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1210 SCORPION[®] TRANSLOADER

INSTALLATION, OPERATIONS, AND
MAINTENANCE MANUAL







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GENERAL INFORMATION

SAFETY RECOMMENDATIONS












Safety informational symbols used in this manual include:










	<p>DANGER indicates a hazardous situation that, if not avoided, <u>will</u> result in death or severe injury.</p>
	<p>WARNING indicates a hazardous situation that, if not avoided, <u>could</u> result in death or severe injury.</p>
	<p>CAUTION, used with the safety alert symbol, indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.</p>
	<p>Notice is used to address practices not related to personal injury.</p>

Safety for operators and other personnel is of prime concern. Always take the necessary precautions to ensure the safety of others and yourself. The first line of defense, in any safety situation, is the common sense and safety awareness of the individuals performing the work. You must allow access to the equipment only to **experienced** and **safety-trained** employees with good safety records. These would be employees who have demonstrated that they will consistently follow safety procedures. All equipment must be operated with care and concern by the operator. The operators and maintenance personnel must know the machine's performance capabilities and handling characteristics and be qualified to perform the work on-site.

It is a common practice, and we agree that it is a necessary and good practice for owners and users of equipment to develop specific, written safety procedures particular to the environment and equipment to which personnel will be exposed. This manual may not cover all the safety-related contingencies at your site. Owners and operators should carefully construct and enforce a safety program that fits their specific conditions.

The recommendations on the following page are offered as a general safety guide. Local rules and regulations will also apply.

1.  **WARNING** Read all warning tag information and become familiar with all controls before operating the equipment.
2.  **WARNING** Only qualified, authorized, and trained personnel may operate and maintain the equipment.
3.  **WARNING** Always use safety protective equipment and clothing such as safety glasses, safety shoes, hard hats, safety harness, etc.
4.  **WARNING** Always use proper lock-out and other safety procedures before attempting to clean, oil, or perform any maintenance on the equipment. Likewise, DO NOT begin without following proper lock-out and safety procedures.
5.  **WARNING** Take appropriate precautions to protect personnel from falling objects.
6.  **WARNING** Never stand or walk under the discharge end of the conveyor.
7.  **WARNING** Always use proper lock-out/safety procedures before retrieving or placing anything on a conveyor belt.
8.  **WARNING** Never reach into or place any objects into the flow of material as it enters or discharges from the conveyor.
9.  **WARNING** Never touch, reach into, or over a moving conveyor belt.
10.  **WARNING** Keep all loose clothing, hands, body parts, and hair away from moving equipment, rotating shafts, belts, chains, etc.
11.  **WARNING** Take appropriate precautions to ensure that hands, legs, or other body parts do not contact the conveyor belt, drive belt, drive chain, etc.
12.  **WARNING** Local safety, health laws and regulations may require that entry into confined spaces be governed by regulations related to limited access / confined space(s). Always use proper safety procedures before entering a limited access / confined space and performing maintenance.

13.  **WARNING** Access the equipment using only **approved** methods such as walkways, stairs, ladders, etc... each with its associated proper personal safety gear, harness, lanyard, etc.
14.  **WARNING** Never use the conveyor or its housing as a walking or climbing surface.
15.  **WARNING** Wear fall protection when accessing or working on the conveyor from any approved working surface or, in general, when working at 4 feet or more above the ground.
16.  **WARNING** Modifications to the conveyor or its supporting structure may affect the equipment's structural integrity. Therefore, contact Cambelt International before any changes are made.
17.  **WARNING** Make sure all guards and covers are correctly in place before operating equipment.
18.  **WARNING** Never operate the equipment with any damaged or missing components, covers, guards, shields, fasteners, etc.
19.  **WARNING** Corrosion or excessive wear will compromise the structural integrity of the equipment. Therefore, make sure that the coating system and structural components are maintained.
20.  **WARNING** **Wash down of equipment:** Appropriate precautions must be taken to ensure the compatibility of any liquids or chemicals used for cleaning with any other materials in the vicinity.
21.  **WARNING** **Fire Hazard:** The following can generate excessive heat or may become an ignition source of dust or other combustible materials.
1. Slipping V-Belts
 2. Damaged Bearings
 3. Chemical reactions
 4. Static Electricity

TYPICAL EQUIPMENT SAFETY LABELS



WELCOME TO CAMBELT

We at Cambelt International LLC (Cambelt) are pleased that you have selected the Scorpion® 1210 Transloader to fill your bulk materials handling need. This manual will assist you in making the best possible use of your equipment and fully understanding its operation. If you have any questions concerning our equipment's installation, process, or maintenance, don't hesitate to contact Cambelt directly or the Cambelt Representative in your area.

All who will be responsible for installing, operating, and maintaining the Scorpion® 1210 Transloader must *read these instructions carefully before handling this equipment*. It is imperative that only **experienced and capable** persons who have **safety training** be responsible for installing, operating, and maintaining the Scorpion® 1210 Transloader. In addition, this equipment requires regular inspections and adjustments (if necessary) to keep the conveyor in top working condition.

This manual covers the standard style Scorpion® 1210 Transloader. However, it may not cover all custom-designed details, modifications, or options.

While each Transloader is similar in design and operation, each job site has its unique environment and other specific application issues that this manual may not cover. Your process, maintenance, and safety personnel must address any site-specific requirements/procedures about your installation. We at Cambelt recommend that the owners and users of the Cambelt equipment develop specific written safety procedures particular to the environment and equipment to which personnel will be exposed. You should carefully construct and enforce a safety program that fits your specific conditions.

