

LAYCOCK SYSTEMS, INC.

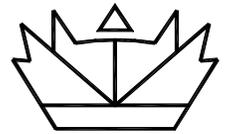
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**LAYCOCK
MOTOR
WINDING
TOOLS**

**CROWN
MOTOR
REPAIR
TOOLS**

INSTRUCTIONS FOR "MIDGET" COIL WINDING HEAD CROWN MODEL 2102

CAPACITY

Adjustable for winding field, mush, armature, transformer, motor coils, etc. from 2-7/8" x 3-1/8" to 6-1/2" x 8-1/2".

SETTING UP

The frame of the Coil Winding Head should be mounted on a Crown Coil Winding Drive, on the face plate of a lathe head (requires 12" swing) or other turning device, so that it turns true and has no side play or wobble.

The complete Winding Head includes one long bar member slotted, two slotted cross arms - one at each side of the center of this main member, which by means of a nut, are adjustable in the slot in the main member. These cross members or arms are also slotted and on each end of these cross arms and also on each end of the main member are locking pins (total of 6) which slide in those slots. With each pin there is furnished a sleeve (total of 6) which slides over the pin and on each sleeve there is a removable spindle suitable for winding six (6) diamond or mush coils. There are also furnished four (4) field coil spools for use in making field or transformer coils. The Coil Winding Head is equipped with scales for proper spacing of pins to make up any size of diamond or mush coils.

TO MAKE DIAMOND OR MUSH COILS:

Diamond or mush coils in AC machines are the most common coils made and this Coil Winding Head is admirably suited for producing them economically, efficiently and quickly. The average set of 48 stator coils on motors up to 5HP can be made in 20 to 40 minutes, including the setup time.

The use of a tension device is not recommended when making diamond or mush coils. Let the wire slide through your gloved hand and over the wire guide, holding a suitable tension with the hands, and the wire will automatically form coils in layers and without crosses, and with a little experience you find that you can turn the head quite fast and make perfect coils. The machine will make a diamond coil of the following maximum and minimum dimensions:

Maximum Overall Length	8-1/4"
Maximum Width of Spread	6-3/4"
Maximum Length of Lamination	6-1/8"
Minimum Overall Length	4-1/4"
Minimum Width of Spread	1-3/4"
Minimum Length of Lamination	2-1/16"

Set the coil winding pins to proper overall length of lamination and to proper width of spread. This takes 2 to 5 minutes. Then hook the wire through one of the slots in long main member or cross members for starting. Then start your machine and wind. When you have finished one coil and you are ready to start the second coil, do NOT cut the wire. See that the jumper wire connecting the two coils has plenty of slack in it, so that this connecting or jumper wire will have sufficient length to permit the coils to be put in the stator easily. By making the coils in this manner, you eliminate the necessity of soldering the leads of one coil to the other, thus assuring a perfect connection. After you have finished making the number of coils desired, take a piece of fine wire (a twist tie may also be used), about a #22, and bend it in the shape of a hook, and slip around the coil, then twist and tie each coil in four places, opposite each other, so as to hold the shape of the coils and prevent them from spreading. Then take hold of the spindle with your hands and

with a quick positive jerk pull off the coils and spindles together. The sleeves will then collapse and you will have your diamond or mush coil complete - tied in shape and connected together. Should there be three coils per pole group, make 6 coils placing extra turn on third coil to permit cutting of 6 coils into 2 groups of 3.

TO MAKE SMALL DIAMOND OR MUSH COILS:

Measure the total length of the wire needed to make one loop of the coil desired with string or other measuring device. Then remove the cross arm members and set the 2 end pins on the main member at such distance so that one loop of a coil so made will have a length equal to the length of one loop of the coil to be made. Then spread the coils to the shape desired.

TO MAKE FIELD OR TRANSFORMER COILS WITH A RECTANGULAR CORE:

Remove end pins from the main member of the Coil Winding Head. Adjust cross arms and the four (4) pins on the cross arm to the shape of the field coil desired. Remove spool from the four (4) pins and replace with the side wall retainers, which have set screws in them. Place these side wall retainers at a distance equal to the width of the coil desired. In case heavy square wire is to be used for series wound field coil, brace the ends of the pins with a wood block or other material to keep the pins from springing in under the heavy tension. In making shunt coils or those not requiring extra heavy wire, the braces will not be necessary. Hook the wire over one of the spindles for starting. Due to the fact that side walls of coil are retained by retainers it leaves coil open so layers can be taped together much easier than could be done with the conventional wooden form. We also recommend the interlacing of each layer of wire at two or more points as one unit and retains the compressed shape which was given it in the Coil Winding Head. Remove the four (4) sleeves with the coil from the four (4) pins and the sleeves will collapse leaving the coil intact.

