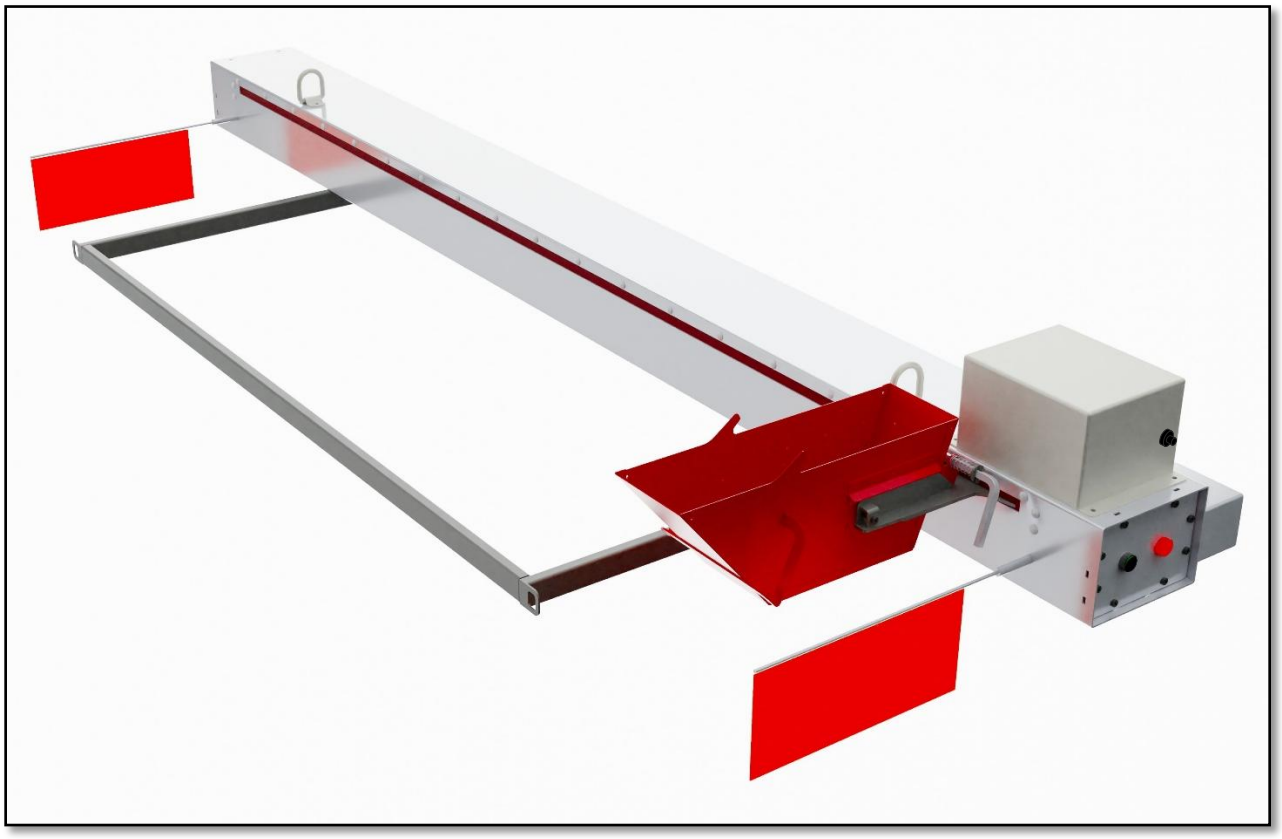
RockPro Technologies
www.rockprotech.com

Aggregate Sample Taker
Model A-1000

Setup, Operating, and Safety Manual



Setup of the A-1000

- Prior to installation, always shut down conveyors and follow lockout/tagout procedures.
- Do not set up the sample taker so that any portion of the sample taker is in constant contact with the aggregate stream, as this will prematurely damage or wear to the sample taker.
- It is recommended to use the supplied D-rings (see Figure 3) to lift the sample taker into place.
- The A-1000 Sample Taker must be properly fastened to the conveyor it is sitting on. Multiple attachment methods can be utilized:
    - For the most flexible solution, 4 ratchet straps should be used (2 per side), and they should always be crossed over each other as shown in Figure 4 to ensure stability. The length of the 4 straps can be adjusted to ensure the A-1000 is centered above the conveyor belt it's placed above, and oriented so that the bucket captures the entire aggregate stream when operated. The straps can be attached to the D-rings welded into the sample taker structure.
    - For more permanent installations, use the optional U-bolts and attachment plates. See Figures 1-3 – the plates can be welded in place and then the U-bolts used to attach the A-1000 to the conveyor.
- Remove the elastics from the 2 safety flags and ensure the flags are properly attached as shown.

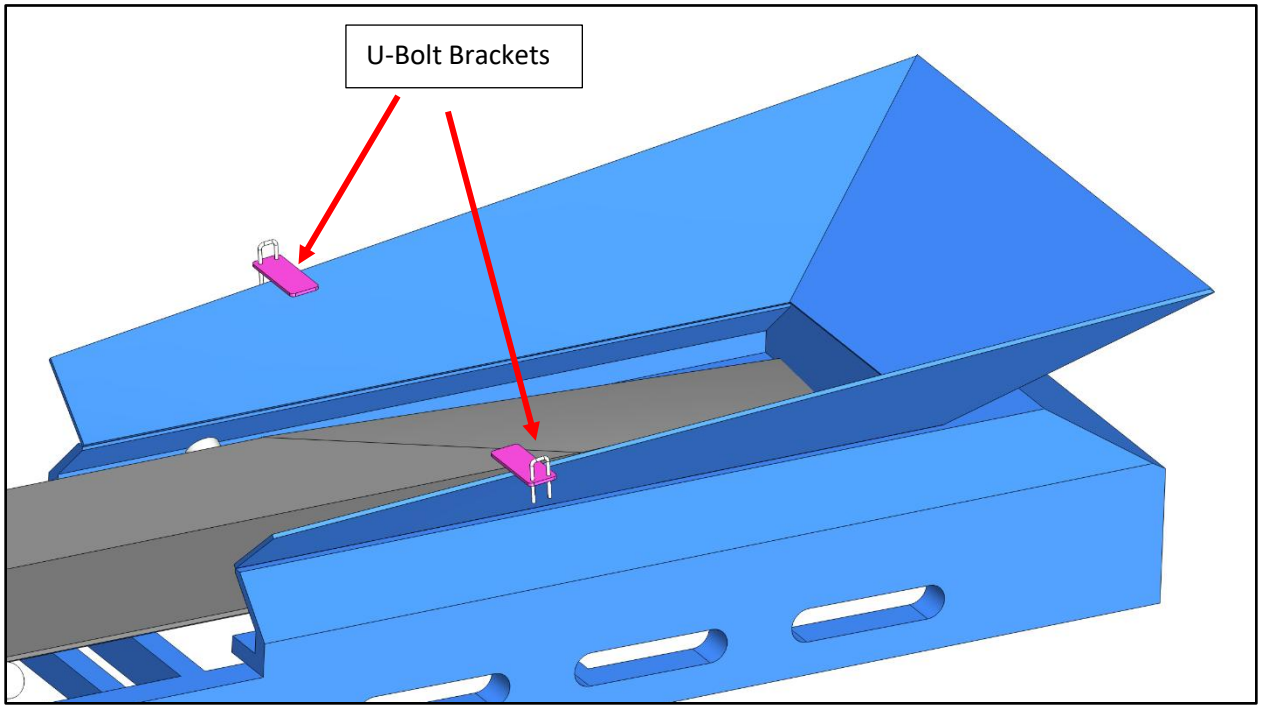


Figure 1 – Showing optional U-bolt brackets (pink) welded to the conveyor structure (blue)

