

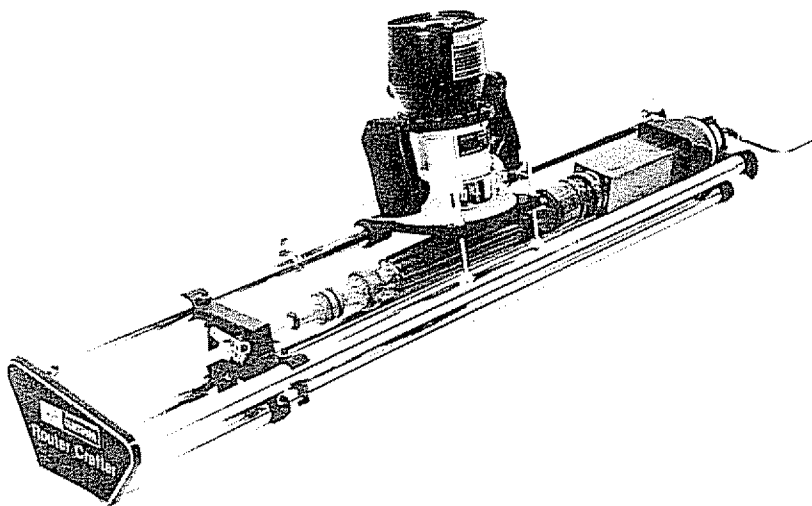
Save This Manual
For Future Reference

SEARS

**owners
manual**

**MODEL NO.
720.25251**

CAUTION:
READ ALL
INSTRUCTIONS
CAREFULLY



CRAFTSMAN

ROUTER CRAFTER

- **assembly**
- **operating**

Sold by SEARS, ROEBUCK AND CO., CHICAGO, IL 60684 U.S.A.

Printed in U.S.A.

general safety instructions for router crafter

WARNING: FAILURE TO HEED ALL SAFETY AND OPERATING INSTRUCTIONS AND WARNINGS REGARDING USE OF THIS PRODUCT CAN RESULT IN SERIOUS BODILY INJURY.

1. USE SAFETY GOGGLES (Head Protection)

Wear Safety goggles (must comply with ANS Z87.1) at all times. Also, use face or dust mask if cutting operation is dusty, and ear protectors (plugs or muffs) during extended periods of operation.

2. DON'T FORCE TOOL

The Router Crafter was designed for smooth operation, therefore, parts should never be forced to operate.

3. KEEP HAND CLEAR OF BITS AND WORKING AREA.

4. KEEP ROUTER CRAFTER AND ROUTER CLEAN.

After every use, clean saw dust off the Router Crafter and Router

NOTE: Motors used on wood-working tools are particularly susceptible to the accumulation of sawdust and wood chips and should be blown out or "vacuumed" frequently to prevent interference with normal motor ventilation.

general safety instructions for power tools

1. KNOW YOUR POWER TOOL

Read the owner's manual carefully. Learn its application and limitations as well as the specific potential hazards peculiar to this tool.

2. GROUND ALL TOOLS (UNLESS DOUBLE INSULATED)

If tool is equipped with an approved 3-conductor cord and a 3-prong grounding type plug, it should be plugged into a three hole electrical receptacle. If adapter is used to accommodate a two-prong receptacle, the adapter wire must be attached to known ground, (usually the screw securing receptacle cover plate). Never remove third prong. Never connect green ground wire to a terminal.

3. KEEP GUARDS IN PLACE

in working order, and in proper adjustment and alignment.

4. REMOVE ADJUSTING KEYS AND WRENCHES

Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.

5. KEEP WORK AREA CLEAN

Cluttered areas and benches invite accidents. Floor must not be slippery due to wax or sawdust.

6. AVOID DANGEROUS ENVIRONMENT

Don't use power tools in damp or wet locations or expose them to rain. Keep work area well lighted. Provide adequate surrounding work space.

7. KEEP CHILDREN AWAY

All visitors should be kept a safe distance from work area

8. MAKE WORKSHOP KID-PROOF

—with padlocks, master switches, or by removing starter keys

9. DON'T FORCE TOOL

It will do the job better and safer at the rate for which it was designed

10. USE RIGHT TOOL

Don't force tool or attachment to do a job it was not designed for

11. WEAR RIGHT APPAREL

Do not wear loose clothing, gloves, neckties or jewelry (rings, wrist watches) to get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair. Roll long sleeves above the elbow

12. USE SAFETY GOGGLES (Head Protection)

Wear Safety goggles (must comply with ANS Z87.1) at all times. Also, use face or dust mask if cutting operation is dusty, and ear protectors (plugs or muffs) during extended periods of operation.

13. SECURE WORK

Use clamps or a vise to hold work when practical. It's safer than using your hand, frees both hands to operate tool

14. DON'T OVERREACH

Keep proper footing and balance at all times

15. MAINTAIN TOOLS WITH CARE

Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories

16. DISCONNECT TOOLS

before servicing; when changing accessories such as blades, bits, cutters, etc

17. AVOID ACCIDENTAL STARTING

Make sure switch is in "OFF" position before plugging in

18. USE RECOMMENDED ACCESSORIES

Consult the owner's manual for recommended accessories. Follow the instructions that accompany the accessories. The use of improper accessories may cause hazards.

19. NEVER STAND ON TOOL

Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.

Do not store materials above or near the tool such that it is necessary to stand on the tool to reach them.

20. CHECK DAMAGED PARTS

Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

21. DIRECTION OF FEED

Feed work into a blade or cutter against the direction of rotation of the blade or cutter only

22. NEVER LEAVE TOOL RUNNING UNATTENDED

Turn power off. Don't leave tool until it comes to a complete stop.

preliminary instructions and packing list

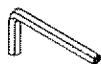
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READING TIME FOR THIS MANUAL IS APPROXIMATELY 30 MINUTES, AND 30 MINUTES SPENT READING THIS MANUAL MAY SAVE YOU HOURS OF FRUSTRATION.

There is a plastic bag which contains some parts that you must use. Please check the contents in the bag with the list to be sure all parts are there.

(1) Hex Key 5/32 (Hexagon wrench)



(4) Sq. Hd. Screws 1/4-20 x 1



(4) Hex Nuts 1/4-20



(7) Flat Washers 5/8" O.D.



(4) Clamps



(2) Flat Washer 1/2" O.D.



(2) Socket Hd. Screws 10-24 x 1 1/2



(2) Hex Nut 10-24



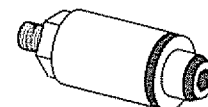
(3) Pan Hd. Screws #10-32 x 1/2



(1) Crank Handle



(1) Template Follower Assembly
(Key No.'s 28, 38, 39 and 40)



In order to help prevent breakage in shipping, the name plate, which shows the model number, and the template follower assembly, were not preassembled at the factory. Installation of these parts are quite simple and instructions for this are provided.

NAME PLATE ASSEMBLY

The name plate No. 53 (Fig. 20 located at the end of manual) has four nose like projections on the side opposite the silver lettering. Hold the name plate in your hand and push the projection into the four steel tubes until the back side is against the tubes. (When working on wood parts which are maximum length, it may be necessary to temporarily remove the name plate).

ASSEMBLING TEMPLATE FOLLOWER

Refer to Fig. 1. Remove the hex nut ('A') from the template follower assembly. A pocket has been provided in the router carriage for the hex nut. Holding the hex nut in the pocket, slip the remaining template follower assembly ('B', 'C' & 'D') over the nose of the router carriage ('E'). Turn the cap screw until it is finger tight. Use the hex key which is provided to tighten the screw. **DO NOT OVER TIGHTEN.**

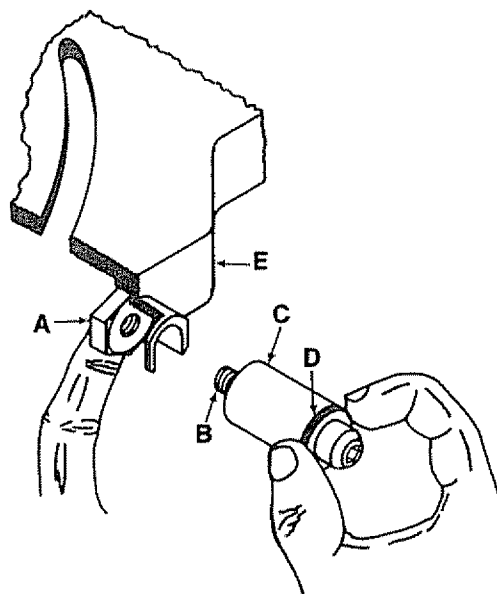


Figure 1

INTRODUCTION

Your Craftsman Router Crafter is a newly developed machine which will enable you to utilize your router to its fullest—making table legs, turnings, posts, spindles and other turned carvings of almost any design you wish. There are four basic operations which can be done on your Router Crafter. They are:

1. Straight "beads and flutes" cut lengthwise (parallel to the work piece). These may be of a straight or tapered style.
2. "Roping" or "Spiraling"—both right and left hand—and may be either straight or tapered.
3. Turn "beads, coves and steps" around the work piece. The different forms are made by the shape of the router bit which is used.
4. Contour turning of varied shapes by letting the router follow a template which is attached to the front of the Router Crafter.

The four basic type cuts enable you to produce hundreds of different designs by using them in combination.

Included with this manual are drawings of typical full size turnings. (Inserted in back cover). When reading any of the sections on the various types of turning, check the sample being referred to as this will help to understand the many turning methods and designs which are possible with the Router Crafter.

CONSTRUCTION

Basically the Router Crafter is composed of a Head Stock and a Tail Stock (Fig. 20) which are held in line with each other by four heavy steel tubes (No. 44 & 52). A carriage (#33) which carries the router is mounted to and travels along these tubes.

The head stock consists of a cast aluminum frame (#6), a cable drum (#20), on which the steel cable (#42) is wound and which turns inside the head stock frame, a cast aluminum drive spindle (#18) which turns inside the cable drum, a locking plate (#9) which will lock the cable drum relative to the frame, and an index pin (#17) which permits the indexing of the drive spindle (#18) relative to the cable drum (#20). The drive spindle can be indexed in increments of 15°—that is the indexing provides for equal spacing of 2, 3, 4, 6, 8, 12, and 24 cuts around of a work piece.

A crank (#1) which fits into the back of the drive spindle is provided to rotate the work piece. You may notice that the drive spindle (#18) has considerable "play" or looseness in the cable drum (#20). This is normal and is no cause for concern.

