CASTLE INC

Owners Manual

TSM-12

Serial numbers up to 121460

Table of Contents

1 Introduction

Thank you for making the Castle TSM-12 the latest addition to your shop. Since 1985 our goal has been to manufacture and develop machines that make cabinetmaking and casework easier, faster and more profitable for the woodworker. This machine represents our commitment to your productivity. Castle machines are made in Petaluma, California and are manufactured to the highest standards using local vendors wherever possible.

This instruction manual is intended for use by anyone setting up or servicing this machine. It should be kept available for immediate reference so that all operations can be performed with maximum efficiency and safety.

Note: Do not attempt to perform maintenance or operate this machine until you have read and understand the information contained in this manual.

2 Machine Safety

The Castle TSM-12 was designed with operator safety as a priority. This machine was carefully packaged for shipment at our factory. Upon receipt of the machine, inspect for shipping damage. Report any damage **IMMEDIATELY** to the freight company, your Castle dealer and to Castle, Inc. DO NOT attempt to operate the machine if you observe any physical damage. Contact Castle, Inc. at 800.282.8338 for instructions.

2.1 Safety Rules

The Castle Model TSM-12 Bench-top Pocket Machine was designed with operator safety as a priority, which is why Castle highly recommends the following:

1. Do not plug machine in until ready to operate.
2. Always wear eye protection when operating or servicing mechanical equipment.
3. Always wear hearing protection when the machine is in operation.
4. Always verify that the drill and router bits are securely tightened.
5. Do not at any time put your hand under the clamp guard, in the path of router bit or drill bit.
6. Familiarize yourself with the clamping action, routing and drilling functions before plugging the machine into electrical power supply.
7. Always be sure to securely clamp stock before routing or drilling any material.
8. Always plug TSM-12 into 110 volt grounded power outlet.
9. Never allow machine to get wet or be used in a wet environment.

2.2 Inventory

Your TSM-12 will pocket any material you would normally rout. It is designed for material from ½" to 1 ½". Use of materials thinner than ½" is not recommended. Every TSM-12 machine is factory adjusted. If you should find a small amount of sawdust in the bottom of your TSM-12, please don't be alarmed. This is an indication that your machine has been factory tested prior to shipping.

Within your Castle machinery shipment, you should receive the following:

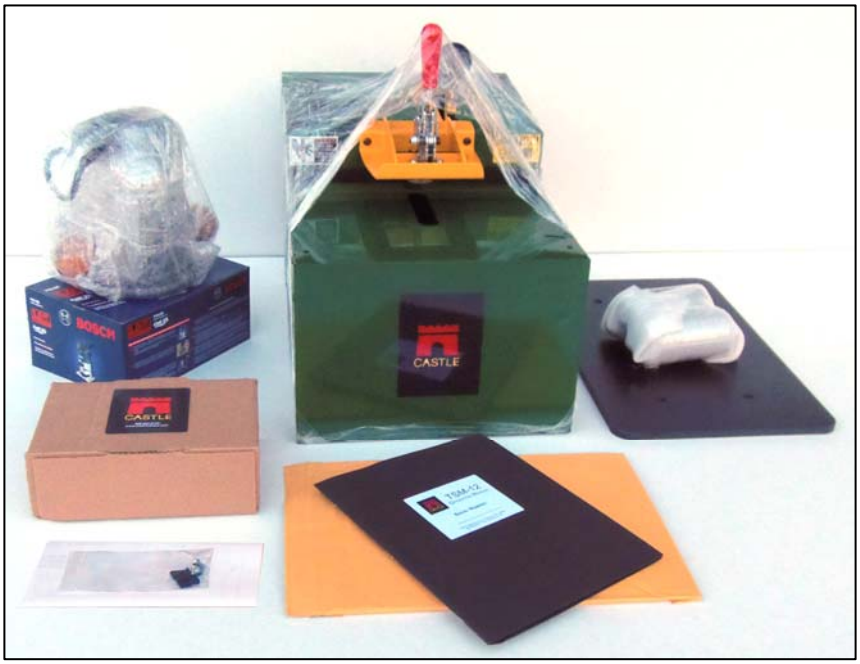

Fig 1

CASTLE TSM-12 BENCH-TOP POCKET MACHINE SHIPPING INVENTORY		
Part #	**Part Description**	**Qty**
----	**TSM-12 Case**	**1**
E21617	**Router Motor - Bosch 2.0hp #1617**	**1**
E21610	**Drill Motor - Bosch Colt 1.0hp #PR10E**	**1**
S90011	**TSM-12 Operator Manual with Warranty Activation Card**	**1**
----	**- Bottom Template & Hardware (3 clips & 3 screws)**	**1**
V11001	**TSM-12 Work Top**	**1**
H11001	**Non-Slip Machine Feet**	**4**
----	**Hardware Pack (image of contents and inventory below)**	**1**

Fig 2

CASTLE TSM-12 BENCH-TOP POCKET MACHINE HARDWARE PACK		
Part #	**Part Description**	**Qty**
F51628	5/16" - 18 Nuts	4
F44114	¼ - 20 x 1" Flathead Machine Screws	4
F01420	¼ - 20 Locknuts	4
B02964	9/64" TiN Coated Premium Drill Bit w/ ¼" Shank	1
B00338	3/8" Solid Carbide 3-Flute Premium Router Bit	1
D50038	3/8" Collet	1
B00622	6" Square Driver Bit	1
---	Bosch Collet Wrenches (for Bosch 2.0hp #1617)	2
T00532	5/32" Hex Key	1
O00234	Bit Gauge	1

2.3 Tools

To complete assembly of Castle machine, you will require the following tools:

(1) 7/16” wrench or ratchet

(1) ½” wrench or ratchet

Fig 3

2.4 Machine Requirements

ELECTRICITY:

Your TSM-12 is designed to run on a 110 volt -15 AMP standard 3 prong power supply. 2 prong power adapters are not recommended for use on this machine and could cause electric shock to the user. Be sure your unit is properly grounded. See a qualified electrician if you are in question about your electrical safety compliance.

3 Setting Up Your TSM-12

Caution: Always use eye and hearing protection when operating power equipment.

1. Remove the machine from the carton and plastic over-wrap and place on its back as shown (Fig 4). Be careful to place it on a clean surface free of debris to avoid damage to the finish.

Fig 4

Caution: Remove Foam pads from between the case sides and router carriage before running the machine (Fig 5).

Fig 5

2. Secure the (4) non-slip machine feet to the machine using a ½" wrench and (4) 5/16"-18 nuts (Fig 6).

Fig 6

3. Unpack the Bosch Colt #PR10E trimmer motor, collet and collet wrenches from box. DO NOT UNTIE THE POWER CORD! Insert the Castle Premium drill bit until the tapered portion of the shank is approximately flush with the collet opening. While holding the spindle lock button, secure the drill bit with the collet wrench (Fig 7). Toggle the motor switch to the "ON" position.

Fig 7

4. To install your drill motor it should be rotated so that the vertical feature on the motor cowling is in contact with the Motor Stop Tab on the small motor carriage. (Fig 8). Align the drill motor with the small motor carriage as shown. (Fig 9) You **DO NOT** want a gap between the tab on the motor carriage and the drill motor cowling. (Fig 10).

