

PUNCHES



All Measurements in mm

FLAT FACE SOLID PUNCHES

| Punch No. | End Dia. | Punch No. | End Dia. | Punch No. | End Dia. |
|-----------|----------|-----------|----------|-----------|----------|
| 104 | 4.10 | 108 | 2.36 | 111 | .99 |
| 106 | 3.23 | 110 | 1.48 | 111A | .89 |

ROUND FACE SOLID PUNCHES

| Punch No. | End Dia. | Punch No. | End Dia. | Punch No. | End Dia. |
|-----------|----------|-----------|----------|-----------|----------|
| 112 | 4.10 | 117 | 1.76 | 119 | .99 |
| 115 | 2.73 | 118 | 1.48 | 119A | .84 |
| 116 | 2.36 | | | | |

SCREW KNOCKING PUNCHES

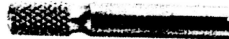
| Punch No. | End Dia. |
|-----------|----------|
| 121 | .79 |
| 122 | .70 |

PALLET ARBOR PUNCHES

| Punch No. | Inside Hole Dia. | Outside Hole Dia. |
|-----------|------------------|-------------------|
| 131 | .15 | .31 |
| 132 | .15 | .37 |
| 133 | .15 | .41 |

PUNCH LIFTER No. 43-199

Used to remove Punches easily from their holes in the Staking Tool box.



SPECIAL NOTE: There is an exact difference of 30 numbers between equivalent sizes of Round Face Hole punches and Flat Face Hole punches. This information will be useful when staking staffs, when, for example, you would use a No. 69 Flat Face Hole punch after using a No. 99 Round Face Hole Punch.



STUMPS

All Measurements in mm

Flat Face Solid

Used for closing holes in conjunction with Round-Face Solid Punches, Peening, etc.



| No. | Outside Dia. | No. | Outside Dia. |
|-----|--------------|-----|--------------|
| 1 | 9.60 | 8 | 3.26 |
| 3 | 5.78 | 11 | 2.49 |
| 5 | 4.08 | | |

Friction Jeweling

Used with Jeweling Reamers



| No. | Hole Dia. | No. | Hole Dia. |
|------|-----------|------|-----------|
| 13-F | 3.05 | 17-F | 1.48 |
| 14-F | 2.05 | 19-F | 1.15 |
| 16-F | 1.77 | 20-F | .85 |

Round Face Solid

Used in conjunction with Round or Flat-Face solid Punches for closing holes, etc.



| No. | Outside Dia. | No. | Outside Dia. |
|-----|--------------|-----|--------------|
| 25 | 5.78 | 33 | 2.08 |
| 29 | 2.26 | 37 | 1.40 |

Flat Face Hole

Used for resting wheels for driving out staffs, pinion, etc.



| No. | Hole Dia. | Outside Dia. |
|-----|-----------|--------------|
| 47 | 2.38 | 5.79 |
| 51 | 1.93 | 3.74 |
| 60 | .92 | 4.08 |
| 62 | .79 | 3.86 |
| 65 | .64 | 3.26 |
| 67 | .57 | 3.26 |
| 69 | .51 | 3.26 |

Roller Stumps, Driving on

Has central hole to receive staff and side groove for roller pin.



| No. | Size |
|-----|-----------------|
| 78 | Bracelet, Large |
| 79 | Bracelet, Small |

Roller Stump, Removing

For two-arm balances; has transverse slot to receive balance arm and notch for end of roller pin if it projects.



| No. | Size |
|-----|----------------------------------|
| 82 | Small, with slot for roller pin. |
| 84 | Medium, with 3 spaced slots |



Pump Center Stump
No. 85 Large
No. 86 Small

Spring loaded center to keep pivot hole centered while it is being closed.



Large flat face cup
No. 87

Used for bumping plates or bridges end-shaking barrel arbors, etc.



Center arbor support stumps
No. 88 Large
No. 89 Small

For supporting back end of center arbor, while staking on hands or cannon pinion.



Crotch No. 90

For supporting cannon pinion while adjusting setting friction.



For driving in Waltham detachable staffs

| No. | Size | Hole diam. | Outside diam. |
|-----|------|------------|---------------|
| 92 | 16s | .94 | 5.61 |
| 93 | 12s | .74 | 5.31 |
| 94 | 0s | .61 | 4.92 |



For driving out Waltham detachable staffs

| No. | Size | |
|-----|------|-------------|
| 95 | 16s | Taper Mouth |
| 96 | 12s | Taper Mouth |
| 97 | 0s | Taper Mouth |



For staking Elgin staffs

| No. | Hole diam. | Outside diam. |
|-----|------------|---------------|
| 99 | 1.50 | 5.79 |
| 99A | .89 | 5.79 |



Vee Slot
No. 100 Large
No. 100-A Small

For driving out escape pinions without disturbing wheel bushing, etc. Very practical and useful.

