

How to Care For Your Instrument

War Brings Shortages

Instruments. For the duration of the war the manufacture of most band and orchestra instruments has been discontinued. It is our patriotic duty to make the instruments we have last as long as possible. Intelligent care will give long life to your instrument.

Materials. Look upon the nickel on a valve piston or the chromium on a trombone slide as the last you will be able to obtain for a long time. Save it, preserve it, it is precious - more precious than gold. Don't use abrasives on pistons or slides to remove discoloration - leave the discolorations on rather than wear through this precious shell of protecting metal. You may have to remove a little of the corrosion in order to make the piston or slide work, but let mechanical action and not appearance be your guide.

If you are unlucky enough to get a dent in the brass casing of a piston valve, don't let the repairman use the piston as a tool for lapping out the dent. Make him use a brass rod or a "lead lap." The same holds true of a trombone slide. Once you go through the nickel or chromium, you expose to the air and moisture the brass or nickel-silver over which the nickel or chromium is plated, and corrosion will rapidly take place, destroying good action.

Repair Parts Except for what parts may be lying around repair shops, there will be few repair parts available. If a part of your instrument becomes damaged beyond repair, you may not have much chance of replacing it with a new part. The whole instrument may have to be discarded, if the part is vital. Take care of your instrument so it will not need repair parts.

Importance of Keeping Your Instrument Dry and Clean

Moisture. Corrosion on brass and nickel-silver or rust on iron and steel is the result of a chemical reaction called oxidation. This chemical reaction does not take place except in the presence of moisture. This fact should make quite clear the importance of keeping instruments dry. Wood instruments must be kept dry to prevent checking and cracking. When the wood is cured, excess moisture is taken out. Absorption of moisture followed by evaporation of moisture disturbs the grain structure and causes the wood to split.

Body Acids. Perspiration from the hands contains certain acids which attack metal. Among these are butyric, lactic, and traces of hydrochloric. Some perspiration is alkaline but is just as harmful as acid. In some persons the perspiration is such that holes are eaten right through plating and brass wherever the hands are accustomed to touch the instrument. Keep your instrument free from perspiration. Use a leather valve protector or a cloth or some other device to keep perspiration from your instrument and wipe off all perspiration after using it.

Saliva from the mouth also contains acids which attack metal. Carbonic acid is present at all times in saliva and other acids are formed in the mouth, depending on food eaten and hygienic conditions of the mouth. Soft solder is especially subject to the effects of saliva acids. Water key nipples which are soft soldered will be eaten out entirely. Although most of the better

saxophones no longer use soldered sockets, saxophone tone hole sockets which are soft soldered will become loose and leak. That is why the inside of instruments must be cleaned often and thoroughly.

Salts. Not only in saliva but in natural well or spring water there are certain salts that dry as a white substance on the pistons and slides and act as abrasives, causing the action to be retarded and wearing away the precious coating of nickel and chromium. These salts are chiefly magnesium and calcium carbonates and sulphates but there are also appreciable amounts of chlorides of sodium, potassium, magnesium, and calcium. In certain parts of the country these salts are present in the water in greater quantities than in other parts. Water which is said to be "hard" - that is, does not make a good soap lather - has a high content of these salts. Those who prefer water to oil for new piston and rotary valves would do well in such localities to use distilled water. After using the instrument, be sure all saliva and water are wiped off pistons and slides.

Foreign Matter Impairs Acoustical Performance. A surprising amount of food, candy, and other stuff accumulates in a wind instrument if it is not systematically cleaned out. It is often referred to by professional musicians as "hamburger" or "lungs," but whatever you call it, it is filth that you should get rid of and keep rid of. Not only is it unhealthful, but it impairs the acoustical performance. It collects especially in crooks, and is usually the cause of instruments becoming "blown out of tune." If one of these accumulations occurs at a "node" in the wave of a certain tone, this tone sounds sharp. If an accumulation occurs where an "antinode" falls, the tone is flat.

Conn once received a trombone which the owner said blew all right when he first bought it but after a while it became "blown out," as he said. It lacked power and punch, and the scale was not exact and definite. This musician seemed to think that there was something wrong with the brass of which the trombone was made and that it had in some way lost its "temper" or tone quality. Apparently the instrument had never been cleaned out since it had left the factory, for over two cubic centi- meters of filth was taken out of it. This was a lump about the size of a wad of chewing gum. After being thoroughly cleaned, it blew like new. Nothing else was done to it except give it a plain, old-fashioned bath in soap and water.

Reed instruments also suffer in acoustical perform- ance from accumulation of foreign matter. Tone holes are often partially closed by dirt, especially the small register holes. Clarinets with "bad Bb" or that "don't respond in the second register" all too often have the little metal tube register hole nearly plugged shut with dirt and oil, caused by swabbing the inside bore.

Foreign Matter Impairs Mechanical Action. Corrosion, as well as salts and other foreign matter, accumulates on piston valves. Valves with such accumulation will not work. It may not seem like much, but valves are fitted tightly and a little dirt between the piston and the casing is like a speck of dirt in your eye.

Here is the story, as shown by a typical case of "faulty" valves. When the instrument came in, the clearance between the piston and the casing of each valve was checked while they were dirty -

before cleaning. Clearance was also checked after the valves were cleaned. The clearance for the three valves before and after is shown below:

	<i>No.1</i>	<i>No.2</i>	<i>No.3</i>
Clearance dirty	.0012"	.0011"	.0013"
Clearance clean	.0016"	.0015"	.0016"

The clearance while dirty was 12, 11, and 13 ten- thousandths of an inch, or a little more than the thickness of a cigarette paper! When cleaned, the valves had a clearance of 16, 15, and 16 ten- thousandths of an inch, or a little more than the thickness of a cigarette paper plus one-half the thickness of another cigarette paper.

Since .0012" (12 ten-thousandths of an inch) is the very minimum clearance for *clean* valves, you can imagine how the first and second valves worked -especially the second. Cleaning took .0004" (4 ten-thousandths of an inch) off the first two valves and .0003" off the third. This is only 1/8th to 1/10th of the diameter of a hair, but it was enough to transform good working valves into valves which wouldn't work at all. Modern tight-fitting valves have to be *kept clean* to get out of them the light, fast action which the manufacturer builds into them.

Corrosion and dirt also affect the action of other working parts, such as valve slides, hinges, pivot screws, cams, needle and flat springs. The only way to preserve and keep your instrument in tip-top working condition is to keep in "clean as a pin" and properly oiled and lubricated.

Suggestion to Bandmasters on Mass Inspection of Instruments

To guard against stuck slides and valve caps, swelled tenons and loose rings, some bandmasters hold mass in- spections periodically or delegate this duty to section leaders. Valve instrument players are lined up as if for military inspection. At the command, "Pull 1st valve slides," all players are expected to pull the first valve slide from their instruments. These slides are then inspected for corrosion and proper lubrication. The player who has difficulty pulling the slide is advised to do something about it before the slide becomes stuck so it must be taken to a repairman.

The same procedure can be followed for all valve slides, tuning slides, demountable bells, valve caps, finger tips, mouthpieces, and certain mechanical parts. On woodwinds an inspection can be made of tenons, bell and joint rings, ligatures, and protectors for flute and oboe slides and joints. Percussion and string instruments could be inspected in same manner.

This document was created with Win2PDF available at <http://www.daneprairie.com>.
The unregistered version of Win2PDF is for evaluation or non-commercial use only.