Owner's Manual

POWERTEC.

Dovetail Jig



Visit us on the web at **www.powertecproducts.com**



You will need this manual for safety instructions, operating procedures, and warranty. Put it and the original sales invoice in a safe, dry place for future reference.

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SAFETY RULES

WARNING

For your own safety, read and understand all warnings and operating instructions before using any tool or equipment.

WARNING

Some dust created by power sanding, sawing, grinding, drilling and other construction activities can expose you to chemicals known to the State of California 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.
- Arsenic and chromium from chemically-treated lumber.

NOTE: 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. Always wear OSHA/NIOSH approved, properly fitting face mask or respirator when using such tools.

WARNING

Failure to follow these rules may result in serious personal injury. Remember that being careless for even a fraction of a second can result in severe personal injury.

WORK PREPARATION

- Wear proper apparel. Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry which may get caught in moving parts of the tool.
- Wear protective hair covering to contain long hair.
- · Wear safety shoes with non-slip soles.
- Wear safety glasses complying with United States ANSI Z87.1. Everyday glasses have only impact resistant lenses. They are NOT safety glasses.
- · Wear face mask or dust mask if operation is dusty.
- Be alert and think clearly. Never operate power tools when tired, intoxicated or when taking medications that cause drowsiness.

WORK AREA PREPARATION

- Keep work area clean. Cluttered work areas invite accidents.
- Do not use power tools in dangerous environments. Do not use power tools in damp or wet locations. Do not expose power tools to rain.
- Work area should be properly lit.
- Proper electrical receptacle should be available for tool. Three-prong plug should be plugged directly into properly grounded, three-prong receptacle.
- Extension cords should have a grounding prong and the three wires of the extension cord should be of the correct gauge.
- Keep visitors at a safe distance from work area.
- Keep children out of the work area. Ensure your work shop is child-proof. Use padlocks, master switches or remove switch keys to prevent any unintentional use of power tools.

TOOL MAINTENANCE

- Always unplug tool prior to inspection.
- Consult manual for specific maintaining and adjusting procedures.
- Keep tool lubricated and clean for a safe operation.
- Remove adjusting tools. Form habit of checking to see adjusting tools or accessories are removed before switching tool on.
- Keep all parts in working order. Check to determine that guard or other parts will operate properly and perform their intended function.
- Check for damaged parts. Check for alignment of moving parts, binding, breakage, mounting and any other condition that may affect tool's operation.
- A guard or any other part that is damaged should be properly repaired or replaced. Do not perform makeshift repairs.

TOOL OPERATION

- Avoid accidental start-up. Make sure that the tool is in the "OFF" position before plugging in.
- Use the right tool for your job. Do not force your tool or attachment to do a job for which it was not designed.
- Disconnect tool when changing parts.
- Don't force the workpiece on the machine. Damage to the machine and/or injury may result.
- Never leave tool running unattended. Turn the power off and do not leave tool until it comes to a complete stop.
- Do not overreach. Loss of balance can make you fall into a working machine, causing injury.
- Never stand on tool. Injury could occur if the tool tips, or if you accidentally contact the cutting tool.
- Know your tool. Learn the tool's operation, application and specific limitations before using it.
- Use a proper extension cord of the correct gauge. The extension cord should have a grounding prong, and should be in good condition.
- Handle workpiece correctly. Keep hands away from moving parts.
- Turn tool off if it jams.
- Always feed workpiece against the direction of the sanding rotation. To maintain control, properly support long or wide work-pieces.

CAUTION

Think safety! Safety is a combination of operator common sense and alertness at all times when tool is being used.

WARNING

Do not attempt to operate tool until it is completely assembled according to the instructions.

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

SAFETY RULES



CONTENTS

Examine carton for shipping damage. Check immediately whether all parts and accessories are included. If anything is missing or broken, contact your retailer or call **847-780-6120**.

