



Malmark

Handbells

Care and
Maintenance
Instructions

Introduction

Thank you for selecting our handbells. We appreciate the privilege of serving you and share your pride in the ownership of a fine musical instrument. So that you may obtain the maximum



benefit from the craftsmanship and care that we have placed in them, and so that they may retain their visual and musical beauty for many generations to come, we urge you to carefully observe the guidelines outlined in this manual for the best care and maintenance of your handbells.

If your purchase included a full set of handbells (2 octaves or more), you will find enclosed a copy of our recommended methods book

"Mastering Musicianship in Handbells**" by Donald

Allured; a tube of Malmark Handbell Polishing Cream; and a polishing cloth with jeweler's rouge. An owner's registration form is attached to the guarantee and we ask that you return it immediately. A hex key wrench is included for bearing screw adjustment (see page 10 of this manual).

Since 1974, Malmark has manufactured high quality, precision tuned handbells. Thank you for joining our family.

Sincerely,
Malmark, Inc.

A handwritten signature in black ink that reads "J. H. Malta". The signature is written in a cursive, flowing style.

J. H. Malta
President

**Mastering Musicianship in Handbells" by Donald Allured enclosed with handbells sold after July 1, 1992. Published by Broadman Press. Additional copies available from Malmark, Inc.

General Information

We recommend that you carefully observe the following rules for handling these beautiful instruments.

- A Always treat handbells as the fine musical instruments which they are. Much care and craftsmanship has gone into making them, so do not risk damage through careless handling.
- B The bell castings are made of bronze, carefully lathe turned and tuned and then polished to a jeweler's finish. The bells are not lacquered to protect the finish, for the application of lacquer would diminish the musical quality of the bell; therefore, touching the bell casting with the bare hands will cause stains and tarnish due to the acids and salts from the skin. Although tarnish will not affect the tone of the bell, the removal of the tarnish, if not done properly, can affect the tuning.
- C We recommend that you wear gloves when handling or ringing handbells in order to prevent contact with the metal by the hands. Cotton gloves are not slippery, absorb moisture, are inexpensive and are most frequently used by handbell ringers.
- D Any fingerprints or stains should be removed promptly. The longer they are allowed to remain, the more difficult they will be to remove.
- E The bells should not be allowed to come into contact with any rough or hard surface which will scratch or mark them. If carrying cases are not used for storing or transporting the handbells, they should be carried in bags of soft materials such as flannel or velvet with each bell in a separate bag.



F In handling or playing the bells, be certain not to strike them against each other or against any hard object. It is not practical or satisfactory to repair or mend a bell casting once it has become cracked or chipped. The only good solution is to replace it.

G NOTE THAT, AS RECEIVED, SOME CASTINGS MAY HAVE MINUTE SURFACE IMPERFECTIONS EITHER ON THE INSIDE OR THE OUTSIDE WHICH DO NOT AFFECT TONAL QUALITY. Small pinhole sized defects from loose grains

of sand are common to sand castings and are most frequently encountered in larger bells because of their larger surface areas. Malmark rejects those with objectionable defects and, to avoid considerably increased costs to the customer, uses those with minimal but acceptable surface defects which are visible only under close inspection. Before ringing We suggest that you take the time to examine your handbells to make certain that you are familiar with their many features and how they can add to your enjoyment and use of the bells. Although all Malmark handbells incorporate similar features and construction, one of the larger bells (such as a G4) offers good visibility of the internal parts and their function. If you are not already familiar with the Malmark handbell, we suggest that you have a bell in front of you as we go over it together.

As you hold and observe the bell, you will see that it is composed of five basic parts:

- 1) The handle
- 2) The handguard
- 3) The tuned bronze bell casting
- 4) The yoke and restraining mechanism
- 5) The instantly adjustable clapper



The Handle

The Handle is of extruded, clear transparent plastic and has smooth, rounded edges which are comfortable to the hands. The material is tough, impervious to perspiration and will not break down after many years of proper use. The clear material has a hollow center into which has been inserted another plastic note designation strip which imparts added rigidity for a firmer grip and better control of the bell while ringing. Since the note designation is enclosed by the clear plastic handle,

through which it is clearly visible, it is completely protected against abrasion and wear.

