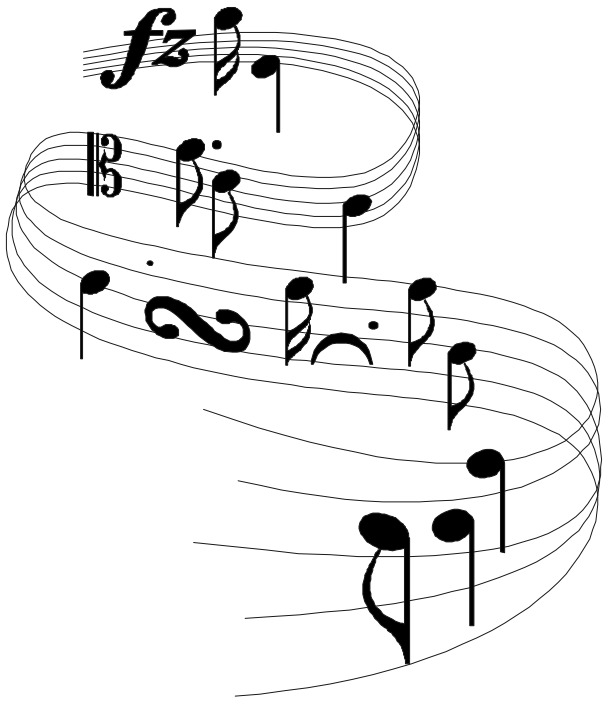
CHAPTER FOUR



INSTRUMENT MAINTENANCE

CHAPTER FOUR

MAINTENANCE PROGRAM

GENERAL

DO NOT INITIATE ANY REPAIR THAT CANNOT BE SUCCESSFULLY COMPLETED!

1. Expertise in instrument repair is limited by the experience of the person effecting the repair. Replacement parts can be expensive and months in coming. A cadet corps loses twice if irresponsible attempts at repair are undertaken; once financially, and again in the loss of use of the instrument. If a question exists as to the successful completion of a repair, take the instrument to a qualified repair person. At the very least, consult with a trusted resource person such as a competent school teacher or professional musician.

WORK AREA

2. Many band instruments are damaged during preventive maintenance and minor repairs. Choosing a proper work area can reduce the risk of damage significantly.

3. Ideally a maintenance/repair work area would have the following attributes:

   a. a well lit bench of adequate size and height and covered with a rubber mat or bath towel;

   b. ready access to a plastic or polypropylene sink with a single spout and hot and cold water; and

   c. a carpeted floor.

UNIT REPAIR KIT

4. A basic repair kit should contain sufficient tools and materials to effect preventive maintenance and minor repairs. The cost of purchasing a commercial repair kit is expensive. The basic repair kit described on page 4-4 can be prepared for between $100 - $150. Many of the non-musical supplies may be readily available at little or no cost to the unit. An intermediate level repair kit is described on page 4-5 and would cost about $250.

5. The minimal requirements for a basic repair kit that could save hundreds of dollars each year. Present unit maintenance and repair resources should be checked against those listed on page 4-4. Any deficiencies should be filled immediately.

MAINTENANCE LOG

6. Periodic instrument inspections will reveal problems that require resolution. Recurring repairs indicate areas needing improvement, such as instruction on preventive maintenance or the replacement of worn out instruments in the unit inventory.

7. A log of maintenance/repair records for each instrument listed in the unit

inventory should be maintained by the band storesperson or the band officer.

8. The Band Maintenance Record Card (on page 4-3) will identify the type of instrument, brand name and model, serial number, date taken into inventory and date taken out of inventory.

9. The date and type of service are recorded in columns one and two.

10. The comments column will describe the circumstances leading to the service action. Some examples might be:

a. annual maintenance;

b. stuck mouthpiece - Cadet Doe dropped instrument on parade ground; and

c. instrument sent to commercial repair shop 1 Dec 95. Returned to the unit satisfactorily repaired 5 Dec 95. Invoice submitted for payment 7 Dec 95. Copy of invoice describing repair job attached.

INSTRUMENT INSPECTION CHECKLIST

11. Pages 4-29 - 4-37 contain checklists for periodic inspections of instruments by the cadet or Band Officer. The date is placed above each column as required. Y for yes or N for no is entered in each column beside the applicable category. If the inspection is done by the cadet, the Band Officer does a quick check of the instrument, takes any necessary corrective action, and initials the bottom line when all categories read Y for yes.

UNIT BAND INSTRUMENT MAINTENANCE RECORD CARD

Instrument Type	
Instrument Brand	
Serial Number	
Taken on Inventory (Distribution Account)	
Taken Off Inventory (Distribution Account)	

MAINTENANCE UNDERTAKEN

DATE	TYPE OF SERVICE	COMMENTS

UNIT REPAIR KIT - BASIC

TOOLS:

< fishing tackle box;

< pair of small pliers - file off teeth;

< set of miniature screwdrivers;

< rawhide mallet;

< crochet hook - number 2 or 3;

< pocket knife;

< prick punch;

< pad slick (or heel of fingernail file);

< mouthpiece puller for brass instruments; and

< cleaning snakes for trumpet and trombone.

SUPPLIES:

< fine sandpaper;

< cement - liquid and contact;

< dental floss;

< butane lighter;

< rubber bands;

< razor blade - single edged;

< small brushes; and

< several pipe cleaners.

MUSICAL SUPPLIES

< corks for water keys and bumpers;

< pads - assorted for reed instruments - as supplier for advice;

< percussion keys - standard sizes;

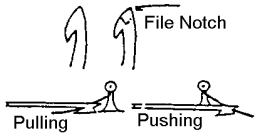
< Vaseline (non-scented);

< cork grease; and

< oil - key, valve, penetrating.

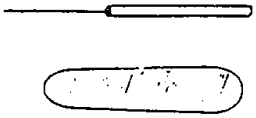
Spring Hook

Use: To hook up or unhook needle springs.
Construction: Select a #2 or #3 metal (or corresponding plastic) crochet hook and file as shown.



Prick Punch

Use: A tool to prick a small hold in the edge of bladder pads so trapped moisture or air can escape. It is also used, when inserted into the cardboard back of a pad, as a device to manipulate the pad into position.
Construction: Insert the blunt end of a needle spring or the eye end of a medium-sized needle into a small piece of soft wood. A piece of small doweling works well.



Pad Slick or a similar piece of sheet metal with a little notch filed in it to put the cork on the crowfoot of the C key for little finger right hand of clarinet.

Mouthpiece Puller

UNIT REPAIR KIT - INTERMEDIATE LEVEL

TOOLS:

< fishing tackle box;

< alcohol burner;

< hammers - wooden head,
- rawhide head,
- metal head;

< pliers
- standard slip joint 8",
- needle nose 5",
- round nose 6",
- bent nose 6",
- duckbill 8",
- side cutters 6",
- bent side cutters 6";

< feeler gauge;

< bench or hobby knife;

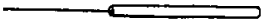
< pad slick;

< screwdrivers
- set of six miniature flat head,
- one long shaft, small flat head 8",
- one standard flat head 8"; and

< files (fine tooth)
- needle nose,
- flat,
- round, and
- triangular.

Spring Hook

Use: A tool to prick a small hold in the edge of bladder pads so trapped moisture or air can escape. It is also used, when inserted into the cardboard back of a pad, as a device to manipulate the pad into position.
Construction: Insert the blunt end of a needle spring or the eye end of a medium-sized needle into a small piece of soft wood. A piece of small doweling works well.

