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MLCS

Router Bits and Professional Woodworking Products

MLCS MARVEL 42
3 in 1 Router Kit
Instruction Manual
For #9059

WARNING: Please read this manual fully and be sure you understand its instructions prior to assembling and operating this tool. Inspect for damage and missing parts upon receipt. Please contact MLCS Woodworking with any problems or questions.

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TECHNICAL DATA

Item number/name……..9059/Marvel 42

Motor……120 Volts, 60 HZ, 5.5 Amps

Rated power..……..…1 hp

No load speed…… 20,000 or 30,000 RPM

Bit shank diameter……..1/8” or 1/4”

NOTE: If using an extension cord while operating this tool, observe the minimum gauge requirement as shown in the chart below. Use only UL listed extension cord.

Gauge	Total Extension Cord Length in Feet
16	25 feet
14	25, 50 feet
12	25, 50, 100 feet

General Instructions for 110V Routers

WARNING!!
KEEP TOOLS AND EQUIPMENT OUT OF THE REACH OF YOUNG CHILDREN!!

Good Working Practices/Safety
The following suggestions will enable you to observe good working practices, keep yourself and fellow workers safe and maintain your tools and equipment in good working order.

Primary Precautions

This tool is supplied with a molded 15 Amp Plug and polarized 2 wire power cable. Before using the tool, inspect the cable and the plug to make sure that neither is damaged. If any damage is visible have the tool inspected/repaired by a suitably qualified person. If it is necessary to replace the plug, it is preferable to use an 'unbreakable' type that will resist damage on site. Only use a 15 Amp plug. Make sure the cable clamp is tightened securely. If extension cords are to be used, carry out the same safety checks on them, and ensure that they are correctly rated to safely supply the current that is required for your machine.

Work Place/Environment

- Always carry the router in its carrying case. If the case is not available do not carry the router with a cutter installed and protruding below the base.

- The router is not designed for use in any situation where it is liable to get wet. If router is set up in the open, and it starts to rain, cover it up or move it into a dry area. If the router has gotten wet, dry it off as soon as possible with a cloth or paper towel. Do not use AC-powered machines anywhere within a site area that is flooded or anywhere liquid is puddled, and do not trail extension cords across wet areas. Clean the router with a damp soapy cloth if needed. Do not use any solvents or cleaners, as these may cause damage to the plastic parts or to the electrical components.

- Keep the work area as uncluttered as possible. This includes personnel as well as material. Under no circumstances should **CHILDREN** be allowed in work areas.

- It is good practice to leave the router unplugged until work is about to begin. Make sure to unplug the machine when it is not in use, or unattended. Always disconnect by pulling on the plug body and not the cord. Once you are ready to begin working, install the cutter, and remove all tools used in the installation operations (if any) and place them safely out of the way.

- Clamp the work-piece to a stable work surface. Check to make sure that the "cutting path"' is unobstructed, and observe the old woodworkers' adage of "never placing your hands closer than one hand's length to the cutting tool". Do not attempt to machine any small pieces or work any material that cannot be held securely in a clamp.

- Make sure you are in a comfortable stance before you start to work, balanced, not reaching etc.

- If the work you are carrying out is liable to generate flying dust or chips, wear the appropriate safety clothing, goggles, gloves, masks etc. If the work operation appears to be excessively noisy, wear ear protection. If you wear your hair in a long style, wearing a hat, cap, or safety helmet will minimize the possibility of your hair being caught up in the rotating parts of the tool. Likewise, consideration should be given to the removal of rings and wristwatches, since these are liable to be a 'snag' hazard.

- Do not work with cutting tools of any kind if you are tired or if you are being subjected to distraction.

- Do not use power tools within the designated safety areas where flammable liquids are stored or in areas where there may be flammable gases present.

- Check that your cutting bits are undamaged and are kept clean and sharp, this will maintain their optimal operating performance and lessen the loading on the tool.

- Above all, BE OBSERVENT. Make sure you know what is happening around you, and USE COMMON SENSE.

Additional Safety instructions for use of Routers

1. Make sure you have read and fully understood the General instructions and safety precautions that are printed in the preceding pages of this manual.

2. Before connecting the router to the power supply, check the tool for obvious signs of damage, paying particular attention to the plug and the power cord. Correct any damage you discover. Be sure the router bit you are about to fit is the correct tool for the job. Check the bit for damage, make sure it is sharp and clean, check that you have the correct collet for the tool shank size you are about to fit, and ensure that a sufficient length of the shank is inserted in the collet to guarantee a secure fixing. Make sure the tools you use to fit the router bit, or the accessories, are the correct ones. DO NOT risk damaging the tool by using the wrong size collet wrenches, allen keys, etc. Make sure the 'chip screens' (if available) are fitted securely. If dust extraction is available, connect it.