The tail stock (#47) is also an aluminum casting which carries the tail stock center screw (#50) which is a 1/2" threaded steel rod. The center screw passes through a guide bushing (#49) which is adjustable up and down to permit turning straight or tapered work pieces. The tail stock can be positioned anywhere along the steel tubes to accommodate different lengths of work pieces.

The vinyl coated steel cable (#42) which is wound around the cable drum runs over Delrin® pulleys (#12 & 15) and is joined together with a tension spring (#41) which serves to keep the cable taut. There are two metal lugs which are attached to the cable—one on the upper and one on the lower cable lines. The lugs are for affixing the cable to the cable clamp (#29) to advance the router and router carriage when making "roping" or "spiraling" cuts. Attaching the upper cable lug to the cable clamp produces a left hand spiral whereas attaching the lower lug to the cable clamp produces a right hand spiral. The lugs are left unattached when making other than spiral cuts.

The carriage (#33) has two identical screws (#36). These are used to adjust the depth of cut and also to provide a repeatable "stop" or maximum depth gage.

There are two hose type clamps on the top tube (#14) which serve as stops for the carriage at each end of the desired cutting travel. The two clamps can be positioned against each side of the carriage to prevent any lengthwise movement of the carriage.

Clamps, screws, nuts and washers 'A' are provided for mounting the Router Crafter on a base or bench. See Fig. 2. The mounting box 'B' could be made from 1/2 to 3/4 inch wood (plywood works well). Mounting Router Crafter as shown gives a place to store tools, bits, etc.

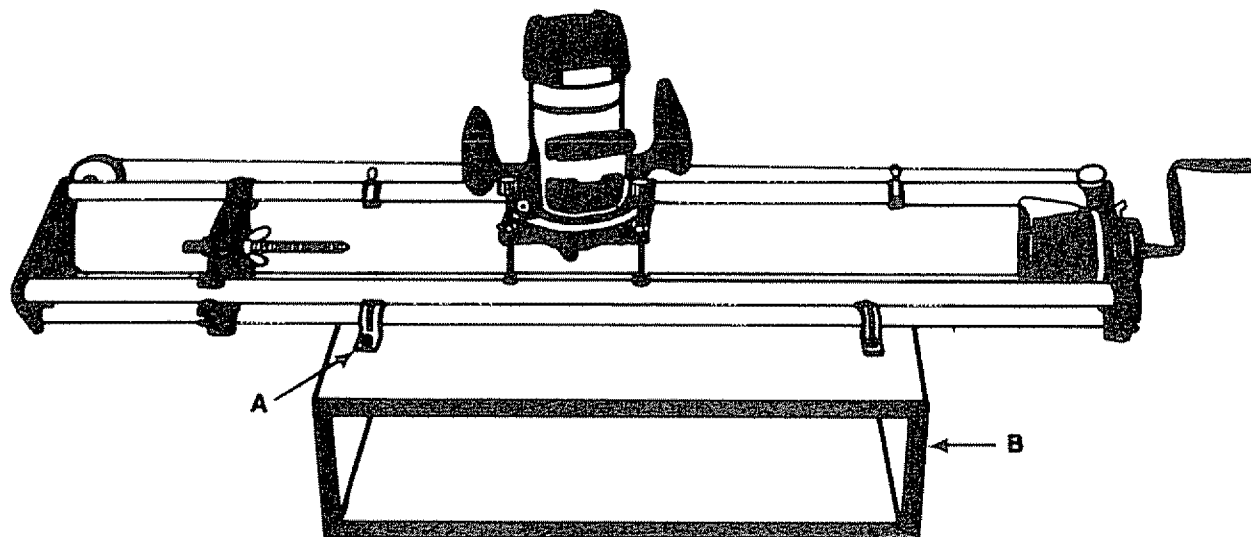


Figure 2

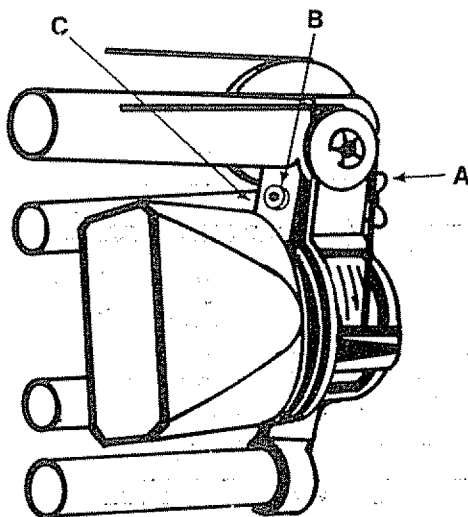


Figure 3

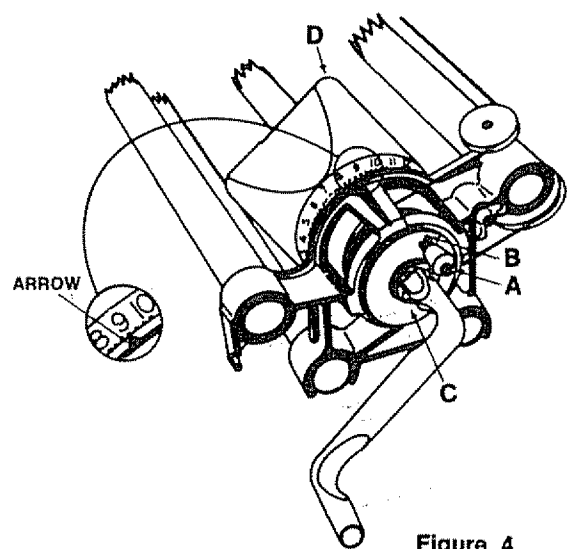


Figure 4

BEFORE SETTING UP A WORK PIECE in the Router Crafter, do the following:

1. Refer to Fig. 3. Hold the cap screw "B" in place with the hexagon wrench which is provided and tighten the wing nut "A". This clamps the plate "C" against the cable drum and locks the cable drum so that it can not rotate. (The wing nut will feel a little hard to turn because it is a vibration resistant nut so that it will not come loose during router operation).
2. Refer to Fig. 4. Pull out knob "A" and rotate the knob so that the "wings" on the index pin just in front of the knob are resting in the shallow groove or "detent" at "B". This holds the index pin and knob back and disengages the cable drum "C" from the drive spindle "D", and thus will permit the drive spindle "D" to rotate and the cable drum to remain stationary — clamped to the head stock frame.
3. The top two tubes should be waxed with a hard drying paste wax such as Sears No. 28 6953 Auto Paste Wax. This will give a smoother sliding action when the router carriage (Fig. 5) is moved lengthwise in the Router Crafter. Do not use oil or grease, because they are too tacky and will gum up the bearings in the router carriage.

DO NOT "FORCE" ANYTHING TO TURN. For example; if the cable drum is clamped to the head stock frame and the index pin is engaged to the drive spindle, **DO NOT** try to turn the drive spindle as this would damage your Router Crafter.

MOUNTING THE ROUTER ON THE ROUTER CARRIAGE

Refer to Fig. 5. The router carriage has several slots through it for use in mounting and attaching the router to the carriage. Screws and washers are provided for this purpose. Remove the plastic plate from the bottom surface of your router before mounting to the Router Crafter carriage. If your router has 3 equally spaced holes in the base where the plastic platten was attached, you will use the same three holes to attach the router to the carriage through slots "A", "B" and

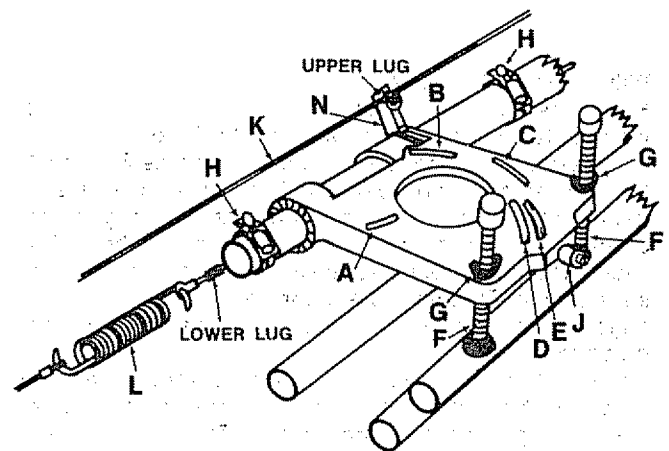


Figure 5

"E". If your router has 4 equally spaced holes in the base, use slots "A", "C" and "D". If your router has 4 holes but only 2 holes are lined up through the center of the base and opposite each other, use slots "A" and "C". The two screws are adequate for attaching the router to the carriage.

If your router has a switch trigger in the handle, mount it so that the switch is on the head stock side — the right side as you face the Router Crafter

The screws provided for mounting are #10-32 x 1/2" long. If your router base has a different size threaded hole, it will be necessary to obtain the same size screws 1/2" long from a hardware store.

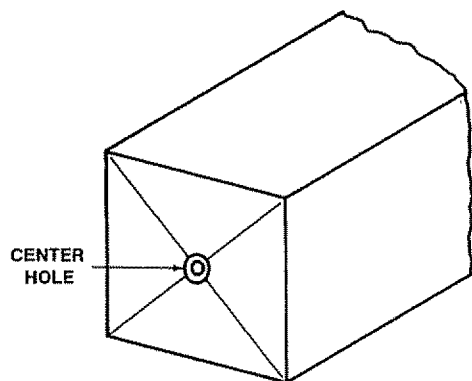


Figure 6

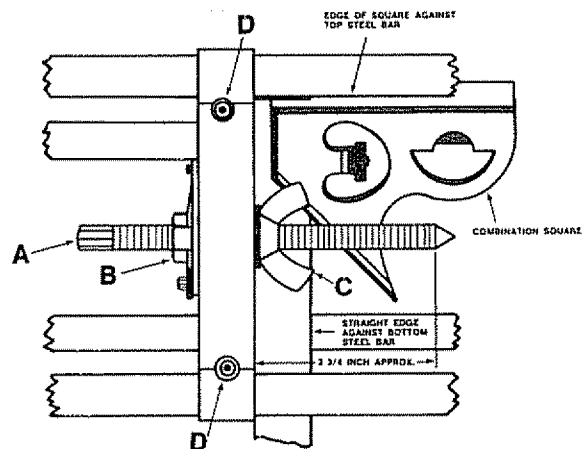


Figure 7

WOOD PREPARATION

Sometimes it is difficult to obtain thick wood for making table legs, posts and so forth, but this isn't necessary. If you have thin boards such as 3/4" or 1" that are smooth, you can put 2, 3, or 4 thickness together at one time using Craftsman white glue and ordinary "C" clamps. Rip the boards to about 1/4" wider than you plan to have final thickness of the square post. This allows enough extra stock to trim the edges square and smooth after the boards have been glued together.

