

D1.6 Audio Cassette Special Processing Guide

Summary

Most audio cassettes are playable in their current condition. This guide contains procedures for fixing cassette tapes which are not playable due to physical issues with the cassette shell or tape damage. Addressing cassette tapes which have been contaminated with mould or another substance, or tapes which are chemically deteriorated, are not covered in this guide. Tapes which have problems not addressed in this manual should be set aside and external advice should be sought. Such cassette tapes can be repaired and digitized with external help, repaired and digitized by external contractors, or deemed not worth the expense of repair/digitization.

Examine the condition assessment report (form) for the media item at hand. Ensure that special processing is required and appropriate. For all procedures in this section use a blank Special Processing Form (Appendix D1.4) to record what procedures were performed and what the results were.

NOTE: Please ensure that you wear gloves or clean your hands well when handling media. Also ensure that your work area is clean, clear and well lit for all procedures in this section.

Replace cassette shell

Tools, supplies and resources

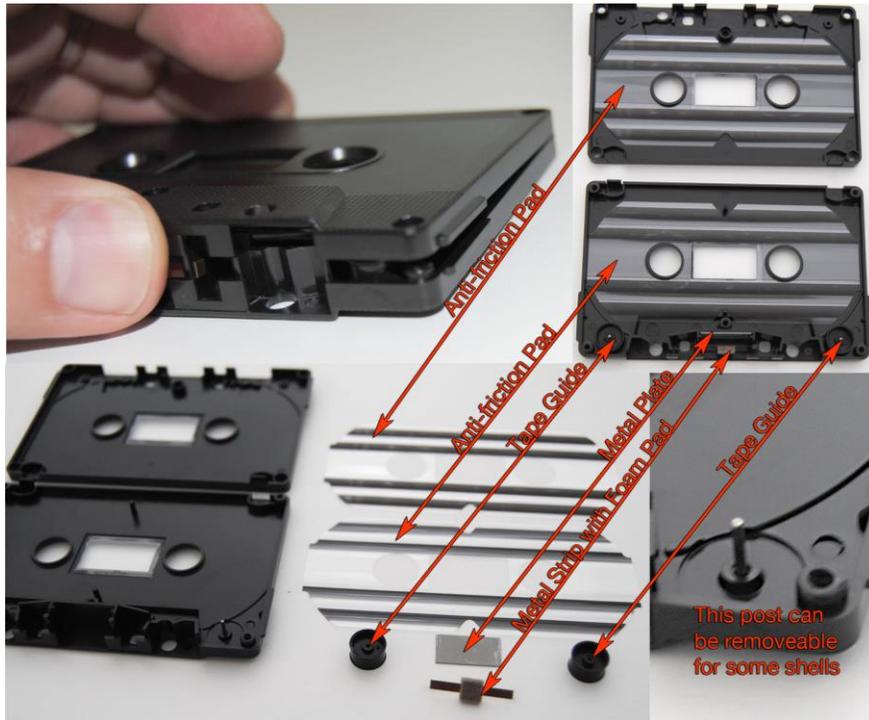
- Media item
- Media item condition assessment report
- Blank special processing form
- New empty cassette shell
- Hobby knife (possibly)
- Plastic tweezers
- Small Phillips screwdriver
- Pencil
- Clean hands or rubber/cotton gloves

Step-by-step process

1. Record tracking info and procedure type on “special processing form”
Record tracking info and check the “remove damaged tape section” box on the Special Processing Form.
2. Open new shell
 - a. Place shell on work surface as shown with screws exposed
 - b. Remove all screws



- c. Carefully separate the upper half of the shell from lower half (make sure that all small parts stay in position within the lower half of the shell.)



NOTE: Not all cassette shells contain the exact same parts and small parts can easily become separated from the shell. If you are unsure of where each part should be situated then it is wise to take pictures of the shell for reference.

