

**LIMITED WARRANTY (ONE YEAR)  
ON SIMPSON STRONG-TIE® BRAND TOOLS**

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The PTP-22 tool complies with OSHA requirements and with ANSI A10.4 2007 specifications.

**Return Tools To:**

Northwest USA  
Simpson Strong-Tie Co.  
5151 S. Airport Way  
Stockton, CA 95206  
(209) 234-7775

Southwest USA  
Simpson Strong-Tie Co.  
260 N. Palm Street  
Brea, CA 92821  
(714) 871-8373

Northeast USA  
Simpson Strong-Tie Co.  
2600 International Street  
Columbus, OH 43228  
(614) 876-8060

Southeast USA  
Simpson Strong-Tie Co.  
1720 Couch Drive  
McKinney, TX 75069  
(972) 542-0326

Eastern Canada  
Simpson Strong-Tie Co.  
5 Kenview Boulevard  
Brampton, Canada L6T 5G5  
(905) 458-5538

Western Canada  
Simpson Strong-Tie Co.  
11476 Kingston Street  
Maple Ridge, B.C. Canada V2X-0Y5  
(604) 465-0296

**WARNING**

**Read This Manual  
BEFORE Operating This Tool**



**OPERATOR'S MANUAL  
Model PT-22**



# READ THIS BEFORE USING!

Do Not Attempt To Use This Powder Actuated Tool Without First Reading And Understanding The Information Contained In This Manual! You Must Then Be Trained And Certified By An Authorized Simpson Strong-Tie Representative.

Serious Injury Or Death May Result If This Tool Is Not Used In Accordance To This Instructions!

## HOW TO AVOID SERIOUS INJURY OR DEATH:

1. ALWAYS - make certain the base material consists of thick concrete or structural steel.
2. ALWAYS - observe these safety precautions and those appearing throughout this manual.
3. ALWAYS - wear eye, ear and head protection.
  
1. NEVER - attempt to bypass or circumvent any of the safety features of this tool.
2. NEVER - attempt to fasten into soft, thin, brittle or very hard material.
3. NEVER - attempt to fasten into a spalled, cracked or uneven surface.
4. NEVER - attempt to fasten less than (3) inches from the edge of concrete.
5. NEVER - attempt to fasten less than one-half (1/2) inch from the edge of steel.
6. NEVER - place your hand over the muzzle end of the tool with a powder load in the chamber.

## REMEMBER: SAFETY FIRST!

Read This First ! Read This First ! Read This First ! Read This First !

## CLEANING AND MAINTENANCE

**WARNING - Excess dirt or debris on the breech faces may cause the tool to accidentally discharge causing serious injury or death. Clean this tool daily before using as follows.**

### A. Barrel Assembly

1. Nosepiece - must be cleaned and inspected daily making certain the inside is clean and free of debris and damage.
2. Barrel - make certain the breech face and chamber are clean and free of dirt and carbon deposits. Use only the lubricant supplied or a similar non-flammable substance. Use lubrication sparingly as excessive amounts will cause a more rapid build-up of powder residue and dirt.
3. Piston - should be brushed clean daily and checked for damage or excessive wear.

### B. Firing Mechanism

1. Breech faces should be wiped clean with a cloth and the lubricant supplied. Check carefully around the firing pin opening for dirt or carbon build-up.
2. Cleaning of all parts in the firing mechanism should be conducted by an authorized Simpson Strong-Tie repair station, twice annually or every 5,000 fastenings whichever comes first.

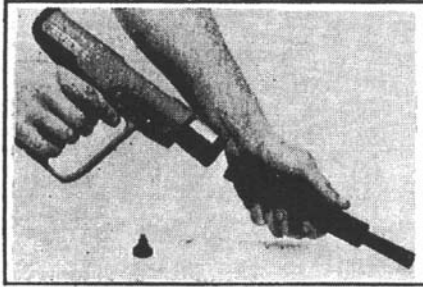
**WARNING - Remember, never proceed with cleaning and maintenance until you are certain the tool is not loaded. If the tool does not function properly, tag it "WARNING - DO NOT USE" and return it as soon as possible to an authorized Simpson Strong-Tie repair station or to the factory.**