IMPORTANT

1. *Immediately upon receiving the conveyor(s)*, inspect for damage or indication of rough handling. Make sure all shafts rotate freely and examine the housing for obstructions or **SHARP EDGES**, especially in the belt's path. Remove burrs and **SHARP EDGES** wherever you find them.
2. Check for shortages by referring to the packing list or Bill of Materials for a record of items shipped.
3. Report any damage or shortage claims immediately to the carrier, keeping a record of your report; notify your Cambelt Conveyor representative. Cambelt is not obligated to replace, free of charge, items that show as being shipped on the Packing List. Cambelt must be notified within **TEN** days after receiving equipment of any shortages or damage. Notifying Cambelt will not relieve the carrier of its responsibility but will provide Cambelt with information we would need if you need our assistance in processing your claim with the carrier. Failure to notify Cambelt as specified will be understood as a notice that the equipment was received, complete, and in good condition.



WEAR GLOVES! Sharp edges will cut.

4. If problems are encountered in the assembly, installation, or erection of your Scorpion® 1210 Transloader that are considered beyond usual and expected, your Cambelt engineer must be notified before the affectation of a cure. This is true, especially if any claim is to be made against Cambelt due to the problem.

NOTE

CAMBELT WILL NOT APPROVE OR ACCEPT BACK CHARGES FOR LABOR, MATERIALS, OR OTHER COSTS INCURRED BY THE PURCHASER OR OTHERS IN MODIFICATION, ADJUSTMENT, SERVICE, OR REPAIR OF CAMBELT-FURNISHED MATERIALS UNLESS SUCH BACK CHARGE HAS BEEN APPROVED IN ADVANCE OF THE WORK BY AN AUTHORIZED CAMBELT PRODUCT MANAGER, BY CAMBELT PURCHASE ORDER OR WORK REQUISITION SIGNED BY CAMBELT.

OWNERS RESPONSIBILITY

The following are not covered by the warranty and are the Owner's responsibility.

1. Periodic lubrication and adjustments that become necessary because of the use and operation of the conveyor in accordance with the manufacturer's maintenance instructions.
2. Changing or adding oil in the Gear Reducer.

NOTICE

Conveyors are shipped without oil in the gear reducer.

3. Electrical system, wiring, fuses, and starters.
4. V-Belt drive adjustments.
5. Conveyor belt adjustments and alignment.
6. Proper feeding of material at designated rate.
7. Changes in character of material.
8. Design of auxiliary equipment, to insure unobstructed discharge of material.

WARRANTY

Cambelt equipment is backed by Cambelt's reputation as a quality manufacturer and by many years of proven equipment reliability.

The following warranty backs equipment manufactured and sold by Cambelt International Corp.:

For the benefit of the original user, Cambelt warrants all new equipment manufactured by Cambelt to be free from defects in material and workmanship; and will replace or repair, F.O.B. at its factories or other location designated by it, any part or parts returned to it which Cambelt's examination shall show to have failed under normal use and service by the original user. Such repair or replacement shall be free of charge for all items, except those items such as conveyor belting, and the like, that are consumable and normally replaced during maintenance, which repair or replacement shall be subject to pro-rata charge based on Cambelt's estimate of the percentage of normal service life realized from the part. Cambelt's obligation under this warranty is conditioned upon its receiving prompt notice of claimed defects, which shall in no event be no later than thirty (30) days following expiration of warranty which lasts for a period of one (1) year from date of start-up of the equipment, or eighteen (18) months from the date of shipment, whichever occurs first; and is limited to repair or replacement, as aforesaid.

THIS WARRANTY IS EXPRESSLY MADE BY CAMELT, AND ACCEPTED BY PURCHASER, IN LIEU OF ALL OTHER WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, WHETHER WRITTEN, ORAL, EXPRESS, IMPLIED, OR STATUTORY. CAMELT NEITHER ASSUMES, NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT, ANY OTHER LIABILITIES WITH RESPECT TO ITS EQUIPMENT. CAMELT SHALL NOT BE LIABLE FOR NORMAL WEAR AND TEAR, NOR FOR ANY CONTINGENT, INCIDENTAL OR CONSEQUENTIAL DAMAGE OR EXPENSE DUE TO PARTIAL OR COMPLETE INOPERABILITY OF ITS EQUIPMENT FOR ANY REASON WHATSOEVER.

This warranty shall not apply to equipment or parts which have been altered or repaired outside of Cambelt's factory, or damaged by improper installation or application, or subjected to misuse, abuse, neglect or accident.

Cambelt makes no warranty with respect to parts, accessories or components manufactured by others. The warranty which applies to such items is that offered by their respective manufacturers.

This warranty applies only to equipment made or sold by Cambelt.

SERVICE AVAILABLE

The Scorpion® 1210 Transloader is designed to be installed and serviced by your authorized plant personnel. However, please contact your local Cambelt representative if factory service is desired. Upon request, a schedule of current field service rates will be forwarded to you. An order for field service should be placed with your Cambelt representative at least one week before the date on which you would like service to commence.

INSTALLATION

INSTALLATION OF THE CONVEYOR HOUSING

⚠ WARNING

Installation of the equipment should only be performed by competent personnel familiar with all aspects of the installation including but not limited to Civil, Structural, Mechanical, Electrical and personnel safety.

Typically, all conveyors are fabricated, assembled, and shipped in pre-assembled component modules, i.e., Head Section, Tail Section, Turn Section(s). Refer to your conveyor general arrangement drawing and locate the connection flange designations. Connect the modules according to the corresponding match markings on the conveyor modules and the flange designations on the general arrangement drawing. Conveyor modules must be erected in the order shown on the general arrangement drawing to ensure proper conveyor alignment.

Be sure that the conveyor is installed plumb and level and is not crooked, twisted, or skewed. In addition, care must be taken while installing the conveyor properly to avoid belt alignment problems that are almost certain if the conveyor is not correctly assembled or aligned, as stated above.

If Cambelt supplies the conveyor support structures, assemble them as indicated on the appropriate assembly drawings, and attach them to the conveyor structure as shown on the general arrangement drawing(s).