3. Open damaged shell.

- a. Place cassette on work surface with screws exposed. If the damaged shell is glued together and does not have screws then it must be separated, by cutting through the glue at the seam where the two halves meet. There are no safe procedures for this process at this time. Attempting this procedure with a hobby knife is dangerous to the technician as the blade can easily slip off of the cassette shell. Using a power rotary cutter presents a danger to damaging the magnetic media directly and would introduce a significant amount of sharp particulates that may stick to the tape surface. The development of safe procedures for opening glued cassette shells is a recommended area for further development of this manual.

b. Remove all screws.



- c. If there are labels, which overlap both halves of the shell, then use a hobby knife to score the label along the seam between the halves (all labels should be documented by this point.)



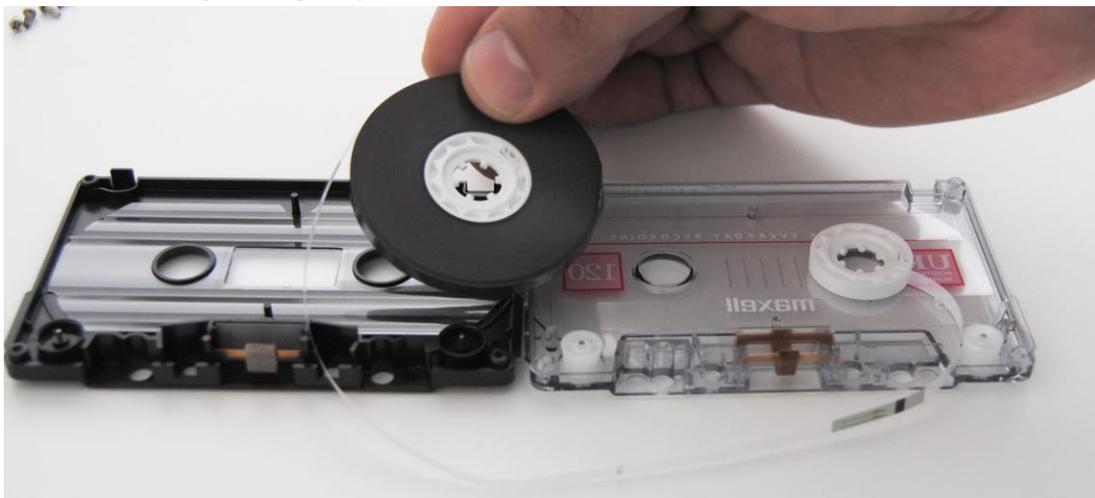
- d. Carefully separate the upper half of the shell from lower half (make sure that the tape reels and all small parts stay in position within the lower half of the shell).

4. Move the old and new shells close together

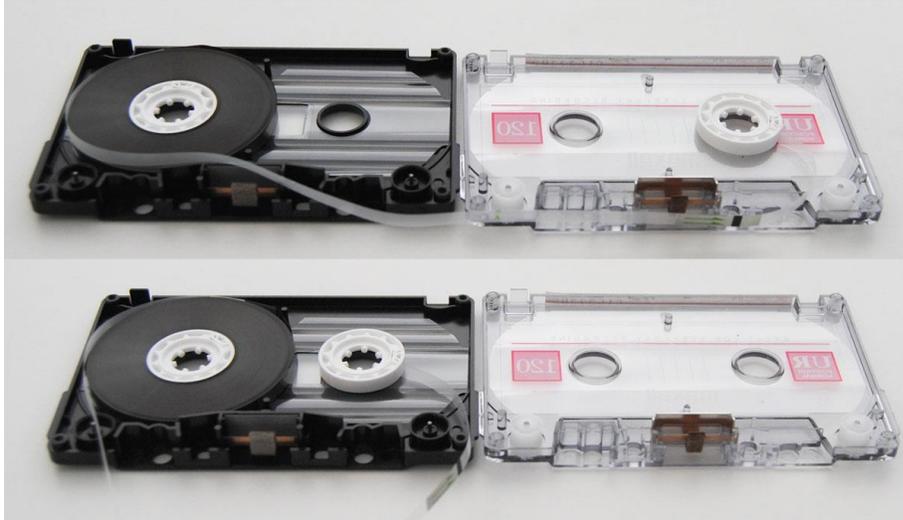


5. Move the tape reels to the new shell.

- a. Carefully pick up the cassette reel that is closest to the new shell (Be careful to keep the tape from unwinding due to gravity.)



