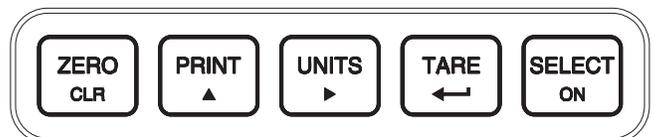


Figure 13 - Keypad.

Key Press	Weigh Mode	Count Mode*	Setup Mode
	Performs a gross zero function and/or clears an entry in progress. Hold this key on power-up to turn on the display if in sleep mode.	Not used in this application.	Exits the Setup Mode and/or answers “NO” to query prompts and/or clears an entry in progress.
	Not used in this application.	Not used in this application.	‘Scrolls’ through digits during data entry.
	Not used in this application.	Not used in this application.	Advances cursor to next entry position and/or cycles prompts.
	Not used in this application.	Not used in this application.	Accepts an entry in progress and/or ‘scrolls’ through parameter sub-set selections and/or answers ‘YES’ to query prompts.
	Toggles between display modes and/or restores power to the indicator (if auto-shutoff enabled).	Not used in this application.	Advances to the next setup parameter.
	Access Setup Mode. Hold these keys on power-up to bypass the remote display mode.	Not used in this application.	No function.
	No function.	Not used in this application.	Return to the previous setup parameter.
	Absolute clear – clears an entry in progress and/or clears the value of a parameter.	Not used in this application.	Clears any entry in progress.
	Backspace – erases the right-most digit during data entry.	Not used in this application.	Backspace – erases right-most digit during data entry.
	Extended gross.	Not used in this application.	No function.
	Turn off indicator by holding key for approximately 1 second. Battery mode only.	Not used in this application.	Turn off indicator by holding key for approximately 1 second.
	Reverse character scroll during data entry.	Not used in this application.	Reverse character scroll during data entry.

\* While the display may be placed in “Count Mode”, there is no functionality in this application.

Table 1 - Key functions.

# Operation

## Pre-Operation Checks

1. Make sure the bale scale is clear of all bale material and that crevices and small features do not contain material that will affect the movement of the bale scale.
2. Remove any debris (mud, hay, chaff, etc) from the underside of the scale.

Make sure the scale is properly attached to the baler. This requires that all parts are installed and the bolts are tightened on the baler and on the bale scale.

3. Make sure that the scale is parallel to the baler frame top and bottom rails.
4. Check that the kicker is functional and can be rotated by hand and returns to the home position under the force of the Kicker Return Spring.
5. Check that the Shock Absorber is properly attached and functional through its range of movement.
6. Check that the wire harnesses are in good shape with no frays, and the connectors are properly connected.

## Startup Procedure

1. Plug the power adaptor plug into a 12V auxiliary power outlet.
2. The scale will power up and the display will read the current weight. The display is now in the Weight Mode. The scale should be calibrated using the calibration process (see Page 12) if the following has occurred:
  - a. Scale has experienced an overload condition (weighed in excess of +/- 1000 lb)
  - b. Scale has not been calibrated within the past 1 year
  - c. There have been changes made to the scale that would affect its unloaded weight (added brackets, drilling holes etc.)
  - d. Wiring between the display and the bale scale has been altered (lengthened, shortened, repaired)
3. If none of the items from step 2 apply, the bale scale is ready for operation.

## Adjustments

The only adjustment that may be necessary during baling operations is the **zero adjustment**. This adjustment should only be made if the baler is stopped and there are no items on the bale weight table and the display does not read zero (either positive or negative values).

To zero the system:

- Make sure baler is stopped and the table is stationary and there is no material on the scale. Clean the scale as necessary to assure that there is no weight on the bale weight table.
- Allow the scale to sit for 5 seconds.
- If the indicator still does not read zero, press  until the value on the display reads zero.
- Allow the scale to sit for 5 seconds.
- If the indicator still does not read zero, recalibrate the display.

## Obtaining an Accurate Weight

During baling operations, the digital weight indicator will display fluctuating weights. The weight displayed will be related to the bale's position on the bale weight table. Additionally, the displayed weight is influenced by the baler speed, field roughness, friction between the bale and the bale scale top, speed of the bale out of the baler and calibration of the scale.

