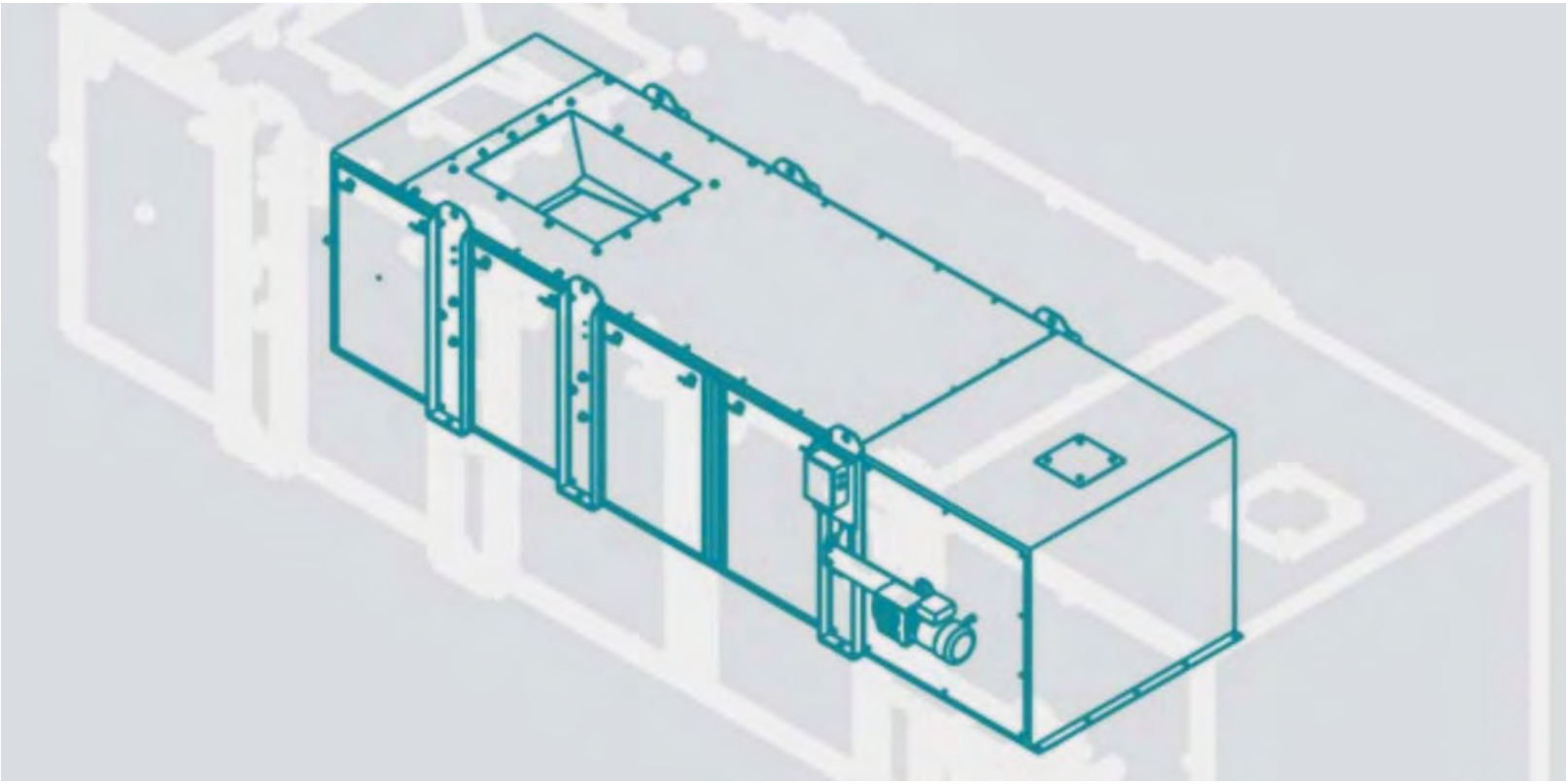
schenck process

DMO Weighfeeder
Instruction Manual



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1. Safety Information

1.1. Using the Feeder For Its Intended Purpose

- Your DMO weighfeeder is designed for measuring and feeding of bulk solids.
- When commissioning your DMO weighfeeder for the material specified in your order, pay attention to the instructions given in the control manual as well as to the technical data supplied.
- The DMO weighfeeder is not set-up to handle materials other than those indicated in your order.
- If your DMO weighfeeder is a component of a larger system or process, always establish before commissioning that no danger can arise from upstream plant components, e.g. overfill of the DMO or downstream equipment.
- Constructional changes to the DMO weighfeeder which have the potential to affect safety must not be performed without the approval of Schenck. This also applies to installation and setting of safety devices as well as to welding work on carrying parts.
- Spare parts have to meet the technical data specified by SCHENCK. Therefore, only genuine SCHENCK spare parts should be used.

1.2. Residual Risks / Hints

Residual risks cannot be excluded if system is improperly installed, commissioned or operated by inexperienced personnel.

In this manual, you will know residual risks by the following symbols:

Danger:
The presence of this symbol indicates that the operation, procedure or item being described has the potential to cause severe injury. Follow all safety instructions to prevent this from occurring.

Warning:
The presence of this symbol indicates that the procedure or item being described may cause damage to the machine or its components. Follow all safety instructions to prevent this from occurring.

Note:
The presence of this symbol indicates a precaution to be taken during an operation or procedure. It may also point out helpful hints to make an operation easier to complete.

1.3. Workmen’s Qualification

- Only trained, instructed and authorized workmen may perform the work described in service manuals.
- Workmen must be familiar with metal work and safe handling methods when using a crane.
- Work on measuring system has to be performed only by skilled measuring and control engineers.
- Workmen are required to know and heed local safety regulations and accident prevention rules.

1.4. Operators' Qualification

- Only skilled and authorized personnel may operate the DMO weighfeeder in accordance with the instructions given in this manual.
- If the DMO weighfeeder is interlinked with other devices or processes in the plant, responsible personnel must make additional information available to the operators of the feeder that will augment this instruction manual and ease overall system operation and use.
- Operators have to know and heed all in-plant safety regulations and accident prevention rules.

1.5. Safety Information for the User

- Responsible persons are required to be aware of safety information given in this manual as well of the safety-relevant items of system operation. They have to ensure that the operators pay heed to all safety instructions.
- Before commissioning, responsible persons are required to check if the operation of the DMO weighfeeder has the potential to cause residual risks in conjunction with other plant components. If need be, additional safety hints have to be formulated. So as to prevent residual risks from occurring, the user of the DMO weighfeeder has to issue in-plant instructions and have their receipt confirmed by the operators. The user is required to clearly define responsibilities regarding the operation of the DMO weighfeeder in order to avoid uncertainties in the lines of responsibility where safety is concerned.

1.6. Safe Operating Environment for the DMO Weighfeeder

A safe work environment is possible only if the DMO weighfeeder is totally enclosed and used for its intended purpose as described at Item 1.1.

As a rule, to ensure a safe work environment and proper operation, the safety guidelines below have to be observed in all cases.

- Protect feeder from overfill.
- While the DMO weighfeeder is operating, the clearance around the feeder may be accessed only by workmen authorized to perform the work described in this manual.
- Walking and climbing on the DMO weighfeeder during operation is not allowed.

SAFETY INSTRUCTIONS:

- Before opening DMO weighfeeder, separate all electrical connections from power supply.
- Set switch to OFF position.
- Lock switch in OFF position.
- Never unlock power switch before all guards have been closed.

1.7. Work on Electrical Equipment

DANGER: There is danger to life.
Therefore work on electrical equipment may be performed only by skilled electricians.

DANGER: There is danger to life. Therefore damaged electrical components must be replaced and/or repaired immediately by skilled electricians.

1.8. Design Hints

The device configurations shown and described hereafter are sample solutions. For your system, the dimensioned drawings and design documentation supplied with your order apply.

1.9. Maintenance and Repair

Maintenance and repair work on the DMO weighfeeder not described in this manual may exclusively be performed by SCHENCK engineers or personnel authorized by SCHENCK.

CAUTION WITH WELDING WORK!!

- To perform welding work, and in order to protect the load cell, connect the minus pole direct to the point of welding.
- Welding on safety-relevant or carrying parts may be performed only with the approval of SCHENCK.

1.10. Changing and Tensioning Belt

- The belt is so heavy that it should be changed by two persons.
- The DMO should be completely assembled before tensioning the belt.

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2. DMO Brief Description

2.1. Operating Principle

This manual provides installation and operating instructions for your new DMO weighfeeder, which is a self contained unit with load cells and speed sensor(s). Weight and speed signals are transmitted to the controller, which converts the analog signal to a digital millivolt pulse that conveys information for rate computation.

The DMO weighfeeders are specifically designed to provide dependable service with minimal maintenance and care. Primarily designed for shearing and free-flow of bulk solids materials, the heavy duty, long life components are selected to assure a stable, distortion-free, compact assembly capable of withstanding the tough conditions common to weighfeeder applications.

The DMO is designed as a speed-controlled weigh-feeder for continuous feeding of bulk solids. Material can be extracted directly from the silo.