3. Check that there are no foreign objects, e.g. old nails, screws, small stones etc., embedded in the work-piece.

4. Set the depth of cut, either as a single depth or incrementally (for deep cuts). Install and set the guide fence if required.

5. Ensure the machine is switched off. ('0' showing) (Never turn on the power unless you are actually holding the machine). Plug the power cord into a correctly rated switched outlet. If you are working outside, check that any extension cords in use are rated for outside work.

6. Make sure you are holding the machine in a safe position, the cutter bit is not in contact with anything, and the 'cutting depth' is locked. Give the machine a quick "burst", to ensure that everything is working correctly, checking especially for vibration that might indicate that the cutter is incorrectly installed. If a vibration is present, disconnect the machine, re-install the cutter, and test again.

8. Make sure that the power cord is safely routed away from the operating area, and that the router movement during the operation will not drag it within range of the cutter.

Unpacking and Checking Contents

1. To avoid injury from unexpected starting or electrical shock, do not plug the power cord into a source of power. This cord must remain unplugged whenever you are servicing and assembling the 3 in 1 router kit.

2. When unpacking and checking contents, separate all loose parts from packaging material and check each item to make sure all items are accounted for before discarding any packing material. If any parts are missing, do not attempt to assemble 3 in 1 router kit, plug in the power cord, or turn the switch on until missing parts are obtained and are installed correctly.

1. Router Motor
2. Pistol Grip Base
3. Freehand Sole Plate
4. Plunging/Tilting Base
5. Motor Locking Knob
6. Accessory Plate Hardware
7. Circle Cutting Attachment
8. Sole Plate & Adapter
9. 1/8" & 1/4" Collet Inserts
10. Collet Nut Wrench

Assembly and Adjustments

Function Description
This tool can be used as a router/edge trimmer or as cut-out tool, when different accessories are installed.

Caution! Do not use this tool for drilling holes. It is not intended to be used as a drill.

ON/OFF switch:

The power switch is located near the top of the motor housing. The power is turned on by sliding the power switch upward. Sliding the power switch downward interrupts the power and turns the tool off.

WARNING! Never use the tool if its switch cannot turn it on or off smoothly.

WARNING! Never use tool without the motor installed in the freehand sole plate, pistol grip handle or plunging/tilting router base.

HIGH / LOW SPEED switch:

The Marvel 42 has two-speed settings. There is a sliding switch on the top of the motor housing to switch between the two speeds. Changing speeds should only be done with the power switched off.

Changing Collet Inserts:

The Marvel 42 is supplied with both 1/8" and 1/4" collet inserts. To change the collet insert, loosen and remove the collet nut and insert the desired collet for the bit you intend to install in the router. Replace the collet nut but do not tighten it fully unless there is a router bit inserted into the collet as it is possible to permanently distort the collet insert doing this. This could make inserting bits into the collet difficult or cause you to need to replace the collet insert.

Inserting A Router Bit into the Collet:

With the collet nut loose, slide the router bit into the collet insert. Make sure that you have at least 3/4" of the router bit shank inserted into the collet. Do not bottom out the bit in the collet. If you insert the shank to the bottom of the collet bore, make sure to pull it out at least 1/16" to 1/8" to allow the collet insert to properly secure the router bit in the collet. There is a button on the motor housing that will lock the spindle to allow you to tighten and loosen the collet nut using the supplied wrench. It will be necessary for the spindle to rotate until the spindle lock pin engages the locking hole on the spindle. Before tightening the bit, make sure the flutes of the bit are completely visible outside the collet. Otherwise, it can result in broken bits and possible injury. The power cord should be unplugged from the power source when making bit changes to prevent the router from being turned on by accident.

WARNING! Never use dull or damaged bits. Damaged bits can break without warning. Dull bits may overload the motor, cut slowly and are difficult to control. They will also overheat and possibly break.

Operations

1. Before operation:

1) Before turning the tool ON, check to make sure bit and all accessories fasteners are securely tightened.
2) Avoid cutting your fingers. Make sure all of your fingers are far back from the work-piece before operation. Keep your hand far away from moving parts.
3) Turn off all circuit breakers and remove all fuses in the work area when cutting into walls or blind areas.
4) Always set the depth guide to the appropriate depth. Use tool with the depth guide plate against the work surface for better control of the tool.
5) Before starting the tool, make sure that the bit does not touch the work piece.
6) Before cutting the work-piece, let the tool turn for a while without load.

