# SRL-40 *Servoreeler*
## INSTALLATION and OPERATION

**SERVOREELER SYSTEMS**
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***Web site: www.servoreelers.com***
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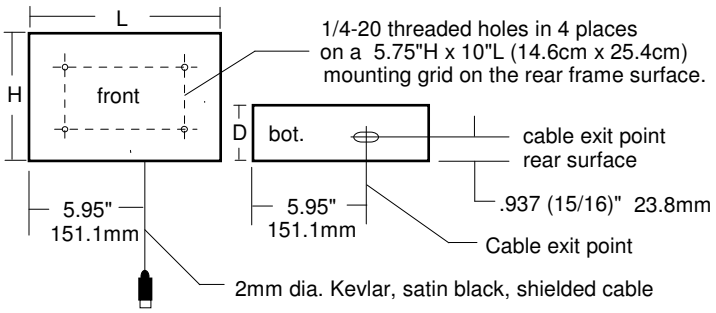


RJ-45 Pin Out
1- Down Sense
2- Down Control
3- Common
4- + 24 VDC
5- + 24 VDC
6- Common
7- Up Control
8- Up Sense

Housing Dimensions: H = 9.25" L = 11.125" D = 2.05" 235mm x 282.6mm x 52mm

**TEST RUNNING:** We strongly urge you to test run these devices prior to installation. The reeler is designed for operation in a vertical position; when test running, hold the SRL-40 in a vertical orientation with the cable exit point facing down. A minimum payload weight of approximately two (2) ounces is required for proper down feeding of the cable. A standard XLR cable connector provides this minimum ballast. An internal spill sensor is employed to stop the reeler if it is operated with too light a payload or with its cable impeded from down feeding freely; This interlock is designed to prevent internal cable spill resulting in jamming the mechanism. This safety interlock may not offer adequate protection if the unit is operated horizontally.
**Please note that this interlock is a back-up system, it is prudent to avoid conditions that would overly rely on its intervention.**

**MOUNTING:** The SRL-40 is provided with (4) ¼-20 threaded mounting holes on a 5.75" x 10" (14.6cm x 25.4cm) grid on its rear surface. These holes are threaded to accept standard ¼-20 machine screws or other fastner. Prior to installing, try the machine screws by hand to assure a proper fit, a faulty screw can damage the frame. Screw length should be selected so that no more than a nominal 1.0" (25.4mm) extends into the rear plate. Two or more of these mounting holes must be utilized for mounting.
**C A U T I O N Professional care and judgement must be exercised when mounting equipment overhead**. Mounting screws must engage a permanent, solid structural member or a metal bracket that is in turn securely attached to such a structure. Should mounting against a wood beam or surface be required, sheet rock or wood screws may be employed from the inside, through the threaded holes or slots into the structure (to remove the cover, loosen the four cover screws about two turns and slip the cover up from the body of the reeler.) **Note,** when mounting against a wood surface, all four holes must be used**.** Install washers as required so that the center of the reeler frame is elevated clear of any irregularities or high spots on the mounting surface. ***This is to prevent the Servoreeler frame from being distorted when the mounting screws are tightened.***

**Please note, the installer and the purchaser must assure that these devices do not pose a hazard to others, both during and after installation. Architectural or engineering guidance is highly recommended to help assure a safe installation, that is consistent with the particular physical requirements of your project.**

**OPERATION:** Servoreelers are operated by a remotely located controller. SRC controllers provide linear regulated 24vdc system power. Operation is initiated by either pusbutton control or through interface with an external computer control system like AMX or Crestron. IR sensors are employed to provide empty and full limits. An adjustable operating stop is also provided. This adjustable stop operates from the deploy mode. After this preset stop is reached, re-start with a sustained down command to reach a lower "service level". Automatic or incremental operation is selectable. The automatic mode provides locked-in operation that is initiated by a single "Deploy" or "Retract" momentary signal. The incremental mode facilitates fine positioning by allowing the Servoreeler to respond to individual, incremental, commands. Test running as described below, should always be performed in the incremental mode.