- b. Gently move the reel toward the same position on the new shell, unwinding the tape as it moves. If the tape layers stick together then place the tape back into its original position and reassemble the tape securing the screws loosely. Do not try to move the tape to the new shell - proceed to step 9.
- c. Place reel into its position in the lower half of the new shell. Allow the slack tape to gently lie on the work surface.



- d. Gently move the second reel from the old shell to the new shell.
- e. Place the lower half of the old shell aside.
6. Thread the tape through the tape path and take up the slack.
 - a. Working from one side, insert the tape into the path according to the directions given with the new cassette shells.
 - b. By hand, gently turn one of the reels to take up the tape slack (do not allow the tape to snag on anything during this process.)



7. Join the halves of the new shell and secure them together.



- a. Gently place the upper half of the new shell onto the lower half (be sure not to allow the tape to be pinched between the shell halves.)
 - b. Insert a screw into the center screw hole of the new shell. Loosely secure the screw and test the tape movement by winding the tape in both directions with a pencil. If the tape does not move smoothly then loosen the screw and make sure that the reels are sitting properly on the shell hubs, the tape is threaded properly and the tape isn't pinched between shell halves. Repeat until tape moves smoothly – repeat entire procedure with a new shell if necessary.
 - c. Insert the remaining screws and tighten.
8. Mark new cassette shell label with media ID# for tracking.
 9. Record the outcome of the procedure on the Special Processing Form.
 - a. Successful/Not successful (what further work needed?)
 - b. If the tape was not repairable, but might be by somebody with more experience then set the tape safely aside and enter “no” into the digitize field in the media tracking spreadsheet. Record the issues preventing digitization in the notes field of the media tracking spreadsheet.
 - c. If no more special processing is required then mark the special_processing_completed field as yes in the media tracking spreadsheet.
 10. Attach the special processing form to the condition assessment form and file them.
 11. Return the tape to its proper storage location.

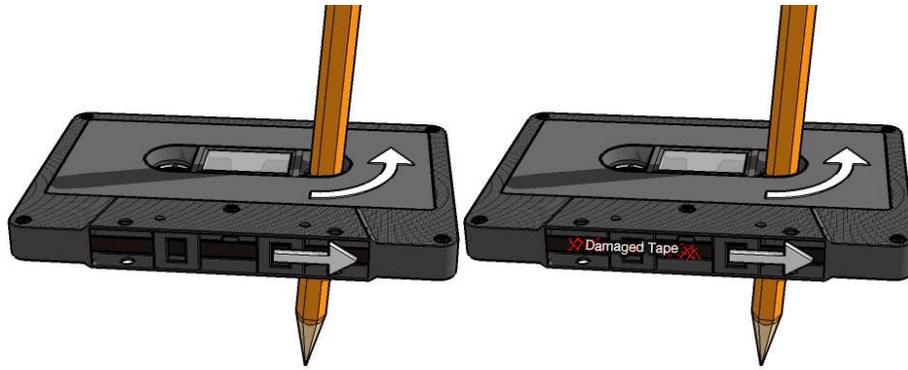
Removed damaged section of tape

Tools, supplies and resources

- Cassette tape to be repaired
- Blank Cassette Tape
- Completed Condition assessment report
- Blank special processing form
- Razor blade (or hobby knife)
- Plastic tweezers (or any tool that can gently pull the tape out and away from the shell.)
- Tool for winding tape (any tool that can gently engage the tape spindles and turn them eg. Pencil.)
- Ruler
- Splicing block
- Splicing tape