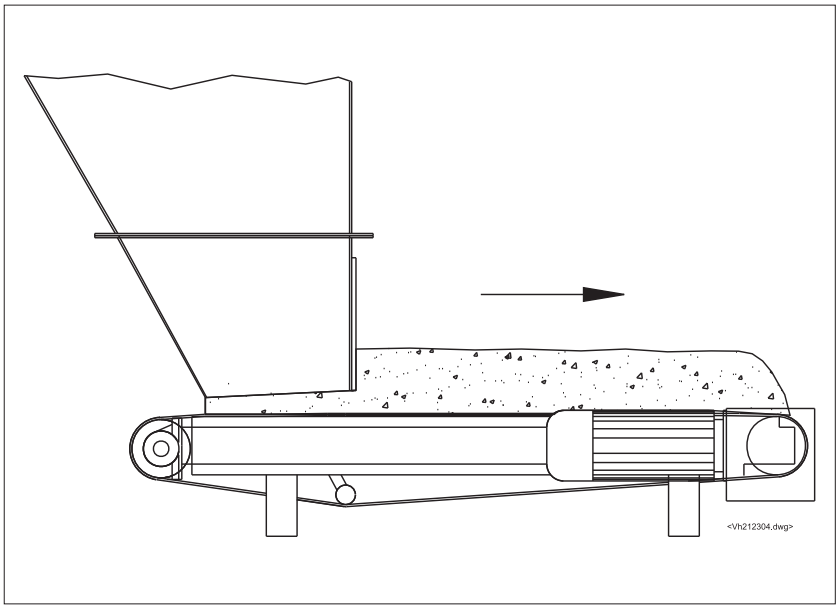

Figure 1: Material Infeed

Continuous belt load acquisition enables a continuous mass flow to be achieved through control of belt speed. Belt load is acquired with the use of a compact weighing module (load cell) which transfers the measurement results to the connected weighing electronics.

The DMO weighfeeders incorporate a true integration of conveying, weighing and control functions. In operation, a weigh idler senses the material weight while the speed sensor measures the speed of the feeder belt. The instrumentation multiplies the weight and speed in producing a “true rate” signal which is compared to a set-point or “demand value”. Any deviation from the set-point results in a correction signal from the controller. Increasing or decreasing the variable speed belt drive motor maintains the demand rate.

Nominal feed rates: Up to 500 tons per hour (507.9 metric tons/hr.) standard. Higher capacities available.

Nominal material temperatures: 32 to 212 degrees F (0-100 degrees C). Higher temperatures can be processed with optional belting.

Nominal material particle size: Variable from fine powders to irregular lumps.

Feeder accuracy: +/- 1/2% over a 10-to-1 range is typical (depending on material and installation characteristics).

2.2. Standard Mechanical Construction

The sturdy construction and uncomplicated mechanics of the DMO weighfeeder provide the accurate performance customers demand. Designed for free-flowing, bulk materials, the infeed provides a smooth, continuous flow, while a vertical shear gate forms a consistently shaped material profile centered on the belt. High accuracy and low maintenance are achieved through automatic gravity take-up and precise belt tracking that provide correct and constant belt tension for optimum weigh results and belt traction while keeping the belt centrally located. Flat pulleys provide equalized cross-sectional and longitudinal stresses on the feeder, allowing for more accurate load sensing. In addition to a spring-loaded belt cleaner, belt carrying idlers are permanently aligned and mounted directly to the feeder frame yet easily removed for replacement.

The DMO weighfeeder consists of standard mechanical construction components which include:

Frame: Heavy-duty, rugged frame with idlers directly mounted in the main stringer for permanent alignment. Cantilevered construction eases installation of a vulcanized, endless belt by allowing support legs to be removed on one side.

Belt: Standard widths vary from 24 to 54 inches. Special designs to 72 inches are available. Belt types include: flat, 1” side flange, 3” and 5” corrugated flange and others depending on material characteristics and requirements.

Belt Tension and Tracking Device: Assures constant and correct tension while providing reliable drive traction. Automatic Belt Tracking (ABT) provides an increased centralization force and allows use of flat pulleys for more accurate load sensing.

Direct Drive: The drive system with reducer and motor is directly mounted on the head pulley shaft. This system provides rugged, reliable and safe operation while eliminating the need for constant alignment and maintenance.

Load Cells: Schenck single point load cell. Load cell capacity is 66-661 lbs (30kgs-300kgs).

Test Weights: Two calibrated test weights, both of which must be used when performing calibration, are provided.

2.3. Basic Components

Figure 2 shows an assembled DMO weighfeeder. Figure 3 shows the DMO weighfeeder in an exploded-view format and indicates essential building blocks.

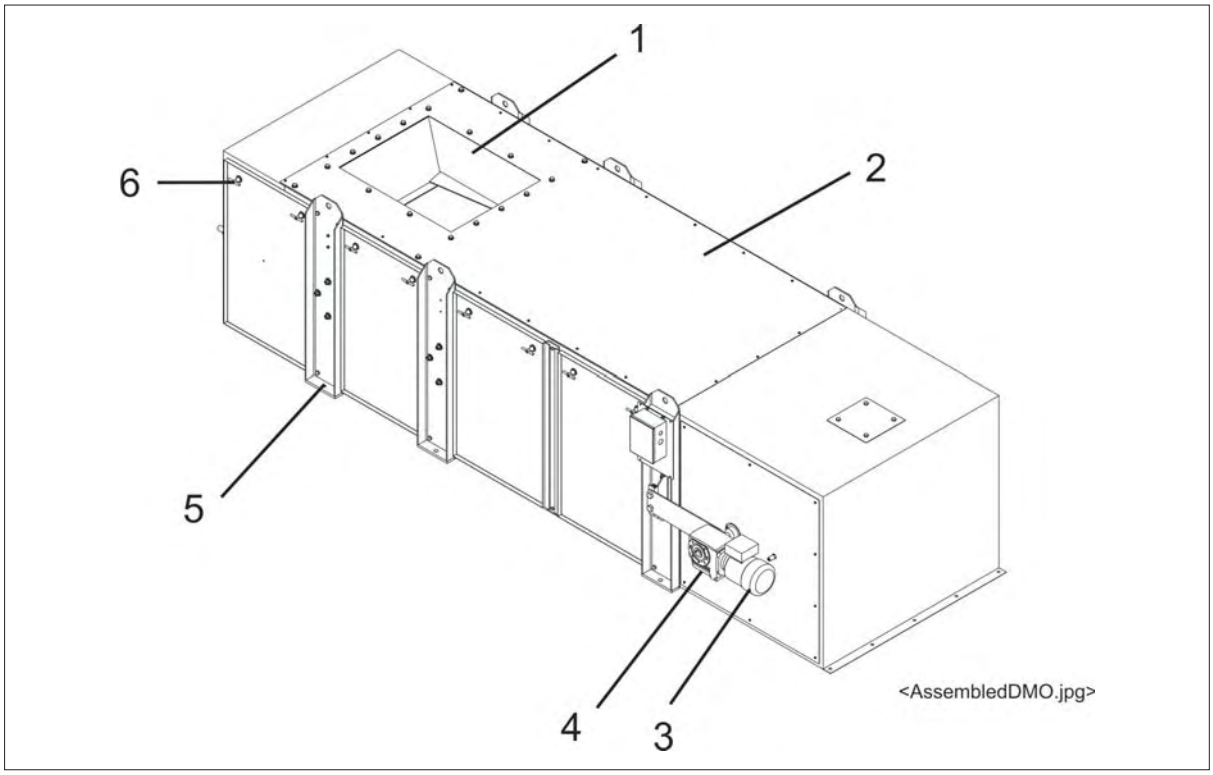

Figure 2: Assembled DMO Weighfeeder

Figure 2 call-outs:

1 Infeed
2 DMO Enclosure Cover
3 Motor
4 Gear Reducer
5 Feeder Leg
6 T-Handle

5.3.3. Setting Shear Gate

DANGER: Shear gate may be adjusted only if all electrical connections of your DMO weighfeeder have been disconnected from power supply since operator has to step on machine for adjustment. Stepping on the DMO weighfeeder during operation is prohibited. Running weighfeeder has the potential to cause severe injury or death.

Follow these steps:

- Disconnect all electrical connections of your DMO weighfeeder from power supply.
- Adjust shear gate nuts until shear gate is in correct position.

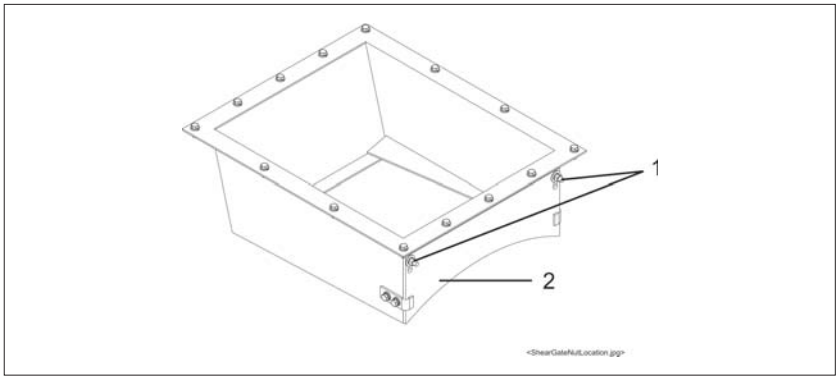

Figure 6: Shear Gate Nut Location

Figure 6 call-outs:
1 Shear Gate Nuts
2 Shear Gate

- Start DMO weighfeeder and determine load and bed depth cross-section in local mode (see Fig. 7).

