OVERTURE

Disclaimer: We accept no responsibility for any unfavorable consequences resulting from following our advice

OVERTURE

Fortunately I have a lot of material for this issue due to several of our members sharing their experiences. I had to cut down the material considerably as there were 8 pages. So, I have plenty of material for Organ Notes 79! For the first time in a long time, there are no ads! I hope that this means you are all holding on to your Schobers and fixing them. AK

REVERBATAPE

Obtaining the tape loops for the Reverbatape is impossible. Some members make their own loops. If you decide to make them, the best way of course is to buy a tape splicer, and one that has arms that hold the tape down is much preferred. Look at Ebay Auctions, these things are offered all the time. If you don't have a splicer, Bob Borgeson's suggestion may work for you. Substitute special audio tape splicing tape for Scotch Tape though. Reel to reel tape can be purchased easily enough. Try to get what Schober used. Eight track tape is thinner. The tape that Schober used (from Schober Specs. Titled Magnetic Recording tape, #25402A dated 3/26/71) was: MANUFACTURER: 3M, MFR. TYPE: 282-1/4-1200 sandwich, WIDTH: Standard ¼ inch, THICKNESS: 1.5 mil., BASE MATERIAL: Polyester

Fred Henn added a page to an Organ Notes issue years ago that contained suggestions on making loops and on making an endless loop out of an 8 track cartridge. I am publishing these suggestions again in this issue. If you cannot find the Schober recommended tape for loops, get a similar tape. Using the tape cut from an 8 track cartridge works too. If you want to try the endless loop as suggested by Nolan Payne, this is similar to the system that the original Reverbatape came with! Schober gave that system up. (See Ken Stone's materials below for hints on correcting some Reverbatape problems.)

FOLLOWING IS BOB BORGESON'S SYSTEM FOR MAKING TAPE LOOPS.

He wrote some years ago:

How I Make Tape Loops

Pull out enough tape from an 8 track cartridge (or use a piece of 1¹/₂ mil tape [AK]) [note from Pete Stark: try to use the 8-track tape, since it was specially lubricated on both sides and will probably last longer in this application. And use the special audio splicing tape, rather than plain cellular or "magic" tape - the glue on regular tape has a tendency to run out with age, and gums up parts of the deck.Splices made with splicing tape will break with old age, rather than slide apart and release glue.] to have at least 21-23 inches and cut it off. You will need a smooth board or other hard surface that can stand some cut marks. You will also need a roll of Scotch Brand tape*, a ruler, and a razor blade or sharp utility knife.

Make a loop and align the ends with about 1-1/2" overlap. Use two pieces of Scotch Tape to hold the recording tape to the board about 1" from the overlap. Make finger loops on the Scotch Tapes that will stay free so you can easily remove the tape later.

IMPORTANT -- Measure loop carefully so that it is 18-1/2"-19" long after being cut. Make a cut

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through both overlapping tapes at once at a minimum 45 degree angle. This will eliminate thumping sound as tape passes over heads.

While tape is still held in position put the cut butt ends together (do not overlap). Use a piece of Scotch Tape* about 1-1/2" long and place it over the butted ends. Be sure you put the Scotch Tape* on the recording tape on the side away from the recording side. Press down firmly for good adhesion. Then use your razor blade or knife and cut the Scotch Tape* as closely as possible along the recording tape. Then take the completed tape off the board using the finger loops. Do this slowly and carefully. Remove the hold down tapes from your completed Reverbatape loop. "Voila" you should have a tape good for quite a few hours of playing time.

* Special splicing tape should be used. NOT Scotch Tape. AK

NOLAN PAYNE'S ENDLESS TAPE SUGGESTION

(This was also written some years ago.)

When Schober vanished from the scene and removed the source of items such as tape loops that could not be obtained elsewhere, I realized at once that my supply, while healthy, would not last forever. I also knew that the Reverbatape units were an indispensable part of the organ sound I required. However, I remembered that the early Reverbatape models used an endless tape cassette. Those cassettes are also gone forever I suppose, but an excellent replacement is not. The 8-track player uses a cartridge that is just such an endless tape and blank cartridges are still around. Since 8-track players are no longer in vogue, such cartridges will also become unavailable, but are, unlike Schober loops, still out there. Run out and buy a few stacks!

To install one in a RV-3 is simple and straightforward, but very, very tricky. First, remove the front cover from the RV-3 and lay the unit on its back. Remove the tension arm and put it in a safe place (in case Richard Dorf ever starts up a new organ company). Keep the washer and nut at hand. By any violent means that appeals to you, break open a 90 minute 8-track cartridge without damaging its contents.

