



PATTERN MAKER'S VICE

INTRODUCTION

This instruction is for the HNT Gordon *pattern maker's vice*.

Your *pattern maker's vice* is designed to hold any object, from those with parallel sides through to those with tapers or double tapers. To hold tapered objects, you will need the *tilting plate* which fits into the vice's *back jaw* using a ½" dog hole. If holding parallel objects this *tilting plate* is not required.

You can also custom make a tapered jaw to hold a particular job you have. This can be held in the *back jaw* using a ½" dowel in the corresponding dog hole.

The *pattern maker's vice* will hold objects up to 150mm (6") wide. This is reduced to 120mm (4 ¾") when using the *tilting plate* fitted.

In both cases, the vice will rotate 360° to give four different working heights and any angle in between. The vice will also tilt 90° from

vertical to horizontal and is capable of being locked at any angle.

This vice has the new generation non-racking design which gives you significant holding power with little force on the *crank handle (10)*. If using your vice a lot, this will significantly reduce your workload over the course of a day.

We recommend you put a leather (or equivalent) soft jaw on the *front jaw (11)* for better work holding.

Warning: This vice has a small *crank handle (10)* on purpose. This is because you do not need much force to hold any object. If you utilise any tool to apply excess force to the *crank handle (10)*, your warranty will be void.

Note: Your vice will have less holding power once you exceed the required force.

INSTALLATION

Installation is simple, follow these basis steps:

- Your bench needs a particular design for the *pattern maker's vice* to be installed with these instructions. The simplest design for this type of vice is a self-supporting thick bench top from 45mm (1 ¾") up. Any bench thickness greater than 45mm requires a trench removed from its

underside. E.g. A 65mm bench top will require a 20mm (0.787") deep trench removed from its underside. A 20mm deep trench is required on the top face of your bench for all installations of the *pattern maker's vice*; this houses the *mounting plate (2)*. **Diagram 2** shows the size and the positioning of each trench in relation to the other.

- If you can remove the bench top from its frame, this is the simplest way to do the underside trench (if required). Before taking the bench top off (if applicable), mark the position of the *mounting plate (2)* on the bench top, ensuring the vice can tilt and rotate freely. **See diagram 3.**
- After creating the trench(s), ensuring a snug fit, drill the four marked holes to suit your screws and bench thickness.
- It is essential you leave 25mm (1") of bench between the top and underside trenches.
- After reinstalling your benchtop, you should now be able to mount your *pattern maker's vice*. Do so and ensure nothing fouls during the *jaws (1 & 11)* complete revolution and its tilting range. Ensure the *main housing (9)* doesn't foul any part of the underside of the bench top when in the 90-degree position.
- Slide the *tilt bracket (16)* onto the *slide rod (3)* and move the bracket

into position. **See diagram 2.** Ensure the *tilt bracket (16)* is parallel to the *main housing (9)*. Accurately mark the position of the four screw holes. Drill marked holes considering screw diameter. Now mount the *tilt bracket (16)*.

- Tilt the vice back and forth ensuring it travels smoothly. There shouldn't be any 'tight spots' if the *tilt bracket (16)* and vice have been aligned correctly. Adjust the bracket now if tilting isn't smooth. Minute adjustment can be achieved by backing off the four screws and manually holding the bracket in place before screwing down tight.
- If you so choose, glue a leather (or equivalent) face onto the inner side of the *front jaw (1)* using contact adhesive. If you are so inclined, there is scope to apply a soft jaw onto the inner side of the *back jaw (11)*. Also, if you choose to do this, ensure you punch or cut a hole to allow the mounting of the *tilting plate*. It is also recommended to apply a soft jaw to the face of the *tilting plate* if you purchase this option.

USING YOUR PATTERN MAKER'S VICE

There are many uses for this vice so put it to work for the intended purpose. The *pattern maker's vice* has been designed and built to exact tolerances, so you can use it day in and day out, lasting you a lifetime. Just remember, this vice relies on a large surface area and little force to hold parts, this works due to the non-racking design. If you find the vice isn't holding well with little force, likely the part isn't parallel. In this case you will need the *tilting plate* which is designed for tapered clamping.