The most accurate weight is displayed when the baler is stopped, the bale is stabilized, its center of gravity is between the two bolt patterns on the bale weight table, and it is not in contact with the kicker arm.

If the weights displayed during baling operations appear to be too high or too low, bring the baler to a complete stop when the bale is stabilized on the bale weight table as described above. If the scale is properly calibrated, the weight displayed will be accurate.

Also see "Setup Mode" on page 11.

# Setup Mode

There are two settings “Filter Setting” and “Display Update/Rate” that can be adjusted to a custom level that will smooth out changes in the displayed weight as the bale slides across the scale in the field.

The Filter Setting (P116) tells the system how often to take a weight. The factory setting is four (4) seconds, which means the scale sends a weight every four (4) seconds to the monitor.

The Display Update/Rate (P117) is the setting that the program uses to display the weight. The factory setting is 1.5 seconds, which means that the monitor’s display is updated every 1.5 seconds.

These settings have been determined to filter out most spikes and provide a more constant displayed weight as you move through the field.

Depending on the material you are baling and your field conditions, you may want adjust these settings slightly. If you have very smooth fields or bale at slower speeds, you may benefit from lowering these numbers. If you have a rough field or bale at higher speeds, you may want to raise these numbers slightly.

To change these settings:

## Enter the Setup Mode:

Press **ZERO CLR** + **SELECT ON** then **SELECT ON** → **ZERO CLR** → **PRINT** → **UNITS** → **TARE** (this sequence must be completed within five (5) seconds).

The display will momentarily read “P110” then will display “F.S. = 100” This will take you to the first of many parameters, however, there are only two (2) that need to be adjusted; P116 and P117.

To advance to the next parameter, press **SELECT ON**.

To backup one parameter, press **PRINT** → **SELECT ON**.

Press **SELECT ON** five times (5x) to advance to P116. The display will momentarily read “P116.06”, then will display “Filter = 4 Sec.”

## P116 (Filter = 4.0)

This filter controls how quickly the system responds to weight fluctuations and can be adjusted from 0.5 to 16 seconds. The factory setting is 4 seconds.

1. Press **TARE** to scroll through the settings. Each advancement will double the time, until it rolls around to the lowest setting.
2. Press **SELECT ON** one time (1x) to advance to the next parameter.

## P117 (Rate = 1.5 S)

The display will momentarily read “P117.15,” then will display “Rate = 1.5 S.”

This filter controls how often the display is updated. It can be adjusted from 0.05 to 20.0 seconds. The factory setting is 1.5 seconds.

1. Press **TARE** to scroll through the selections. Each press will increase the rate by 0.1 up to a maximum setting of 20.0, before starting over.

## To Cancel Editing Without Saving:

If you accidentally make a change to a parameter, or want to start over without saving your changes, remove power to the monitor. None of the changes will be saved.

## To Save All Changes:

Press **ZERO CLR** → **ZERO CLR** → **TARE** → **TARE**

## To Confirm Changes:

This will enter a Read Only mode to check the settings, but where changes are not possible. If changes are needed, exit this mode and return to the configuration mode.

1. Press **ZERO CLR** + **SELECT ON**, then **TARE**.
2. Press **SELECT ON** to scroll through the parameters.
3. Press **ZERO CLR** → **TARE** to exit.

# Calibration

## General

The scale should be recalibrated if any of the following has occurred:

1. Scale has experienced an overload condition (weighed in excess of +/- 1000 lb)
2. Scale has not been calibrated within the past 1 year
3. There have been changes made to the scale that would affect its unloaded weight (added brackets, drilling holes etc.)
4. Wiring between the display and the bale scale has been altered (lengthened, shortened, repaired.)
5. The display is being used with a different wire harness than it was calibrated with. The different resistance between wire harnesses will require recalibration.