2. During operation:

1) Always hold the tool with two hands during start-up and operation. When starting, motor torque will cause the tool to twist.
2) Always make sure the work- piece is free of nails and other foreign objects. If the bit strikes a nail it will jump sideways and possibly break.
3) **WARNING! Do not attempt to make cutouts around an opening which has live electrical wires.** If a live wire is contacted, the bit could conduct the electric current to the tool, creating an electric shock hazard for the operator. Always hold the tool by its insulated housing when working in area where there is a possibility of contacting electric wires. Always wear eye protection when operating this tool.
4) When cutting drywall electrical outlet openings, using the outlet as a guide, always cut in a counter clockwise direction. The natural tendency of the tool to pull to the left will cause a "hugging" action toward the outlet box, resulting in a neater cut. (Note: Except for cutting around outlet boxes in drywall, always cut in a clock wise direction). **CAUTION! The fine dust produced by cutting glass-fiber, expended compound materials, etc., can shorten the tool life.**

3. After operation:

1) When the cut is complete, turn the tool OFF, wait until it comes to a complete stop and remove it from the work-piece.

2) Never lay the tool down until the tool comes to a complete stop. A spinning bit can come in contact with the ground surface and the workbench and pull it out of your control.
3) Never touch the bit immediately after use. The bit may be too hot to be handled with your hand and may burn your fingers.

4. Working procedure:

Before attempting to work on an actual project, make a few practice cuts on some scraps of material which are the same type of material as used in your actual project to see how the cutters will work in that material and make any necessary adjustments to the cutting depth or motor speed.

Freehand Routing:

Use the router base with small router bits to perform various freehand routing projects. Insert the appropriate size collet (1/8" or 1/4") for the router bit you will be using. Install the router bit and securely tighten it. Adjust the router base height to the correct routing depth. Before turning the switch ON, make sure the router bit is not in contact with anything. Holding the two height adjusting knobs with both hands, carefully lower the bit onto the work-piece and guide the bit around the stock in a clockwise direction.

Cutting a Straight Line with a Straight Edge Guide:

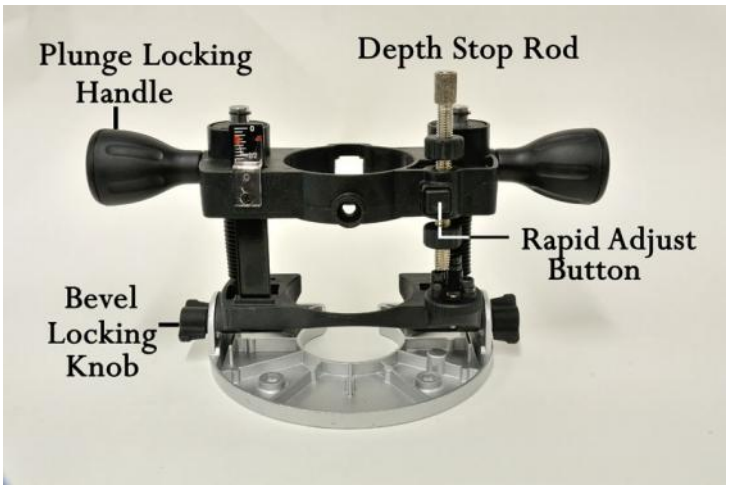
To cut a straight line, you can use a straight edge template to guide the router base. Draw a straight line on the work-piece where you wish to make the cut. Draw a second straight line parallel to the cut line back into the work-piece at the distance between the router base (flat side) and the router bit. Clamp the straight edge guide onto the stock at the secondary line. Place the flat side of the router base against the straight edge with the bit near the start of the cutting line. Turn the switch ON while firmly holding the tool. Slide the router plate against the straight edge while making the cut.

Cutting Curved Line with a Template:

To cut a curved line, you can use a curved template to guide the router base. Make a template from hard board or other similar material to the shape you required. Note: Radius of curve must be greater than 2 1/2" for router base to properly follow the curved template. Mark the location of cut to be made. Mark the work-piece approximately 2 1/16" back into the work-piece (away from the cutting line). Clamp or use double sided tape to secure the template onto the work-piece that is to be cut. Place the curved portion of the router base against the template with the bit near the start of the cutting line.