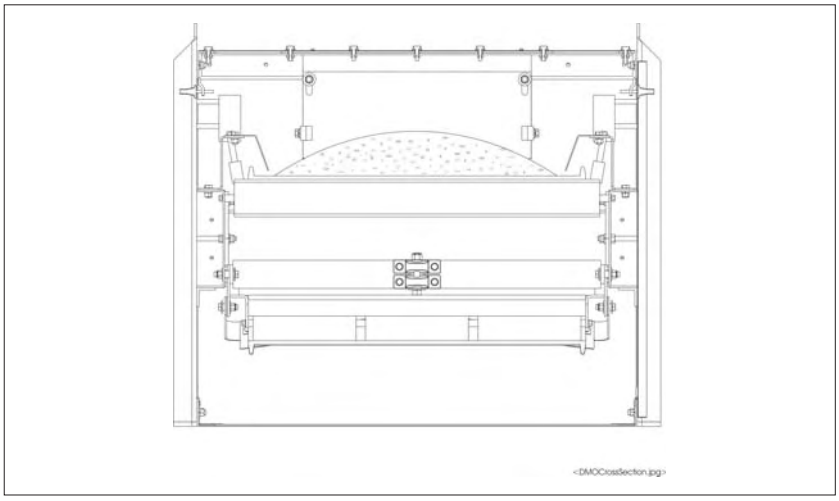

Figure 7: Bed Depth, Shear Gate Setting

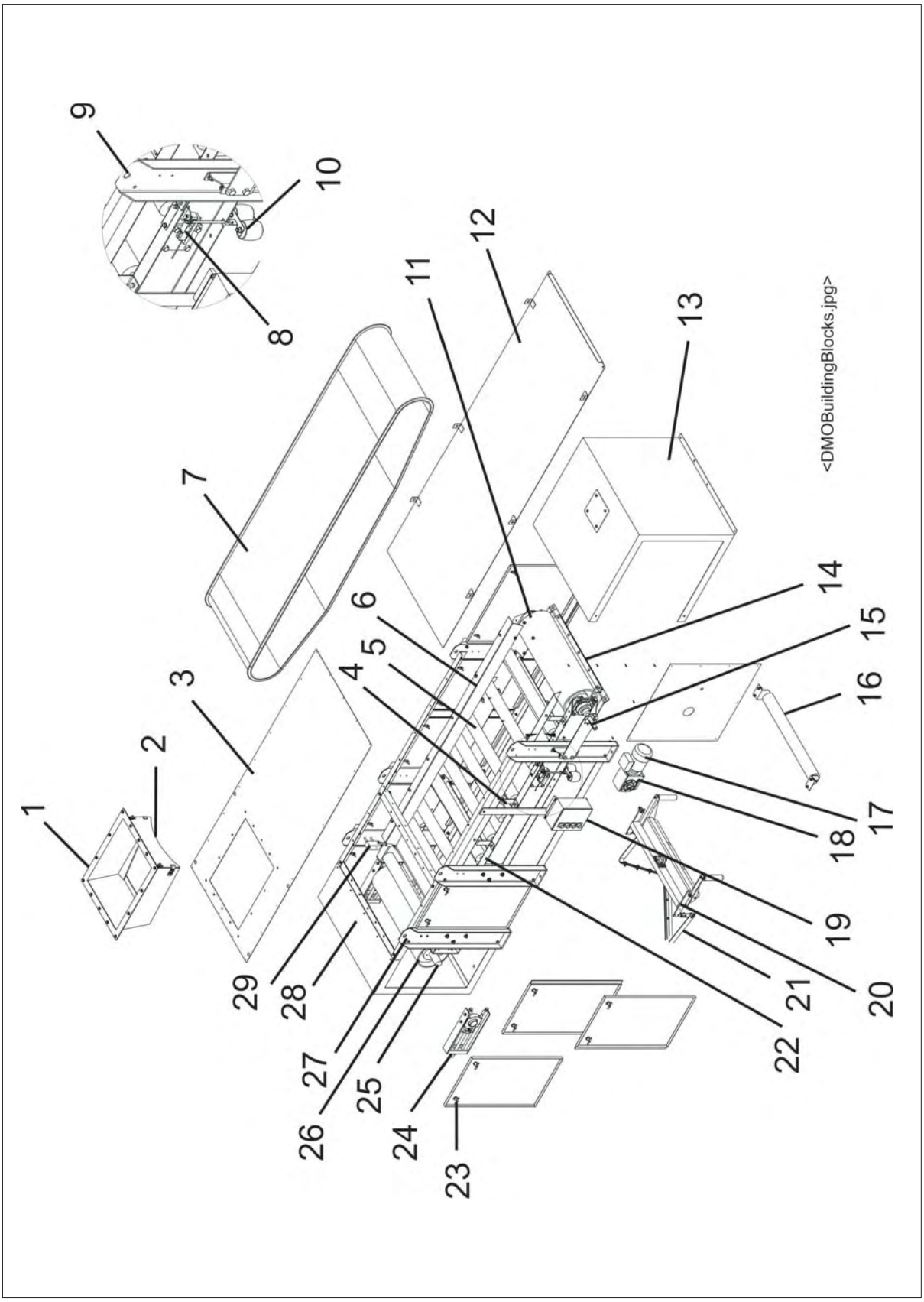

Figure 3: DMO Weighfeeder Building Blocks

Figure 3 call-outs:

1 Infeed
2 Shear Gate
3 Top Cover
4 Proximity Sensor
5 Carrier Idler
6 Skirtboard
7 Belt (1" Flange shown)
8 Compact Weigh Module Assembly
9 Lifting Point
10 Test Weights
11 Head Pulley and Shaft Assembly
12 Bottom Cover
13 Discharge End Cover
14 Head Pulley Scraper Assembly
15 Bearing
16 Return Idler Assembly
17 Motor
18 Gear Reducer
19 Local Control Station
20 Belt Tensioner and Tracking Assembly
21 Plow Scraper Assembly
22 Stringer
23 T-Handle
24 Take-Up Screw Assembly
25 Zero Speed Switch Kit
26 Tail Pulley and Shaft Assembly
27 Feeder Leg (with lifting point)
28 Infeed End Cover
29 Belt Tracking Switch Kit

(Optional equipment shown)

3. Mechanical Installation

3.1. Overview

Refer to Mechanical Drawings for mechanical installation drawings and associated information.

Your DMO weighfeeder comes ready to be mounted. No welding work is required.

Follow these steps:

- Unpack equipment and check for completeness
- Safe Handling and Transit
- Site Preparation
- Mount weighfeeder at installation site

3.2. Unpacking Instructions

Be careful during handling and storage of the weighfeeder to minimize the possibility of damage to the unit. If the equipment is to be stored for any length of time, provide a clean, dry storage area.

Each weighfeeder is custom built and quality is checked at the factory and in good condition when accepted by the carrier for shipment. Upon receipt of the equipment, remove items supplied from carton and check all items for content and/or damage. Any missing or damaged item(s) should be reported to the freight carrier immediately.

Dispose of packaging material in accordance with local regulations.

3.3. Safe Handling and Transit

WARNING: DMO should be emptied before moving.

To lift the DMO, hook the crane hooks onto four of the lifting points (see item 9, figure 3, page 11), making sure the DMO is evenly balanced.

NOTE: It is recommended that the DMO weighfeeder be moved using a crane with spreader beam.

3.4. Site Preparation

- Ensure that mounting base for the DMO is free from vibrations, e.g. caused by dynamic or service loads (e.g. rotary machine).
- **Admissible lowering** of site is ± 0.5 mm (e.g. caused by changing loads in building).
- **Admissible static feeder inclination** is ± **2 mm** over the entire machine length.
- Allow adequate clearance around weighfeeder for mounting and servicing. Refer to your installation drawings for recommended clearances.

NOTE: Allow access to side of weighfeeder (opposite side from gear motor) for changing out the belt.

3.5. Mounting Weighfeeder

For mounting dimensions, see installation drawing supplied with your order.

Before bolting the weighfeeder to the mounting base, ensure level accuracy (as determined, for example, by a carpenter's bubble level.).

Using appropriate hardware, bolt the weighfeeder to the mounting base. (Hardware not included.)

CAUTION: Welding on or near the weighfeeder will destroy the load cells and they will have to be replaced. If welding on the weighfeeder, connect ground as close to the weld as possible.

Once the weighfeeder is securely anchored and completely level, remove the red shipping plug from the gravity tension mechanism. See Figure 4. (Save the shipping plug for future use.) Replace the shipping bolt.

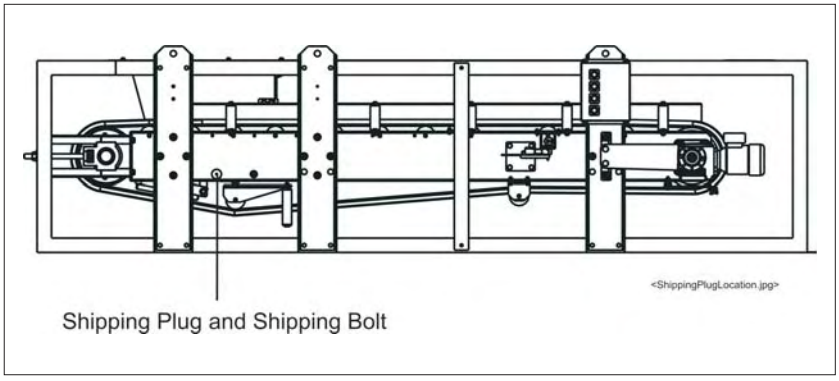

Figure 4: Shipping Plug Location

4. Electrical Installation

Refer to your Electrical Drawings for electrical schematics, lay-out drawings and additional information.

4.1. Connecting Electrical Equipment

Electrical wiring is performed in the electrical enclosure/electrical junction box.

The terminal enclosure is shop assembled with liquid tight conduit and mounted on the weighfeeder support leg. The load cells and speed sensors are pre-wired to a NEMA-4 terminal enclosure. (A NEMA-9 enclosure may be supplied as optional equipment.)

For specific information concerning connection of power to your feeder system, refer to **your Electrical Drawings** in the system binder.

4.2. Basic Electrical Information

Sound earth grounding techniques should be employed to ensure system safety and functionality:

- All power supplies terminated in the electrical enclosure/electrical junction box must originate from a common ground bus.
- The ground cables to the feeder and separate control enclosure(s) must originate from a common ground bus.
- Ground cables must be equal to (in gauge) or larger than the corresponding current-carrying conductors.
- Attach all control cable shields according to instructions in the appropriate system manual.

Quality of power entering the system is an important consideration and should be employed to ensure system safety and functionality:

- UPS (uninterruptible power source) is recommended for power systems that experience frequent interruptions and/or periodic voltage fluctuations.
- A lightning arrester is recommended for power systems that experience frequent voltage surges due to lightning or large inductive loads.

A line reactor is recommended for power systems that experience frequent voltage spikes.

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5. Commissioning

5.1. Prerequisites

Before commissioning system, check to see that

- steps of “Mechanical Installation ” have been followed correctly
- steps of “Electrical Installation” have been followed correctly
- DMO weighfeeder control has been configured for the application. Configure control system as described in your Control Manuals, based on the controls configured with your unit, and Technical Data (design sheet) given in your documentation binder.
- user control of material inlet and outlet is designed such that material overflow is ruled out.