## Procedure

**Note:** Press  during calibration to back up one step in the procedure.

1. From the Weigh Mode, press  + .
- DISPLAY READS: Setup
2. Press  →  →  → .
- DISPLAY READS: Fast ~ Cal~First ~ Zero? ~ -0.26
3. Remove any load on the scale.
- DISPLAY READS: First ~ Zero? ~ -0.42
4. Press  to establish zero.
- DISPLAY READS: 0.00

5. Pause for motion delay.  
DISPLAY READS: Enter ~ Load ~ 0.00
6. Place a 100 lb test weight on scale.  
DISPLAY READS: Enter ~ Load ~ 99.66
7. Enter 1 0 0. Use the  key to increase the value of a digit, and the  key to move to the next decimal place.  
DISPLAY READS: 100
8. Press  to establish span (test weight value).  
DISPLAY READS: 100.00
9. Pause for motion delay.  
DISPLAY READS: Cal ~ Good? ~ 100.00
10. Press  to accept calibration.  
DISPLAY READS: Enter ~ =Stor
11. Press  to save calibration.  
DISPLAY READS: Enter ~ =End
12. Press  to exit calibration.  
DISPLAY READS: 100.00
13. Remove the calibration weight.  
DISPLAY READS: 0.00

## Error Codes

The Digital Weight Indicator utilizes the following types of error messages: Operational Errors, Hardware Errors, Calibration Errors, Communication Errors, and Miscellaneous Errors. See Table 2.

## Error Codes

Operational Errors	Code02	Under Load. Input signal is less than negative full scale. Check load cell wiring.
	Code03	Over load input signal is greater than positive full scale. Use same checks as “under load” above.
	Funct ~ Disbl	Attempted to perform a function disabled in the Setup Mode.
	Code 04	The digits on the display have exceeded the six digit display capacity.
	Code 05	Zero attempted beyond the value set.
	Code 08	Input signal greatly exceeds the valid range. Check the load cell connection.
	Tare ~ Error	Negative tare attempted when disabled.
	Tare ~ GT FS	Tare value greater than full scale capacity.
	Delay	Indicates that a motion delay is in effect (zero, tare, etc.).
	Delay ~ Abort	Acknowledges that a motion delayed function was aborted.
	Print ~ Abort	Acknowledges that a motion delayed print request was aborted.
	Add ~ Load!	If displayed after performing a count sample, this message indicates that a larger sample size is required.
	Out of ~ Range	Attempted to enter a value beyond the allowable range.
	Need APS	A setpoint start is initiated and the setpoint is based on quantity and no piece weight has been established (start will not occur).
	Edit Disbl	Unable to edit the time and date.
Communication Errors	Par-Er	The selected parity does not match that of the connected device.
	Buf-Er	The receive buffers capacity was exceeded. This indicates a handshaking problem.
	Bit-Er	The stop bit of a received character did not occur when expected.
	Trans~Hold1	Data transmission is inhibited due to a deasserted handshake on communication port 1. Press  to abort transmission.
	Trans~Hold2	Data transmission is inhibited due to a deasserted handshake on communication port 2. Press  to abort transmission.
	Error~BaudX	The X being either comm port 1 or comm. port 2. The baud rate selected is too high for the microprocessor rate.
Hardware Errors	Code00	An EPROM problem detected during power up.
	A-D ~ Bad! Or Code17	Problem with A/D chip detected. Disconnect any options installed and re-power the unit. Options are connected to the same serial lines as the A/D so they may prevent it from working properly.
	Deflt ~ A-D	Bad A/D calibration values.
	Re- ~ Boot!	EEPROM data could not be read. Attempting power-up reset.
	Code21~E2rd	Error while reading data from EEPROM.
	Code21~E2sd	Error while saving data to EEPROM.
	Deflt ~ Setup	An error occurred when reading setup data from the EEPROM during power-up. All parameters are set to factory default.
	Ch.XXXX	A checksum error occurred during power-up. All annunciators are lit. The EPROM integrity test failed or is improperly seated.
	E2 ~ Full!	The EEPROM setup exceeds the memory capacity.
NoSpc ~ Free!	The current setup exceeds the setup RAM capacity.	
Misc	T.X.YYYY	If catastrophic errors occur in the software, a trap error may occur and freeze the display with address information. (X = bank number and YYYY = the address of the trap error. Press any key five seconds after viewing message to reboot the unit).

