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DW716 COMPOUND MITER SAW

Safety Instructions for All Tools

- KEEP GUARD IN PLACE and in working order.
- REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from spindle before turning tool on.
- KEEP WORKAREA CLEAN. Cluttered areas and benches invite accidents.
- DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain or snow. Keep work area well lighted.
- KEEP CHILDREN AWAY. All visitors should be kept at a safe distance from work area.
- MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys.
- DON'T FORCE TOOL. It will do the job better and be safer at the rate for which it was designed.
- USE RIGHT TOOL. Don't force tool or attachment to do a job for which it was not designed.
- WEAR PROPER APPAREL. No loose clothing, gloves, neckties, rings, bracelets, or other jewelry to get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair. Air vents may cover moving parts and should also be avoided.
- ALWAYS WEAR SAFETY GLASSES. Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses have only impact resistant lenses, they are NOT safety glasses.
- SECURE WORK. Use clamps or vise when you cannot secure the work piece on the table and against the fence by hand or when your hand will be dangerously close to the blade (within 6").
- DON'T OVERREACH. Keep proper footing and balance at all times.
- MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- DISCONNECT TOOLS before servicing; when changing accessories such as blades
 - REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure switch is in OFF position before plugging in.
- USE RECOMMENDED ACCESSORIES. Consult the instruction manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.
- NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
- CHECK DAMAGED PARTS. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine 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. Do not use tool if switch does not turn it on and off.
- NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF. Don't leave tool until it comes to a complete stop.
- DO NOT OPERATE ELECTRIC TOOLS NEAR FLAMMABLE LIQUIDS OR IN GASEOUS OR EXPLOSIVE ATMOSPHERES. Motors in these tools may spark and ignite fumes.
- EXTENSION CORDS. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. The following table shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number is, the heavier the cord.

Additional Safety Rules for Miter Saws.

CAUTION: FAILURE TO HEED THESE WARNINGS MAY RESULT IN PERSONAL INJURY AND SERIOUS DAMAGE TO THE SAW.

- DO - Protect electric supply line with at least a 15 ampere time-delay fuse or a circuit breaker.
- DO - Make certain the blade rotates in the correct direction and that the teeth at the bottom of the blade are pointing to the rear of the miter saw.
- DO - Be sure all clamp handles are tight before starting any operation.
- DO - Be sure all blade and clamp washers are clean and recessed sides of collars are against blade. Tighten arbor screw securely.
- DO - Keep saw blade sharp.
- DO - Keep motor air slots free of chips and dirt.
- DO - Use blade guards at all times.

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- DO - Keep hands out of path of saw blade.
- DO - Shut off power, disconnect cord from power source and wait for saw blade to stop before servicing or adjusting tool.
- DO - Support long work with an outboard tool rest.
- DON'T - Attempt to operate on anything but designated voltage.
- DON'T - Operate unless all clamp handles are tight.
- DON'T - Use blades larger or smaller than those which are recommended.
- DON'T - Wedge anything against fan to hold motor shaft.
- DON'T - Force cutting action. (Stalling or partial stalling of motor can cause major damage. Allow motor to reach full speed before cutting.)
- DON'T - Cut ferrous metals (Those with any iron or steel content) or any masonry.
- DON'T - Use abrasive wheels. The excessive heat and abrasive particles generated by them will damage the saw.
- DON'T - Allow anyone to stand behind saw.
- DON'T - Apply lubricants to the blade when it's running.
- DON'T - Place either hand in the blade area when the saw is connected to the power source.
- DON'T - Use blades rated less than 4800 R.P.M.
- DO NOT - Cut small pieces without clamping. Keep hands 6" or more from blade.
- DON'T - Operate saw without guards in place.
- DON'T - Perform any operation freehand.
- DON'T - Reach around or behind saw blade.
- DON'T - Place hands closer than 6 inches from the saw blade.
- DO NOT - Reach underneath the saw unless it is turned off and unplugged. The saw blade is exposed on the underside of the saw.
- DO NOT - Move either hand from saw or work piece or raise arm until blade has stopped.
- DO NOT - Use lubricants or cleaners (particularly spray or aerosol) in the vicinity of the plastic guard. The polycarbonate material used in the guard is subject to attack by certain chemicals.
- Never use without kerf plate, and replace when kerf plate is damaged because small chip accumulation under saw may interfere with saw blade or may cause instability of work-piece when cutting.

CAUTION: Do not connect unit to electrical power source until complete instructions are read and understood.

CAUTION: Wear appropriate personal hearing protection during use. Under some conditions and duration of use, noise from this product may contribute to hearing loss.

WARNING: Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically-treated lumber (CCA).

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

- Avoid prolonged contact with dust from power sanding, sawing, grinding, drilling, and other construction activities. Wear protective clothing and wash exposed areas with soap and water. Allowing dust to get into your mouth, eyes, or lay on the skin may promote absorption of harmful chemicals.