The wood piece, of course, should be squared and cut to length. No further preparation is needed on the end that is to go into the head stock. The tail stock end must be center drilled; that is, a small chamfered hole must be put in the center of the end to receive the tail stock center. You may use a standard center drill. If a center drill is not available, drill a 1/16" or 3/32" hole about 1/4" deep and then counter sink the hole to about 1/4" diameter. See Fig. 6. The center hole should be lubricated with wax, petroleum jelly, or some other grease lubricant. DO NOT GREASE ANY OTHER AREA.

MOUNTING THE WORK PIECE IN THE ROUTER CRAFTER

The center bushing "B" should be set at the lowest graduation mark "C" on the tail stock "D" (Fig. 19). The tail stock frame can be positioned anywhere along the tubes as desired—close to the head stock for short work, far away from the head stock for longer work. Generally, if routing is to be done all the way to the tail stock end of the work piece, the pointed end of the tail stock center should extend past the tail stock frame about 3 3/4". See Fig. 7. Loosen the 4 screws ("D") with the hexagon wrench which is provided. Place the plain square end of the work piece in to the drive spindle with the corners of the work between ribs as shown in Fig. 8. The end of the work

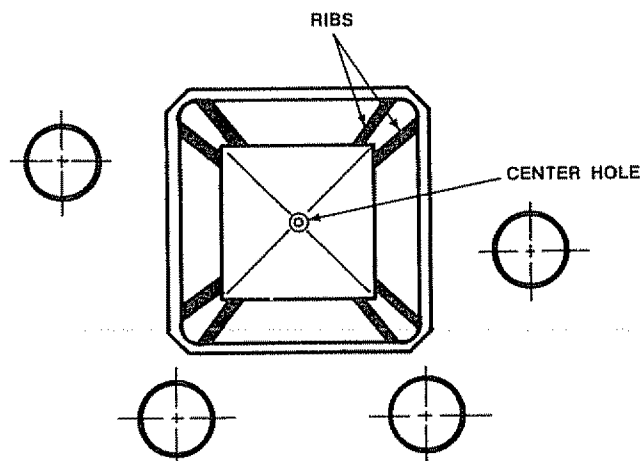


Figure 8

piece with the center drilled (chamfered) hole should point toward the tail stock. While holding the work piece in the drive spindle, position the tail stock frame so that it is about 3 3/4" from the end of the work piece. Remove the work piece. Using a tri-square, combination square, or triangle (30°-60° or 45°), square the tail stock with the steel bars as shown in Fig. 7. Holding the square in position, tighten the four screws "D" just snugly, tightening the top two screws first. **DO NOT OVER-TIGHTEN.** NOTE: THE TAIL STOCK SHOULD BE SQUARED EVERY TIME IT IS MOVED. (This does not apply when only the center screw is adjusted). While holding the work piece against the drive spindle, and with the small hexagon nut "B" seated flat against the tail stock frame, turn the knurled end of the tail stock center "A" until the pointed

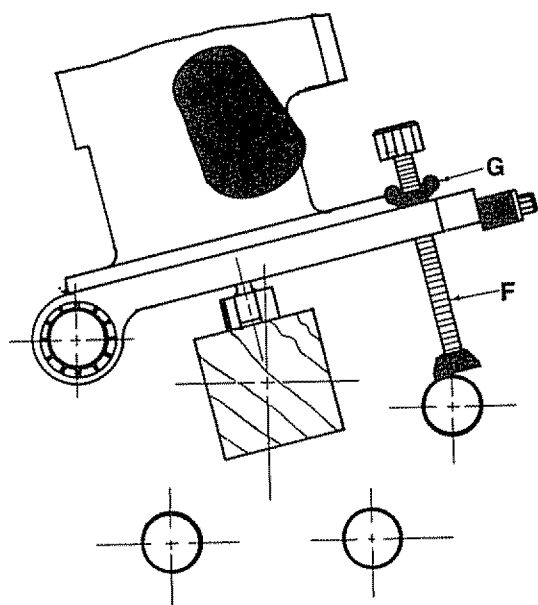


Figure 9

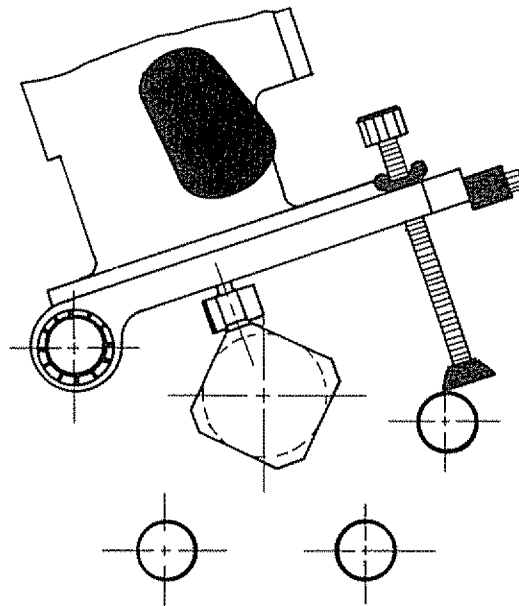


Figure 10

center enters the chamfered hole in the end of the work piece and you can just barely feel the center touching the bottom of the hole in the work piece. The small nut "B" should still be against the tail stock frame. (If it is not, you have turned the tail stock center in too far). With the nut "B" against the tail stock frame and the tail stock center just touching the end of the work piece, tighten the large wing nut ("C") firmly with your fingers. Do not over tighten as it is not necessary and could possibly bend or damage the tail stock assembly. This procedure has locked the tail stock center in position with the work piece held firmly between the head stock drive spindle and the tail stock center.

You should now be able to rotate the work piece freely by hand. **If, when you rotate the work piece by hand, it feels tight rather than free to turn**, loosen the nut "C" slightly and back the tail stock center screw "A" out about 1/8th of a turn and retighten the wing nut "C" snugly. Fig. 7. If, however, after you snugged up the wing nut "C", the work piece feels loose and sloppy on the tail stock center, the nut "C" should be loosened and the tail stock screw "A" should be turned about 1/8th of a turn toward the work piece and nut "C" retightened.

The correct conditions are:

1. Nut "B" is resting flat against the tail stock frame.
2. The work piece seems to be supported firmly between the tail stock center and the head stock.
3. The work piece is free to rotate easily by hand.

"ROUNDING UP" — TURNING FROM SQUARE TO ROUND

BE SURE THE ROUTER POWER CORD IS DISCONNECTED FROM THE ELECTRICAL OUTLET.

To do the rounding of the portion desired, the use of a Craftsman Rabbetting and Surfacing Bit number 26310, which is used with 2589 Arbor and Pilot

Set, must be used. The arbor and bit only are used. **DO NOT USE A PILOT IN THE CUTTER BIT.** Adjustable "stops" "H" (Fig. 5), are provided to limit the permissible travel of the router carriage both toward the head stock and toward the tail stock. The stop nearest the head stock should be positioned and tightened to prevent the router bit from being moved beyond the desired end of the round portion of the work piece. The stop nearest the tail stock should be positioned out of the way—as far to the left as it can be set—if the work piece is to be round all the way to the left end of the work piece. (If it is desired that only a middle portion of the work piece be round and a portion left square on both ends, then the left stop should be positioned accordingly to limit the movement of the router bit to the left).

Before starting the actual cutting, the cable (K) should be disconnected from the cable clamp (N) and the cable drum should be turned so that the spring (L) in the cable is positioned as near the tail stock as it will go. Fig. 5. (This is only to get the spring out of the way because the cable is not used in the "rounding-up" operation) The cable drum should then be clamped to the head stock frame by tightening the wing nut "A" in Fig. 3. Pull the index pin knob "A" (Fig. 4) out and rotate the knob 1/4 turn so it will remain in the out position when you let go. Now position the bottom of the router bit as shown in Fig. 9. Set the feed down screws "F" (Fig. 9) so that they just barely touch the front bar and lock the screws in position by tightening the wing nuts "G" (Fig. 9) firmly.

With the router carriage off to the left, near the tail stock (or lifted up out of contact with the work piece), rotate the drive spindle 1/8 of a turn as in Fig. 10 (this is 3 numbers on the graduated drive spindle) and then pull back slightly on the index pin knob "A" (Fig. 4), rotate the knob 1/4 turn and push knob back in. This is to engage the index pin in a locating hole in the

drive spindle and prevent rotation of the drive spindle. The knob should go in until it touches or almost touches the cable drum. Make sure the index pin is in all the way. You now may feel a little play or wiggle in the work piece, but it should not be free to rotate. Jiggle the work piece back and forth slightly by hand to be sure the work piece will not rotate before doing any cutting. If your work piece is 2 1/2" square or larger, do not try to cut all the corner off the work piece. Instead, loosen the wing nut on the right hand feed screw and screw the pad down about 1/8" to 3/16" and re-tighten the lock nut. **DO NOT CHANGE** the left hand feed screw. This has served to raise the router bit so that it will make a lighter cut.

Now plug the power cord into the electrical outlet and holding both handles of the router, with the right hand feed screw resting on the front bar, make the first cut from left to right (from the tail stock end toward the head stock) until the router carriage contacts the stop nearest the head stock end which was preset earlier. Turn the router off, raise it slightly off the bar and return it to the left end of the work piece. Now you are ready to index to the next cutting position. Pull out the index knob and turn the drive spindle 6 numbers (90°) and push the pin back in to keep the work piece from being free to rotate. Lightly twist the work piece back and forth to be sure it won't rotate, and make the second cut just as the first cut was made.

Repeat the same procedure for the remaining two corners.

After all four corners have been cut off, reset the right feed down screw to the same position as the left feed down screw. Rotate the work piece 3 numbers (1/8 turn). Now make a cut just as you did before, from left to right. After this first cut, pull out the index pin again and rotate the drive spindle one number counter clockwise and push the index pin back in as before. For example; if an arrow on the cable drum is pointing to number 5 on the drive spindle, advance number 6 to the arrow — if the arrow is pointing to number 15, advance number 16 to the arrow.

After advancing, or rotating, the work piece one number, and you have checked to be sure the index pin is "in" and the work piece is not free to rotate, make another cut from left to right as before. Repeat this procedure until you have cut all the way around the work piece — checking each time to be sure the index pin is in the proper position and the work piece is not free to rotate.