Table 2 - Error codes

## Troubleshooting

If one load cell is disconnected, the display will not indicate an error. However, the indicated values will not be correct and will usually read significantly higher than actual.

### Errors due to damaged wiring:

<b>Wire Disconnected from Display Connector:</b>	<b>Error Code:</b>
Entire Connector	Code 08
Shield (Clear Insulation)	Normal Function
-Sense Jumper (Black)	Normal Function
+Sense Jumper (Red)	Normal Function
-Signal (White)	Code 08
+Signal (Green)	Code 08
-5V Excitation (Black)	Code 03
+5V Excitation (Red)	Code 03

See Figure 10 on page 7 for wiring schematic.

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# Spare Parts

This section contains all components of the bale scale that can be separately identified as well as parts necessary for equipment support.

## Illustrations

Illustrations are provided whenever possible to represent component parts and the mounting location of those parts. The numbered labels correspond to the item numbers in the parts list.

## Parts Lists

Component parts lists are presented in a 5-column format:

**Item:** Index numbers found in this column correspond to the numbers found on the respective parts location illustration. Some items are shown for reference purposes only to illustrate their relationship to other systems.

**Notes:** This column identifies footnotes applicable to specified items.

**Part Number:** This column lists the Allied Systems Company Part Number.

**Quantity:** This column lists the total number of a specific item required per assembly or subassembly. This number may not necessarily be the number of items used in the end item or system. Only one set of components is listed whenever the components of two assemblies are the same.

“**A/R**” (as required) identifies bulk items whose length or other dimension must be specified when requisitioning.

“**Ref**” identifies items shown for reference purposes only to illustrate their relationship to other systems.

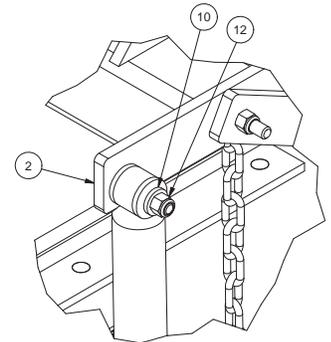
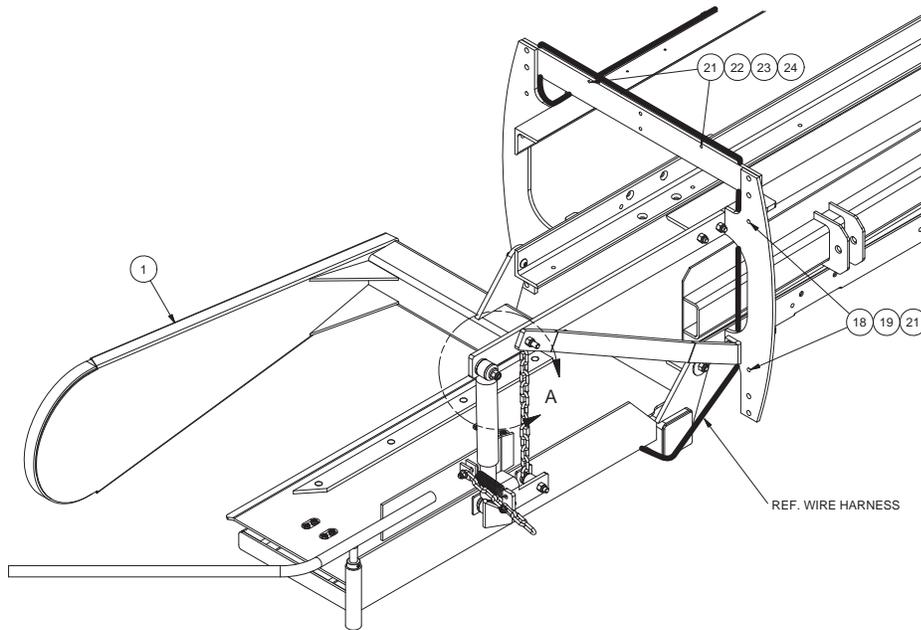
“**NSS**” (not sold separately) identifies items such as valve housings and spools, ring gears and pinions, etc., which must be ordered as a set because they are closely mated at manufacture.