Step-by-step process

1. Record tracking info and procedure type on “special processing form”
 - a. Record tracking info and check the “remove damaged tape section” box on the Special Processing Form.
2. Find damaged section of tape.
 - a. If tape is damaged but not broken then use a pencil or other tool to gently wind the tape within the cassette shell until the damaged section is visible. **Go to step 3.**

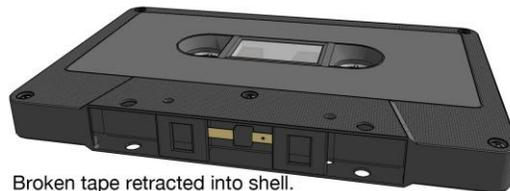


- b. If the tape is broken but the ends are accessible then go to step 3.



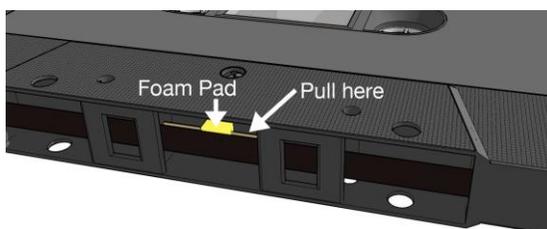
Tape broken with ends accessible

- c. If the tape is broken and one or both ends are retracted inside the cassette shell then follow Step 3 from the “replace cassette shell” procedures below to open the cassette shell exposing the reels. Once the cassette shell is open and the reels are exposed...

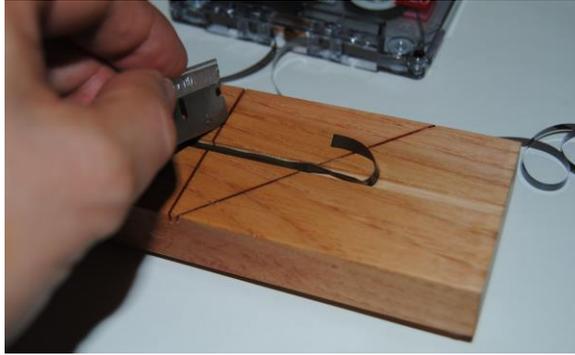


Broken tape retracted into shell.
Open Shell to access tape.

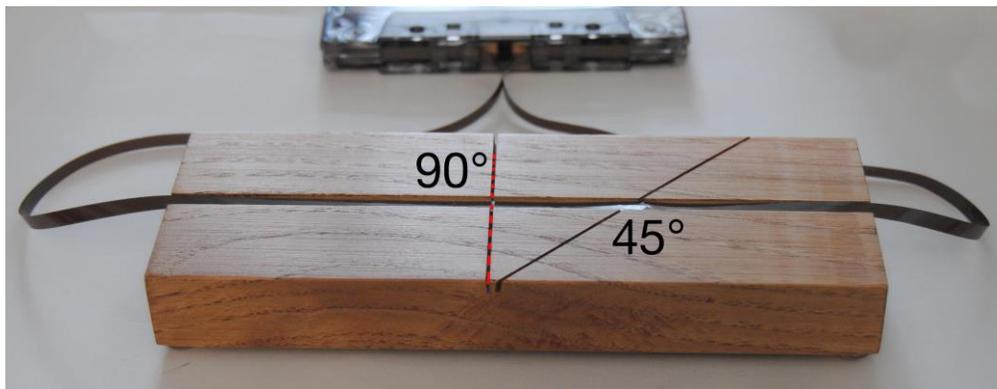
- i. Carefully unwind a short section of tape from each reel.
 - ii. Thread each side through the proper tape path and expose a section through the tape head slot.
 - iii. Close the cassette shell according to the directions in the “replace cassette shell” procedures.
- d. Pull the damaged section of tape out from the cassette shell. Access the tape from the location immediately beside the foam pad. Pry outward taking care not to grip or damage the foam pad while pulling on the tape. If possible, only make contact with the damaged section of tape so as to avoid damaging normal, playable tape. Expose about 8” of undamaged tape at each end of the damaged section.