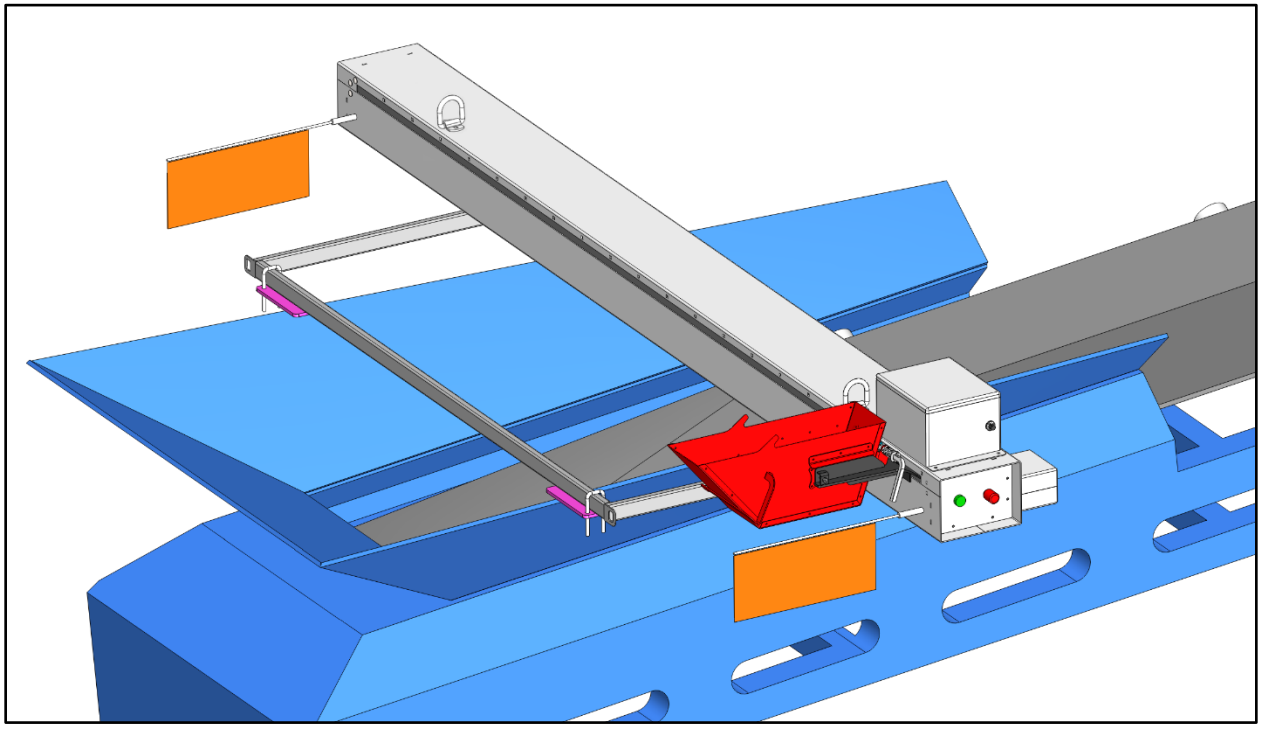


Figure 2 – Showing sample taker attached to conveyor (blue) with U-bolt brackets. Shown with downstream bucket arrangement.

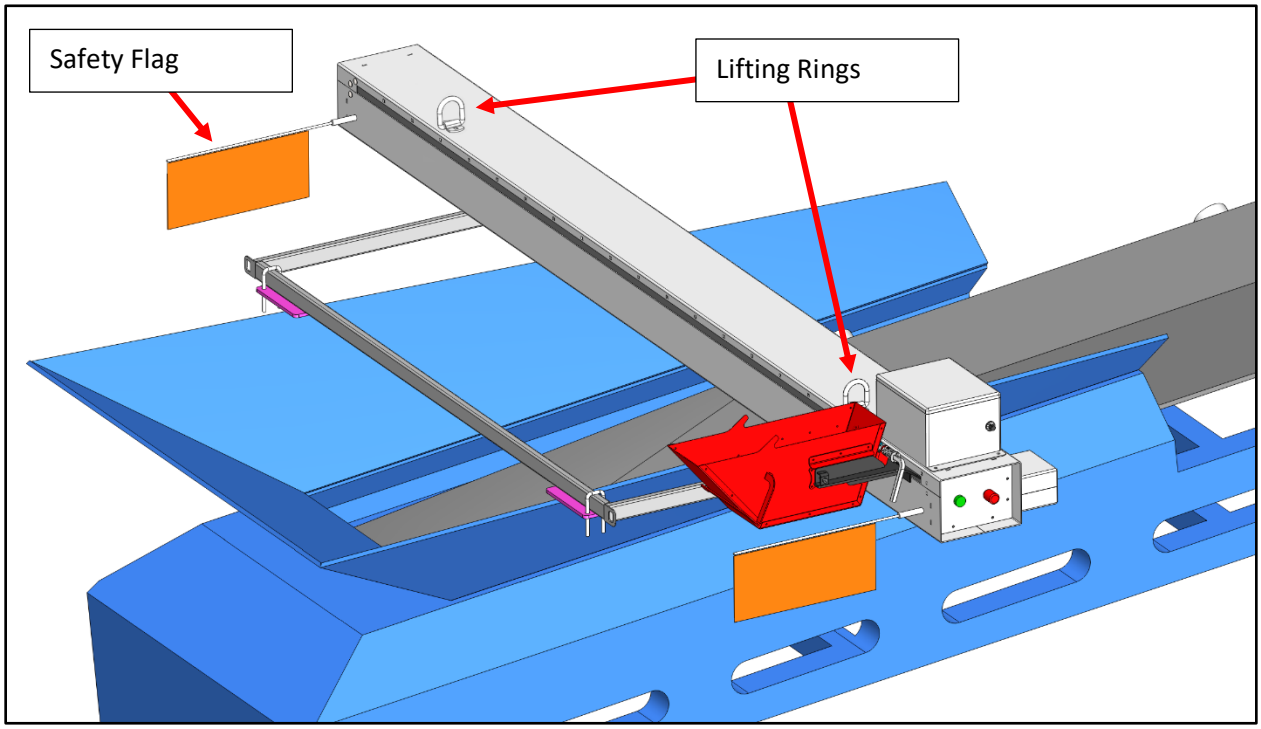


Figure 3 – Showing sample taker attached to conveyor (blue) with U-bolt brackets. Shown with upstream bucket arrangement.

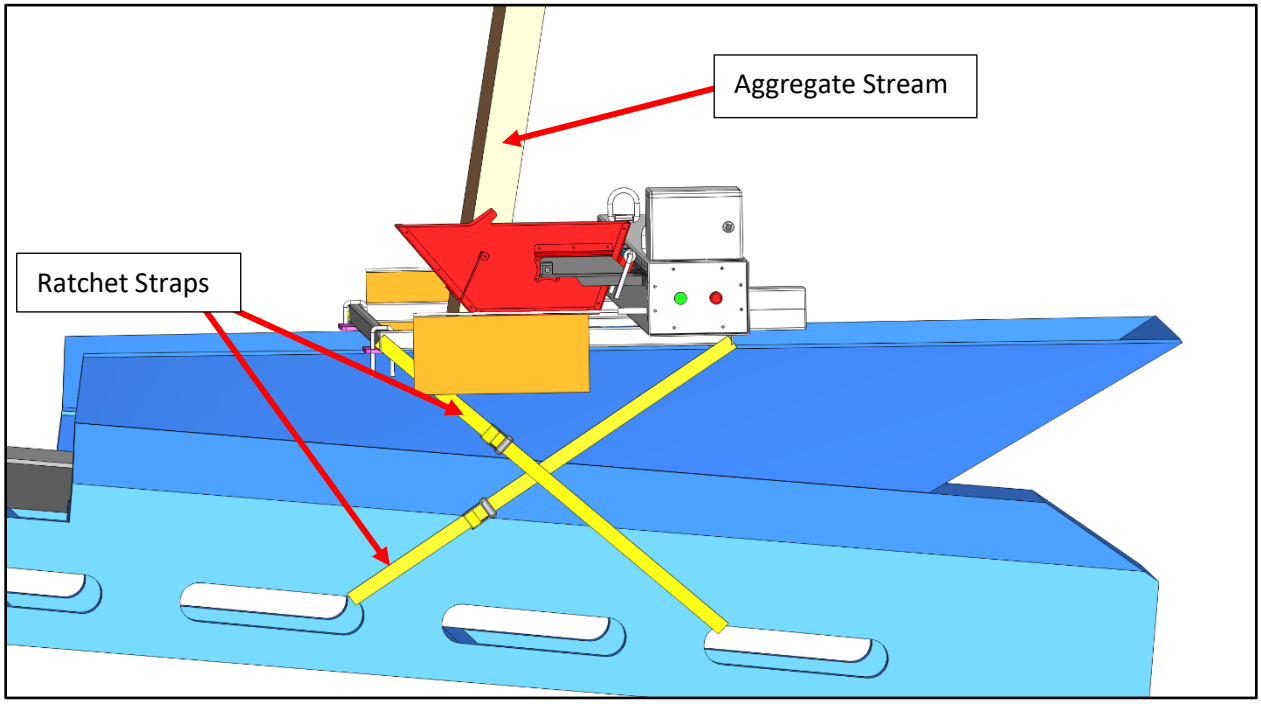


Figure 4 – Shown with crossed ratchet strap arrangement

- Care must be taken to center the A-1000 from side to side in the stream from which it is sampling. Centering the A-1000 over the center 48'' area is important to collect a proper sample (including any material coming off a belt scraper if applicable). See Figures 5 and 6.