5.2. Overview

For commissioning, follow these steps:

1. Check all electrical connections on the device to the electrical wiring diagram(s) that have been supplied for this specific application. Ensure that all connections are as depicted and are secure.
2. Rotate the motor shaft by hand to ensure that the belt is free to travel without binding or obstructions.
3. Apply power to the controller only and set parameters per the calibration section of the controller manual.
4. Start the unit in Manual/Volumetric Mode at 80-100% speed. Ensure correct belt direction travel and tracking. Refer to the belt tracking section of this manual. (See Section 7.3.)
5. Set Material Bed Depth. (See Section 5.3.)
6. Calibrate the weighfeeder by performing tare and span calibrations per the appropriate sections in the controller manual.

NOTE: Prior to performing a tare check, run the belt for a minimum of fifteen minutes to ensure that it is limber and tracking properly.

5.3. Setting Material Bed Depth

Use shear gate to set material bed depth and bed depth cross-section.

NOTE: Depending upon your application, the system may be equipped with a shear gate. (No shear gate is required, if prefeeder is directly controlled by the weighfeeder.)

5.3.1. Bed Depth Setting Requirements

NOTE: Bed depth should be set per design sheet.

Upon commissioning, bed depth cross-section has to be optimized with the aim to

- come as near as possible to load cell rated capacity (see order-specific Spec Sheet).
- set bed depth cross-section as optimally as possible, however, never too high.
- Bed depth cross-section:
  a Too low
  b Optimal
  c Too high

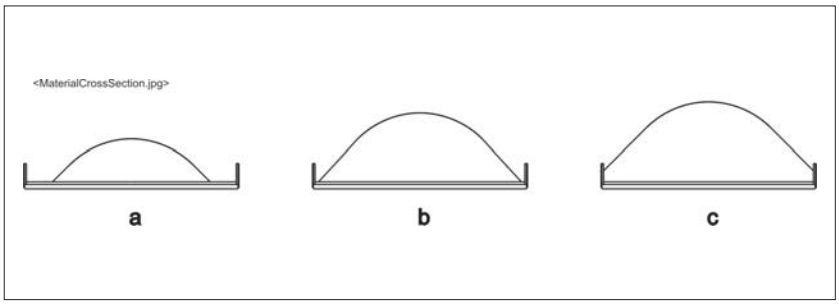

Figure 5: Material Cross-Section

5.3.2. Optimization Steps

- Set shear gate to lowermost position. Load belt with material above the load cell area in local mode.
- If relative belt load is not reached yet and bed depth cross-section is still too small, move shear gate upward and check again.

If none of the two objectives is reached, repeat last step until one of the two prerequisites is given.

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6. Control

6.1. Normal Mode

For specific control options, please refer to the controller section in your documentation binder.

In normal mode, the DMO weighfeeder is controlled via external control panel, or weighing electronics.

For operation outside of normal mode, “Local Mode” is available which enables feeder to be controlled from control panel or local control box.

6.2. Initial Filling / Refilling After Clearance

WARNING: Upon initial filling, or refilling, after complete discharge, the drop height of the material **can damage** the conveyor belt and idlers.

Always take appropriate measures to protect the conveyor belt and idlers from damage.

Install, for instance:

– a gate between the DMO feed hopper and bin/silo, or
– a deflection chute carefully deflecting the material onto the DMO conveyor belt.

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7. Servicing

DANGER:
Before performing any service work, particularly before removing guards, disconnect all electrical connections of your DMO weighfeeder from power supply.

Ensure that machine is protected from inadvertent restart during servicing. Running weighfeeder has the potential to cause severe injury or death.

Have the following service work performed by skilled workmen only.

- Aligning weigh idlers
- Changing belt
- Belt tensioning and tracking
- Replacing load cells

7.1. Aligning Weigh Idlers

The SCHENCK Model DMO Weighfeeder weigh idler has been factory aligned and should not require adjustment during initial set-up. However, an alignment check should be performed periodically as part of a preventative maintenance program.

DANGER: Shut-off and lock out power to the DMO before performing any maintenance procedures. If this lock out procedure is not performed, equipment damage and/or personal injury, including death, could result.

Idler Alignment Procedure:

1. Place a straight edge across the weigh idler and its adjacent fixed idlers.
2. By line of sight, check to see that the weigh idler is in line with and slightly above (1.5 mm) the adjacent fixed idlers.

NOTE: Improper idler alignment will affect accuracies, resulting in costly error. The purpose of proper idler alignment is to achieve a straight, belt-line across the scale area. *The scale area is defined as the two adjacent fixed idlers on each side of the weigh idler.*

3. If the weigh idler is not in alignment, adjust the cam on the compact weigh module assembly (by load cell) and realign the idler.
4. Once alignment is complete, use straight edge method to check alignment. If alignment changed, repeat from step 1.
5. Check the belt tracking. Adjust the belt tracking mechanism per the procedure in this manual, if required (Section 7.3.).

6. Once idler alignment and belt tracking are acceptable, perform a tare calibration on the unit. Refer to the calibration section of the controller manual (Section 5.).

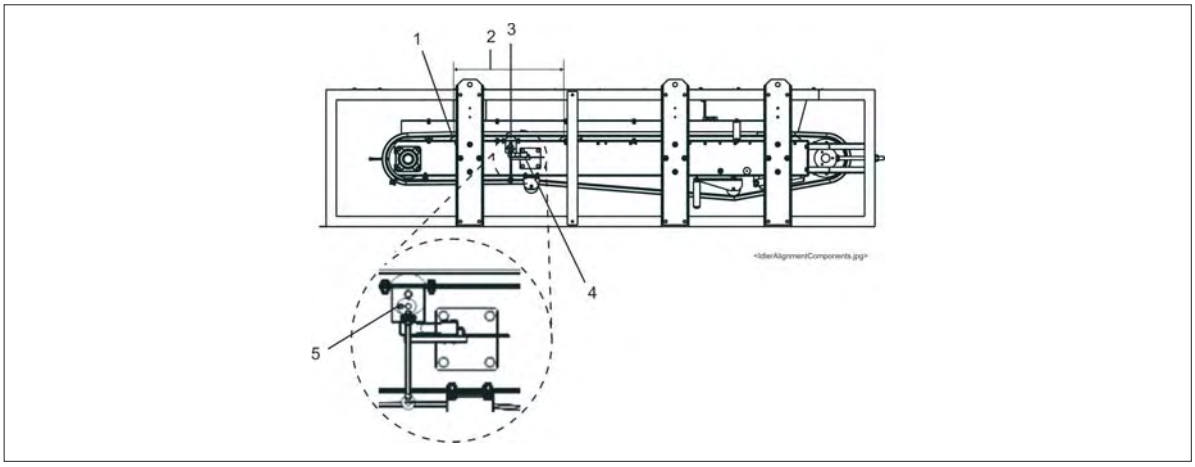

Figure 8: Idler Alignment Components

Figure 8 call-outs:
1 Fixed idler
2 Scale area
3 Weigh idler
4 Compact weigh module assembly
5 Cam

7.2. Changing Belt

The cantilever design of the SCHENCK Model DMO Weighfeeder eases the replacement of the endless belt.

DANGER: Shut-off and lock out power to the DMO before performing any maintenance procedures. If this lock out procedure is not performed, equipment damage and/or personal injury, including death, could result.

Changing Belt Procedure:
1. Remove side access panels (removal of covers is optional).

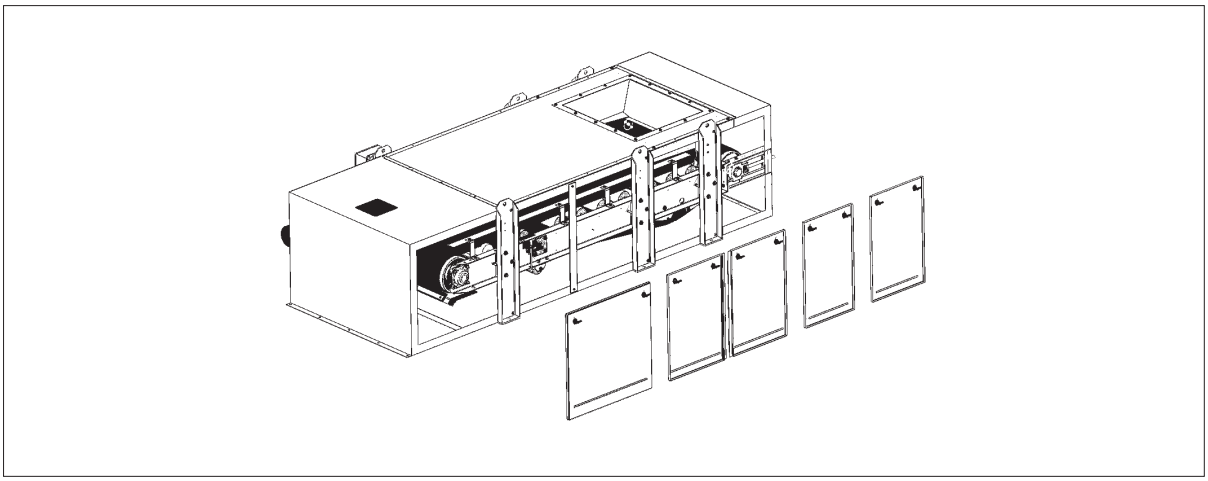

Figure 9: DMO with Side Access Panels Removed

NOTE: The access side is opposite the conveyor drive.

2. Remove tension from both load cells by adjusting the cam on the compact weigh module assemblies to lower the weigh idler.