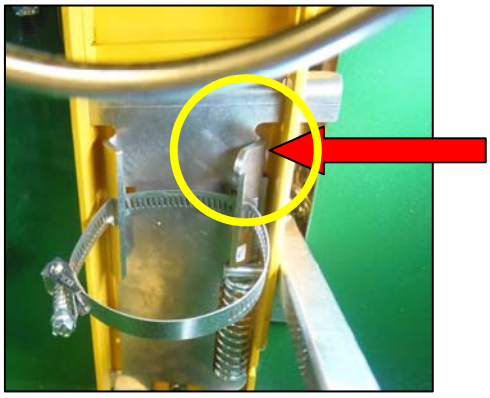

Fig 8

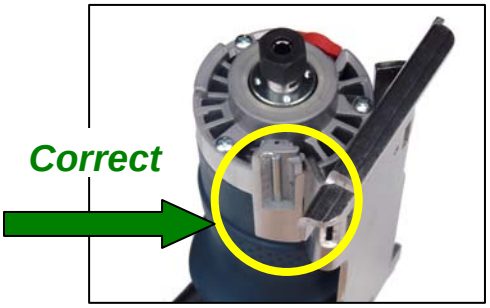

Fig 9

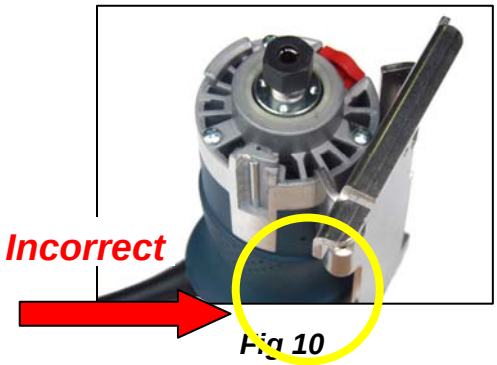

Fig 10

Note: Failure to properly align the drill motor in the small motor carriage may result in pilot holes that are off-center.

5. Tighten the hose clamp with a slotted screw driver (Fig 11).

Fig 11

6. Unpack the Bosch #1617 router motor, collet wrenches and 3/8 collet. Remove router from base. DO NOT UNTIE THE POWER CORD! Replace the 1/2" collet with the 3/8" collet (from the hardware pack) onto the motor and insert the Castle Premium carbide router bit until it sits 1" above the top of the collet. Secure the router bit with the collet wrenches. Toggle the motor switch to the "ON" position.

Fig 12

7. Install the router in the yellow carriage, carefully noting the orientation (Fig 13). With the motor firmly engaged against the carriage, tighten the locknuts with a 7/16" wrench and the bar knob by hand. Alternate back and forth to insure even thread engagement. Plug the router into the remaining outlet.

Fig 13

8. Position the work top as shown, with the grey friction pad directly under the clamp-guard. Using (4) ¼"-20 x 1" flathead machine screws, and (4) ¼"-20 nylon locknuts, fasten the work top to the machine (Fig 14). Use the supplied 5/32" hex key and your 7/16" wrench to tighten.

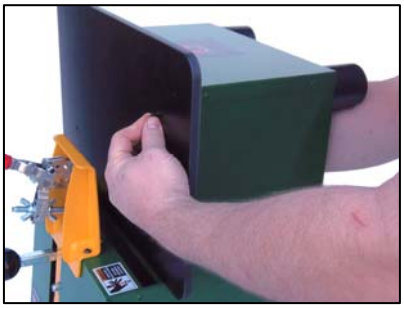

Fig 14

9. Inspect each motor cord to verify that they are plugged into the duplex power outlet box inside the machine and that they are clear of any moving parts. You may untie the main machine power cord at this time. Verify the router bit is positioned at the center of the cutout on the underside of the worktop (Fig 15). If it is not, refer to the Machine Adjustments section “Pocket Hole Alignment” before proceeding. Place the machine on your workbench right side up (Fig 16).

Fig 15

Fig 16

4 Operating Instructions

1. Check to be sure the switch on top of the machine is in the OFF position and then plug the TSM-12 into a 110 volt grounded power supply.

2. Place material to be pocketed on the work table under the clamp and squarely against the rear face.

3. Push forward on clamp lever (red handle). Confirm that the material is held securely in place (Fig 17), test by manually pulling on the material. If material is loose, adjust the foot on the clamp as necessary to assure the material is held securely. No tools are necessary to adjust the clamp foot, simply hold the lower nut between your fingers, and loosen the wing nut with your other hand (Fig 18).