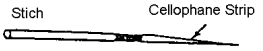


Pad Slick

Use: To level, press or shift bladder pads in the pad cup during the process of seating.
Construction: Although the tool can be purchased through a supply house, the heel of a nail file will work as well.

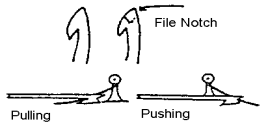
Feeler Gauge

Use: To locate small leaks on a depressed padded key.
Construction: Glue or tie a thin, pointed slice of cellophane to a wooden match or sliver of wood (piece of a clarinet reed).



Spring Hook

Use: To hook up or unhook needle springs.
Construction: Select a #2 or #3 metal (or corresponding plastic) crochet hook and file as shown.

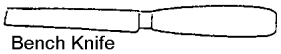


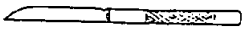
CORKING KEYS - EQUIPMENT NEEDED

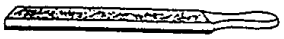
SUPPLIES:

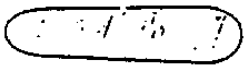
< Non-Musical:
- masking tape,
- duct tape,
- fine sandpaper,
- emery paper,
- cigarette papers,
- cement - liquid and contact,
- rubber bands,
- glue sticks,
- butane lighter,
- methyl hydrate,
- small plastic bottle,
- single-edge razor blade,
- needles,
- dental floss, cord and string,
- soft lint free cloths,
- several pipe cleaners;

Stick Shellac or Stick Cement . Any one of these will work satisfactorily and there is some difference of opinion as to which of the two is best.


Bench Knife


Special Knife


Knife Sharpening Board



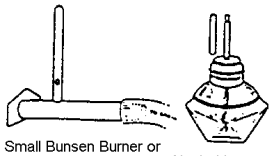
Pad Stick or a similar piece of sheet metal with a little notch filed in it to put the cork on the crowfoot of the C key for little finger right hand of clarinet.

< Musical - cork sheeting 1/64th, 1/32nd, 1/16th/ 1/8th,
S pre-cut corks - reed instrument jointing, flute head,
S corks - brass water key and pistons,
S pad - sets for all reeds,
S key springs for reeds,
S loose pads for common replacement areas,
S felts - pre-cut for brass and saxophones,
S bumpers for saxophones,
S piston springs - various sizes for all brass,
S water key springs,
S cleaning snakes - trumpet, trombone, tuba,
S percussion keys - standard sizes;

< Lubricants - Vaseline - non-scented,
S cork grease,
S oils - multi-purpose,
- penetrating,
- key,
- bore,
- valve,
- rotary valve.

Sandpaper, No. 4-0

A Key Cooling Board. This is a small block of wood about 1/2" x 2" x 3". Take a piece of cloth of most any kind, such as flannel or cheese cloth and fold it into a pad from 3/16" to 1/4" thick, the same size as the wood block. Keep this pad on the wood block as it will be easier to handle, but do not fasten it there permanently.



Key Cork

A supply of this should be on hand in a woodwind shop at all times and in all sizes. One ounce of this material should last the average shop quite a while.

DAILY MAINTENANCE - WOODWIND INSTRUMENTS

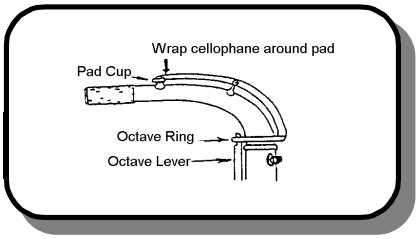
GENERAL

1. The following procedures apply to all woodwind instruments.

THINGS TO REMEMBER BEFORE CLEANING

2. Always keep pads and key mechanisms dry. Moisture ruins pads, causes corrosion and is generally detrimental to all woodwinds.

3. Use a solution of mild hand soap and water when cleaning mouthpieces, ligatures, bells and neck pieces of woodwind instruments. Protect key pads on neck pieces from moisture by wrapping them in cellophane. Metal polishes and detergents are not to be used.



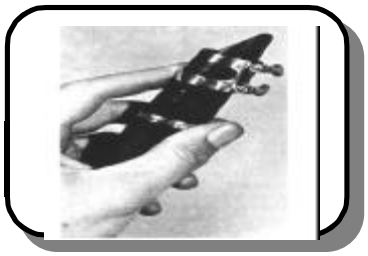
4. Never use force.

DAILY MAINTENANCE

5. After disassembly, carefully swab out each piece of the instrument. The swab should enter each piece through the smallest end to avoid jamming. When swabbing the mouthpiece, swab from both ends. Do not pull the swab through as the delicate edges of the face may be damaged.

6. Wipe fingerprints and moisture off the key mechanism and the outside of the instrument. Insert neck plugs, slide caps, etc. on applicable instruments.

7. Perform proper reed maintenance for each instrument. Wipe all moisture off reeds and secure them appropriately in the case. Apply only slight ligature tension when a mouthpiece is stored.



WEEKLY MAINTENANCE

8. Wash the head joint, neck piece or mouthpiece weekly with a mild hand soap. Protect any pads with cellophane or food wrap. Being careful not to damage delicate surfaces, rinse and dry thoroughly. Lubricate as necessary.

9. Remove dust from key mechanism with a small brush. Note: In the picture they are holding a brush.

10. Oil the mechanism wherever one metal part moves against another. Apply sparingly with a toothpick and wipe off all excess oil. Keep all lubricants off the pads. Note: In the picture they are holding a toothpick.

DAILY MAINTENANCE - BRASS INSTRUMENTS

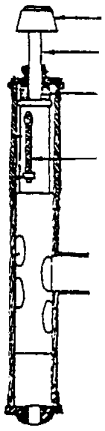
GENERAL

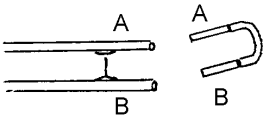
1. The following general cleaning procedures apply to all brass instruments.

THINGS TO REMEMBER BEFORE CLEANING

2. Although made of metal, pistons out of their casings and slides are easily damaged when exposed. Be careful not to drop them or strike them against any hard surface.

3. Ensure that removable parts are replaced correctly. Pistons must be returned to the casings from which they were removed. The piston valve guides must match the guide slots inside the casings. Tuning slides must be replaced exactly as removed.





4. Always depress the corresponding piston when a tuning slide is removed.

5. Never use force when cleaning. Hold the horn securely in a manner that cannot cause damage.

6. Never use metal cleaners on any instrument. Only soft, lint-free cloths should be used to polish brass instruments.

7. Instrument cases must be free of unnecessary items that may exert pressure on the instrument and cause damage when the case is closed.

8. Locking mechanisms on the cases should work properly to ensure the instrument does not fall out of the case.

DAILY MAINTENANCE

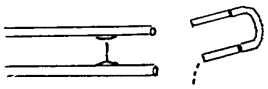
9. Apply valve oil only if required. Too much oil slows the action.

10. Before storing in its case, drain the water from the inside of the instrument and clean out the mouthpiece with a pipe cleaner or small brush. Use a soft cloth to wipe off any moisture or perspiration from areas touched by the hands and around the mouthpiece area.

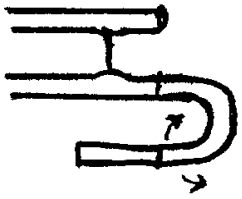
WEEKLY MAINTENANCE

11. Run luke warm water through the instrument, making certain that the valves are pressed down so that the water passes through the valve slides.