**Description:** This column lists the item nomenclature along with those modifiers necessary to identify the item. Additionally, cross references for repairable sub-assemblies are listed in this column. One dot preceding the description indicates that the item is a component part of the previously listed item or assembly with no dot. Two dots indicate that the item is part of the previously listed item with one dot.

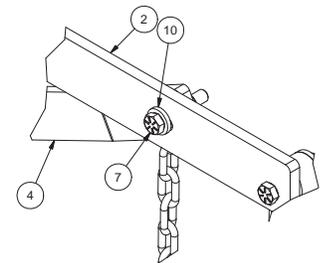
Example:

Engine Installation  
. Engine Assembly  
. . Manifold Assembly  
. . Control Box Assembly  
. . . Module Assembly

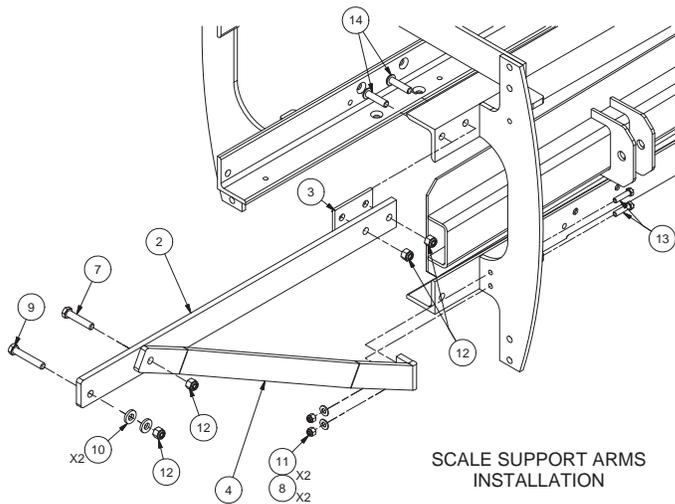
The Engine Assembly is a first level subassembly of the Engine Installation as indicated with one dot. The Manifold Assembly and the Control Box Assembly are second level components of the Engine Assembly as indicated by the two dots. The Module Assembly is a third level component of the Control Box Assembly which is indicated with three dots.