Fig 17

Fig 18

4. To operate, move the power switch to the ON position. Both motors should start. It may be necessary to turn on the individual motor switches. If not done at time of installation.

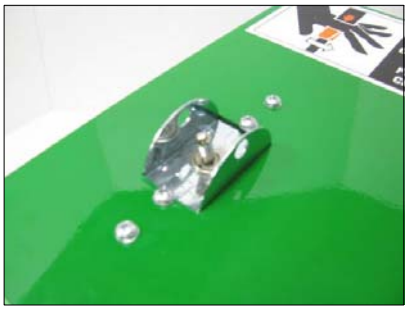

Fig 19

5. Push the black handle away from operator rapidly until it hits the stop (Fig 20). This routs the pocket. If you release the black handle, the machine will move to the neutral position on its own. It is not necessary to release the black knob before proceeding to step 6.

Fig 20

Note: The first pocket you cut will create a through slot in the worktop. To insure a clean cut, make sure a work piece is securely clamped in place.

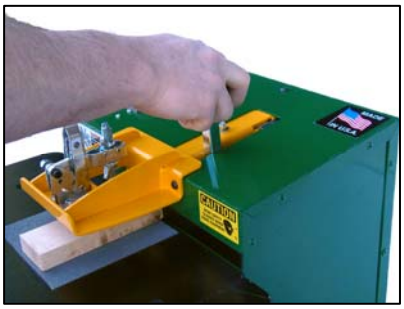

Fig 21

6. Pull black handle toward you rapidly until it hits the stop (Fig 21). This drills the pilot hole.

7. Release the black handle. The operating lever returns to the neutral position by itself.

8. Pull the clamp lever (red handle) toward you to release the material clamp (Fig 22).

9. For additional pockets repeat steps 2 through 8.

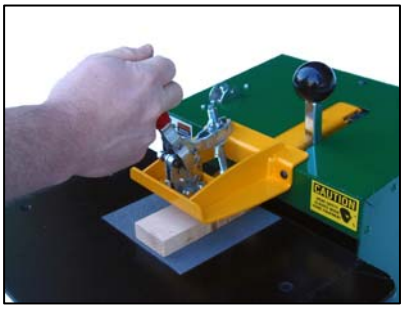

Fig 22

Fig 23

Note: For optimal performance it is recommended that your cycle time be as quick as possible. A slow cycle will result in your tooling dwelling in the material and contribute to shortened tool life.

4.1 General Information

The hand clamp should be tight enough for a “brisk” travel of both the routing and drilling strokes. If your material moves during the cycle, tighten the clamp slightly.

Note: *Bit “burning” (router or drill bits) is caused by either dull tooling, too slow of a movement of the operating lever or both.*

Your TSM-12 is powered by two high speed routers and is designed to aggressively enter the material being pocketed. If you think your tooling is burning while using the TSM-12, you may not be moving the operating lever fast enough!

4.2 Dust Collection

To aid in the length of the life of your router motors it is recommended to use dust collection with your TSM-12. In addition to clearing the dust from the case of the machine, the air flow through the case of the machine will help to keep your router motors cool.

Your Castle TSM-12 has been designed with two port options for dust collection; one 4” option for standard shop dust collection systems and one for use with a shop vac. At the rear of your machine’s case are two knockouts. Depending on the dust collection system you will be using, use a hammer to knock out the opening desired.