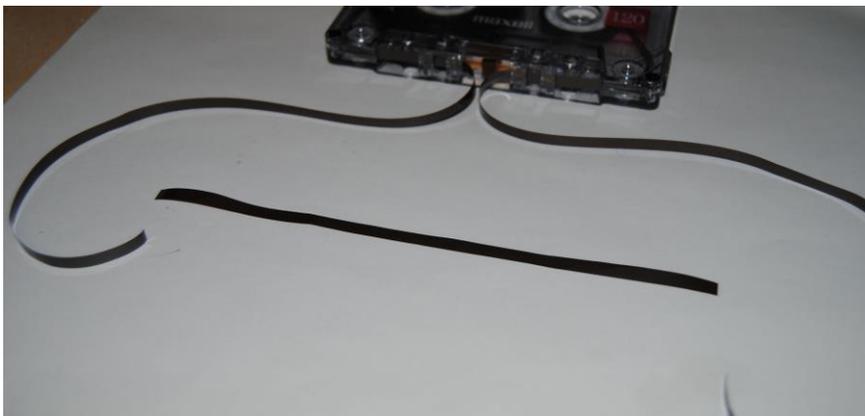
3. Remove the damaged section of tape
 - a. Place the tape into the splicing block with the magnetic oxide layer downward; this is the side of the tape that faces outward from the reel. Position the border of the damaged and non-damaged tape over the 90 degree cutting slot. With a finger and thumb from one hand, press lightly on the tape on either side of the cutting slot. Use the razor blade to cut the tape at this position. Place the undamaged tape end safely aside.



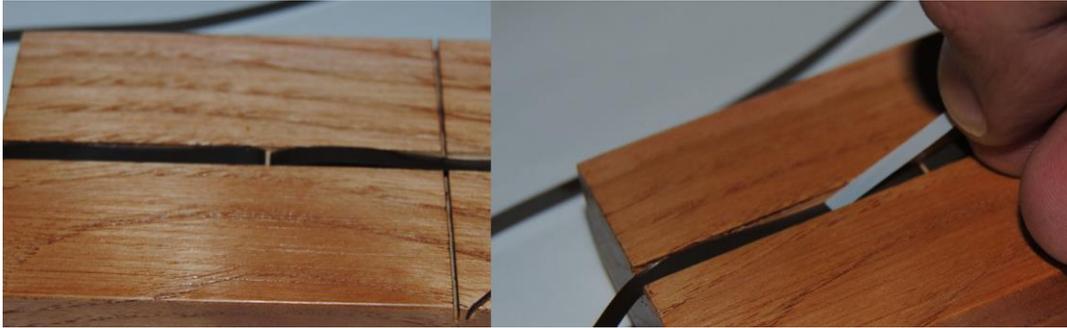
- b. Slide the damaged tape end in the splicing block track to the other end of the damaged section. Cut the tape separating the damaged tape from the cassette reels. Set the undamaged tape end safely aside. Measure the removed section of tape and record the length on the Special Processing form.
4. Cut 6" of blank (unrecorded) tape to separate undamaged tape ends.
 - a. Use the razor and 90 degree slot of the splicing block to cut a 6" section from the blank cassette tape (make sure that there is a clean 90 degree cut on each end of the tape.)



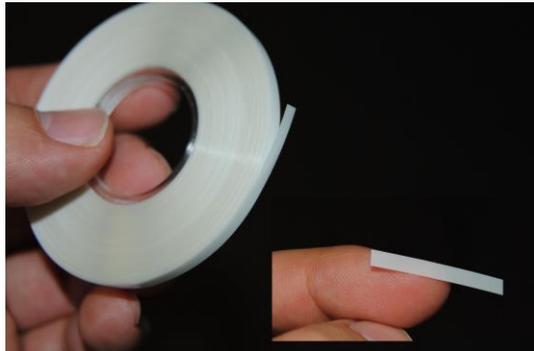
5. Attach blank tape section between the undamaged tape ends