After going all the way around the work piece, the work piece will show a series of 24 small "flats" around the piece. To remove these proceed as follows. Pull the index pin out, rotate it 1/4 turn and release it. This disengages the index pin from the drive spindle and the drive spindle is free to rotate. With the router carriage to the left of the work piece, loosen the wing nuts on the feed down screws and raise the screws just slightly — about a half turn each and lock them in position by retightening the wing nuts.

With the hand crank in the drive spindle and the router on, rotate the work piece with the crank in a counter clockwise direction as you look at the head

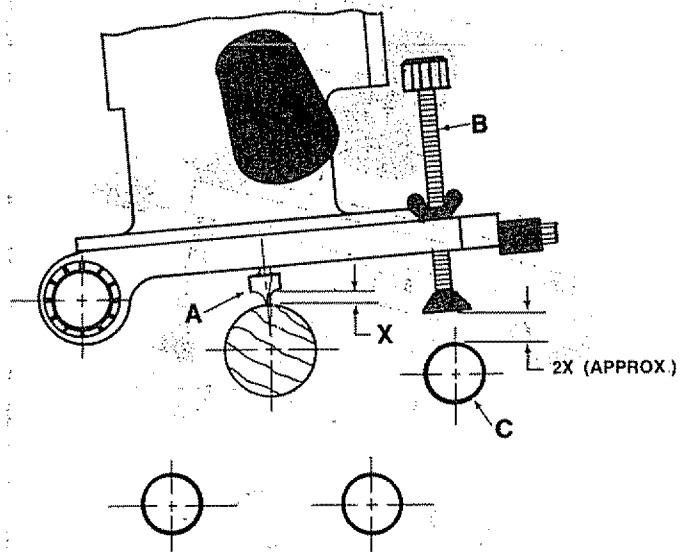


Figure 11

stock end of the Router Crafter. (The top surface of the work piece is turning towards you.) While rotating the work piece with the right hand rather rapidly, gradually pull the router towards the head stock until the carriage contacts the stop which was set earlier. This completes the rounding of the work piece.

If you wish, wrap one turn of adhesive tape around the square end of the hand crank and lightly wedge the hand crank into the drive spindle. This will keep the hand crank tight in the drive spindle.

UNPLUG THE POWER CORD TO THE ROUTER BEFORE CHANGING CUTTER BITS OR MAKING ADJUSTMENTS.

CIRCULAR BEADS AND COVES

Circular beads and coves, as we refer to them here, are those which are formed by the shape of the cutter bits used and/or a combination of different bits. In cutting these, the router does not move along the steel bars of the Router Crafter. The two stops are positioned against the router carriage — one at each side — to prevent such movement. The cable drum is clamped just as it is during the "rounding-up" operation. The index pin is out, thus disengaging the drive spindle from the cable drum and the drive spindle is free to rotate.

Refer to Fig. 11. With the desired bit "A" in the router, adjust the feed down screws "B" until the bit makes contact with the work piece. Continue to raise the feed screws until the distance between steel bar "C" and the feed down screw is approximately two times that of the desired cut depth "X".

Connect the power cord to the electrical outlet. With the router running, turn the work piece with the crank and gradually lower the router into the work piece until the feed down screws contact the front steel bar. Lift the router out of the cut before turning the router off.

DISCONNECT THE POWER CORD FROM THE ELECTRICAL OUTLET BEFORE CHANGING CUTTER BITS OR MAKING ADJUSTMENTS.

ROUTER BIT NO.

*These bits could be used for this cut

- * 26316
- 26315
- 26314
- 26312

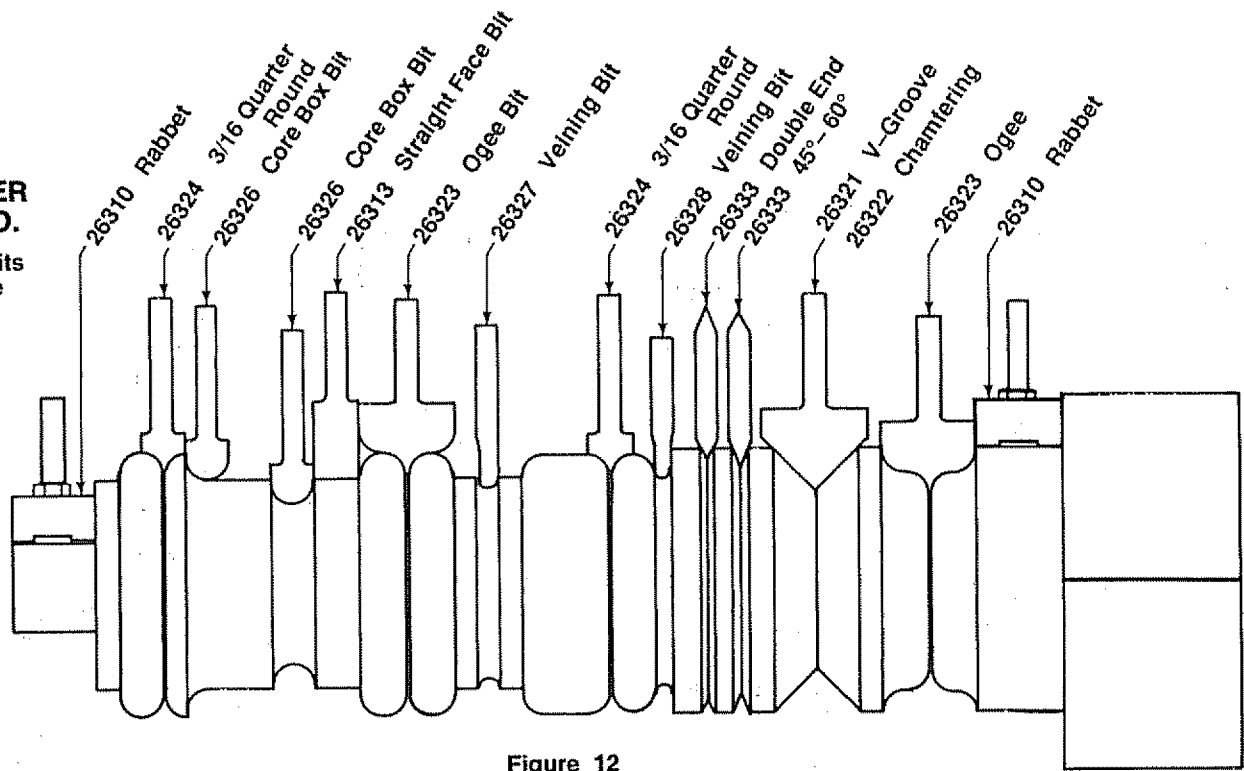


Figure 12

You can make circular cuts in this manner with any of the cutter bits which will "plunge" or "end" cut. If you wish, you can position the router carriage to the right or left to make another cut to blend in with the previous cut.

ALWAYS BE SURE THE STOPS HAVE BEEN POSITIONED AGAINST EACH SIDE OF THE ROUTER CARRIAGE AND TIGHTENED BEFORE ATTEMPTING TO MAKE CIRCULAR CUTS. FAILURE TO DO SO COULD CAUSE YOU TO RUIN THE WORK PIECE. See Fig 12 for typical beads, coves, and flats made on the Router Crafter.

Fig. 21 through 31 show full size drawings of various style parts with coves, beads, etc. (These are on a separate sheet and inside back cover).

Sand the work piece with coarse sandpaper then progressively with finer grit paper. You may turn the work piece with the crank for initial sanding. This applies to all the various types of turning covered in this manual.

ROPING (SPIRALING)

Among the many types of cutting which can be done on your Router Crafter is "roping" or "spiraling", which is rather unique. Roping is the cutting of spiraled beads around the work piece, so that the piece looks somewhat like a rope. Spiraling is a general term and refers to any form or shape of spirals around the work piece. You can cut right hand and left hand spirals—both on the same work piece if you wish to produce a "pineapple" or diamond effect. The drive spindle has 24 positions marked on it and by means of the index pin, can be set to 24 equally spaced positions; therefore, you can make your choice of 2, 3, 4, 6, 8, 12, or 24 equally spaced spirals.

The portion of a piece which is to be roped or spiraled should, of course, be rounded up prior to the spiraling, and, in order to achieve best results, the work piece should not be removed from the Router Crafter after

rounding up until the roping or spiraling has been done.

For roping spirals either a Craftsman No. 26324 (3/16" quarter round) or a 26323 (9/32" point cutting Ogee) bit should be used. Put the cutter bit in the router and set the feed down screws so that the bit will cut about 1/8" deep in the portion of the work piece which is to be cut. When the cutter bit is in cutting position, the axis of the bit should point directly to the center of the work piece (Fig. 11). Now set the carriage stops which are on the rear bar in a position which will only permit the carriage to move as far to the right and to the left as you want it to. This serves to prevent accidental over travel and the cutter hitting some other part of the work piece. It is preferred that the carriage movement to the left (toward the tail stock) be far enough to get the cutter past the left stop. This is preferred because the actual cutting of all spirals and ropes is done with the router moving from the tail stock end toward the head stock end (left to right). NEVER SPIRAL CUT FROM RIGHT TO LEFT—doing so would produce an inconsistent cut.

At this point, be sure that the cable drum is not clamped to the head stock frame. If it is, unclamp it by loosening the wing nut "A" (Fig. 3).

The cable clamp "N" (Fig. 5) must now be attached to a steel "lug" which is permanently attached to the cable. There is one lug on the top cable and one lug on the bottom cable. Attaching the cable clamp to the lug on the top cable will produce a left hand spiral. Attaching the cable lamp to the lug on the bottom cable will produce a right hand spiral. There is a recess or "pocket" in the cable clamp under the flat washer in which the lug will fit. Place the lug in the recess of the cable clamp, and with the lug under the flat washer, tighten the cap screw with the hexagon wrench until the washer clamps the lug to hold the lug in the recess. DO NOT OVER TIGHTEN—JUST TIGHT ENOUGH TO KEEP THE LUG FROM MOVING.

Now, with the router lifted up slightly so that the cutter bit does not touch the work piece, rotate the crank in the direction that pulls the router toward the head stock until the carriage contacts the stop nearest the head stock end. Check to be sure that the cutter is now at the point at which you want the movement of the cutter to stop. With the router still lifted up slightly off the work piece, reverse the crank direction and return the router carriage to the tail stock end.

Now let the router carriage feed screw pads rest on the front bar and turn the router on. Hold the router handle with the left hand, and with the right hand, turn the crank fairly slowly, but steadily, to pull the router along the work piece toward the head stock. **DO NOT STOP TURNING THE CRANK WHILE THE CUTTER BIT IS IN CONTACT WITH THE WORK PIECE.** If for some reason you do not want to complete the cut, lift the router up off the work piece and return the router to the tail stock end. Do not crank backward with the cutter bit in contact with the work piece. To do so would cause an inconsistent spiral, thus ruining the work piece.