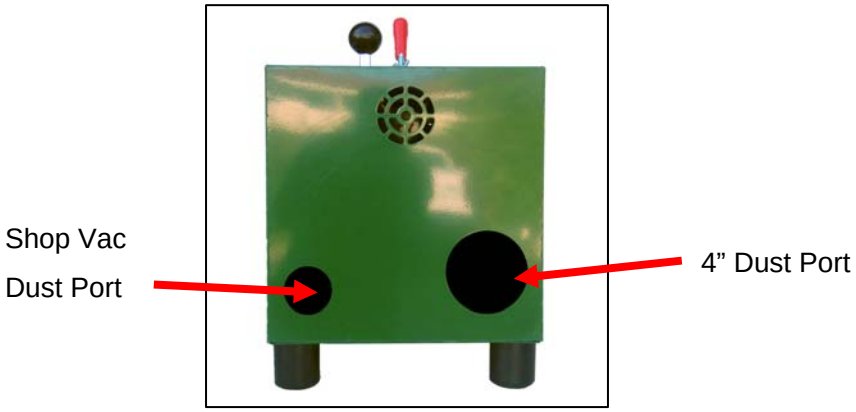

Fig 24

Included with your machine is a template for cutting out a cover for the bottom of your TSM-12, necessary for creating a vacuum for pulling dust and air out of the case. Using the template provided; cut out a cover for the hole in the bottom of the case from any 1/8” thick material.

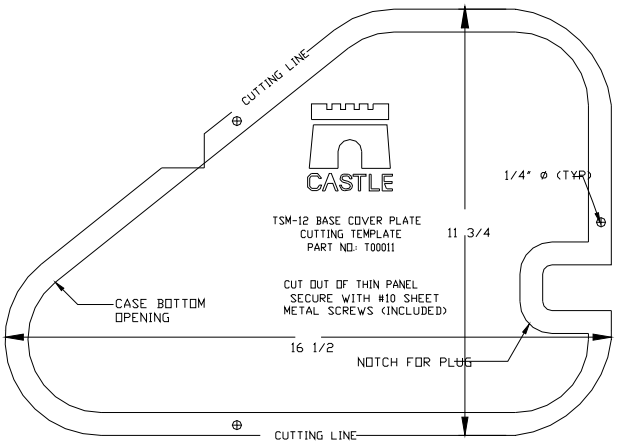

Fig 25

At the underside opening of the case, slip the clips (part # F11010) over the holes provided with the flat face of the clips facing out. Use the screws (part # F10038) included with the clips to secure the 1/8” thick base cover to the base at the clips.

Fig 26

5 Machine Adjustments

Your TSM-12 is factory adjusted to handle typical pocket-hole needs. Some adjustment may be necessary.

Note: Before making any adjustments, please sure that the machine is disconnected from the electrical power outlet.

5.1 Pocket Hole Alignment

If the pilot hole is off center of the pocket, (from the operator position) reach into the right side of the machine, and loosen the wing-nut ½ turn CCW (Fig 27), make small adjustments to the nylon thumbscrew, (1/2 turn or less) until proper alignment is achieved (Fig 28). Retest between adjustments by pocketing another piece of material. When the pilot hole is positioned in the center of the pocket, tighten the wing nut to secure the yellow carriage in position. The nylon machine screw is designed to ride along the wall of the machine.

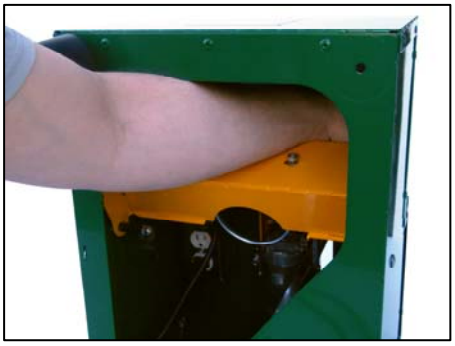

Fig 27

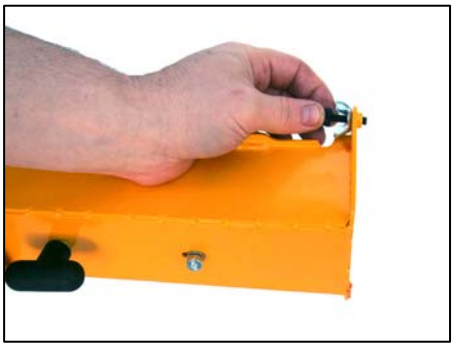

Fig 28

Note: A clockwise rotation of the screw will result in the router moving to the left, and a counter-clockwise rotation will move the router to the right.

