

80292002-i - Battery Extractor Equalization Chain Installation / Resetting Instructions



Improper installation or resetting of E.Q. (equalization) chains will result in damage to the extractor and cause the extractor to operate in an unsafe manner.

Required Tools:

- Large standard screwdriver
- 1/8", 5/32", 3/16" Allen wrench
- (2) 1-1/8" Open-end wrenches
- Needle nose pliers
- 6" Steel scale (ruler)
- Brake cleaner (non-chlorinated)
- Loctite #242 (blue)
- 80292002 - E.Q. Adjustment stop kit (SL, DS, TS)
or
80492001 - BE-QS E.Q. Adjustment stop kit
- Ladder or work platform (*see notes*)

Optional Tools:

- Wire brush for removing Loctite from components prior to reassembly

Notes:

- ① *A ladder, man lift or other device is required to access the upper E.Q. studs on BE-TS and BE-QS units.*
- ① *The following procedures must be performed with the extractor unloaded and in a level area of the travel path.*
- ① *Installation of the E.Q. stop kit requires (4) persons plus a trained battery extractor operator to raise and lower the inner carriage.*
- ① *It is recommended to have new E.Q. chain connecting links on hand prior to performing the following procedures.*
- ① *The upper E.Q. stud lock washers cannot be reused and must be replaced prior to reassembly.*



BE-TS WITH E.Q. ADJUSTMENT STOPS INSTALLED

IMPORTANT:

- **Read and understand the Safety and De-energization Procedure TP-606 before starting this procedure.**
- **Read and understand these instructions completely before starting this procedure.**

Procedure:

1. Remove the inner and outer frame guards to access the lower equalization studs.
2. Raise the inner frame approximately 30" (762 mm) for SL, DS and TS units or 50" (1270 mm) for QS units from the fully lowered position. Install (1) adjustment stop at each corner of the roller bed. See Figure 1.



FIGURE 1

3. Slowly lower the inner carriage until the roller bed is firmly and securely seated against all four stops. See Figure 2.



FIGURE 2

4. Lockout/tagout the B.E. per your corporate policy.
5. De-energize the B.E. per BHS Safety and De-energization procedure TP-606.
6. Loosen and remove the upper hex nuts and remove the upper chain studs. Remove the lock washers from the upper chain studs. Save the hex nuts for reassembly later. Discard the lock washers and obtain new, 3/4" split-ring lock washers for reassembly.
7. If replacing the chain, remove the upper stud and remove the chain from the lower stud. Discard the connecting links.
 - ⓘ If the E.Q. chains are being reset due to a connecting link failure, it is recommended to also replace the stud where the connecting link failed.
 - ⓘ It is recommended to replace the connecting links when replacing or resetting the E.Q. chains.
8. If replacing a lower stud, remove the connecting link and disconnect the chain. Loosen the hex nut and remove the stud. Remove the hex nut from the old stud and reinstall it on the new stud. Reinstall the new stud so that it is flush with the bottom of the frame and the hole is aligned front-to-back with the extractor.
9. Attach the chains to the lower studs using the connecting links. Attach the upper studs to the chains using the connecting links, making sure the nut is threaded down near the connecting link and lay the chains in the frame. See Figure 3.
 - ⓘ Do not fully assemble the lower connecting links by bending the cotter pins as the connecting link may need to be removed later for stud adjustment.



FIGURE 3

10. If new E.Q. sprockets are to be installed, remove the clamp collars and old sprockets. Install the new sprockets and reinstall the clamp collars. DO NOT tighten the set screws at this point as adjustment/alignment may be required.

① *Sprockets MUST be keyed in-line.*

11. Align the E.Q. shafts so that the keyways are in the 2 o'clock position (approximately 60 degrees from vertical). This will bring the sprocket set screws to the top of the sprocket when the inner carriage is lowered. See Figure 4.

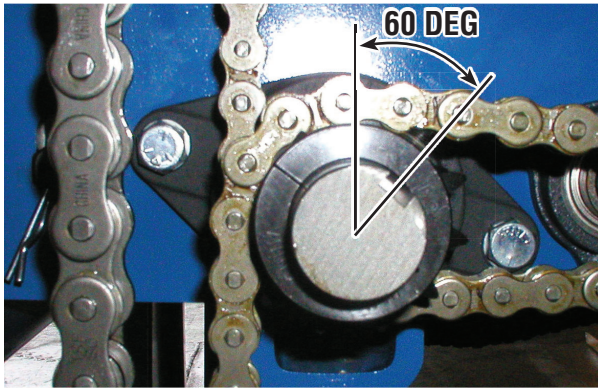


FIGURE 4

12. Starting with the inside chain, route the chain over the sprocket directly above the lower stud and under the inside sprocket on the opposite shaft. Attach the upper stud to the top cross bar, making sure a new 3/4" split-ring lock washer is installed between the cross bar and lower hex nut. Hand tighten the upper stud adjusting nut to remove slack from the chain. See Figure 5.

13. Route the outer chain over the sprocket, above the stud and under the sprocket on the opposite shaft. Attach the upper stud to the top cross bar, making sure a new, 3/4" split-ring lock washer is installed between the cross bar and lower hex nut. Hand tighten the upper stud adjusting nut to remove slack from the chain. See Figure 5.

