Avolites LTD Engineering Change Notice

ECN title	Sapphire motor fader belt repair	
ECN Number	ECN-0211	
Related Product(s)	All Sapphire Touch console up to ST-0274	
	All Sapphire fader wings up to STFW-020	
Date / Author	09/05/2015	JB Toby
Reasons for ECN	Weak clamping of the belt allows for the belt to slip and damage to the belt	
Parts required	RTV Silicone Adhesives, see below for specification	
	Small cable tie to apply adhesive	
Tools required	Tools to remove fader PCB.	
Estimated time	15 Minutes per board once removed from the console	
	A whole console takes up to 3 hours excluding curing time. (PCB remove, inspect and modify faders, PCB replace, test console.	

Background:

The belt clamping method on the motor faders of Sapphire Touch up to serial number ST-0274 and Sapphire Fader wings up to Serial number STFW-020 is not strong enough to sustain normal usage in specific when the fader is moved against the motor.

The result is that the belt teeth can be striped and this allows excessive belt play, which results in faders becoming erratic when moved by the motor.

The simple remedy is to fix the belt to the fader shaft using a silicone RTV adhesive. Since the belt area near the fader shaft does not need teeth to function, faders with stripped belts can be used depending on the amount of damage.

Consoles made after serial number ST-0274 and Wing STFW-020 already have the fader belts glued to the shaft.

The instructions below explain how to modify the faders.

Adhesive types:

The generic name of the adhesive to use is: RTV Silicone Adhesives, ideally the "Neutral cure silicone" specific for electronics.

The following adhesives have been tested and proved to be reliable:

- ACC AS1821 Neutral Fast Cure Silicone RTV
- RS Stock No. 458-733 or Farnell order code 1776157
- Loctite Superflex Black RTV, SI 5940 Silicone Adhesive

It is advisable to get fast curing variants (like 30 minutes), to speed up the process.
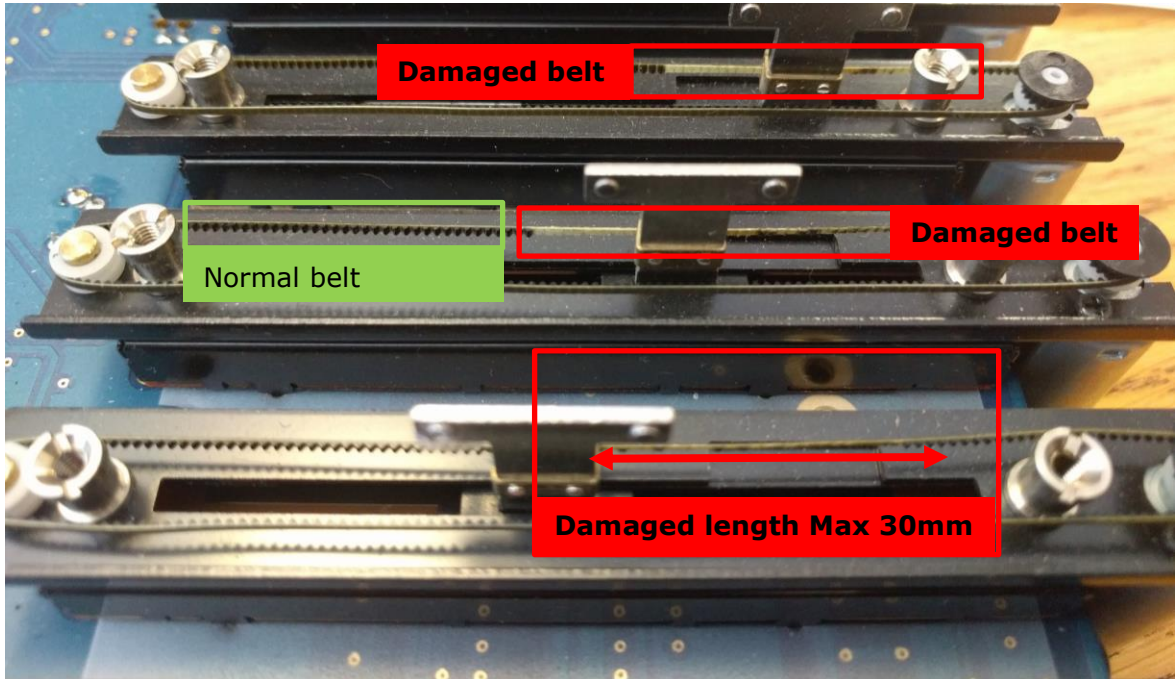
Non suitable adhesive:

Hot glue is **NOT** suitable due to its rigidity.