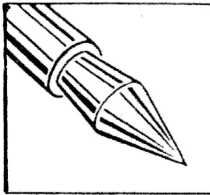
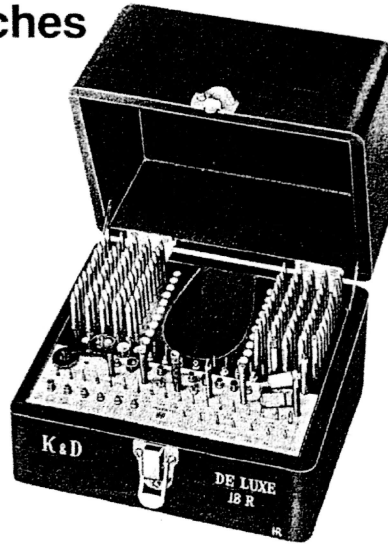


Solid V-Slot
No. 101

For supporting cylindrical parts.



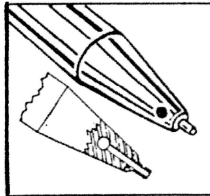
Punches



SET PUNCH No. 1

- For centering the dieplate

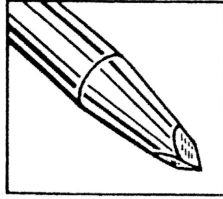
Any other use would soon ruin the set punch, the point being very accurately ground.



CROSS HOLE PUNCHES No. 7 to 10

- for driving in and out staffs from rollers
- for driving in and out friction staffs (except Waltham, see punches 39 to 42)

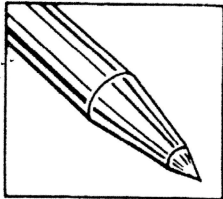
The hole is shaped so that the punch rests on the shoulder of a cone-shaped pivot. The hole in the side is for observation and to facilitate the removal of a pivot that might become broken and lodged in the hole. Care must be taken in selection of the correct hole size so that the punch fits the pivot snugly, but not tight.



TRIANGULAR POINTED PUNCH No. 12

- for tightening roller tables

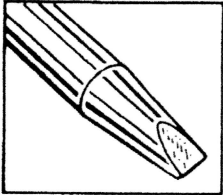
Raises three slight burs equidistant about the hole of a roller. Actually, an emergency measure when a proper fitting roller or staff cannot be obtained.



PRICK PUNCH No. 13

- for marking centers

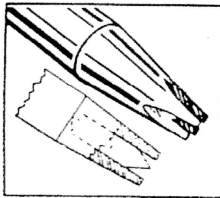
Has stronger point than set punch and can be used to mark or nick.



STRETCHING AND PEENING PUNCHES Nos. 14 and 15

- for stretching balance arms
- for stretching metal

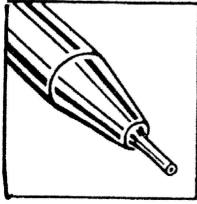
After removing the roller and hairspring, place the balance in the hole of a flat faced hole stump or punch which can be inverted to act as a stump. The hole should be just large enough to accommodate the hairspring shoulder of the staff snugly but not tight. Place the peening punch on the balance arm close to the staff and tap the punch with a series of light blows. The result should be checked often as overstretching is difficult to correct.



CENTER WHEEL PUNCHES Nos. 16, 17 and 18

- for indenting the riveting of safety pinion staffs

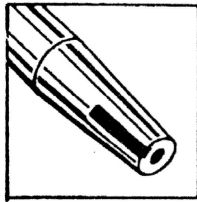
The safety pinion staffs may slip in the center wheels of 18s Waltham watches and others using this feature. To secure the staff to the wheel firmly these punches are used to indent the riveting of the staff in four places with one blow.



ROLLER PUNCHES Nos. 20A to 22A

- for staking double rollers
- for staking Incabloc rollers
- Punches 20A and 21A are specifically for Incabloc rollers and are shaped to fit the groove in the bottom of the roller

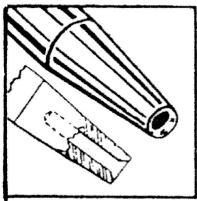
All the punches are used to drive the roller on the staff and should be selected so that the hole will be large enough to go over the roller shoulder of the staff, but small enough to rest on the small roller table.