After the first cut has been made, and the router has been turned off and returned to the left end of the work piece, notice what number the arrow on the cable drum is pointing to (Fig. 4). If you want eight equal spaces around the work piece, pull the index pin out and turn the drive spindle three numbers (either direction) and push the index pin back in. This has turned the work piece $1/8$ of a turn and you are now ready to make another spiral cut. If the original depth of cut was not quite deep enough, you may drop the cutter bit slightly by loosening the wing nuts of the feed down screws, backing the feed screws off slightly and retightening the wing nuts.

Make the second and remaining cuts in the same manner as the first cut. The index positions are numbered 1 through 24; therefore, for example, if you want to make 8 equal spirals and the first cut was made with the arrow pointing to number one, then the other cuts should be made with the **same arrow** pointing to numbers, 4, 7, 10, 13, 16, 19 and 22. It is a good practice to write down the number you start on and all the other numbers you must index the arrow to for the correct number of equal spaces so that you don't have to remember the original number you started on—helps to prevent mistakes that could ruin the work piece.

Figs. 21, 22, 25, 26, 30 and 31 are examples of ropes and spirals.

DISCONNECT THE POWER CORD FROM THE ELECTRICAL OUTLET BEFORE CHANGING CUTTER BITS OR MAKING ADJUSTMENTS.

STRAIGHT BEADS AND FLUTES CUT LENGTHWISE

Cutting the straight, lengthwise, equally spaced beads and flutes can be done very quickly. **DISCONNECT THE ROUTER POWER CORD FROM THE ELECTRICAL OUTLET.** Select the proper cutter bit for the shape of cut you desire to make and install in the router collet. The router is positioned on the router carriage so that

when the cutting depth is correct, the center line of the cutter bit is pointed to the center of the work piece. The depth of cut is set by positioning the down feed screws "F" (Fig. 5). After positioning the down feed screws, be sure to lock them in place by tightening the wing nuts "G" (Fig. 5). Of course, the router can be adjusted up and down in its own base as is customary with routers.

The carriage travel stops "H" (Fig. 5) should be set so that the carriage, and thus the cutter bit, can only move lengthwise in the area that is to be cut. This serves to make consistent length of cuts and to prevent accidentally moving the router carriage too far and cutting into a portion of the work piece you don't want cut. Turn the cable drum until the spring in the cable is at the extreme left toward the tail stock as far as it will go.

The cable drum "C" (Fig. 4) should now be clamped to the head stock frame. This is done by holding socket head screw "B" with the hexagon wrench provided and tightening the wing nut "A" (Fig. 3). The wing nut will feel a little hard to turn because it is a vibration resistant type wing nut. Do not over tighten—just enough that you can't turn the cable drum by hand. The index pin "A" (Fig. 4) should be "in", that is, the knob should be touching, or very near to touching, the back side of the cable drum. This locks the cable drum to the drive spindle so that the drive spindle will not rotate.

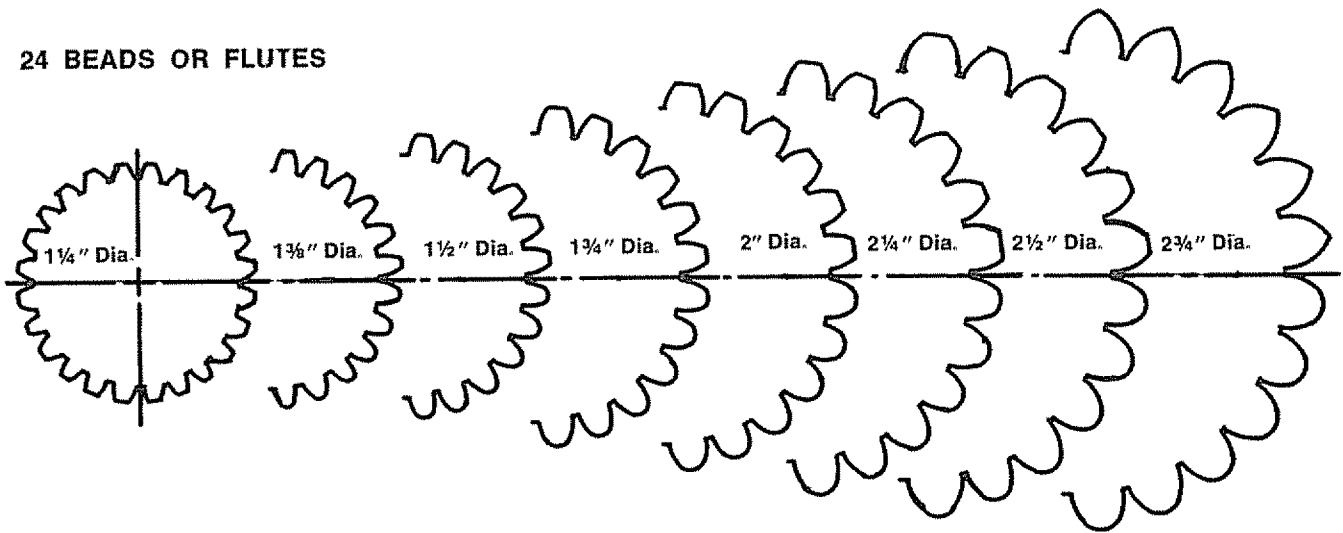
The first cut should be made with both hands on the router feeding from left to right at a reasonably steady speed. Do not stop in the middle of a cut. If for some reason it is necessary to stop, raise the router up so that the cutter bit is not in contact with the work piece before stopping the feed of the carriage. When the carriage has been moved all the way to the "stop" at the head stock, or right end, lift the router up slightly off the work piece, return the router to the left end stop and turn off the router.

Now the work piece should be indexed to the position to make the second cut. Be sure that the cutter bit is not touching the work piece. If, for example, you want twelve equally spaced cuts, pull the index pin back and rotate the drive spindle two numbers and push the index pin back in. It is important that you note what number is next to an arrow head on the cable drum. It is best to write down the number and then write down all the numbers you must locate at the arrow head to make the remaining cuts. If the first cut was made at number 24 position, for example, to get the twelve equal spaces, you would also cut at positions 2, 4, 6, 8, 10, 12, 14, 16, 18, 20 and 22.

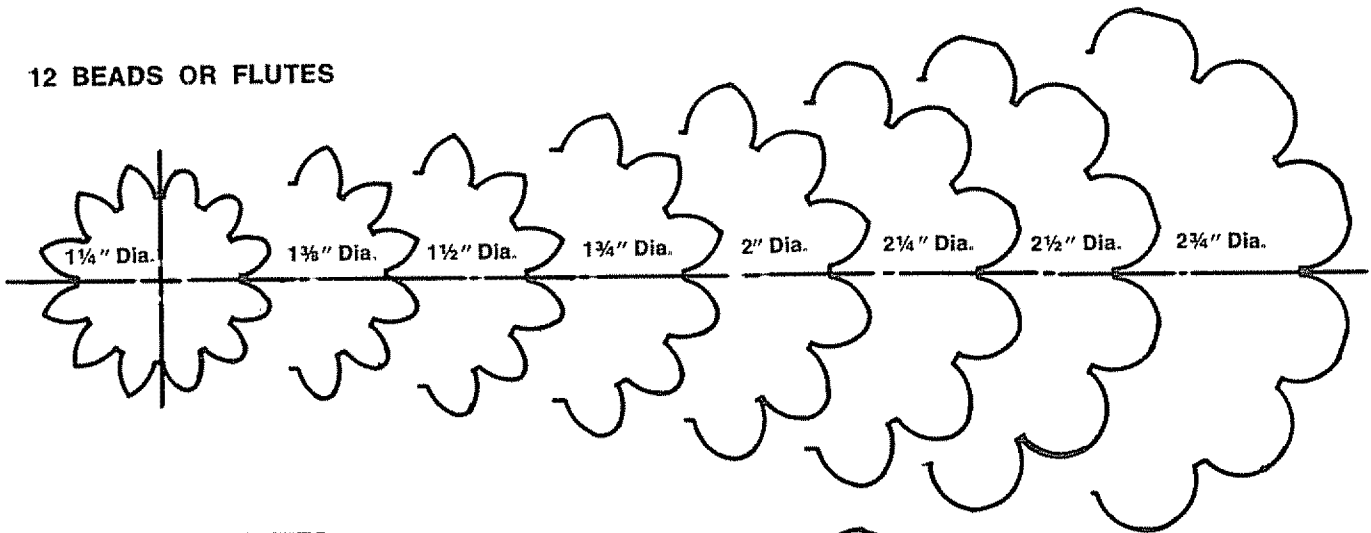
ALWAYS REFER TO THE SAME ARROW THAT WAS REFERRED TO WHEN MAKING THE FIRST CUT. (Fig. 4) ALWAYS BE SURE THE POWER CORD IS DISCONNECTED BEFORE MAKING ADJUSTMENTS AND CHANGING CUTTERS, ETC.

Fig. 23, 24 and 25 are examples of flutes cut lengthwise. Fig. 13 shows shape of lengthwise beads of various size work pieces with different numbers of equal spaces.