12. Remove the tuning slides and drain the water out of the instrument. Then dry the slides completely.



13. Apply Vaseline evenly and sparingly to the slides and work Vaseline in by placing each arm on the slide into its sleeve individually and rotating the slide back and forth.



14. Push in completely and wipe off the excess Vaseline.

DAILY MAINTENANCE - PERCUSSION

SNARE AND BASS DRUMS

1. The body and hardware of the drum must also receive periodic checking and care. It is recommended that about twice a year the drum should be completely dismantled.

2. Metal parts, such as the snare strainer and lugs, should be oiled with a good grade of machine oil. A small dab of petroleum jelly should be rubbed on the threads of the tensioning screws; this not only insures positive action but also prevents rusting.

3. While the drum is dismantled, all nuts and bolts inside and out should be tightened and any missing ones replaced. Before assembling the instrument, a thin coat of lanolin wax or paraffin should be rubbed on the edges of the shell to minimize wear on the head.

4. If the shell of the drum is mahogany it can be cleaned and preserved by applying a coat of “bowling alley wax” or a good grade of furniture wax. For pearl finishes glass wax can be used; for a metal shell a kitchen scouring powder works very well.

CYMBALS

5. As with drumheads, it is extremely wise to purchase the best make of cymbals available, then make every effort to lengthen their life.

6. **Cleaning.**

   a. Should the desire arise to have a set of shiny, new-looking cymbals, never buff or use a polish that has any abrasive matter in it. The cymbal must be treated as one would care for old silver.

   b. The roughness of a good quality cymbal, according to the manufacturers, is necessary for its tone. Buffing or rubbing with coarse abrasives smooths out these rough ridges and diminishes the tone quality of the instrument. The most practical and safe process is to soak the cymbal in vinegar for about half an hour then scrub it gently, using a kitchen cleanser, water, and a soft cloth. The cleaner does have an abrasive in it, but most of the tarnish has been removed by the vinegar so the scrubbing can and should be held to a minimum. If it is impossible to soak the cymbal because of size, it can be placed in a washbasin or bathtub and washed with a vinegar-saturated cloth.

7. **Cymbal Grips.**

   a. Another danger to the life of a good pair of cymbals is the use of fixed wooden handles which are bolted to the bodies of the instrument. These restrict the vibration and, by holding the cymbal in such a rigid position, can create tensions which will cause the cymbal to crack.
   b. Leather straps with lambskin padding are the ideal handles for the cymbals.

To secure the strap, proceed as follows:

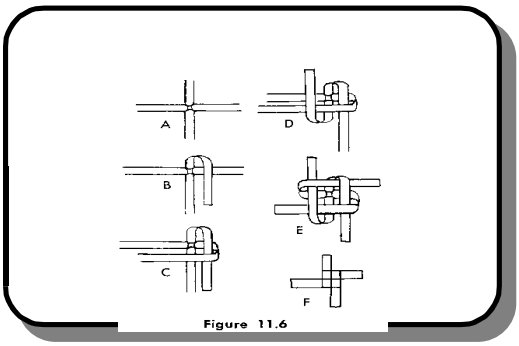


Figure 11.6

8. **Cracking.**

a. In spite of conscientious care and the insistence for good quality, a cymbal can still become cracked. This is usually te result of some mistreatment or neglect while being played.

b. Once cracked the true tone of the instrument can never be restored. Therefore, an untrained person should never be allowed to handle them.

c. If a cymbal does begin to crack, a small hole should immediately be drilled at the extreme end of the crack to halt its progress. A groove should then be sawed or filed along the crack to separate the edges so they do not vibrate together.

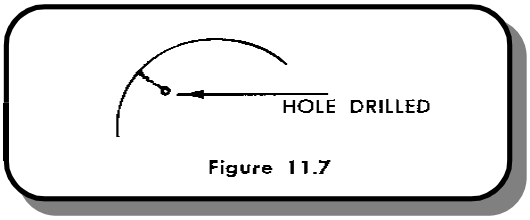


Figure 11.7

d. If the crack is near the edge of the cymbal, it can be ground out (Figure A) or off (Figure B) as shown.

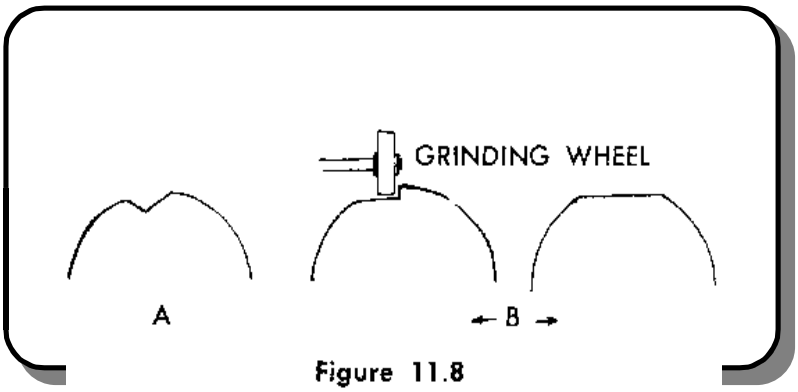


Figure 11.8

e. Never should an attempt be made to solder, weld, or braze a cymbal. The tone is not overly distorted, however. It may give continued service as an emergency or rehearsal instrument.

SPECIAL TIPS

9. **Sticks.** If the ball ends of the snare sticks are not capped with plastic, they must be inspected continually. Often the wooden tips will become splintered or "roughed-up". In this condition, they can cause serious wear or damage to the head. If the ball end cannot be sanded or smoothed out, they should be discarded or used as a beater for some other percussion instrument.

10. **Heads.**

a. A problem with plastic heads is their tendency to lose the natural roughness on the batter side. This is especially noticeable when the music calls for a smooth, but audible, brush stroke. The hardness and glasslike surface of the head does not allow the brush to "work" well over the surface and a desired effect is lost. The texture of the plastic head can be restored with the use of spray product called "Ruff-Coat" and manufactured by one of the leading drum companies.

b. Many professional trap drummers use a 3" x 3" patch of mole skin on the batter head of their bass drums where the beater ball continually strikes the head. Not only does this protect the head from wearing but some say it even improves the tone. As the skin patch wears out it can be peeled off and replaced with a new one. Mole skin can be purchased at a drugstore.

CLEAN A TRUMPET

CLEANING AND LUBRICATION

1. During this process an inspection should be made of parts and sections of the instrument to see that they are in good working condition and operating properly. If repairs are imminent, refer to the respective topics within the chapter.

2. **Materials Needed:**

a. flexible brush;

b. valve cleaning rod;

c. valve oil;

d. petroleum jelly;

e. several clean rags; and

f. Castile soap or a mild detergent.

3. **Procedure:**

a. Have a basin or sink of lukewarm, sudsy water. For larger instruments the bathtub works very nicely.

CAUTION: Do not use hot water, as this will cause the lacquer to peel on a brass instrument. Even some silver instruments have lacquer on them, specifically on the bell. Many strong laundry soaps have the same effect; it is best, therefore, to use a Castile soap or a very mild detergent.

b. Unscrew the top of the valve caps and take out the valves. Pay special attention to the numbers on the valves as you remove them from the casings - keep them in order!

c. Using a clean cloth, wipe the old oil off the valves and lay them in order on a clean cloth in a safe place.

d. If the valves are not the spring-barrel type (Plates IV and VI), remove the springs next by unscrewing the bottom valve caps. Wipe off the old grease on the springs and keep them in order by placing them next to their corresponding valve. Wipe out the bottom valve caps also.

e. Next. Pull all slides and wipe off the old grease.

f. Submerge the body of the instrument in the warm water and allow it to soak for about ten to fifteen minutes. While the horn is soaking, dip the slides in the water and run the flexible brush through them. Repeat this process until all foreign matter is removed from the inside of the slide tubing. Flush the slides with clean water and dry them.

g. After the slides are wiped dry and put aside, take the body of the horn and repeat the same process as with the slides. Run the flexible brush through all the tubing and flush with clean water.

h. Wipe the horn dry.