Now comes the tricky part. Take a couple of tranquilizers, sit down and transfer the tape spool to the tension arm post. Replace the washer and nut. The tricky part is that the spool will seize upon any opportunity to unwind and spill the tape. Until you have rewound an endless tape cartridge you have yet to live dangerously. If you succeed in getting the tape spool from the wrecked cartridge to the RV-3, note that, like all cartridges of every type, the tape is wound with the oxide side out. Your RV-3 will require that it be threaded oxide side in (toward the heads). When properly threaded the tape will come off the drive roller and feed to the outside top of the spool. Tape from the center of the spool will feed to the brass flywheel.

Midway between the drive roller and the tape spool, use one of the motor mounting screws to attach a small L-bracket. On the vertical part of the bracket install a screw and one of those plastic booties used to secure screws in plaster. Adjust this little contraption to hold the tape close enough to the face of the unit that it will wind properly onto the spool.

This modification is much simpler than it sounds, works extremely well and does not create any permanent alteration in the reverb unit.

COMMENTS ON THE ABOVE MODIFICATION

Warren Jones made the endless loop modification. Here is part of a letter he wrote:

"I changed the endless tape loop on the RV-3 Reverbatape to the 8-track cartridge as suggested by Nolan Payne in Organ Notes 32. I found this to be fairly simple to do and works much better than the original tape with less background noise from the tape and no splice slap. There is some

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noise from the plastic spool turning on the aluminum tension arm post which had to be reduced a few thousands of an inch in diameter to turn freely. I believe using a nylon post of the proper diameter could reduce this noise. I might make this modification the next time if I have to replace the 8-track tape. I did put a 1/4 inch diameter nylon bushing at the lower motor mount screw for the tape to run against and used the felt pad and leaf spring from the tape cartridge at the upper motor mount screw to keep the tape rewinding on the spool correctly. Also cut the spool diameter down to keep everything inside the cover."

PART OF KEN STONE'S EMAIL (Pertinent to the Reverbatape)

Ken Stone wrote two email letters about his Schober Theatre Organ and he included much material from the Australian Schober Club. I only have room to publish what is pertinent to the Reverbatape in this issue. I will publish the rest in future issues of Organ Notes. The information below therefore is excerpted from Ken's material.

The following comments are from R.A.B. Tarrant of Schober Organs (Australia), referring to the Schober Reverbatape when used in Australia. If persisting with the Reverbatape, some of these modifications may be worth considering. They are quoted verbatim from correspondence.

On heat produced by the motor:

One thing you ought to do with the Reverbatape is to drop the voltage going to it. The best way is to insert an ordinary electric lamp socket in one of the leads carrying 115 volts to it and the motor from the plug in the side of your PRCS-2 Power Supply; you then plug a 60 or 75 watt lamp in the socket. This results in a decided drop in heat from the motor, yet does not seem to affect the performance - either electric or electronic - one scrap. I believe that you can get a result as low as 95 volts. . . . If you can think up a simpler way of dropping the voltage, safely, then let me hear of it!

On hum and vibration:

Hum in the RV-3A. It is very susceptible to stray magnetic fields and I have had cases, too, where it has picked up generator hash. Also, I mount my own RV-3A on a sandwich of two pieces of masonite with sponge rubber for the filling. The lower masonite sheet is held away from the toeboard of the organ on two L-brackets and the RV-3A sits atop the upper bit. (You may need a rubber band or such to hold the unit in the true upright position, as it tends to fall forward -- and that's very much out.)

On the motor in general:

Jim found two major failings with the RV -- both mechanical faults, and if you have not realized this, you will have them, too. The first is that the motor is a pretty basic, old gramo unit and designed to have the drive shaft operate in the vertical plane. As it runs in the horizontal, it needs to be better bushed and with better bearings and, in addition, under stroboscopic light one can see the shaft oscillate in and out, just a fraction -- but enough to impart wow to the tape loop. So, Jim does up the bearings and also adds a pressure spring thingo which presses, per a ball bearing, on to the rear end of the drive shaft, holding this firmly forward. The other thing is that the motor is designed to run off a 60 hz supply. Running, as it does, off a 50 hz one*, the drive is only 5/6ths the speed at which the loop should go. This does make a difference, too, as they have carefully worked out that one for optimum performance.

*In Australia. AK

Comments from Ken:

Apparently Jim Gosling was hired by Schober Organs (Australia) to modify the Reverbatape en-

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mass, though not all Reverbatapes were done. One of mine has the modifications, and despite this has a clacking sound associated with the motor. Apply pressure to the side of the shaft at the rear, or running the unit on its back stops this, suggesting lateral wear in the motor bushes. The other does not have the modifications, and has 1/4" play in the motor shaft!