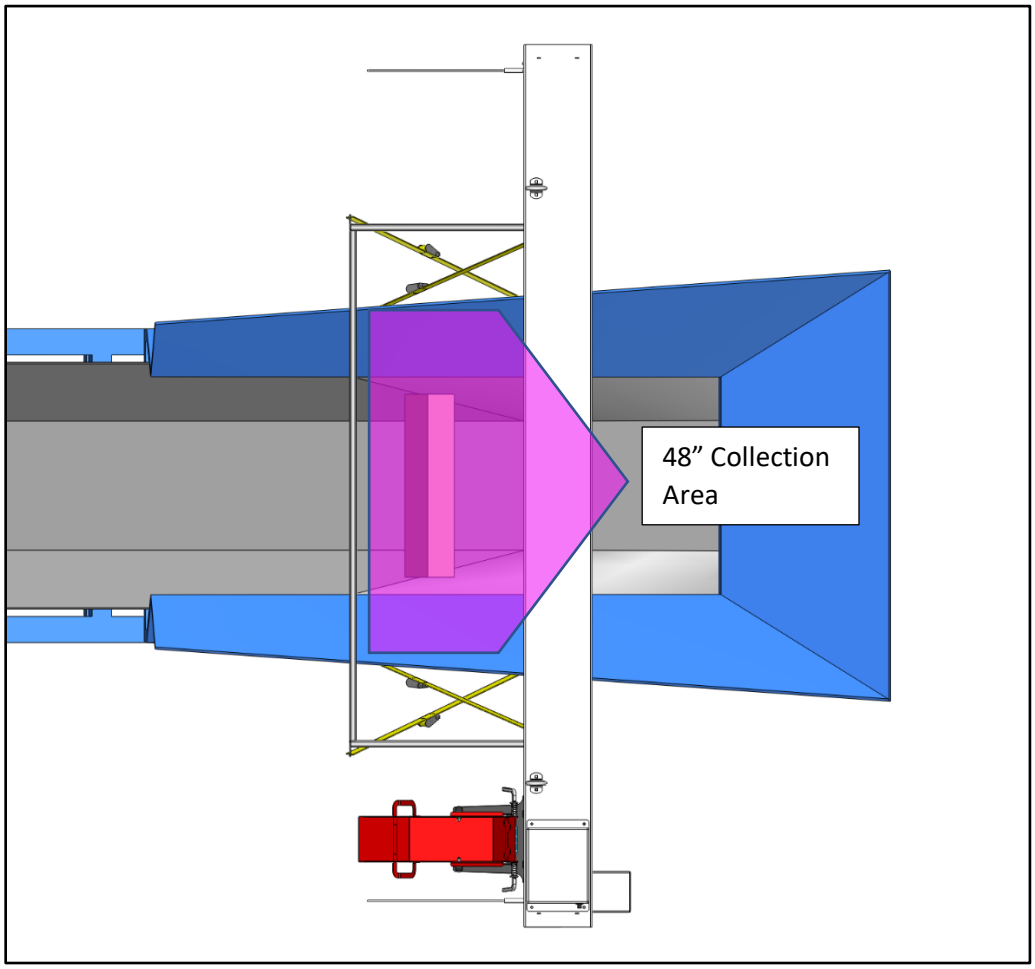


Figure 5 – Showing collection area (pink)

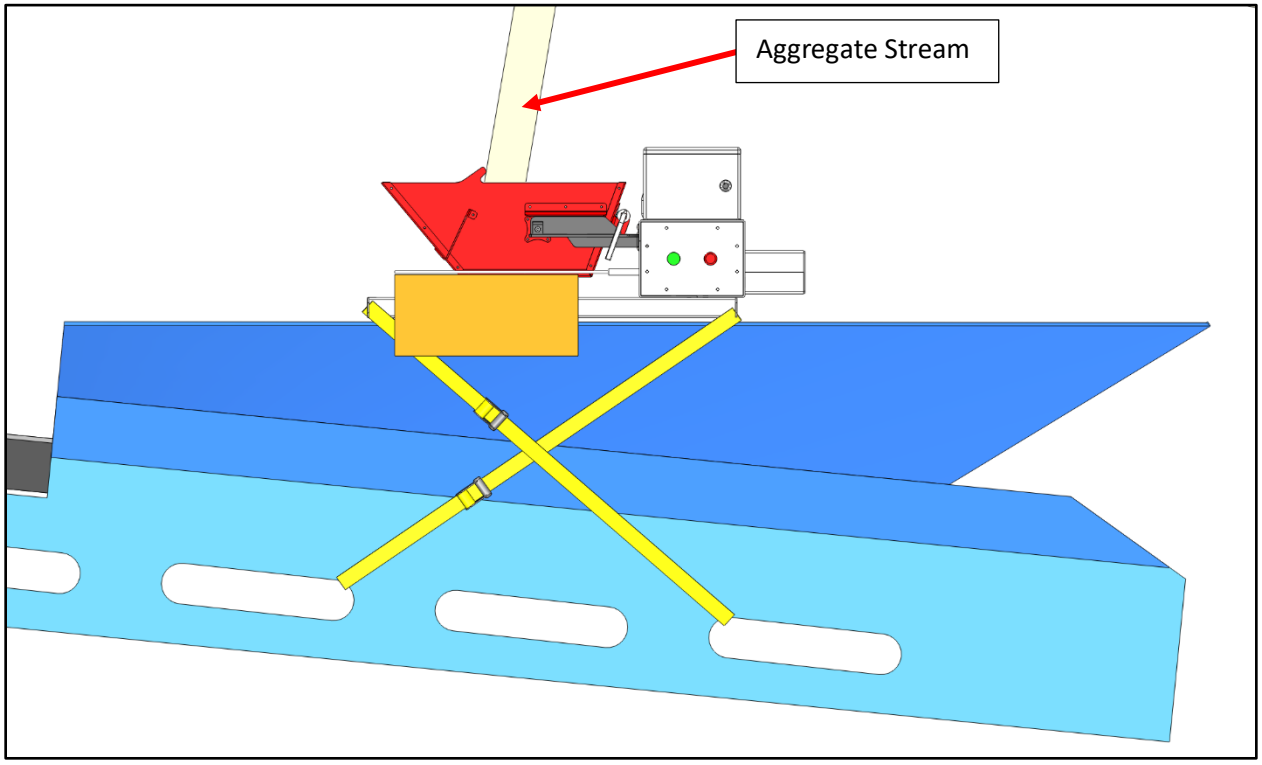


Figure 6 - A-1000 placed to catch the entirety of the aggregate stream in the center of the bucket

- The A-1000 can be oriented with the bucket on the upstream or downstream side of the conveyor stream, depending on the end user requirements - see Figures 2 and 3

- Care must be taken to ensure no large lumps (often occurring in frozen winter conditions) contact the sample taker, or damage may occur

- Persons operating the sampler taker must understand and follow this operation and safety manual and must be trained on all of the A-1000's associated hazards prior to use. ***Failure to do so may result in serious injury or death.***

Risks and Safety Precautions for the A-1000

- Persons operating the sampler taker must understand and follow this operation and safety manual and must be trained on all of the A-1000's associated hazards prior to use. Failure to do so may result in serious injury or death.

- The A-1000 sample taker is operated using an electrical motor and it can reach significant speed by the end of its travel. ***The cart can move very quickly when taking a sample, and either loaded or unloaded, it is heavy enough to cause significant bodily harm or death if it strikes a person while in operation. Great care should be taken by the operator to ensure that no persons are near the machine or in its path during operation.*** See Figure 7

- Caution must always be used when working around the rotating components of the sample taker and of conveyors. The drive belt is guarded but remains somewhat exposed and can cause

materials, clothing, hands, etc to become entangled in the belt during use, and the force is strong enough to seriously injure users and others in the vicinity of the machine. **CAUTION SHOULD BE USED IN AND AROUND THE MOVING BELT and PULLEYS.** Equipment damage, serious injury, and death can occur if these precautions are not followed.