① *It is recommended to begin at the operator end where room is limited allowing easier access at the opposite end to route the chain under the final sprocket.*

14. Repeat steps 11 through 13 for the opposite side of the extractor. It is likely that a large, standard screwdriver will be necessary to position the final chain over the sprocket. See Figure 6.



FIGURE 6

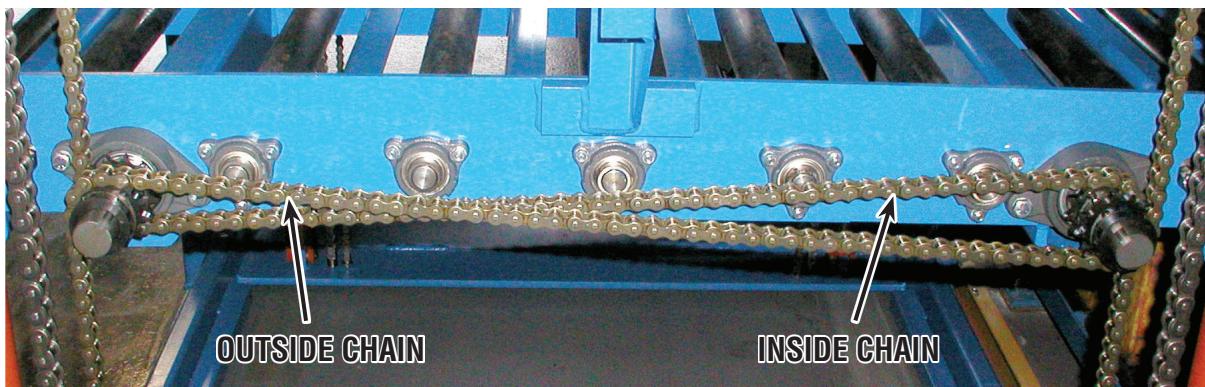


FIGURE 5

15. Adjust the lower studs up or down as necessary to take the slack out of the chain between the lower studs and the sprockets by removing the connecting link from the stud and turning the stud. Tighten the hex nuts against the frame once the studs have been adjusted. Reattach the chain.

① *DO NOT allow the stud to twist when tightening the hex nuts.*

16. Tighten the upper hex nut on the upper studs until there is approximately 1/4" (7 mm) of total deflection in the middle of the upper, vertical chain sections. Tighten the lower hex nuts on the upper studs to lock the studs in place.

① *Each section of chain between the sprockets should have approximately the same tension as the other on the same side. See Figure 5.*

17. Raise the inner frame and remove the adjustment stops from the four corners and lower the inside frame.

18. Verify equalization sprocket and stud alignment by using a 6" scale. Measure the distance from the inside roller bed frame to the center of the equalization stud. Compare this distance with the measurements from the inside roller bed frame to the center-lines of the sprockets. Adjust the position of the sprocket as necessary to make the distances equal. This will ensure the chain and sprockets are in line with the stud. Repeat this process for the three remaining chains. See Figures 7 & 8.

19. Raise and lower the inner frame several times and listen for any chain popping noises to confirm the sprockets are in line with the lower studs. If there is no popping noise, lower the inner frame all the way down.

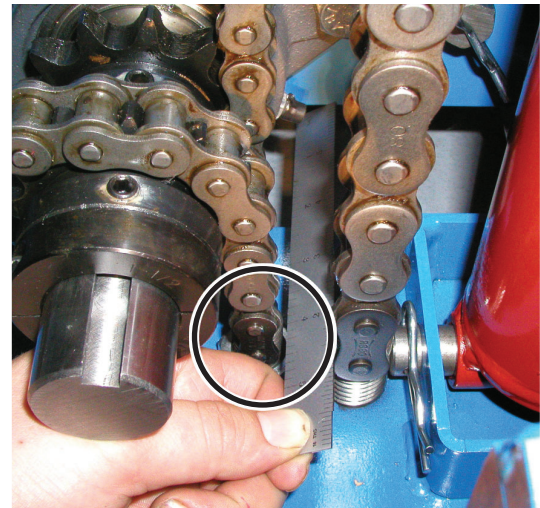


FIGURE 7

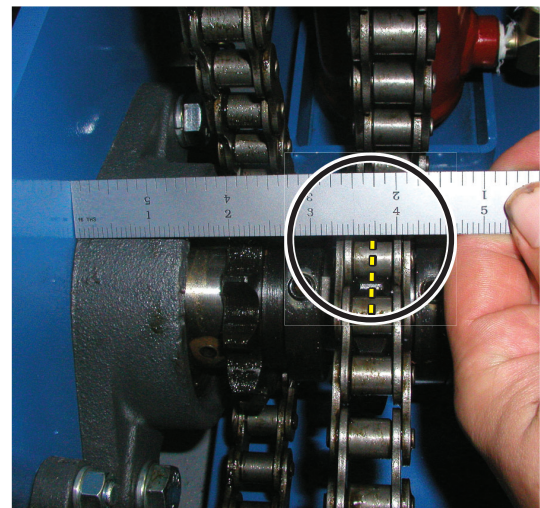


FIGURE 8

20. Clean any existing, hardened Loctite from the sprockets, sprocket sets screws, clamp collars and clamp collar bolts.

21. Apply Loctite to and tighten the set screws on the sprockets. Slide the clamp collars against the outside sprocket, loctite and tighten the clamp collars.