NOTE: Carefully remove all contents from shipping carton. The shipping carton contains:

ITEM	DESCRIPTION	QTY
Α	Base	1
В	Through / Box Template	1
С	Half-blind / Dado Template	1

D	Straight Bit (13/32", 1/2" shank)	1
Е	Dovetail Bit (17/32" 1/2" shank)	1
F	Guide Bushings (3/4" OD & 5/8" OD)	2
G	Lock Nuts	2
н	T-handle Hex Wrench	

Figure 1



TYPES OF DOVETAILS

The POWERTEC 72069 Dovetail Jig is designed to cut Full Through Dovetails, Half Blind Dovetails and Dados. This Jig accommodates material thicknesses from 1/4" to 1-1/8" and up to 12" wide.

Figure 2









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ROUTER SET UP

- Use a fixed base router (not included) with 1-3/16" diameter center hole to accept Guide Bushings and Lock Nuts supplied with the Jig.
- Router must have a 1/2" collet for use with the 1/2" shank straight bit (D) and 1/2" shank dovetail bit (E) included.

Figure 3



SECURE JIG TO WORKBENCH

NOTE: Always mount the Jig to a solid work surface.

The Jig is designed to be permanently mounted using the four pre-drilled holes on each side of the base. See Figures 5-6.

For temporary setup-Use clamps to secure base (see Figure 8).

Figure 4



CHOOSE AND MOUNT A TEMPLATE Figure 7



- Position template [shown as Through Template (B)] between Template Lock Knobs and brass adjustment knobs. Tighten knobs to secure position.
- To reverse template, loosen template lock knobs, remove • template, rotate 180 degrees horizontally, replace it onto base, and tighten template knobs.

Through Mount:

This is the strongest and preferred mounting option.

- 1. Mark placement on the workbench.
- 2. Drill four 3/8" holes all the way through the workbench.
- 3. Use Hex bolts, washers, and hex nuts to secure base.

Direct Mount:

- 1. Mark placement on the workbench.
- 2. Drill four 1/4" holes into the workbench.
- 3. Secure with Lag Screw and Flat Washer directly into the workbench.
- NOTE: Or mount using clamps.

Figure 5 5/16" Hex Bolt

• Choose Straight Bit (D) or Dovetail Bit (E) suited for the job.

NOTE: While the 72069 dovetail Jig kit includes the router bits and

template guides to cut the basic dovetail joints, additional router bits are

· Install the router bit as shown below.

required to make box joints.







ASSEMBLY

WOOD PREPARATION

Properly preparing materials for any project is key to attractive and tight-fitting joints.

[1] Perfect right angles are essential.

- [2] Cuts off by even one degree will not align properly.
- [3] Workpieces must be flat and not cupped.
- [4] Orient wood to join long end grain to long end grain. Doing so creates strong joints.

[5] Matching short grain to long grain will result in a weak joint.

Figure 9

6



BOARD THICKNESS

NOTE: It is possible to join two workpieces of different thicknesses.

The clamps on the 72069 series Jigs will hold wood from 1/4" to 1-1/8" thick. Use the following information as a guide to help you decide the thickness of wood for your projects.

Standard through dovetails	.Tail Board Range	1/4"	to	1"
	.Pin Board Range	1/4"	to	3/4"
Half-blind dovetails	.Standard	1/2"	to	1-1/8"
Half-blind dovetail with a lipped front	. (Pin board will change depending on the size of the lip) \ldots .	1/2"	to	1-1/8"
Standard Box Joints	.(Limited by router bit length)	1/4"	to	1-1/8"
Dovetail Dados		1/4"	to	1-1/8"

OPTIMAL BOARD WIDTHS

- The 72069 Dovetail Jig is capable of making joints up to 12".
- However, some widths will produce a more attractive joint than others.
- Convenient widths for creating dovetails are in 1" increments plus 1/4" (1-1/4", 2-1/4", 3-1/4", etc.).