- The owner and authorized users should regularly inspect the A-1000 for any flaws, damage, or other problems and make the manufacturer aware immediately so that the problems can be addressed before further use. The guards that are in place around the motor and the belt pulleys should be regularly inspected to ensure their continued effectiveness.

- Guarding supplied with the A-1000 may not necessarily meet your jurisdiction's codes and regulations, and it is up to the operator of the sample taker to ensure compliance with these safety requirements.

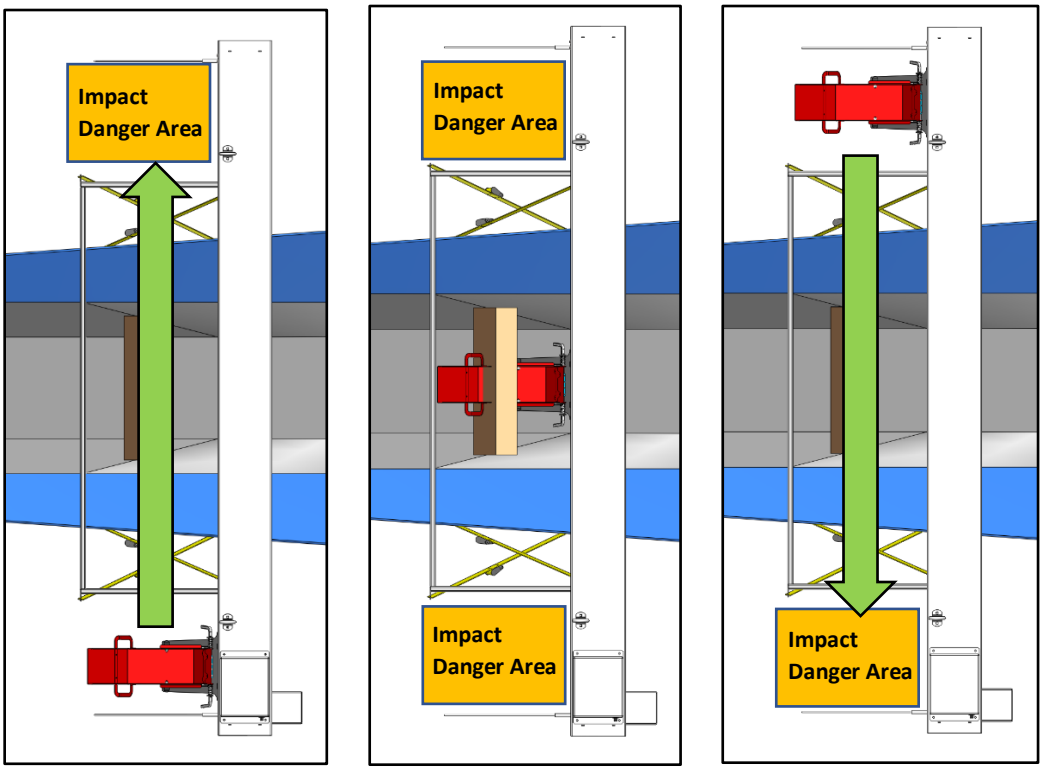


Figure 7 – Top view of moving cart and bucket travel, indicating areas of impact danger

Electrical Details and Safety

- Power supply should come from a 120V AC source protected by a 15 Amp breaker.
- Power cords up to 50ft long must be AWG12 or larger
- Use only grounded (3-pronged) power cords.
- Power cords greater than 50ft long must be AWG10 or larger conductors
- Electrical wiring is 24VDC, 75VDC, and 120VAC. There is a 13 Amp breaker located on the supply circuit inside the electrical panel on the sampler
- Servicing of electrical components should only be completed by qualified personnel. No servicing should be done unless the power supply to the A-1000 has been disconnected. The electrical enclosure must not be opened unless the power supply to the A-1000 has been disconnected. Electrical shock can lead to severe injury or death. Only experienced certified electricians should handle any high-voltage components.
- The A-1000 should be disconnected from power at the supplied 110V AC plug any time that it is not in use, and whenever a person is attempting to do anything with the machine outside of the normal mode of operation. Otherwise the electric motor and moving carriage and bucket can cause serious injury or death if they are inadvertently activated.

Operation of the A-1000

- Notes on startup and homing:
    - When power has been disconnected from the sample taker and is then reconnected, the cart and bucket will automatically “home” to **either end** of the sample taker when the Go button is pressed, so care must be taken to have all personnel and objects out of the way before restoring power.
    - If the Emergency Stop Button is pressed and then released, the unit will “home” to either end of the sample taker.
    - If the cart and bucket encounter an obstruction or abnormal resistance and stops during operation, the system may mistake that position for “home” and upon the next press of the Go button, it could cause damage to the unit. Ensure that if the unit stops in any position other than the ends of travel, the unit is disconnected from power and then reconnected to power so that it home to the proper position. If it does not home to one end or the other, discontinue use and contact the manufacturer.
- There are red Emergency Stop switches located on either side of the A-1000. These switches must be in the “out” position to allow operation and can be depressed if needed to stop the moving carriage or electric motor movement at any time. They can be reset by twisting them to the “out” position. See Figures 8 and 9.

- The A-1000 sample taker is operated using a dial to select a sampling speed, and a Go button which engages an electric motor to move the cart and bucket across a conveyor and through an aggregate stream. See Figure 8. The A-1000 can be used for production rates of up to 1000 tonnes/h, and the electric operation ensures a constant speed throughout the sample taking process. The speed selector dial can be set at any value from 0-100, which roughly equates to 100-1000 tonnes/hr of aggregate production rate. However, the user will have to adjust the dial to ensure a correct volume of sample is taken each time (the target volume for the bucket to hold is approximately 3.5 US gal). Selecting a higher number will cause the moving carriage to travel faster, and higher volume rates of the aggregate stream being sampled will require a faster speed to be selected.

- Figure 10 shows the speed dial warning decal which indicates two important points for speeds over 70%:

    - The bucket must be empty prior to taking a sample
    - No double-swipes are to be taken

- The bucket of the A-1000 is designed to capture approximately 3.5 US gallons of material. If a sample is taken and any material has overflowed out of the bucket, the sample should be discarded and a new sample taken.

- The operator must ensure that there is no buildup of material on the conveyor or the sample taker itself so that when a sample is attempted, the bucket impacts debris. This is especially important in freezing conditions since buildup can accumulate and become a danger. Always ensure the cart path is clear of all objects and people before operating the A-1000.

- Inspect the bucket prior to taking a sample and dump it out if any material is present. Also, ensure that the latch mechanism is properly seated so that the bucket does not come loose during the taking of a sample, see Figure 15. See Figures 11 and 12, and ensure the bucket is fully secured in the top position before operating the sampler.

- The green Go button on either side of the A-1000 can be pressed to cause the moving carriage and bucket to travel across the aggregate stream in one direction and obtain a sample.

- During operation in cold weather, ensure that the rubber seal is not frozen to the enclosure, as this can cause damage to the seal. See Figure 16.

- Ensure that no personnel or objects are inside the safety flags prior to operation.