5.2 Web Adjustment

To move the pocket (routed portion) closer to, or further from, the edge of the material, use a 7/16” wrench and loosen the Nylock nut next to the operating handle (Fig 29). Moving the nut away from you will make the pocket cut closer to the edge of the material, pulling the nut toward you will make the pocket farther from the edge of the material. Tighten the nut each time before testing. This is a trial and error method until you get the pocket where it suits you best.

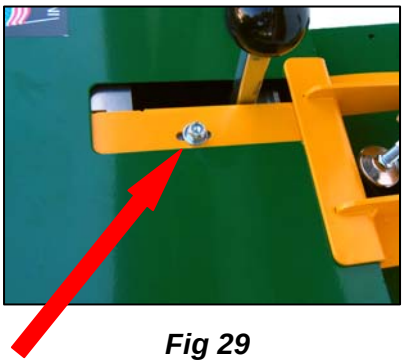

Fig 29

5.3 Adjusting for Thinner Material

Your TSM-12 is set up for use in ¾” material. It can be adjusted to work in 5/8” or ½” material. To do so, make a shim the size of the work top from 1/8” or ¼” plywood material. Lay it on the work table then place your stock on the shim material. Adjust the clamp hold down arm if necessary and rout through both pieces. When finished processing your thinner material, remove the shim material and readjust the clamp if necessary. You are again ready for your regular thickness material.

6 Service and Maintenance

In order to ensure productivity and longevity for your Castle Bench-top Screw Pocket Machine, it is essential to follow a few simple steps. How often these steps are performed depends upon the number of hours the machine is operated each day. As a general rule, operators should visually inspect the machine at the start of each work shift in the following manner:

6.1 Router Bit Replacement

Fig 30

1. Unplug the TSM-12 from the electrical outlet.

2. Lay the machine on its back so the bottom of the machine accessible. Loose the locknut and bar knob and remove the router motor (Fig 30).

3. Remove the router bit using the wrenches provided (Fig 31). Insert the replacement router bit until it is fully seated. Secure the router bit with the collet wrenches.

Fig 31

Note: If you prefer a slightly deeper cut, scribe a line on the supplied bit gauge to help you remember the preferred depth to which the bit should be inserted.

4. Re-install the router in the yellow carriage, carefully noting the orientation depicted below. With the motor firmly engaged against the carriage, tighten the locknuts with a 7/16” wrench and the bar knob alternating between both to ensure even tension on the U-bolt (Fig 32).

Fig 32

6.2 Pilot Bit Replacement

Fig 33

1. Unplug the TSM-12 from the electrical outlet.
2. Loosen the hose clamp with a slotted screw driver (Fig 33), and pull the drill out of the machine.

3. Remove the dull bit using the wrench provided (Fig 34). It may be necessary to lightly tap the collet to loosen the bit. Insert the replacement drill bit until the tapered portion of the shank is approximately flush with the collet opening. Secure the bit.

Fig 34

4. To install your drill motor it should be rotated so that the vertical feature on the motor cowling is in contact with the Motor Stop Tab on the small motor carriage. (Fig 35). Align the drill motor with the small motor carriage as shown. (Fig 36) You **DO NOT** want a gap between the tab on the motor carriage and the drill motor cowling. (Fig 37).