Another suggested modification was to isolate one of the motor power wires, and run it though a separate switch, so the motor could be switched out when reverb was not needed. This achieved two things -- mechanical silence, and reduced wear. How much difference did this make? Of my two tapes, one has moderate, but acceptable wear to the heads, while the other (non-switched) one has major grooving to the heads -- so bad in fact that the heads were starting to behave like files on the tape loops, rapidly scrubbing grooves into the tape loop and throwing oxide everywhere.

* * *

A circular released to the Schober Organ Club in Melbourne:

SCHOBER REVERBATAPE

REFER TO THE DRAWING IN YOUR SCHOBER LITERATURE:

Following our discussion on the Schober Reverbatape at our last meeting, set out below is a list of improvements that were originated by our secretary-treasurer Errol De Cean, to ensure smooth and even tape transport, thus eliminating the wow which most of us have experienced in the Reverbatape as supplied.

The most effective modifications are listed first, and it is up to the individual owner as to how far he wishes to proceed down the list.

1. The prime cause of wow is between the motor shaft and the rubber roller. This can be cured by two modifications, both of which must, be done. One is not very effective without the other.

(a) Roughen (striate) the motor shaft which is normally in contact with the rubber pinch roller using a new and sharp medium coarse flat or half round file. (Note: Do not have the motor running for this operation). Using a filing action at right angles to the axis of the motor shaft allow the shaft to rotate under the file whilst applying pressure. It may require two or three applications.

(b) Install a tension spring between arm carrying the rubber roller and a small lug located just under where the wires for the erase head emerge from the face of the panel. The lug can be a small electrical lug bent at right angles and attached to the panel by a suitable metal self-tapping screw.

Ken: I ran mine up to the long bolt used to secure the cover. Not the ideal angle, but it worked.

2. Install a heavier motor flywheel. (Ken: at this point, the document suggested referring to Errol De Cean, but alas I have not seen him in 25 years, so we are on our own here.)

3. Replace polished cylinder in the tape tension arm with a roller fitted with ball bearings.

4. Make sure the inertia wheel runs freely. Because of its weight in relation to its small axle, a ball bearing here is not essential. However, it must run freely. Test it by spinning it without the tape loop in place. It should run down very slowly. One drop of sewing machine oil is ample for its lubrication. (Note: Do not over oil).

As mentioned above, carrying out item 1 will give the greatest improvements, probably 60 or 70

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per cent, items 2, 3 and 4 making up the rest. Item 4 costs nothing, so it is worthwhile ensuring free running here, but it will contribute very little if item 1 is not done first.

Cleanliness of tape heads should be checked frequently, as even if the above items are done, a subsequent falling off in performance can be caused by clogged heads. In fact anything at all that causes drag on the tape, no matter how minute, can result in wow.

A little methylated spirits (from the chemist, not the hardware store) on a piece of cotton wool is a good head cleaner. Wipe dry before re-installing the tape loop. (Ken: Or use tape head cleaner.)

A worn tape will still work, but one with kinks should be discarded.

Some later tape loops are not 'welded' at the join, but held with a piece of tape splicing tape on the back. Under the constant load of the tension arm, these tapes creep at the join. This exposes the tacky adhesive of the splicing tape which then becomes deposited on the tape heads, thus attracting more oxide from the tape, and the whole sticky mess puts a brake on the tape movement with erratic transport which results in more wow.

AIR BAGS

In issue 77, Warren Jones wrote about his work on air bags for the 'Puff of Air' preset system for Schober Theatre Organ. He has continued his work and here is what he says:

Dear Alex:

We have returned from the southern states where it was warm and didn't have the below freezing temperatures and piles of snow that the Midwest had this winter. The northeast had some nasty weather as reported by the television.

Since I had some time on my hands between walking the beach and playing golf, I did some further planning on improving the fabrication of airbags. I have how constructed a motorized fixture that will provide more repeatability, better quality and reduced labor time.

I have enclosed the first two lots from this fixture using .004 thick vinyl. Thought you might give me your opinion and perhaps you know of someone who would like to try gluing them on some stops and see how they work. I put some talcum powder between the two sheets of vinyl to reduce the static cling.

If someone is interested and wants more, have them contact me via email or phone and I can mail them direct.

Haven't tried Polylon or the Player Piano material on the new fixture yet. I intend to make a roller heat probe in place of the current rubbing tip since both materials were prone to tearing.

Regards, Warren W. Jones, Email: Wjones2132@aol.com, Phone: 317 787 8965

A LETTER FROM MIKE BLACHOWICZ

Re: His Schober Theatre Organ

To Schober Orphans:

I found your web page by accident. It was a great pleasure to have found that I am not the only orphan. Just this knowledge inspired me to dig into my Theater Model and really go all out in the current quintennial effort to make her sound good again. The kit was purchased in 1967 and assembled and playing in 1968. It had Reverbatape but no percussion and no combination action. Many years ago I built a percussion unit from scratch parts using just the Schober schematic but

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keying was too burdensome and I tossed it out.