Your *tilt locking handle (17)* is on the right-hand side of the vice. You pull the handle toward you to lock it, and away to unlock. The *rotation locking handle (20)* is on the left-hand side of the vice. You pull the handle toward you to lock it, and away to unlock. Neither handle requires much force to lock the vice in position. Take some time to test this yourself and become accustomed to the required force.

ADJUSTING YOUR PATTERN MAKER'S VICE

Your *pattern maker's vice* comes adjusted and ready to use. However, over time, as parts wear and grease moves around, you may

need to adjust your vice for optimum performance.

There are three adjustments on your vice:

- If your vice rotates too freely in use, you can adjust this by first locating the *large round nut (7)* found at the back of the *main housing (9)*. Loosen the two grub screws here then tighten the *large round nut (7)*, adjust until the jaws rotate with the required friction for a controlled rotation. Then re-tighten the grub screws.

Your tilt and rotation locking handles (17 & 20) can get out of adjustment over time, especially if excessive force is used to lock them. If either interferes with the vice's back jaw (1) they need adjustment.

- The *rotation locking handle (20)* on the left has a left-hand thread. Think in reverse when unlocking the *rotation locknut (19)*. Pull the handle towards you to lock the vice. Undo the locknut with a 16mm spanner, this will allow you to move the handle to a vertical position. Simply tighten the handle against the locknut. This should result with the handle in the correct position.
- The *tilt locking handle (17)* on the right-hand side is adjusted in the same manner. The key difference is the *tilt locknut (8)* is a right-hand

thread. This will feel natural when tightening and loosening.

DISMANTLING YOUR PATTERN MAKER'S VICE

- If you simply need to remove the *front jaw (11)*, wind the vice out to 150mm (6"), remove the grub screw located at the back of the vice in the end of the *brass tube (4)*. The *10mm steel pin (6)* can then be removed by gently tapping its end with a pin punch (or equivalent procedure). Once the pin has been removed, the *front jaw (11)* will slide out. If you need to further dismantle this part of the vice, simply unscrew the *brass screw (15)* located on the underside of the *front jaw (11)*. Once this has been removed you can remove the *crank handle (10)* and *thread (13)*. To do this, utilising a wooden dowel, tap the *brass tube (4)*, this will knock the *brass bush (14)* from the *front jaw (11)*, granting access to the *thread (13)*.
- If you need to remove the *75mm (3") barrel (5)* from the *main housing (9)*, first locate the *large round nut (7)* at the back of the *main housing (9)*. There are two grub screws to be removed before the nut can be undone and removed. Now push the *rotation locking handle (20)* away from you (towards the back of the bench) as far as it will move. This unlocks the *rotation brake pad (18)* allowing for

the *back jaw (1)* and *75mm barrel (5)* to be removed from the *main housing (9)*.

- If you find your vice is too tight throughout its use, the methods supplied above can be utilised in locating and fixing the problem. If this persists, feel free to contact us for advice.
- When reassembling, ensure all parts are clean and apply automotive grease where there previously was. **Do not apply grease to plastic bushes, black seal, or two long slots in the 50mm shaft. Doing so attracts dirt and dust which may foul the mechanism over time. You can use a dry lube on these parts for lubrication as they won't attract dirt and dust.**

More information at:

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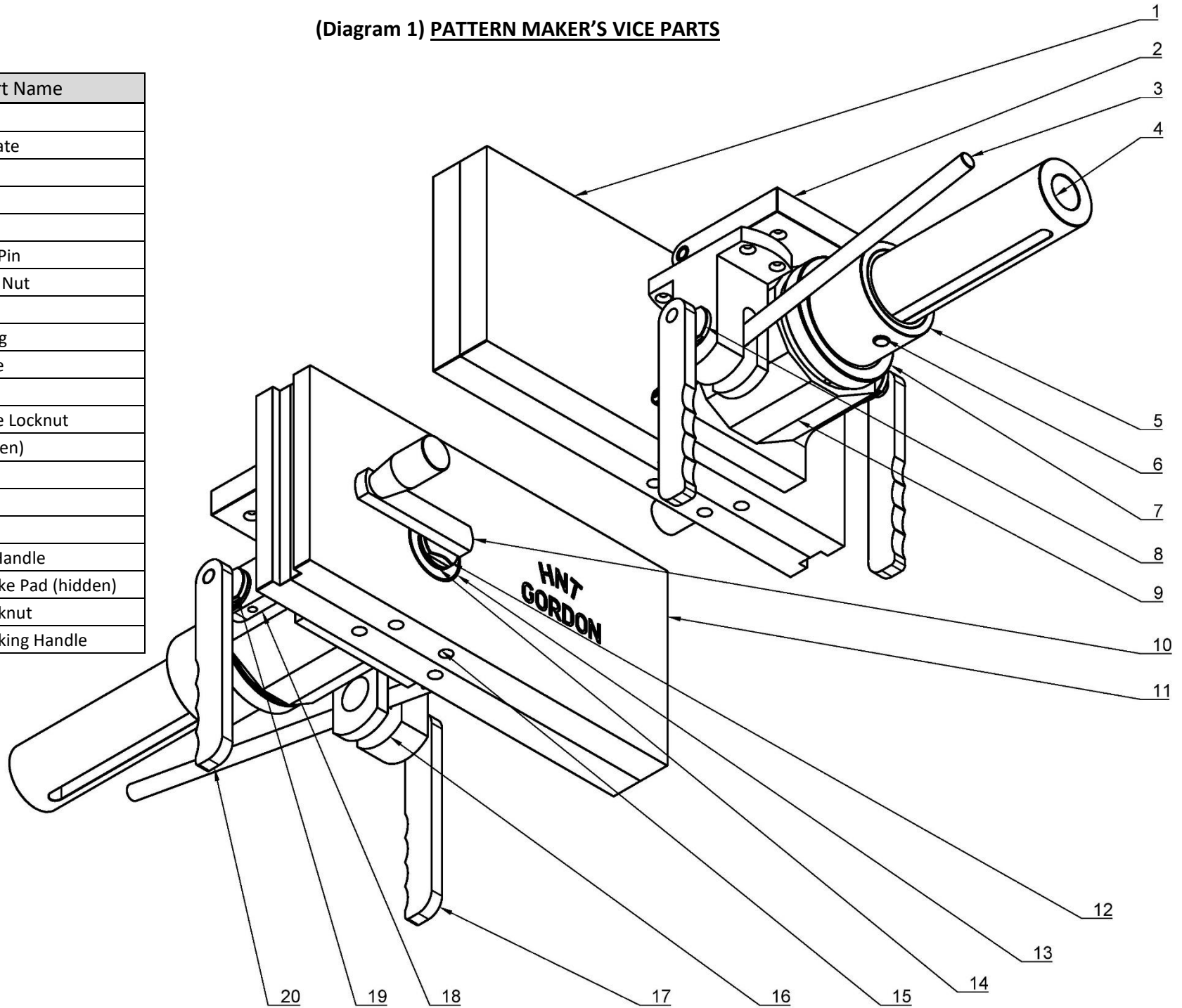
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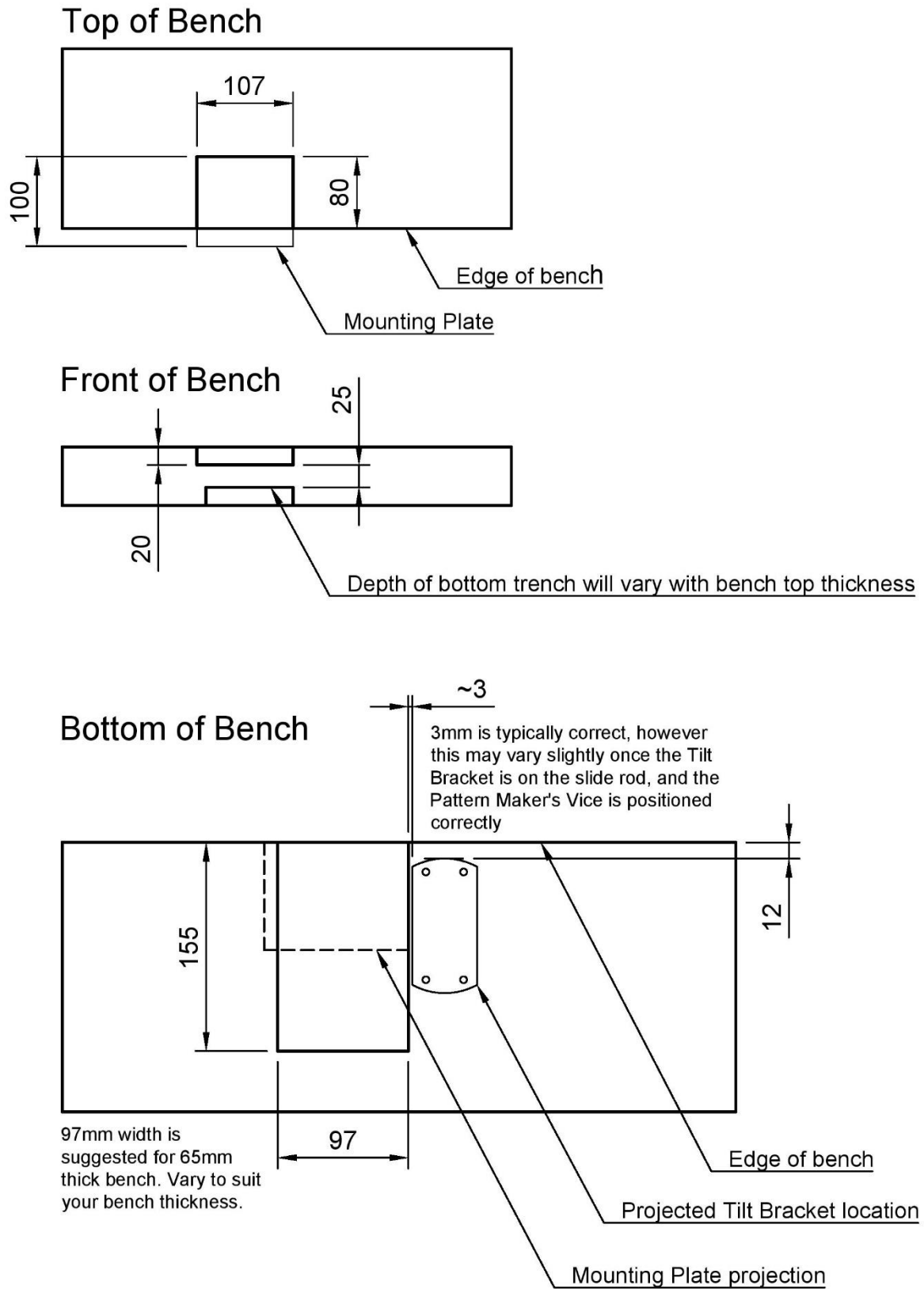
(Diagram 1) PATTERN MAKER'S VICE PARTS

No.	Part Name
1	Back Jaw
2	Mounting Plate
3	Slide Rod
4	Brass Tube
5	75mm Barrel
6	10mm Steel Pin
7	Large Round Nut
8	Tilt Locknut
9	Main Housing
10	Crank Handle
11	Front Jaw
12	Crank Handle Locknut
13	Thread (hidden)
14	Brass Bush
15	Brass Screw
16	Tilt Bracket
17	Tilt Locking Handle
18	Rotation Brake Pad (hidden)
19	Rotation Locknut
20	Rotation Locking Handle



(Diagram 2) TRENCH AND TILT BRACKET POSITIONING

All measurements in millimetres



(Diagram 3) BENCH HEIGHT FROM RAIL