WARNING: Use of this tool can generate and/or disburse dust, which may cause serious and permanent respiratory or other injury. Always use NIOSH/OSHA approved respiratory protection appropriate for the dust exposure. Direct particles away from face and body. For your convenience and safety, the following warning labels are on your miter saw.

Operation

Plug the saw into any household 60 Hz power source. Refer to the nameplate for voltage. Be sure the cord will not interfere with your work.

SWITCH

To turn the saw on, depress the trigger switch. To turn the tool off, release the switch. Allow the blade to spin up to full operating rpm before making the cut. Release the trigger switch and allow the brake to stop the blade before raising the saw head. There is no provision for locking the switch on, but a hole is provided in the trigger for insertion of a pad-lock to lock the saw off.

CUTTING WITH YOUR SAW

NOTE: Although this saw will cut wood and many non-ferrous materials, we will limit our discussion to the cutting of wood only. The same guidelines apply to the other materials. **DO NOT CUT FERROUS (IRON AND STEEL) MATERIALS OR MASONRY WITH THIS SAW.** Do not use any abrasive blades.

CROSSCUTS

Cutting of multiple pieces is not recommended but can be done safely by ensuring that each piece is held firmly against the table and fence. A crosscut is made by cutting wood across the grain at any angle. A straight crosscut is made with the miter arm at the zero degree position. Set the miter arm at zero, hold the wood on the table and firmly against the fence. Turn on the saw by squeezing the trigger. When the saw comes up to speed (about 1 second) lower the arm smoothly and slowly to cut through the wood. Let the blade come to a full stop before raising arm.

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Miter crosscuts are made with the miter arm at some angle other than zero. This angle is often 45 degrees for making corners, but can be set anywhere from zero to 50 degrees left or right. After selecting the desired miter angle, be sure to tighten the miter clamp knob. Make the cut as described above.

BEVEL CUTS

A bevel cut is a crosscut made with the saw blade at a bevel to the wood. In order to set the bevel, loosen the bevel clamp knob and move the saw to the left as desired. (It is necessary to move the fence to allow clearance). Once the desired bevel angle has been set, tighten the bevel clamp knob firmly.

Bevel angles can be set from 48 degrees right to 48 degrees left and can be cut with the miter arm set between zero and 50 degrees right or left. At some extreme angles, the right or left side fence might have to be removed. To remove the left or right fence, unscrew the knobs several turns and slide the fence out.

QUALITY OF CUT

The smoothness of any cut depends on a number of variables. Things like material being cut, blade type, blade sharpness and rate of cut all contribute to the quality of the cut.

When smoothest cuts are desired for molding and other precision work, a sharp (60 tooth carbide) blade and a slower, even cutting rate will produce the desired results. Ensure that material does not creep while cutting, clamp it securely in place. Always let the blade come to a full stop before raising arm.

If small fibers of wood still split out at the rear of the work-piece, stick a piece of masking tape on the wood where the cut will be made. Saw through the tape and carefully remove tape when finished.

For varied cutting applications, refer to the list of recommended saw blades for your saw and select the one that best fits your needs. (Page 3)

BODY AND HAND POSITION (FIG. 10)

Proper positioning of your body and hands when operating the miter saw will make cutting easier, more accurate and safer. Never place hands near cutting area. Place hands no closer than 6" from the blade. Hold the work piece tightly to the table and the fence when cutting. Keep hands in position until the trigger has been released and the blade has completely stopped. ALWAYS MAKE DRY RUNS (UNPOWERED) BEFORE FINISH CUTS SO THAT YOU CAN CHECK THE PATH OF THE BLADE. DOES NOT CROSS HANDS.

Keep both feet firmly on the floor and maintain proper balance. As you move the miter arm left and right, follow it and stand slightly to the side of the saw blade. Sight through the guard louvers when following a pencil line.

CLAMPING THE WORK PIECE

Turn Off and Unplug Saw

If you cannot secure the work piece on the table and against the fence by hand, (irregular shape, etc.) or your hand would be less than 6" from the blade, a clamp or other fixture must be used.

For best results use the DW7082 clamp made for use with your saw. It is available for purchase at your local retailer or DEWALT service center. Other aids such as spring clamps, bar clamps or C-clamps may be appropriate for certain sizes and shapes of material. Use care in selecting and placing these clamps. Take time to make a dry run before making the cut. The left or right fence will slide from side to side to aid in clamping.

SUPPORT FOR LONG PIECES

Turn Off and Unplug Saw

ALWAYS SUPPORT LONG PIECES

For best results, use the DW7080 extension work support to extend the table width of your saw. Available from your dealer at extra cost. Support long work pieces using any convenient means such as sawhorses or similar devices to keep the ends from dropping.