Making Edge Cuts, Slots and Dadoes:

To rout the edge of your work-piece to make a slot or dado, you will need to use the router motor in the plunging/tilting base. If you have the router motor installed in either the palm holding base or pistol grip base, you will need to remove it from that base. To remove it, flip the locking lever on the base away from the base and slide the router motor upward out of the base. To install the router motor into the plunging/tilting base, align the spindle-locking button with the small hoop at the back of the plunging/tilting base and slide the router motor down into the upper base housing until it stops. Use the small round locking knob and slide it through the hole in the front of the upper base and thread it into the threaded hole in the front of the router motor to secure the router motor firmly in the plunging/tilting base.



To adjust the cutting depth of the router bit, turn the two large handles on the plunging tilting base counter clockwise to loosen the upper base housing. Sliding the upper base housing upward and downward on the steel posts controls the depth of cut. Push down on the handles to adjust the router bit to the desired cutting depth. If you are unable to lower the bit far enough, you may need to adjust the depth stop rod on the front-right of the upper base housing. Turn the depth stop rod counterclockwise to raise it. To lock the depth stop rod in position, turn the small round locking knob downward until it rests against the top of the upper base housing. You may also need to rotate the three-position depth stop turret located on the lower base housing so that the depth stop bumper is rotated to the lowest position. Once the router's bit set to the desired cutting depth, turn the two large handles clockwise to lock the cutting height in position. If you want to make the cut in incremental depths, you can loosen and rotate the depth stop rod clockwise until the depth stop rod is sitting on the lowest step of the depth stop turret. You can now use the two other depth stop turret positions to control the cutting depth to make intermediate depth cuts.

Adjusting the Depth Stop on the Plunging/Tilting Base:

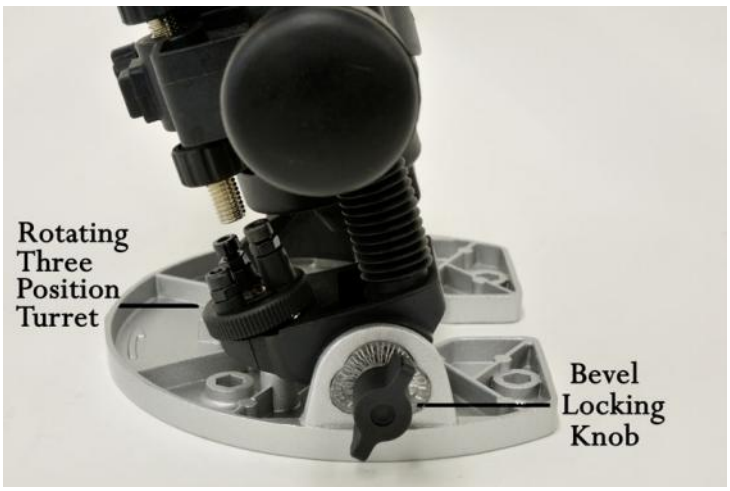
The depth stop is located on the front right of the plunging/tilting base. It allows you to preset a cutting depth and plunge the router bit to the preset depth. The router should be turned off before attempting to adjust the depth stop position. To adjust the position the upper and lower locking knobs need to be backed off the upper base housing to allow the depth rod to be turned. The button in the middle of the upper housing where the rod threads through allows for rapid adjustment by disengaging the threads from the rod. To make rapid changes, push the button in and position the rod close to the final position. Release the button and fine tune the position of the depth rod by turning the rod upward or downward until you have it adjusted to the exact position you need it. To secure it in place, turn the upper and lower locking knobs against the upper base housing, which will prevent any movement during use. Do not attempt to adjust the depth stop rod position while the router is running.

Using Template Guide Bushings with the Marvel 42 and Plunging Base:

The aluminum base is molded with four through holes and hex nut recesses in it to allow you to use a sub base on the bottom of the aluminum base. There are also four screws and hex nuts located in the small parts bag in the compartment on the case lid with the clear plastic door over it. This will allow you to use the MLCS #9339 Universal Base Plate on the Marvel router and use Porter Cable style template guide bushings with this base. Align the (4) recessed slots in the accessory baseplate with the (4) holes in the aluminum base. Use the tapered washers included in the #9339 Universal Baseplate with the (4) machine screws included with the Marvel 40 and secure the baseplate to the base with the (4) hex nuts. The hex nuts will fit into the recess to keep them from spinning as the baseplate screws are tightened.

CAUTION! Do not attempt to make bevel cuts with the accessory guide template base installed on the plunging/tilting base as the bit can come into contact with the template guide bushing opening and you will ruin the accessory baseplate.

Setting Router Base Bevel:
Bevel cutting with the bit can be done with the router base tilted to the desired angle. Loosen both bevel adjusting knobs by turning them counter clockwise. Tilt router base to the desired angle. Re-tighten both bevel-adjusting knobs. Check the bevel angle to ensure it is at correct angle. Check the router depth of cut to ensure it is accurate.