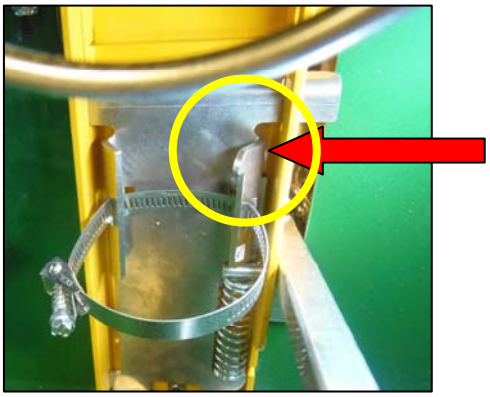

Fig 35

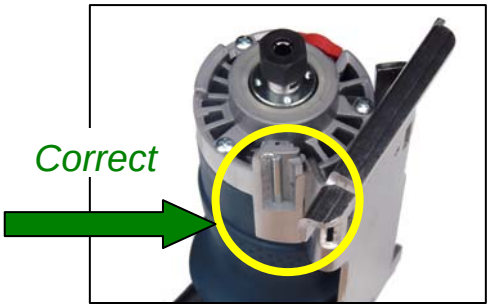

Fig 36

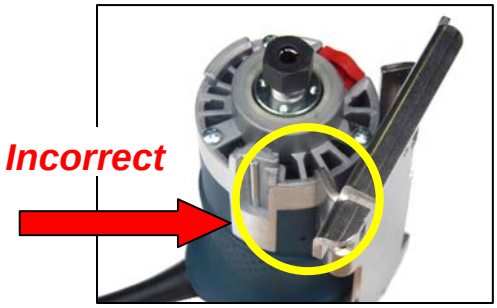

Fig 37

Note: Failure to properly align the drill motor in the small motor carriage may result in pilot holes that are off-center.

5. Tighten the hose clamp with a slotted screw driver (Fig 38).

Fig 38

Motors and Bits

Because the motors are enclosed in the machine, it is important that the maintenance guidelines provided in the manufacturer's instruction manual are strictly observed.

- Periodically during operation, blow out the air passages on both motors with 30 PSI compressed air.
- Let motors rest/cool down after 2 hours of continual use.
- Use dust collection for clearing sawdust out of your machine case and creating air flow through the case to aid in cooling the motors.
- When cutting pockets in solid woods such as maple, oak, ash or alder the B00438 4-flute HSS Cobalt bit can be used. Use of this bit is NOT recommended in particle board.
- If pockets are being cut in both types of materials (i.e., particleboard and hard wood) or if an exceptionally long bit life is desired, then it is suggested that the B00338 solid carbide bit (shipped with your machine) be used. Both bits are available through Castle, Inc.
- The pilot hole is made with a $^{9}/_{64}$" drill bit, B02964. This size drill bit comes with your machine. Also available are a $^{7}/_{64}$" and $^{3}/_{16}$" size drill bit
- Contact your local Castle Dealer or our Castle Parts Department at 800-282-8338 for information and pricing on tooling and accessory products for your TSM-12, or shop our convenient Web Store for online ordering. http://store.castleusa.com/

Caution: Always wear safety goggles when using compressed air.

6.3 Serial Number Log

SERIAL NUMBER LOG		
MANUFACTURER	PART NUMBER	SERIAL NO.
Castle, Inc.	A00013 – TSM-12 Benchtop Screw Pocket Cutter	
Bosch	E21617 – Bosch 1617 2.0 hp	
Bosch	E21610 – Bosch Colt PR10E 1.0 hp Trimmer Motor	
PURCHASE DATE:		

7 Warranty Information

Castle, Inc. uses only the highest quality materials available for the construction of our machines. Your TSM-12 Bench Top Pocket Machine is warranted for one full year from the date of purchase against workmanship or material defects under normal use and service. We are not responsible for negligence, misuse or accidents. We suggest any and all machine maintenance or repair be discussed with an authorized Castle Representative prior to any disassembly. We will gladly answer any questions you may have prior to any part removal.

Castle, at its sole discretion, may either repair or replace machines that are found to be defective. This shall be the End User's sole remedy under this warranty.

Castle will not, under any circumstances, be liable to the End User for consequential, incidental, special or exemplary damages, or for loss of profits, revenue or use. Further, Castle disclaims any warranty, expressed or implied, as to the merchantability or fitness of a Castle product for any particular purpose.

Bosch warrants their router motors for one (1) year from date of purchase. We recommend that you keep your bill of sale and motor serial numbers. You will need this information for verification should there be any issues covered by the machine or motor warranty.

For Technical Assistance, Parts & Tooling contact your local Castle Dealer or Castle Inc. at 800-282-8338 Monday through Friday, 7:30am – 3:30pm, Pacific Time