## DISASSEMBLING THE TOOL

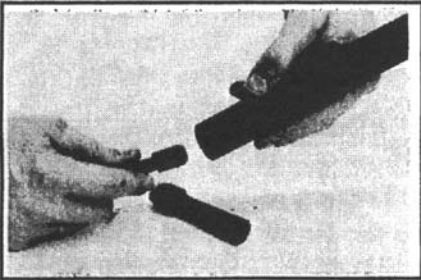
**WARNING - Make sure tool is unloaded before disassembly.**



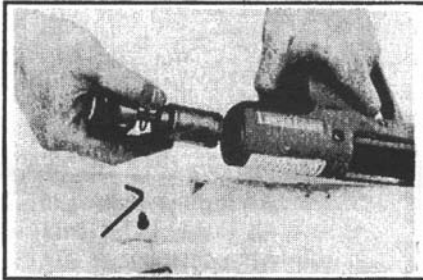
1. Loosen the reset pin cap by turning it counter-clockwise and remove, next remove the reset pin spring and reset pin from the tool while holding the barrel in place with your other hand.



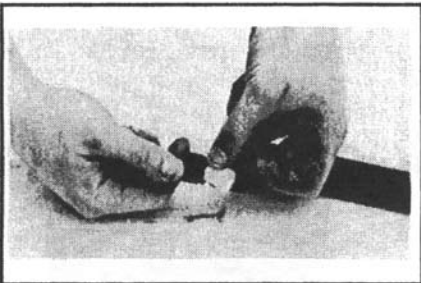
2. Remove the barrel assembly by sliding it forward out of the receiver.



3. Remove the nose piece from the barrel. Inspect the piston buffer for damage.



4. Slide the piston forward and remove it from the barrel.



5. Inspect all parts for excessive wear or damage and replace if necessary. Use only genuine Simpson Strong-Tie replacement parts. To reassemble reverse steps 1 thru 4.

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## INTRODUCTION

The Simpson Strong-Tie PT-22 tool is a low velocity or indirect-acting tool. Do not attempt to operate this or any other tool before obtaining proper training and operator certification.

### **READ THIS MANUAL CAREFULLY!**

It will help you operate the tool with the greatest SAFETY and efficiency by providing you with an understanding of the safety features, operating principles and limitations of the tool and its use. Simpson Strong-Tie disclaims any responsibility for incidents resulting from the disregard of these instructions and warnings.

This tool uses .22 caliber loads to drive .300 headed fasteners or 1/4 inch threaded studs, ranging from 1/2 to 3 inches in length. The PT-22 has a fastener capacity of 3 inch fasteners and the PT-22S has a fastener capacity of 1-1/2 inches.

Each tool kit contains the following items vital to the safe operation and storage of the tool: lockable carrying case, brushes for cleaning, instruction and safety manual, tools for maintenance, safety goggles, ear protection, chart of fasteners designed for the tool.

## IMPORTANT SAFETY INFORMATION

This manual describes the proper use of the PT-22 and the safe operating procedures for them; however, **THINKING IS YOUR RESPONSIBILITY**. You must understand **ALL** operating principles, safety features and fastening limitations of these tools, to use them without risk of serious injury or death to yourself or bystanders.

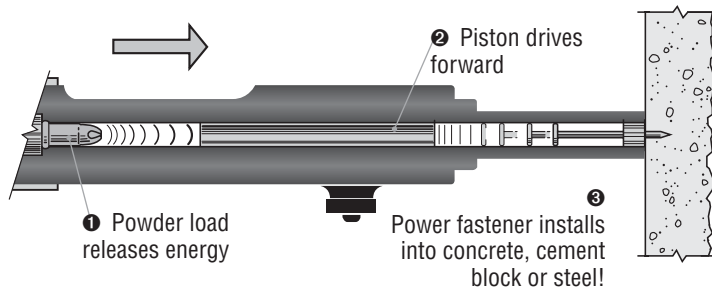
**REMEMBER:** Do not operate this tool until you study and understand this manual completely and become trained and certified to operate it by an authorized Simpson Strong-Tie instructor.

## OPERATING PRINCIPLE

There are two types of Powder Actuated Tools:

### INDIRECT-ACTING TYPE TOOL

Indirect-acting type tools work by expanding gases that act directly on a piston which drives the piston forward to strike the fastener.