**SETTING OPERATING STOP POINT:** The IR sensor that controls the length of cable deployment is mounted on an adjustable module and track. To access this adjustment; loosen the four cover screws about two turns and slip the cover up from the body of the Reeler. To the middle right of the cable storage reel, you will see an aluminum track with a guide slot in the middle. It is calibrated at three relative settings: 20' (6m), 30' (9m) and 40' (12m) An adjustable module is set into this slot with a thumbscrew. The Reeler is shipped from our factory set to 30 feet (9m) of deployment. To reset, loosen the locking thumb screw just enough to enable the module to slide; utilizing the left edge as a pointer, push on the bracket utilizing firm finger pressure to re-locate the sensor to a new position. Retract above this point then re-activate the down mode to test the new stop point; repeat until desired length is achieved. Final positioning may require very slight movement of this module. Gently tighten the thumbscrew to retain the setting. Excessive force is not required and should not be used when tightening. This pre-set stop position will take place from the down mode and may be bypassed to reach a lower service position by another sustained down command signal. **CAUTION:** Maximum deployment of this Servoreeler is 45 feet; verify that this reach does not exceed the physical height limits of your facility and permit the microphone to collide with a surface.

**OPERATIONAL CAUTION:** When handling the cable after installation, DO NOT pull on the cable exerting a force greater than the normal payload weight. Never exceed 10Lbs (4.5kg) of pull on the end of the cable. Non-linear or excessive pull force of the cable will distort the concentricity of the cable pack on the storage reel. This will adversely affect the operation of the IR sensors. Should this occur, cable pack concentricity, can be restored by fully deploying and then retracting the microphone cable with its normal payload.

*Thank you for selecting the SRL-40 Servoreeler. Should you require any assistance in the US, please call our toll free line (800) 431-8900. For assistance from outside of the US, please use: 718 464-9400 fax: 718 464-9435*

# SRL-40
## Physical Layout

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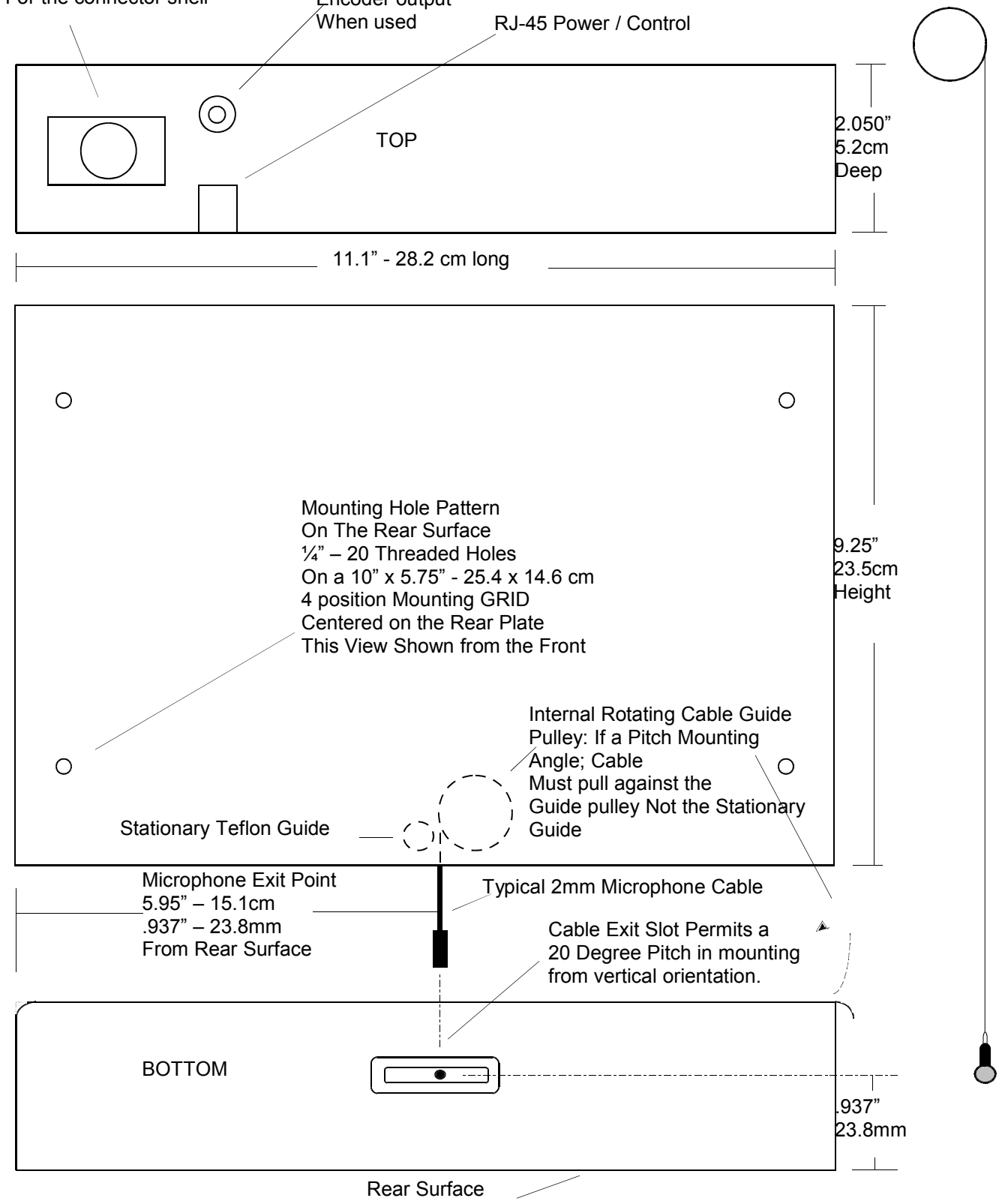