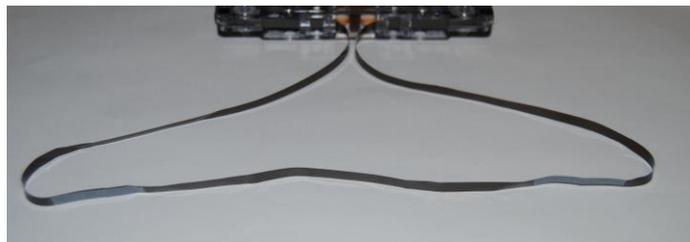
- a. Place one undamaged tape end onto the long flat section of the splicing block track (oxide layer down.) Place the section of blank tape onto the splicing block so that one end butts up against the undamaged tape end.



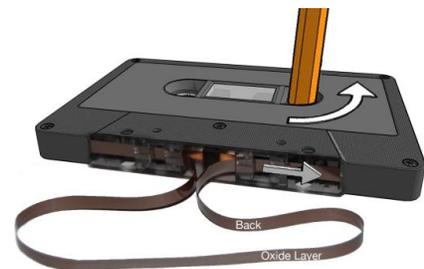
- b. Cut off a small piece of splicing tape (approx. 1.5 cm.) Carefully place the tape lightly over the leader and tape ends so that the splicing tape does not overhang the tape or leader sides. If the tape is wrongly positioned to start with gently pull it from the leader/tape surface and try again. Once the tape is properly positioned press it firmly and rub it with a fingernail to remove any air bubbles.



- c. Repeat the previous two steps for the other side of the blank tape section and other undamaged tape end (Pay close attention to ensure that there are no twists in the tape before attaching these ends.)



6. Use a pencil (or other tool) to gently wind the repaired tape and leader into the cassette shell.
7. Use the pencil to test the tape travel in each direction (pay attention to the point where the splicing tape interacts with the adjacent layer.) If the splicing tape sticks to an adjacent layer then remove repeat that splice with a new piece of tape.
8. Record the outcome of the procedure on the Special Processing Form.
 - a. Successful/Not successful (what further work needed?)



- b. If the tape was not repairable, but might be by somebody with more experience then set the tape safely aside and enter “no” into the digitization field in the media tracking spreadsheet. Record the issues preventing digitization in the notes field of the media tracking spreadsheet.
 - c. If no more special processing is required then mark the special_processing_completed field as yes in the media tracking spreadsheet.
9. Attach the special processing form to the condition assessment form and file them.
10. Return the tape to its proper storage location.

Replacing metal strip with foam pad

If a foam pad is missing or glued into the wrong position, and the cassette shell can be easily opened then you should try to replace the metal strip complete with foam pad.

Tools, supplies and resources

- Media item
- Media item condition assessment report
- Blank special processing form
- New metal strip with foam pad (from new shell or from donor shell)
- Tool for winding tape (any tool that can gently engage the tape spindles and turn them eg. Pencil.)

Step-by-step process

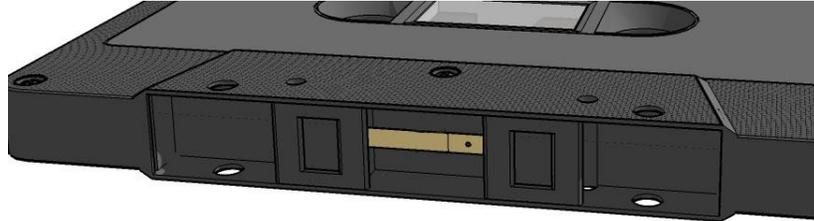
1. Record tracking info and procedure type on “special processing form”
Record tracking info and check the “Replace foam pad” box on the Special Processing Form.
2. Follow Step 3 from the “replace cassette shell” procedures above to open the cassette shell.
3. Use tweezers to carefully lift the metal strip out of the slots that hold it in place.
4. Set the new metal strip (with foam pad) into the retention slots.
If the strip does not fit properly then go to Step 4 of the “Replace Cassette Shell” procedures below and continue replacing the entire cassette shell.
5. If the new metal strip fits the existing shell properly then proceed from Step 7 of the “Replace Cassette Shell” procedures below to reassemble the two halves of the cassette shell.
6. Record the outcome of the procedure on the Special Processing Form.
 - a. Successful/Not successful (what further work needed?)
 - b. If the tape was not repairable, but might be by somebody with more experience then set the tape safely aside and enter “no” into the digitize field in the media tracking spreadsheet. Record the issues preventing digitization in the notes field of the media tracking spreadsheet.
 - c. If no more special processing is required then mark the special_processing_completed field as yes in the media tracking spreadsheet.
7. Attach the special processing form to the condition assessment form and file them.
8. Return the tape to its proper storage location.