The PTP-22 is an indirect-acting type tool.

### DIRECT-ACTING TYPE TOOL

Direct-acting type tools work by expanding gases that act directly on the fastener without the use of a piston. Direct-acting tools are no longer manufactured in North America and are regarded as far less safe to operate than indirect-acting tools.

**CAUTION:** The PT-22 is capable of fastening into concrete and/or steel. The fastener enters the work surface with an extreme amount of energy. Make certain not to misdirect the energy.

## SELECTING FASTENERS AND LOADS

### 2. POWER LOAD SELECTION

1. The PT-22 is designed to use 4 levels of powder loads, each identified by a number and color as follows:

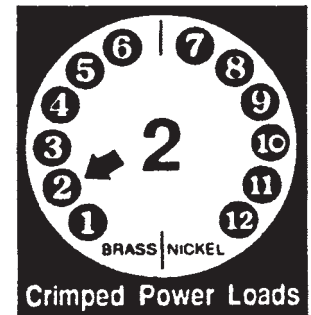
For PT-22 / .22 caliber "A" crimp loads

Simpson Strong-Tie Part #	Power Level	Color
P22AC1	1	GREY
P22AC2	2	BROWN
P22AC3	3	GREEN
P22AC4	4	YELLOW

2. When making a test fastening start with the lightest load first going up one level at a time until the proper level is attained.
3. **WARNING - Do Not Overpower**, doing so may cause the fastener to break and ricochet or pass completely through material and escape.
4. Do not attempt to force a load into the chamber of a tool.

Failure to observe these or any other warnings in this manual may result in serious injury or death.

Simpson Strong-Tie power loads are color-coded for safety and identification purposes. Power level should be noted before selecting and/or using load. In addition each box of power loads is labeled with an indicator dial denoting the energy level on a scale from 1 (lowest) to 12 (highest). Power loads numbered 1 through 6 have a brass case, and those numbered 7 through 12 have a nickel case finish.



## SELECTING FASTENERS AND LOADS

### 1. FASTENER SELECTION

1. The PT-22 is designed to set three types of fasteners, drive pins, threaded studs and special assemblies such as drive pins with pre-assembled washers, conduit clips and ceiling clips.
2. All Simpson Strong-Tie fasteners are manufactured from high carbon steel, especially heat treated to allow ductility yet hard enough to penetrate concrete or structural steel.
3. Drive pins vary in length from 1/2" to 3" shank length and are .300 inch, 5/16" or 8mm-head diameter. The PT-22 has a capacity of 3 inches. Drive pins are used to directly fasten suitable work materials to a suitable base material.
4. Threaded studs vary in overall length from 3/4" to 2-1/2" with many combinations of thread length or shank length. Threads are 1/4-20 NC. Threaded studs are generally driven directly into the base material with the work material attached subsequently with a nut and washer.
5. Drive pins assembled with washers generally vary in length from 1" to 3" and are assembled with washers from 3/4" diameter to 1-1/2" diameter. Conduit clips are generally available in 1/2" TW, 3/4" TW and 1" TW with either a 1" or 1-1/4" drive pin assembled. Ceiling clips are assembled with 1" or 1-1/4" drive pins and although generally used for hanging suspended ceilings they can be used for a variety of hanging applications.
6. Fastener penetration into concrete should be roughly 6 to 8 times the shank diameter; higher for low psi concrete and lower for high psi concrete, for maximum holding power.
7. When fastening into steel with a drive pin add the thickness of the work material to the thickness of the steel plus 1/4" for the point to fully penetrate. For threaded studs select one that has a shank length to penetrate the steel 1/4 inch and sufficient thread length for the work material plus a washer and nut.
8. Always use the spall guard where space allows as it helps hold the tool perpendicular to the work surface as well as offering additional safety to the use of the tool.

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## IMPORTANT SAFETY INFORMATION

### BASE MATERIAL SUITABILITY

Before fastening into any material, give it the center punch test. Using the fastener as a punch, and a hammer, strike a solid blow to the actual material you wish to fasten into. If the point of the fastener is blunted the material is too hard and is unsuitable. If the material cracks or shatters it is too brittle and is unsuitable. If the fastener sinks into the material with the hammer blow, the material is too soft and is unsuitable.

