

KEYSTONE Model K-108 DRIVE BELT REPLACEMENT

This step-by-step guide is for changing the Keystone K-108 drive belt.

This is **not** an easy task and should only be attempted by folks who are very mechanically inclined and have loads of patience! Accessing the drive belt is like peeling an onion – many layers. When designing this projector, I think Keystone took a belt and then built the projector around it! Belt replacement was NOT something that the designers had in mind for the owner.

The steps listed below are only a guide. There may well be different and easier ways to accomplish this task.

Enough of that – here we go....

- 1) Make sure the projector is unplugged. Remove the focus lens. Remove the lamp housing cover and lamp bulb. Remove the condenser lens assembly from the side of the lamp housing. Using a small screw driver remove the color matched hole cover on the front of the projector between the arms. Set these items aside.
- 2) Remove the upper and lower arm covers (4 screws each).
- 3) At the back of the projector remove the speed control knob and the motor switch cover. Remove the 7 screws and fan housing cover.
- 4) Remove the fan from motor shaft using a 2.5mm hex key.
- 5) Remove/Loosen the two lamp housing screws above and below the film gate.
- 6) Remove 3 motor to fan housing screws and the 2 fan housing to lamp housing (upper and lower) screws. Support the lamp housing with some wire to avoid damaging the wiring.
- 7) Remove the 2 screws and the black fan shroud. Move the STILL lever to “still” setting. Use wire to support the fan housing to avoid damaging the wiring.
- 8) Prepare some support wire for the motor housing. Remove the 4 motor housing screws and gently pull the housing away from the body. Be careful since you need to disengage the Rewind lever

linkage at the same time. Carefully suspend the motor with your support wire.

- 9) You can now carefully slide the fan housing off of the motor shaft. You now have access to the motor shaft pulley to remove/install the drive belt from the motor side only.

Now things get a little more technical...

10) Now you can see the main worm gear shaft that has the belt pulley and shutter blade attached. Covering part of the worm gear shaft is the floating rewind plate and its center support plate.

Remove the 2 screws, springs and washers holding the rewind plate and remove the rewind plate.

11) Remove the 5 screws and the center support plate.

12) Under the support plate is an idler gear that mounts between the upper and lower arm main drive gear.

Remove the screw holding the idler gear. You will need to hold the bolt with some snap ring pliers while unscrewing the gear side screw.

13) You now have access to the worm gear shaft. Carefully scribe an index mark on the end of the shaft and onto the shutter blade in order to preserve shutter timing. I don't know if this is absolutely necessary but I did it anyway. Mark the pulley/helical gear also. Note how far the shaft extends beyond the shutter blade.

14) Loosen/remove the grub screw holding the shutter blade.

Remove the shutter blade if you can but its not necessary if it won't come loose. (I couldn't get mine to come off)

15) Loosen/remove the two grub screws holding the pulley/helical gear to the shaft.

16) Using an appropriate sized brass drift punch and plastic mallet **carefully** drive the worm gear shaft towards the front of projector housing. No need to completely remove the shaft. Drive it forward enough to clear the pulley/helical gear assembly stopping at the left main bearing. There are two or three small fiber washers between the shutter blade and the pulley/helical gear. Careful, they are delicate!

- 17) Now you can remove the pulley. Take your new belt and wrap it around the pulley and carefully tap the worm gear shaft back through the pulley assembly, washer(s) and through the right main bearing. You may first want to lightly grease the worm gear shaft with some light synthetic grease prior to reassembly. Align your index marks and tighten the two grub screws.
- 18) Replace the fiber washer then the shutter blade. Adjust the distance the shaft extends beyond the shutter blade, align the index marks, and tighten the grub screw.
- 19) Reinstall the idler gear, center support plate, and the rewind plate.
- 20) Carefully align and fasten the motor housing to the projector housing. Make sure to align the rewind lever assembly!
- 21) You can now reach in to wrap the belt onto the motor shaft pulley. A little tricky – use a small screwdriver etc. to help the belt onto the pulley.
- 22) Now you can reinstall the rest of the components in reverse order.
- 23) SUCCESS! (Hopefully)

NOTE: As you start to disassemble the projector it's a good time to clean the parts as you go. Clean the inside as best as possible also.