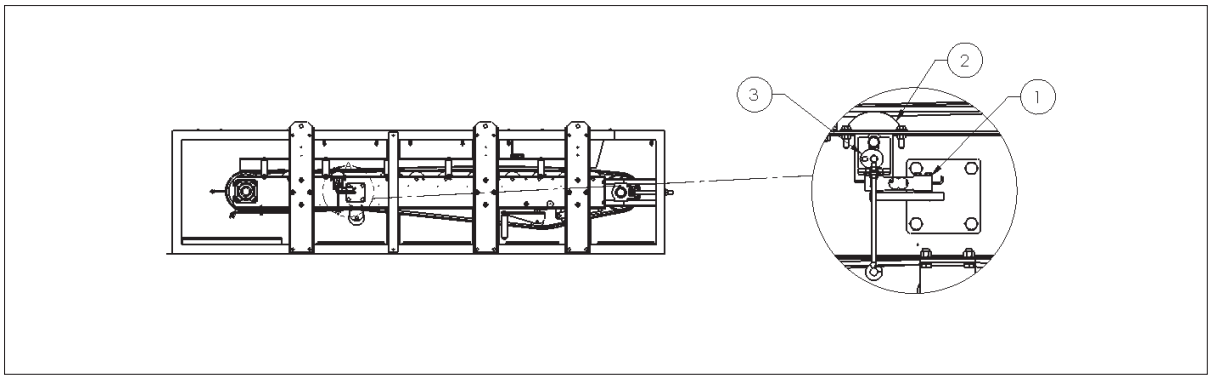

Figure 10: Removing Tension from Load Cells

Figure 10 call-outs:
1 Load cell
2 Carrier idler
3 Cam

CAUTION: Failure to remove tension from both load cells may result in damage to the cells, which would then have to be replaced.

3. Lock the gravity take-up roller by replacing the shipping bolt stop.

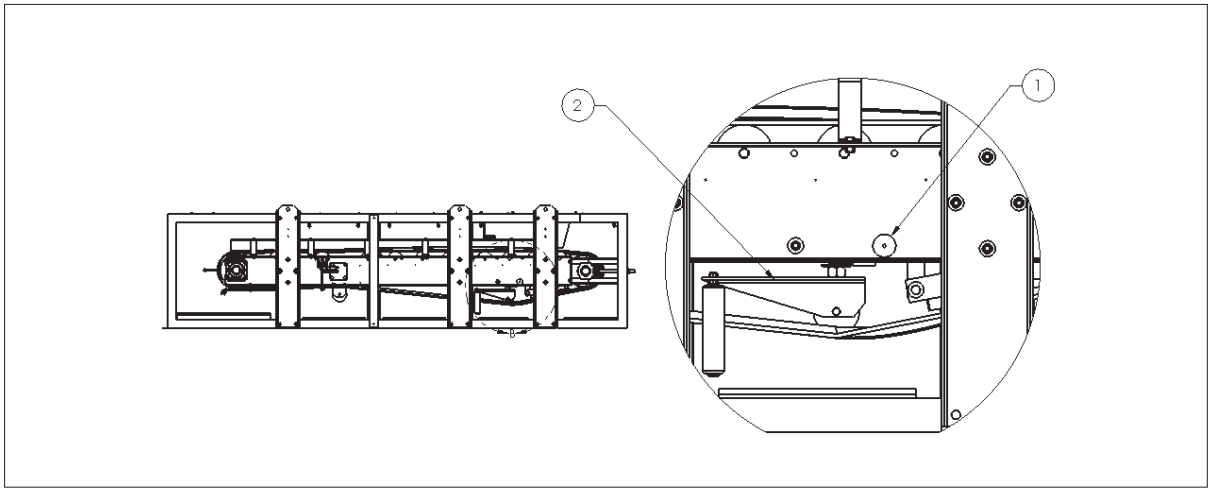

Figure 11: Locking Gravity Take-Up Roller

Figure 11 call-outs:
1 Shipping bolt stop
2 Gravity take-up

4. Remove belt tension by loosening both take-up screws and pushing the tail pulley into the stringer frame.

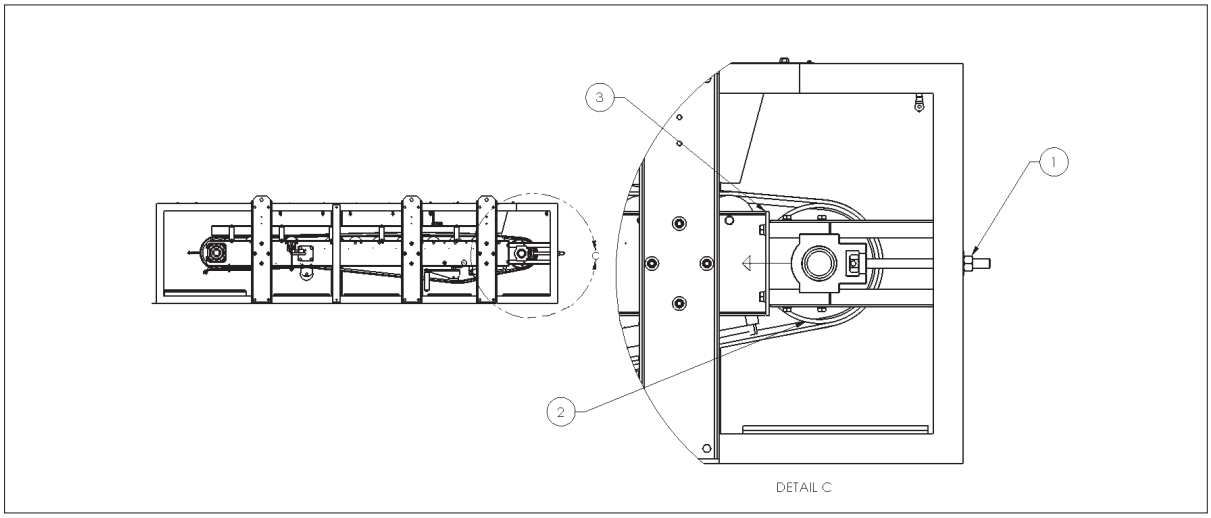

Figure 13: Removing Belt Tension

Figure 13 call-outs:
1 Take-up screw
2 Stringer frame
3 Tail pulley

5. Remove the take-up screw from the bearing on the access side (non-drive side) of the conveyor.

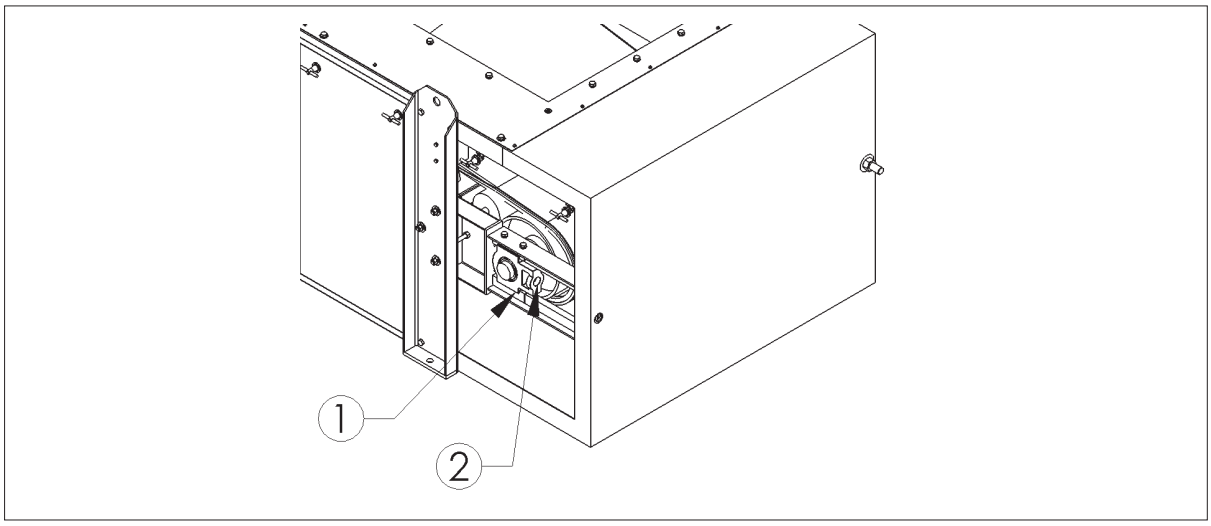

Figure 12: Removing Take-Up Screw

Figure 12 call-outs:
1 Take-up bearing
2 Take-up screw location

6. Remove the take-up bracket bolts and remove the take-up brackets on the access side of the conveyor.

WARNING: Do not remove take-up slides or take-up slide bolts.