## WARNING

- ✓ If the material is too hard the fastener can ricochet and possibly escape, striking you or bystanders and cause serious injury or death.
- ✓ If the material is too soft the fastener can pass completely through and strike someone on the other side causing serious injury or death.
- ✓ REMEMBER - If you can hammer a fastener into the base material do not attempt to drive it with any powder-actuated tool.

### SAFETY STARTS WITH YOU!

Your safety and the safety of those around you should always be kept the foremost thought in the mind of every powder actuated tool operator. Consider that the least powerful load used in powder actuated stud drivers produce approximately 10 times the power of a .22 caliber long rifle cartridge. Respect this power as you would your chain saw, your lawn mower, and your rifle.

### Keep safety in mind and safety will mind you.

Reliable training is necessary if you want to be a good chemist, engineer, architect, machinist or carpenter. The only absolutely reliable training for powder actuated tool operator lies in his or her ability to absorb and abide by the instruction and safety precautions for each and every tool operated.

***For absolute reliable training, rely on yourself.  
Think of safety first!***

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# WARNING

**STUDY AND UNDERSTAND THESE RULES BEFORE OPERATING THIS TOOL.**

## Before Loading and Firing

1. Never operate the tool without checking to see if the barrel is free of obstructions and that the tool is clean and in good working condition.
2. Never attempt to alter, modify or manufacture parts for use in your Simpson Strong-Tie tool, this can cause malfunctions and result in unsafe functioning of the tool. Use only genuine Simpson Strong-Tie parts, fasteners and power loads at all times.
3. Operators and bystanders must wear eye; ear and head protection at all times. Serious injury or death can occur if these safety items are not used.
4. **REMEMBER:** use common sense and good judgement. Use this tool for its intended purpose only. Know the material you are fastening into making certain it is compatible with the powder actuated tool.

## Prepare for Loading

1. **ALWAYS** open the tool before handling it to be certain it is unloaded.
2. **ALWAYS** insert the fastener first. Make sure you never double load the fasteners.
3. **NEVER** load or fire the tool in an explosive atmosphere or when flammables are nearby.
4. **NEVER** allow bystanders to gather around you when using the tool.
5. **ALWAYS** check to be sure that the tool is clean. Excessive dirt or debris can cause accidental firing or misfiring of the tool.
6. **NEVER** use improper power loads or fasteners in the tool, as they may be unsafe or damage the tool.
7. **NEVER** guess - before fastening into any unknown base material, particularly in walls, perform the center punch test described in this manual.
8. **NEVER GUESS** - once you determine that the base material is suitable, make a test fastening with a grey (P22AC1) load. If the grey does not set the fastener try brown (P22AC2), green (P22AC3), yellow (P22AC4) until the proper power is determined.

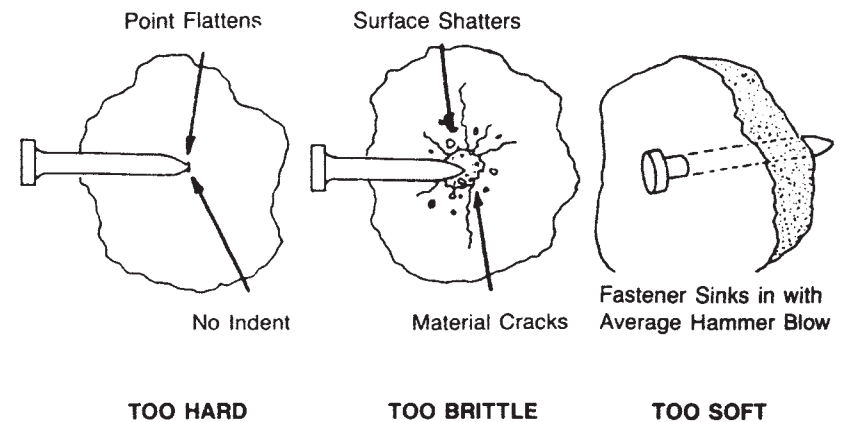
# MAKING SAFE FASTENINGS

3. Thickness of base material is perhaps the most important consideration for good safe fastenings. In concrete the thickness must be 3 times the shank penetration, in other words, for 1" of shank the concrete must be at least 3" thick. In steel thickness must be equal to or greater than the diameter of the shank.