NOTICE

If welded supports are used, never weld on the conveyor housing after the belt has been installed, unless special precautions are taken to prevent burning the belt.

If others supply conveyor support structures, please consult with a Cambelt engineer to determine specific support requirements.

Mount the motor and speed reducer on the conveyor Head Section. Be sure the Head Section is supported adequately to take the additional weight of the drive.

⚠ WARNING

Be sure the Head Section is supported adequately to take the additional weight of the drive.

INSTALLATION OF THE CONVEYOR BELT

The following steps will assist in quickly and easily installing a new CamFlex Conveyor belt.

1. Prepare one end of the new CamFlex Conveyor belt according to instructions given in the publication entitled:

BELT SPLICE INSTRUCTIONS

for

CAMFLEX CONVEYOR BELTS (CF) using

FLEXCO 550J FASTENERS

- a. Refer specifically to paragraphs 1 thru 3 in said instructions, and follow them explicitly. Initially, however, perform all steps necessary to completely install the mechanical belt fasteners on **one end of the belt only**. After the new belt is in place in your conveyor, complete all the steps necessary to complete the belt splice.
2. Before threading the belt, all pulleys should be checked for possible damage or misalignment. Pulleys are inspected by rotating them in their bearings. Check to ensure there is free rotation, and the pulleys are centered in the middle of their housings(s). If any pulley is not centered, the set screws in the bearing locking collars and the pulley's taper-lock bushings must be checked so the pulley can be re-centered. This may require that the collars or bushings be loosened to permit the pulley to slide back to center on the shaft, then securely retightened to prevent further shifting of the pulley on the shaft or movement of the shaft itself.
 - a. If you are unsure of exactly what to do, please call your Cambelt engineer for assistance.
3. When the conveyor housing is fully erected, remove/open quick-opening access panels or any cover that will aid in installing the belt.
4. The screw take-up must be adjusted, so the tail pulley is in its forward-most position toward the inlet.
5. If V-Belts were previously installed, remove them from the drive. The head pulley will coast or "float" as the new conveyor belt is pulled into the conveyor.
6. Pre-threading a heavy rope or steel cable through the conveyor along the anticipated belt path will significantly aid the belt's actual threading. The end of the rope or cable can be attached to the leading end of the new belt and then pulled through the conveyor, leading the belt along the correct path.
7. Many belts may be too long or heavy and require mechanical assistance to pull the belt into place with a winch or similar device. A pickup truck, forklift, or crane may be used to accomplish this, but only with extreme caution. The belt may be easily damaged, or injury may occur if proper care is not taken.
 - a. Threading of the belt and pulling it into the conveyor is made easier if the conveyor drive pulley is allowed to coast or "float". Removal of the V-Belts from the drive pulley sprocket will permit the drive pulley to coast, as needed.

⚠ WARNING

When using mechanical assistance, pickup truck, forklift, etc..., to pull the belt, extreme care must be taken to ensure that the rope/cable or the leading edge of the belt does not “catch” or get “hung up,” resulting in damage to the equipment or potentially causing injury.

⚠ WARNING

Care must be taken to ensure that the rope/cable is of adequate strength and that the connections at both ends of the rope/cable to the belt and the pulling device are secure enough that there is no risk of the rope/cable or the connections failing under stress, potentially causing injury.

⚠ WARNING

Care must be taken to keep loose clothing, fingers, hands, arms, or other body parts clear of the belt as it is pulled into and through the conveyor.

8. We often recommend that a steel plate be bolted to the leading end of the belt to assist in drawing the belt through the conveyor. The steel plate should be attached to the top edge of the belt in several places along its width and should have a hole in it through which the rope or steel cable (see step no. 2 above) is threaded and attached. This plate will prevent the corners on the leading end of the belt from curling downward, which would inhibit easy entry of the belt into and through the conveyor.

⚠ WARNING

Care must be taken to ensure that the connection from the rope or cable to the belt end is secure enough that there is no risk of the link failing under stress, potentially causing injury.

9. The belt's roll, pallet, or crate, as received from Cambelt, should be lined up with the conveyor to allow for free and easy insertion of the belt into the conveyor. Misalignment will result in considerable difficulty in threading the belt into the conveyor.
10. Pulling the belt into the conveyor can be a stop-and-go process, and care should be taken to **slowly** pull the belt while observing to ensure that the leading edge of the belt does not “catch” or “hang up” while pulling the rope or the old belt.
11. It is sometimes easier to thread the belt into the “return” side of the conveyor first, then up over the conveyor head pulley, and back down the “carrying” side.
12. Bring the two ends of the belt together at an easily accessed point, where the belt splice may be performed. Then, refer to the belt splicing instructions noted in step no. 1 above, and complete the belt splice.
 - a. Specific belt splicing instructions will be inserted into the splice kit shipped with your conveyor. The splice kit will typically be rolled up with the belt or may be located in the wooden shipping crate that also contains the conveyor drive motor, speed reducer, and other conveyor accessories.
 - b. **FOLLOW THE INSTRUCTIONS** included with the splice kit!
13. With the belt splice completed, replace/close all quick-opening access panels or any cover removed or opened.

14. After the belt has been installed, and before running the belt, check the belt covers for dings and dents which may have been incurred during shipping or erection. All dents must be removed so the belt will not contact the belt cover.
 - a. Clearance must also be checked between the belt top and the cover plate around the inlet hopper. Hopper weight, material weight, or other loads transferred to the conveyor belt cover may cause the cover plate to sag into the belt. If this happens, add support to the hopper to prevent sagging. The cover can be shimmed in a few cases to provide additional clearance.
15. Re-tension and align the belt.
 - a. ***Never reach into the opening.***
 - b. ***The moving belt or associated moving parts may cause death or serious injury.***

⚠ WARNING

When running the belt, for any reason, for initial testing, for alignment and maintenance procedures or for operation, with any covers open, keep all loose clothing, hands, legs, body parts, hair and tools away from the openings and any moving parts.