You will note that the clear plastic handle is fastened to a block by four Phillips head screws, two to each side. This block is then fastened to the yoke/handle coupler by means of the main assembly screw. It is important that the ends of the handle fit into the recess in the handguard so that the ends of the block and the ends of the handle rest on the bottom of the recess when the main assembly screw is tightened (see page 18). If this is not done, there may be a tendency for this screw to loosen during ringing.

Malmark handles are made of a very tough and durable material, and will have an almost unlimited life span with proper use and care. Learning the proper method of holding and ringing the bells is an important factor in extended hand life. The hand should encircle the handle like a fist with the thumb and the first finger resting firmly against the handguard. The thumb should be in direct line with the arm, pointed directly away from the body during the ringing motion. The proper grip is described clearly on page 22 of "Mastering Musicianship in Handbells" by Donald Allured. Holding the bell by the end of the handle or inserting one or more fingers in the loop of the handle is not recommended and may cause premature failure of the handle.

The Handguard



The Handguard is sometimes called a collar or handle disc, but its primary function is to keep the hand from touching the bell while permitting a firm grip on the handle. For comfort and durability, the handguard is made of clear polycarbonate with the note and octave designation on the underside where it can clearly be seen through the plastic material. This provides a smooth surface for contact by the hand holding the bell and eliminates wear or obliteration of the note designation.

The Tuned Bronze Casting

The bell casting is the heart of the handbell. It is made of traditional bronze bell metal (approximately 80 percent pure copper and 20 percent tin), the result of the molten metal being poured into a sand mold and allowed to harden by cooling. The rough casting is then precision turned inside and out on a lathe to an exact profile and musical specification. Much time, care and skill goes into turning and tuning each bell so that its two principal tones, the fundamental and the twelfth, will be in exact relationship with each other, and with the other bells in the set. The tuned bell casting is clamped between the handguard and the yoke-handle coupler, secured between them by means of lockwashers.



On the inside lip of the bell you will find a scribed mark about $\frac{1}{8}$ " in length. This is not a crack or defect in the bell, but has been placed there to fix the point where the clapper should strike the bell for best response and minimum beat or "wow". After the bell casting has finally been tuned and the bell completely assembled, but before the main assembly screw in the handle has been tightened to lock the tuned casting into a fixed relationship with the handle and clapper mechanism, the point of best response is selected. This is done by ringing the bell

while turning the casting in small increments. The trained ear of the bellcraftsman then determines the point of clearest response and least "wow". The main assembly screw is then tightened to lock the bell in that position. The clapper will then strike the bell at that point and 180° from it. Although handbells will not change pitch unless there has been some change to the bell casting by removal of metal, damage, etc., the point of best response may change over a long period of time due to aging of the metal, damage to the bell by nicking or chipping the lip, etc. Should you determine that a change has taken place, you can select a new strike point by the following procedure:

- A** Loosen the main assembly screw in the handle just enough so that you can turn the bell casting while holding the handbell by the handle.
- B** Ring the bell and listen to the tonal response for clarity and the rate and amplitude of any beat or "wow." Damp the bell by touching the lip with your free, gloved hand to stop the vibrations, turn the casting approximately $\frac{1}{16}$ ", ring it again and listen. Continue this procedure until you have turned the bell through at least 180°, and determine if there is another point where the bell rings more clearly and with less "wow."
- C** If a new and better strike point is found, tighten the main assembly screw, then hold the clapper against the bell and scribe a new strike point at the exact center of the face of that part of the clapper touching the bell. A light mark by a hard, sharp pointed tool is all that is needed. This will not damage the bell or its tone.

Being able to "revoice" a bell and to select a new strike point without having to return the bell to the manufacturer is another exclusive feature of our handbells which will enable you to enjoy maximum performance from them with minimum maintenance and expense.

The Yoke & Restraining Spring

The yoke and restraining springs are the mechanical center of the handbell and are the parts which control the clapper strike. You will observe that the yoke allows the clapper to swing back and forth in one plane, and that the clapper is restrained from resting



against the bell by means of a restraining spring on either side of the pivot. This is why a handbell is known as an "English Handbell" and is different from other bells. The amount of restraint provided by each restraining spring is adjustable by means of the screw which holds the spring to the yoke/ handle coupler assembly. By turning the screw in (clockwise), the ends of the spring are forced upwards and hold the clapper further from the bell. Thus, it takes more energy to overcome the resistance of the restraining spring for the clapper to strike the bell. By turning the screw out

(counterclockwise), the ends on the spring move downward and permit the clapper to come closer to the bell and thus requires less effort to ring it.