## D. DO NOT USE THESE TOOLS FOR FASTENING INTO:

1. Vertical mortar joints.
2. Bricks
3. Hollow block or tile
4. Glazed tile
5. Glass
6. Hardened or tool grade steel
7. Cast iron
8. Welded areas or torch cuts
9. Spring Steel
10. Natural rock

- E. **REMEMBER:** If you are unsure of the base material being suitable, perform the center punch test described on page 13; failure to do so may cause serious injury or death.



## MAKING SAFE FASTENINGS

There is no substitute for good common sense; however, knowing and understanding the following basic rules will help ensure safe use of Simpson Strong-Tie tools.

- A. CENTER PUNCH TESTING:** Before making a fastening always test the base material and the work piece. Using a long Simpson Strong-Tie fastener, a hammer AND SAFETY GLASSES, place the point of fastener against the surface to be tested and strike the head with an average hammer blow.

**DO NOT FASTEN THROUGH OR INTO A MATERIAL IF:**

1. The fastener point is blunted - this material is too hard.
2. The material cracks or shatters - this material is too brittle.

**DO NOT FASTEN INTO A BASE IF:**

1. The fastener sinks easily into the surface with an average blow - this material is too soft - fastener may penetrate causing serious injury or death.

**REMEMBER:** Use for a base material only a substance that shows an impression when tested by the center punch method, but that does NOT blunt the point of the fastener, does NOT crack or shatter, and does NOT receive the fastener easily with an average hammer blow.

- B. APPLICATIONS FOR THE PT-22:** This tool is capable of making a wide range of fastenings; however each has a general purpose for which it was designed.

1. .22 caliber single shot - a heavy-duty tool, but made for the professional who fastens daily and prefers the versatility and economics of the a single shot tool.

**C. MINIMUM SPACING AND BASE MATERIAL THICKNESS**

1. Edge spacing when fastening in concrete must be at least 3" and in steel at least 1". Fastening too close to the edge may cause the fastener to break out and ricochet.
2. Spacing between fasteners is equally important in concrete. Maintain a 4" spacing for 1/4" fasteners, and 6" for 3/8" fasteners. In steel maintain a 1-1/2" spacing for both diameter fasteners.

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## YOUR RESPONSIBILITY

**A. TRAINING**

1. Remember you must obtain certification of training from an authorized Simpson Strong-Tie instructor. If such training is not available where you purchased the tool, call or write Simpson Strong-Tie before attempting to operate the tool for information on the nearest authorized instructor. Remember obtaining this instruction is **YOUR RESPONSIBILITY**.
2. Read this manual completely and understand its contents fully before attempting to operate the tool. If there is anything in this manual that you do not fully understand, ask your instructor or call Simpson Strong-Tie for information. Remember reading and understanding this manual is **YOUR RESPONSIBILITY**.

**B. LIMITATIONS**

1. Just as no instruction book of any kind can forewarn a learner against all possible situations or emergencies that may arise, neither can Simpson Strong-Tie instructors or printed instructions detail all possible conditions or circumstances surrounding the use of this tool or its supporting products. Recognizing these circumstances and reacting in a safe manner is **YOUR RESPONSIBILITY**.
2. Simpson Strong-Tie disclaims any responsibility for injury or death, which may result from any disregard of this manual or the verbal instruction of the authorized Simpson Strong-Tie instructor. Following the rules of safe operation given to you here and verbally is **YOUR RESPONSIBILITY**.

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**SAFETY STARTS WITH YOU!!!  
OBTAIN AUTHORIZED TRAINING**

# WARNING

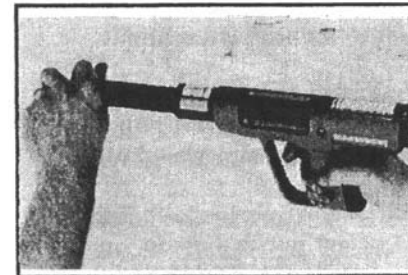
## GENERAL OPERATING PROCEDURES OF THE PT-22

