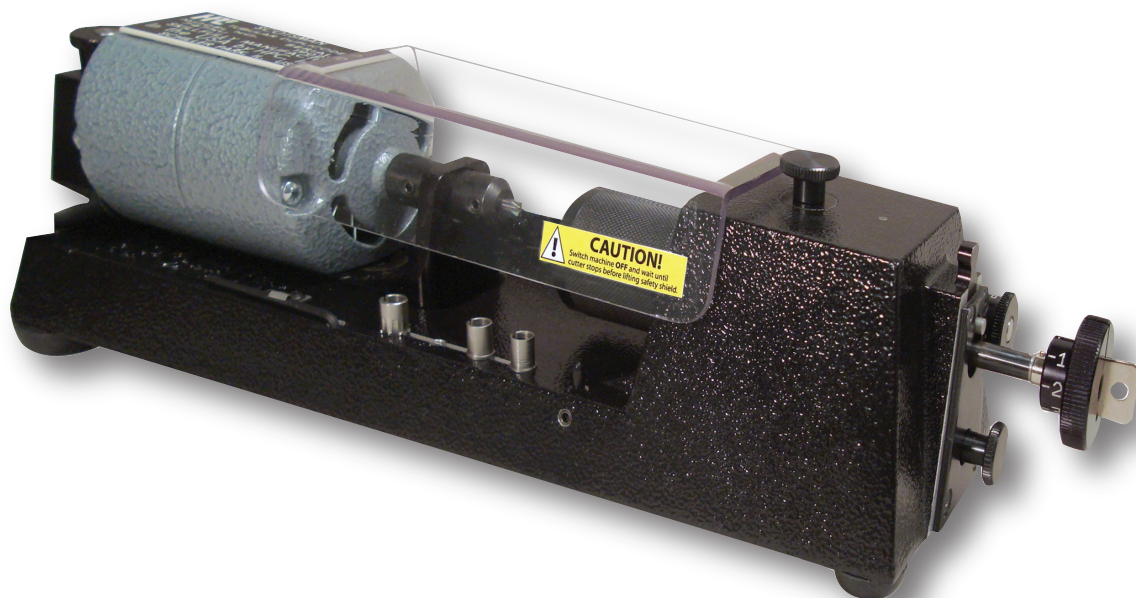


Tubular Duplicode™

Tubular Key Code and Duplicating Machine

No. 747XU



Introduction

Congratulations

You have become the owner of the most modern tubular key cutting machine available today. This HPC/Scotsman Tubular Key Cutting Machine provides you with the following features:

- Compactness:** The small physical size and light-weight construction allows for easy storage, requires minimum bench space, and makes it ideal for shop or mobile service.
- Simplicity:** The HPC/Scotsman Tubular Key Machine offers fast, easy operation, whether duplicating, or cutting to code. The simplicity of the machine also assures you of many years of profitable, accurate key cutting, with a minimum of required maintenance.
- Universality:** HPC/Scotsman Model #747XU will cut all cuts on the 3 sizes of the most popular tubular keys (indicated below), plus the Fort (GEM) “thick walled” key.
- Durability:** Every part of the machine is designed and manufactured to provide extended life, giving added trouble-free service. Each machine is unconditionally guaranteed by the manufacturer for 90 days. (Remember to fill out and return the warranty card which is provided with this machine).
- Accuracy:** The HPC/Scotsman Tubular Key Machine is a precision machine which has been properly adjusted before leaving the factory. The adjustment of the machine assures you fast, accurate key cutting capabilities. All parts of the machine are manufactured to the highest quality standards, insuring you more years of accurate operation.

IMPORTANT!

Unplug your machine prior to doing *any* maintenance on it.