4. **Procedure - Greasing, Oiling and Assembling:**

a. Take the valve cleaning rod and wrap a clean cloth around it. Do this by inserting one corner of the cloth through the eye of the rod then twisting the rod so as to wind the cloth around it. Be sure to cover the rod entirely with the cloth, even the eye of the rod.

b. Run the rod in and out of the valve casings to remove any last bit of grime or water. The rod may also be used to swab out the tubing, at least as far as it will reach.

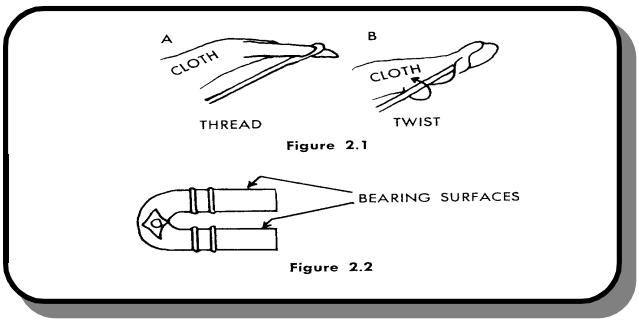


Figure 2.1

Figure 2.2

c. Before replacing the slides, coat the bearing surfaces with a thin coat of petroleum jelly.

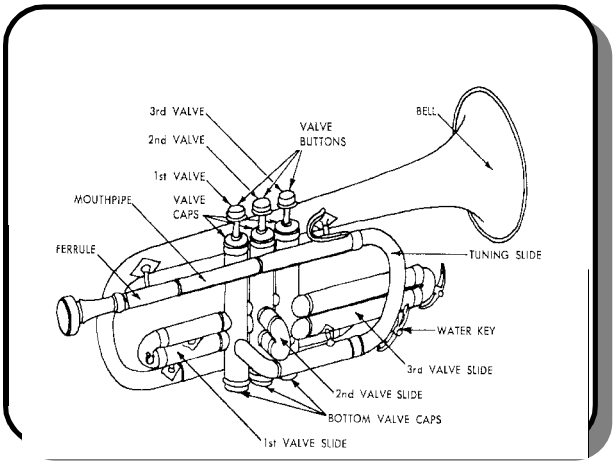
d. Next take the bottom valve caps and coat the inside threads with a thin coat of petroleum jelly before replacing.

e. The springs can also then be given a very thin coat of grease and dropped into the casing.

f. The springs can also then be given a very thin coat of grease and dropped into the casings.

g. Before replacing the valves, wipe them clean, including the ports, and put on three or four drops of good valve oil. For outdoor parades or concerts, use more oil than usual to protect the valves from additional dust and dirt. (Be certain to clean the instrument immediately after such a performance.) It is also a good idea to smear a little petroleum jelly on the threads of the top valve caps.

NOTE: To prevent acids from forming on the inside of the mouthpipe, a few drops of oil can be placed in the mouthpipe. The instrument is then tilted and rotated so the oil will spread evenly in the tub as it flows through. This procedure is also recommended for breaking in a new instrument.



5. A technique which sounds rather precarious, but is really quite simple and extremely effective in applying oil to the bore of a trumpet or cornet, is to tear off a small piece of kitchen sponge (about one-half inch in diameter) and coat it with oil. Place this in the end of the mouthpipe, depress all valves, and blow! The oiled sponge will, with surprising speed, travel through all of the tubing and fly out of the bell end. Several repetitions of this procedure will leave a thin film of oil on the inner surface of the tubing throughout the entire instrument, thus providing an effective deterrent to the oxidation process.

CAUTION: 1. Do not attempt on larger instruments.

2. Do not attempt unless you have a strong set of lungs to send a good blast of air through the instrument.

3. Do not attempt unless you have the expertise to completely disassemble your instrument should the sponge fail to go completely through the instrument on the first try.

REPLACE SPIT KEY CORK ON TRUMPET

1. Assorted sizes of precut water key (spit valve) corks can be purchased from a local repairman or supply house. The procedure to replace a water key cork is as follows.

2. **Procedure:**

a. No glue or cement is used to hold the cork in. Cement or glue becomes hard and brittle when it dries and when a water key is snapped shut the blow can crack the cement and break its holding power. Select a cork, therefore, that is slightly oversized and force it into the cup.

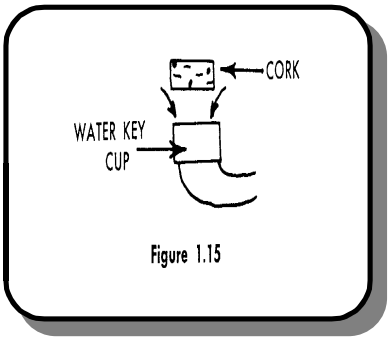


Figure 1.15

b. Press the key down firmly against the rim of the hole (nipple) to assure a good seat.

c. Test the seating of the cork by placing the thumb over the end of one tube of the slide and by blowing through the other. If it leaks, either shift the cork or replace it with another and again test it to make sure it does not leak. If it is impossible to acquire a selection of precut water key corks, round sticks of cork may be purchased and used in the following manner:

(1) Select a cork stick of which the diameter is slightly larger than that of the water key cup.

(2) Fit one end of the stick into the cup; as before no cement is used.

(3) Use a sharp razor blade and slice off the amount desired.

d. Check to make sure that the face of the cork in the cup has no heavy grains exposed which can cause a serious leak. If this is the case, either slice off a thin layer of the cork in the cup or replace it entirely.

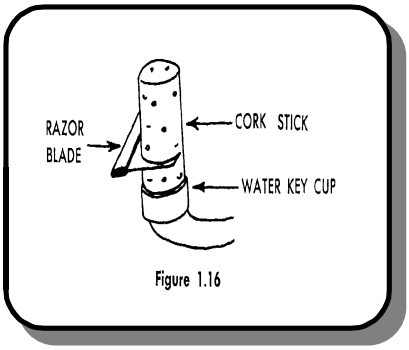


Figure 1.16

3. If the cork, either precut or from a tube, is seating in back but not in front, slice off thin layers until it lies flat against the rim of the hold. If it is seating in front but not in the back, the cork is too thin and must be replaced.

REPLACE A PAD ON A CLARINET

1. Pad Replacing - Materials needed:

   a. Assorted bladder pads;
   b. Stick of French pad cement;
   c. Prick punch;
   d. Pad slick;
   e. Feeler gauge;
   f. Alcohol lamp;
   g. Spring hook; and
   h. Small screwdriver.

2. **Procedure:**

   a. Remove the key from the body of the instrument. (This step is not a must, but it is preferred because it allows a thorough cleaning of the pad cup and eliminates the danger of burning the body of the clarinet and/or other pads and corks. If the key is left on the instrument, it is raised so the cup is up and away from the body as far as possible. The cup is then exposed to the edge of the flame to soften the glue so the pad can be removed with the prick punch.)

b. If the key is removed, hold it pad up over the flame to melt the old cement and loosen the pad.