Replacing or reattaching foam pad

NOTE: It is sometimes simpler to replace the foam pad complete with the metal strip that it is mounted on, or to replace the entire cassette shell, than to remove a badly positioned pad and glue a new pad in its place. Removing an existing foam pad can bend the metal strip causing the pad to apply uneven pressure to the tape. It is very difficult to open cassette shells that are glued shut (not affixed by screws.) If the cassette that you are working with is glued then make every effort to replace the pad without having to open the shell. Shells that are glued

closed, are usually broken in the process of opening, and the shell must be replaced in almost all instances that they are opened.

If a foam pad has come free from the metal strip that it was glued to then it may be glued back into place (the above process of replacing the metal strip with the foam pad is generally preferable to reattaching the pad).

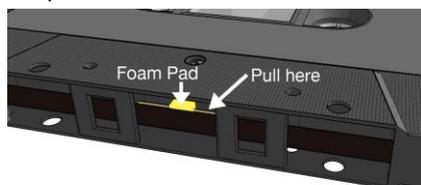


Tools, supplies and resources

- Media item
- Media item condition assessment report
- Blank special processing form
- Plastic tweezers
- Glue
- New foam pad or existing foam pad if in useable condition.
- Tool for winding tape (any tool that can gently engage the tape spindles and turn them eg. Pencil.)

Step-by-step process

1. Record tracking info and procedure type on “special processing form”
 - a. Record tracking info and check the “Replace foam pad” box on the Special Processing Form.
2. Pull the section of tape out from the cassette shell exposing foam pad mount location.
 - a. Use plastic tweezers to gently pull the tape away from the shell allowing for access to the metal strip.



- b. Disregard foam pad in left illustration.
3. Ready the foam pad mount surface for gluing new pad. Using a cue tip dipped in isopropyl alcohol, clean the surface where the foam pad will be mounted. Allow 5 minutes to dry before proceeding to the next step.

4. Glue foam pad into position. Read instructions for the application of the glue that is to be used. Apply glue as instructed to proper side of the foam pad (either large flat surface.) Carefully glue the foam pad into its position within the shell.
5. Retract tape loosely into the cassette shell
Use a pencil to gently wind the tape into the shell.
6. Allow glue to set.
 - a. Place the tape into its case and set it so that the foam pad is facing up. This allows gravity to hold the foam pad in place while the glue sets. Allow tape to sit for length of time proscribed by the instructions for the glue used.
 - b. When the glue has set, test the bond by gently tugging on the foam pad with the plastic tweezers. If pad does not seem to be held firmly in place then remove the pad and repeat the procedures above taking care to clean the surface and use the proper amount of glue and allow for enough curing time. If the pad is still not affixed properly then try using different glue or replace the entire shell.
7. Record the outcome of the procedure on the Special Processing Form.
 - a. Successful/Not successful (what further work needed?)
 - b. If the tape was not repairable, but might be by somebody with more experience then set the tape safely aside and enter "no" into the digitize field in the media tracking spreadsheet. Record the issues preventing digitization in the notes field of the media tracking spreadsheet.
 - c. If no more special processing is required then mark the special_processing_completed field as yes in the media tracking spreadsheet.
8. Attach the special processing form to the condition assessment form and file them.
9. Return the tape to its proper storage location.

