Service Manual

Hillgreen-Lane Pitman chests

by Charles Hendrickson

The basic operation of the Hillgreen-Lane electro-pneumatic pitman chest, which was introduced in the 1950's to replace the infamous old pull-wire chests, is similar to those of other firms. They have the channeling in the top boards and the stop action in a separate detachable box underneath the chest. Key action is a single primary along one side of the chest (rubber-tubed to a second chest in large divisions).

Symptom: Certain notes on a given pitman chest may be slow or dead. In an extreme case, an entire chest may be slow in operation with scattered dead notes. This may occur during conditions of very low humidity.

The cause of the problem is the warping of the pouch boards in very low humidity. This occurs in our area (Minnesota) in January and February when winter heating has lowered the relative humidity in the room to under 15 percent. The effect of low humidity is to warp the several components of a pouch board so that the gasketed joint opens up and allows chest air to leak into the pouch board causing slow or dead notes. In other words, either the stop action or the key action cannot exhaust adequately to deflate the pouch to play the note because chest air is leaking into the channels in the pouch board.

It may be difficult to see the separation of the gasketed edge because a paper-thin opening along the length of the pouch board is sufficient to allow considerable air into the pouch channels and defeat the stop and/or key action exhausts.

Solution: The best solution is to rebuild the pouch boards, eliminating the glue joint that is the cause of the warping. Or one can build completely new pouch boards without the glue joint.

The gasket material is blotting paper. The solid lumber is Yellow Poplar (liriodendron tulipifera).

A first — but wrong — approach would be to run the warped gasketed edges through a joiner to flatten them out. This does restore a tight joint but only temporarily. The root cause is not the gasketed joint but the glued-on panel on the bottom. The differential expansion and contraction between the poplar and the laminate causes the warping, making the glued-together boards twist with changing humidity. It is a design flaw, using an improper glue joint, which is the cause of the problem.

Generally such low humidity is not long lasting, and a quick cheap fix is to add moisture to the room.