Note: Depth of cut will usually have to be increased after tilting the router base for bevel cutting.

Installing the Circle Cutting Attachment:

The circle cutting attachment will allow you cut circles from a minimum diameter of 4” to a maximum diameter of 12”. The circle cutting attachment will require using the palm held base if you want to hold the router motor with the palm of your hand or the t-handle base if you want to guide the router by holding the pistol grip base. Unscrew the sole plate from the D-shaped ring to remove the mounting hardware from the circle cutting attachment. Place the D-shaped ring into the top side of the base you plan to use, aligning the flat edge on the nut with the flat edge on the through hole in the base and with the threads protruding through the bottom of the base. Place the circle cutter arm over the exposed threads and secure to the base by threading the sole plate back onto the D-shaped ring. Insert the router motor into the base and lock in place at the desired height by flipping the locking lever on the base to secure the router in the base. The cut should be made by making multiple passes, adjusting the cutting depth each time until the final cut will allow you to completely cut through the stock thickness.


Assembled Circle Cutting Attachment

Making a Circle Cut:

To make a circle, drill a 1/8” diameter hole to a depth of 9/32” in the center of the circle for the pivot pin to be inserted into. Adjust the pivot pin to position on the circle-cutting jig using the scale on the side of the circle-cutting jig. Turn the knob clockwise to lock the pivot pin at the desired diameter.

The cut is made by inserting the pivot pin into the 1/8” center hole with the router bit and router held above the stock. Carefully turn the router on and slowly plunge the rotating router bit into the stock until the sole plate sits squarely on the stock. With one hand holding the router or pistol grip handle and the other hand on the ball knob on the end opposite the router, slowly rotate the router around the pivot pin until you have completed a full circle around the pivot point. Turn the router off and allow the bit to come to a full stop before removing the router bit from the cut. Readjust the cutting depth and repeat until you have completed making the circular cut out.

Installing Freehand Sole Plate and Pistol Grip Base:

To install the router motor into the freehand sole plate base or pistol grip base, make sure the locking lever is released by flipping it away from the base. Align the spindle-locking button with the U-shaped recess in the upper base and slide the router motor down into the upper base housing until it stops. Flip the locking lever against the base to lock the motor into the base.

WARNING! Do not use the freehand sole plate or pistol grip base for making "standard" router cuts. These bases are designed to be used with the circle cutting accessory or when using the Marvel 40 to cut electrical box openings in drywall. Limited control with this accessory could cause you to loose control and increase the chance of serious injury. Use a high speed steel spiral bit that will allow you to plunge cut through the drywall when using the tool to make the cut outs.

Adjusting the Cutter Depth using the Freehand Sole and Pistol Grip Bases:

Loosen the butterfly knob on the height adjustment wheel. Use the height adjustment wheel to position the bit to the required cutting depth. Tighten the butterfly knob to lock the cutting depth at your desired position. Before starting to cut, you should re-check bit depth and make sure sole plate is securely tightened. Re-check the collect to make sure the bit is securely fastened.

Cutting Out Openings for Electrical Boxes:

DO NOT use excessive pressure and fast speed while cutting. The motor speed switch should be set to operate on the lower of the two speeds when cutting drywall.

CAUTION! Do not attempt cutting around outlet boxes in drywall until:

1) You have either turned the breaker OFF or removed the fuses that interrupt all electricity in the vicinity of the electric box.
2) You have read the instructions and understand the correct procedure for cutting out an opening in drywall.