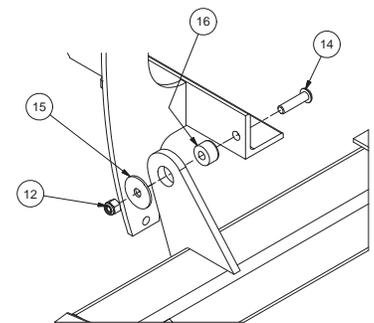
DETAIL A  
SHOCK ABSORBER  
MOUNTING



DETAIL B  
CHAIN MOUNTING



SCALE SUPPORT ARMS  
INSTALLATION



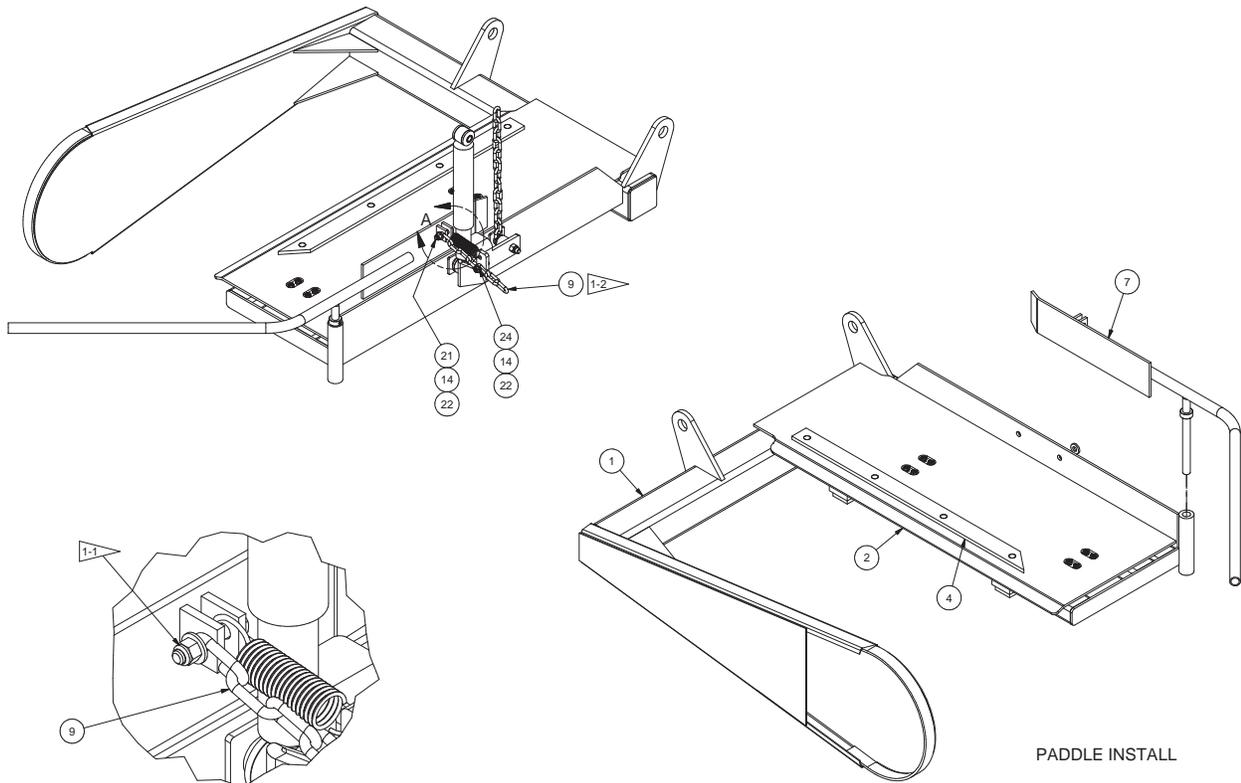
PIVOT (TYP)  
FASTENER INSTL

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
<b>905895 Kit, Bale Scale Installation</b>							
1	*a 905217	1	. Bale Scale Assembly	14	Y25G-0832	4	. Capscrew
2	905221	1	. Shock Absorber Support	15	2305715W	2	. Washer
3	905224	1	. Shock Absorber Spacer	16	F000001132	2	. Bushing
4	905315	1	. Bale Scale Support	17	R13808094	6	. Clip
5	*b 906101	1	. Monitor	18	SMS0000177	6	. Whiz Bolt
6	DRW0032694	1	. Gusset	19	191534W	6	. Nut
7	221576W	1	. Capscrew	20	248515	10	. Cable Tie
8	221767W	2	. Washer	21	231593	4	. Clip, Insul.
9	R13801850	1	. Capscrew	22	R13811443	2	. Washer
10	221771W	3	. Washer	23	15154W	2	. Lock Washer
11	R13811191	2	. Locknut	24	224120W	2	. Capscrew
12	R13811193	6	. Locknut				
13	Y17C-0624	2	. Capscrew				