The ideal setting for the springs is one that enables the ringer to carefully handle the bell without its ringing accidentally, yet permits the bell to be rung with a light touch for soft musical passages.

An initial mistake made by inexperienced ringers is to adjust the restraining springs for excessive restraint in order to hold the clapper further from the side of the bell and to avoid accidental strikes which occur from incorrect arm and wrist motion. The resulting greater spacing between the clapper and the bell then requires more force and effort to ring. Excessive clapper restraint not only makes practice and ringing a tiresome effort, but it also places unnecessary strain on the restraining springs and the handle leading to premature breakdown. In addition, the ability to achieve dynamic musical expression is reduced or eliminated in

attempting to overcome the excessive spacing between the clapper and the bell.

Note that Malmark bell handles include a bell-like logo on one side near the handguard. This identifies the front of the handbell and how the bells should be held and rung in relation to restraining spring setting.

With the bell-like logo facing you, the forward stroke clapper spacing should be as small as possible-never more than $\frac{1}{8}$ " from the front surface of the bell. For inexperienced ringers, the clapper spacing on the return stroke side may be made slightly larger to prevent accidental back rings. Again, we recommend referring to the "Mastering Musicianship in Handbells" manual for proper technique in holding and ringing your handbells.

The means of adjusting the tension on either spring in a bell to a different degree of restraint is a distinct advantage when ringing Four-in-Hand. By increasing the restraint on the return stroke spring, the possibility of accidental back ring is reduced or eliminated. The same means can be used in helping to eliminate unintentional double strike or back ring with the usual technique of bellringing. Just make certain that the bells are always held with the logo facing the ringer so that the spring adjusted for added restraint is on the return side of the clapper. Your bells were adjusted in this way when you received them from our plant, but a finer adjustment may be necessary.

Please note that the restraining spring is made of a superior elastomeric material which will not break under years of constant use.

Because of this you should never have to replace springs under normal usage, but should the need ever arise, it can be done simply by turning the restraining spring adjusting screw counterclockwise until it comes out of the block. Insert a new piece of spring material and replace the screw. It is usually not necessary to disassemble the bell or any of its parts to replace the spring.

Construction Detail of Bells G3 through C 8

(From C#8 through C 9, Fixed Metal Clappers are Used)