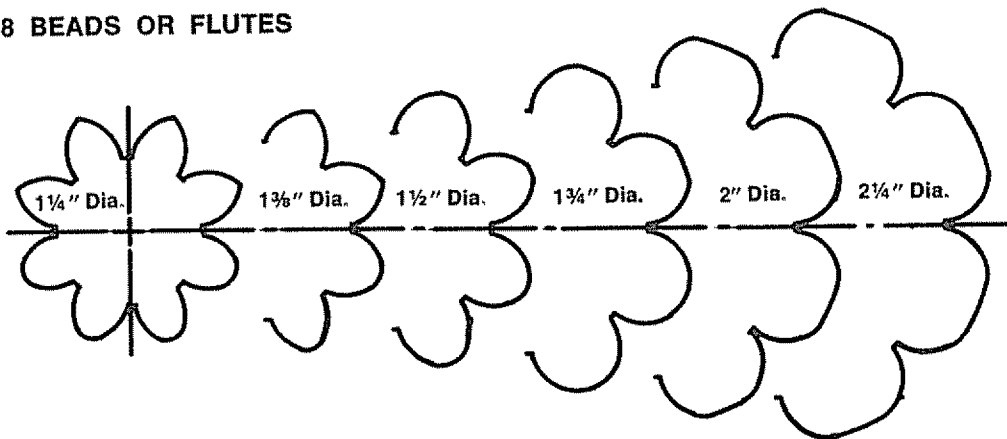
24 BEADS OR FLUTES



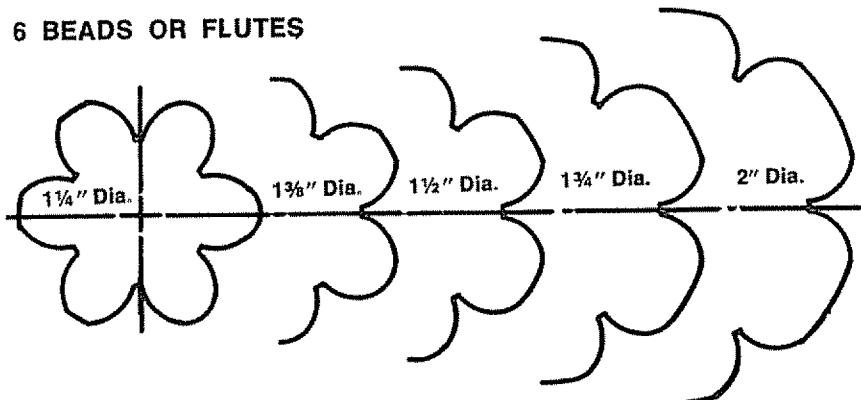
12 BEADS OR FLUTES



8 BEADS OR FLUTES



6 BEADS OR FLUTES



Typical cross sections of beads and flutes cut lengthwise for various diameters. Beads above the center line are as cut. Beads below the center line are after sanding. Use bit No. 926323 or No. 926324.

Figure 13

CONTOUR TURNING

DISCONNECT THE POWER CORD BEFORE SETTING UP.

It is necessary to make a template to make contoured turnings. There is a 1/2" diameter cylinder on the front of the router carriage "J" (Fig. 5) which will rest on the template and thus raise and lower the router as it moves along the rear steel bar. Craftsman No. 9 26326 Core Box Bit is used when contour turning (the diameter of the bit is the same as the diameter of the template follower "J" Fig. 5). One end of the template is bolted to the head stock frame and the other end is bolted to the tail stock frame as shown in Fig. 16. (Instructions on making templates follow this section). When contour turning is to be done, the cable drum should be rotated so that the spring in the cable is as far toward the left end (tail stock) as it will go, and then the cable drum should be clamped to the head stock frame by tightening the wing nut "A" (Fig. 3). DO NOT OVER TIGHTEN THE WING NUT — tighten just enough that you can not rotate the cable drum by hand. The index pin should be pulled back and turned 1/4 turn so that the drive spindle is disconnected from the cable drum and is free to rotate.

In this type turning, the final depth of cut is determined by the position of the end of the router bit relative to the template follower. For the purpose of explanation, assume there is a work piece in the Router Crafter which you have already rounded up. Now, with the template follower "J" (Fig. 5) resting on the highest portion of the template (that is to say, the router shaft is right over the portion of the work piece which is to be the largest diameter after turning), set the router so that the bottom end of the 1/2" core box bit just touches the round surface of the work piece. Be sure the router collet is adequately tightened to hold the bit. Now move the router to the left end so that the bit is just off the work piece and again let the template follower rest on the template. If the template is on properly, the end of the router bit should be even with the desired finished diameter at the end of the work piece (that is, the end of the router bit is above the tail stock center by a distance of one half the desired finish diameter at the end of the work piece). If the bit is higher than that, the left end of the template must be lowered. If the bit is too low, the left end of the template must be raised.

Again, the actual cutting must be done from left to right while turning the crank counter clockwise as you look at the head stock, or "crank" end of the Router Crafter. The top of the work piece should be coming toward you as you face the Router Crafter and rotate the crank with your right hand.

Now, set the feed down screws so that the bit can take about 1/8" depth of cut and lock the screws in position by tightening the wing nuts. Do not try to take the full depth of the form you are to cut at one time if it is deeper than 1/8". Set the stops on the rear bar so that the carriage can only be moved over the portion of work piece to be turned.

Now with the router on, turn the work piece as instructed above at moderate speed and pull the

router toward the head stock slowly.

While the feed screw pads are resting on the front bar, you will be cutting about 1/8" deep. As you move along, the template will lift the router up as it goes over the higher portions of the template. When you contact the stop at the right, lift the router up out of contact with the work piece, turn the router off and return the carriage to the left end. Again, with the feed down screws, let the router bit down about another 1/8", lock the feed down screws by tightening the wing nuts and make another cut just as you made the first cut. Continue this process until the template follower contacts the template for the full length of the turned portion. Traverse the router very slowly while making the last cut and then unplug the power cord.

Fig. 22, 23, 24, 25, 26, 27, 28, 29 and 30 show examples of contour turning.

TEMPLATE LAYOUT AND CONSTRUCTION

Refer to Fig. 14. The carriage "A" pivots about steel bar "B". With the center line of router bit "C" in line with center of the work piece "D", the distance from pivot point "E" to the center of bit "C" is approximately one half the distance from point "E" to template "F". With the follower "G" on the template, any up or down movement of the follower, as it moves along the template, will cause the router bit to move up or down approximately one half the amount that the follower moves up or down. For example, if a work piece is to have a drop of 3/8 inch (3/4 inch diameter reduction), the template would have a drop of 3/4 inch. That is, a change in the height of the template produces approximately the same change in the diameter of the work piece.

See Fig. 15. The first thing to do in making a template for contour turning, is to draw the work piece "A" (Fig. 15), to full size about center line "E". Having completed the drawing, divide the contoured section into equal parts along the length, by drawing vertical lines "B" (1/8 inch or 1/4 inch spacing). Measure the distance from the center line to point "C". Double this measurement and mark point "D" on the vertical line. When all the points have been marked, draw a smooth line "F" through the points. This completes the template layout. See examples 22, 23, 24, 25, 26, 27, 28, 29 and 30. The template layout is drawn above the contoured section on all the examples with contoured portions.

Long Contoured Turning. Saw a piece of wood "B" (Fig. 16 plywood works well), about 1/2" or 3/4" thick, 5 inches wide, and 10 inches longer than the full length of the work piece. Glue or tape the template layout "C" on the wood so that (1) the left end is about 7 inches from the end, (2) the highest point on the layout is even with the top edge of the wood, (3) the center line of the layout is parallel to the top edge. Saw along the layout line and file and sand the template edge smooth.

The template is now ready for mounting. With a rounded work piece "D" in the Router Crafter, hold the template against the head and tail stock so that (1)

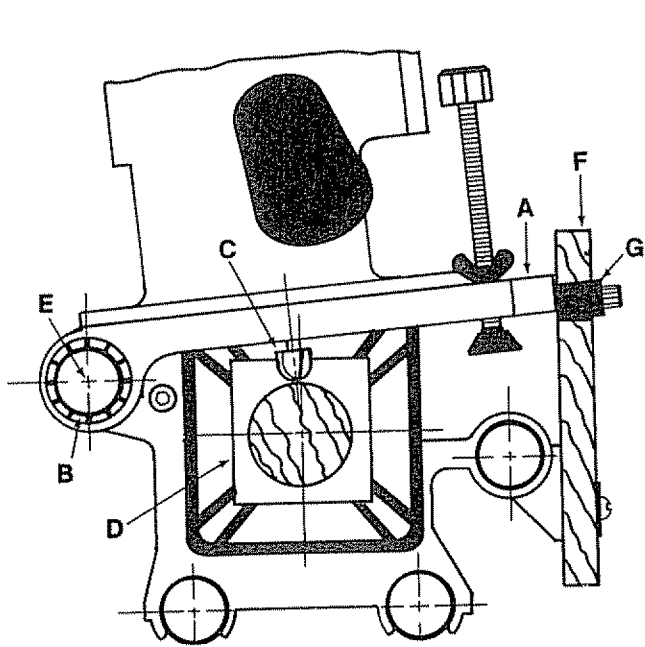


Figure 14

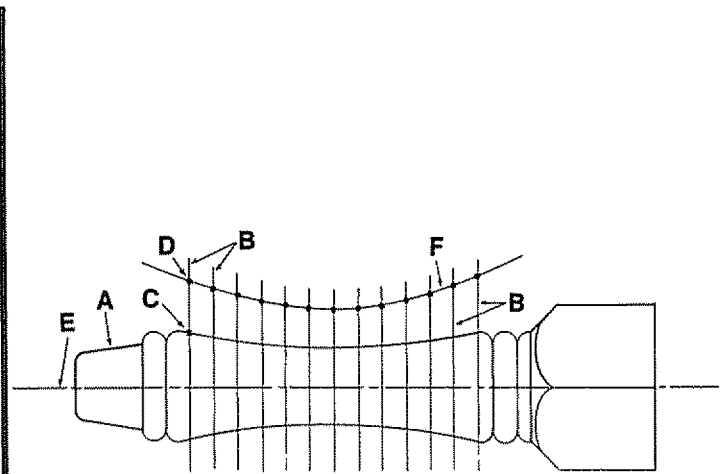


Figure 15

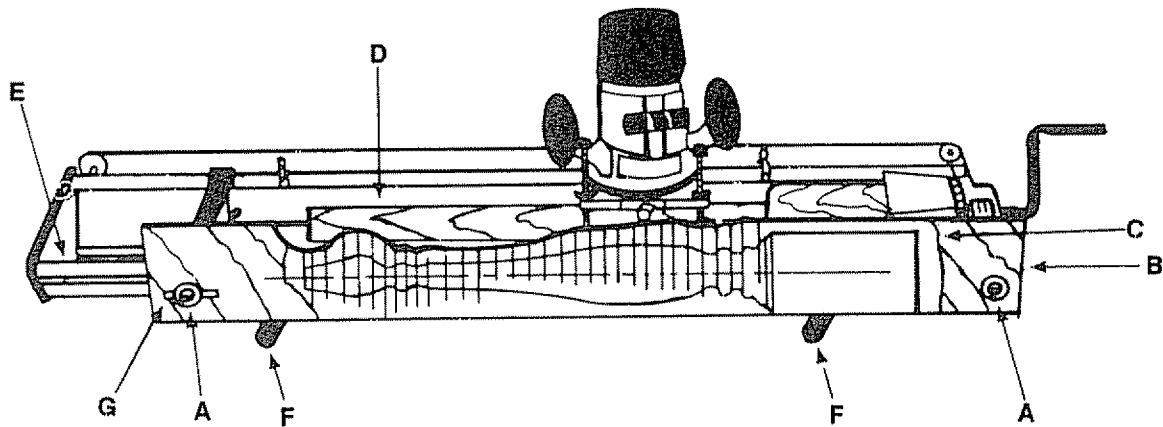


Figure 16

the left end of the contoured section lines up with the end of work piece, (2) the lowest point on the contoured section is at least $\frac{3}{8}$ inch above the front steel bar "E". Spacing blocks or dowels "F" may be used to keep the template straight while marking the mounting hole and slot locations. Drill a $\frac{1}{4}$ inch diameter hole in the head stock end of the template. Drill a $\frac{1}{4}$ inch diameter by 1 inch slot "G" in the tail stock end of the template. The template may now be mounted to the Router Crafter with number 10 screws, nuts, and washers "A", which have been provided. Keep the template for future turnings.