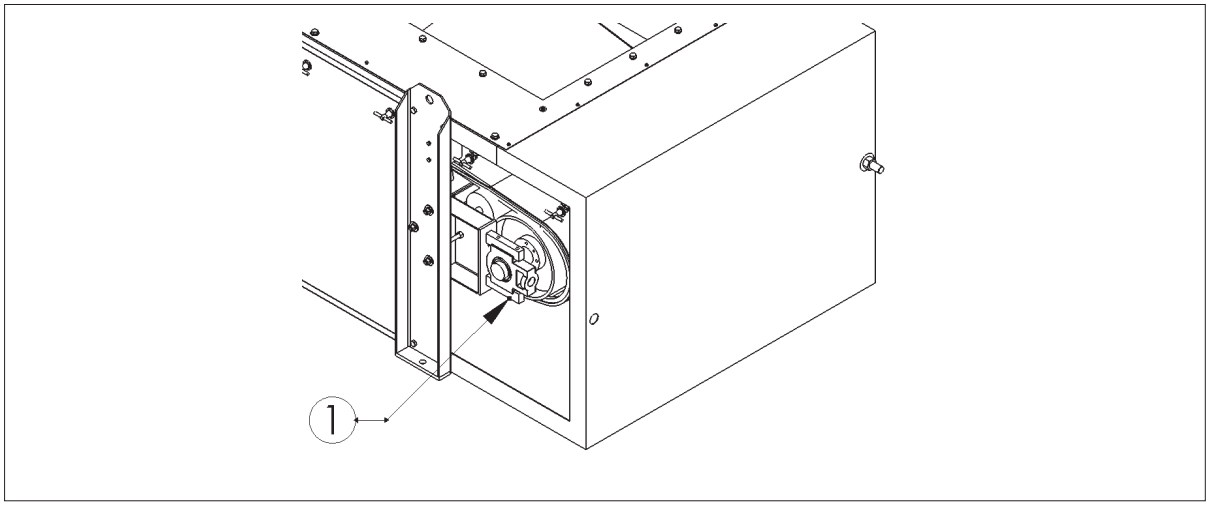

Figure 14: Removing Take-Up Brackets

Figure 14 call-outs:
1 Take-up slide

7. Remove the return idler(s) if present.

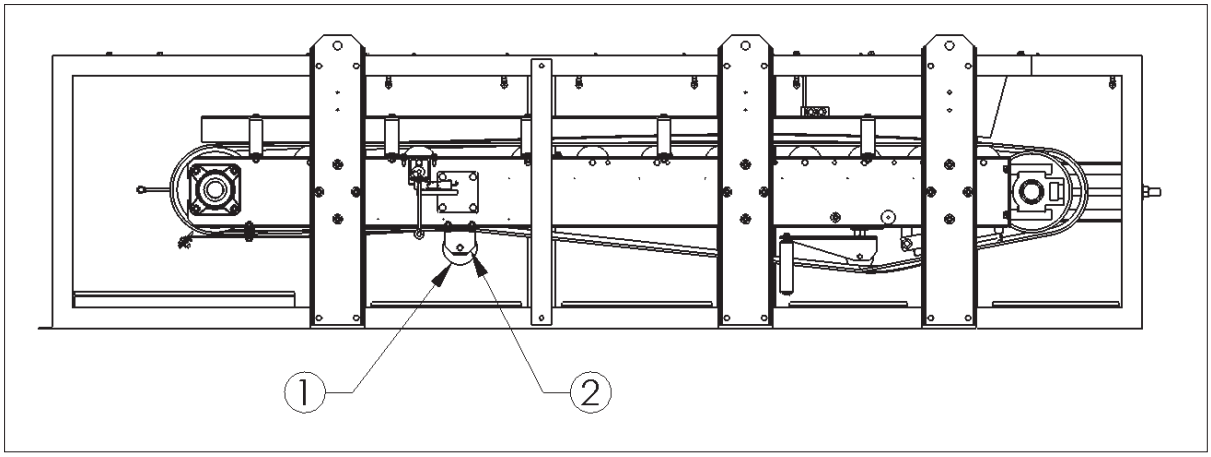

Figure 15: Removing Return Idlers

Figure 15 call-outs:
1 Return idler
2 Return idler bracket

8. Remove the head pulley scraper (plow scraper) and, if present, tie up the return belt scraper to the stringer. (Scrapers are optional.)

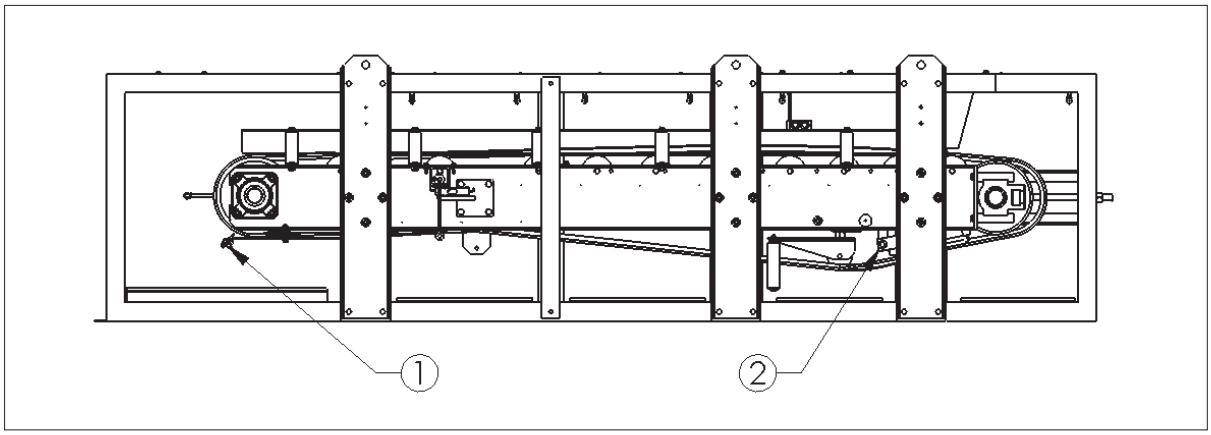

Figure 16: Removing Head Pulley Scraper

Figure 16 call-outs:
1 Head pulley scraper
2 Return belt scraper

9. Remove the skirtboard, guide roller, and overlap support on the access side. If a flanged belt is being replaced, both skirtboards must be removed.

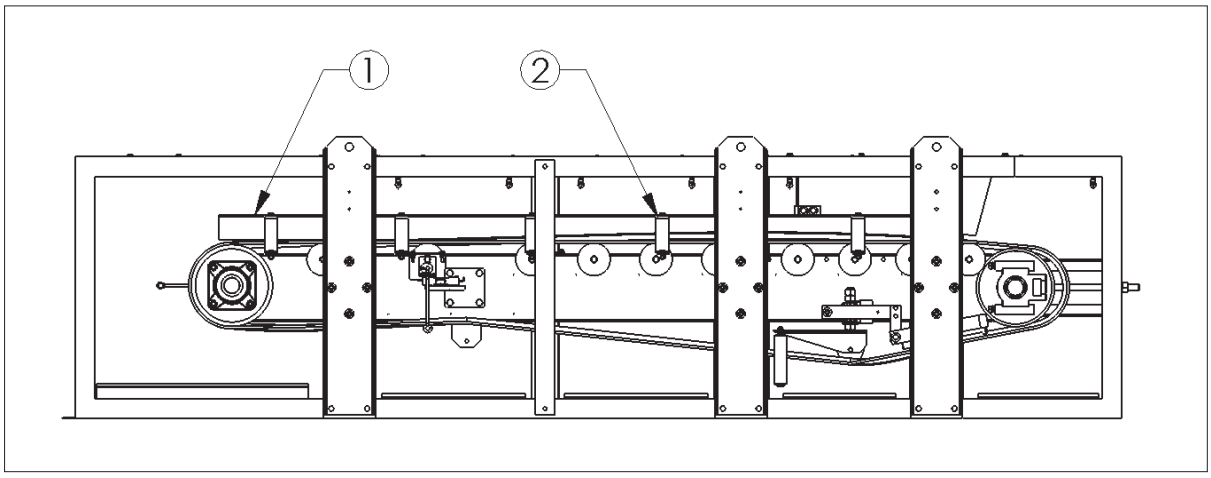

Figure 17: Removing the Skirtboard

Figure 17 call-outs:
1 Skirtboard
2 Skirtboard bracket

10. For machines supplied with flanged belts, remove the top cover (if supplied) and lift or block up the infeed to approximately four (4) inches.

11. Secure and brace the vertical legs on the drive side of the feeder. Provide overhead support of the frame angle mounted between the vertical support legs on the access side.