Do **NOT** use **ANY** solvent based contact adhesive like contact adhesive as these attack the belt.
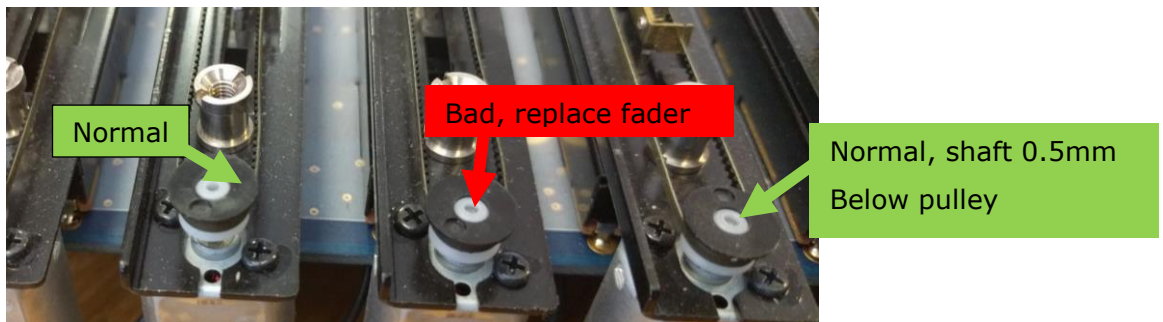
Fader repair procedure:

With the fader boards removed from the console, place it with the faders up and

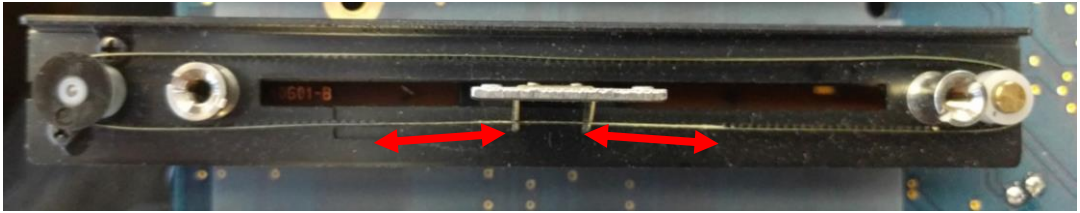1. Inspect each fader for belt wear (missing tooth).

Check that the belt wear is not too long, the maximum damaged belt length is 30mm

2. If the belt is damaged over a length longer than 30mm replace the fader, (See image above)

3. Check that the motor pulleys is not raised more than 1mm above the, normally the shaft is abut 0.5mm under the head of the pulley
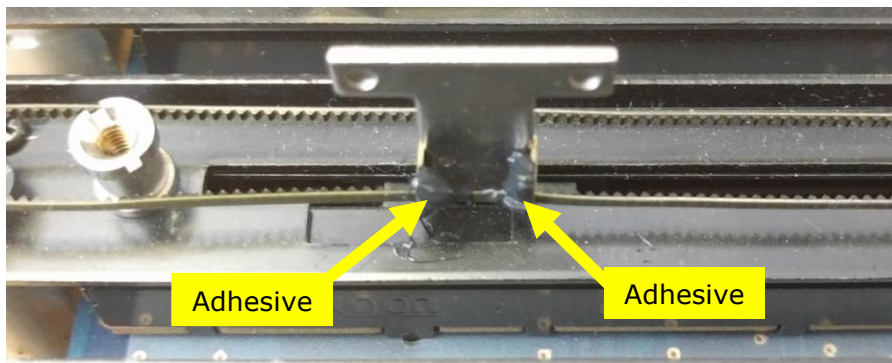

4. Replace the fader if the pulley has moved up

5. Now that all faders have past the initial test, apply the adhesive to all faders as described below;

A. If the belt has been stripped, place the fader shaft in the centre of the stripped area as shown below

B. Apply two small dabs (see below for sample size) of adhesive on the **inside** of the fader shaft clamp, make sure to work the adhesive onto the belt as well as the clamp.

Sample size of amount of adhesive, circa 3mm sphere.

C. **Faders with good belts also need to be treated as above**.

D. Allow the adhesive to set, especially if faders are treated with stripped belts.

E. Replace the PCBS and test the console

This concludes the ECN.