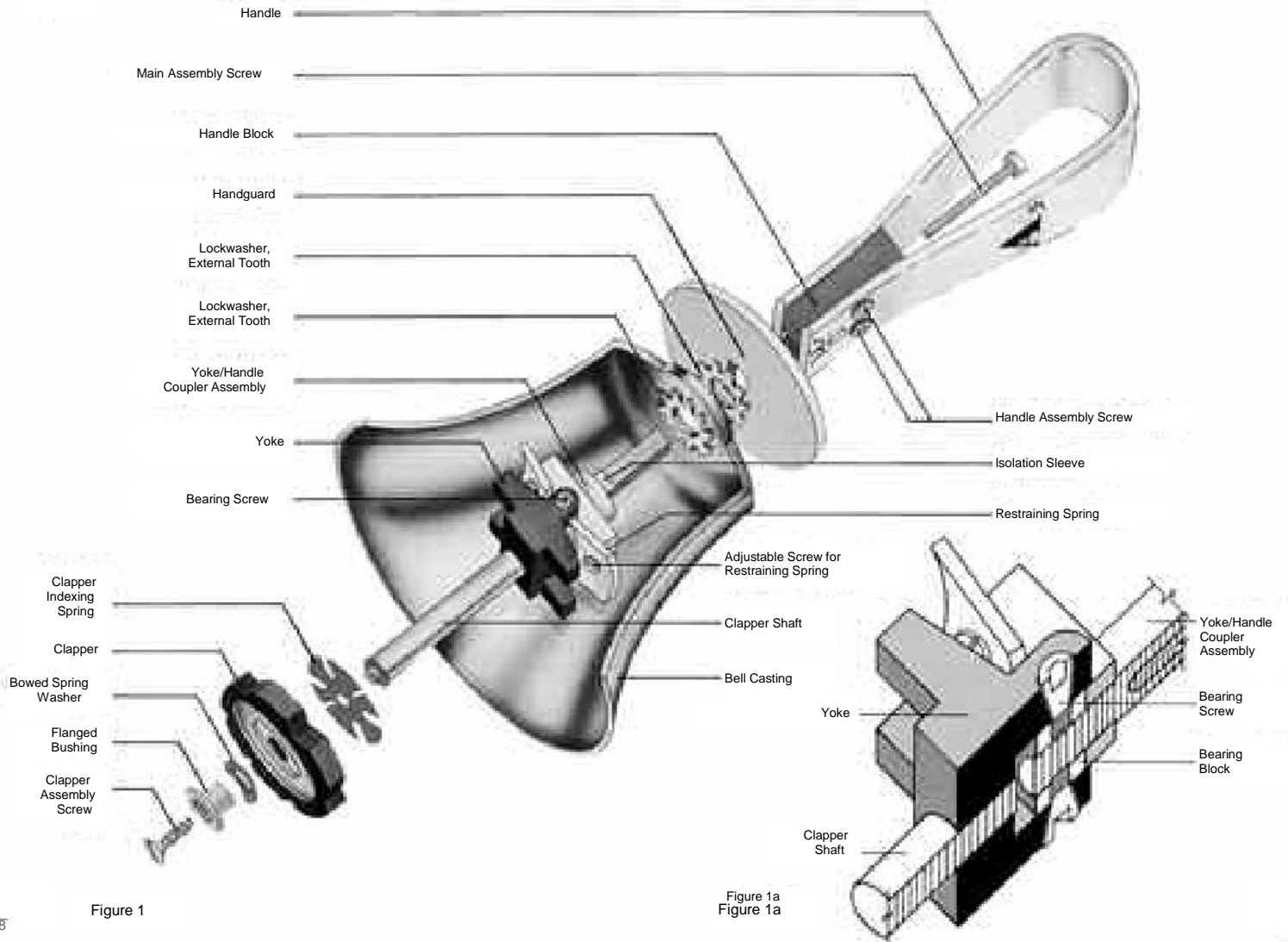


Figure 1

Figure 1a
Figure 1a



The Yoke

The yoke, made of nylon, pivots on the tapered heads of two stainless steel self-locking, socket head bearing screws which are visible on each side of the yoke. The holes in the sides of the yoke through which these screws are assembled are provided with matching tapers.

As with all bearings, in time, wear will develop from use causing objectionable looseness and noise. In all other makes of bells, repair and replacement of bearings and axle pivot shafts becomes a major undertaking for a skilled person; however, in the Malmark bell, the exclusive design provides for quick and instant re-adjustment. Adjustment can be simply made by removing the clapper assembly from the bell, inserting the end of the appropriate hex key wrench into the recessed socket in the head of one or both screws (Figure 1A, page 9) and turning the screw(s) in (clockwise) a fraction of a turn. Note: should you lose or misplace the wrench provided, it is available in any hardware store.

Sizes: 5/64" for all bells, except those below G3,
1/8" for all bells F#3 and lower

The screws will offer some resistance to turning as the threads into which they couple in the bearing screw block are mechanically upset to effect friction. Do NOT remove and re-insert the screws unnecessarily as too frequent removal and insertion can reduce the locking effect.

No oiling of the bearing screws is required as the screws are of stainless steel and should pivot freely, if not over tightened, in the holes of the nylon yoke. WITH NEW BELLS, SOME BEARING TO YOKE LOOSENESS MAY DEVELOP in the "break-in" period requiring some initial adjustment to compensate for the "wear-in" of the high spots; no further adjustment should be necessary except after long periods of use.



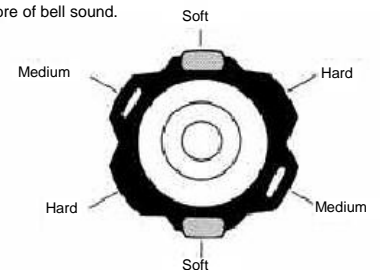
Adjustable Clapper

The instantly adjustable clapper enables you to vary the hardness of the clapper surface, changing the strike from Soft to Medium or Hard. This action changes the timbre of the bell by controlling the strength of the twelfth overtone. This can be accomplished by simply grasping the clapper with the fingers and turning it to the position desired. The clapper is held in the proper position for striking the bell by an indexing pin which snaps into place when the particular clapper setting is reached.