Short or Repetitive Turning. Saw a piece of wood about $\frac{1}{2}$ " to $\frac{3}{4}$ " thick by 7 inches wide, "A" (Fig 17). The length should be 1 to 2 inches longer than the contoured section of the work piece. Saw another

$\frac{1}{2}$ inch piece of wood "B" about 3 $\frac{1}{2}$ inches wide. The length should be the same as the first piece. **Do not fasten together.** Glue a template layout to "A", and saw the template as instructed in long contoured turning.

With a rounded work piece "C" in the Router Crafter, place pieces "A" and "B" in position. Saw the side opposite the contoured edge of piece "A" until the lowest point on the contoured edge is at least $\frac{3}{8}$ inch above steel bar "D". Pieces "A" and "B" should be either glued or screwed together as shown in Fig. 18. The template is now ready to be positioned and clamped to the Router Crafter Mounting Base "E". Piece "A" should be against steel bar "D". Keep the template for possible use on other parts in the future.

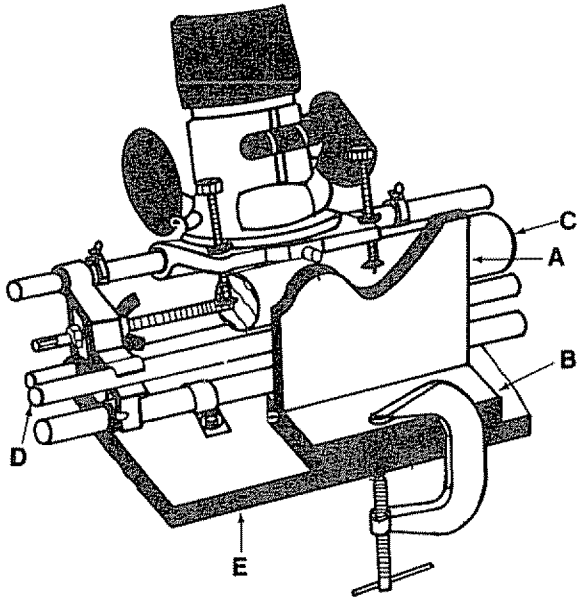


Figure 17

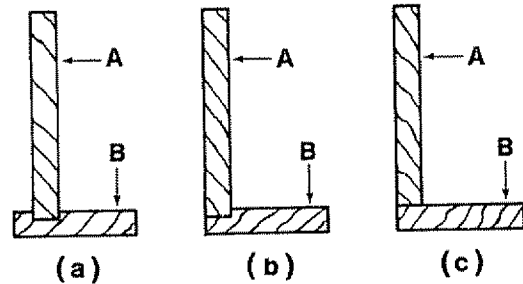


Figure 16

TAPER TURNING

With a rounded work piece in the Router Crafter, loosen wing nut "E" (Fig. 19). With the hex key provided, loosen screw "A" and move the center bushing "B" up about two marks "C" on the tail stock "D". Tighten screw "A". Adjust the center screw and wing nut as instructed in the wood preparation section, so that the work piece turns freely. With a No. 9 26310 Rabbeting Bit, take approximately 1/8 inch cut as was instructed in the latter part of Rounding Up. The diameter of the work piece at the tail stock end will be smaller than the diameter where the bit stopped cutting. We refer to this as taper turning.

On the tail stock, there are five graduation marks "C" ranging from zero to one inch taper over the full length of the work piece. Fig. 19. With the top edge of the center bushing "B" positioned directly over the lowest mark, the center screw "F" would be approximately in line with the center of the head stock. Turning at this setting would have zero taper (straight turnings). Positioning the center bushing over the second mark would raise the center screw approximately 1/8 inch above the center of the head stock, thus producing a taper of 1/4 inch over the length of the work piece. Moving the center bushing up each additional mark will increase the taper by 1/4 inch, up to one inch taper over the full length of the work piece.

The sections on **Roping** and **Straight Beads and Flutes Cut Lengthwise** apply to tapered turnings. If a rope or straight flute is to be put on a tapered section, the center bushing must remain on the setting used for the taper. If the work piece is to have circular beads or coves, then these should be cut with the center bushing set on the lowest mark.

Refer to Fig. 13 for possible cross section of different diameters. For example, a 29 inch work piece is to have a 12 inch tapered section with 12 lengthwise flutes. The large diameter of the taper is to be 2

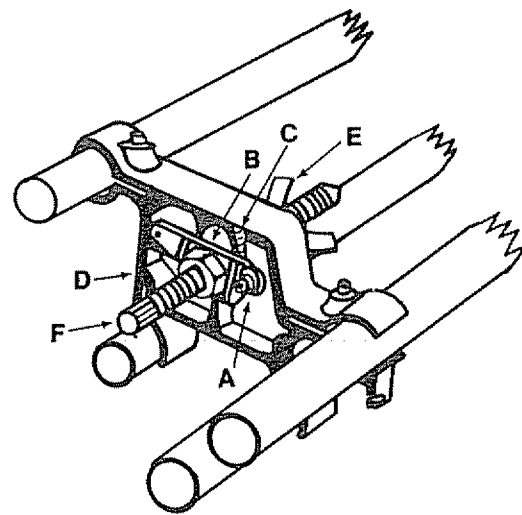


Figure 19

inches and the small diameter is to be 1 1/2 inch. The cross section would look like that shown in (c) Fig. 13.

The turning in Fig. 24 was turned as described above. Turnings in Fig. 25 and 31 have tapered sections.

NOTE: When laying out a work piece on paper, remember the graduation marks "C" Fig. 19 indicates the amount of taper that would be produced if the work piece was turned from the tail stock end to the head stock end. On all work pieces, the difference between the largest and smallest diameter, for any tapered section, will be less than the graduation mark setting.

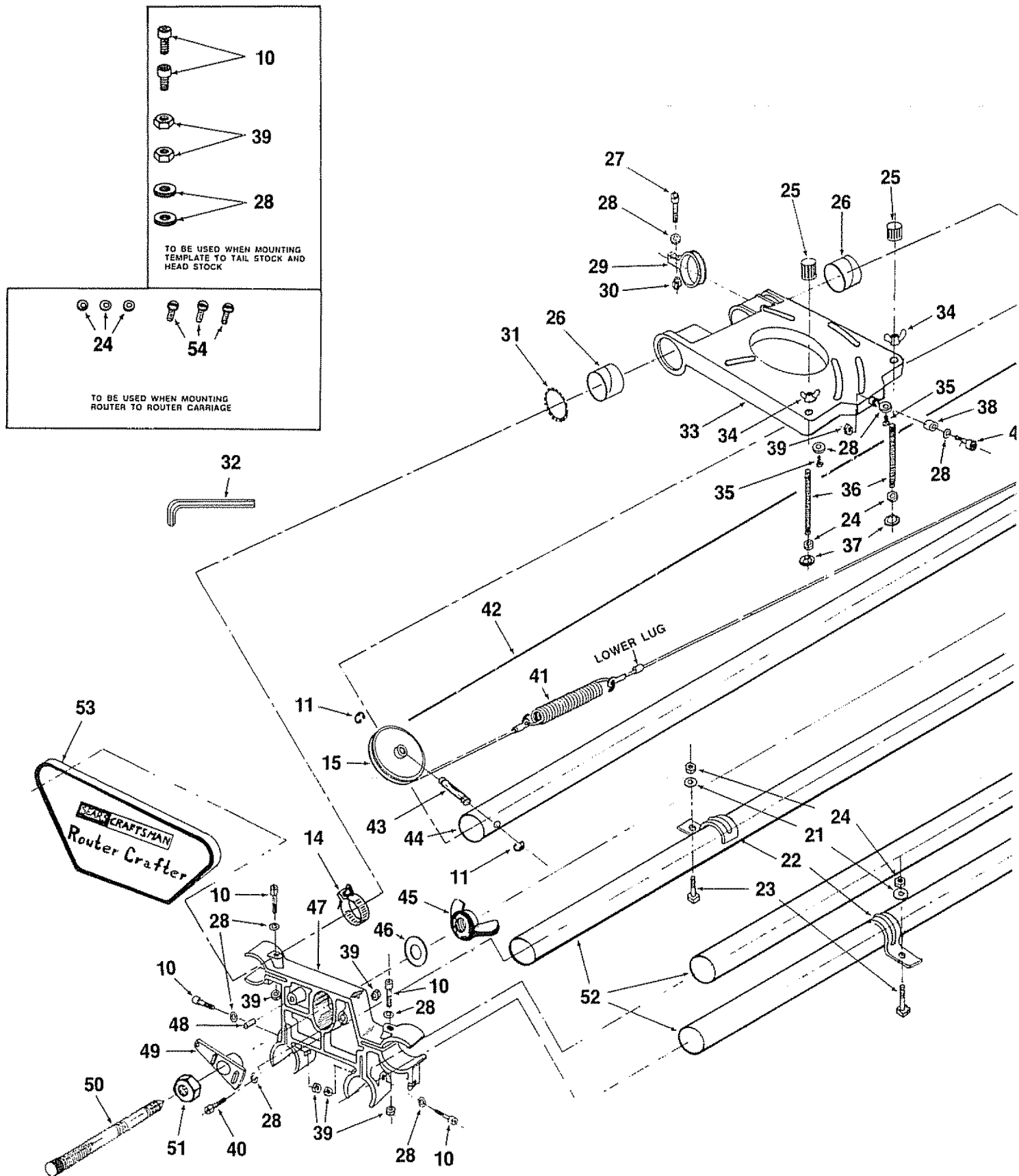
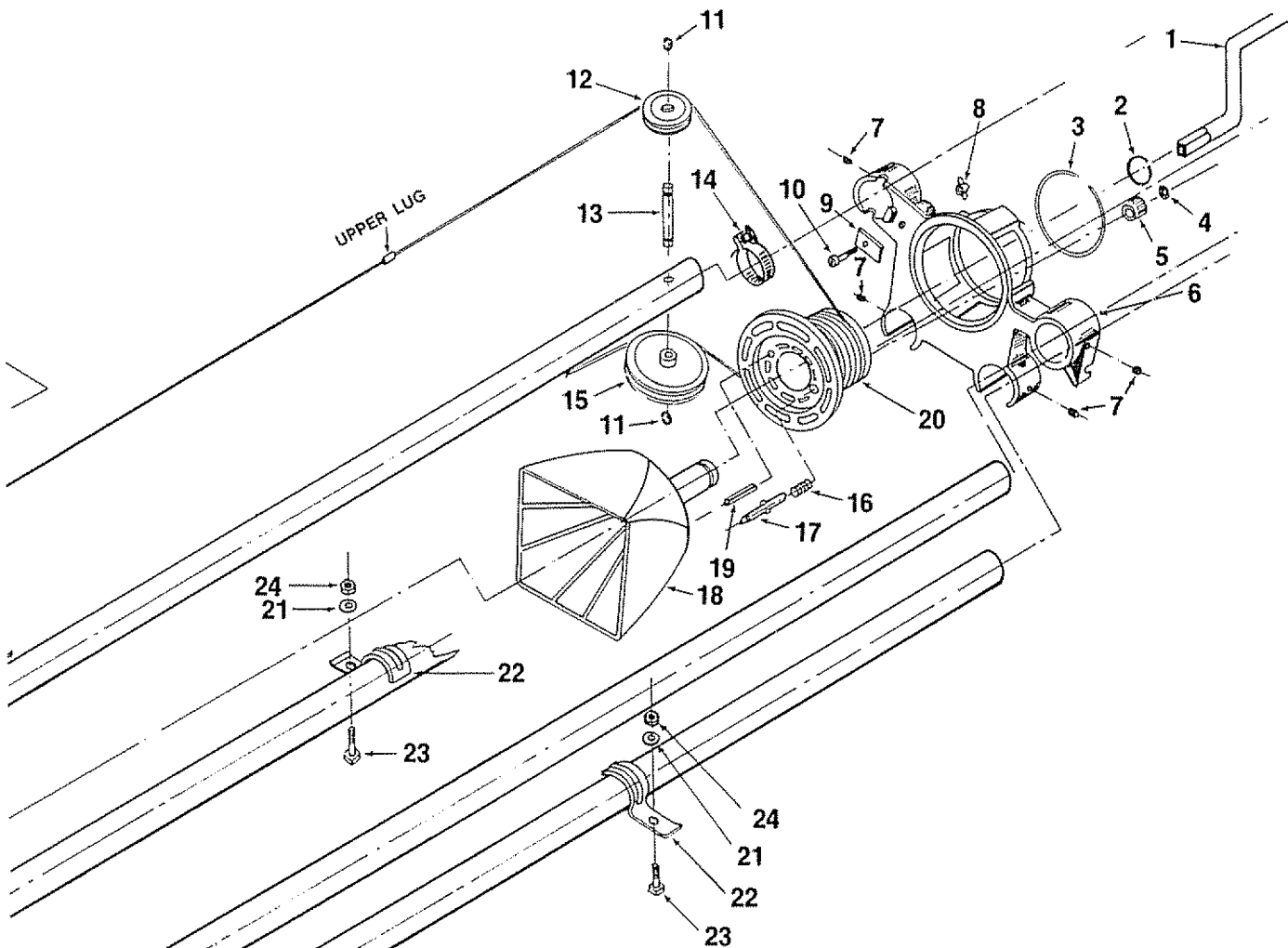