\*a See Separate Coverage Page 17

\*b Not Illustrated

Rev D

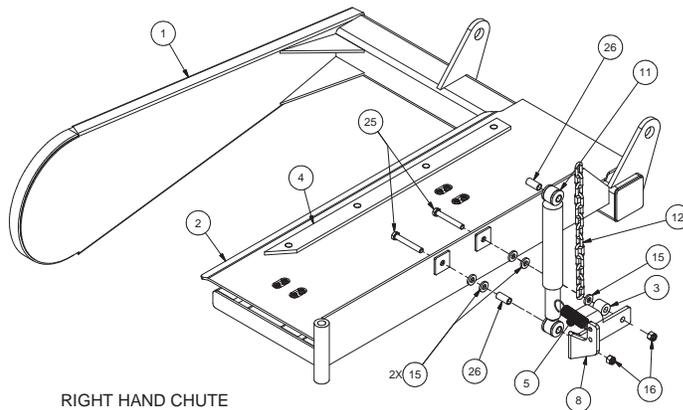


DETAIL A  
FASTENER ORIENTATION

PADDLE INSTALL

**NOTES:**

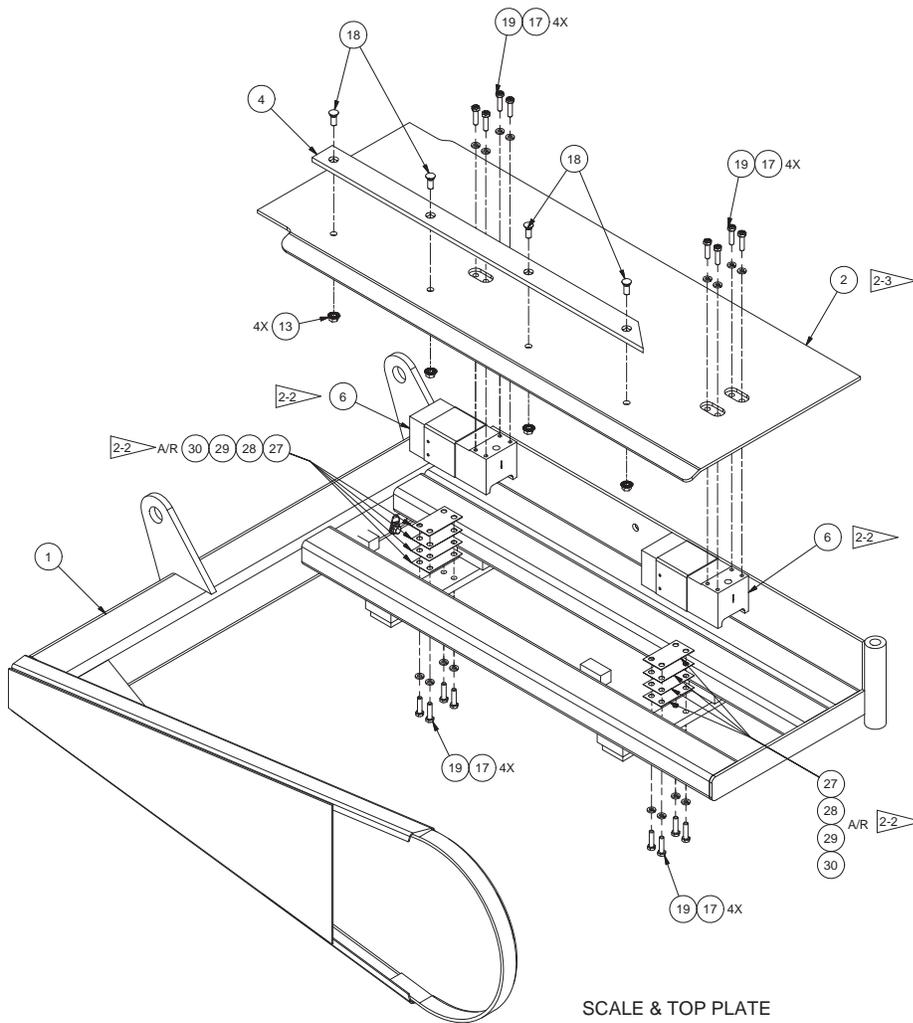
- 1-1 - BOLT MUST BE INSTALLED AS SHOWN WITH HEAD TOWARDS SHOCK TO PROVIDE CLEARANCE DURING CHUTE MOTION.
- 1-2 - ATTACH CHAIN (ITEM 9) USING END LINKS (NOT AS SHOWN). FULLY TIGHTEN FASTENERS.



RIGHT HAND CHUTE

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
<b>905217 Bale Scale Assembly</b>							
1	905202	1	. Bale Scale	16	R13811193	2	. Nut, Esna
2	905219	1	. Bale Scale, Top	17	R13812513	16	. Lockwasher
3	905222	1	. Spacer, Tube	18	PWB3751000	4	. Bolt
4	905223	1	. Bar	19	R13811015	16	. Capscrew
5	905226	1	. Spring	20	SMS0000184	2	. Bolt, Whiz
6	906371	2	. Load Cell	21	R13811039	1	. Capscrew
7	905305	1	. Paddle	22	R13811191	2	. Locknut
8	905307	1	. Plate, Mounting	24	Y17C-0624	1	. Capscrew
9	905948	1	. Chain, Bale Chute	25	R13811083	2	. Capscrew
10	R13803039	2	. Clip, Insul	26	906222	2	. Bushing
11	F000000988	1	. Shock Absorber	27	906121	A/R	. Shim 0.060"
12	906143	1	. Chain	28	906320	A/R	. Shim 0.030"
13	156133W	4	. Nut	29	906321	A/R	. Shim 0.015"
14	221767W	3	. Washer	30	906322	A/R	. Shim 0.005"
15	221771W	5	. Washer				