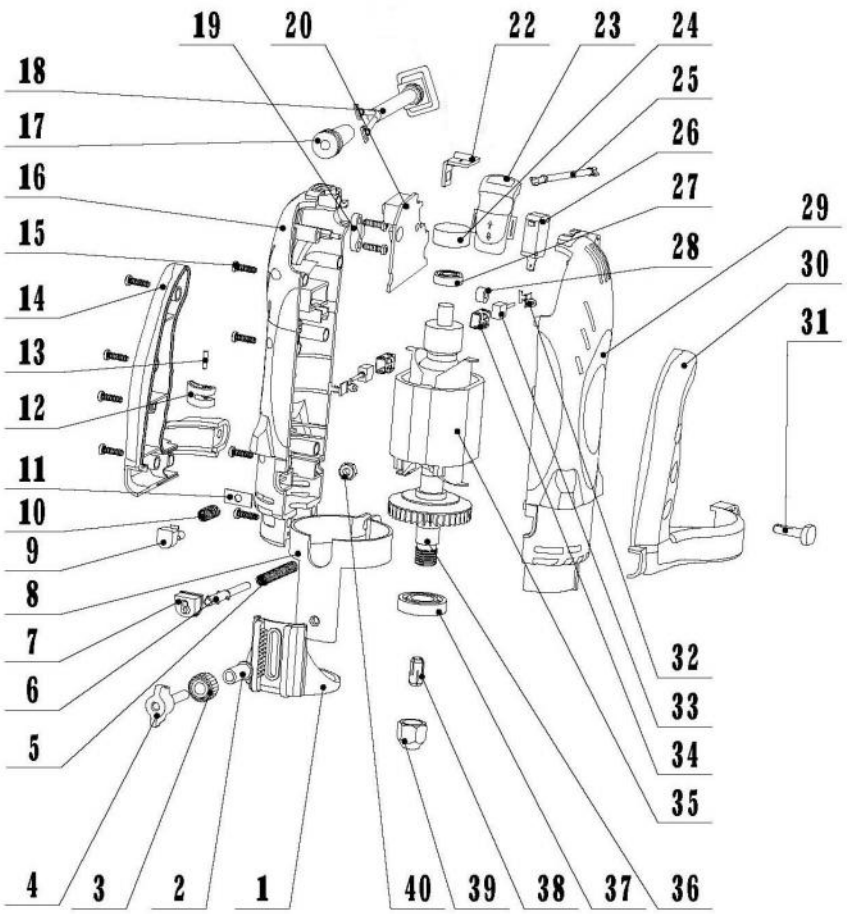
Before installing drywall, push the electrical wires to the back of the box far as possible to reduce the likelihood of the wires being cut by the bit when cutting the opening. Before operation, mark the drywall sheet as close as possible to the center of the box opening. The mark should be made on the side of the drywall that will be facing you. Adjust the depth of cut so the bit will protrude at least 1/16”, but no more than 1/8" beyond the thickness of the drywall. Properly fasten the drywall to the studded wall. With the heel of the base resting against the drywall and the bit at an angle to the drywall, without touching it, turn the motor on and carefully plunge the bit through the drywall at the mark indicating the center of the box. Tilt the base so that it sits flush on the drywall. Move the bit slowly to the right until you feel the bit contacting the inside of the box. Pull the bit out far enough to slip it over the edge of the electrical box. Once the bit is outside the electrical box, push it back to full depth beside the outside edge of the electrical box. Move the tool upward while applying slight pressure toward the center of the box. When you feel the bit reach the top right hand corner of the box, move the tool to the left while applying slight pressure downward toward the center of the box. Continue moving the tool around the box in a counter clockwise direction while maintaining slight pressure toward the center of the box. When the box cutout is complete, turn the tool OFF and remove it from the cutout. The rotating cutting action of the bit will cause a slight pull to the left when cutting. Natural variations in the structure of wood will cause the bit to wander. When cutting a hole in a vertical surface, avoid ending the cut at the bottom of the hole. Always start and end the cut at the top, so the cutout part will not drop onto the rotating bit. Always turn the tool OFF before removing it from the work-piece.

MAINTENANCE

WARNING! Unplug the tool before changing accessories or bits and making adjustments.

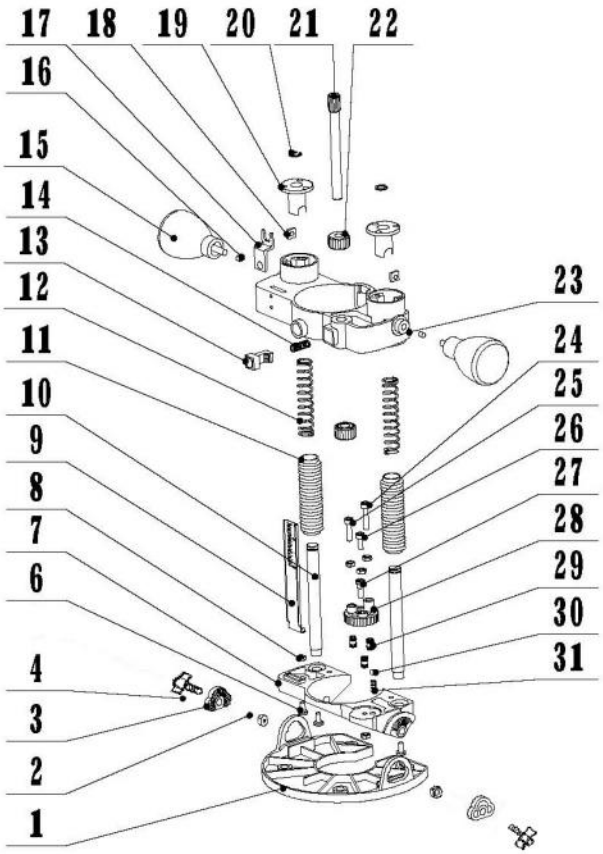
1. Do not clean the tool by using highly volatile liquids such as solvent, gasoline or petroleum product, etc, because the chemical substances contained in these liquids may damage the plastic.
2. Always keep the tool handle free from oil or grease.
3. Always re-tighten collet and all adjustments before starting the tool after a bit or accessory has been changed. Loose bits and adjustments can cause unexpected shifting of the tool, resulting in loss of control and injury from the bit or tool being thrown.
4. CAUTION! To avoid shock or fire, replace power cord immediately if it is worn or damaged in any way.
5. When the carbon brushes have been worn to their limitation, they should be replaced. Both carbon brushes should be replaced at the same time.
6. WARNING! Use only accessories recommended by MLCS to avoid injury to the operator or damage to the tool.