TO MAKE A FIELD COIL WITH RECTANGULAR CORE WHICH IS SMALLER THAN THE COIL WINDER WILL MAKE WITH FOUR PINS:

Remove the cross arms with their pins and place the end pins at a distance less than the inside length of the core. Make a wooden block of the exact shape of the rectangular core and drill two 3/8" holes, one near each end of the wood block. Slip sleeves through holes in block, mount side wall retainers, slip sleeves and block over the two pins and tighten pins. Rotate to see that the block is centered with respect to the direction of rotation and proceed to make the coil as described above under "Field Coil With Rectangular Core".

TO MAKE A FIELD COIL WITH ROUND CORE:

Remove the end pins. Make cylinder whose outside diameter shall be equal to the inside diameter of the core of the coil you wish to make. This cylinder can be made of heavy galvanized sheet iron soldered together, pipe, wood, tubing made of fiber or other material. Slide the core over the four (4) sleeves, mount four (4) side wall retainers inside and four (4) outside, and place sleeves on cross arm pins. Then proceed to make the coil the same as described under "Field Coil With Rectangular Core".

TO MAKE WAGNER REPULSION INDUCTION COILS:

Remove end pins from main member. Space the cross arms at the span of the coil. Set two (2) pins on the same cross arm at the one fixed distance and set the two (2) pins on the other cross arm at the wider fixed distance. Proceed with the making of the coils as described under the "Diamond or Mush Coil".

MAINTENANCE and STORAGE

When not in use, store unit within a plastic bag.

WARRANTY

Crown's Motor Repair Equipment is warranted to the original owner against defects in materials and workmanship for ninety (90) days from date of purchase. Any part found to be defective (except by overloading, misuse, neglect, fire, accident, tampering with by unauthorized serviceman, or other cause beyond the manufacturer's control), will be replaced or repaired free of charge.

CROWN MODEL 2102

Model #	Description	Quantity	Current Price
2102	"Midget" Winding Head	1	Contact Factory
N/A	Packaging and Handling	1	

**PARTS LIST
CROWN MODEL 2102**

Item#	P/N	Description	Quantity Req'd	Assy#	Current Assy Price
1	808034	Long Stud assy.	2	1	Contact Factory
2	808035	Square Nut	6		
3	808036	Sidewall Retainer Sleeve	4		
4	808037	Retainer Setscrew 10-24x3/16" Soc. Hd.	8		
5	808038	Sidewall Retainer, 2-1/4" dia	8		
6	808032	Base	1		
7	808039	Base Scale	1		
8	808040	Spool assy., complete Aluminum	6		
9	808041	Cross Slide Indicator assy.	2		
11	808042	Scale Drivescrew #2x3/16" & Indic. Pin	16		
12	808043	Clamp Plate	6		
13	808044	Machine Screw 1/4"-28x1-1/4", Fil. Hd.	2		
14	808045	Flat Washer 1/4"	2		
15	808046	Offset Nut 1/4"-28	2		
16	808047	Short Stud assy.	4		
17	808033	Cross Slide	2		
18	808048	Cross Slide Scale	2		

**SPECIFICATIONS FOR "MIDGET" COIL WINDING HEAD
CROWN MODEL 2102**

Construction:

Cast iron base and cross slides, with steel uprights and one piece aluminum coil spacer for six (6) coils. Corrosion protected.

Purpose:

Winds diamond shaped and mush coils.
Group winding up to six (6) coils.
(Diamond shaped coils tip to tip= 4" ~ 8-1/2" and widths 3-1/4" ~ 6-1/2")
For winding armature and stator field coils and transformers.

Specifications:

Six (6) adjustable spindles with removable spools. One (1) extra spool assembly is included for use as a wire guide.
For transformer and large coils, remove the spools and replace them with the enclosed sidewall retainers, which are adjustable for various coil sizes.
Easy to read scales (calibrated in 1/2" increments) for easy setups.

Accessories:

All supplied (see above).

Spare parts:

To be recommended on request.

Enclosures:

Operating Instructions and equipment repair/replacement parts list.