ROLLER STAKING PUNCHES Nos. 25 to 26C

- for driving single or impulse double rollers on balance staffs

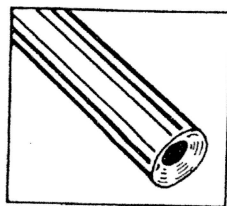
These punches are made with a hole in the center to go over the balance staff and a groove in the side to receive and protect the roller jewel. Care should be used in selecting the proper punch to avoid the possibility of creating pressure on the roller jewel causing it to break or loosen. Some watchmakers prefer to use these punches inverted in the frame allowing the roller to rest on the top of the punch and driving the staff down into the roller with a flat face hole punch selected to fit over the collet shoulder of the staff. You can also reverse the procedure by placing the balance wheel over a flat face hole stump and driving the roller down on the staff using a roller staking punch.



COLLET CLOSING PUNCHES Nos. 27 and 28

- for closing hairspring collets

Breguet collets should be closed from the top side and flat collets from the bottom to obtain the maximum clearance between the punch and the hairspring. The collet can only be closed to a point where the sides of the slot touch each other and if this is not sufficient, the collet or the balance staff should be changed. Be careful to select the proper size punch as one that is too large will shear off the hairspring after a few taps of your hammer. Always use these punches in the Staking Tool frame and rest the collet on a solid face stump.



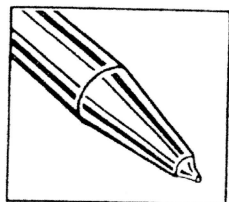
TAPER MOUTH CLOSING PUNCHES Nos. 31 to 38A

- for closing holes in sockets of hour and second hands
- for spreading friction fit jewel settings or bushings
- for closing tips of sleeves

Taper mouth hole closing punches have the effect of gathering in and condensing stock which is in most instances a post, socket or bushing.

Perhaps the most common use of this punch is to close the hole in hour hands which is accomplished by first placing the hand on a flat face stump with the socket in an upright position. Select a taper mouth punch which fits over the socket and will not touch the body of the hand. Tap the punch lightly with a brass hammer turning it about one quarter of a turn after each blow.

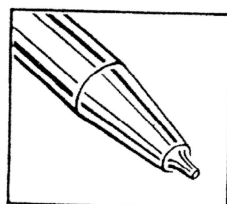
These punches are also ideal for spreading friction fit jewel settings such as used by Waltham. To spread a jewel setting, select a punch slightly smaller than the setting itself. Place the setting on a flat face stump and center with the taper mouth punch. Light tapping will create a ridge or groove and spread the setting just enough to afford a tight fit.



DRIVING OUT PUNCH No. 39

- for removing Waltham detachable staffs

This punch is used in conjunction with stumps 95, 96 and 97. The hub of the balance wheel fits into the tapered hole of the stump. The punch has a tapered hole to fit on the pivot of the staff. A few light taps are sufficient to drive out the staff.



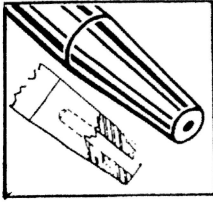
DRIVING IN PUNCHES Nos. 40 to 42

- for staking Waltham detachable staffs

These punches are used in conjunction with stumps 92, 93 and 94. A stump is selected with a hole large enough to accommodate the hairspring shoulder of the staff and the balance is inverted on the stump. A punch is selected which will go over the roller shoulder of the staff and seat itself against the hub. A few light taps are sufficient to drive in the staff.



Punches

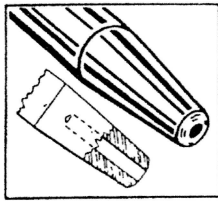


FLAT FACE HOLE PUNCHES Nos. 44 to 73A

- for final staking of balance staffs
- for final staking of train pinions
- for pressing hairspring collets on balance wheels
- for use as stumps when inverted into the staking tools. Ideal for riveting "hard" staffs — will save wear and tear on the expensive dieplate.

When used for final staking of a balance staff or pinion, it is important to select the correct size punch for doing a good job and avoiding damage to the punch. A proper fitting punch should fit freely over the collet hub with a clearance of about .02 to .03 mm. Always tap the punch lightly with a brass hammer turning it about one quarter of a turn after each blow.

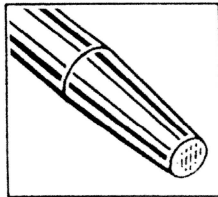
If you select too large a punch, it is possible that you may not obtain the full degree of bearing surface, thereby, placing too much pressure on the inside corner of the punch causing it to flatten out or chip. If you select too small a punch, the staff becomes a wedge and will split the punch or round the inside corners of the punch.



ROUND FACE HOLE PUNCHES Nos. 74 to 103A

- for spreading undercut of staffs and pinions prior to finishing with a flat face hole punch

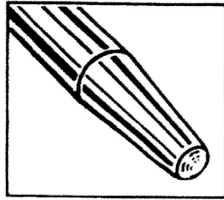
Before using this style punch, press the balance wheel firmly over the riveting surface with a flat faced hole punch. Make sure that the shoulder of the staff extends far enough through the wheel to provide sufficient stock to form a rivet. Select the correct size punch in the same manner as with the flat faced hole punches.