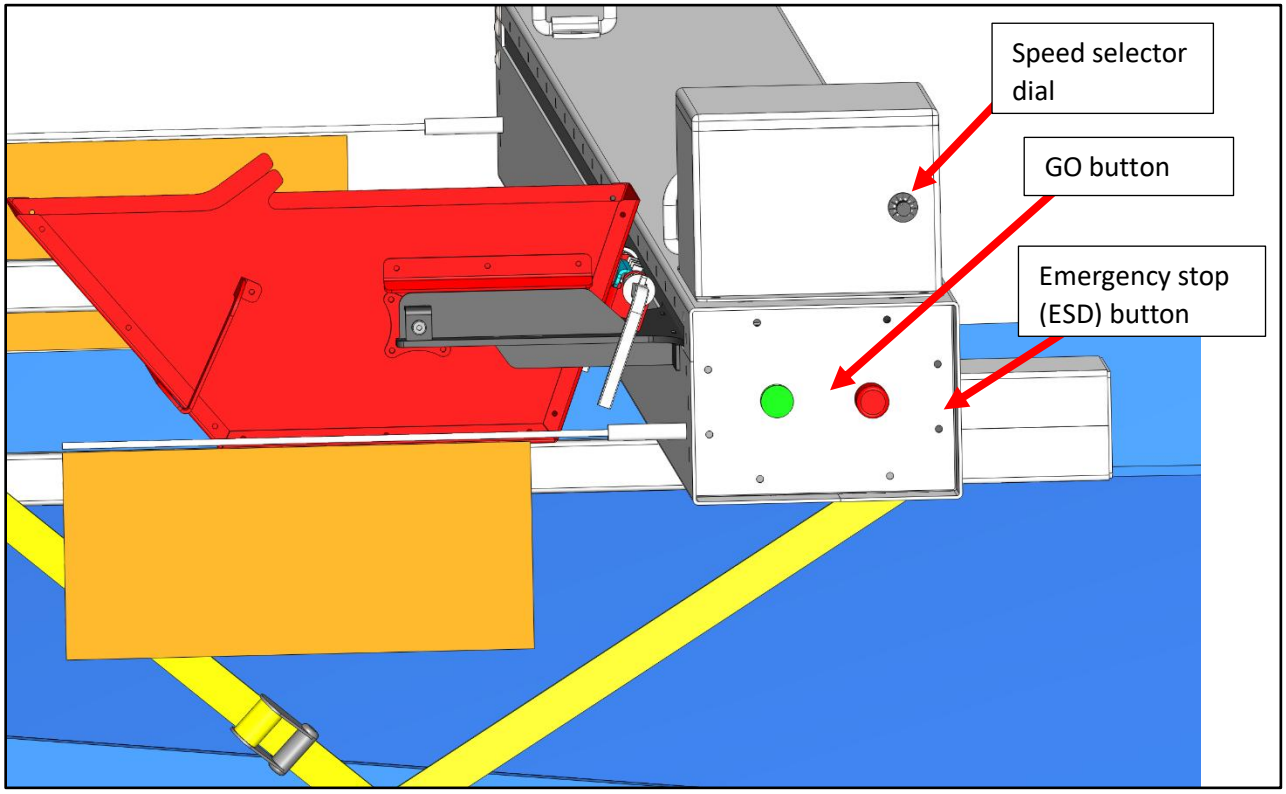


Figure 8 – Emergency stop button and Go button on the electrical enclosure side.

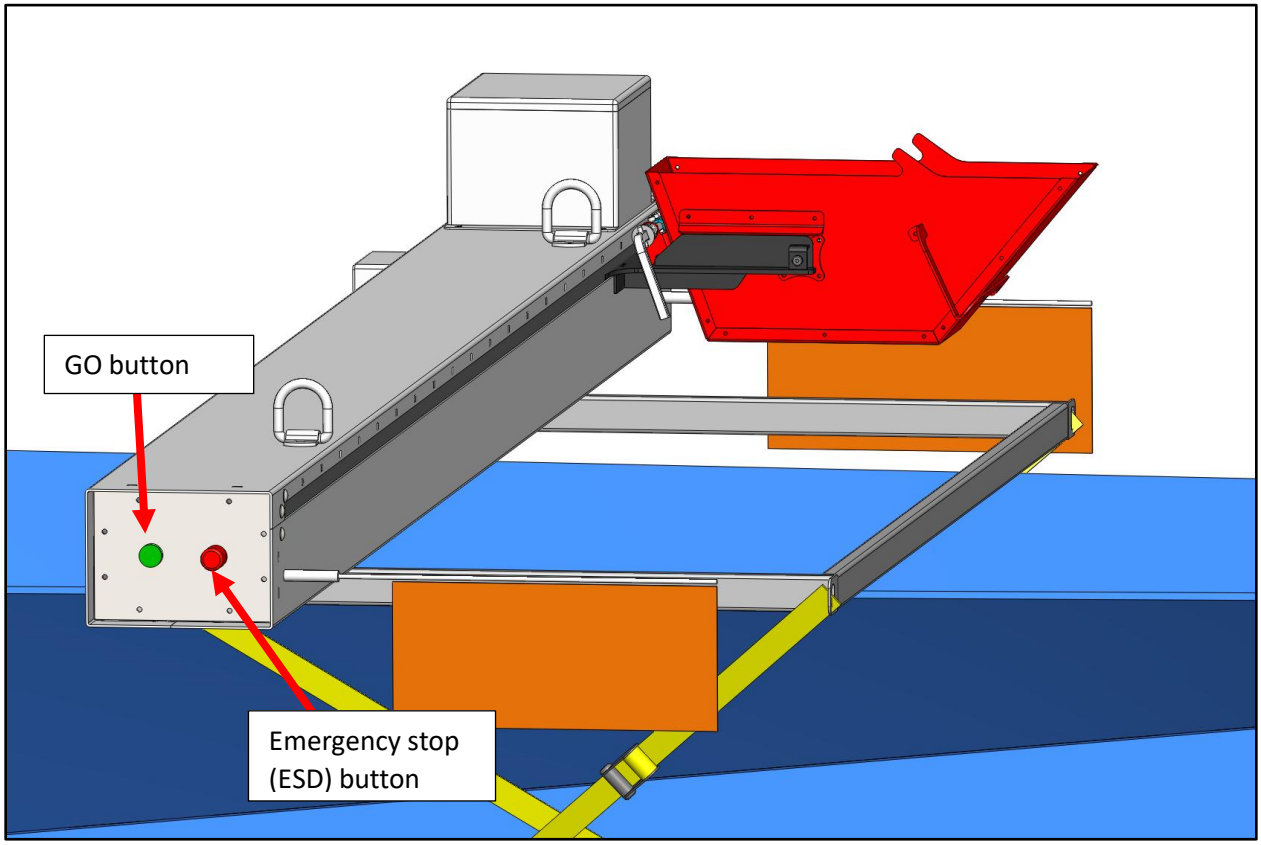


Figure 9 – Emergency stop button and Go button on other side.

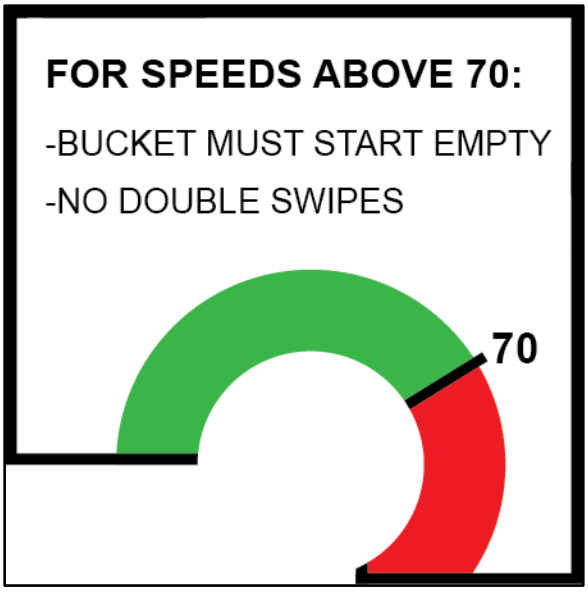


Figure 10 – Decal on sample taker with safety warnings.

- Once a sample has been obtained, the cart should be at the end of the unit. **DEPRESS THE EMERGENCY STOP BUTTON BEFORE ATTEMPTING TO HANDLE OR DUMP THE BUCKET.**

- The bucket is equipped with tabs that can be used to hang a sample pail on, as shown in Figure 10. After a sample has been obtained, a pail can be attached as shown and then the bucket dump handle can be pulled to allow the bucket to tilt downward, releasing the sample into the pail. Once the entire sample has been moved to the pail, the pail can be removed and the bucket moved back into its operating position. Care should be given to ensure the latch is properly seated on the bucket locking tab as shown in Figure 14 so that it doesn't inadvertently fall which can lead to damage or injury.

