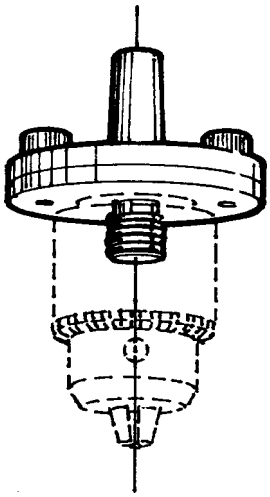
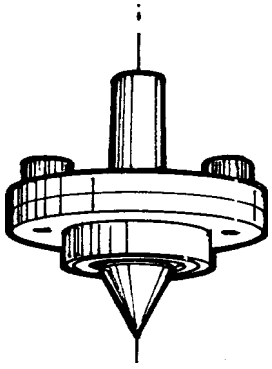
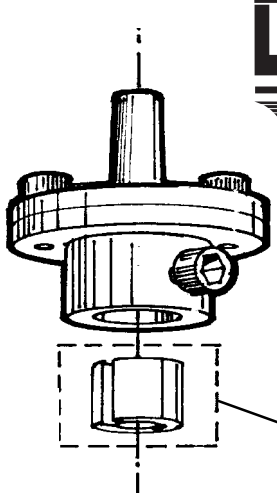
UNITURN & UNIMILL
The cool tool



ADJUSTABLE
CHUCK HOLDER
P/N 1202
(Drill Chuck NOT
included.)



ADJUSTABLE
LIVE CENTER
P/N 1201



ADJUSTABLE CUSTOM
TOOL HOLDER
P/N 1203

Your own custom made
split collet 5/8" O.D.
(Not Included)

ADJUSTABLE TAILSTOCK TOOL HOLDERS

P/N 1201, 1202, 1203

The UNITURN lathe has come a long way since its original conception 25 years ago. It started out as a machine that could be manufactured and sold at a very reasonable price, but the accuracy was such that it had limited use.

When the company was purchased in 1974 and started to produce these machines, we completely changed the manufacturing methods and "tightened the tolerances". The biggest improvement in the machines came with the advent of CNC machines (computer controlled) which is how the machines have been manufactured for the last ten years.

Along with the improved accuracy came another set of problems; customers are now using UNITURN tools to do work that, until now, could only be done on machines being very expensive.

The weakest point of the UNITURN lathe design is also the best one; that is, the headstock is removable. This allows taper cutting, milling conversions, riser blocks and numerous other set ups to be made that could never be accomplished without this feature. The negative part of this design is, it's impossible to have perfect tailstock to headstock alignment. Engineering is always a compromise. In manufacturing the adjustable tool holders we are also admitting we don't have perfect alignment which is the reason for this explanation.

Only someone new to the machine trade would talk "perfect" alignment. In the machine business you talk tolerances even if you can't measure an error because now the error has to be assumed from the tolerances of your method of checking. To maximize the use of the UNITURN lathe we are introducing a series of three tool holders. Holders such as these have always been used in setting up Turret Lathes, and Screw machines in the machine trade to make up for the inaccuracies in machine tools or the lack of room for drill chucks, etcetera.

The UNITURN holders have a Morse #0 taper to fit the tailstock and a choice of three tool holders:

P/N 1201...ADJUSTABLE LIVE CENTER
P/N 1202...3/8-24 DRILL CHUCK HOLDER
P/N 1203...5/8" TOOL HOLDER

These holders are simple to use. The holders are divided into 2 parts with flanges. These flanges are bolted together with 2 screws. The clearance holes for these screws allow the front to be adjusted in relation to the rear. The rear section has a witness mark (hole). This hole should always be located at the top so the holder is located the same way in the tailstock.

The accuracy that is attainable is governed by the amount of skilled effort you put forth. Before starting, it's wise to clamp your headstock square with the bed. This can usually be accomplished by loosening the headstock and pushing back evenly against the alignment key (located under the headstock) and retightening.

To line up the tailstock chuck, put a scrap piece in the 3-Jaw that sticks out approximately 3/4" and face and center drill the end with your present Morse #O arbor and drill chuck. The center drill will find center of the stock even though the chuck may not be lined up perfectly.

Next, mount the drill chuck on the adjustable arbor with the center drill still in it. Bring the tailstock up until the center drill is in the just drilled hole with the screws loose. Tighten when you feel it's on center in the hole. Repeat this process to assure alignment using the new adjustable

The cool tool®
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arbor. This should be close enough for a drill chuck because drill chucks are only accurate within .003" when new at best.

Accurate drill chucks cost approximately 4 times as much and only run within .002". They might claim .001", but I haven't seen it unless you have brand new everything. They are not a good investment for the home shop machinist.

With the drill chuck aligned you can use the same set up to align the adjustable live center by putting the point into the center drilled hole and tightening the screws to start.

Turn a test bar and correct any error. This can be time consuming and adjustments can be made by never locking the screws so tight that you can't move it with a few taps of a small mallet. When aligned to your satisfaction, screws can then be tightened completely.

The adjustable tool holder allows larger drills and cutting tools that can't be held in our standard drill chuck. Tools are held in a split bushing that can easily be made. The outside diameter has to be .625" and the inside diameter to fit the tool you wish to hold. The bushing is then split almost through with a hacksaw or slitting saw in the direction of the hole. The tool can now be clamped in the holder using this split bushing.

We personally don't believe a person should try and get these any more accurate than you realistically need. Machining is a process that takes place under high loads and temperatures. A perfectly aligned machine doesn't produce a perfect part without the skill of an operator who copes with the many variables. The skill of machining is making parts that are of a closer tolerance than the machine you are working with was built. If you cut a slight taper on a lathe there is nothing wrong with straightening it with a file (flat mill) and polishing with 320A Wet/Dry paper. This should only take a couple of minutes. Trying to align your machine could take hours only to find the machine aligned satisfactory, but your cutter was dull and below center. Please, don't become a machinist that can never get a job done correctly because of the equipment on hand. We've seen beautiful parts produced in machine shops on equipment they wore out 20 years ago; it's the machinist that build these parts not the machines!

PARTS DESCRIPTION

NO. REQ.	PART NO.	DESCRIPTION
1	1204	Adjustable Tool Back
2	1205	8-32 x 3/8" Skt Hd Cap Screw
2	1206	#8 Washers
1	1207	9/64" Hex Key
1	1208	Adjustable Live Center Face
1	1209	Adjustable Chuck Arbor Face
1	1210	Adjustable Tool Holder Face
1	1211	10-32 x 5/16" Skt Hd Cap Screw
1	1092	Live Center Point
1	1093	3/8" Bearing