This organ has always had a marginal or poor signal-to-noise ratio. I had replaced almost all the transistors with the 'red-topped' low noise devices and even went through the (1/f noise) resistor mod, many years ago. Not much help, really. When adding the Reverbatape unit to the signal path, the noise is just too much. I found that the signal level going into the keyboard is about 2.5v. p-p as it should be, but about 30dB is lost in the isolation resistors in the keyboard and the level going to the coupler board is then down to 75 mv. or so. At this point the signal to noise ratio is already marginal. Because of the noise, this organ has never really satisfied me. I've put it away for years at a time and then came back to try to coax it into something that it might never be, only to get discouraged again and put it away for some more years. By the way, this organ has thousands of moving van miles on it as well as decades of garage and basement dwelling time. During this most recent attempt at resurrection, I came to the decision point: Get it right or it's time for the chain saw! What I dreamed about was that I had made some wiring error 35 years ago that has gone undetected and that if corrected would magically restore the signal-to-noise ratio to a very clean level.

After a period of disuse, like years, the 5 buss bars in the solo and 3 buss bars in the accomp. manuals develop oxidation and cause lots of key click racket and outright contact failure. I have pulled the keyboards and extracted these 8 buss rods and cleaned them on several occasions and again this time around. I use a non-abrasive chemical cleaner but lightly applied. When wiped after drying, they come back to their bright gold color. Then I quickly wipe them down again with isopropyl alcohol to get rid of any scum. This works well but it's important to not bend them so that they will continue to contact the springs simultaneously when re-inserted.

I replaced the pedal switches with level snap switches about 15 years ago and these are still working well. They have a rather long lever and can be actuated with the blunt wooden end of the pedal clavier.

I realized that the germanium transistors are the source of the noise and experimented with silicon replacements but too many of them would have required recircuiting and that kept me from doing that mod. This time around, I decided to attack the noise in a two-pronged approach, namely increase the signal some and reduce the noise some. This was a great success and my old gal now sounds better than ever. The rest of this letter will explain the three major steps.

1. I found that 14 dB of signal (about 80%) was being lost in the couplers! I bypassed the couplers by connecting the eight signal lines that were going into the coupler board to the eight signal wires leaving the coupler board, leaving the board totally idle. This can be done color for color if you followed the instructions in the original wiring scheme. The coupler board is now sitting disconnected. This increase in available signal to the buss amplifiers made a profound difference. Now the background noise was just about gone even with just the softest stop called up. But not with the reverb in the circuit.

2. To reduce the noise introduced by the Reverbatape, which is substantial, I replaced it whole with a modern digital device, namely the Alesis Nanoverb. This is a \$99.00 item that has 16 selectable reverberation choices, adds 20 dB of gain (adjustable) and has ZERO noise. This unit almost fits in the palm of your hand and puts the old Reverbatape to shame. Now I can make this organ sound like any size room or hall with short to very long reverb times and the overall signal to noise ratio is excellent.

3. My percussion division is now made up of a Roland Synthesizer driven by a 25 note Novation Midi Keyboard that is mounted on a little pedestal stand to the right of the organ bench. I use the synthesizer and keyboard for my in-home recording business so these items were already available. They might be too pricey to use just for the organ. I haven't yet gotten the green stop tabs to change the synthesizer voices but that will come next.

The elimination of the coupler function is indeed drastic (but not as drastic as a chain-saw, eh?). In my opinion, it's a good trade-off for the huge improvement in signal over noise. But there is still a way to make the coupler tabs do something. For example, they can be wired to connect two busses together, like the 8' to the 16' or the 8' to the 4'. I've tried this and it does produce a new registration when used.

My approach to fixing the designed-in noise problem is very easy to implement. It just involves the re-connecting of 16 wires in a very accessible location and the outlay of 99 bucks.

I have great respect for Richard Dorf, Bob Avedon and Jim Ramsey. They made a nearly great instrument affordable for us. They were clever and innovative with the stair-stepping scheme and the square waving approach, however, the engineering task of making 12 tone generators represent a 2000-pipe theater organ with all the required trade-offs involving switching, isolation, fidelity, reliability and cost wasn't quite possible with the germanium technology at that time.

I would be happy to get into more detail with anyone who cares to correspond on the topic. Thanks orphans, for your existence and my inspiration.

Mike Blachowicz, P.O. Box 128 Darien Center, NY 14040

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