TENSIONING THE CONVEYOR BELT

A Scorpion® 1210 Transloader utilizes a manual screw-type belt take-up device for removing the slack from the belt.

No specific formula exists to determine the amount of tension that should be applied to a belt.

As a starting point, a simple rule to follow is that the belt should only be tensioned to a point that;

- A. When the belt is first started, no slipping of the belt on the drive pulley is detected.
- B. Enough tension has been applied to allow for good control of belt alignment at the conveyor pulleys.

When both A and B are achieved, tighten the belt just a little bit more.

A new conveyor belt will experience most of the expected stretch in a short period of time. The belt will stretch approximately 1.5% - 2% of its length. In other words, a 100-foot-long loop of the belt will experience a belt stretch of roughly 1.5 feet (18 inches) or 9 inches of travel in the belt take-up. Again, the major part of this stretch will occur in the first several weeks of operation, and once that initial stretch is gone, belt tensioning maintenance may be done less frequently. Initially, however, frequent attention must be paid to belt tension to avoid damaging a belt by allowing it to run too loose while the belt is stretching.

If the belt is loose and the take-up pulley has no adjustment left, the belt may be shortened and respliced.

As a belt is tensioned, care should be taken to prevent misalignment of the belt at the pulleys. A belt that is too **loose** will not align properly. A belt that is too **tight** will also not align properly. The belt must have sufficient tension to prevent slipping on the head (drive) pulley when under maximum load.

NOTICE *Over-tensioning may cause belt damage.*

Observe the conveyor carefully during the first several days of operation, as this is when most belt stretch will occur. Re-tensioning will likely be necessary during this period.

If misalignment occurs, correct it immediately.

BELT ALIGNMENT

To realize maximum life from your conveyor belting, keeping the belt in proper alignment is a matter of the highest priority. Improper alignment may result in deterioration of the edges(s) of the belt. In addition, it will likely cause considerable spillage of the conveyed material at the inlet to the conveyor.

Primarily, belt alignment changes are accomplished by moving the pulleys. When the belt has been installed, the conveyor should be run while empty and checked for alignment. An adequately aligned conveyor has the belt running evenly in the center of the conveyor and at all conveyor pulleys. Therefore, it prevents damage to the belt edges from contact with supporting structures or other objects. However, it is common with most belts to see some “wandering” of the belt from side to side on the conveyor. As long as the wander is not severe, set the belt alignment such that it averages out pretty well in the middle. If a misalignment problem exists, some belt adjustment may be accomplished by readjusting the head, tail, turn pulleys, and possibly the belt idlers.

If alignment problems persist, it would be well to check the conveyor structure alignment. Structural misalignment can make a belt almost impossible to track.

If one belt section runs true and another area runs out of line, the belt ends were generally not correctly squared when the splice was installed.

If the belt runs out of line consistently at one point in one of the conveyor straight runs, or if adjustment of the pulleys will not correct misalignment at a pulley terminal, the condition may be attributed to misaligned idlers. Usually the idlers that require adjustment will be located upstream of the point at which the belt runs out of line. Proper alignment is achieved by loosening the mounting bolts on several idlers on the upstream side and skewing them slightly. When one side of an idler is shifted ahead of the other, the belt shifts to the side which is behind. Re-tighten the mounting bolts before restarting the conveyor.

Note: It is better to adjust several idlers a little than to adjust 1 or 2 idlers a lot.

The following page contains steps that will assist in aligning the belt.

1. Remove inspection covers nearest each pulley for observation.

⚠ WARNING

When running the belt with any covers open, keep all loose clothing, hands, legs, body parts, hair, and tools away from the openings and any moving parts.

⚠ WARNING

Never reach into the opening.

⚠ WARNING

The moving belt or associated moving equipment may cause death or serious injury.

2. **⚠ WARNING** Before starting the conveyor, be sure the conveyor is clear of all tools and foreign objects. In addition, the Gear Reducer has been filled with oil (refer to lubrication instructions on the Gear Reducer nameplate and owner's instruction manual).
3. **NOTICE** Grease all pulley bearings. The Conveyor's bearings have only a small amount of grease when shipped from the factory. So be sure to add more grease.
4. Adjust belt alignment at each pulley with the conveyor running. It is common, with most belts, to see some "wandering" of the belt from side to side on the conveyor. As long as the wander is not severe, set the belt alignment such that it averages out pretty well in the middle. The belt will drift to the slack side of the pulley at the Head and Tail Sections of the conveyor but will typically run to the high (tight) side of the pulley at the Turn Section.

NOTICE

Belt alignment is critical ahead of or before the flanged pulley in the conveyor turn section(s). This is essential if your conveyor is of an "L" or "Z" configuration. Misalignment in this area will cause the belt to enter the flanged pulley so that the corrugated sidewall will scrub against the interior side of the flange, causing severe abrasion to the sidewall of the belt. This condition will be evident if you observe that the smooth, round edges of the corrugations of the sidewall are being "squared off".

THIS IS A COMMON OCCURRENCE, SO LOOK FOR IT! It is also possible that the sidewall of the belt may completely "jump" the flange of the pulley if misalignment is bad enough. When misalignment in this area occurs, adjust the idlers just ahead of the flanged pulley (see step 5 below).

5. Adjust belt alignment with idlers (if necessary). If the belt runs out of line consistently at one point in one of the conveyor straight runs, or if the adjustment of the pulleys will not correct misalignment at a pulley terminal, the condition may be attributed to misaligned idlers. Usually, the idlers that require adjustment will be located upstream of the point at which the belt runs out of line. Proper alignment is achieved by loosening the mounting bolts on several idlers on the upstream side and skewing them slightly. When one side of an idler is shifted ahead of the other, the belt moves to the side behind; re-tighten the mounting bolts before restarting the conveyor.
 - a. It is better to adjust several idlers a little than to adjust 1 or 2 idlers a lot.