BOARD LENGTHS

- For Through Dovetails And Box Joints: Cut workpieces to the same length as the outside dimension of the final project.
- Exception: Cut drawer sides (tail board) of half-blind joints as indicated below because the wood does not go all the way through the joint.
- To calculate the length of the half-blind tail board: Take inside dimension of final project—add router bit depth of cut.
- If the tail board has a half-blind on both ends, double the added router bit depth of cut.
- The length of the pin boards (drawer front) remains the same as the outside dimension.



DOVETAIL JIG FUNCTIONS

Template Lock Knob x2: Use to position and lock the templates in place.

Router Bit Depth Guide: Use to adjust the depth of the router bit to suit the project at hand.

Through Pin/Tail Template (shown): Template guide for through dovetails. Half-Blind Template not shown.

Upper Cam x2: Rubber cam holds horizontal boards in place.

Upper Cam Axle Bar: Allows both upper cam grips to function simultaneously to hold one or two horizontal boards in place.

Upper Cam Clamp Lever: Push lever up to unlock workpiece and down to lock horizontal workpiece in place.

Upper Cam Lock Knob x2: Locks in place to ensure no movement of horizontal boards after setting cam clamp.

Upper Stop Bar: Grips boards with even horizontal pressure. The upper stop bar is under-coated with a sandpaper strip for a strong hold.

Mounting Holes x4: Use these mounting holes to permanently mount the 72069 Dovetail Jig to worktable.

Lower Stop Bar: Grips boards with even vertical pressure. The lower stop bar is under-coated with a sandpaper strip for a strong hold.

Lower Cam Lock Knob x2: Locks in place to ensure no movement of vertical boards after setting cam clamp.

Lower Cam Clamp Lever: Push lever up to unlock workpiece and down to lock vertical workpiece in place

Lower Cam Axle Bar: Allows both lower cam grips to function simultaneously to hold one or two vertical boards in place.

Lower Cam x2: Rubber cam holds vertical boards in place.

THROUGH DOVETAILS

Items needed:

- Through/Box Template (B)
- 13/32" Straight Bit (D) for Pins
- 5/8" O.D. Template Guide, Ø15.9 (use with straight bit)
- 17/32", 7° Dovetail Bit (E) for Tails
- 3/4" O.D. Template Guide, Ø19.1 (use with dovetail bit)

Through Dovetail Box Configuration:

- Place pieces of the box face down.
- Mark interior boards P for pin boards and T for tail boards.
- Label each corner with matching identifiers, A-A, B-B, etc.
- Begin setup with <u>A Left Side T tail board</u>.

Figure 11



1. Support for Template: For every type of joint, place two scrap boards the same thickness as the workpiece under the top Cam Clamp. Push scrap board toward front of Jig until flush with front vertical panel. Do not let the scrap board extend past the front panel. Insert vertical workpiece in bottom Clamp. When flush, lock down <u>both</u> Cam Clamps.

Figure 12



2. Mount Through/Box Template (B) on top of the horizontal scrap board. Align the through dovetail line on the template with the Tail Board. Press down on Template (B) with one hand, and tighten the template knobs with the other.

Figure 13



Rout the Tails

- a. Set up router with Dovetail Bit (E) and 3/4" O.D. Template guide.
- **b.** Set the router bit depth, using the 3/4" slot on the template marked tails/Box Depth. See SETUP AND ADJUSTMENTS (page 11).

c. Release Front Cam Clamp and remove vertical workpiece.

d. Loosen left offset guide using T-handle Hex Wrench (H). Move guide to far left position.

e. Insert vertical **T** workpiece and align flush against bottom side of template. Align to Tail/Box scribe marks on template.

f. Center workpiece between first left tail and last right tail of the run. Use bottom Clamp and Knobs to secure workpiece.

g. Move left offset guide to the right until flush against the vertical workpiece.