# SRL-SERVOREELERS
**INSTALLATION ADDENDUM – A**
**SRL-20; SRL-40; SRL-90**

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## Please note the following general Cautions:

1- Never apply any external voltage to Sense Outputs (pin numbers 1 and 8); this will damage the control circuit and compromise the warranty.

2- If user supplied, always employ a linear 24Vdc regulated power supply, allowing 700ma per Servoreeler.

3- Never apply a force that exceeds the normal payload weight on the Servoreeler cable. Absolutely never exceed a maximum of ten pounds of pull on the cable. Excessive loading of the cable will compress and distort the cable pack on the storage reel. Should this occur, fully deploy, then retract the cable with the normal payload to restore normal cable pack concentricity. An oval or eccentric cable pack will adversely affect the accuracy or operation of IR limit sensors.

**Payload capacity:** Servoreelers are conservatively rated at 2.2Lbs (1Kg) with a maximum of 4.4Lbs (2Kg) There is also a minimum combined payload weight of 1 – 2 ounces (28 – 56gms) that is required to assure reliable cable deployment. The XLR female connector that is usually employed is sufficient in itself to provide the required minimum ballast.
***An internal accumulation of cable can occur if the Reeler is operated in the Down mode while on its back or if the cable is not free to down-feed or is too lightly loaded.*** A cable "Spill" sensor interlock system is employed to stop the down operation if an internal accumulation of cable is detected. This system will normally prevent a jam from developing. This safety mode is effective, but may not always be caused to trip; it is intended to be a back-up system. This interlock is provided to protect the Servoreeler primarily during testing and installation. Conditions causing its intervention generally do not occur after the Servoreeler is installed. Care is advised to avoid conditions that would rely on the activation of this interlock.

**Clearing an Internal Cable Jam:**

1- Cable jams are not common. However, if a jam is suspected then the four cover screws about two turns each and slip the cover up from the Servoreeler chassis. You will see the cable storage reel with the cable retained by a clear Plexiglas flange. **IMPORTANT CAUTION ! DO NOT LOOSEN THE FLANGE SCREWS OR ATTEMPT TO REMOVE THE CLEAR FLANGE. Removing this flange is rarely necessary. If removed, the resulting disruption of the microphone cable and its synchronization with an internal cable system will be very difficult for you to remedy.** Cable jams that occur due to an internal spill and a consequential accumulation of microphone cable can be cleared by following the procedures listed below.

**NOTE: Take care not to alter the normal cable layer sequence when clearing a jam.**

2- The cable is wound in one plane on the storage reel; layer upon preceding layer. There should be no discontinuities in these layers. Look for any irregularities at the last several outside layers of cable. If there are any trapped loops of cable or cable caught between some of the round spill bumpers, or the input roller guide, these need to be cleared. Usually such jams can be cleared by carefully working the loose winds until the cable is returned to a uniform even condition. When necessary, to clear a more serious tangle, press down on one of the white, round spill-bumpers to release spilled cable. It may also be helpful to activate the Servoreeler in the Up or Down-modes to help realign the cable. Any turns of stored cable that are removed from the storage reel must be counted and then must be replaced after the jam is cleared.

3- Do not over tighten the retaining- screw when re-installing the input guide roller or any other part that has been removed.

4- Carefully smooth-out any kinks in the cable. Serious kinks must be unwound and then straightened. Do not attempt to force kinks out by just pulling them straight, this will leave a permanent kink in the cable structure. Smoothing small bumps and bends can be done by gently pulling the cable by making a half turn across a screwdriver or other similar .25" (6mm) or larger round shaft.

5- After clearing a jam, it is wise to fully deploy the cable with its normal payload and then fully retract it. This will permit the cable to wind itself evenly on the storage reel. If the Servoreeler will not deploy or retract all of the cable, this is an indication that cable synchronization has been altered. Remedy by either adding or removing a turn of cable on the storage reel. If the storage reel stalls before taking-in all of the cable then add cable. If stall occurs before full payout of cable, remove cable from the storage reel. Do this by manually passing the cable past each white spill-bumper until a complete layer has been added or removed. After all of the loops and slack have been removed and proper operation has been observed then re-install the cover.