FLAT FACE SOLID PUNCHES Nos. 104 to 111A

- for closing holes
- for adjusting end shake of train bushings
- for riveting where a hole punch is not required
- for use as stumps when inverted in Staking Tool frame

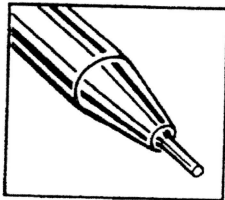
Punches



ROUND FACE SOLID PUNCHES Nos. 112 to 119A

- for closing pivot holes
- for closing minute hand holes
- for burnishing top of old style jewel settings after closing bezel
- for closing holes in rollers

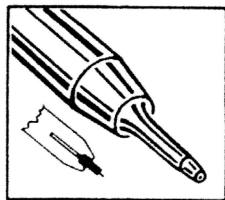
The above punches are generally used in conjunction with a solid face stump and their high polish will leave a fine finish on oil cups or pivot holes. When using to close minute hand holes, always use a Staking Tool frame and avoid direct contact with the dieplate by first placing the hand on a solid face stump. If the hole cannot be closed easily with light tapping, the material is too hard and should have the temper drawn to avoid breakage. These punches were not designed to be used on clock plates.



SCREW KNOCKING PUNCHES Nos. 121 and 122

- for driving out screws which have broken in the plates
- for driving out friction banking pins

Care must be used with these punches or breakage can be expected. In driving out a broken screw, one good blow is much better than a succession of light blows and less likely to break the punch.



PALLET ARBOR PUNCHES Nos. 131 to 133

- for staking friction pallet arbors

These punches have a specially designed double shoulder hole which accommodates both the pivot and part of the body of the pallet arbor. The inside shoulder of the punch rests on the shoulder of the pallet arbor. A drop of oil in the hole of the punch will keep the pallet arbor from falling out of the punch.



CORRECT USE OF PUNCHES AND STUMPS

Staking Tool punches, like all watchmakers' tools, are precision made to benefit skilled workmen and must be used with care.

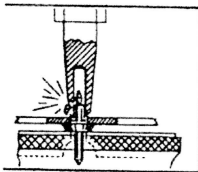
Each Staking Tool punch was primarily designed for a specific type of work and careful handling must be exercised to avoid breakage and unnecessary wear. A few "do's and don'ts" are listed below to assist you in properly using your Staking Tool punches and stumps.

In handling the frame itself . . .

most watchmakers prefer to center the die and tighten with the die binder while resting the frame firmly on the bench. Others like the dieplate to "float" or remain loose since this allows for self-centering of the punch and staff.

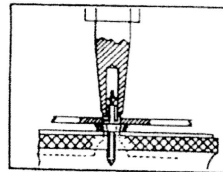
Some prefer to hold the frame . . .

by the neck (off the bench) because they feel that the double blow (caused by the dieplate and punch against the staff from both sides) lessens the pressure on both parts and does a better all around job.



WRONG

CHECK PUNCH SIZE CAREFULLY



RIGHT

For staking staffs and pinions . . .

the common practice is to use a round faced hole punch first to flatten the undercut of the balance staff over the balance arm. A flat faced hole punch is then used to finish the riveting and to bring it firmly down over the arm. If a punch fits too tightly over the hairspring shoulder of the staff, it will not produce a good job and may even split the punch.

For closing holes . . .

round faced solid punches are generally used and should only be used in the Staking Tool frame to avoid off center jobs. If used on steel, extra caution should be exercised to avoid breakage — use light blows.



Small cross hole and special Waltham punches . . .

are the most delicate and often misused punches. Do not use these punches for any other purpose than that for which they are designed.

Always use a brass hammer . . .

which saves battering your punches. If a steel hammer is used, the end of the punch may flatten out and make it impossible to invert in the frame. We recommend using the K&D No. 26-491 Brass hammer which was made especially for Staking Tools.

Light tapping . . .

will stake a staff properly and sufficiently tight. It is recommended to turn the punch slightly between the taps or turning the balance wheel to produce a better job. Forceful pounding quite frequently will cause distortion of the balance arm as well as damage the die and punches.

American made balance staffs are harder . . .

than Swiss staffs, and for this reason the use of stumps or inverted punches is recommended to avoid direct wear on the expensive dieplate.

Check periodically for rust . . .

and remove from punches and die with fine emery paper. Turning the punches in your lathe will speed the job of rust removal. To prevent rust from summer humidity and perspiration, the punches and the dieplate should be periodically wiped with a rag saturated with lathe oil.

Check punches for wear . . .

about once a month, especially the flat and round face hole punches in the most used sizes. Good workmanship cannot be expected if you use a worn or battered punch. Replacements are inexpensive and well worth the investment.