NOTE: *Template not shown for clarity.*

h. Tighten left offset guide with T-handle Wrench (H).

i. Turn on router and let it get up to speed before entering workpiece.

j. Enter workpiece and guide router smoothly around template tails. Turn off router. Do not remove it from Jig until bit has stopped spinning.

Rout the Pins

k. Set up router using Straight Bit (D) and 5/8" O.D. Template Guide. Set router bit depth, (see page 11) using 5/8" slot on template marked Pin Depth.

I. Rotate Template 180° to pin side. Replace it on base, and tighten template knobs. Leave a scrap piece in horizontal clamp. Clamp pin board in vertical clamp. Align using previous offset guide settings.

m. Enter workpiece and guide router smoothly around template pins. Turn off router. Do not remove it from Jig until bit has stopped spinning.

Assemble the Box

Recut pins to adjust tightness

If the joints are too loose, move template slightly toward user.

If the joints are too tight, move template away from user.









NOTE: For best results replace scrap board when cutting pins.





Figure 19



DPERATION

HALF-BLIND DOVETAILS

- Half-blind Dovetail Template (C)
- 17/32", 7° Dovetail Bit (E)
- 3/4" O.D. Template Guide, Ø19.1

Half-Blind Dovetail Configuration:

- Place pieces of the box face down.
- Mark interior boards **P** for pin boards and **T** for tail boards.
- Label each corner with matching identifiers, A-A, B-B, etc.
- Begin setup with <u>A Front P pin board-Left Side T tail board</u>.

Figure 20



 Support the Template: For every type of joint, workpiece P and one scrap board the same thickness as the workpiece under the top Cam Clamp. Push each board toward front of Jig until flush with front vertical panel. Do not to let the boards extend past the front panel. Insert vertical workpiece T in Clamp. When flush, lock down <u>both</u> Cam Clamps.

Figure 21



2. Mount Half-Blind Template (C) on top of the horizontal P workpiece. Press down on Template (C) with one hand, and tighten the template knobs with the other.

Figure 22



Rout Half-Blind Tails/Pins

a. Set up router with Dovetail Bit (E) and 3/4" O.D. Template Guide.

b. Set router bit depth, using 3/4" slot marked Half-Blind Depth. See SETUP AND ADJUSTMENTS (page 11).

c. Release Front Cam Clamp and remove vertical workpiece.

d. Loosen left offset guide using T-handle Hex Wrench (H). Move guide to far left position.

e. Insert vertical **T** workpiece and align flush against bottom side of template. Align to Half-Blind scribe marks on template.

f. Center workpiece between first left tail and last right tail of the run. Use bottom Clamp and Knobs to secure workpiece.

g. Move left offset guide to the right until flush against the vertical workpiece. Move the pin board to the left until it comes in contact with the offset guide. **NOTE:** *Template not shown*

for clarity.

h. Tighten left offset guide with T-handle Wrench (H).

See Figures 26 & 27

i. Turn on router and let it get up to speed before entering workpieces.

j. Make a climb-cut from right to left across the outer edge of the tail board to reduce tear-out

k. Enter workpieces and guide router smoothly from left to right, around template tails. When finished, turn off router. Do not remove it from Jig until bit has come to a complete stop.

I. Pins and Tails have been cut with this one operation.

Assemble the Drawer

For joints that are too loose, adjust router bit depth for a deeper cut by measuring the gap in the cut and adjust the router bit depth to that measurement.

For joints that are too tight, adjust the router bit depth for a more shallow cut.













Figure 28







BOX JOINTS

Box joints have straight protrusions that interlock and must be held together by glue.

Cutting the First Workpiece

a. Set up router with 1/2" Straight Bit (not included).

b. Set up Jig with 3/4" O.D. Template Guide.

c. Set router bit depth, using the 3/4" slot on template marked Tails/Box Depth (See page 11).

d. Clamp scrap board of same thickness as second workpiece in upper clamp.