**PLEASE DO NOT ATTEMPT ANY OTHER DISASSEMBLY OF THE SERVOREELER MECHANISM.**

*Should you require any further assistance, or have any questions regarding these instructions, please call us for support at: 800 431-8900 From outside of the US: 718 464-9400 fax: 464-9435 or srsystems@servoreelers.com*

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# SRL-40 Cable Replacement

Cable replacement requires the nearly complete disassembly of the SRL-40 Care needs to be taken to make notes as to where parts, spacers and shims need to be replaced when re-assembling the mechanism...

1- Remove the XLR connector by cutting the cable close to the connector. Save XLR to use as sample for re-installation onto the new cable to duplicate factory strain relief scheme.

2- Deploy entire length of stored cable before any disassembly.

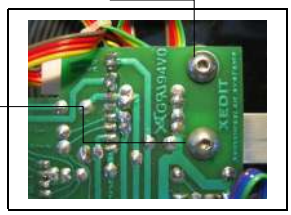
3- Unsolder the internal cable free of the chassis XLR connector.

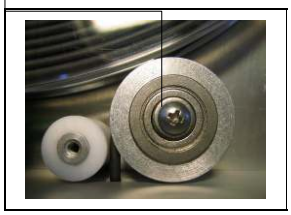
4- Remove (5) white bumpers, screws and washers; save all parts. Take care to save springs if removed.

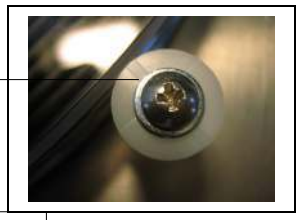
5- Remove input guide roller; save spacers & shims.

6- Remove PCB retaining screw using a 3/32" Allen wrench.

Do not loosen this:

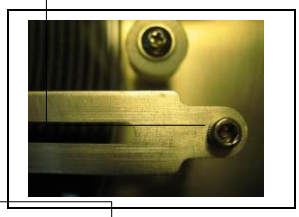




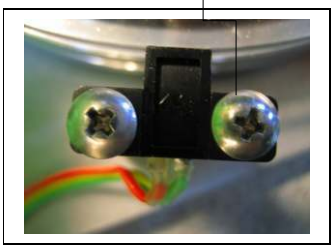


7- Remove Allen socket screw; loosening hex lock-nut under adjustment bar. When re-installing, the bar needs to be adjusted parallel with frame.

8- Remove the four Allen socket button screws that retain the long top and bottom frame sections; note that the holes are slotted to permit edge alignment.



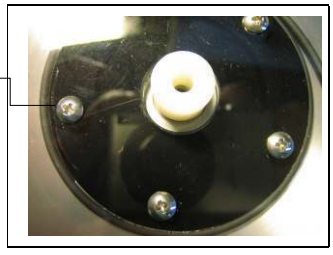
9- Handle the lower section carefully because the PCB is attached to it by the leads of the TO220 devices. Carefully tilt the PCB assembly bottom frame to the left of the frame revealing the spill IR module. Remove the two Phillips retaining screws to free the IR module so that the lower frame section is free to lay aside.



10- Unwrap the drive belt from the storage rotor to free the top (drive) plate so that it can also be layed aside to access the storage rotor.

11- Carefully rotate the long top and bottom frame sections as a unit to the left of the frame – completely exposing the storage rotor.

12- Remove the five Phillips truss screws, clear Plexiglas flange retaining screws.



13- Lift the storage rotor pulling up from both sides evenly from its central main shaft.

14- Remove internal (Bin) cable; threading the previously disconnected XLR end between the top bin plate and the bottom main frame. Also slide all of the storage side cable free of the cable exit slot from the bottom plate.

15- Turn the rotor over to expose the Bin hub. Remove the Bin Hub by removing the three flat head retaining screws. The hub also clamps and directs the cable horizontally into the Bin space allowing free rotation of the rotor.

16- The next photo shows the position of the white - index mark on the cable.