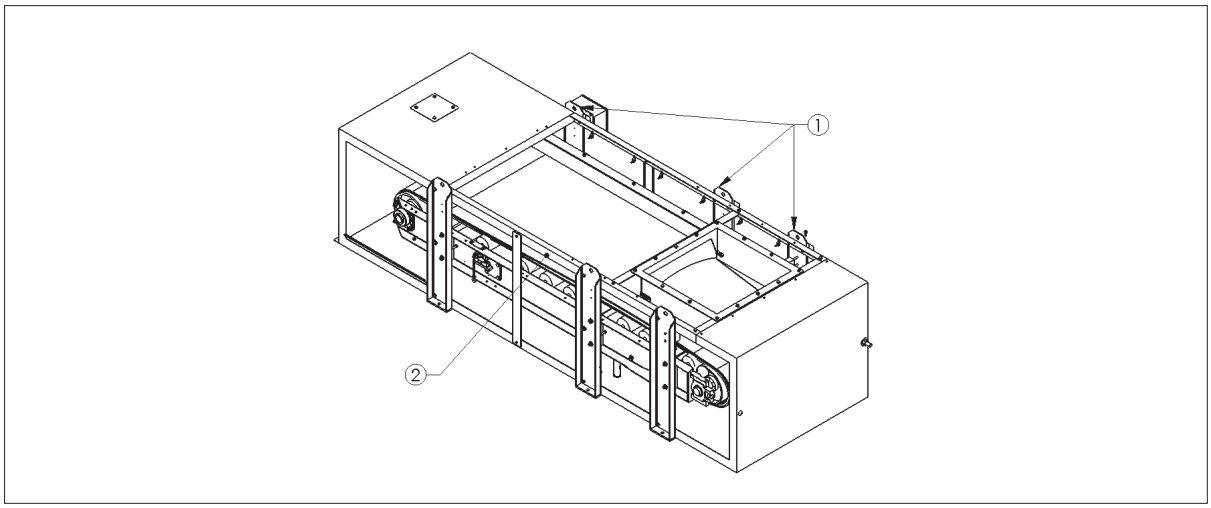

Figure 18: Securing and Bracing DMO

Figure 18 call-outs:
1 Vertical support legs on drive side
2 Frame angle

12. Remove the vertical support legs on the access side.

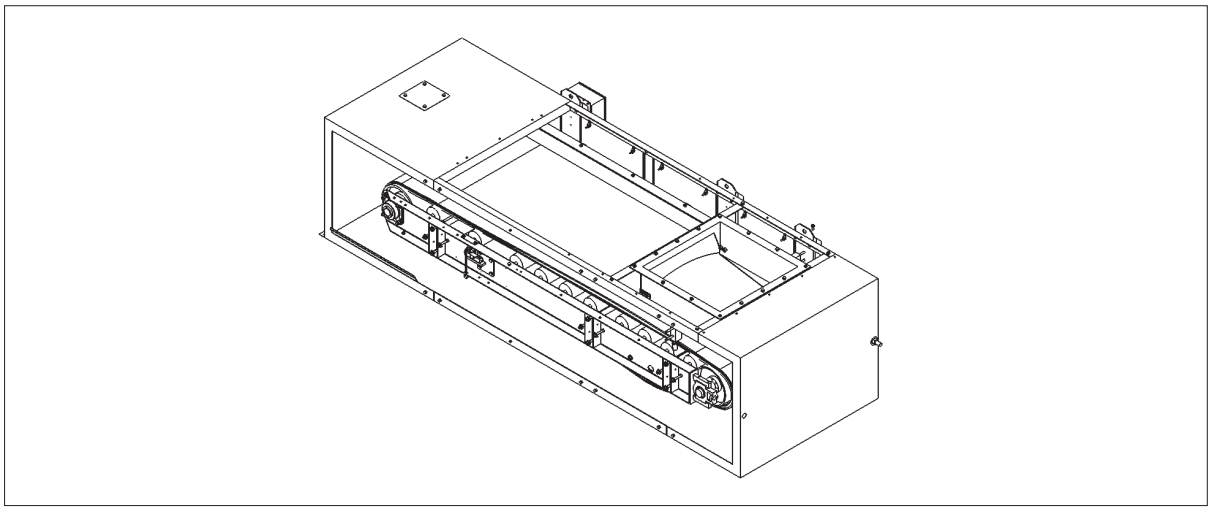

Figure 19: Removing Vertical Support Legs

13. Remove and replace the feeder belt.

NOTE: The belt must be installed so that the metal triangle on the belt will pass over the belt sensor (if present). Position of metal triangle is marked on the belt and a magnet may be used to verify the metal triangle location.

When belt replacement is complete and the unit is re-assembled, the weighfeeder must be run to check belt tracking. In addition, re-calibration must be performed before putting the unit back into operation. Refer to the belt tracking (section 7.3) and calibration (section 5.) procedures in both this manual and the controller manual.

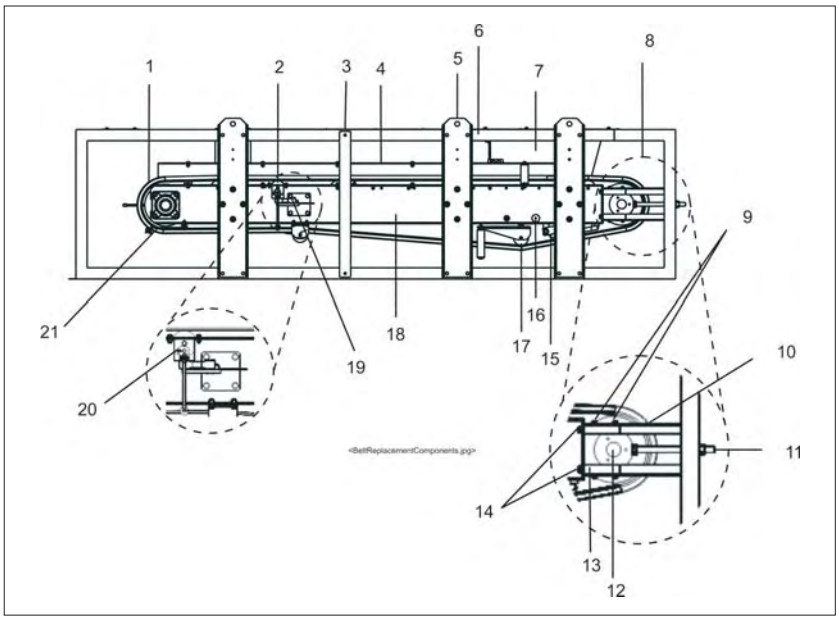

Figure 20: Belt Replacement Components

Figure 20 call-outs:

1 Flanged belt
2 Weigh idler
3 Overlap support bar
4 Skirtboard
5 Vertical leg(s)
6 Frame angle
7 Infeed
8 Take-up assembly
9 Take-up bracket bolts
10 Take-up bracket(s)
11 Take-up screw
12 Tail pulley
13 Take-up slide
14 Take-up slide bolts (Do not remove)
15 Return belt scraper (optional)
16 Shipping bolt stop location
17 Belt tracking assembly
18 Stringer frame
19 Compact weigh module assembly
20 Cam
21 Head pulley scraper (plow scraper)

7.3. Belt Tensioning and Tracking

The SCHENCK Model DMO Weighfeeder is equipped with an automatic belt tracking assembly. If belt drift occurs under any conditions, an adjustment to the tail pulley will be necessary.

DANGER: Shut-off and lock out power to the DMO before performing any maintenance procedures. If this lock out procedure is not performed, equipment damage and/or personal injury, including death, could result.

Belt Tensioning and Tracking/Tail Pulley Adjustment Procedure:

1. Locate the take-up screws to adjust belt tension.
2. By loosening or tightening the take-up screws, center the shipping bolt in the belt tracking assembly within the sight hole(s) on each side of the feeder.
3. Adjust the tail pulley take-up by first tightening the take-up screw on the side the belt is tracking toward. Alternately loosen one side of the belt and tighten the other side to proper belt tracking.

NOTE: Adjustments to the tail pulley take-ups should be made by one-quarter turn increments or less. The shipping bolts on the tracking assembly should always be centrally located on the sight holes.

4. After desired tension is achieved, start the weighfeeder and observe belt movement for 10-15 minutes.

NOTE: The SCHENCK Model DMO Weighfeeder is supplied with belt tracking switches as a standard feature. These switches may be wired to a device alarm system(s) or to the unit controller.

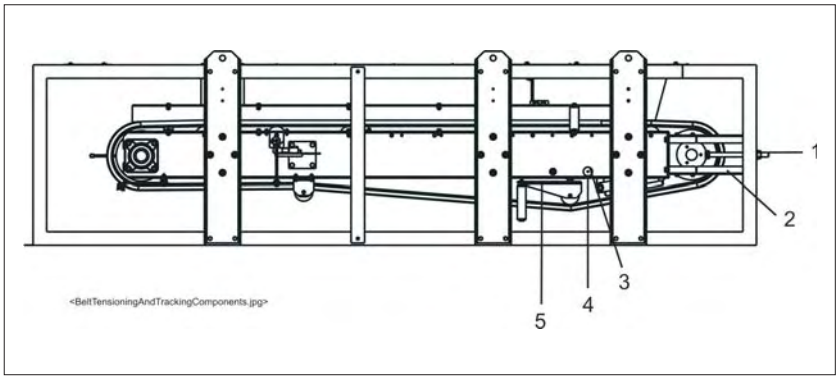

Figure 21: Belt Tensioning and Tracking Components

Figure 21 call-outs:

1 Take-up screw
2 Tail pulley take-up
3 Sight holes
4 Shipping bolt
5 Belt tracking assembly

7.4. Replacing Load Cells

The SCHENCK Model DMO Weighfeeder is equipped with compact weigh module assemblies containing load cells. If a load cell becomes damaged, it will be necessary to replace it.

DANGER: Shut-off and lock out power to the DMO before performing any maintenance procedures. If this lock out procedure is not performed, equipment damage and/or personal injury, including death, could result.

Load Cell Replacement Procedure:

1. Remove material from belt area directly above weigh idler and adjacent idlers.
2. Remove side panels to access compact weight module assembly.
3. Locate and loosen the take-up screws to adjust belt tension to allow enough slack in the belt to remove weigh idler.
4. Disconnect load cell wiring and pull wiring back to load cell.
5. Remove tension from load cell by removing weigh idler.
6. Remove idler support bracket by removing the two Allen head bolts.
7. Remove the load cell by removing the two Hex cap screws.
8. Using the two Hex cap screws, mount the new load cell with cable to the stationary side of the load cell weldment bracket. Ensure arrow is pointing down. Refer to drawing S301565 for torque specs.
9. Re-install idler support bracket with the two Allen head bolts. Refer to drawing S301565 for torque specs.
10. With all hardware tightened down, re-install weigh idler onto the weigh section. Refer to section 7.2 for weigh idler alignment.
11. Adjust belt tensioning and tracking. Refer to section 7.3.
12. Re-connect load cell wiring.
13. Replace side panels.
14. The belt must now be tared and calibrated to ensure proper belt operation and measurement.

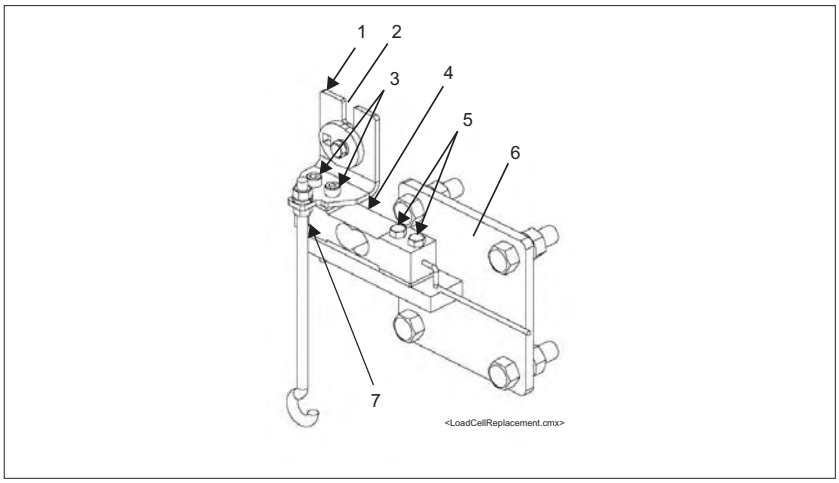

Figure 22: Compact Weigh Module Assembly Components

Figure 22 call-outs:

1 Idler support bracket
2 Idler mounting location
3 Allen head bolts on idler support bracket
4 Load cell
5 Hex cap screws on load cell
6 Stationary side of load cell weldment bracket
7 Down pointing arrow location

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8. Inspection

DANGER:

- If repair work requires guards to be dismounted, disconnect all electrical connections to the DMO weighfeeder from power supply and protect machine from inadvertent restart while repair work is being performed.