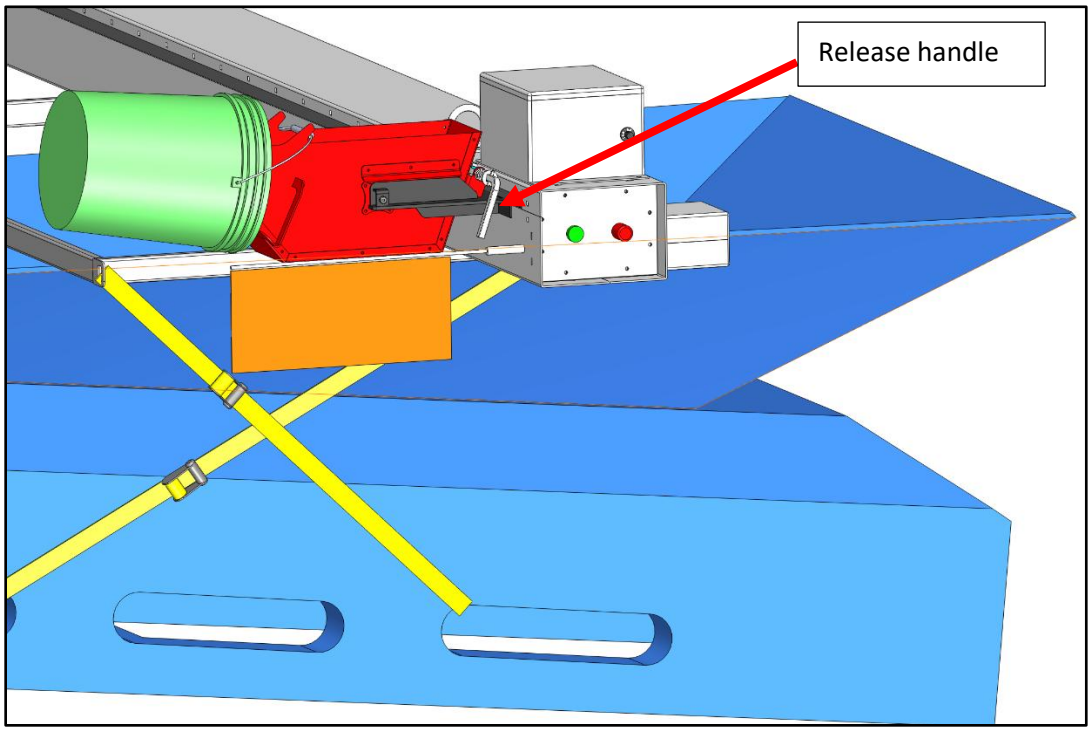


Figure 11 – Sample pail hooked onto tabs on the bucket (red). Release handle shown.

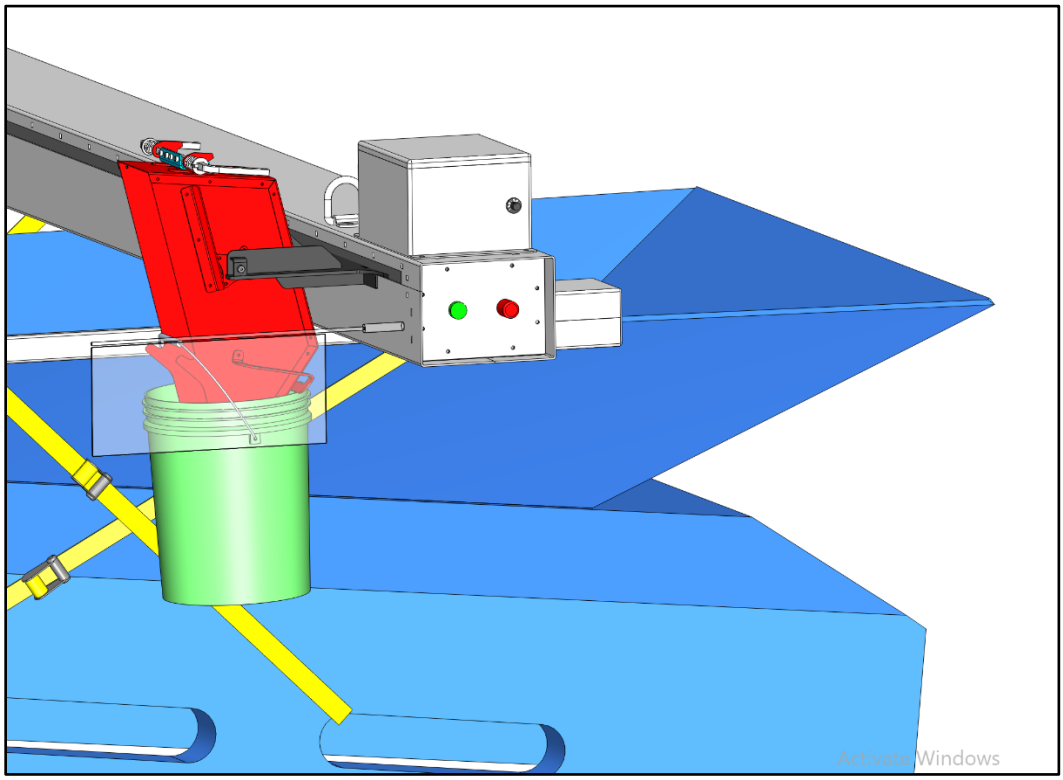


Figure 12 – Sample is dumped into the pail by pulling the release handle and tipping the bucket downward.

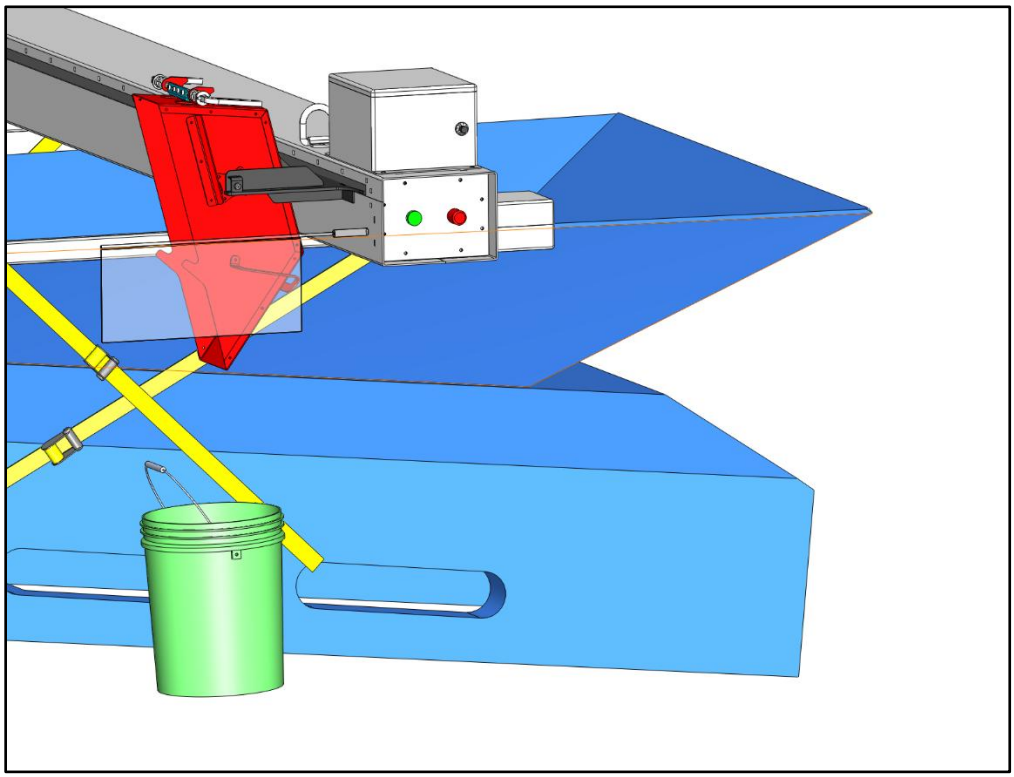


Figure 13 – Sample pail is removed from the tabs.