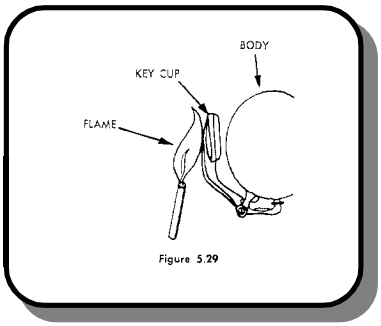


Figure 5.29

c. With the prick punch, lift out the old pad.

d. Clean out the pad cup thoroughly.

e. Select the correct size pad. If possible use the old one as a pattern. The pad should not be oversized or it may hit the sides of the tone hold and not seat properly. Likewise, it should not be undersized or it may not cover the tone hole properly. The thickness of the pad must be considered also. A pad which is too thick is as difficult to seat as one which is too thin.

(Some repairman prefer to use a pad that is quite thin and then float it in with pad cement. This method has much merit but is not recommended for the amateur.)

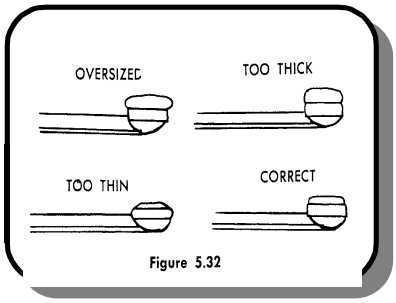


Figure 5.32

f. The next step is to prick a hole in the edge of the pad with the needle. This will provide a release valve for any moisture that collects during the seating of the pad and/or during its use. Failure to do this will result in pads actually blowing up like balloons from the moisture trapped inside the bladder skin.

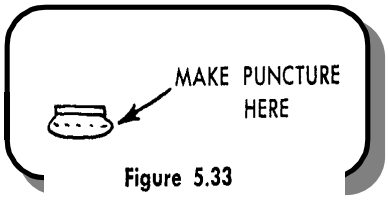


Figure 5.33

g. Insert the needle into the side of the cardboard washer on the back of the pad. This will hold it nicely while the cement is applied.

h. Hold the stick of French pad cement over the flame until it begins to melt, then quickly smear a small dab on the back of the pad.

i. Again heat the pad cup of the key over the flame.

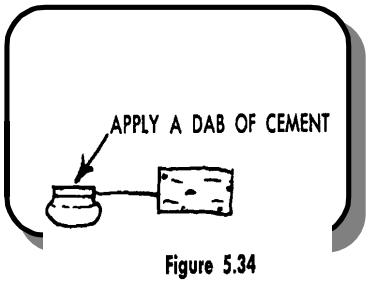


Figure 5.34

j. When it is quite warm - but not hot - remove it from the flame and place the pad in the cup.

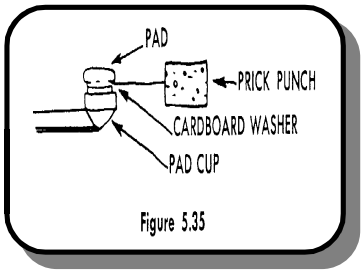


Figure 5.35

k. Remove the prick punch and press the pad in place with the pad slick. Make sure it is even all the way around. If any cement oozes out, let it harden then chip it off. Do not try to wipe it off while it is hot because this will only smear the cement over the key and the pad itself.

l. Replace the key on the instrument.

3. Replacing a pad on a bass or alto clarinet is basically the same procedure. If a pad falls out of a key on such an instrument it can be replaced by simply putting a small amount of liquid pad cement on the back of the pad and replacing it in the pad cup. This is not a permanent repair, and the pad probably will not be seated properly, but it is an emergency procedure which will last until the instrument can be taken care of properly by a repairman.

REPLACE A HEAD AND SNARE ON A DRUM

1. **Replacing Heads - Procedure:**

a. Whenever a new head is to be replaced on a drum, use the opportunity to inspect the entire instrument thoroughly. All nuts and bolts that appear on the inside or outside of the shell should be checked and tightened. Dust and grease should be removed from the inside of the shell and a careful inspection of the rim should be made. Any small nicks or dents in a metal shell or splinters should be sanded smooth.

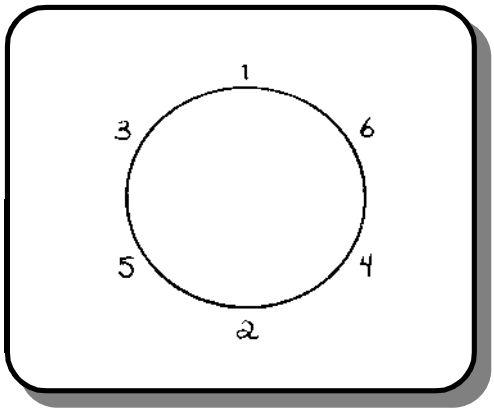
b. When the rim is clean and smooth, a coating of lanolin or paraffin should be rubbed over the entire surface of the rim. This will greatly diminish the wear on the inside (bottom) of the head as it slides back and forth over the rim of the shell.

c. Inspection of a similar manner should also be given the hoop.

d. Release all tension produced by the hand screws and place the pedal in low position.

e. With the palm of the hand press the head down in the center to make sure it is loose and not sticking to the rim of the shell.

f. Reapply tension by turning the hand screws in pairs, 1 and 4, 2 and 5, 3 and 6. Do not put more than a half turn on each screw.

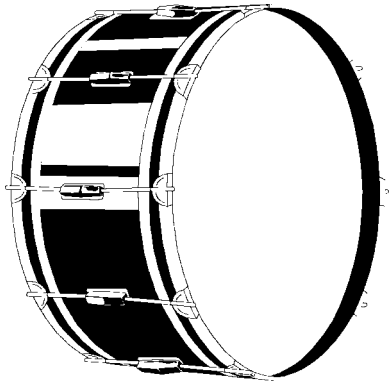


TUNE A BASS DRUM

1. **Procedure:**

   a. To assure a good tone the batter head should be kept slightly tighter than the opposite side. This prevents “kickback” or “bark”. For a uniform tone, and to prevent “dead spots” in the head, the tension must be even at all points around the rim. This can be checked by tapping around the rim at the point of each tightening screw; the tone at each of these points must be alike in pitch and timbre. It is controlled by loosening or tightening the screws.

   b. If the bass drum is used in damp or rainy weather it must be treated like the snare drum; that is, tightened while in use and then loosened when put away. If it is to be stored for a considerable length of time, the tension on both heads should be lowered about one full turn of each screw and the entire drum covered with a cloth or newspaper to prevent dust from collecting on it. After each use, it is well to apply about a half a turn to each of the tensioning rods. Bass drums are played with a little less tension on the heads, and if they are set aside in this manner the head can shrink and the collar will be lost.



PERFORM EMERGENCY REPAIRS

ON A BAND INSTRUMENT

GENERAL

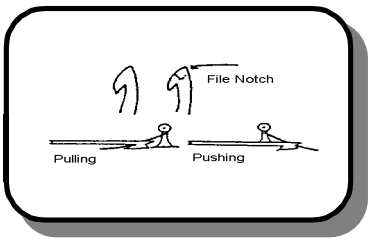
1. Emergency repairs are intended only as stop-gap measures. Proper repairs should be completed as soon as time is available.

2. Imagination and dexterity are two desirable qualities in effecting emergency repairs. Caution and common sense must also be exercised. For example, crazy glue may be used to secure a cork on a clarinet joint. If the glue is not allowed to dry completely before re-assembling the instrument, two pieces of the clarinet could become permanently glued together.