- NEVER climb on machine to perform cleaning work. The machine has the potential to cause severe injury or death.

Perform visual checks on feeder in regular intervals.

– **Visual Check**

Component	**Interval (Suggested)**	**Interval (Specified by user in accordance with operating conditions)**
Pulleys Check for proper support and rotation.	Weekly	
Weighing section Check for grime, particularly for material build-ups between weighing section and frame.	Weekly	
Conveyor belt Check to see that pre-tension and alignment are within tolerance. For judgment and instructions to correct belt, see Section 7.4.7.3.	Weekly	

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9. Maintenance

9.1. Cleaning

If cleaning DMO with steam or pressurized water, then protect the weighfeeder from damage.

Do not expose parts below to direct jet:
– Idler faces
– Compact weighing module
– Gearbox shaft seals
– Head and tail pulley bearings.

9.1.1. Cleaning and Maintenance Schedule

Component	**Interval (Suggested)**	**Interval (Specified by user in accordance with operating conditions)**
Motor Clean cooling ribs.	Monthly (400 operating hours)	
Conveyor belt Check for proper pre-tension.	Weekly	
Gear box Change oil.	See gear box technical documentation.	
	Under **normal** conditions, bearings are lubricated for life. Under **extreme** conditions, e.g. - Operating temperatures over 100° - Water jets - Heavy grime - Extreme humidity, failure in operation Ensure sufficient grease fill to protect bearings from damage. Upon re-lubrication, grease slowly to protect seals from damage. Interval: Weekly For lubricant data, see page 34.	

9.2. Lubricating Instructions

Component	Lubrications	Quantity	Interval	Comments
SEW Gearbox	ISO VG220	Refer to SEW Manual	10,000 hours or 2 years	Fill to 1/2" below vent plug
NORD Worm Gearbox	ISO VG680	Refer to NORD Manual	10,000 hours or 2 years	Fill to 1/2" below vent plug
NORD Helical Gearbox	ISO VG220	Refer to NORD Manual	10,000 hours or 2 years	Fill to 1/2" below vent plug
Other Gearbox	Consult factory			
Dodge Bearings for Shafts (Head and tail pulley bearings)	No 2. Lithium complex base grease			
Motor	Lubricated for life			Maintenance free
Carrying Idler	Lubricated for life			Maintenance free

10. Troubleshooting

Fault	Possible Cause	Remedy
Belt load too high	Bed depth too high	Reduce bed depth. See Section 5.3.
Nominal feed rate not reached	Bed depth too low	Increase bed depth. See Section 5.3.
	Material discharge problem	Check discharge unit if any, or check silo outlet for build-up, or material lumps.
	Belt slip	Check and correct belt tension. See Section 7.4.7.3.
Belt speed deviates from set speed	Belt slip	Check and correct belt tension. See Section 7.4.7.3.
Belt runs off-center	Uneven belt tension	Check and correct belt tension. See Section 7.4.7.3.
	Dirty head/tail pulley	Clean scraper and check for proper functioning.
	Belt tensioning and tracking station misaligned	Check alignment to belt and sensor roller angles. See Section 7.5.7.4.
Feed error too big	Uneven material discharge from silo	Check discharge unit if any, and/or material flow in silo.
	Carrying idlers in weigh span misaligned	Check carrying idler alignment. See Section 7.2.7.1.
	Load cell(s) defective	Check zero point and linearity. If need be, replace load cell(s). See Section 7.6., 7.5.7.4.

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11. Data

Always observe the order-specific technical data!

11.1. Technical Data

Sound / Noise:
The user is bound to take the necessary precautions.

Sound emission:
70 dB(A) in no-load run
up to 85 dB(A) in operation; with certain materials also higher

11.1.1. DMO Technical Data

Belt widths [inches]: 24", 30", 36", 42", 48", 54", and 60", unless otherwise specified.

Pulley center spacings [feet/inches]: 7’ 8", 10’ 2", 12’ 8", 15’ 2", 17’ 8", and 20’ 2", unless otherwise specified.

Pulley diameter: 12", unless otherwise specified.

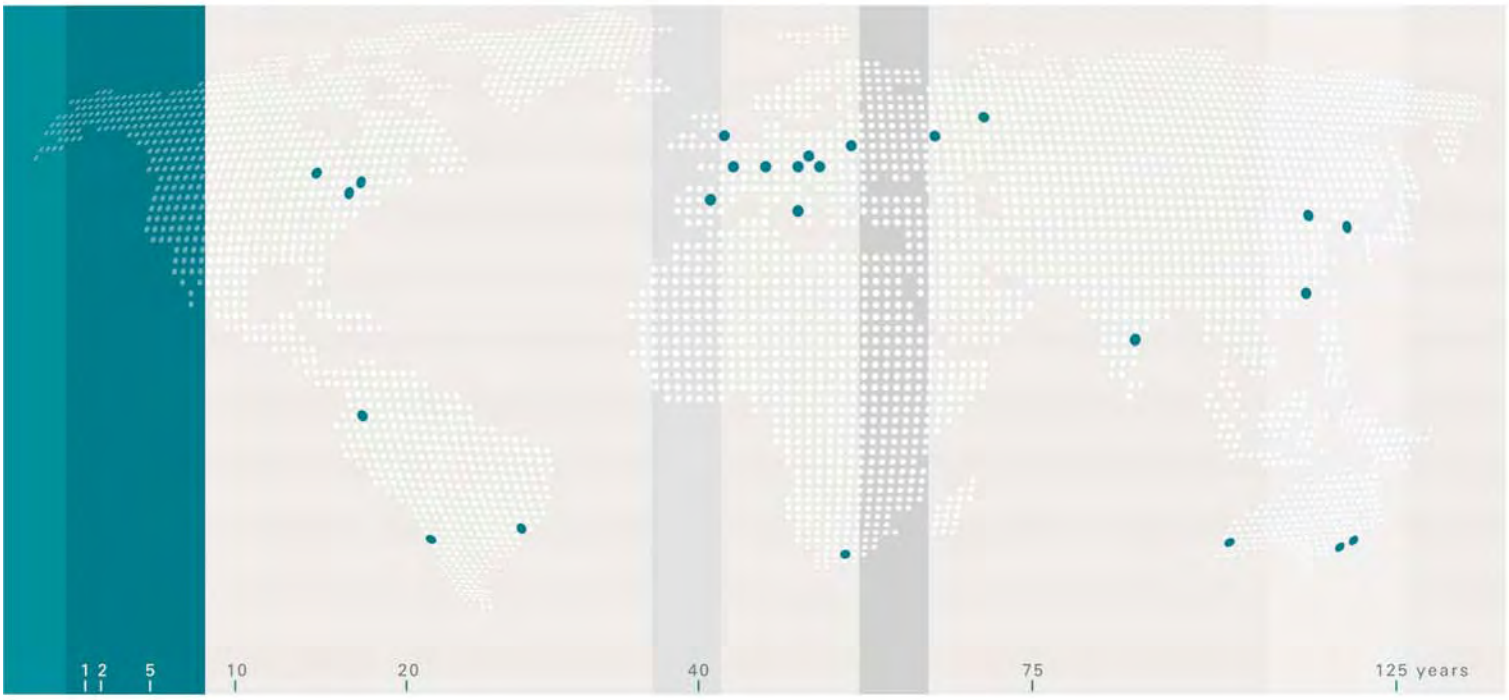
schenck process

weighing

feeding

screening

automation



Schenck Process is the global market leader of solutions in screening and process technologies in industrial weighing, feeding, screening and automation.

Schenck Process develops, manufactures, assembles, markets and sells a full range of solutions, products and turnkey systems on the basis of combining process engineering expertise, reliable components and field-proven technology.

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E-Mail: sales@sarinc.com

we make processes work

WEIGH FEEDER DESIGN SHEET

12/10/2010

CUSTOMER:	Stock Equipment				SERIAL #:	146510-02A-DMO			
PO#:	A10262				ORDER#:	146510			
END USER:	CLEARFUELS TECHNOLOGY INC				DWG#:				
MATERIAL:	wood chips and plant stalks			Material Size:	3		INCLINATION	0	degrees
DENSITY min:	8.0	pcf			RATE	6000	lbs/hr;	2722	kg/hr
max:	20.0	pcf				3.00	STPH	2.72	MTPH
INFEED WIDTH :		22.00	in						
MATERIAL DEPTH:		7.43	in		18.9	cm			
BELT SPEED:		0.1836	ft/s		0.05597	m/s			
BELT CIRCUIT:		128.73	sec						
BELT LOAD:		9.08	lb/ft		13.51	kg/m			
WEIGH LENGTH:		20.00	in		0.51	m			
LIVE LOAD:		15.13	lb		6.86	kg			
DEAD LOAD:		41.00	lb		18.60	kg			
TOTAL LOAD:		56.13	lb		25.47	kg			
LOADCELL SIZE:	2x	66.15	lb	2x	30	kg			
LOADCELL RATED OUTPUT:			2	mV/V					
LIVE LOAD SIGNAL:			2.71	mV	(BASED ON 10 V Excitation)				
PULSES PER FOOT:		9258.16	pulses/ft		218834	pulses/rev		60	teeth
CALLIBRATION WEIGHT (each) :			8	lb	x 2 Sets				
CORRESPONDING LOAD:			105.77	% OF LIVE LOAD					
BELT LENGTH:		283.64	in		7.20	m		23.64	ft
BELT WIDTH:		36	in						
FLANGE:		0	in						
MOTOR SPEED:			1700	rpm					
MOTOR SPECIFICATIONS:			0.5	AC					
GEAR REDUCER RATIO:			520.00	to	1				
GEAR REDUCER MODEL:			SK	Non-Std CPE $$					
ADDITIONAL INFORMATION									
PULLEY CENTERS:		122.00	in						

Created by: J. Goehl

Revision: 0