1. Always point the tool away from yourself and all bystanders.
2. Never place your hand over the front (muzzle) end of the tool.
3. An accidental discharge will seriously injure your hand.
4. Always hold the tool perpendicular to the work surface making certain that NO debris is present on the surface.
5. Never set a fastener too close to another set fastener, as this can cause a ricochet.
6. Never fasten less than 3" from the edge of concrete, or less than 1/2" from the edge of steel.
7. Never fasten into rough, spalled, cracked or uneven concrete. Fasten at least 3" from the outer edge of a spalled area.
8. Never fasten into material which is too hard such as hardened steel, welds, cast steel, marble, spring steel, natural rock, etc. This could cause the fastener to shatter and escape and result in serious injury or death.
9. Never fasten into material which is too brittle such as glass, glazed brick, glazed tile, slate, etc. This could cause the material to shatter and result in serious injury or death.
10. Never fasten into material, which is too soft such as wood, plaster, drywall composition board, plywood, etc. This could cause the fastener to pass through and escape resulting in serious injury or death.
11. Never fasten into a concrete base material less than 3 times the shank penetration of the fastener. Never fasten into a steel base material less than the shank diameter of the fastening being used. Fastening into any base material, which is too thin, may allow the fastener to pass through and escape resulting in serious injury or death.
12. Never attempt to fasten through a disc, use only pre-assembled fasteners and disc (PDPW-series) when a disc is required.
13. Never fasten through an existing hole in any material as the fastener could hit the edge of the hole and ricochet.
14. If you decide not to make a fastening after having loaded the tool, remove both the power load and fastener from the tool before returning it to its case.

**FAILURE TO OBSERVE ANY OF THESE WARNINGS MAY RESULT IN SERIOUS INJURY OR DEATH TO YOURSELF OR A BYSTANDER.**



5. Depress the tool firmly against the work surface using both hands. Make certain you hold the tool perpendicular to the work. The tool is now in the firing position, if you have followed ALL safety precautions, pull the trigger.



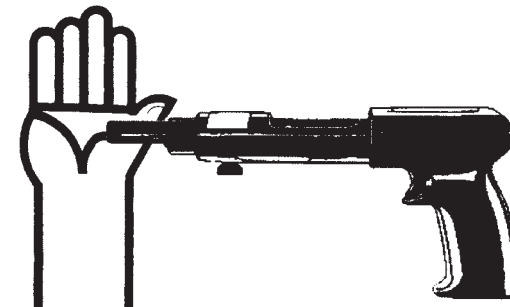
6. After making the fastening, lift the tool off the work surface and pull the nose piece sharply forward, or flip the tool open with a snap of the wrist. This action resets the piston and prepares it for the next load.

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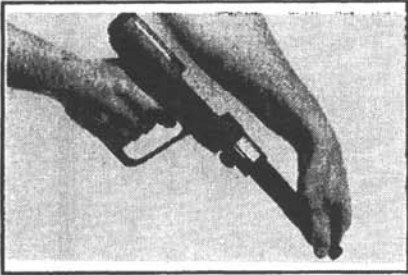
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# WARNING

**Never place your hand over the nose piece of the tool unless inserting a fastener and only then with the tool fully open and the chamber empty!**



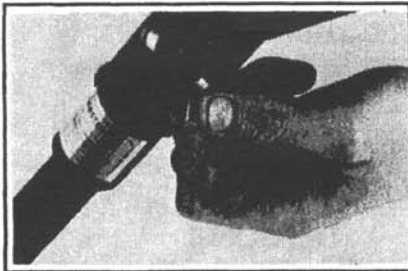
## HOW TO LOAD AND FIRE THE TOOL



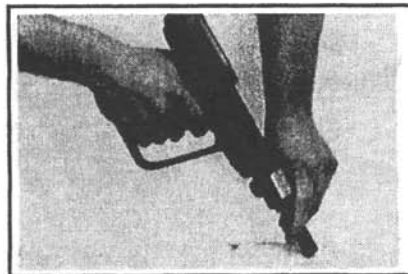
1. Grasp the nose piece and pull sharply forward until you feel a definite stop. This resets the piston and sets the strip advance lever into the correct location. *DO NOT place your hand over the nose piece when operating the tool!*



2. Insert the fastener into the nose piece of tool, head or threaded stud end first. Push fastener until the pointed end is even with the face of the nose piece.



3. Select the proper powder load and insert it into the breech through the large opening in the receiver. Always start with the lightest load.