⚠ WARNING

*The belt **MUST BE STOPPED AND NOT RUNNING** when adjusting idler alignment.*

Never reach into any opening with a moving belt or equipment. The moving belt or associated equipment may cause death or serious injury.

NOTICE

Re-tighten the mounting bolts before restarting the conveyor.

NOTICE

Do not shift idlers on a reversing belt as they will detrain the belt when it travels in the opposite direction.

6. Once a constant central belt alignment has been achieved on the return and carrying run with an empty belt, the conveyor should be checked while carrying a full load.
 - a. It is not unusual to readjust the belt alignment while the belt is loaded, even though the empty pre-aligned belt was running straight.

THE CONVEYOR INLET

History has shown that many problems experienced with belt conveyors originate at the conveyor inlet. For example, improper feeding of the belt may result in material spilling over the edge(s) of the belt or in overfilling the belt with more material than the belt can carry away.

Generally speaking, skirt boards are impractical with a corrugated sidewall conveyor belt. We rely upon the sidewall themselves to stop the flow of material from escaping or flooding over the edges of the CamFlex belt. Therefore, it is vital that, as much as possible, the flow of material into the conveyor inlet be directed in the same direction as the belt is traveling and toward the center of the belt and away from the sidewalls. If your Scorpion® 1210 Transloader has been supplied with orifice plates and slide gate at the conveyor inlet, **DO NOT DISCARD THEM!** They will aid significantly in directing the flow of material onto the belt as is required to minimize spillage and overfilling.

A Transloader **must not** be overfilled at the inlet. A controlled feed is often required with a Transloader. Standard methods are variable frequency vibrating pan feeders, screw conveyors, and rotary valves. Again, the orifice plates and slide gate mentioned above are your best prevention against belt overflow.

THE CONVEYOR DISCHARGE

Ensure that the conveyor discharge chute or transition is kept free from build-up or obstruction. Such a condition can be disastrous, as the material will “back leg,” and the conveyor housing will quickly fill full of material and jam the entire system. Regular inspection of the discharge chute or installing a plugged chute switch will go a long way toward eliminating such an unfortunate occurrence.

OPERATING THE SCORPION® 1210 TRANSLOADER

Good conveyor system engineering practice requires that the conveyor belt run before introducing the product onto the belt. Conversely, the feed source is stopped before shutting down the conveyor belt. Whenever possible, adherence to this rule is critical. For example, if your system includes a mechanical feed device just ahead of the belt conveyor, your system control logic should provide for a sequential start-up which will start the belt conveyor approximately 5 to 10 seconds before the start-up of the feed device and shut down the feed device with enough time to allow the product in the conveyor to be discharged from the belt before stopping the conveyor.

Your conveyor has been supplied with a drive package with sufficient horsepower to start the belt with a full design capacity load. However, this does not necessarily mean that the belt will start under all loaded conditions. Conditions such as a high incline (inclines high enough that a belt stopped under load will not hold the material in place) or an overloaded conveyor housing, overloaded belt at the conveyor inlet point, extremely cold temperatures, or a loose V-belt may cause the failure of the conveyor to start.

NOTICE

Before 1st-time use, check the oil in the Gear Reducer. Verify that the Gear Reducer has been filled with oil (refer to lubrication instructions on the Gear Reducer nameplate and owner's instruction manual). The Conveyor's gearbox/reducer is shipped dry, and oil must be added before use

NOTICE

Before 1st-time use grease on all pulley bearings. The Conveyor's bearings have only a small amount of grease when shipped from the factory. Be sure to add more grease.

NOTICE

Make sure bearings and drive have been serviced according to the manufacturer's instructions, and the operation and adjustment of the drive are thoroughly understood. Special attention to the V-belt drive is necessary during initial start-up and operation, as the V-belts will tend to stretch. 3V section belts, which are commonly used, require greater operating tension than other types of V-belts.

STARTING THE SCORPION® 1210 TRANSLOADER

1. Start the conveyor without load, and allow 5 to 10 seconds to accelerate to full operating speed before feeding material into the conveyor.
2. Start feeding product into the conveyor.
3. Adjust and verify the correct feed rate gradually onto the belt to ensure proper belt fill and conveyor capacity.
 - a. The Scorpion® 1210 Transloader is commonly equipped with an adjustable shut-off gate and interchangeable orifice inlet plates for the inlet to the conveyor (see conveyor inlet section for additional information).
 - b. This inlet arrangement is designed to control material flow onto the belt. However, if the material being conveyed is allowed to enter the inlet with no attempt at control, it is possible for the belt to accept more material than it can elevate. If this happens, the excess material will spill over the sidewalls, eventually filling the Tail Section, which could jam and break the conveyor belting or cause other problems.
 - c. The proper combination of the length of the inlet opening and the width of the inlet opening will generally give adequate control of the material entering the conveyor. Some experimentation may be necessary to determine the correct combination of length and width of the opening for any given material. It is always good practice to begin using a smaller orifice plate and then increase the length of the inlet opening with the adjustable slide gate. The inlet opening width can be adjusted by replacing the orifice plate with another orifice plate with a larger (or smaller) opening to adjust for proper material flow.
 - d. The conveying capacity of the Scorpion® 1210 Transloader is measured by volume, i.e., **cubic feet per hour**, not weight per hour. Therefore, never feed more material to the belt than the conveyor was designed to handle. If in doubt about how much material you are feeding to the belt, temporarily remove an inspection cover just past the feed area, and observe the belt while it is running.

WARNING

When running the belt with any covers open, keep all loose clothing, hands, legs, body parts, hair, and tools away from the openings and any moving parts.

WARNING

Never reach into the opening. The moving belt or associated moving equipment may cause death or serious injury.