Exploded Diagram and Parts List for #9059 Marvel 42



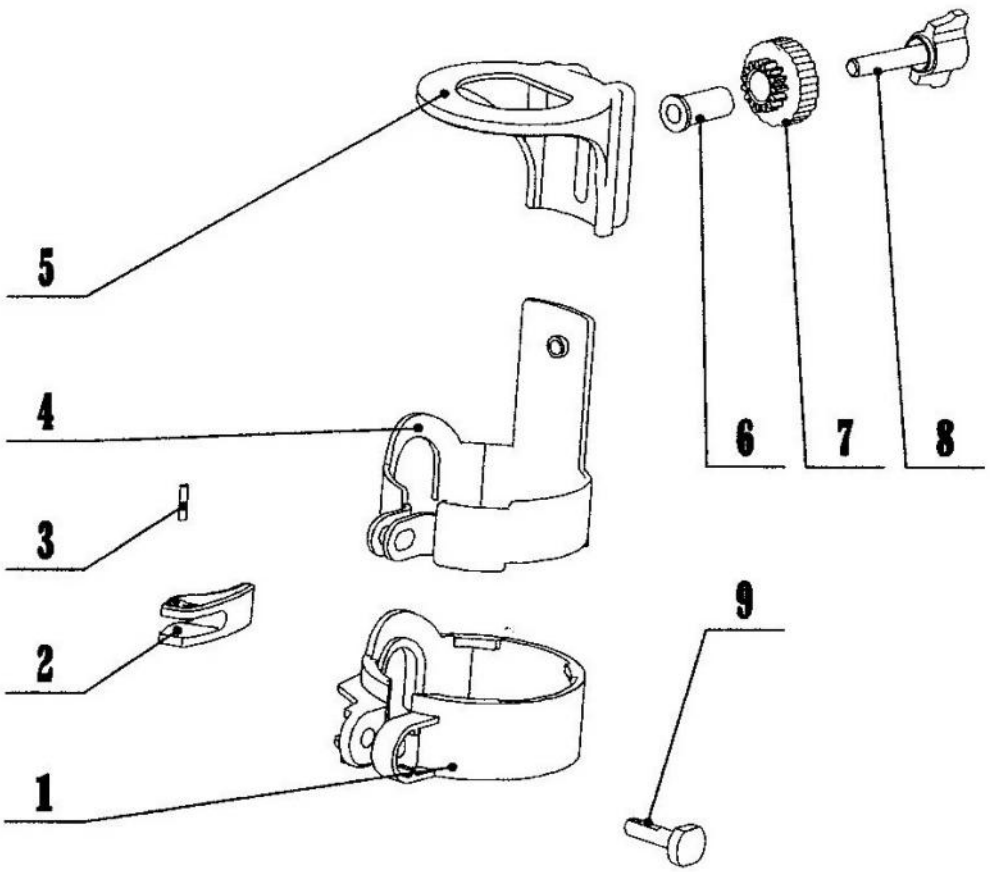
PART NO.	PART NAME	QTY		PART NO.	PART NAME	QTY		PART NO.	PART NAME	QTY
1	Sole Plate	1		14	Left Handle	1		28	Switch Shockproof Pad	1
2	Locating Sleeve	1		15	Cross Recess Head Screw	16		29	Right Case	1
3	Height Adjustment Wheel	1		16	Left Case	1		30	Right Handle	1
4	Lock Screw	1		17	Strain Relief	1		31	Short Lock Bar	1
5	Lock Spring	1		18	Power Cord	1		32	Brush Spring Washer	2
6	Pin	1		19	Cord Anchor	1		33	Brush	2
7	Spindle Lock Button	1		20	Circuit Board	1		34	Brush Sleeve	2
8	Handle Bracket	1		22	Two Speed Push Switch	1		35	Stator	1
9	Lock Pin	1		23	Power Switch	1		36	Rotor	1
10	Spring	1		24	Bearing Sleeve	1		37	Front Bearing	1
11	Lock Pin Washer	1		25	Connecting Switch Cord	1		38	Collet (1/4" and 1/8")	1
12	Lock Lever	1		26	Switch	1		39	Collet Nut	1
13	Round Pin	1		27	Rear Bearing	1		40	Hexagon Nut	1