Figure 20



PARTS LIST FOR CRAFTSMAN ROUTER CRAFTER
MODEL NO. 720.25251

KEY NO.	PART NUMBER	DESCRIPTION	QUAN.	KEY NO.	PART NUMBER	DESCRIPTION	QUAN.
1	29LD-142	Crank Handle	1	29	29LD-133	Cable Clamp	1
2	29LD-138-1	Lock Ring	1	30	29LD-123	Stop Nut #10-24	1
3	29LD-138-2	Lock Ring	1	31	29LD-150	Retaining Ring	1
4	29A-491-2	Push Nut	1	*32	29A-249-5	Hex Key (Wrench) 5/32	1
5	29LD-137	Index Pin Knob	1	33	29LD-128	Router Carriage	1
6	29LD-125	Head Stock	1	*34	29LD-252-10	Wing Nut 1/4-20	2
*7	29LD-159-1	Set Screw #10-32 x 1/4	4	*35	29A-309-2	Screw Self Tapping #10-24 Type F	2
8	29LD-154	Wing Nut #10-24 (Nylon Insert)	1	36	29LD-147	Adjusting Screw	2
9	29LD-143	Cable Drum Clamp	1	37	29LD-131	Rest Pad	2
*10	29A-316-4	Screw #10-24 x 1 1/2 Socket Hd. Cap	7	38	29LD-155	P/M Bushing	1
11	29A-250-4	Retaining Ring	4	*39	29A-242-5	Hex Nut #10-24	8
12	29LD-130	One Inch Pulley	1	40	29A-316-3	Screw Socket Hd. Cap #10-24 x 1	2
13	29LD-144	Double Pulley Shaft	1	41	29A-36	Spring Ext.	1
14	29LD-151-1	Adjustable Stops	2	42	29LD-132	Cable Assembly	1
15	29LD-129	Two Inch Pulley	2	43	29LD-148	Single Pulley Shaft	1
16	29LD-139	Spring	1	44	29LD-145	Pulley Tube	1
17	29LD-146	Index Pin	1	*45	29A-252-11	Wing Nut 1/2-13	1
18	29LD-124	Drive Spindle	1	*46	29A-306-12	Washer 1/2	1
19	29A-324-7	Roll Pin 1/8 dia. x 5/8 length	1	47	29LD-126	Tail Stock	1
20	29LD-127	Cable Drum	1	48	29LD-152	Grooved Pin 3/16 dia. x 5/8 Type D	1
*21	29A-306-10	Washer 1/4 inch	7	49	29LD-153	Center Bushing	1
*22	29LD-140	Conduit Clamp 3/4 inch	4	50	29LD-136	Center Screw	1
*23	29A-305-1	Screw Sq. Hd. 1/4-20 x 1	4	*51	29A-242-6	Hex Nut 1/2-13	1
*24	29A-242-4	Hex Nut 1/4-20	6	52	29LD-149	Frame Tube	3
25	29LD-134	Screw Knob	2	53	37LD-42	Name Plate	1
26	29LD-141	Nyliner Bearing	2	*54	29A-264-5	Screw Pan Hd. 10-32 x 1/2	3
*27	29A-316-5	Screw Socket Hd. Cap #10-24 x 3/4	1	55	49LD-1	Owners Manual	1
*28	29A-306-11	Washer #10	11				

*Standard items may be purchased locally

TROUBLE SHOOTING CHART

TROUBLE	PROBABLE CAUSE	SUGGESTED REMEDY
Burned places on turnings	1a) Moving router too slow 1b) Work rotating too slow 1c) Bit remaining in place too long 1d) Router is not running at full speed 1e) Pitch or gum on bit 1f) Bit is dull	1a) Move router faster 1b) Crank work faster 1c) Keep the router or work piece moving when routing. 1d) Have router checked 1e) Clean bit with pitch and gum remover 1f) Replace or sharpen bit
Excessive Splintering	1a) Cut is too deep 1b) Feeding bit too fast	1a) Take smaller cuts 1b) Feed slower
Work rotates freely (when not cutting) but is hard to rotate when cutting.	1a) Router is not running at full speed 1b) Bit is dull or gummed up	1a) Have router checked 1b) Sharpen or clean bit
Work piece will not stay snug in the drive spindle	1a) Tail stock loose on steel tubes 1b) Work piece in drive spindle incorrectly. 1c) Center hole keeps enlarging	1a) Tighten tail stock. See Fig. 7. 1b) Put work piece in drive spindle such that the corners are between ribs. See Fig. 8. 1c) Readjust center screw and lubricate center hole of work piece.
Rounding Up (1) The cut section is not straight.	1a) Center bushing is not in line with the head stock 1b) Tail stock is not squared with steel tubes	1a) Set center bushing on the lowest setting. See Fig. 19. 1b) Square up tail stock
Lengthwise Turning — (Straight, taper, or contoured) (1) Finish cut is excessively rough, or has spiral like cuts. (2) Router bit surges into work piece. (3) Length of cut was too long.	1a) Router is traversed too fast. 1b) Work is in drive spindle incorrectly 1c) Router bit is loose in router. 1d) Work piece is loose on center screw. 2a) Work piece is being rotated clockwise as the router is moving from left to right 3a) Adjustable stops incorrectly positioned. 3b) Adjustable stops loose.	1a) Feed router slower. 1b) Reposition work piece. See Fig. 8. 1c) Tighten router bit. 1d) Tighten center screw. 2a) Change the direction of rotation, of the crank. 3a) Reposition adjustable stops 3b) Reposition and tighten adjustable stops.
Beads & Flutes cut lengthwise (1) Beads or flutes not spaced equally around work piece.	1a) Inaccurate indexing 1b) Cable drum was not clamped. 1c) Cable drum slipped.	1a) Check indexing of work piece with numbers written down. 1b) Clamp cable drum. 1c) Tighten clamp.
Beads & Coves (1) Router bit moves lengthwise into circular beads or coves.	1a) Clamps not tight against router carriage.	1a) Tighten clamps with router in position.
Spirals (1) Spirals not equally spaced around work piece.	1) Inaccurate indexing.	1) Check indexing of work piece with number which was written down.
Contoured Turning. Finished turning does not look like layout.	1a) Template was sawed incorrect 1b) Template was positioned incorrectly.	1a) Remake or rework template. 1b) Reposition template.
Taper Turning (1) Cannot get enough taper to match layout.	1a) Layout drawn incorrectly. 1b) Taper setting is incorrect.	1a) Check to see if taper was drawn for full length of work piece. 1b) Reset taper setting. (The maximum taper is one inch over the full length of the work piece.)

SEARS

**owners
manual**

**MODEL NO.
720.25251**

**WHEN CORRESPONDING ALWAYS GIVE THE
FOLLOWING INFORMATION AS SHOWN IN THIS LIST.**

- 1. The PART NUMBER**
- 2. The PART DESCRIPTION**
- 3. The MODEL NUMBER 720.25251**
- 4. The NAME OF ITEM—ROUTER CRAFTER**