(B) on top of horizontal scrap board. Align "Tails/Box" template line with

Cutting the Second Workpiece

IMPORTANT: If thickness is different between first and second workpiece, replace scrap piece with one of same thickness as first workpiece in the upper clamp. Reset router bit depth using "Tails/Box" bit depth guide.

j. Use the T-handle wrench to loosen screw on right offset guide. Move guide to far right.

k. Clamp first board in lower clamp on right side of Jig with the fingers protruding past template. Center protrusions of the wood in between fingers of the template.

Move right offset guide flush I. against workpiece and secure it with T-handle wrench (H).

(with outside surface OUT) into lower clamp on right side of Jig, flush against both the template and against right offset guide.

and remove workpiece from Jig.

NOTE: The fit (tightness) of a box joint cannot be adjusted.

Straight Bit 1/2" 3/4" Template Guide **2nd Workpiece 1st Workpiece** Mount on Right Mount on Left Figure 30 Figure 29 Top Horizontal scrap board to be same thickness as workpiece not being cut Outside Outside JIG Surface Surface of 2nd of 1st **Workpiece** Workpiece

SLIDING DOVETAIL JOINTS

The Dovetail joint is a strong joint good for connecting fixed shelves to walls.

Cutting the Dado Board

a. Set up router with Dovetail Bit (E) and 3/4" O.D. Template guide.

b. To set the depth guide (See page 11).

NOTE: Ensure router bit will not cut into base or offset quides during this cut.

c. Mark center line of dado location on workpiece-make two marks 3/8" from center line of dado.

d. Insert workpiece into upper clamp and place Half-blind / Dado Template (C) onto Jig with Dado

Cutting the Tenon Board

h. Mount scrap board into upper clamp.

i. Mount tenon board into lower clamp.

i. Make a climb cut (from right to left) on front edge of template. k. Make another cut from left to

base. Repeat Steps [j] and [k]. n. When finished, turn off router and remove tenon board.

m. Keeping same end up-flip

board with cut side facing the

side facing user. Adjust template

e. Set router bit depth by using

one of the three depths etched on

right side of template (or manually

f. Slowly rout along slot from left

to right. Deep dadoes may require

g. When finished, turn off router

right along front edge of template.

cutting the bulk of the material

with a straight bit.

and remove dado board.

I. Remove tenon board.

-align with edge of slot.

set one).

to the two marks made in Step [c]



NOTE: The Router Bit Depth Guides are not preset at the factory. Before setting the router bits, verify depth stops are set correctly. The Half-blind Dovetail Depth Guide should be set 3/8" below the bottom of the template.

from user.

From the bottom of the template, Depth Guide for Through Dovetails and Box Joints should be slightly deeper (for stock cleanup allowance) than the thickness of the drawer material.

e. Mount Through/Box Template

line formed where scrap board and

f. Use T-handle wrench (H) to

g. Mount first workpiece in

against Jig base. Reposition

left offset guide flush against

h. Rout first workpiece.

loosen screw on left offset guide.

lower clamp with outside surface

When finished, turn off router,

and remove workpiece from Jig.

workpiece meet.

workpiece.

i.

Move guide to far left.

m. Remove the first workpiece. n. Clamp second workpiece

o. Rout second workpiece.

p. When finished, turn off router,

SETUP AND ADJUSTMENTS

SET THROUGH DOVETAIL DEPTH GUIDES

- 1. Clamp the correct board thickness in the upper clamp (for this example 3/4")
- **2.** Using the 3/4" slot marked Tails/Box Depth, set the distance from the bottom of the template to the depth guide stop about 1/32" deeper than 3/4".
- **3.** Using the 5/8" slot marked Pins Depth, set the distance from the bottom of the template to the depth guide stop about 1/32" deeper than 3/4".
- 4. Set Depth Stops and tighten nuts using an 8mm wrench (not included).
- **5.** When changing material from 3/4" stock, Depth Stops must be reset to new material thickness.