4. Partially close the tool by pulling the nose piece rearward into the detent (carry) position.
  - *DO NOT place your hand over the nose piece while closing!*

## WARNING

### A. HANDLING THE PT-22 AND POWDER LOADS

- **NEVER** leave a loaded tool unattended. Once the tool is loaded make the fastenings or unload the tool.
- **NEVER** carry powder loads in the same pocket or container with fasteners or any other hard objects.
- **NEVER** use powder actuated loads in firearms. They are more powerful than normal small arms ammunition.
- **NEVER** carry a loaded tool from job to job.
- **ALWAYS** Properly brace yourself when working on scaffolding or ladders
- **ALWAYS** wear eye, ear and head protection.
- **NEVER** use the tool for anything other than its intended purpose.

### B. OPERATING PROBLEMS

- If the powder load does not fire after pulling the trigger, hold tool firmly against the work surface for at least 30 seconds. Carefully remove tool from work surface, making sure to point it away from yourself and any bystanders. Remove load and dispose of it in a can of water. Unfired loads must never be thrown in trash containers or carelessly discarded in any way.
- **NEVER** attempt to force or pry an unfired powder load from the breech plug with a sharp or pointed object, as this may cause an accidental discharge.
- **NEVER** attempt to disassemble a jammed tool containing a live powder load. Tag the tool "DO NOT USE" and store it safely in a locked case. Call your Simpson Strong-Tie representative for tool repair.
- If at any time during the operation of the tool you feel it is not working properly, STOP using it and call your Simpson Strong-Tie distributor.

### C. OPERATING PROBLEMS

- If unnecessary bystanders are in the area tell them to leave, warn all others that you are using a powder actuated tool.
- Check the work surface to be sure it is clear of any debris. Clear away any debris so that the tool sits flush on the work surface.
- Check work area for explosive or flammable materials. If any are found remove before operating tool.
- Check the breech faces of the tool to be sure there is no dirt, grit or foreign objects present.
- Check the barrel to make sure you don't double load it, and that it is clear of any obstruction.

BEFORE loading the tool operate it a few times on a solid surface making certain all parts move freely and that the firing pin clicks when the tool is fully depressed and the trigger is pulled. "Dry firing" will not damage the tool.

# TOOL ASSEMBLY BREAKDOWN

## PT-22

(3" Fastener Capacity)



PT-DC106  
NOSE PIECE



PT-DC102



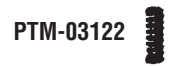
PT-DC112



PTM-01114



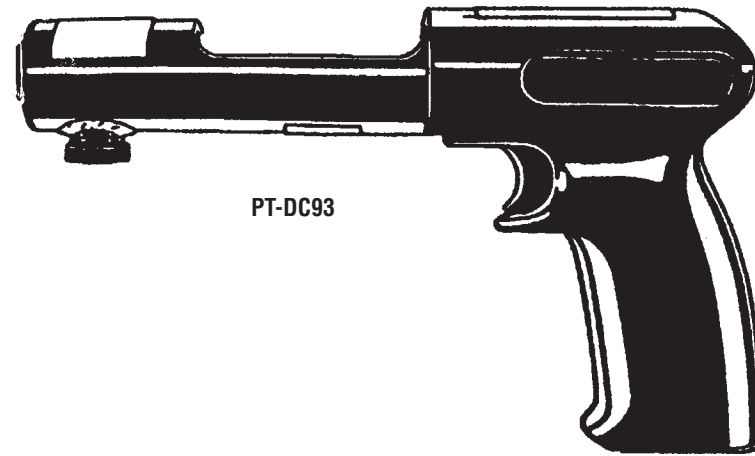
PTM-01107



PTM-03122



PTM-03108



PT-DC93

### PARTS LIST OF PT-22

PT-DC102 PT-22 Barrel  
 PT-DC106 Nose Piece  
 PT-DC93 Tool Body -  
 Including Firing Mechanism

PT-FP-DC1 Fastening Module - Includes the following:

Qty	Part #	Description
1	PTM-01107	Piston Reset Pin
1	PTM-03108	Piston Reset Cap
1	PT-DC112	Piston with Ring
1	PTM-01114	Piston Buffer
1	PTM-03122	Piston Reset Spring