Definitions of Terms

- Tubular Keys:** Also known as “Ace Type Keys” or “Round Keys”. The tubular key is designed to actuate locks which are constructed with the pin tumblers arranged in a circular fashion. The key is constructed with a cylindrical body designed to enter the keyway of such a lock. Various cuts which appear on the circumference of this key allow the pin tumblers of the lock to be depressed to the proper depth thereby meeting a common shearline, and allowing the lock to turn. Proper arrangement and depth of these cuts is critical in order for the lock to be actuated smoothly and efficiently.
- “Standard” Tubular Keys:** This is the most common of the tubular key family. The outside diameter is .375”/9.53mm. Use the HPC/Scotsman 137 (steel) or 137B (brass) key blanks.
- “Small” Tubular Keys:** Less common than the standard size, this key measures .365”/9.27mm in outside diameter. Use the HPC/Scotsman 137SB key blanks.



TUBULAR DUPLICODE™
747XU



“Oversize” Tubular Keys: This key is often referred to as the “UL” or “Certified” key and measures .400”/10.16mm in diameter. The lock which this key actuates is UL Rated and is designed with either 10 or 11 pin tumblers. Three or four of the pin tumblers are actually sleeves around other pins. These sleeves are usually located around the pins in positions 2-4-6 or 1-3-5-7, but could be around any of the 7 pins. The secondary cuts (described below) are responsible for depressing these sleeves to proper depth, thereby meeting the common shearline of the pins. The purpose of this lock is to complicate manipulation by picking. However, the HPC High Security Tubular Pick (No. TLP-UL) will defeat these locks.

Primary Cuts: Those cuts most commonly found equally spaced around the circumference of a tubular key. These cuts normally do not penetrate the wall of the key completely. The depth of these cuts is determined by the length of the corresponding pin within the lock. Under the normal conditions these are the only type of cuts which are contained on either the small or standard tubular keys. Explanation of a cut which might penetrate the wall of the key is covered under “Secondary Cuts”.

Secondary Cuts: These cuts are often referred to as “cuts-within-cuts”, most commonly found on the “oversize” keys. The secondary cuts will be found to penetrate completely through the wall of the key. Typical location and purpose of these cuts is explained under “Oversize Tubular Keys” above.

Dead Pin Cuts: These are cuts occasionally found between two “primary cuts” on a standard size tubular key. The lock in which such a key is used has a “dead pin”. This pin is designed to hamper in the event of manipulation by picking, or an unauthorized key tries to enter. The depth of the dead pin cut is normally not critical but must be of sufficient depth to allow the key to enter the keyway to maximum depth.

Duplication: This is the act of directly transferring or tracing cuts as they exist on an original key to a blank key, thereby manufacturing an exact copy. This process is used when the original key is known to actuate the lock smoothly and efficiently. If the original key is in error, or there is a question as to its accuracy, it should be decoded and a precision key cut by code using the code cutting capability of the 747XU.

Decoding: The act of determining the longitudinal depth of a cut defined as that distance from the end of the key blank to the bottom of the cut. Normally each depth would be assigned a code of 1 through 8. A standard depth increment for most tubular lock manufacturers is .016 of an inch. Therefore a code depth of 1 would have a depth of .016”. A code depth of 2 would be .032”, and so on to a depth of code 8 which would be .128” deep. NOTE: There are some locks that use an increment other than .016-inch (such as Dyna Lok that uses .025-inch). Since the 747XU uses a standard of .016” depth increments, keys for the locks mentioned are most effectively duplicated rather than cut-to-code.

Cutting to Code: This is the act of cutting a key without the use of an original key. This method of cutting a tubular key can become necessary when: (a) there is no original key or (b) there is a possibility that the original key is inaccurate. If this is the case, the original lock should be picked and the pick decoded (using HPC tools). Then cut a new key by code as explained on pages 29-55 of this manual.

Right and Left Cut Keys: These terms refer to a rotation of cuts which are occasionally required on Tubular Keys (usually found on standard size keys only). Some locks are manufactured with the pin tumbler locations rotated 1/2 space right or left of normal position. When referring to a right cut key, the cuts are found to be rotated 1/2 space counterclockwise. Left cut keys have a rotation 1/2 space clockwise. See page 43.

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