SET HALF-BLIND DOVETAIL DEPTH GUIDES

Using the 3/4" slot marked HALF-BLIND DEPTH on Template C, set the distance from the bottom of the template to the depth guide stop at 3/8".

ADJUST BIT HEIGHT

The **POWERTEC** 72069 Dovetail Jig arrives fully factory assembled. Accessory Templates (B) and (C) require some adjustments. Use an 8mm wrench (not included) to adjust the height of the router bit depth guide.



TEMPLATE GUIDES

There are two Template Guides included with the **POWERTEC 72069** Dovetail Jig.



MAINTENANCE



When servicing, use only identical replacement parts. Use of any other parts may create a hazard or cause product damage.

WARNING

Keep the Dovetail Jig dry, clean, and free from oil and grease. Always use a clean cloth when cleaning. Never use brake fluids, gasoline, petroleum-based products or any strong solvent to clean the Dovetail Jig. Chemicals can damage, weaken or destroy plastic which may result in serious personal injury.



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Thank you for investing in a **POWERTEC** power tool. This product has been designed and manufactured to meet high quality standards and is guaranteed for domestic use against defects in workmanship or material for a period of 12 months from the date of purchase. This guarantee does not affect your statutory rights.

SOUTHERN TECHNOLOGIES LLC. BENCH TOP AND STATIONARY POWER TOOL LIMITED 1 YEAR WARRANTY AND 30-DAY SATISFACTION GUARANTEE POLICY

POWERTEC products are designed and manufactured by Southern Technologies LLC. All warranty communications should be directed to Southern Technologies LLC by calling 847-780-6120 (toll free), 9 AM to 5 PM, Monday through Friday, US Pacific Time.

30- DAY SATISFACTION GUARANTEE POLICY

During the first 30 days after the date of purchase, if you are dissatisfied with the performance of this **POWERTEC** tool for any reason, you may return the tool to the retailer from which it was purchased for a full refund or exchange. You must present proof of purchase and return all original equipment packaged with the original product. The replacement tool will be covered by the limited warranty for the balance of the one year warranty period.

LIMITED ONE YEAR WARRANTY

This warranty covers all defects in workmanship or materials in this **POWERTEC** tool for a one year period from the date of purchase. This warranty is specific to this tool. Southern Technologies, LLC reserves the right to repair or replace the defective tool, at its discretion.

HOW TO OBTAIN SERVICE

To obtain service for this **POWERTEC** tool you must return it, freight prepaid, to **POWERTEC**. You may call (toll free) 847-780-6120 for more information. When requesting warranty service, you must present the proof of purchase documentation, which includes a date of purchase. **POWERTEC** will either repair or replace any defective part, at our option at no charge to you. The repaired or replacement unit will be covered by the same limited warranty for the balance of one year warranty period.

WHAT IS NOT COVERED

This warranty applies to the original purchaser at retailer and may not be transferred.

This warranty does not cover consumable items such as saw blades, knives, belts, discs, cooling blocks, and sleeves. This warranty does not cover required service and part replacement resulting from normal wear and tear, including accessory wear.

This warranty does not cover any malfunction, failure or defect resulting from:

- 1) Misuse, abuse, neglect and mishandling not in accordance with the owner's manual.
- 2) Damage due to accidents, natural disasters, power outage, or power overload.
- 3) Commercial or rental use.
- 4) Alteration, modification or repair performed by persons not recommended by **POWERTEC**.

DISCLAIMER

To the extent permitted by applicable law, all implied warranties, including warranties of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE, are disclaimed. Any implied warranties, that cannot be disclaimed under state law are limited to one year from the date of purchase. Southern Technologies LLC. is not responsible for direct, indirect, incidental or consequential damages. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Southern Technologies LLC., makes no warranties, representations, or promises as to the quality or performance of its power tools other than those specifically stated in this warranty.



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