3. An emergency repair kit small enough to carry in a uniform is described on page 4-24.

4. The following list presents some of the situations that can be temporarily remedied when time does not permit proper repairs:

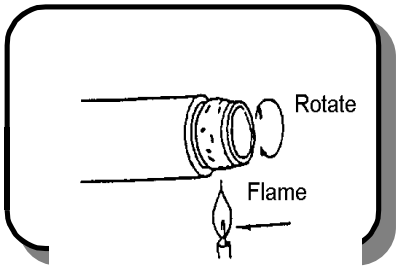
a. weak spring tension on woodwinds can be increased by using a car key or crochet hook; pull or push the spring in the direction opposing its normal traverse;



b. to secure or replace a loose woodwind pad, heat the key cup with the side of the flame from a cigarette lighter to loosen the glue and re-position the pad;

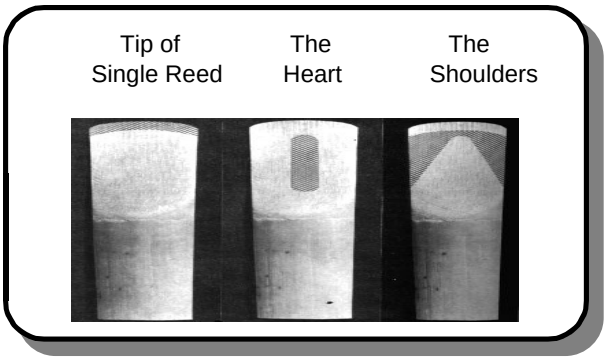
c. sticky pads can sometimes be remedied by placing a dollar bill between the pad and the tone hole. Apply slight pressure to the key and draw the bill through. The coarse surface of the paper will tend to remove any dirt;

d. loose joints on clarinets can be tightened by applying cork grease to the tenon cork and heating to expand the cork. A wrapping of dental floss may also be used;

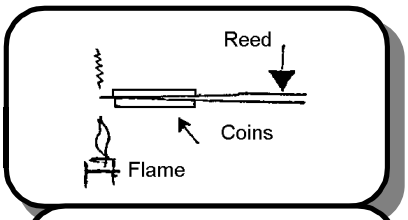


e. a loose foot joint on the flute can be tightened by placing a small strip of material from a band aid or plumbers sealing tape around the inside member. A piece of duct tape wrapped around the outside of the assembled joint will also hold temporarily;

f. frayed tips on reeds should be trimmed with a reed trimmer. A single edged razor blade may also be used in an emergency. Use a flat piece of metal as a guide and an appropriately sized coin to round the outside edges. If the reed becomes too stiff, thin the tip down with a razor blade or pocket knife;



g. the reed tip may also be burned down to smooth the edge. Hold two coins against the tip of the reed as a guide for the burn and apply a flame to the face side;



h. if a ligature screw is lost, place the remaining one in the hole nearest the tip of the mouthpiece. If there is no ligature, a thick rubber band or piece of string can be used to hold the reed in place on the mouthpiece;

i. make-shift water key corks can be made by forming a wad of gum or damp toilet tissue into the shape of the original cork and placing it into the key cup;

j. stuck mouthpieces may loosen-up by heating the mouthpiece receiver at the end of the lead pipe and tapping the mouthpiece gently with a drum stick;

k. brass valve pistons frozen in cold weather may be freed by blowing warm air through the horn or by applying rubbing alcohol to the valve. Never bang the valve tops with the hand to force them free;

l. snare drum head punctures or splits should be taped immediately. Loosen off the tension on the rod lugs nearest the damage and play on another part of the head;

m. if the gut on the snare mechanism breaks use a shoelace as a replacement;

n. broken slings may be replaced by a belt or tie; and

o. if a leather cymbal strap fails, cut the slit in the leather deeper to allow extension of the remaining piece through the hole and tie off.

EMERGENCY REPAIR KIT

1. The following articles may be used to effect many small emergency repairs. They take up little space and can be easily concealed in a uniform:

a. a spring hook or car key;

b. a dollar bill (any denomination);

c. a tube of cork grease;

d. a band aid;

e. a piece of duct tape (about six inches);

f. a sharp pocket knife;

g. a butane cigarette lighter;

h. a 25 cent piece;

i. a few assorted elastic bands;

j. a stick or two of gum;

k. a piece of Kleenex or toilet tissue;

l. an old shoelace;

m. a couple of flat toothpicks; and

n. a spare pair of drum sticks (in socks).

CASE REPAIRS

GENERAL

1. Since 1980 most student model instrument cases have been made from polyethylene plastic. Today's professional model instruments and older cases are usually made of wood covered with vinyl.

REPAIR PROCEDURES - WOODEN CASES

2. If a french horn or trombone case is damaged so badly around the bell area that the wood is actually visible, it may be repaired as follows:

a. to reattach loose wooden veneer or separated plywood, apply glue between the veneer and the wood surface. Allow the glue to cure to the desired tackiness and fasten to the surface with clamps, tacks or brads;

b. if the wooden end-piece (or any piece of wood) is broken into pieces, remove and duplicate the original using a piece of plywood of the same thickness;

c. attach the newly cut piece into position with small nails, screws or small L-shaped tin strapping made from a tin can;

d. fill any cavities with plastic wood and shape it to the original form. Let set and file or sandpaper smooth;

e. use liquid shellac (waterproof) to re-attach any frayed or loose case covering. Duct or gun tape may replace any missing covering;

f. when the repair is complete, spray with a rubber lacquer such as Nichols #15.

PLASTIC CASES

3. Most plastic cases are made from a chemically inert plastic called polyethylene. This material, once split, can only be satisfactorily repaired with an expensive heat welding apparatus. Other repairs are makeshift and do not last a long time.

4. To retard a split or damage to a plastic case, place a piece of an old leather belt over the damaged are and use duct or gun tape to secure it to the case. Avoid placing pressure around the repair.

LOOSE BINDING

5. The stitching on cases often fails and allows binding to become loose, especially on trombone cases. This is easy to repair and should be done immediately to avoid further damage.

6. Use an old reed to apply waterproof shellac between the binding and the case. Firmly press the two together, place a flat piece of wood with a weight on the repair, and let set.

7. Do not use any water soluble glues or adhesives on the outside of the case as they will loosen when exposed to moisture.

LOOSE COVERS, LININGS, OTHER PARTS

8. Use only waterproof shellac to reattach outside coverings.

9. Linings may be glued with water soluble adhesives. Apply glue to both surfaces and use thumbtacks to hold the lining in place. Remove the thumbtacks when the glue has set.

10. To reattach mouthpiece blocks and accessory boxes inside the case, glue the parts into their original setting and secure with oval-headed screws and finishing washers.

SLIDING CATCHES

11. Lubricate sliding catches regularly for smooth operation.

CASE LOCKS

12. Often the loop part of a case lock will not catch or hold. If this occurs, use flat-nose pliers to very gently bend the piece holding the loop toward the case. Usually only very little movement is necessary.

BROKEN HASP SPRINGS

13. Once broken, a hasp spring cannot be repaired; the entire hasp must be replaced. Replacement hasps are usually available from a luggage repair store.

14. To replace a hasp, expose the rivet end inside the case and loosen the bent ends with a screwdriver. Press the ends together with pliers and remove the entire hasp. To install the new hasp, reverse the removal procedure. When the rivets are in place, spread the ends and flatten them out with pliers and a hammer until they hold the hasp firmly in place. Replace the lining with glue.