CUTTING PICTURE FRAMES, SHADOW BOXES AND OTHER FOUR SIDED PROJECTS

To best understand how to make the items listed here, we suggest that you try a few simple projects using scrap wood until you develop a "FEEL" for your saw.

Your saw is the perfect tool for mitering corners like the one shown in Figure 12. Sketch A in Figure 11 shows a joint made by using the bevel adjustment to bevel the edges of the two boards at 45 degrees each to produce a 90 degree corner. For this joint the miter arm was locked in the zero position and the bevel adjustment was locked at 45 degrees. The wood was positioned with the broad flat side against the table and the narrow edge against the fence. The cut could also be made by mitering right and left with the broad surface against the fence.

CUTTING TRIM MOLDING AND OTHER FRAMES

Sketch B in Figure 11 shows a joint made by setting the miter arm at 45 degrees to miter the two boards to form a 90 degree corner. To make this type of joint, set the bevel adjustment to zero and the miter arm to 45 degrees. Once again, position the wood with the broad flat side on the table and the narrow edge against the fence.

The two sketches in Figure 11 are for four side objects only. As the number of sides changes, so do the miter and bevel angles. The chart below gives the proper angles for a variety of shapes.

(The chart assumes that all sides are of equal length.) For a shape that is not shown in the chart, use the following formula. 180 degrees divided by the number of sides equals the miter (if the material is cut vertically) or bevel angle (if the material is cut laying flat).

- EXAMPLES -

NO. SIDES	ANGLE MITER OR BEVEL
4	45°
5	36°
6	30°

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7	25.7°
8	22.5°
9	20°
10	18°

CUTTING COMPOUND MITERS

A compound miter is a cut made using a miter angle and a bevel angle at the same time. This is the type of cut used to make frames or boxes with slanting sides like the one shown in Figure 13.

NOTE: If the cutting angle varies from cut to cut, check that the bevel clamp knob and the miter lock knob are securely tightened. These knobs must be tightened after making any changes in bevel or miter.

The chart shown on page 12 will assist you in selecting the proper bevel and miter settings for common compound miter cuts. To use the chart, select the desired angle "A" (Figure 13) of your project and locate that angle on the appropriate arc in the chart. From that point follow the chart straight down to find the correct bevel angle and straight across to find the correct miter angle.

Set your saw to the prescribed angles and make a few trial cuts. Practice fitting the cut pieces together until you develop a feel for this procedure and feel comfortable with it. Example: To make a 4-sided box with 26° exterior angles (Angle A, Figure 13), use the upper right arc. Find 26° on the arc scale. Follow the horizontal intersecting line to either side to get miter angle setting on saw (42°). Likewise, follow the vertical intersecting line to the top or bottom to get the bevel angle setting on the saw (18°). Always try cuts on a few scrap pieces of wood to verify settings on saw.

VERNIER SCALE

Your saw is equipped with a vernier scale for added precision. The vernier scale allows you to accurately set miter angles to the nearest 1/4 degree. To use the vernier scale follow the steps listed below.

(As an example, let's assume that the angle you want to miter is 24 1/4 degree right).

1. Turn off miter saw.
2. Set the miter angle to the nearest whole degree desired by aligning the center mark in the vernier scale with the whole degree number etched in the miter scale. Examine Figure V2 closely; the setting shown is 24 degrees right miter.
3. To set the additional 1/4 degree, squeeze the miter arm lock and carefully move the arm to the RIGHT until the 1/4 degree vernier mark aligns with the CLOSEST degree mark on the miter scale. In our example, the closest degree mark on the miter scale happens to be 25 degrees. Figure V2 shows a setting of 24-1/4 degrees right miter.

For settings that require partial degrees (1/4, 1/2, 3/4 degrees) align the desired vernier mark with the CLOSEST degree mark on the miter scale, as described below (The plastic vernier plate is inscribed with marks for 1/4, 1/2, 3/4 and 1 degrees. Only the 1/2 degree and the 1 degree are numerically labeled.)

WHEN MITERING TO THE RIGHT

To increase the miter angle when mitering to the right, move the arm to align the appropriate vernier mark with the closest mark on the miter scale to the right. To decrease the miter angle when mitering to the right, move the arm to align the appropriate vernier mark with the closest mark on the miter scale to the left.

WHEN MITERING TO THE LEFT

To increase the miter angle when mitering to the left, move the arm to align the appropriate vernier mark with the closest mark on the miter scale to the left. To decrease the miter angle when mitering to the left, move the arm to align the appropriate vernier mark with the closest mark on the miter scale to the right.

CUTTING BASE MOLDING

ALWAYS MAKE A DRY RUN WITHOUT POWER BEFORE MAKING ANY CUTS.

Straight 90 degree cuts:

Position the wood against the fence and hold it in place. Turn on the saw, allow the blade to reach full speed and lower the arm smoothly through the cut.

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