Continued on page two

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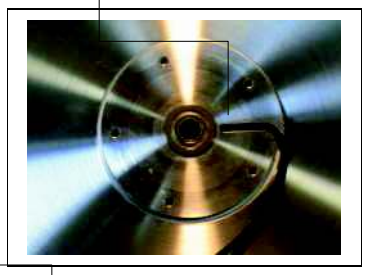
# SRL-40 Cable Replacement

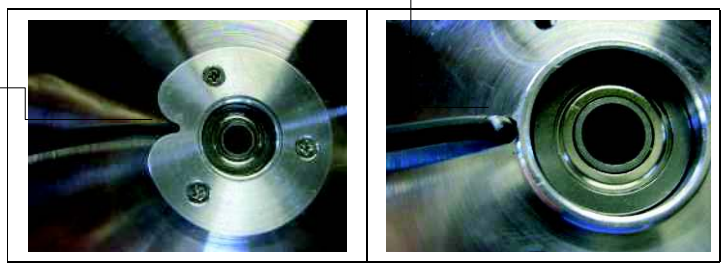
17- After removing the Bin hub in (15) carefully pull old cable from the top of the storage rotor from the central through-hole feeding the cable slot in the spiral hub.

18- Handle the rotor carefully; the top surface is a reflective surface and needs to be free of any foreign matter. This surface should be wiped clean prior to installing the new cable. It is coated with a clear silicone protective film at the factory and simple wiping should suffice.



19- Taking the two section replacement cable; unroll the smaller bundle straightening it out – carefully unwinding, not pulling, any kinks out of the cable. Once the cable is smooth and free of bends or kinks, thread the free end into the central through-hole. Continue to carefully pull the cable until the white index mark reaches through to the underside.

20- Replace the heart shaped Bin hub aligning the milled slot over the protruding cable; directly over the white mark. Replace the three 4-40" flat head 100deg. Screws to re-fasten bin hub. Caution: Do not exert excessive force. If using a cordless driver, set torque at low.



21- Slide the free end of the "Bin" cable into the large diameter rotor opening at the top of the frame, aiming it towards the top. Slip the cable into the space between the top and the base of the frame. Gently pull all of bin cable through this space until the rotor is close to the main shaft. Rotate the rotor until the cable exit point from the bin hub is aimed directly towards the top (drive side) of the frame. Maintaining a gentle pull on the cable, align the shaft end to the ball bearing bore and lower the rotor onto the main shaft. Make sure that the bin cable is not pinched and is free to move when the rotor is turned. You must not have any crossed or overlapped cable in the bin. The bin space is designed for a single layer of cable plus slight clearance.

22- On the top side of the rotor, dress the cable in the slot as shown in the first photo above and re-install the clear Plexiglas flange, fastening it down with five truss 4-40" screws; use light torque setting or make hand tight only. Unbundle by carefully unwinding not pulling, the storage cable in the larger bundle. This cable employs a Kevlar core and is quite strong. However, the cable can be damaged or permanently kinked by trying to force kinks-out by "pulling". Kinks must be carefully unwound and the cable must be layed-out straight before trying to load it onto the storage rotor.

23- Once the cable is straightened, load it onto the rotor by hand turning the rotor counter-clockwise, start the storing operation by exerting some extra tension on the cable to help the cable conform to the first turn. Maintaining a lighter tension on the cable by slipping it through a paper towel to remove any foreign matter and to exert some tension so that the wind on the rotor is smooth and concentric.

24- While the rotation and loading of the storage side of the rotor is taking place, the bin side cable needs to be free to also wind into the bin-space. Make sure that the bin cable does not get entangled during this process. At a point in the loading, the bin cable will be entirely pulled into the bin space. When the storage side is full, within one half turn of completely full, stop. Temporarily secure the remaining cable. Then, using a slender tool or stiff wire, fish the end of the bin cable out of the bin. Sometimes rotating the rotor may help in finding the end of this cable. Once the end is pulled out of the bin, the synchronization of the two sides must be set.

25- Typically, after finding the end of the bin cable, pull one or two turns of cable from the storage side and add one turn of cable onto the storage side by manually looping the cable around the outside diameter. TEST the synchronization of the storage and bin cable by manually pulling all of the cable from the storage rotor while restraining the end of the bin cable under the frame. Synchronization is adjusted by adding or removing cable layers on the storage side of the rotor so that complete cable deployment and retraction can take place without the bin cable coming under tension or restraining the storage side rotation in either mode.

26- Leaving enough cable service to attach the end of the bin cable to the XLR, align this cable with the slot milled into the top (drive) plate and the bin space. Insert but do not tighten the 8-32" button cap screws to restrain the plate to permit drive belt clearance. Re-install the drive belt into the drive groove around the storage rotor. Once the drive belt is clear of the top (drive) plate, tighten the button screws making sure to align the ends flush with the frame. Replace the spill bumpers to restrain the cable from accidentally spilling from the rotor.