NOTE: Typically, the belt should be less than about 60% full. An amperage check should be taken while the belt operates at its rated capacity. If the amperage reading is greater than that stamped on the motor nameplate, you may be over-feeding the belt. The amperage should not pulsate greatly; this also indicates an overloaded situation.

STOPPING THE SCORPION® 1210 TRANSLOADER

4. Stop feeding the product into the conveyor and allow the material on the conveyor belt to be discharged entirely before stopping the conveyor. A short delay between the cut-off of material being fed to the conveyor and stopping the conveyor drive motor will generally allow the belt to clear.

NOTICE

As a generally accepted practice, it is **not advisable to stop the conveyor when the belt is loaded**. Whenever possible, all material in the belt should be discharged before stopping the conveyor. If the conveyor is stopped while loaded, the material in the belt will generally (depending on the flowability, particle size, and weight of the material) run to the low point of the conveyor. This will be either a Turn Section or a Tail Section (or both) and may cause an overload condition when the belt is restarted. Should this occur, it may be necessary to remove the covers at these points and clear the excess material from the housing before the conveyor can be restarted.

⚠ WARNING

Use proper lock-out procedures to disable the conveyor such that the belt cannot be started while the personnel is cleaning out or maintaining the conveying equipment.

5. Stop the conveyor belt.
 - a. In the event that the belt must be shut down with the belt fully loaded due to an emergency, restarting the belt may prove difficult. Before restarting the belt, close any open slide gate(s). Start the belt and allow it to discharge fully, then re-open the slide gate(s) to resume conveying the product. If the belt does not restart, you may want to try closing any open slide gate(s) and “bump” the conveyor in the REVERSE direction (if so equipped) for a couple of seconds, then back to the FORWARD position, repeating this procedure, until the jammed belt will begin to move forward. Once the belt has resumed its normal operating speed, re-open the slide gate(s) to continue conveying the product.

⚠ WARNING

Do not attempt to reverse the direction of the conveyor belt too quickly. Damage to mechanical components could result causing personnel injury. Instead, allow a couple of seconds between directional changes.

⚠ WARNING

*When clearing material from a jammed conveyor belt, **ALWAYS** use proper lock-out and other safety procedures before attempting to clear or remove any excess material from the belt. In addition, **NEVER** reach into or place any objects on the conveyor belt without performing **ALL** proper lock-out and other safety procedures to prevent the conveyor belt from starting and causing personal injury.*

NOTICE

When working with a jammed conveyor belt, **NEVER** allow the head pulley to spin beneath the conveyor belt, or damage to the backside of the belt will occur, and the excessive heat generated could cause a fire.

MAINTENANCE AND LUBRICATION SCHEDULE

⚠ WARNING

Only qualified, authorized, and trained personnel may operate and maintain the equipment.

⚠ WARNING

Always use proper lock-out and other safety procedures before attempting to clean, oil, or perform any maintenance on the equipment.
Do not begin without following proper lock-out and safety procedures.

⚠ WARNING

Always use safety protective equipment and clothing such as safety glasses, safety shoes, hard hats, safety harness.

⚠ WARNING

Keep all loose clothing, hands, body parts, and hair away from moving equipment, rotating shaft, belts, and chains.

⚠ WARNING

Take appropriate precautions to insure that hands, legs, or other body parts do not contact the conveyor belt, drive belt, or drive chain.

⚠ WARNING

Wear fall protection when accessing or working on the conveyor from any approved working surface or, in general, when working at 4 feet or more above the ground.

FIRE PREVENTION

The Transloader and some attachments have components that are at high temperatures under normal operating conditions. The electrical system, if damaged or incorrectly maintained, can be a source of arcing or sparks.

The following fire prevention guidelines will help to keep your equipment up and running efficiently and keep the risk of fire to a minimum.

- Clean out all accumulated flammable debris such as leaves, straw, pine needles, branches, bark, small wood chips and any other combustible materials from inside the machine's lower unit structures as well as from area in proximity to the engine.
- Examine electrical wiring and connectors frequently for damage. Repair any wires that are loose or frayed before operating the machine. Clean all electrical connections and tighten all electrical connections as necessary.
- Always keep a multipurpose fire extinguisher on or near the machine. **Be familiar with the operation of the fire extinguisher.**

MAINTENANCE SCHEDULE

Scorpion® 1210 Transloader						
Maintenance Schedule						
Maintenance Task	Frequency					
	10 Hours or Every Day	Every 50 Hours	Every 100 Hours	Every 150 Hours	Every 300 Hours	Every 2500 Hours (6 months)
Check Bearings; grease if needed	X					
Check Conveyor Belt Tension	X					
Check Conveyor Belt Alignment	X					
Check Conveyor Belt Wear		X				
Check Belt Splice for wear & looseness		X				
Check Bearings; grease if needed	X					
Gear Reducers - Inspect Oil Leak	X					
Gear Reducers - Check Oil Level					X	
Gear Reducers - Change Oil						X

LUBRICATION GUIDE

High-Speed Operation – In the higher speed ranges, too much grease will cause over-heating. The amount of grease the bearing will take for a particular high-speed application can only be determined by experience. If excess grease in the bearing causes overheating, it will be necessary to remove the grease fitting to permit excess grease to escape. The bearing has been greased at the factory and is ready to run. When establishing a relubrication schedule, note that a small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals.

Use a No. 2 Lithium complex base grease or equivalent.

Hours Run per Day	Suggested Lubrication Period in Weeks							
	1 to 250 (RPM)	251 to 500 (RPM)	501 to 750 (RPM)	751 to 1000 (RPM)	1001 to 1500 (RPM)	1501 to 2000 (RPM)	2001 to 2500 (RPM)	2501 to 3000 (RPM)
8	12	12	10	7	5	4	3	2
16	12	7	5	4	2	2	1	1
24	10	5	3	2	1	1	1	1

For H and H-E series bearings, use Exxon Unirex N3 or equivalent suitable to 300° F

GEAR HUBS

Check gear hubs for leaks. Repair or replace as needed. Fill with 220-weight extra duty gear oil—Phillips 66 or equivalent.