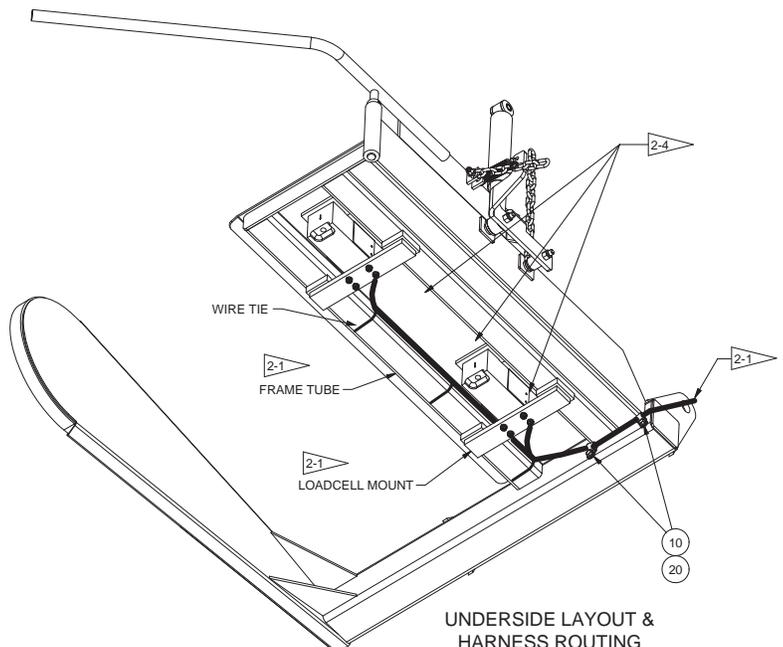
Rev G



SCALE & TOP PLATE

**NOTES**

- 2-1 - ATTACH LOAD CELL WIRES TO FRAME TO AVOID DAMAGE DURING OPERATION. USE WIRE TIES AND ATTACH TO FRAME TUBE AND LOADCELL MOUNT CROSS MEMBER (LOCATIONS INDICATED BY LEADERS). ROUTE WIRES TOGETHER THROUGH WIRE HOLDOWN ITEM #10.
- 2-2 - LOAD CELLS MAY SIT ON SCALE WELDMENT WITHOUT SHIMMING IF TOP SURFACES OF BOTH LOAD CELLS ARE ALIGNED WITHIN 0.005". CHECK ALIGNMENT WITH STRAIGHT EDGE, AND USE MINIMAL AMOUNT OF SHIM TO ALIGN TOP SURFACES OF LOAD CELLS WITHIN 0.005". SHIMS SHOULD ONLY BE PLACED UNDER LOAD CELLS.
- 2-3 - PLACE TOP PLATE ON ASSEMBLY, AND CHECK FIT WITH TOP OF LOAD CELLS, NO GAP SHOULD BE VISIBLE, PLACE ALL EIGHT (8) FASTENERS (ITEM 17 & 19) IN PLACE, AND START INTO THREADS BUT DO NOT TIGHTEN. SLIGHTLY ADJUST PLATE TO INSURE NO BINDING, AND THEN SNUG ALL FASTENERS FINGER TIGHT. TIGHTEN BOLTS BY ALTERNATING METHOD OVER BOTH LOADS CELLS.
- 2-4 - USE THREE (3) BLACK TIE STRAPS TO SECURE LOAD CELL WIRE PIGTAIL TO BALE SCALE FRAME.



UNDERSIDE LAYOUT & HARNESS ROUTING



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