When changing the setting of the clapper, make certain that you turn it to the point where the indexing pin snaps into place to ensure proper alignment of the clapper striking surface and the side of the bell.

On the G4 bell, the clapper has three positions: the opposed Soft position's felt surfaces produce a strong, dominant fundamental; the Medium's slotted sections produce the fundamental with equal or increased volume of the 12th for additional brightness; the Hard position of solid plastic produces a still stronger 12th and upper partials for outdoor carrying power (See Figure 2). The clapper designations of Soft, Medium, and Hard refer to the density of the clapper material and not to how the bell is to be rung. The different settings give a different timbre or tonal color which provides new opportunity for interpretation of passages within a musical selection beyond that of dynamic levels. For example, even with the clapper set on the Hard setting it is possible to ring pianissimo while creating a more brilliant timbre of bell sound.

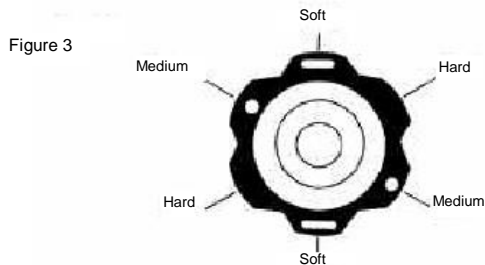
Figure 2



Bells having a higher pitch than A#4 are not equipped with felted clapper surfaces (Figure 3) since as the bells become smaller and higher in pitch, a harder striking surface is needed to properly excite the higher tonal frequencies. Thus, as the bells range higher in pitch, the clapper slots or holes become smaller or are eliminated so that the striking surfaces are of the proper density to best develop the desired partials of the bell. In some of the smallest bells of highest pitch (E6 through C8), clappers having only two settings, Medium and Hard, are provided since a softer position would not excite the desired partials. On bells C9 and higher, fixed brass clappers are used.

It is evident from the preceding that clapper settings can be varied from bell to bell to control the tonal transition to suit individual preference. However, it should be noted that, while Medium and Hard positions are also provided on clappers of larger bells, use of these positions can result in some reduction of tonal quality. This will be especially true in bells equipped with felted-position clappers where the resulting soft strike mutes undesirable high partials. Obviously, use of the non-felted strike surfaces of the clappers in the Medium or Hard positions will result in excitation of existing higher partial and will, as well, accentuate any beats and "wows" which may exist.

The materials, design and weight of the clapper used in each bell have been carefully selected to provide the best tonal response and ringing control for that particular bell. For this



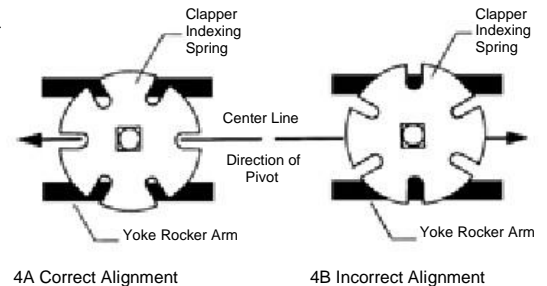
reason, a clapper from one bell should not be interchanged with a clapper from another bell in the same set.

Immediately under the clapper is the clapper indexing spring. Note (Figure 4) the proper relationship of the slots in this spring to a center-line, parallel to the yoke rocker arms. The illustration on the left, identified as 4A, shows the correct relationship. The illustration on the right, identified as 4B shows the incorrect alignment.

Secured to the clapper shaft just under the clapper on some of the larger handbells, you will find a round metal cylinder held by a set screw. This is to add weight to the clapper and provide a smoother ringing action. The size, weight and location of this metal cylinder has been factory selected and adjusted to what is best for that particular bell. The combination of adjustable tension on the restraining spring and adjustable clapper weight permits a fine degree of balance to ensure that your ringers will be able to achieve the maximum degree of expression and musicianship. With proper balance and restraining spring adjustment, it is possible to ring very soft even with the clapper set on the Hard position.

Now, to help you in more fully understanding the parts of your bell and how it works, examine the sketches and photographs in this manual. Re-read, if necessary, the preceding descriptions while referring to Figures 1, 1a, 2, 3, and 4.

Figure 4



Construction Details of Clappers Used on Bells G1 through F#3 (Bronze)

On the following pages 15, 16 and 17 are shown details of clapper assemblies on these larger bells.

Figure 5 shows details of the yoke coupler and clapper shaft components to which the clapper heads, figures 6 and 7, pages 16 and 17 respectively, may be subsequently assembled.

Figure 6 shows details of the current four-position clapper head providing Soft, Medium, Medium-Hard striking surfaces standard on Malmark handbells since January 1996. Note that each clapper felt screw may be loosened and felt disc may be rotated for optimum wear and sound production.

Figure 7 shows details of the original two-position clapper head still available upon request.

Note that stated in the heading of this page, these clapper assemblies are used only with bronze bells.

Malmark's exclusive aluminum bass bells are provided with a fixed ball-shaped clapper head covered with lambs wool.

Clapper Assembly – 5th Octave & Lower Large Bells

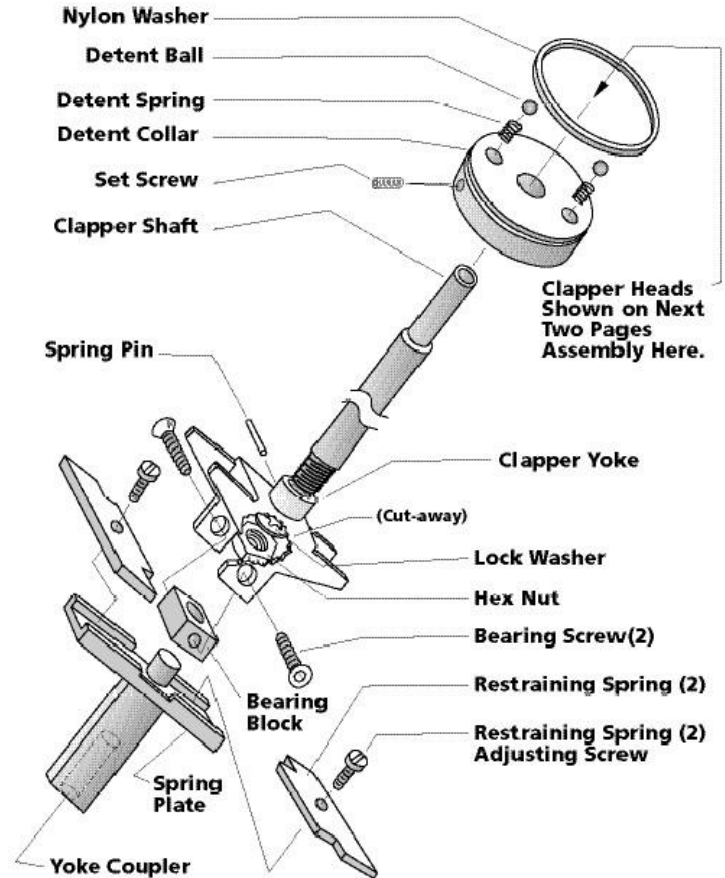


Figure 5

Four Position Clapper Head

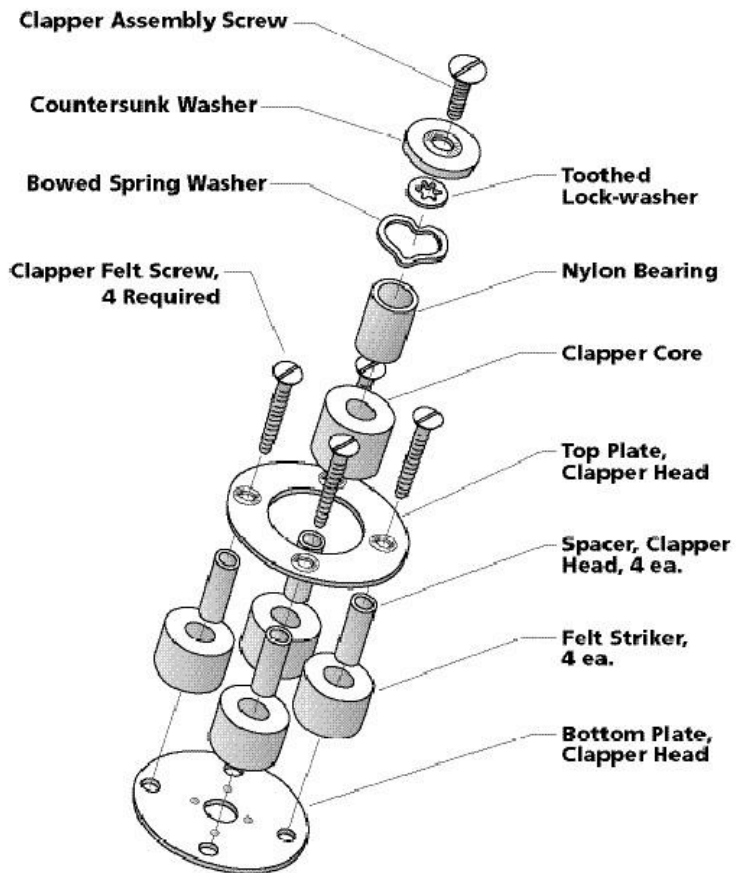


Figure 6

Two Position Clapper Head

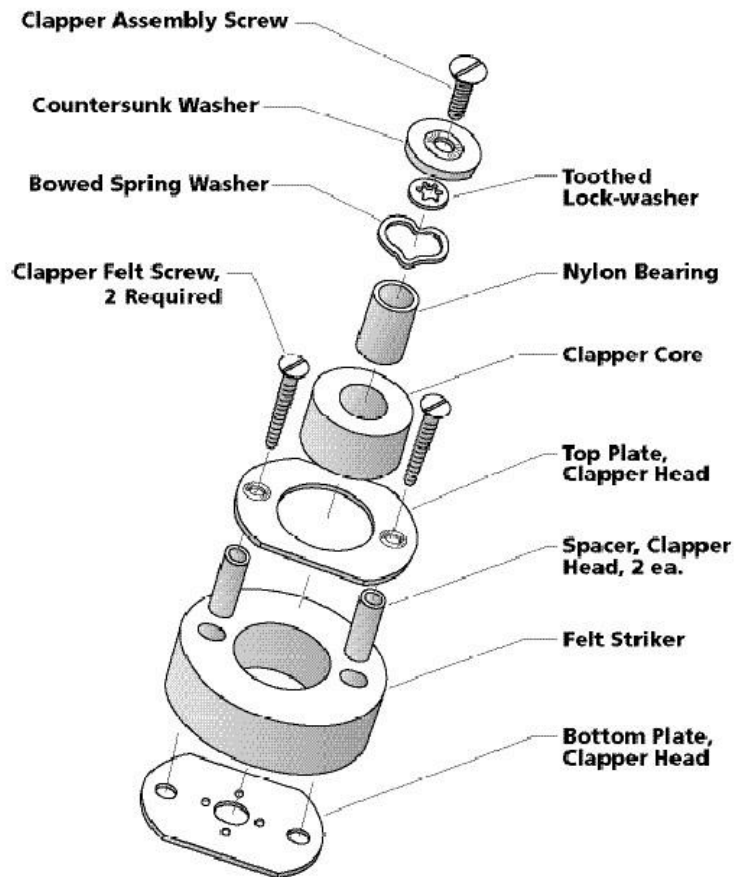


Figure 7

Miscellaneous

Other than the hex key wrenches, no special tools are required for adjustment of parts on your bells; and, therefore, none is furnished since it is assumed that everyone has one or more screwdrivers readily available.

To tighten or loosen the main assembly screw (refer to Figure 1, page 8-9), it is recommended that a screwdriver with a 1/4" wide blade be used; the length of the steel blade extension from the bottom of the screwdriver handle to the tip of the blade should, therefore, be approximately 6", so that it can be inserted through the handle opening along the side of the handle to engage the slot in the head of the main assembly screw adequately.

Make sure this screw is always tight except when turning the casting to select another strike point as described on page (5) five of this manual. If this screw is not tightened securely, it is possible that as a result of vigorously polishing the bell, the casting may loosen. If you have any doubts about it having loosened, re-tighten the main assembly screw. When properly secured, there is no reason for looseness to develop during use of the bells.

Handle Removal

If the handle is removed for any reason, always loosen the two Phillips head screws located on each side of the handle approximately 1/16" each. This permits the bottom ends of the handle to "toe-in" closer against the sides of the handle block to fit more closely into the rectangular recess in the handguard. Make certain that they are confined within this recess before tightening the main assembly screw, then finish by re-tightening the handle assembly screws. It is necessary to use two opposed Phillips Head (No. 2) screwdrivers on opposite sides of the handles to loosen or tighten the handle assembly screws.

Polishing

When polishing bells, polishing should be done with an up and down motion from the shoulder to the lip of the bell followed by light buffing in a circular fashion around the bell. This is especially recommended for the larger bells where heavy polishing pressure in a circular fashion may tend to move the casting from its original position. Attention to the preceding recommendations will ensure that your bells are always ready to perform satisfactorily for you when needed.

Because of the coated surface of aluminum bass bell castings, they should not be polished. Rather, they may be cleaned with any house-hold window cleaner.

Replacement Parts

If and when it is necessary to order replacement parts for your handbells, always refer to the drawing on Pages 8, 9, 15, 16 and 17.

Locate the part you need on the drawing, and use the correct part name from the drawing. Specify, also, the bell note for which the part is required, using the note designation that is on the handle of the bell.

Example: Main Assembly Screw for G#4 handbell

Maintenance Video

A companion VHS video, "Sound Advice", is also available to aid in visualizing the information contained in this manual. Call us at 1-800-426-3235 to order your copy.

Troubleshooting Guide

SYMPTOM	AREA TO CHECK
Hesitant or Slow Clapper Movement	1) Bearing Screws too tight 2) Lint, dirt, or polish has accumulated in and around bearing screws. Clean with lint free cloth or lighter fluid.
"Clicking" Sound	Most likely the restraining spring is at a slanted angle, not parallel to the bearing block. Inside edge of spring should not touch bearing block. Check spring for proper installation. Edge of the spring may be sanded if necessary.
"Thudding" Sound	1) Check to see that clapper head screw is tight. 2) Check felts for extreme wear.
"Metallic" Sound	1) Make sure all handle and main assembly screws are tight. 2) Check that isolation sleeve is in correct position on the coupler shaft so that the bell casting does not touch the metal part of that shaft. 3) Possibility of cracked casting, particularly if casting shows impact has occurred.
Loose Sounds	Check bearing screws. Tighten if there is side-to-side movement of clapper shaft. (Too much tightness will result in hesitant clapper action.)
Casting Turns	Tighten main assembly screw. If, after tightening, casting rotates, make sure lockwashers are on BOTH sides of casting.
Handle Breakage	1) Restraining springs too tight (See page 6) 2) Incorrect handling (See handle section, page 3)
Clapper head misaligned	Check that the clapper indexing spring is installed on clapper shaft as described on page 13, figure 4.

Guarantee

On bells purchased after October 1, 1984, Malmark, Inc. extends to the original purchaser, a Lifetime Guarantee.

This guarantee assures the prompt replacement, without charge, of any part where there is no obvious damage resulting from abuse or misuse* accidental or otherwise, or evidence of improper servicing. Malmark, Inc., at its discretion, will repair or replace these parts requiring service when returned postage-paid to the factory.

The Malmark warranty gives you specific legal rights in addition to others which you may have that may vary from state to state.

Malmark's liability shall not exceed the cost of repair or replacement of any part claimed defective by the purchaser.

*It should be noted that the improper use of mallets and performing the Martellato or plucking Technique with excessive force may damage to the bell that may invalidate the Lifetime Guarantee.

Factory Repairs

Bells may be returned to the factory for repair at any time with the assurance that repairs will be made and the bells returned as promptly as possible. No charge will be made for repair or replacement of parts still under warranty. Parts out of warranty will be replaced at costs for material and labor. Shipping and insurance costs are at the expense of the customer in either case.

Because Malmark bells have been designed for easy maintenance by the customer without the need for special tools, we recommend that the customer, in his own interest, order parts if necessary and make his own repairs or replacements.

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