LONG STORAGE



To avoid personal injury, do not clean the Transloader while running.



To avoid personal injury, do not operate the engine in a closed building without proper ventilation.



To avoid personal injury, when storing, remove the key from the starter switch to avoid unauthorized persons from operating the Transloader and getting injured.



To avoid personal injury, bring the Transloader on a firm, flat, and level surface.

Should the Transloader be Stored for a Longer Period of Time, the whole Transloader should be cleaned thoroughly and in all cases stored indoors. If the Transloader has to be kept outdoors, lay out wooden planks on even ground, place the Transloader on the planks and cover completely.

TROUBLE-SHOOTING GUIDES

CONVEYOR “JAM-UP”

When the conveyor belt stops while in operation due to a “jam-up,” one of the following will normally occur simultaneously:

1. Conveyor belt slippage on the head pulley.
2. V-belt slippage on the motor drive sheaves.
3. Motor overload heaters kick out.

To take the proper corrective action, check the following possible causes for the jam-up.

1. Conveyor belt tension. Inadequate conveyor belt tension can cause slippage of the belt at the head pulley, with a resulting jam-up. Slippage will usually occur for conveyors equipped with a screw-type take-up due to the usual belt stretch. Belt tension can be increased by turning the take-up adjusting nuts on either side of the Tail Section. However, ensure that proper belt alignment is maintained (see the section titled “Belt Alignment”).
2. Overloading. Wherever possible, the Scorpion® 1210 Transloader should have a controlled feed. If the material is allowed to enter the inlet with no attempt at control, the belt can accept more material than it can convey. When this happens, the excess material will eventually accumulate in the lower portions of the conveyor and could cause it to jam up. Two generally accepted methods of control are as follows.
 - a. A change in the flow characteristics of the material due to moisture content, and particle size, may require a difference in the size of the inlet opening. Some material accumulation in the Turn and Tail Sections is normal, and will not affect the operation of the conveyor, as this material is normally recycled. However, if this material hardens due to moisture and pressure, it will interfere with the belt and cause excessive wear. Clean out material build-up as necessary.
 - b. When space is available, a rotary-type feeder can be used to control the flow of material to the inlet of the Scorpion® 1210 Transloader. In this instance, the RPM of the feeder vanes controls the material flow and should be reduced if over-feeding occurs.
3. Restricted Discharge. An unrestricted discharge is necessary to ensure the proper operation of the Scorpion® 1210 Transloader. Any build-up of material at the discharge could cause the material to back-leg down the return housing of the Scorpion® 3015 Transloader, with resultant jam-up. Other common causes of back-legging are as follows.
 - a. Overfilling of the bin or hopper being fed by the Scorpion® 1210 Transloader.
 - b. The inability of auxiliary equipment (conveyors or mixers) to accept material from the conveyor to take the material away as fast as it is being fed.
 - c. Improper discharge chute design. The angle of decline in discharge chutes should rarely be less than 60 degrees to ensure proper material flow away from the Scorpion® 1210 Transloader.
4. Material Build-Up inside the conveyor. In the regular operation of the Scorpion® 1210 Transloader, some accumulation of loose material will occur in the lower portions of the conveyor. A hardening of this material due to moisture content, pressure, and chemical action

could cause excessive drag on the belt, with resultant belt wear and possible motor overload. An inspection of the belt may reveal unusual wear and indicate where this build-up is taking place.

- a. Areas where build-up might occur are belt covers, pulley faces, and lower portions of Turn Sections, Intermediate Sections, and Tail Sections. Quick-opening panels should be removed to check for build-up on slide plates and belt covers.
- b. If the problem continues, contact your Cambelt representative.

⚠ WARNING

When running the belt with any covers open, keep all loose clothing, hands, legs, body parts, hair, and tools away from the openings and any moving parts.

⚠ WARNING

Never reach into the opening.

⚠ WARNING

The moving belt or associated moving equipment may cause death or serious injury.

NOTE: Materials that cause build-up usually have a moisture content between 5% and 12%, depending on the type of material.

5. Belt Alignment. Improper belt alignment can contribute to conveyor malfunction by causing excessive drag on the belt, resulting in either belt slippage or overloading the drive motor. See the section titled “Belt Alignment” for instruction on aligning the belt.
6. Pulley Alignment. If pulleys become misaligned, they can rub against the side of the conveyor housing, causing wear and excessive overloading of the drive motor and belt misalignment, all of which can contribute to conveyor malfunction. Bearing adjustment devices are located at most bearing locations. Where adjustment devices are not provided, the pulleys at those locations do not require adjustment for alignment.
7. V-Belt Slippage. The CamBelt Conveyor drive is commonly equipped with 3V-section drive belts.
8. These belts generally require more tension than A, B, C, or D section belts. Proper V-belt tension is maintained by adjusting the motor mount away from the driven pulley.

⚠ WARNING

When equipment is running with any covers/guards removed, keep all loose clothing, hands, hair, and tools away from the openings and any moving parts.

⚠ WARNING

Never reach into the opening.

⚠ WARNING

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⚠ WARNING

Fire Hazard - Slipping V-Belts generate excessive heat and may become an ignition source of dust or other combustible materials.

⚠ WARNING

Never operate equipment without belt guards in place.

NOTICE

The drive belts should always be adjusted prior to start-up, and frequently during the first few days of operation.