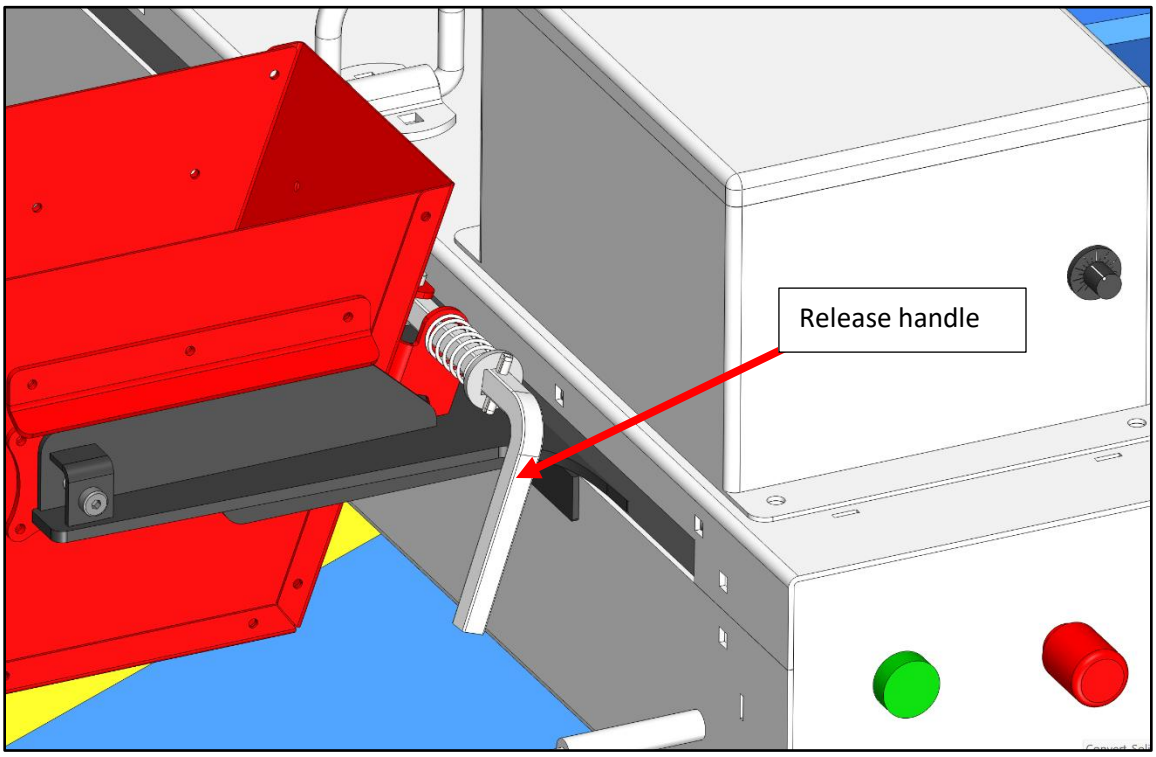


Figure 14 – Detail of release handle.

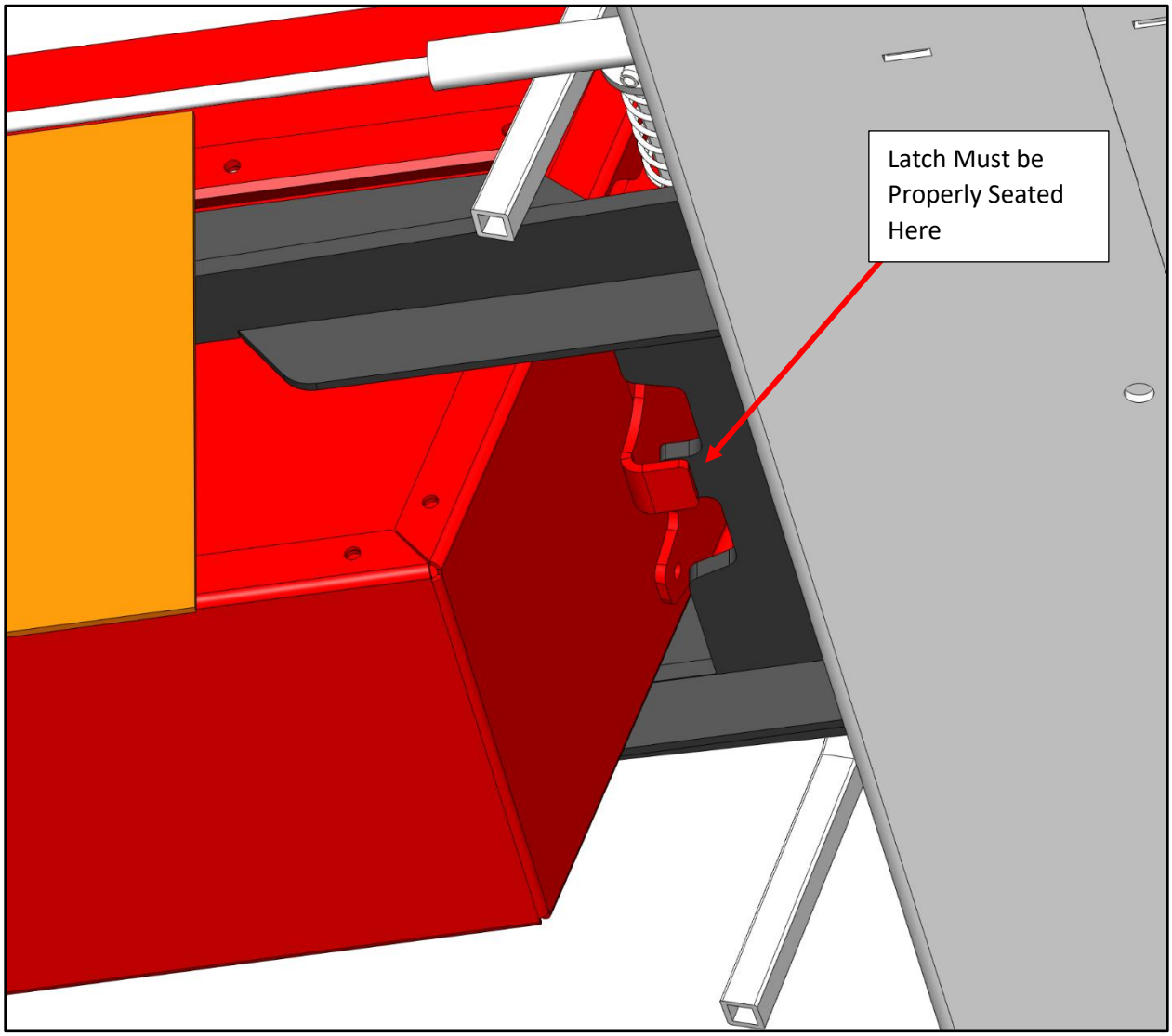


Figure 15 – Detail of the latch seating location, under the cart.

Maintenance

The following items are important to check regularly to ensure proper functioning of the sample taker.

- Check that the seal is always on the outside of the bottom edge of the opening in the aluminum cover. This helps to keep debris from getting inside the enclosure. See Figures 16 and 17. Also ensure that the rubber seal looks to be in good condition.

- Check all cord ends to ensure they are in good condition.

- At regular intervals (at least once every 6 months, more often in an especially dusty environment), pull the end caps off of the enclosure as shown in Figure 18 to inspect it for a build-up of rock and debris. When removing the end caps, be careful not to damage the end cap seal or the wiring that is connected to the buttons.

- If the guard needs to be removed to clean out the unit, the following procedure can be followed:

    1. Take the end caps off, being careful with the wiring
    2. Undo the fasteners from the joint plates just inside each end cap which are holding the top and bottom halves of the guard together
    3. Remove the bottom bolts from the guard that is on the opposite side to the bucket
    4. Loosen the bottom bolts in the other guard piece, the one that is connected to the rectangular tube structure BUT BE CAREFUL NOT TO FULLY REMOVE THEM.
    5. Slide the guard away from the bucket and off, being careful not to damage any electrical wiring. Ensure care with wiring when reassembling the unit.