BROKEN CASE HANDLES

15. Broken case handles can be replaced in the same manner as hasps.

7. Is the case free of unnecessary matter?									
Inspecting Officer/Instructor Initial									

Other Comments:

UNIT INSTRUMENT CHECKLIST

French Horn

Unit Instrument Check List For Year _____

Signed out to _____

Cadet Rank Surname First Name Phone Number

Instrument _____ Serial Number _____ Make/Model _____

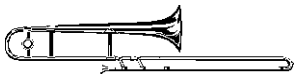
POINTS TO REVIEW FOR MONTHLY INSTRUMENT INSPECTION (FILL IN Y FOR YES OR N FOR NO)	INSERT DATE IN THE BOXES BELOW AS FOLLOWS: (DAY/MONTH FOR EXAMPLE 29/11)								
Mouthpiece									
1. Are the bore and cup clean?									
2. Is the shank in good shape?									
3. Is the rim smooth without nicks?									
Slides									
1. Are all slides in the correct places and order?									
2. Do all the slides work freely?									
3. Are all the slides properly greased?									
4. Are there any large dents in the tubing?									
5. Is the tubing dent free?									
Valves									
1. Do all valves rotate freely?									
2. Are all valves properly strung with no lost action?									
3. Can the bottom valve caps be easily unscrewed?									
4. Are the bumper (adjustment) corks in good shape?									
5. Do all three of the valve keys lie at the same level?									
6. Is the tension even on all valve keys?									
General Condition									
1. Are there any large dents in the bell tubing?									
2. Are the braces firmly soldered?									
3. Is the lyre screw in place?									
4. Is the instrument thoroughly clean?									
Instrument Case									
1. Do the locks close properly?									
2. Is the outside surface in good shape?									
3. Does the handle function properly?									
4. Are any sticks or beaters properly secured?									
5. Is the interior lining in good shape?									
6. Are all instrument parts secure in the case?									
7. Is the case free of unnecessary matter?									

Inspecting Officer/Instructor Initial

Other Comments:

UNIT INSTRUMENT CHECKLIST

Trombone



Unit Instrument Check List For Year _____

Signed out to _____

Cadet Rank Surname First Name Phone Number

Instrument _____ Serial Number _____ Make/Model _____

POINTS TO REVIEW FOR MONTHLY INSTRUMENT INSPECTION (FILL IN Y FOR YES OR N FOR NO)	INSERT DATE IN THE BOXES BELOW AS FOLLOWS: (DAY/MONTH FOR EXAMPLE 29/11)								
Mouthpiece									
1. Are the bore and cup clean?									
2. Is the shank in good shape?									
3. Is the rim smooth without nicks?									
Turning Slides									
1. Does the slide (or slides) work freely?									
2. Is the slide (or slides) properly greased?									
3. Is the tubing dent free?									
Handslide									
1. Does the slide work freely in all positions without "dragging" or "grating"									
2. Is the slide click-free when pulled up fast into first position?									
3. Is the water key cork in good condition?									
4. Is the water key spring properly tensioned to close the key?									
5. Does the slide lock hold the slide together securely?									
6. Is the plating on the inside slides in good condition?									
7. Is the bore of the tubing on the inside slides clean?									
General Condition									
1. Is the bell tubing dent-free?									
2. Are the braces firmly soldered?									
3. Is the instrument thoroughly clean?									
Instrument Case									
1. Do the locks close properly?									
2. Is the outside surface in good shape?									
3. Does the handle function properly?									
4. Is the mouthpiece properly secured?									
5. Is the interior in good shape?									
6. Are all instrument parts secure in the case?									
7. Is the case free of unnecessary matter?									
Inspecting Officer/Instructor Initial									

Other Comments:

UNIT INSTRUMENT CHECKLIST

Flute

Unit Instrument Check List For Year _____

Signed out to _____

Cadet Rank Surname First Name Phone Number

Instrument _____ Serial Number _____ Make/Model _____

POINTS TO REVIEW FOR MONTHLY INSTRUMENT INSPECTION (FILL IN Y FOR YES OR N FOR NO)	**INSERT DATE IN THE BOXES BELOW AS FOLLOWS: (DAY/MONTH FOR EXAMPLE 29/11)**								
Head Joint									
1. Is the tuning button on tight?									
2. Does the head joint have a protector cap over the tenon?									
3. Is the head joint dent free?									
4. Does the head joint fit securely into the body without any loose play?									
Body and Foot Joint									
1. Is the body or foot joint dent free?									
2. Does the body have a protector cap over the tenon?									
3. Are the posts securely fastened?									
4. Are the tone holds dent or nick free?									
5. Does the foot joint fit securely into the body without any loose play?									
Key Mechanism									
1. Is the key mechanism working properly?									
2. Are the keys correctly fastened?									
3. Are all pivot screws or key rods in place?									
4. Do all keys operate freely and easily?									
5. Is the key system well oiled?									
6. Are all key corks in place?									
Pads									
1. Are all pads properly seated?									
2. Are all pads in good condition (not torn, hard, brittle, sticking, etc)?									
3. Are all of the metal pad washers in place?									
Instrument Case									
1. Do the locks close properly?									
2. Is the outside surface in good shape?									
3. Does the handle function properly?									
4. Is the instrument properly secured in the case?									
5. Is the interior lining in good shape?									
6. Are all instrument parts secure in the case?									
7. Is the case free of unnecessary matter?									
Inspecting Officer/Instructor Initial									

Other Comments:

UNIT INSTRUMENT CHECKLIST

Clarinet

Unit Instrument Check List For Year _____

Signed out to _____

Cadet Rank Surname First Name Phone Number

Instrument _____ Serial Number _____ Make/Model _____

POINTS TO REVIEW FOR MONTHLY INSTRUMENT INSPECTION (FILL IN Y FOR YES OR N FOR NO)	**INSERT DATE IN THE BOXES BELOW AS FOLLOWS: (DAY/MONTH FOR EXAMPLE 29/11)**								
Mouthpiece									
1. Does the mouthpiece have a reed cap?									
2. Is the tip unchipped?									
3. Is te cork in good condition and does the mouthpiece fit the barrel properly without any play?									
4. Is the mouthpiece clean?									
5. Is the ligature in good condition (any screws missing)?									
Body									
1. Is the body free from signs of cracking?									
2. Are the tone holds free of chips or nicks?									
3. Are the tone holes clean?									
4. Are the tenons free of chips or nicks?									
5. Is the thumb rest securely fastened?									
6. Are the tenon or bell rings secure?									
7. Are the tenons well corked so that there is no play when the sections are fitted together?									
8. Is the wooden bore oiled?									
Key Mechanism									
1. Are the keys in their original shape (check especially the bridge keys)?									
2. Are the pivot screws or key rods properly in place?									
3. Do all keys operate freely and easily?									
4. Are all key corks securely in place?									
5. Is the key system smooth and quiet and properly corked and oiled?									
Pads									
1. Are all pads present and securely in place?									
2. Are all pads in good condition (not torn, hard, brittle, sticking, etc)?									
Instrument Case									
1. Do the locks close properly?									
2. Is the outside surface in good shape?									
3. Does the handle function properly?									
4. Is the mouthpiece properly secured?									
5. Is the interior lining in good shape?									
6. Are all instrument parts secure in the case?									
7. Is the case free of unnecessary matter?									
Inspecting Officer/Instructor Initial									

Other Comments:

UNIT INSTRUMENT CHECKLIST

Oboe and English Horn

Unit Instrument Check List For Year _____

Signed out to _____

Cadet Rank Surname First Name Phone Number

Instrument _____ Serial Number _____ Make/Model _____

POINTS TO REVIEW FOR MONTHLY INSTRUMENT INSPECTION (FILL IN Y FOR YES OR N FOR NO)	**INSERT DATE IN THE BOXES BELOW AS FOLLOWS: (DAY/MONTH FOR EXAMPLE 29/11)**								
Body									
1. Is the body free from signs of cracking?									
2. Are the tone holes free of chips or nicks?									
3. Are the tone holes clean?									
4. Are the tenons free of chips or nicks?									
5. Is the thumb rest securely fastened?									
6. Are the tenon or bell rings secure?									
7. Are the tenons well corked so that there is no play when the sections are fitted together?									
8. Is the wooden bore oiled?									
9. Are there tenon caps or protectors for the corked joint?									
Key Mechanism									
1. Are the keys in their original shape (check especially the bridge keys)?									
2. Are the pivot screws or key rods properly in place?									
3. Do all keys operate freely and easily?									
4. Are all key corks securely in place?									
5. Is the key system smooth and quiet due to proper corking and oiling?									
Pads									
1. Are all pads present and securely in place?									
2. Are all pads in good condition (not torn, hard, brittle, seating improperly, sticking)?									
Instrument Case									
1. Do the locks close properly?									
2. Is the outside surface in good shape?									
3. Does the handle function properly?									
4. Is the mouthpiece properly secured?									
5. Is the interior lining in good shape?									
6. Are all instrument parts secure in the case?									
7. Is the case free of unnecessary matter?									
Inspecting Officer/Instructor Initial									

Other Comments:

UNIT INSTRUMENT CHECKLIST

Bassoon

Unit Instrument Check List For Year _____

Signed out to _____

Cadet Rank Surname First Name Phone Number

Instrument _____ Serial Number _____ Make/Model _____

POINTS TO REVIEW FOR MONTHLY INSTRUMENT INSPECTION (FILL IN Y FOR YES OR N FOR NO)	**INSERT DATE IN THE BOXES BELOW AS FOLLOWS: (DAY/MONTH FOR EXAMPLE 29/11)**								
Bocal									
1. Is the bocal free from signs of cracking?									
2. Are the tone holes free of chips or nicks?									
3. Are the tone holds clean?									
4. Are the tenons unbroken and chip free?									
5. Is the thumb rest secure?									
Body									
1. Are the tenons well corked so that there is no play when the sections are fitted together?									
2. Is the wood properly oiled?									
3. Are there tenon caps or protectors for the corked joint?									
4. Is the lock mechanism (holds tenor and bass joints together) working properly?									
5. Does the hand rest fit securely?									
6. Is the boot cap tight?									
7. Is the body free of cracks or chipped tone holes?									
Key Mechanism									
1. Are all keys in original shape (check especially the bridge keys)?									
2. Are the pivot screws or key rods properly in place?									
3. Do all keys operate freely and easily?									
4. Is the key system smooth and quiet (due to proper corking and oiling)?									
Pads									
1. Are all pads present and securely place?									
2. Are all pads in good condition (not torn, hard, brittle, sticking, etc)?									
Instrument Case									
1. Do the locks close properly?									
2. Is the outside surface in good shape?									
3. Does the handle function properly?									
4. Is the Bocal properly secured?									
5. Is the interior lining in good shape?									
6. Are all instrument parts secure in the case?									
7. Is the case free of unnecessary matter?									
Inspecting Officer/Instructor Initial									

Other Comments:

UNIT INSTRUMENT CHECKLIST

Saxophone

Unit Instrument Check List For Year _____

Signed out to _____

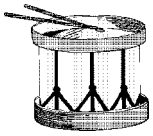
Cadet Rank Surname First Name Phone Number

Instrument _____ Serial Number _____ Make/Model _____

POINTS TO REVIEW FOR MONTHLY INSTRUMENT INSPECTION (FILL IN Y FOR YES OR N FOR NO)	**INSERT DATE IN THE BOXES BELOW AS FOLLOWS: (DAY/MONTH FOR EXAMPLE 29/11)**								
Mouthpiece									
1. Does the mouthpiece have a reed cap?									
2. Is the tip of the mouthpiece chip free?									
3. Is the mouthpiece clean?									
4. Is the ligature in good condition (any screws missing)?									
Body									
1. Is the neck properly corked (try fitting the mouthpiece on; it should not go on more than two-thirds the way)?									
2. Does the neck fit firmly and securely into the body without any play:									
3. Is the body, dent free, especially near the tone holes?									
4. Are all braces, guards or posts securely fastened?									
5. If the instrument is designed to use an end plug, is it being used?									
Key Mechanism									
1. Are all keys unbroken and in their original shape?									
2. Are all pivot screws or key rods in place?									
3. Do all keys operate freely and easily?									
4. Are all felt bumpers in place?									
5. Are all pearl insets on the keys in place?									
6. Is the key system smooth and quiet (properly corked and oiled)?									
Pads									
1. Are all pads present and securely in place?									
2. Are all pads in good condition (not torn, hard, brittle, sticking, etc)?									
3. Are all of the metal pad washers in place?									
Instrument Case									
1. Do the locks close properly?									
2. Is the outside surface in good shape?									
3. Does the handle function properly?									
4. Is the mouthpiece properly secured?									
5. Is the interior lining in good shape?									
6. Are all instrument parts secure in the case?									
7. Is the case free of unnecessary matter?									
Inspecting Officer/Instructor Initial									

Other Comments:

UNIT INSTRUMENT CHECKLIST



Percussion Instruments (Snares and Bass)

Unit Instrument Check List For Year _____

Signed out to _____
Cadet Rank Surname First Name Phone Number

Instrument _____ Serial Number _____ Make/Model _____

POINTS TO REVIEW FOR MONTHLY INSTRUMENT INSPECTION (FILL IN Y FOR YES OR N FOR NO)	**INSERT DATE IN THE BOXES BELOW AS FOLLOWS: (DAY/MONTH FOR EXAMPLE 29/11)**								
Heads									
1. Are both heads unbroken and playable?									
2. Are the head cut and hold free?									
3. Is the head tight on the flesh hoop?									
4. Is the head clean?									
5. Are the counter hoops on evenly?									
6. Does the drum have a proper sound without an unusually loud ring?									
7. Is there proper tension on each head?									
8. Are the pitch and timbre even on the head in front of each tightening screw?									
Shell and Accoutrements									
1. Are all lugs (tightening screws) present?									
2. Are all the lugs in proper working order?									
3. Are all of the lugs tight on the shell?									
4. Is the shell damage free?									
5. Does the snare strainer work freely and properly?									
Snare									
1. Are the strands on the snare unbent?									
2. Do all the strands lie evenly on the head?									
3. Does the snare function properly?									
4. If a wire snare is used, is the coil or spiral still in the stand?									
5. Does the damper function properly?									
General									
1. Are the drums stored in a place free from extreme heat and humidity?									
2. Are the pitch and timbre even on all snare drums?									
3. Are the drums in cases, cages, or protected in some way from dust and/or damage?									
4. Are all stands or cradles in good conditions?									
Instrument Case									
1. Do the locks close properly?									
2. Is the outside surface in good shape?									
3. Does the handle function properly?									
4. Are any sticks or beaters properly secured?									
5. Is the interior lining in good shape?									
6. Are all instrument parts secure in the case?									
7. Is the case free of unnecessary matter?									
Inspecting Officer/Instructor Initial									

Other Comments: