

STK. NO. 13000

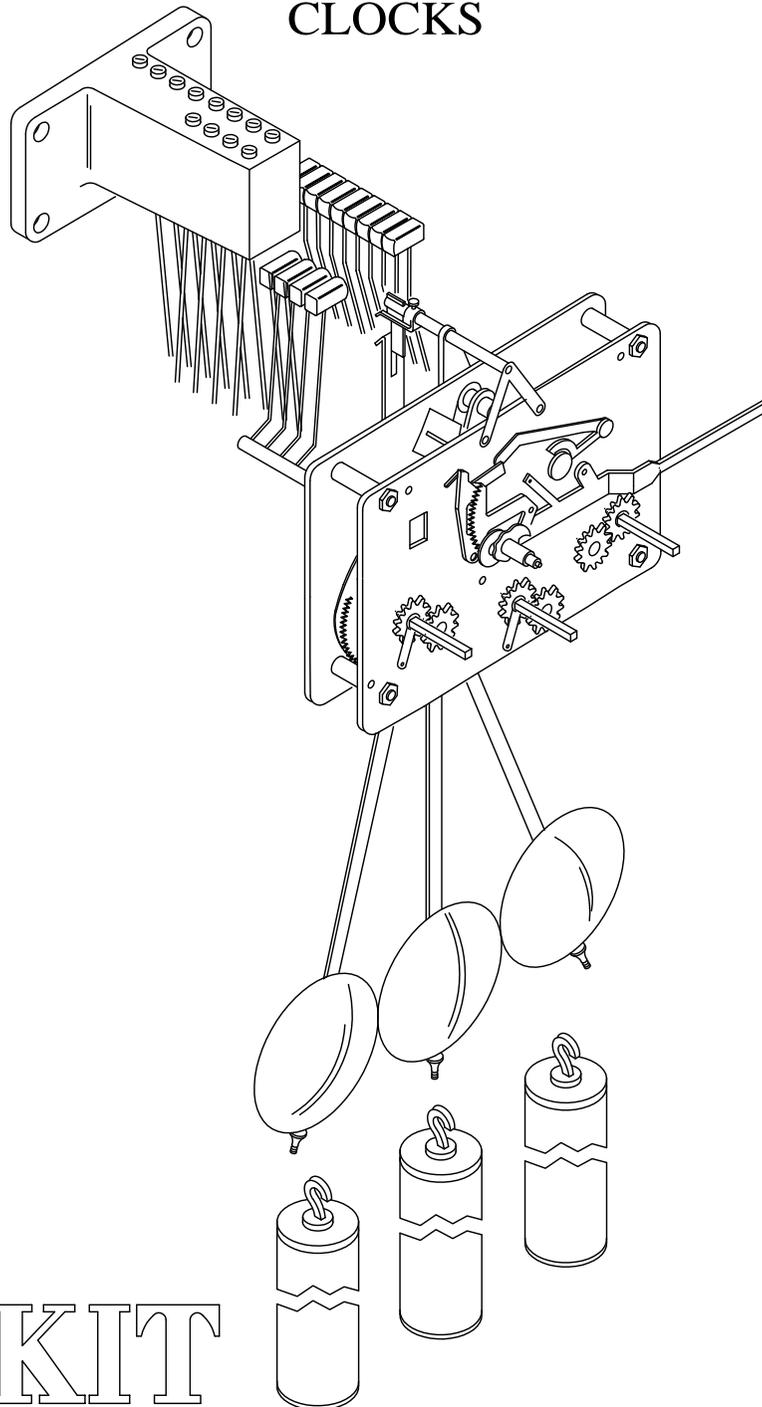
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GRANDFATHER CLOCK MOVEMENTS

SIZING TALL CLOCK CASES FOR SPECIFIC MOVEMENTS

and

SELECTING MOVEMENTS FOR EXISTING TALL CASE FLOOR
CLOCKS



KLOCKIT

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MECHANICAL CLOCK MOVEMENTS

Sizing Tall Case Floor Clocks For Specific Movements and Selecting Movements For Existing Tall Case Floor Clocks

DEAR KLOCKIT CUSTOMER:

This booklet has been developed to assist you with the selection of a mechanical movement for a clock you are planning to build from purchased plans, from your own design or to select a movement for an existing clock case. When this booklet is used in conjunction with Klockit's "Mechanical Movement Dimensional Specification" (See Sample on page 19), you can easily determine what is the best movement for your clock case.

How to use this book

Designing your clock case for a specific movement

1. Choose the movement, dial and pendulum you want to use in your clock from the Klockit catalog.
2. Request the "Mechanical Movement Dimensional Specification" for above movement from Klockit.
3. Using the "Mechanical Movement Dimensional Specification" and this book, determine the case dimensions needed for the movement/dial assembly you have selected.

Selecting a movement for a specific case.

1. Taking measurements from your existing clock case, determine the Minimum Inside Clock Cabinet Dimensions (HxWxD). Use the catalog to determine which movements fit within your cabinet dimensions.
2. Request "Mechanical Movement Dimensional Specification(s)" for the movement(s) that you feel are suitable for your case.
3. Use the "Mechanical Movement Dimensional Specification" and this book to select the best movement for your case.

After reviewing the illustrations in this booklet and reading the explanation provided for each illustration, please feel free to call Klockit's toll free technical support number (1-800-556-6474) for more assistance. The information in this booklet will take the guess work out of determining what movement is best for a specific clock case design and size. We hope more Klockit customers will be motivated to build Grandfather Clocks from plans or from their own design concepts and will find it easier to select replacement movements for antique clocks. We welcome your input and critique of the information provided. Your comments will help us make this booklet even better.

MECHANICAL CLOCK MOVEMENTS

Sizing Tall Case Floor Clocks For Specific Movements and Selecting Movements For Existing Tall Case Floor Clocks

GENERAL INFORMATION:

Illustration 1: (Making a movement seat board)

Shown below is a seat board configuration that will work for all Klockit weight driven, pendulum Grandfather and Grandmother movements except for models 13008, 13072 and 13088. Each of these movements comes with instructions that will include information on building a seat board.

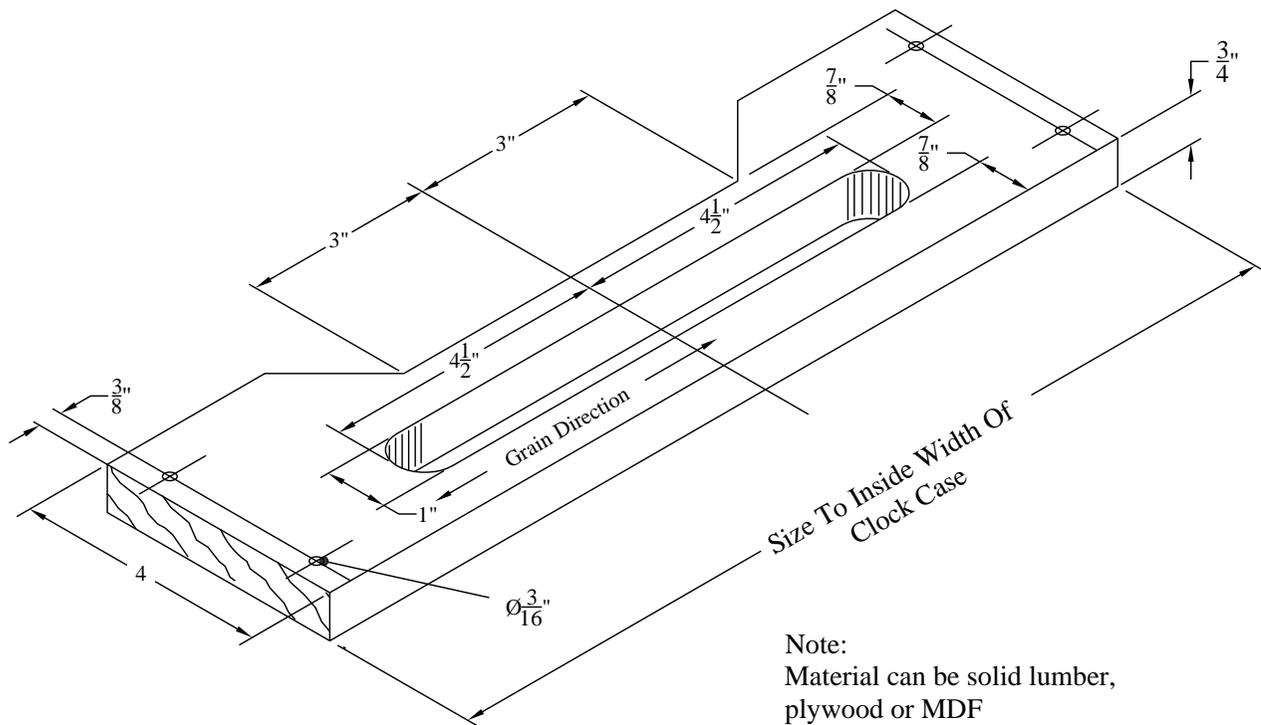


ILLUSTRATION ONE
(Making A Movement Seat Board)

Illustration 2: (Locating movement in case so it is in correct relationship to dial glass opening in door)

Illustration 2 shows how the movement/dial assembly and dial trim panel must be framed properly within the dial glass opening in the clock case door. Also shown are sizing tips for the dial trim panel and door opening in relationship to the overall size of the dial. Letter (G) measurement relates to the dimension from the center of the hand-shaft to the bottom edge of the movement plates (or top surface of seat board). The letter (H) measurement has no importance when using a direct mount dial (dial with back mount posts that secure directly to the movement front plates) but is important if you are using a flat metal dial that is not mounted directly to the movement. This measurement will let you know the recommended spacing from the movement front plate to the front surface of your dial.

Both letter (G) and (H) measurements will vary from movement model to movement model so you will need to refer to the "Mechanical Movement Dimensional Specification" sheet for a specific model. You have already purchased, or you will need to request the specification sheet from Klockit for a movement you are interested in purchasing.

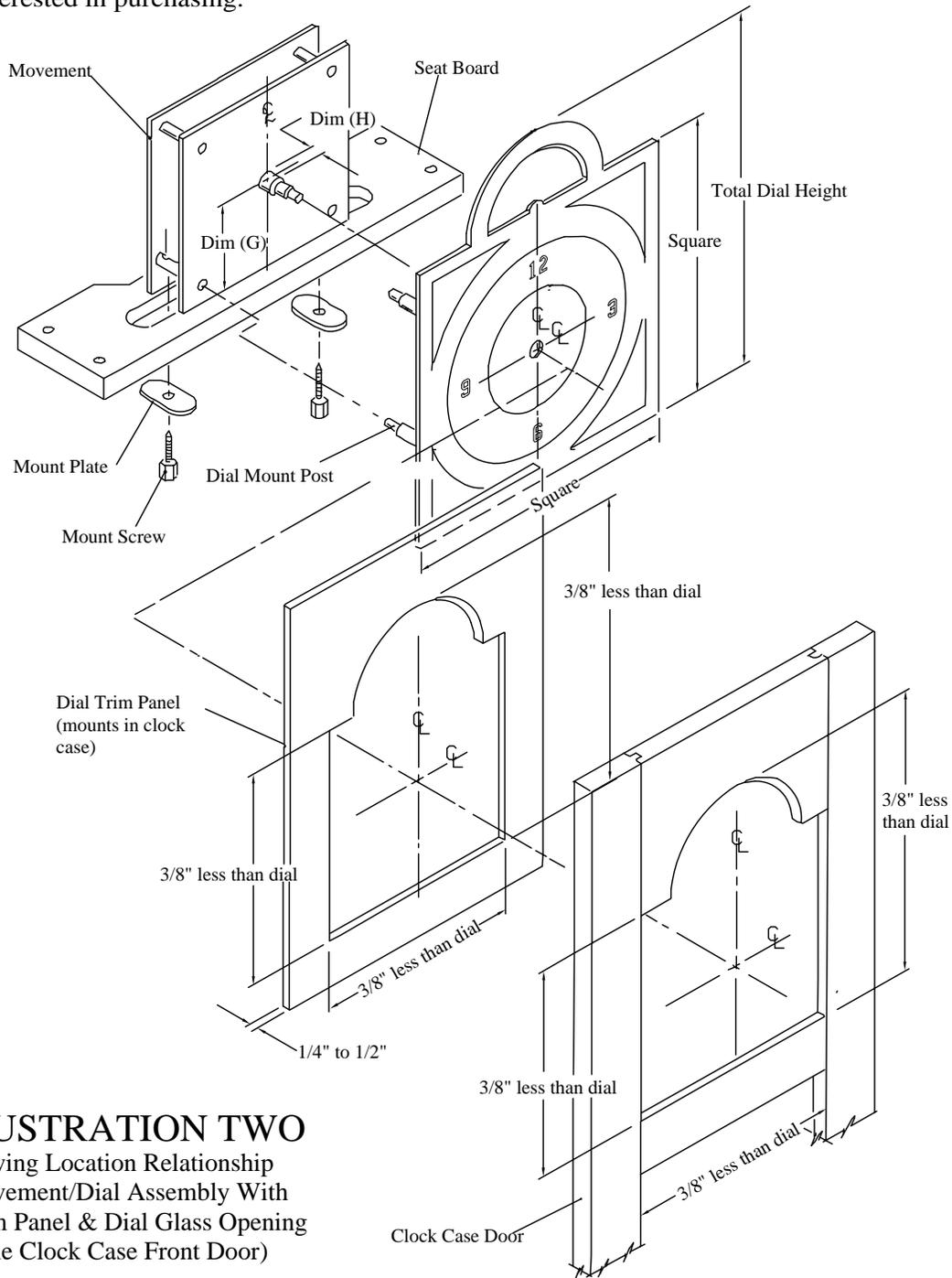


ILLUSTRATION TWO
 (Showing Location Relationship
 Of Movement/Dial Assembly With
 Dial Trim Panel & Dial Glass Opening
 In The Clock Case Front Door)

Illustration 3A: (Mounting the movement seat board into the clock case)

This illustration shows how to mount the seat board onto cleats that would be secured to the case side frame. This method of mounting is generally recommended for solid case side frames or in rail/stile construction case side frames, providing the middle rail is located so the cleat/seat board will be at the correct height for movement mounting (refer back to information in the previous step (2)).

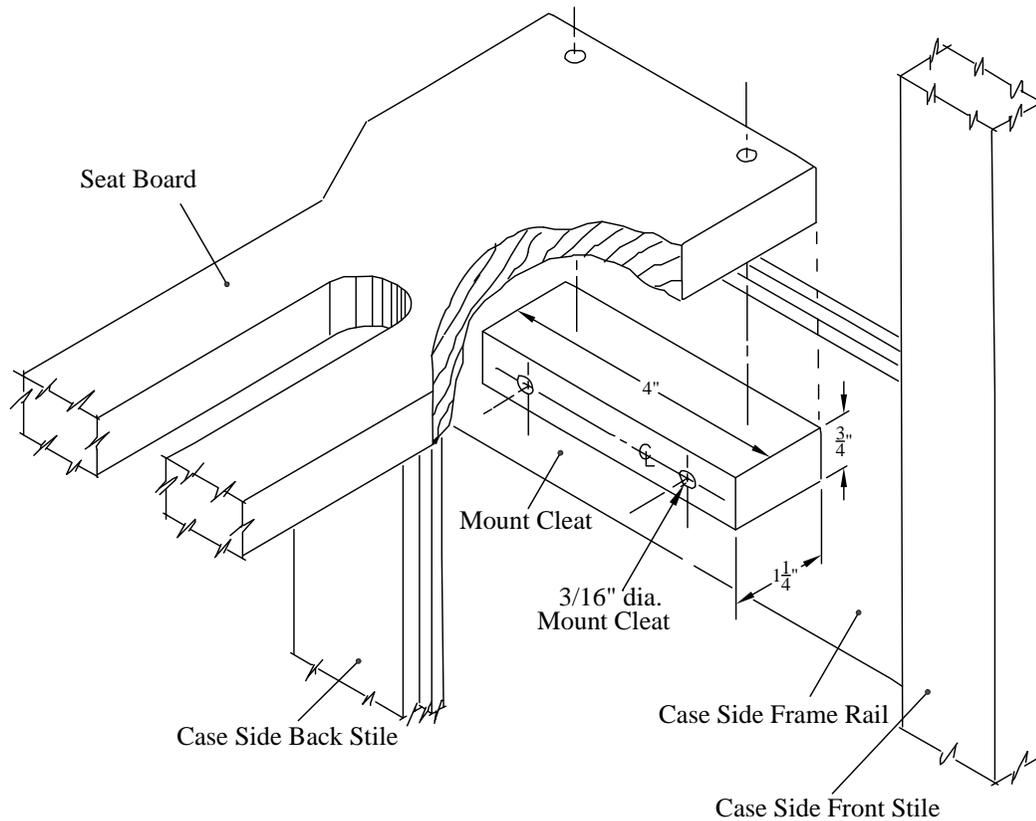


ILLUSTRATION THREE (A)

(One Way To Mount Seat Board To Case)

Illustration 3B: (Mounting the seat board with a "Riser" into the clock case)

This illustration will show how to lift the movement seat board with a riser block that is, in turn, secured to the cleat mounted to middle rail in a clock case side frame with glass panels. This method is used when the middle rail of a rail/stile construction side frame is below the height where the movement seat board needs to be mounted (refer back to step 2 for clarification).

Note:
This method would typically be used when the seat board could not be on the same level as the case side frame rail where the side cleat is mounted

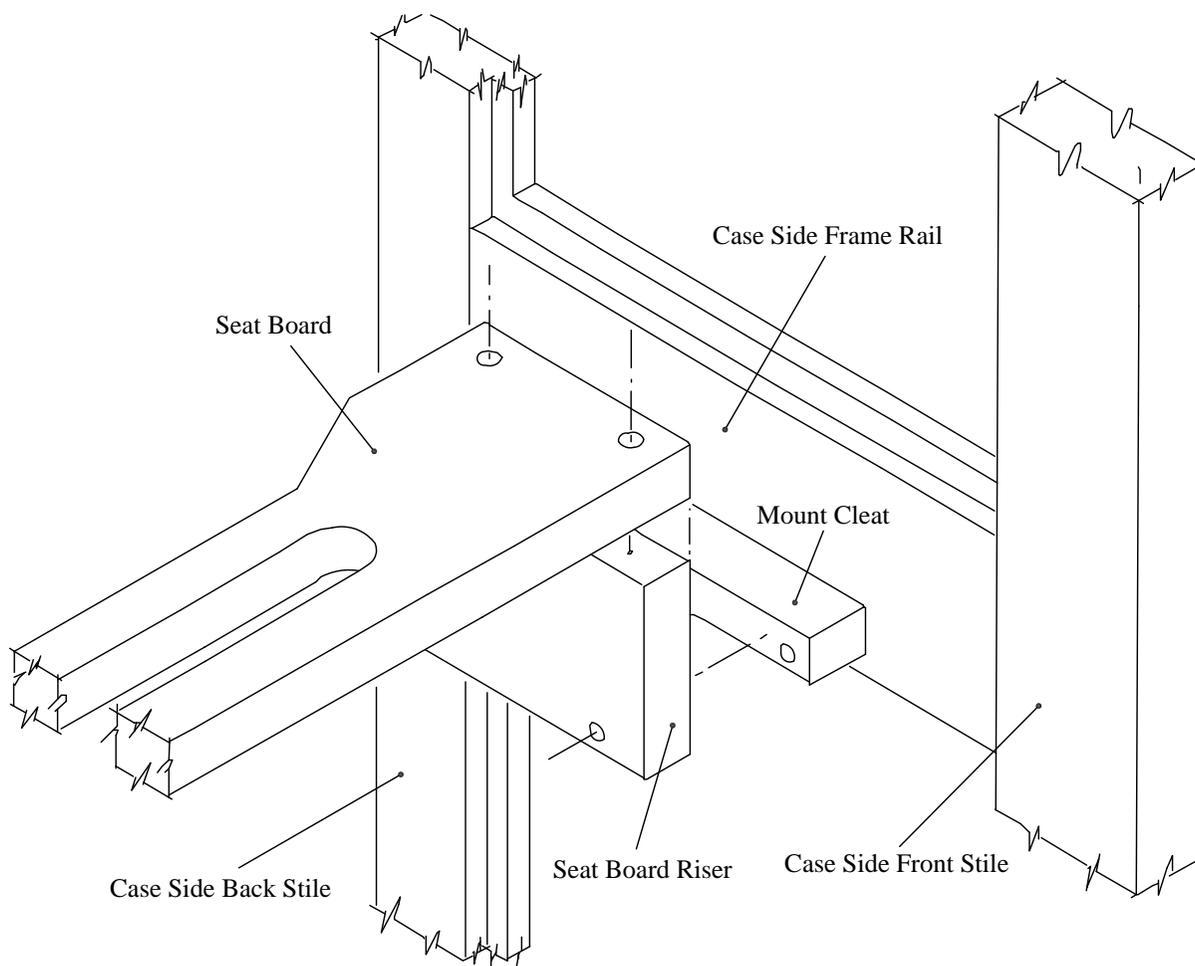


ILLUSTRATION THREE (B)

(Mount SeatBoard In Case With Riser)

Illustration 4: (Determining clock case depth and proper mounting of the chime rods)

This illustration shows the correct spacing for the movement chime hammer contact with the chime rods below the casting block. The illustration also shows the proper gap between the hammer heads and rods as well showing how to properly bend the hammer wires to achieve proper alignment of the hammers and rods.

The letter (D) measurement shows the spacing necessary from the hand-shaft vertically to a point that will clear the chime rod screw heads on top of the casting block. Refer to Klockit's "Mechanical Movement Dimensional Specification" sheets for a specific movement model to see what this measurement is.

The letter (E) measurement shows the spacing from the tip of the hand-shaft (allow 1/4" to 1/2" to inside of door glass) to the back mount surface of the chime-casting block. Once again, refer to the "Mechanical Movement Specification" sheet for this measurement on a specific movement model.

Determining the letter (D) and letter (E) measurements are necessary in order to properly position the chime rod assembly in your clock case, regardless of whether you use the method shown on the following illustration 5A or 5B.

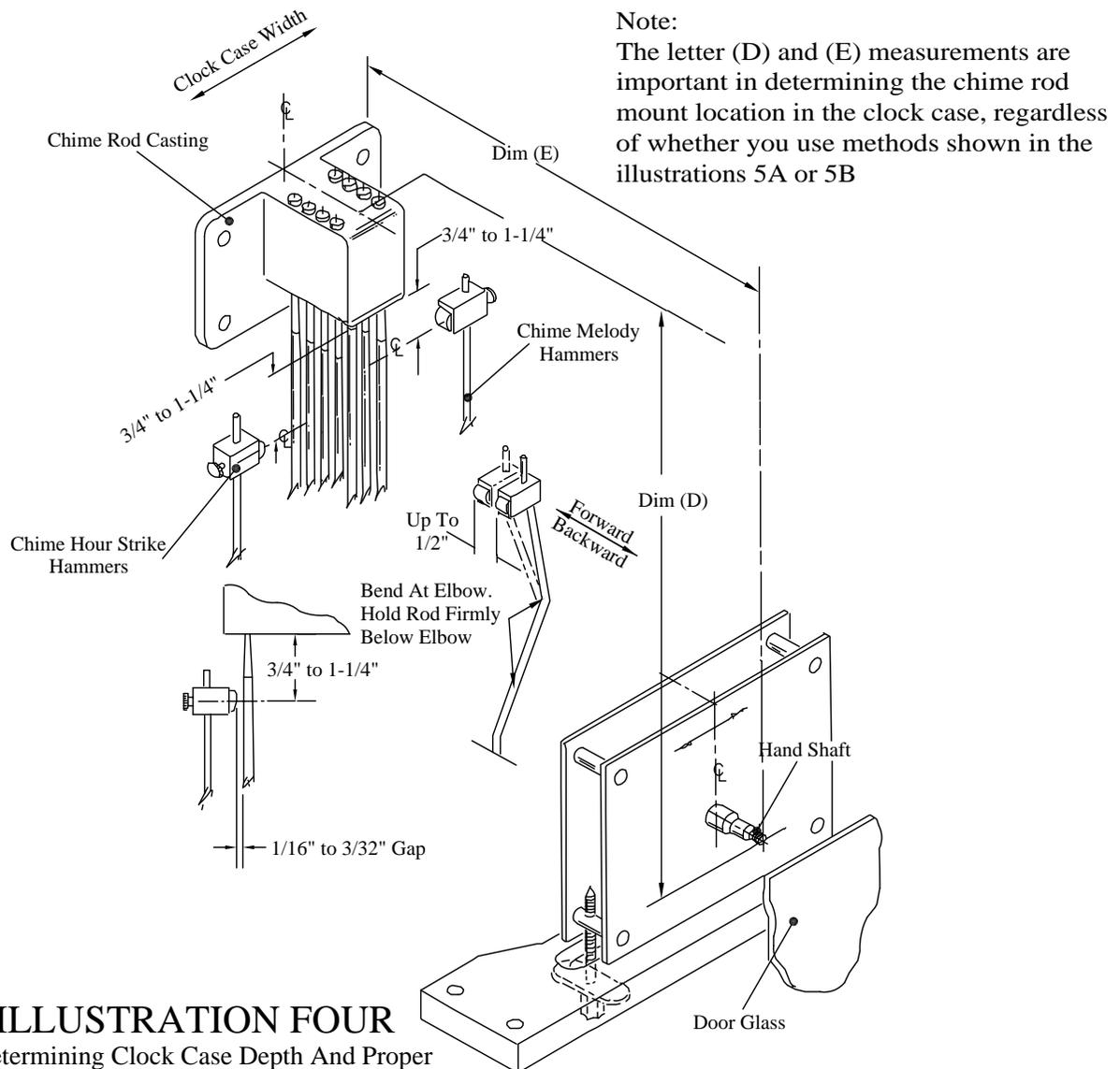
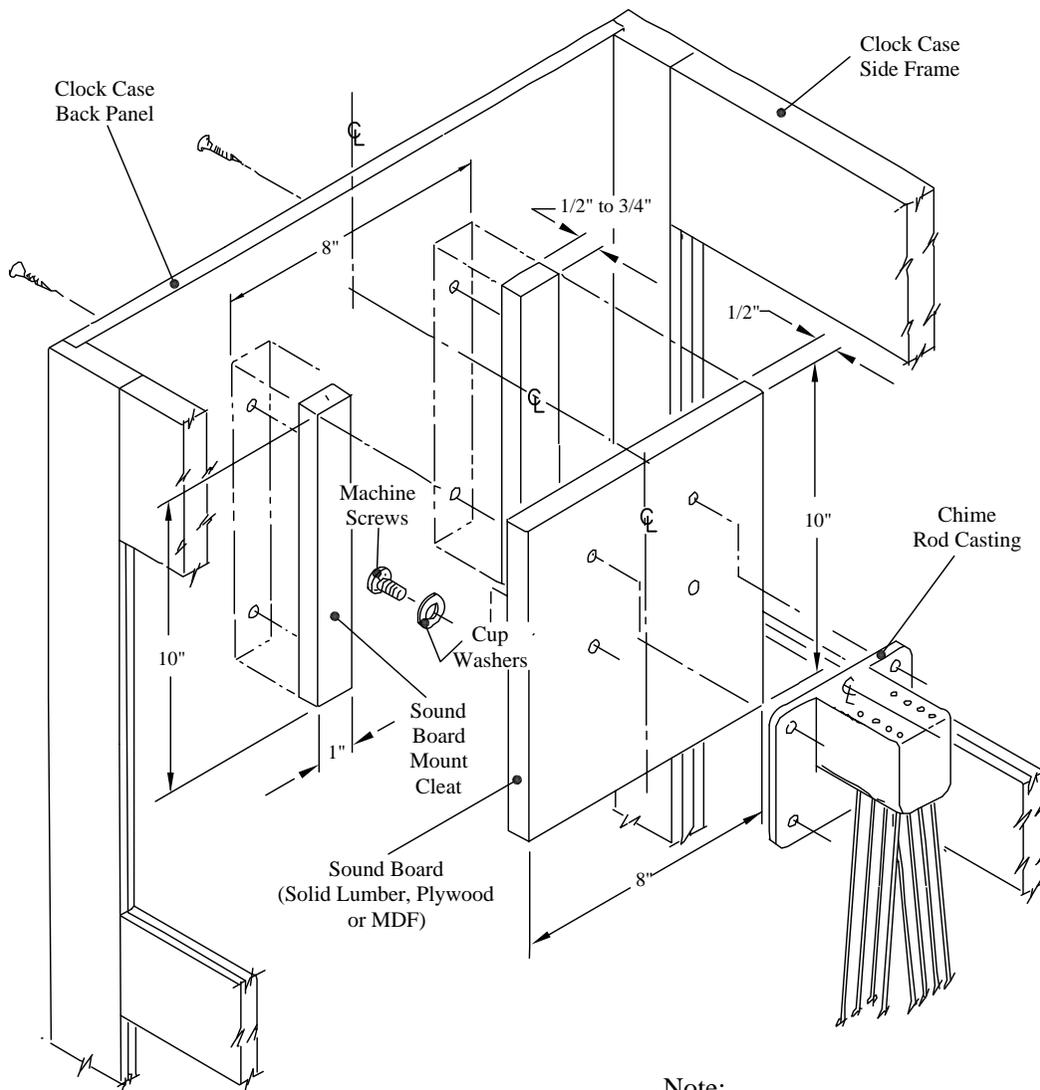


Illustration 5A: (Mounting the chime rod assembly to the clock case back panel)

There are two ways in which to mount the chime rods directly to the back panel. When case depth is an issue, the chime rods can be directly mounted to the back panel without a sound-board or sound-board cleats (as shown in the Illustration 5A). This direct mounting method is preferred when the thickness of the back panel is 3/8" to 1/2". For 1/4" thick back panels, it is preferable to use the sound-board and cleat method for better chime quality.

It is important to remember that you should have access through a removable clock case top panel or removable (hinged) side panels for final alignment and adjustment of the chime hammers/rods if you mount the chimes to the back panel.



Note:
Refer to illustration 4 to determine letter D and E measurements before mounting the chime rod assembly into the clock case.

ILLUSTRATION FIVE A
(Mounting Chime Rods To Sound Board)

Illustration 5B: (Mounting the chime rod assembly to a bridge-board within the clock case)

If the depth of the clock case permits, mounting the chime rod casting to a board spanning the width of the clock case is a good alternative to mounting the chimes directly to the back panel. This mounting method generally allows much better accessibility for final adjustment of chime hammer/rod alignment and gap as the clock case back panel can be left off until all adjustments are completed.

Note:
Refer to illustration 4 to determine letter D and E measurements before mounting the chime rod assembly into the clock case.

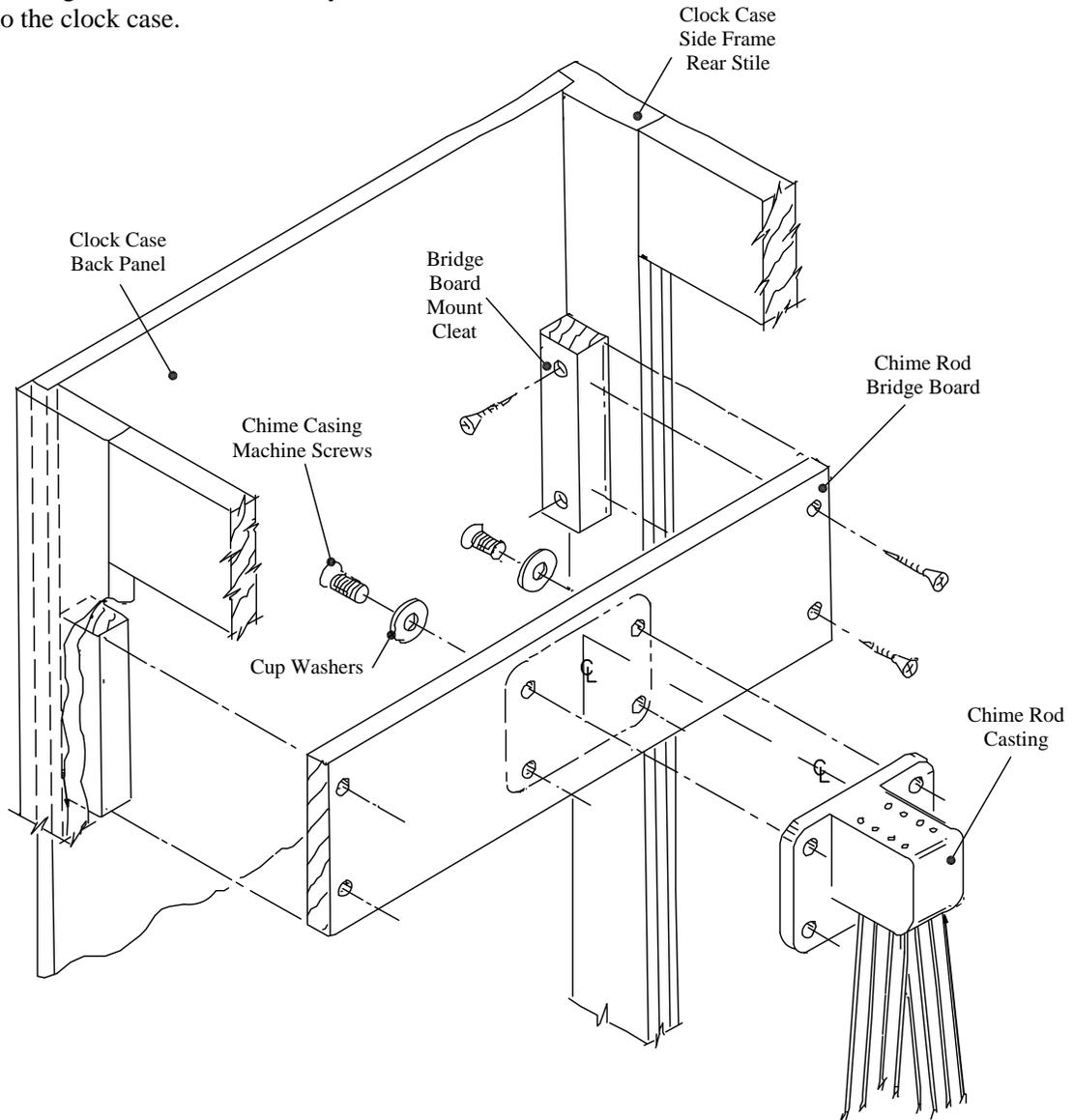
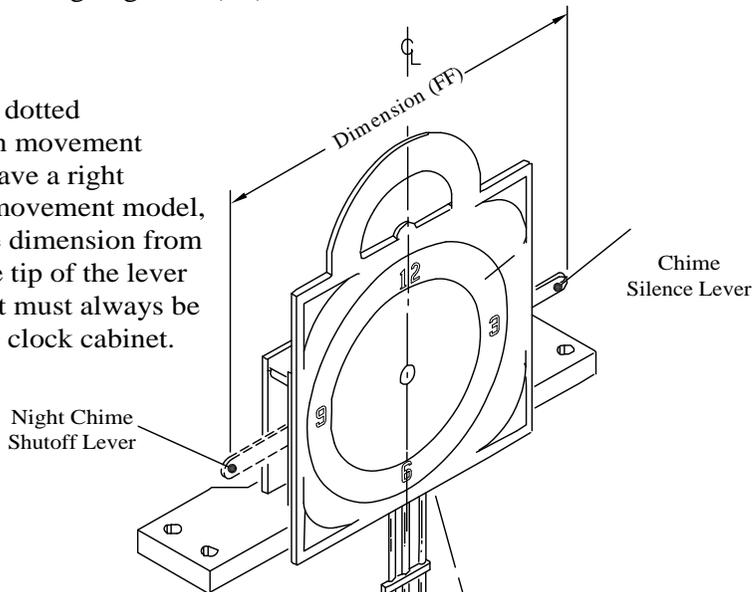


ILLUSTRATION FIVE B
(Mounting Chime Rods To Bridge Board)

Movement Dimensional Specification" sheet that pertains to the movement model you select), but it probably will then not be possible to adjust the beat by "overswing". If beat adjustment is required (either at initial start up of a new movement installation or to re-start a movement in an existing clock), it will probably be necessary to remove the pendulum and adjust the beat by accessing the pendulum crutch arm behind the movement. Such adjustment can be quite easily done, provided there are side access panels in the clock case that permits one to reach in and make the crutch arm adjustments according to the instructions provided with the movement.

While it is almost always the pendulum swing (to include pendulum overswing) that will determine the inside case width on a straight waist Grandfather/Grandmother clock, the inside width of the hood cabinet can (in cases where small diameter bob pendulums are being used) require attention to the letter (FF) measurement shown in this illustration. Whether the movement you are using has a single silence lever or silence levers on each side, the inside width of the hood cabinet must allow these silence levers to operate up/down freely. Once again, refer to the "Mechanical Movement Dimensional Specification" sheets for the specific movement you are using to get the (FF) measurement.

Note:
 This silence lever is shown dotted because it is only on certain movement models. Even if you only have a right side silence lever on your movement model, you still need to double the dimension from C/L of the movement to the tip of the lever as the C/L of the movement must always be centered in the width of the clock cabinet.



Note:
 The swing shown for each pendulum model in the catalog or on the internet is the "TYPICAL OPERATING" swing. There might be some swing variation from one movement model to another. It is advisable to allow 1" extra clearance when sizing the inside clock cabinet width.

Additional inside clock width will be required to take advantage of the "AUTOMATIC BEAT ADJUSTMENT" movement feature, as described in Illustration Seven.

The suggested formula for inside clock cabinet width is: Pendulum bob diameter + 6 to 8 inches. This will permit the manual exaggerated pendulum swing at start to engage the automatic beat adjustment mechanism.

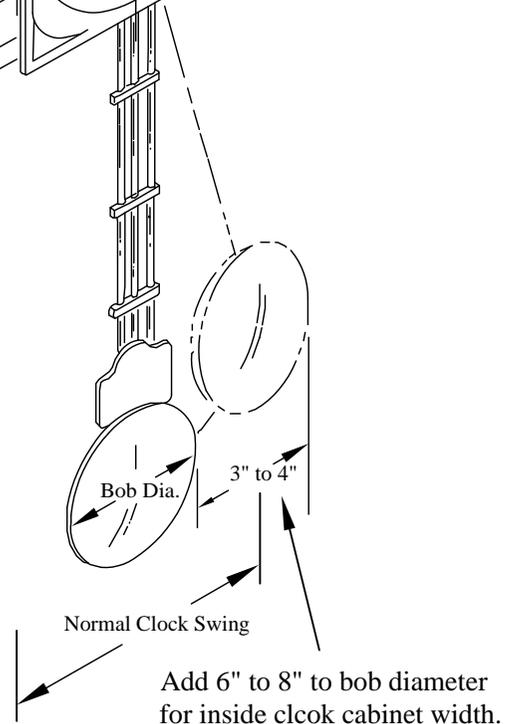
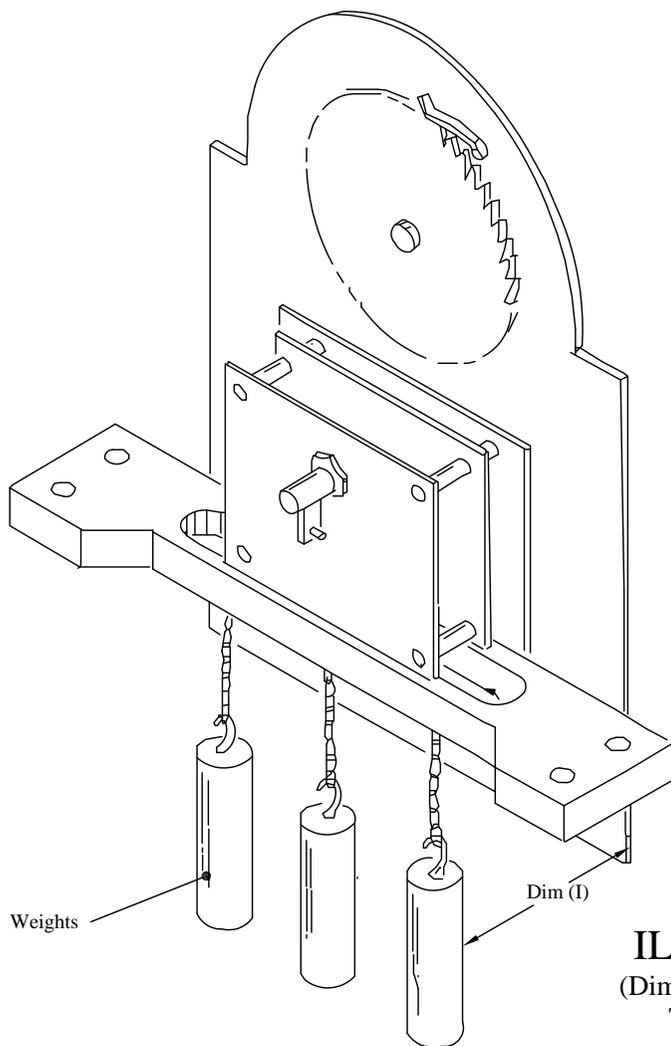


ILLUSTRATION SEVEN
 (Determining Clock Case Inside Width)

Illustration 6: (Dimension from the face of the dial to the front of the weights)

The letter (I) measurement shown in illustration 6 is typically not an issue in straight waist clock cases. The letter (I) measurement can be critical, however, when building a pinch waist clock case. If the movement and dial are mounted too far forward in the hood cabinet, the weights might not have sufficient front clearance to lower into the waist cabinet without touching the cabinet front frame or door glass. Because the dial is not shown on Klockit's "Mechanical Movement Dimensional Specification", the letter (I) is not illustrated but is covered in written specifications and clearly defined as *"The maximum spacing between the front of the weights and the dial face"*.



Note:
This is an important dimension when locating a movement assembly in a pinch waist clock case where the hood cabinet extends forward of the pendulum drop cabinet.

ILLUSTRATION SIX
(Dimension From Front Of Weights To The Front Dial Surface)

Illustration 7: (Determining clock case inside width)

All of Klockit's Grandfather/Grandmother weight driven, pendulum movements are equipped with an "automatic beat adjustment" feature which allows slight "over-swing" of the pendulum at initial startup to put the clock into beat so it will operate properly. A clock that is "in-beat" will have a very steady, even spaced tick-tock-tick-tock sound. Initially pushing the pendulum to one side farther than the normal operating arc (over-swing) allows the movement to self regulate.

The "desired inside clock case width" shown on this illustration will be greater than the "pendulum swing" measurement shown on the Klockit pendulum sales copy. The clock case can be made so the inside width just accommodates the normal operating pendulum swing (See letter (B) measurement on the "Mechanical

Illustration 8: (Understanding pendulum length and how to size the clock case)

On a weight driven pendulum Grandfather/Grandmother movement, the pendulum length will not determine the measurement required in the clock case from the hand-shaft to the floor panel. The weight drop over a 7-8 day operating period will determine this.

What is important about the letter (A) measurement shown on this illustration is that it will allow you to make sure the position of the pendulum bob, in relationship to the clock case door glass, is correct. A pendulum bob that is too high up, as viewed through the door glass, might not look good. A pendulum bob that is partially hidden by the bottom door rail (below the glass opening) will also not look good.

The Klockit pendulums will show an actual length in the sale's copy. This length will always be shorter than the dimension (A) which is the total length of the pendulum (from hand-shaft to bottom of pendulum bob) when mounted to the movement.

Refer to the "Mechanical Movement Dimensional Specification" sheet for the letter (A) measurement for a specific movement. If only one pendulum is offered for that movement, a dimension for the mounted pendulum length (hand-shaft to bottom of pendulum bob) will be shown. If multiple pendulum models are offered for the movement, no dimension will be shown; but the explanation will tell you what measurement to add to the specific pendulum actual length to arrive at the mounted pendulum length.

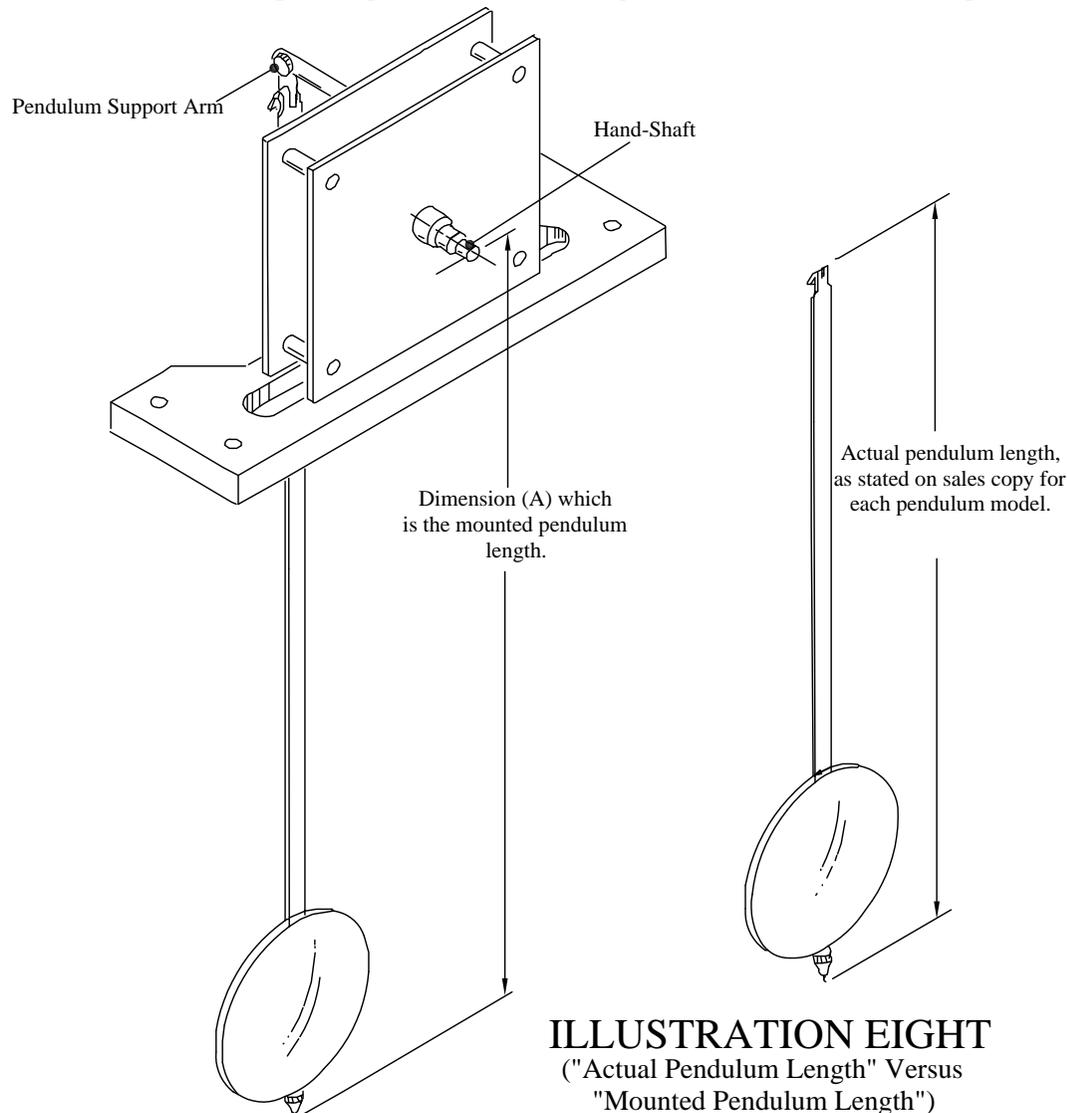


Illustration 9: (Weight drop and the relationship to inside clock case length)

All Klockit weight driven pendulum Grandfather and Grandmother movements will operate for an 8 day period (192 hours) provided the length of the clock case, as measured from the hand-shaft to the floor panel, is adequate. The rate of weight drop within a 24 hour period (daily weight drop) varies from movement model to movement model. Although it is generally a good practice to wind your clock (raise the weights) at approximately the same time on the same day each week (every 7 days), it is nice to have the extra day of weight drop to ensure the clock will keep operating should you be a little late in winding. Refer to the "Mechanical Movement Dimensional Specification" sheet for the letter (C) measurement for the specific movement you are working with.

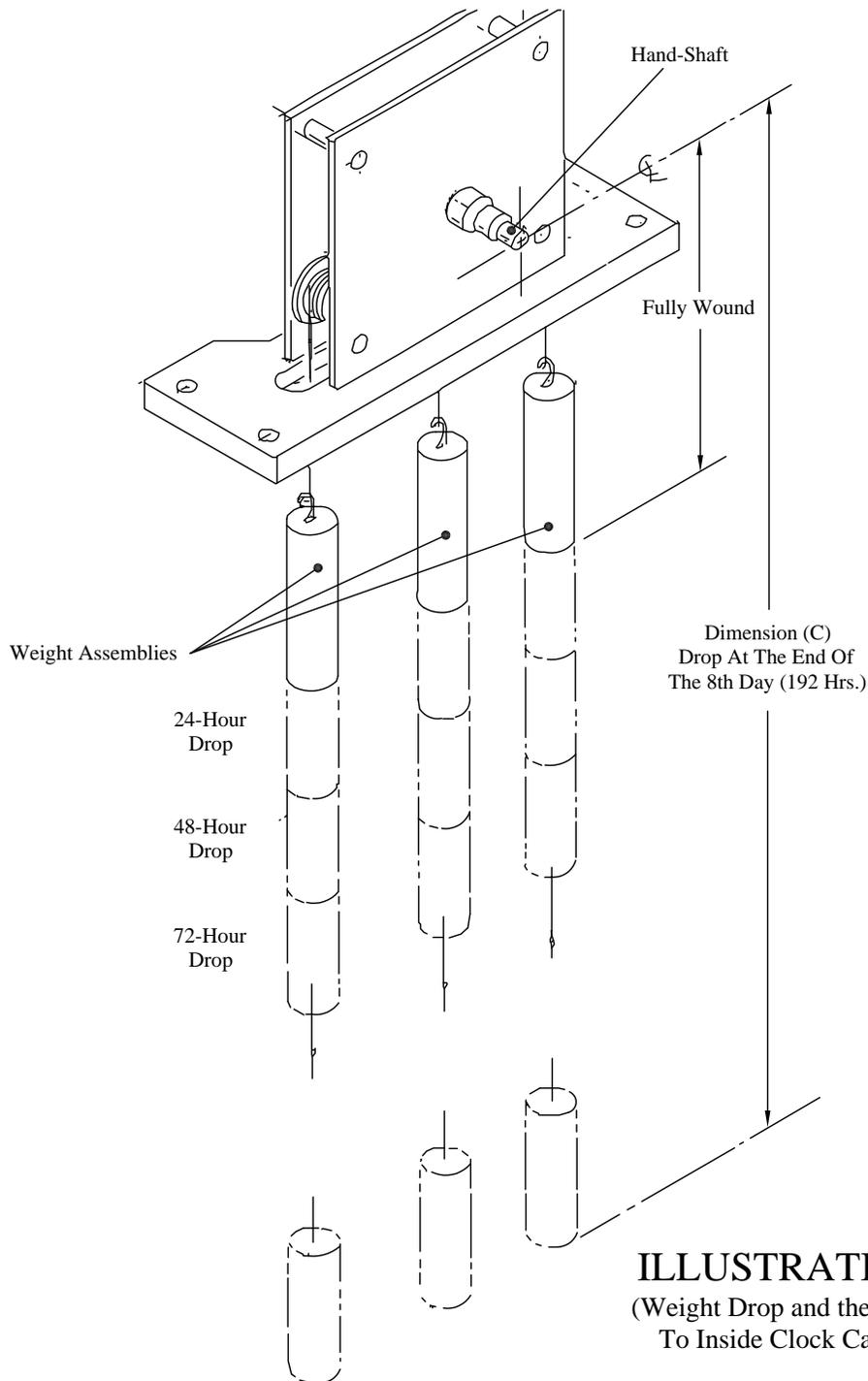


Illustration 10: (Back view of basic straight waist floor clock cabinet)

Remember that the overall length of your clock case will be a combination of the measurement from the hand-shaft vertically up to a point that will allow the top chime rod screw heads to clear the underside of the case top panel and the measurement from the hand-shaft to the case floor panel (allowing the weights to drop for 8 days).

Remember that the inside width will typically be such that it allows for normal pendulum swing plus initial start-up "over-swing" to activate the automatic beat adjustment feature of the movement. Remember that the inside depth of the clock case should provide clearance from the tip of the hand shaft to the front door glass and should allow the chime casting to be mounted far enough behind the movement so chime hammers on the movement do not have to be bent more than 1/2" to align with the chime rods; therefore there would never be a problem with the chime rods interfering with the pendulum swing.

IMPORTANT:

Inside length has to accommodate 8 day weight drop (Illus. 9) plus has to accommodate the greater measurement of either (a) from the hand-shaft to the top of the chime rod casting or the chime tube hanging frame (See Illus. 5 & 12) or (b) from the hand-shaft to the top edge of the dial (See letter D note on Mechanical Movement Dimensional Specification)

Inside depth has to accommodate clearance from the front of hand shaft to the back of the chime rod casting mount (or chime tube clearance on certain models). See Illus. 5 & 12

Inside width has to accommodate pendulum swing plus "automatic beat adjustment" over swing. See Illus. 7.

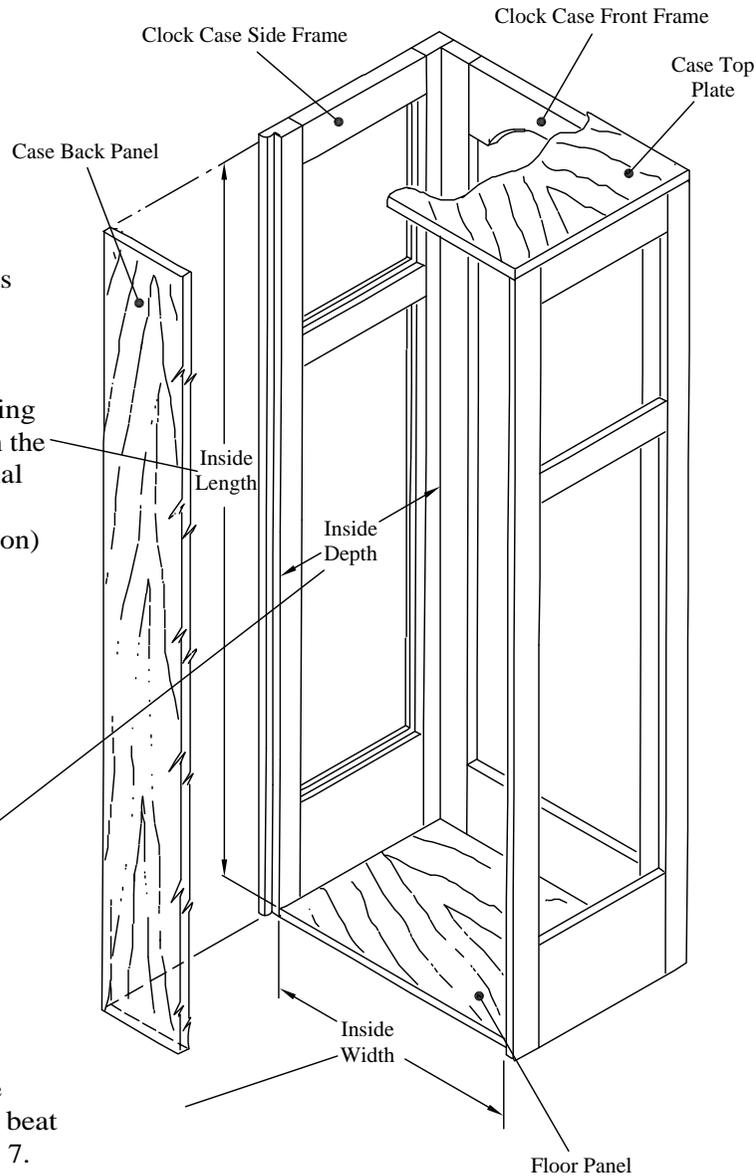


ILLUSTRATION TEN
(Back View Of Straight Side Clock Case
Inside Width, Width, Depth)

Illustration 11: (Back view of a pinch waist floor clock)

Selecting a Grandfather or Grandmother movement for a pinch waist (WAISTED) clock is a bit more involved than movement selection for a straight waist clock case. The two big issues that have a bearing on what movement selection is best are the fact the waist cabinet has less width and depth than the hood cabinet where the movement/dial assembly is mounted and the fact that, while the pendulum length and bob diameter must be appropriate for the length/width of the waist cabinet, the weights will generally have to be able to drop into the base cabinet, if you want the clock movement to operate for a full 8 days.

Pinch waist clocks will generally require selection of pendulums with smaller bob diameters because of the reduced inside widths of the waist cabinet section.

Pinch waist clocks will often have inside waist cabinet widths that just accommodate actual pendulum swing but do not allow for over-swing for automatic beat adjustment. The reason for this is the need to keep the waist cabinet width less than the hood or base cabinet widths.

Many customers will construct pinch waist clock cases so the entire hood cabinet can be removed from the base and waist cabinets. This method of case construction allows for great accessibility to the movement to do chime hammer/rod alignment and to make movement "beat adjustment" with the pendulum crutch arm.

If the clock case is being built so the entire hood cabinet can be slid forward off the base/waist cabinet assembly, it is advisable to make the entire clock case back panel as one piece or to at least make the waist cabinet and hood cabinet back panel as one piece. It is also advisable that the thickness of the back panel be 3/8" to 1/2" thick.

If the hood cabinet is made removable by sliding it forward off the waist/base cabinet assembly, the chime rod assembly should be directly mounted to the hood back panel (either directly mounted or mounted with a sound board and cleats (reference illustration 4A).

Note:

Inside length of hood must take into account the greater measurement of the distance from center of hand-shaft to the top of the dial or to the top of the chime casting/tube hanging frame (See Illus. 5 & 12).

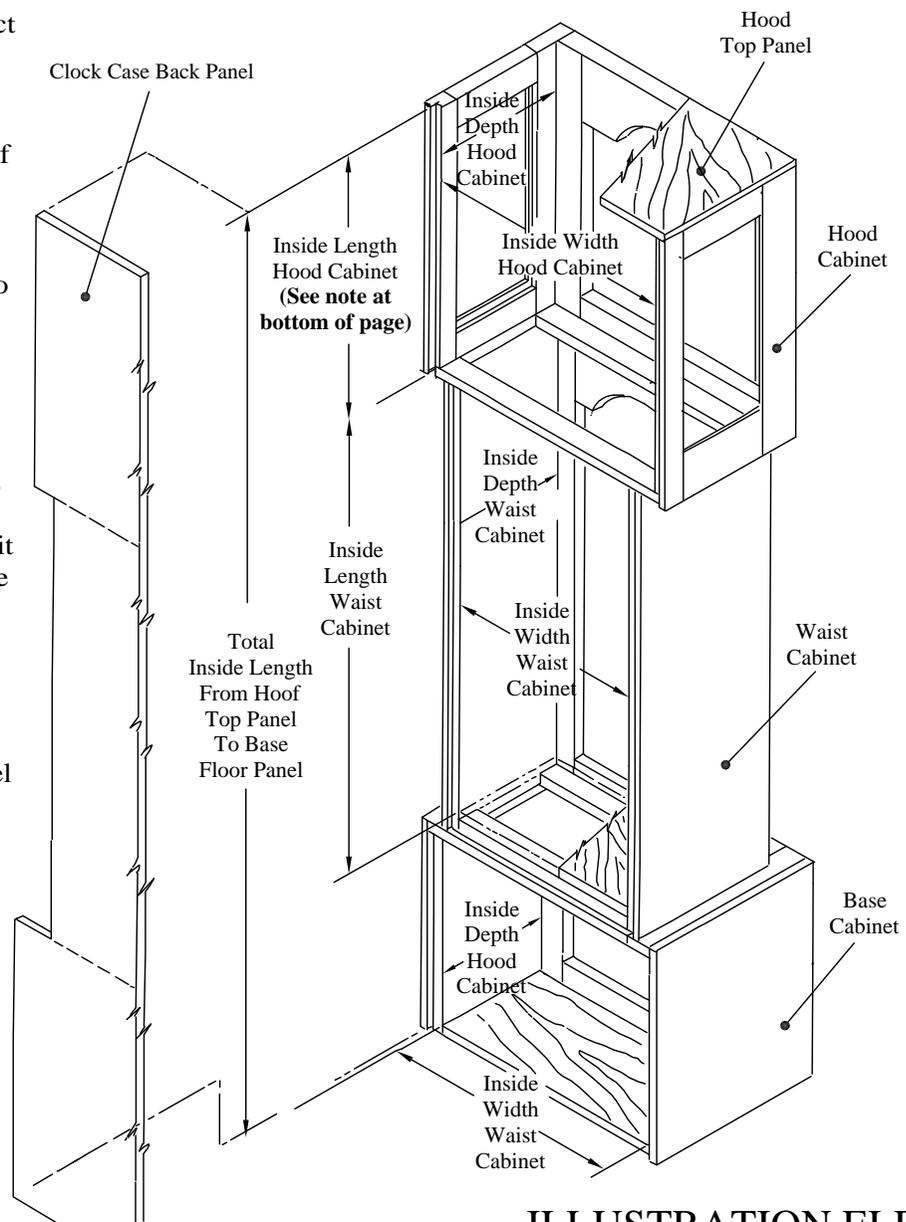


ILLUSTRATION ELEVEN

(Back View Of Pinch Waist Clock Case
Inside Width, Width, Depth)

Illustration 12: (Tubular Chime Movements)

In determining the inside length of a clock case to be equipped with a tubular chime movement, remember to allow adequate space from the hand-shaft to the underside of the case top panel for clearance of the chime tube hanger bar. Refer to letter (D) measurement on this illustration and on the same letter (D) measurement on the "Mechanical Movement Dimensional Specification" sheet that is applicable to the tubular chime movement model you select from Klockit.

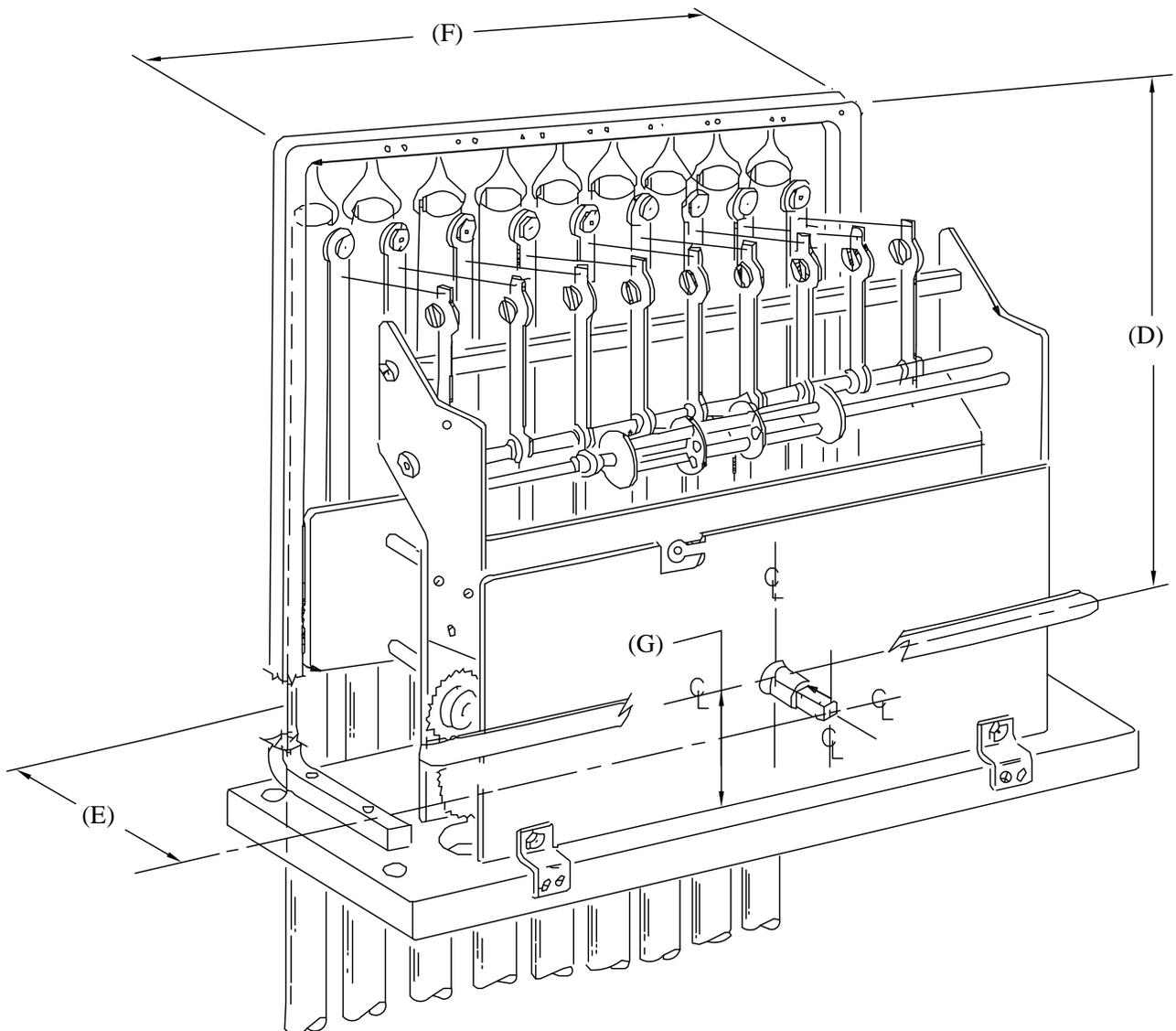


ILLUSTRATION TWELVE
(Important Dimensions For Tubular Chime Movement)

SAMPLE

MECHANICAL MOVEMENT DIMENSIONAL SPECIFICATIONS

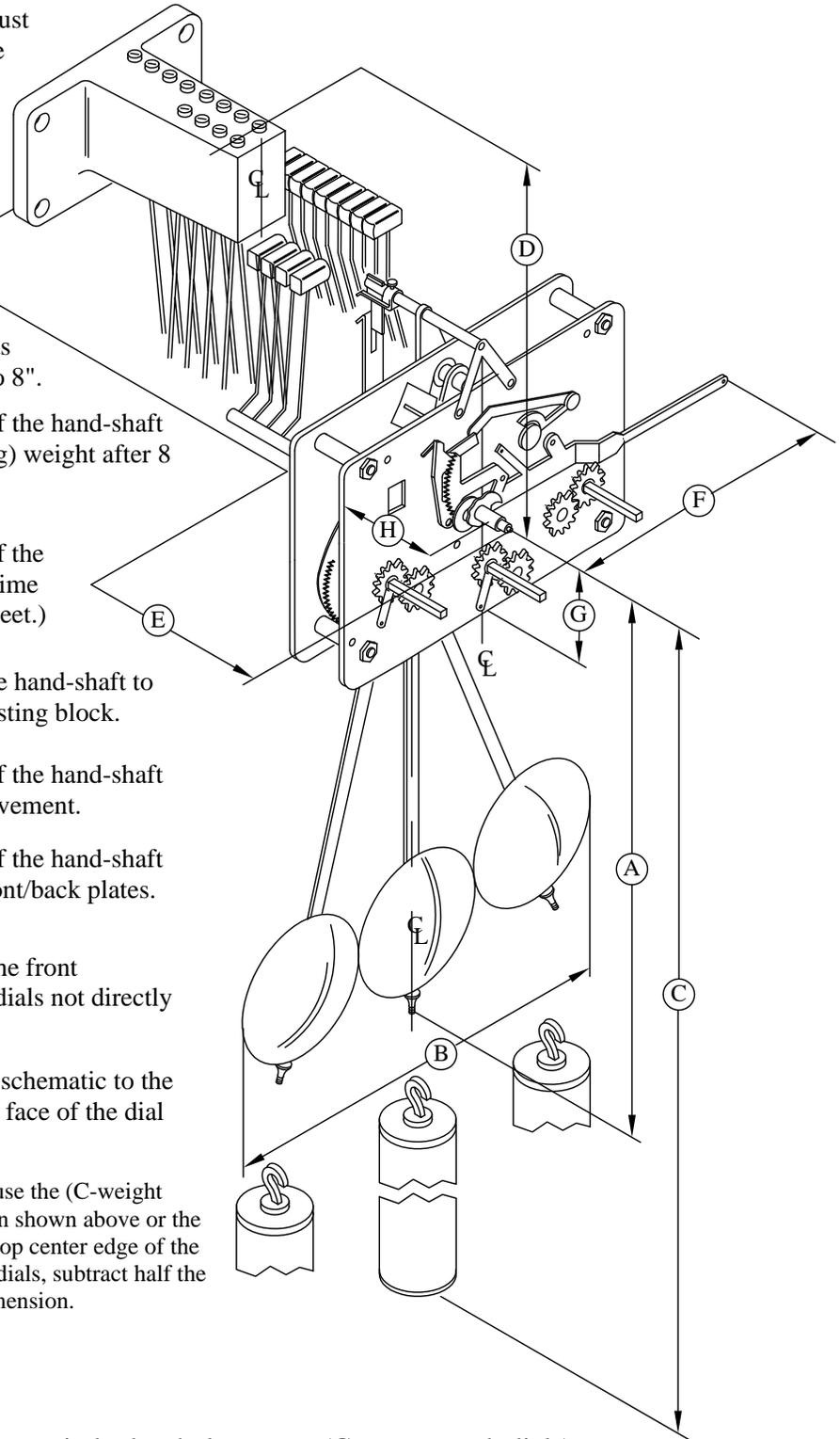
HERMLE- Triple Chime Cable Driven
 Hermle Designation: 1161-853/114CM
 KLOCKIT NO. 13044

IMPORTANT:

The schematic below is drawn as a general representation of the movement and accessory parts. The drawing is solely for the purpose of providing important dimensions related to the clock case measurements.

Dimensions: Dimension Explanation

- (A) Dimension from the center of the hand shaft to the tip of the pendulum bob adjust screw. For this dimension, reference the actual length of the pendulum you are using and add 2-3/4"
- (B) For pendulum swing operating width, refer to the swing specification of the pendulum. Add 1" for the minimum inside case width.
 HOWEVER! To utilize the movement "AUTO BEAT ADJUSTMENT" feature, increase the inside case width as follows: pendulum bob diameter + 6" to 8".
- (C)=54" This is the dimension from the center of the hand-shaft to the bottom of the center (timekeeping) weight after 8 days of operation (weight drop).
- (D)=7" This is the dimension from the center of the hand-shaft to the top of the mounted chime casting block. (See note at bottom of sheet.)
- (E)=8-1/2" This is the dimension from the tip of the hand-shaft to the back mount surface of the chime casting block.
- (F)=6-1/2" This is the dimension from the center of the hand-shaft to the end of the chime lever on the movement.
- (G)=2-13/16" This is the dimension from the center of the hand-shaft to the bottom edge of the movement front/back plates.
- (H)=1-5/8" This is the maximum dimension from the front movement plate to the front surface of dials not directly mounted to the movement.
- (I)=1-3/8" This dimension is not illustrated on the schematic to the right, but is the space between the front face of the dial and the front of the weight assemblies.



Note : In determining the overall inside clock case length, use the (C-weight drop) dimension plus the greater of either the (D) dimension shown above or the measurement from the center of the hand-shaft hole to the top center edge of the dial. To determine this measurement for traditional arched dials, subtract half the width dimension of the dial from the overall dial height dimension.

KLOCKIT

Stock No. 13044B

See back side for chime lever slot template and key-wind arbor hole pattern (Custom punch dials)