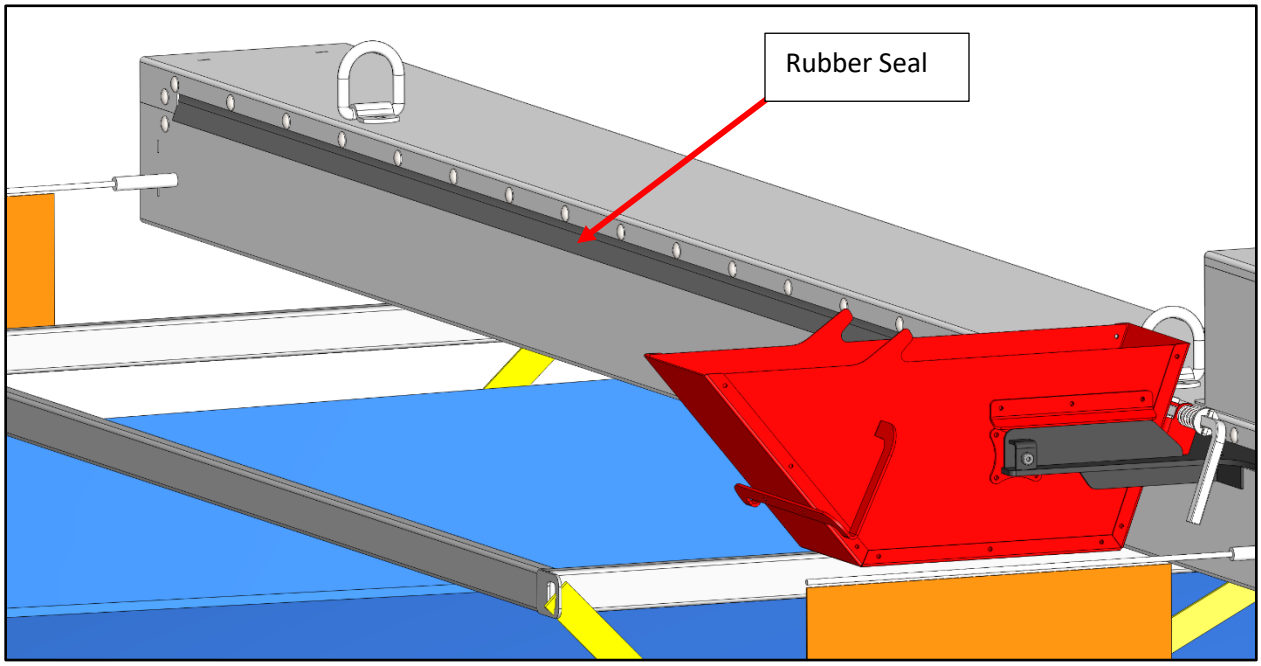


Figure 16 – Indicating rubber seal location.

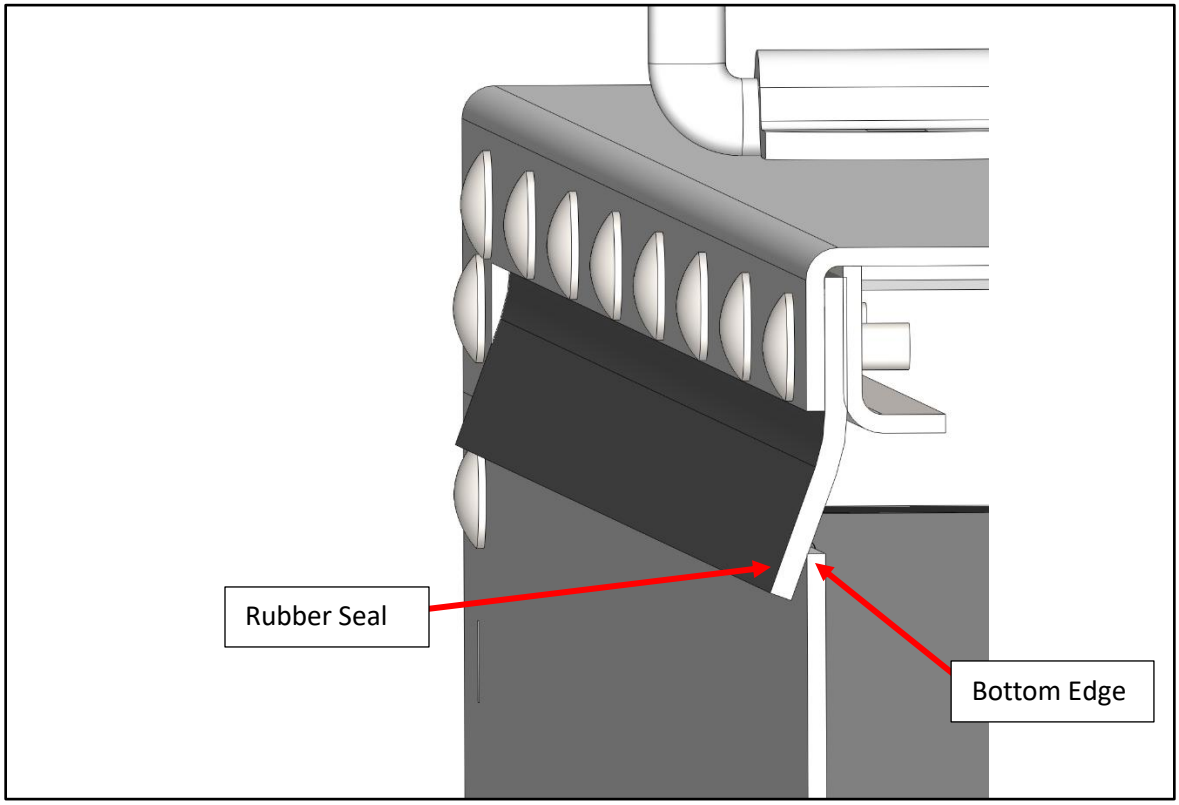


Figure 17 – Rubber seal properly seated over the bottom edge of the aluminum enclosure.

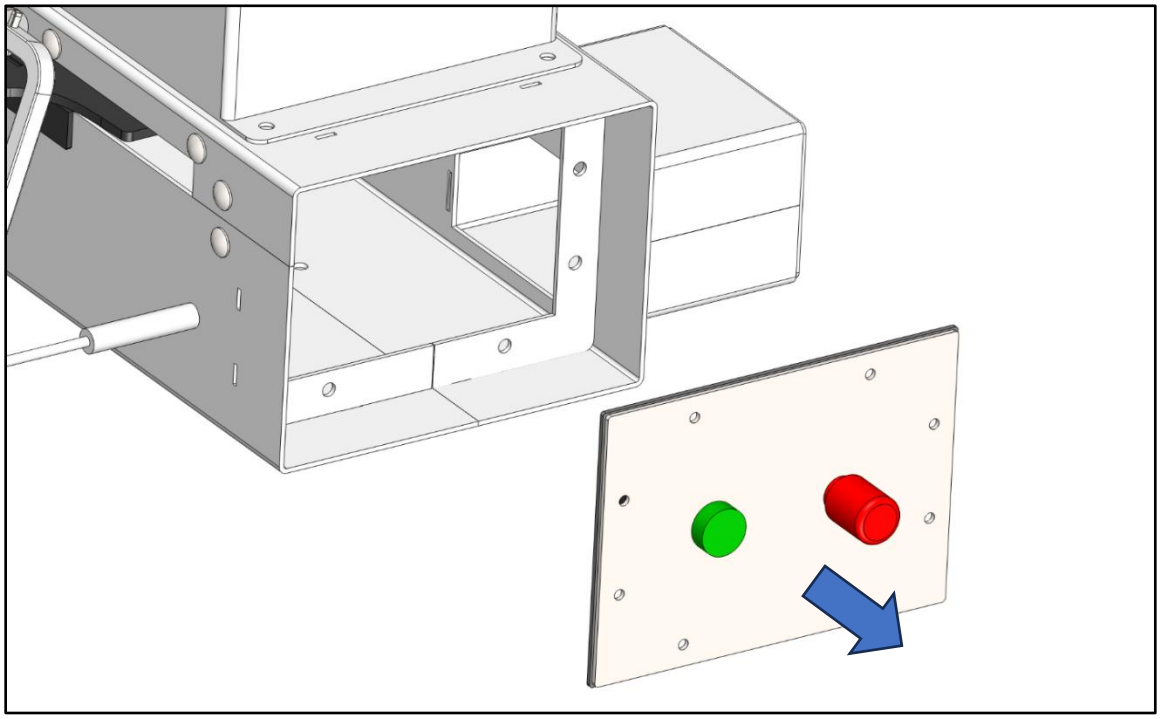


Figure 18 – End cap removed for inspection.

Troubleshooting

- If the A-1000 is not functioning when the Go button is pressed:
    1. Check for a green light on the cord end attached to the A-1000. If no light is visible, investigate the incoming power supply cord and power source.
    2. Ensure both Emergency Stop buttons are pulled out.
    3. Power cycle the A-1000 by unplugging it from the power source, waiting 10 seconds, and then re-connecting the power source.
    4. Unplug the unit from power and check to see if the bucket will move by hand.
    5. If the problem persists, contact the manufacturer.
- For advanced troubleshooting, only to be used by trained service technicians or electricians while on the phone with RockPro support technicians:
    1. Open the electrical cabinet and look inside for the following items:
    2. Check the breaker – red means that it is ON
    3. Check “I/O 4” for a green light, which confirms the Emergency Stop circuit
    4. Check that “I/O 3” lights up green when the Go button is pressed
    5. Check for a red flashing light on the “CleanCore” unit. If there isn’t one, check the fuse holder for the condition of the fuse. A spare fuse is provided which can replace one that is spent.
    6. Check the lights on the IPC5 and EDR-150-24 units for green lights.