Exploded Diagram and Parts List for the Plunging/Tilting Base



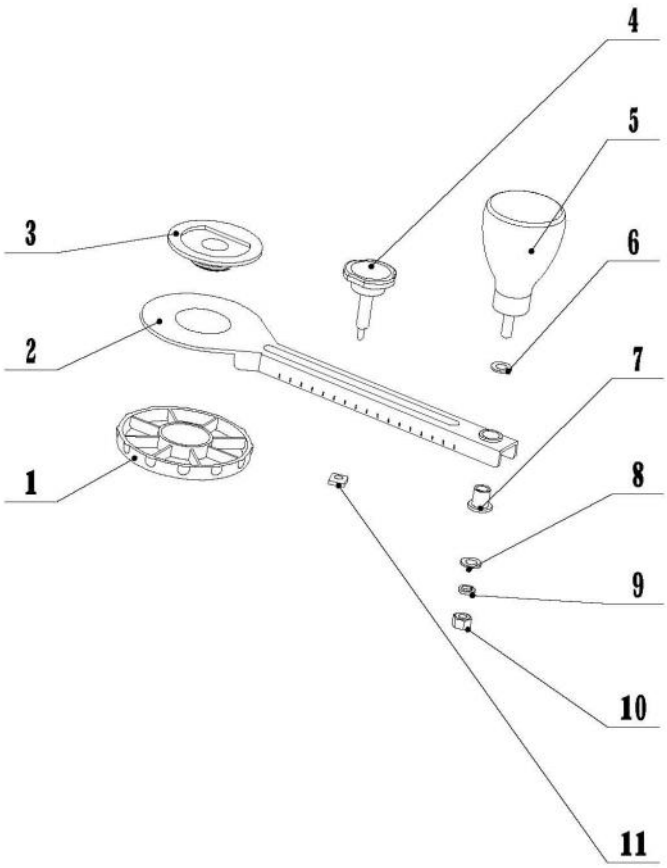
PART NO.	PART NAME	QTY		PART NO.	PART NAME	QTY		PART NO.	PART NAME	QTY
1	Router Base	1		12	Lifting Spring	2		22	Nut	2
2	M4 Hexagon Nut	2		13	Locking Block	1		23	Router Base (upper)	1
3	Locking Disc	2		14	Spring	1		24	M4x20 Screw	1
4	Locking Screw	2		15	Handle	2		25	M4x16 Screw	1
6	M4x8 Screw	3		16	Locking Copper Bead	2		26	M4x10 Screw	1
7	Router Base (middle)	1		17	Ruler-Indicating Plate	1		27	Set Screw	1
8	M4 Hexagon Nut	4		18	M5 Square Nut	2		28	Adjusting Wheel	1
9	Ruler	1		19	Guide Bushing	2		29	Bushing	2
10	Guide Rod	2		20	C-Ring	2		30	5mm Ball Bearing	1
11	Dust Cover	2		21	Lifting Rod	1		31	Spring	1

Exploded Diagram and Parts List for the Freehand Sole Plate



Part No.	Part Name	Qty
1	Sole Plate Sleeve	1
2	Lock Wrench	1
3	Round Pin	1
4	Sole Plate Bracket	1
5	Sole Plate	1
6	Locating Sleeve	1
7	Regulating Wheel	1
8	Clamping Screw	1
9	Short Lock Bar	1

Exploded Diagram and Parts List for Circle Cutting Attachment



Part No.	Part Name	Qty
1	Guide Base Bottom	1
2	Circle Cutting Guide Plate	1
3	Guide Base Upper	1
4	Distance Lock Screw	1
5	Cup Handle	1
6	5mm Flat Washer	1
7	Handle Bushing	1
8	5mm Flat Washer	1
9	5mm Spring Washer	1
10	M5 Hexagon Nut	1
11	M6 Square Nut	1