9. Obstructions and Sharp Edges. During the assembly of the CamBelt Conveyor, extra care should be taken to ensure that there are no obstructions or sharp edges in the path of the belt.
 - a. Damage during shipping and handling, if not corrected before assembly, can cause belt damage or excessive drag on the belt, with resultant wear, and contribute to conveyor malfunction. Most common areas where this can occur are at flanged connections where Intermediate Sections are bolted together, or to Turn, Head, or Tail Sections, and to the belt covers, where dents or bends can cause a restriction to the belt. If the belt shows excessive wear, a check should be made to determine the reasons and locate the obstruction. In addition, foreign objects left in the conveyor during erection, or introduced into the conveyor along with the material to be conveyed, can cause severe problems.

⚠ CAUTION

WEAR GLOVES! Sharp edges will cut.

⚠ WARNING

*The conveyor **MUST BE STOPPED AND NOT RUNNING** when checking for or removing any foreign objects or obstructions. **Never reach into any opening with a moving belt or equipment.** The moving belt or associated equipment may cause death or serious injury.*

BELT WEAR

1. Check to see if there is damage or abnormal wear on the belt, which a mechanical problem might cause in the conveyor, such as misaligned components or a foreign object in the conveyor.
2. An incorrectly spliced belt can cause belt wear or damage. First, check to see that the ends of the belt were cut squarely and that no edges are protruding beyond the belt's body.
3. Any material being conveyed with a high oil content can cause the belt to swell. Other materials may cause the belt to abrade or attack the belt fabric.
4. All of the pulleys must turn freely. Check for bad bearings that may cause a pulley to lock up or turn slowly.
5. Severe belt wear or damage will occur if the belt is threaded through the conveyor housing improperly.
6. Normal wear may result in small quantities of rubber being present in the conveyed material. Generally, there is not enough to be visible; but if you feel there is an excess, check items 1 thru 5 above thoroughly.
7. A build-up of hardened material at any point in the conveyor, where it can interfere with the passage of the belt, may cause belt wear and must be cleaned out.

⚠ WARNING

*The conveyor **MUST BE STOPPED AND NOT RUNNING** when checking or performing maintenance of the belt. Never reach into any opening with a moving belt or equipment. The moving belt or associated equipment may cause death or serious injury.*

⚠ WARNING

When running the belt with any covers open, keep all loose clothing, hands, legs, body parts, hair, and tools away from the openings and any moving parts.

⚠ WARNING

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⚠ WARNING

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BELT ALIGNMENT

1. Misalignment of the belt is often caused by a pulley that is out of alignment. Adjust the bearings on the problem pulley shaft by loosening them and moving them in their slots using the bearing adjustment device(s). If the belt does not become aligned by moving the bearings in one direction, try the opposite direction. For example, you would typically move the bearings in opposite directions on each side of the conveyor housing.
2. The build-up of material on the pulleys could cause the belt to misalign.
3. A crooked belt splice, causing a “dog-leg” in the belt, can cause a misalignment.
4. Deterioration of the belt through chemical or mechanical means can cause the belt to be difficult to align.

For belt alignment procedures, see the "Belt Alignment" Section.

WARNING

*The conveyor **MUST BE STOPPED AND NOT RUNNING** when checking or performing maintenance of the belt. **Never** reach into any opening with a moving belt or equipment. The moving belt or associated equipment may cause death or serious injury.*

WARNING

When running the belt with any covers open, keep all loose clothing, hands, legs, body parts, hair, and tools away from the openings and any moving parts.

WARNING

Never reach into the opening.

WARNING

The moving belt or associated moving equipment may cause death or serious injury.

WARNING

Before starting the conveyor, be sure the conveyor is clear of all tools and foreign objects.

LOW CAPACITY

If the conveyor has been operated for a long enough period to obtain an accurate volumetric capacity, and a check reveals that the capacity is under that for which it was designed, the following could be a problem.

1. A restriction at the inlet to the conveyor.
2. Bridging the material above the inlet is a common cause of low capacity. Therefore, a special agitator above the inlet may be necessary if bridging is a common problem with the material being conveyed.

⚠ WARNING

*The conveyor **MUST BE STOPPED AND NOT RUNNING** when checking or performing maintenance of the belt. **Never reach into any opening with a moving belt or equipment. The moving belt or associated equipment may cause death or serious injury.***

⚠ WARNING

When running the belt with any covers open, keep all loose clothing, hands, legs, body parts, hair, and tools away from the openings and any moving parts.

⚠ WARNING

Never reach into the opening.

⚠ WARNING

The moving belt or associated moving equipment may cause death or serious injury.

3. If the material does not seem to flow into the belt, even when the inlet is at its largest opening, special characteristics of the material may require a larger inlet opening. Contact your Cambelt representative.
4. Changes in the characteristics or flow rate of the material or inaccurate design information may result in an improper belt speed. Since the ability of a given material to enter the belt correctly and the capability of the conveyor to deliver the desired capacity is directly related to belt speed, the correct belt speed must be used. Contact your Cambelt representative if you have a question concerning this.
5. As mentioned in paragraph 4 above, changes in the characteristics of the material being conveyed can affect the operation of the Scorpion® 1210 Transloader. For example, an increase in particle size, density, or moisture content will generally decrease the capacity of the conveyor as a result of the changed flow characteristics of the material.

GENERAL

1. With Scorpion® 1210 Transloaders' high incline belt configurations and short horizontal sections, the belt should coast after the power to the drive motor has been shut off. If the belt does not coast for a short time, it could mean that there is some problem causing an excess drag on the belt. A check should be made to see that the belt is aligned correctly or that there are no obstructions to the belt or build-up of material that might interfere with belt travel. Conveyors with extended horizontal sections usually will not coast.
2. Many times, operational problems are people problems rather than mechanical ones. Ensure that your operations and maintenance people understand those operational features peculiar to the Scorpion® 1210 Transloader. It will give you years of dependable service if they do. Don't hesitate to contact your Cambelt representative for assistance in understanding any phase of its operation or maintenance, should the need arise.
3. See the manufacturer's specification sheets enclosed for operational information on motors provided.